

# Draft for Discussion

## Flamborough Quarry Haul Route Study Socio-Economic and Business Impact Report



Prepared for  
**St. Marys Cement**

Submitted by  
**Gartner Lee Limited**

**September, 2008**



Gartner Lee

**Draft for Discussion**

**Flamborough Quarry Haul Route  
Study  
Socio-Economic and Business  
Impact Report**

Prepared for  
**St. Marys Cement**

**September, 2008**

Reference: **GLL 80-205**

Distribution:  
**2 St. Marys Cement**  
**2 Gartner Lee Limited**

# Table of Contents

draft for discussion

## Letter of Transmittal

	<b>Page</b>
<b>1. Introduction .....</b>	<b>1</b>
<b>2. Description of the Consultant Team .....</b>	<b>2</b>
<b>3. Description of Alternative Haul Routes .....</b>	<b>3</b>
3.1 Alternative Haul Route 1 .....	3
3.2 Alternative Haul Route 2 .....	5
3.3 Alternative Haul Route 3 .....	7
3.4 Alternative Haul Route 4 .....	9
3.5 Alternative Haul Route 5 .....	11
<b>4. Description of the Environment .....</b>	<b>13</b>
4.1 Socio-economic Profile of Municipalities in the Study Area .....	14
4.1.1 Burlington .....	14
4.1.2 Hamilton .....	14
4.1.3 Milton .....	14
4.1.4 Puslinch .....	15
4.2 Communities along the Alternative Routes .....	15
4.2.1 Flamborough Area .....	15
4.2.2 Village of Morriston .....	15
4.2.3 Village of Campbellville .....	16
4.3 Inventory of Key Features .....	16
4.3.1 Segment 1: Highway 6 (between Highway 403 and Parkside Drive) .....	16
4.3.2 Segment 2: Highway 6, between Parkside Drive and Concession Road 6E .....	17
4.3.3 Segment 3: Highway 6, between Concession 6E and Concession 8E .....	17
4.3.4 Segment 4: Highway 6, between Concession 8E and Concession 10E .....	18
4.3.5 Segment 5: Highway 6, between Concession 10E and Mountsberg Road .....	18
4.3.6 Segment 6: Highway 6, between Mountsberg Road and Leslie Road West .....	18
4.3.7 Segment 7: Highway 6, between Leslie Road West and Highway 401 .....	19
4.3.8 Segment 8: Concession 11, between Highway 6 and Milborough Line .....	19
4.3.9 Segment 9: Milborough Line, between Concession 11 and Campbellville Road .....	19
4.3.10 Segment 10: Centre Road, between Concession 11 and Campbellville Road .....	20
4.3.11 Segment 11: Campbellville Road, between Highway 6 and Centre Road .....	20
4.3.12 Segment 12: Campbellville Road, between Milborough Line and Twiss Road .....	20

---

4.3.13	Segment 13: Twiss Road, between Campbellville Road and Reid Sideroad.....	20
4.3.14	Segment 14: Reid Sideroad, between Twiss Road and Guelph Line.....	20
4.3.15	Segment 15: Guelph Line, between Reid Sideroad and Highway 401.....	21
4.4	Sensitive and Vulnerable Features.....	21
<b>5.</b>	<b>Analysis Criteria and Indicators.....</b>	<b>22</b>
<b>6.</b>	<b>Analysis.....</b>	<b>26</b>
6.1	Data Sources.....	26
6.1.1	Methodology.....	26
6.1.2	Results .....	27
<b>7.</b>	<b>Cross Section Design and Analysis .....</b>	<b>29</b>
<b>8.</b>	<b>Change in the Existing Character of the Road .....</b>	<b>31</b>
<b>9.</b>	<b>Recommendations .....</b>	<b>33</b>
<b>10.</b>	<b>References .....</b>	<b>35</b>

**List of Figures**

Figure 1.	Alternative Haul Route 1 .....	4
Figure 2.	Alternative Haul Route 2 .....	6
Figure 3.	Alternative Haul Route 3 .....	8
Figure 4.	Alternative Haul Route 4. ....	10
Figure 5.	Alternative Haul Route 5 .....	12
Figure 6.	Study Area.....	13
Figure 7.	Type 1 Rural Cross-Section .....	29
Figure 8.	Type 1 Urban Cross-Section .....	30
Figure 9.	Type 3 Rural Cross-Section .....	30
Figure 10.	Type 3 Urban Cross-Section .....	31
Figure 11.	Illustration of the Three Recommended Rural Cross Sections .....	32

**List of Tables**

---

Table 1.	Sensitive and Vulnerable Community Features and Institutions.....	21
Table 2.	Sensitive and Vulnerable Businesses .....	22
Table 3.	Impact on Road Character by Segment and Alternative.....	33

**Appendices**

---

- A. Route Segments
- B. Evaluation Matrix
- C. Social and Business Exposure Counts
- D. Rural Character - Business and Community Feature List

# 1. Introduction

---

St. Marys Cement (Canada) Inc. has proposed to develop a Dolostone Quarry on Part of Lots 1, 2 and 3, Concession 11, Geographic Township of East Flamborough, in the City of Hamilton. The property is located on the north side of 11<sup>th</sup> Concession, just west of Milborough Line.

In April 2006 Dillon Consulting Limited prepared Terms of Reference for the Quarry Haul Route Evaluation on behalf of the City of Hamilton. Components of the Terms of Reference require that Alternative Haul Routes are identified, the existing baseline conditions of each alternative route are described, and a comparative analysis and evaluation is carried out. iTRANS Consulting Inc. identified five Alternative Haul Routes that are described and analyzed in the following report in the context of the social environment.

This report documents the consultant team, describes the environment, defines the analysis criteria and indicators, reports the analysis and results, and offers recommendations and mitigating measures.

## 2. Description of the Consultant Team

---

The Socio-Economic Environment study team consists of Gartner Lee Limited staff. Since its founding in 1973, Gartner Lee Limited has become a global company providing strategic environmental planning services to clients of all types and sizes in both government and industry. Gartner Lee's focus on environmental and strategic planning is backed by a team of over 80 professionals from across the spectrum of environmental and social science disciplines. The individuals involved and their specific roles are provided as follows:

### **Tomasz Wlodarczyk, M.E.S., Senior Consultant: Project Director**

Mr. Tomasz Wlodarczyk is a Senior Consultant and Principal with Gartner Lee Limited. He has over 19 years experience, providing expertise in a number of areas including: strategic planning, environmental and socio-economic impact assessment, public consultation, impact management and agreement negotiation, policy development and research. He has completed projects across Canada, Malaysia and Brunei.

Mr. Wlodarczyk has conducted environmental and socio-economic assessments for a variety of energy developments (e.g., hydroelectric, nuclear and fossil), mines, airports and port facilities, waste management facilities and transportation routes; gas pipelines, highway and access road developments.

### **Edward Terry, B.U.R.PI., Environmental Planner: Project Manager**

Mr. Edward Terry is a Planner with Gartner Lee Limited with over ten years of experience in Land Use and Environmental Planning. Mr. Terry has worked on numerous development planning applications and environmental assessments (EA) for both public and private sector clients. He has also carried out socio-economic and land use impact assessments.

Edward is experienced in provincial planning policy working for the Ministry of Municipal Affairs and Housing and The Regional Municipality of Peel. He has assisted in the development of The Planning and Conservation Land Statute Law Amendment Act (Planning Act & OMB Reform), The Five-year review of The Provincial Policy Statement, review of The Environmental Assessment Act, review of the Clean Water Act, development of Brownfields legislation, created guidance materials on Energy Conservation, Efficiency & Supply and provided training across the province on The Greenbelt Act/Plan.

Through his planning experience in the private sector, he has also assisted conducting Transportation Studies for the BA Transportation Consulting Group, developed the Terms of Reference for the Municipality of Grey Highlands regarding Wind energy generation while working for The Jones Consulting Group, facilitated public/stakeholder meetings and is currently involved in assisting in the development of Natural Environment Official Plan policies for the City of Vaughan.

## **3. Description of Alternative Haul Routes**

---

### **3.1 Alternative Haul Route 1**

In the case of Alternative Haul Route 1, truck traffic destined for Highway 401 east would travel west on Concession 11 E, and then north on Highway 6 to the Highway 401 eastbound on-ramp.

Truck traffic destined for Highway 401 west would travel west on Concession 11 E, and then north on Highway 6 to the Highway 401 westbound on-ramp.

Truck traffic destined for Highway 403 east would travel west on Concession 11 E, and then south on Highway 6 to the Highway 403/QEW eastbound on-ramp.

Finally, truck traffic destined for Highway 403 west would travel west on Concession 11 E, and then south on Highway 6 to the Highway 403/QEW westbound on-ramp.

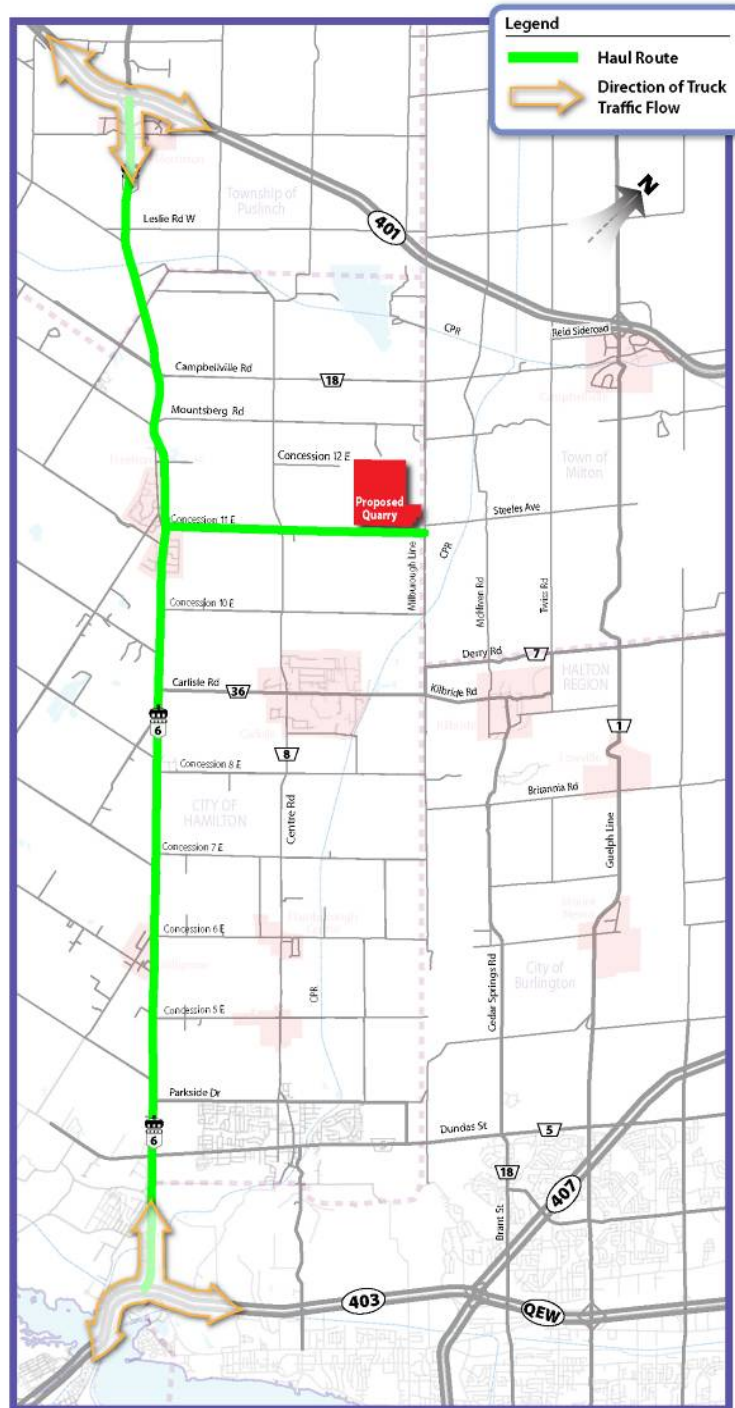


Figure 1. Alternative Haul Route 1

## 3.2 Alternative Haul Route 2

In the case of Alternative Haul Route 2 truck traffic destined for Highway 401 east would travel west on Concession 11 E, then north on Centre Road, west on Campbellville, and north on Highway 6 to the Highway 401 eastbound on-ramp.

Truck traffic destined for Highway 401 west would travel west on Concession 11 E, then north on Centre Road, west on Campbellville, and north on Highway 6 to the Highway 401 westbound on-ramp.

Truck traffic destined for Highway 403 east would travel west on Concession 11 E, then north on Centre Road, west on Campbellville, and south on Highway 6 to the Highway 403/QEW eastbound on-ramp.

Finally, truck traffic destined for Highway 403 west would travel west on Concession 11 E, north on Centre Road, west on Campbellville, and south on Highway 6 to the Highway 403 /QEW westbound on-ramp.

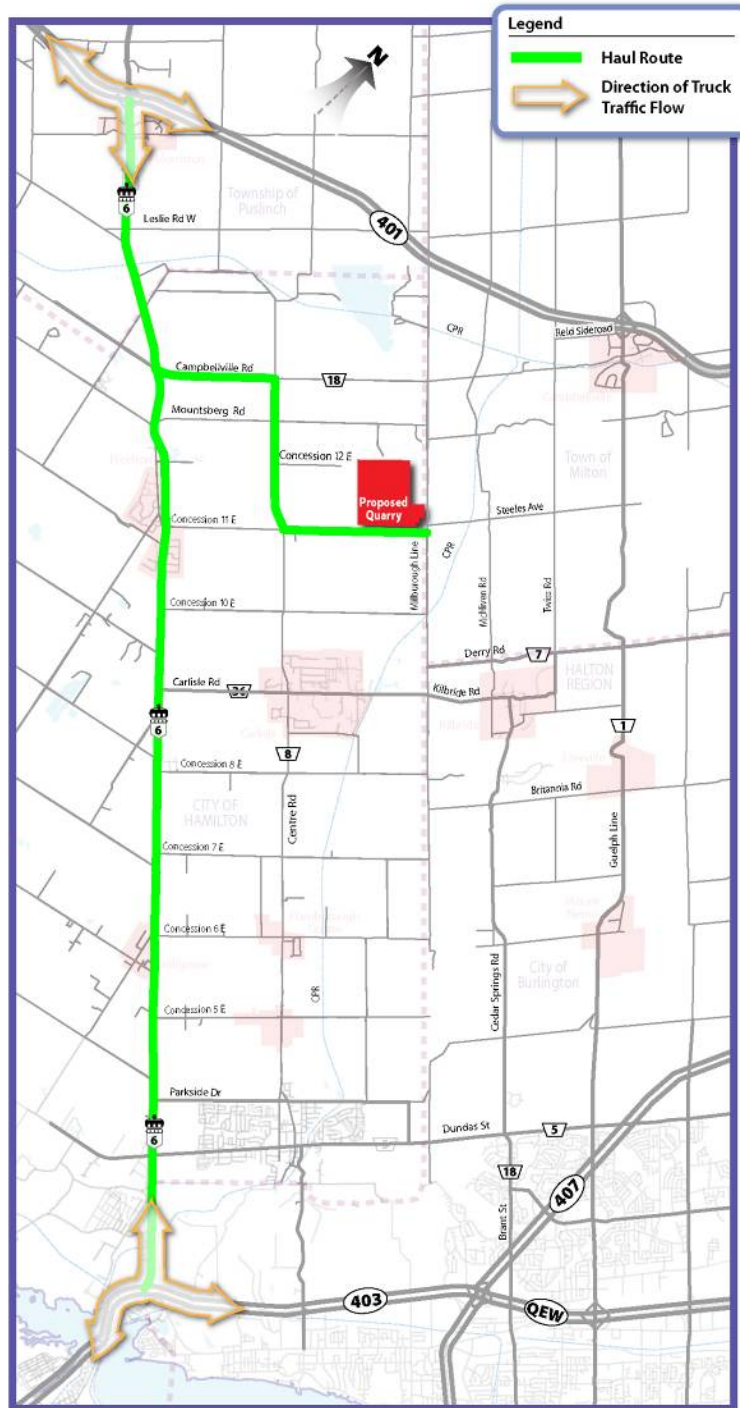


Figure 2. Alternative Haul Route 2

### 3.3 Alternative Haul Route 3

In the case of Alternative Haul Route 3, truck traffic destined for Highway 401 east would travel north on Milborough Line, then east on Campbellville Road, north on Twiss Road, and east on Reid Sideroad to the Highway 401 eastbound on-ramp.

Truck traffic destined for Highway 401 west would travel north on Milborough Line, then east on Campbellville Road, north on Twiss Road, east on Reid Sideroad and north on Guelph Line to the Highway 401 westbound on-ramp

Truck traffic destined for Highway 403/QEW east would travel north on Milborough Line, then east on Campbellville Road, north on Twiss Road, and east on Reid Sideroad to the Highway 401 eastbound on-ramp. From here, there are several alternatives to reach the destination including taking the 407 ETR south to Highway 403.

Finally, truck traffic destined for Highway 403 west would travel north on Milborough Line, east on Campbellville Road, north on Twiss Road, and east on Reid Sideroad to the Highway 401. From here, there are several alternatives to reach the destination including taking the 407 ETR southwest or Highway 6 south to the 403/QEW.

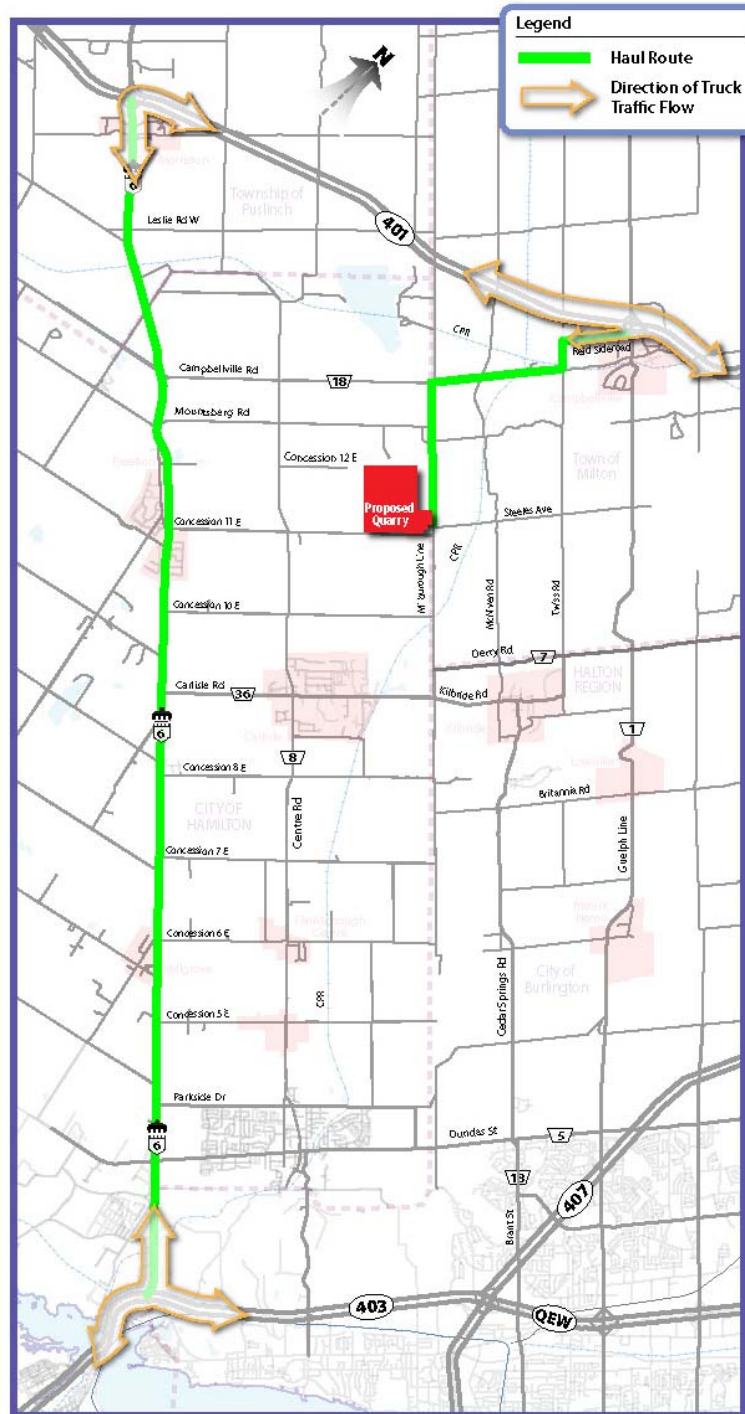


Figure 3. Alternative Haul Route 3

### **3.4 Alternative Haul Route 4**

In the case of Alternative Haul Route 4, truck traffic destined for Highway 401 east would travel north on Milborough Line, then east on Campbellville Road, north on Twiss Road, and east on Reid Sideroad to the Highway 401 eastbound on-ramp.

Truck traffic destined for Highway 401 west would travel west on Concession 11 E, and then north on Highway 6 to the Highway 401 westbound on-ramp.

Truck traffic destined for Highway 403 east would travel west on Concession 11 E, and then south on Highway 6 to the Highway 403 eastbound on-ramp.

Finally, truck traffic destined for Highway 403 west would travel west on Concession 11 E, and then south on Highway 6 to the Highway 403 westbound on-ramp.

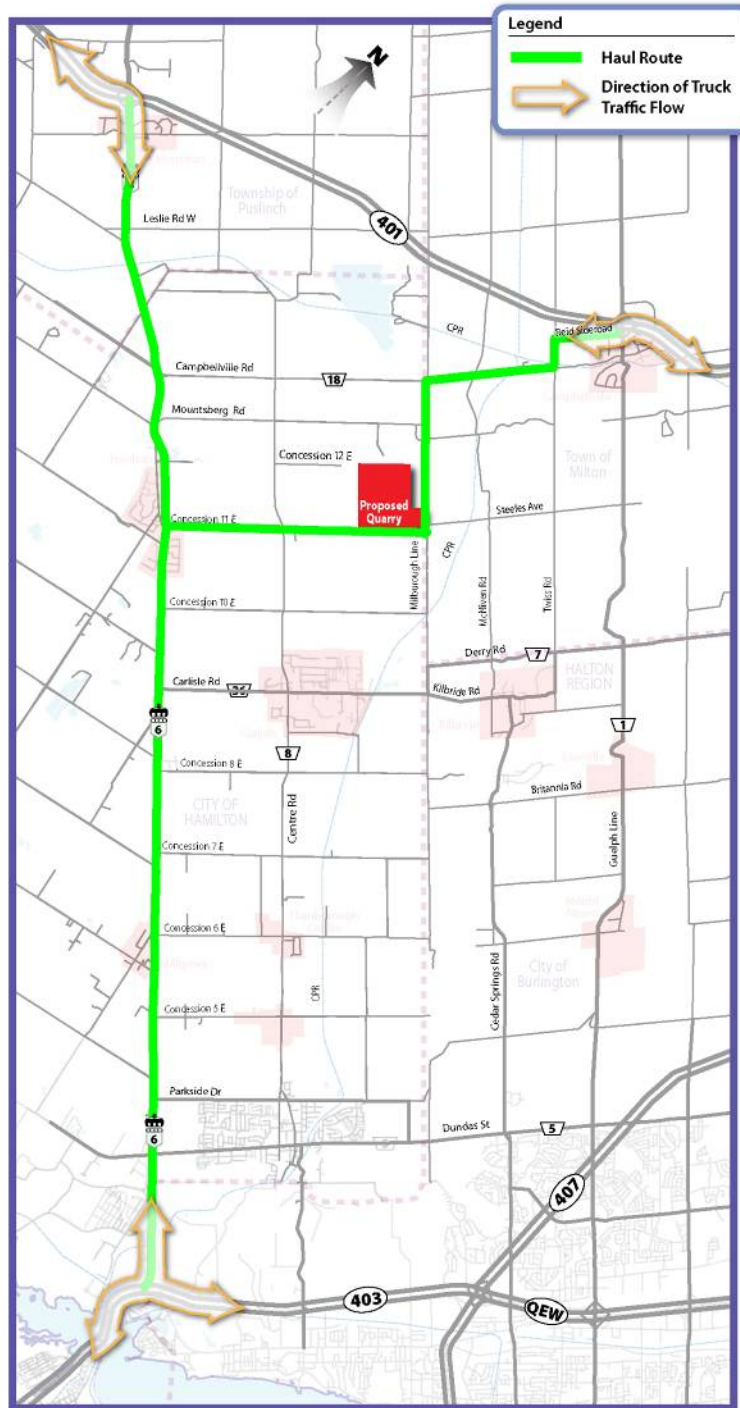


Figure 4. Alternative Haul Route 4.

### **3.5 Alternative Haul Route 5**

In the case of Alternative Haul Route 5, truck traffic destined for Highway 401 east would travel north on Milborough Line, then east on Campbellville Road, north on Twiss Road, and east on Reid Sideroad to the Highway 401 eastbound on-ramp.

Truck traffic destined for Highway 401 west would travel west on Concession 11 E, then north on Centre Road, then west on Campbellville, and then north on Highway 6 to the Highway 401 westbound on-ramp.

Truck traffic destined for Highway 403 east would travel west on Concession 11 E, then north on Centre Road, west on Campbellville, and south on Highway 6 to the Highway 403/QEW eastbound on-ramp.

Finally, truck traffic destined for Highway 403 west would travel west on Concession 11 E, then north on Centre Road, west on Campbellville, and south on Highway 6 to the Highway 403 /QEW westbound on-ramp.

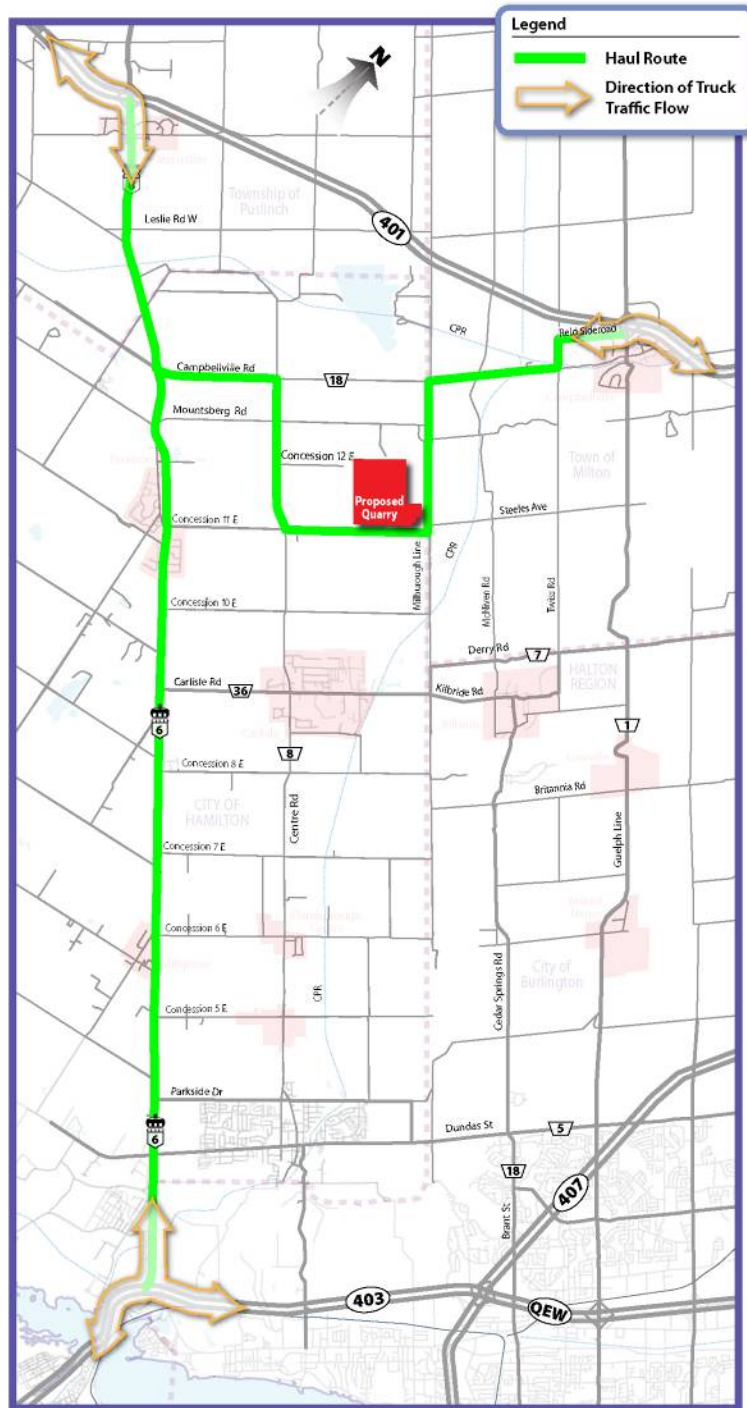


Figure 5. Alternative Haul Route 5

## 4. Description of the Environment

The Study Area is bounded by Highway 401 to the North, Guelph Line to the East, Highway 6 to the West and the 403 to the South. As a result, the Study Area includes lands within the City of Hamilton (formerly the Town of Flamborough), the City of Burlington, the Township of Puslinch, the Town of Milton (Village of Campbellville) and Halton Region.

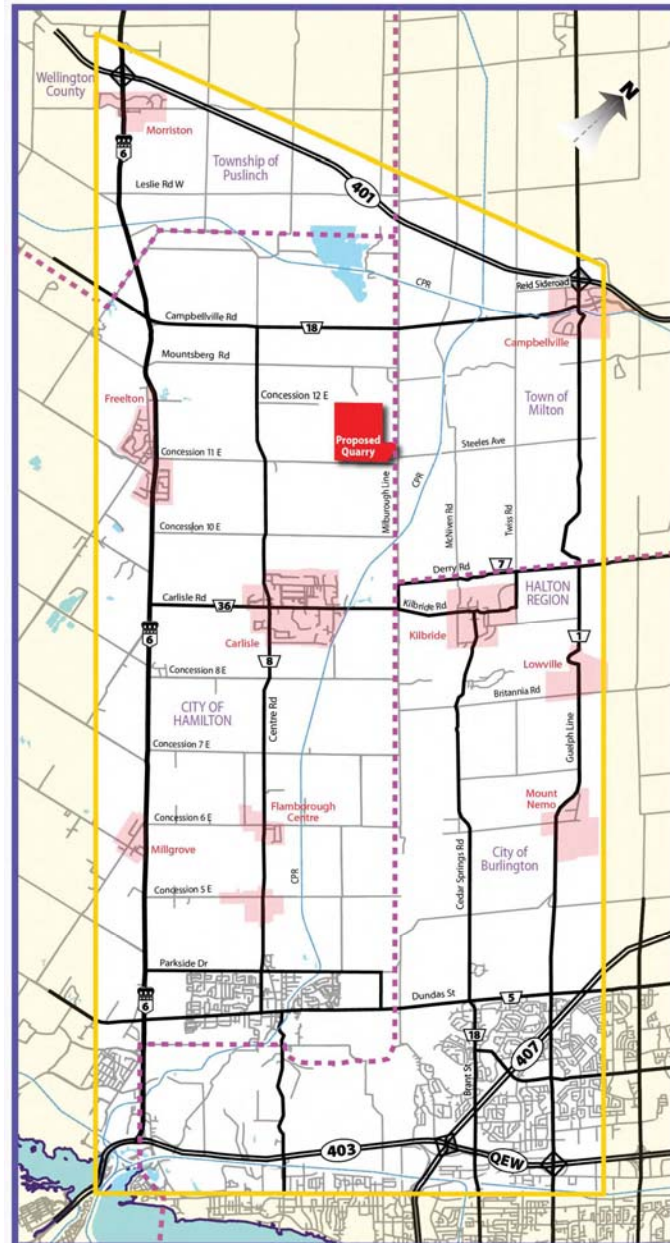


Figure 6. Study Area

## 4.1 Socio-economic Profile of Municipalities in the Study Area

Statistical information is provided at a municipal level, in order to give a general overview of socio-economic and demographic characteristics of the study area.

### 4.1.1 Burlington

Burlington's population in 2006 was 164,415, with a median age of 40.3. The municipality has an average of 2.5 persons per household (Statscan, 2008). The primary employment sectors of the city are financial services, software development, automated manufacturing, and metal finishing (Burlington COC, 2008). The city enjoys a high average annual household income of \$93,773. Over half (54%) of all occupied dwellings are single detached homes, and approximately 15% of dwellings are apartments with 5 or more stories. The city had a labour participation rate of 69.8 % in 2006. The top occupations are sales and service occupations; business, finance and administration occupations; and management occupations (Statscan, 2008).

### 4.1.2 Hamilton

Hamilton had a population of 504,559 in 2006, with a median population age of 39.6. The municipality has an average of 2.7 persons per household. Single-family homes make up 57.8% of occupied dwellings, and 16.8% of dwellings are apartments 5 stories or higher (Statscan, 2008). Hamilton has a higher proportion of its population age 15 years and older who are without income or in the lower income categories (than the provincial average). As well, there is a lower proportion of the population age 15 years and older that have an annual household income over \$60,000 in the City of Hamilton than in Ontario (City of Hamilton, 2005). In Hamilton, there is a labour force participation rate of 64.7%, and popular occupations include business, finance and administration occupations; sales and service occupations; and trades, transport and equipment operators and related occupations (Statscan, 2008).

### 4.1.3 Milton

Milton is the fastest growing municipality in the Greater Toronto Area; the 2006 population of 53,939 is a 71.4% increase over the 2001 population (Statscan, 2008). The municipality has an average of 2.9 persons per household. The median age of the population is 40.3. The majority of dwellings are single detached homes (64.9%) with another 25% of dwelling as row or semi-detached homes. There is an average labour force participation rate of 78.3%, and the top employment occupations are business, finance and administration occupations; sales and service occupations, management occupations, and trades, transport and equipment operators and related occupations (Statscan, 2008). The average household income in 2000 of all private households was \$86,426; and a median household income of \$74,279 was enjoyed in 2000. The average

house price in 2004 was \$300,000 (Town of Milton EDO, 2005), although keeping with current GTA pricing trends that number has most likely increased in the past 4 years.

#### **4.1.4 Puslinch**

The Township of Puslinch is located directly south of the City of Guelph and east of the City of Cambridge, in the northwest section of the study area north of Flamborough. Puslinch enjoys a slightly higher income than comparable Ontario predominantly rural municipalities (Township of Puslinch, 2008). The municipality has an average of 2.8 persons per household. The population is 6,689 in a township of 21,690 ha. The median age of the population is 44.2 years. A labour force participation rate of 73.5 is enjoyed by the town, and major occupations include sales and services; trades, transport and equipment operators and related occupations; and business, finance and administration occupations (Statscan, 2008).

## **4.2 Communities along the Alternative Routes**

### **4.2.1 Flamborough Area**

The Flamborough area of the new City of Hamilton is a predominantly rural community with growing commercial and suburban/ex-urban residential development. Flamborough comprises 495 km<sup>2</sup> or over 5,077 ha, and is bordered by major transportation corridors such as provincial Highways 401 and 403, and Highway 6 (Flamborough Chamber of Commerce, 2004).

Located at Highway's 5 and 6, Flamborough Business Park consists of 500 acres of vacant or recently developed serviced land. Existing businesses consist of linear highway commercial development, rural shops and services, light industrial and commercial business clusters. Flamborough is currently the fastest growing community within the new City of Hamilton (Hamilton Economic Development, 2007).

Flamborough is composed of many villages and hamlets, several of which are located in the study area, such as: Waterdown, Dundas, Millgrove, Carlisle, and Freelon. Farms and agricultural services exist alongside tourist commercial such as antique stores, art and crafts shops; which are fed by major tourist attractions such as the African Lion Safari, Flamboro Downs Race-track, Flamboro Speedway, the Royal Botanical Gardens, two conservation areas, and numerous golf courses, parks, farmers' markets, the Bruce Trail and other amenities.

### **4.2.2 Village of Morriston**

The picturesque town centre of Morriston is intersected by Highway 6 near Highway 401. Estate residential subdivisions flank either side of highway to the north of the town centre, and amenities such as parks and playgrounds, restaurants, places of worship, local and tourist shops and

services, a fire hall and other employment opportunities are located within the Village. There are approximately 150 households in the Village (Wellington County).

### 4.2.3 Village of Campbellville

The main community in the study area within Milton is Campbellville, located in the geographic township of Nassagaweya. The portion of the haul route study area falls under Greenbelt and Niagara Escarpment policies, and contains numerous conservation areas. Due to its location in the escarpment, Campbellville is a tourist destination and the commercial uses within the town centre reflect this use. Mohawk Raceway, Crawford Lake Indian Village, Mountsberg Conservation Area, several antique stores, a pizzeria and an ice cream parlour are features of this village of approximately 1,000 people.

## 4.3 Inventory of Key Features

A Field Study was carried out on Thursday March 6, 2008 to confirm the existing social and business conditions within the study area. For the purpose of reporting, the project team divided the alternative haul routes into 15 individual route segments. For most road segments considered in the Alternative Haul Routes the quarry will increase the relative truck traffic rather than be the sole source of truck traffic, particularly along Highway 6. For mapping of each of the route segments see **Appendix A**.

### 4.3.1 Segment 1: Highway 6 (between Highway 403 and Parkside Drive)

This segment of Highway 6 consists mainly of linear highway and rural commercial development (driving range, auto shops) with a several rural homes with driveways along the highway. This area is zoned as the Flamborough Business Park and contains mainly vacant lands but also includes commercial, industrial/business, non-developable and some residential designations. Evidence of transition from a rural, residential area to an increasingly commercial/industrial area was evident through vacant/boarded up residences and land for lease signs.

Subdivision development occurred off both sides of Highway 6. The community of Northcliffe is located on the west side of Highway 6 along Highway 5 (Dundas Street); and consists of an older, established subdivision with no signs of new development. South of Northcliffe was a private entrance to the Sisters of the Precious Blood and Sister's of St. Joseph monasteries.

On the east side of Highway 6 stands an established subdivision with residential uses bordering some industrial uses near the Highway 6, but accessed from side roads. This residential community had signs of new residential development (6 new homes under construction) and can be considered a sensitive use.

Several infrastructure crossings are present in the areas including an existing below-grade railway crossing, new highway overpass construction, and evidence of improvements/expansions of Highway 403.

Businesses along this segment of Highway 6 include highway commercial uses: gas stations, auto sale shops; and rural commercial uses such as driving ranges, trailer storage and a fairway. Some leased or for sale lands must be monitored or checked for future proposed uses, although they will most likely be commercial uses.

#### **4.3.2 Segment 2: Highway 6, between Parkside Drive and Concession Road 6E**

This route segment contained substantially more residences with driveways along Highway 6 than segment 1. This route contained the highest number of rural and farm residences with driveways along the route compared to all other segments. There is little evidence of neighbourhood transition; the community remains primarily rural/ex-urban residences and remaining farms, such as a mushroom farm and greenhouses. No livestock farms were evident during a field reconnaissance visit. The Millgrove community is located on west side of the Highway 6 near Concession 6E.

Highway/rural commercial uses such as greenhouses, patio-furniture sales, auto service shops, storage centres are present along this route segment. Other commercial and industrial businesses, such as the Knights Inn motel, Clappinson Vet services, offices of the Sun Canadian Pipeline Company, and Taylor Coach (Bus line) were identified along this route segment.

#### **4.3.3 Segment 3: Highway 6, between Concession 6E and Concession 8E**

This segment also contains a high proportion of highway commercial and cluster residential development consisting of homes similar in character to segment 2. Harper's Corner subdivision is present in this segment at Highway 6 and Concession 8E, with approximately 22 homes that back onto the road. This development appears to be more recent, having homes that are newer and larger in appearance as compared to the more typical roadside residences. Some homes are up for sale and there was no new construction observed. The Millgrove community is located on west side of the Highway 6 near Concession 6E.

There are more abundant commercial land uses along this segment than previous segments, including gas stations, roadside restaurants and auto repair shops. Some businesses are located in business parks or plazas with their main access onto Highway 6. Some of the restaurants in this route segment are located directly adjacent to Highway 6. There is a vacant restaurant and a pottery sales/craft import store, an ice-cream stand and some business offices also located along this segment.

#### **4.3.4 Segment 4: Highway 6, between Concession 8E and Concession 10E**

While there are fewer total rural and farm residences along this route segment than the others, there are a greater number of farms and residences that have direct access onto Highway 6 (23 rural and 10 farm residences) than previous segments. There are residential clusters off Safari Road and Edgewood Road to the west, and the Harper's Corner community to the east, along segment 4.

Businesses along this route segment such as horse stables; farms, farm/markets and restaurants were considered sensitive to the nuisance effects associated with trucking. Other businesses including a regional tractor sales company, a workwear shop, gas stations, and an RV/storage park, are also located in the study area. The United Church of God is present along the route segment.

#### **4.3.5 Segment 5: Highway 6, between Concession 10E and Mountsberg Road**

This segment of the route divides or bisects the Freelton community, with the majority of the community set back to the west of Highway 6. In particular, there is a senior citizen's residence located within Freelton and was considered to be a sensitive use. However, segments along highway 6 are already impacted by the major arterial and impacts would be more of an analysis of the cumulative effect on adjacent uses. Fewer farms are evident along the highway within this segment. While 11 rural residences have driveways located on Highway 6, the majority of homes and businesses in Freelton are not accessed directly off the highway; however, a number of land uses including a baseball park, feeds store, antique market and approximately 20 residences back directly onto the highway.

On the east side of the route, there is a newer subdivision named "Wildan Estates" with approximately 11 homes backing onto Highway 6. In addition, there is a small residential cluster near Mountsberg Road (part of the Mountsberg community) that is not located directly along the route but is in close proximity. Other features with driveways along the route include a trailer park, kennel, a cemetery and 2 rural residences. The Four Seasons Nudist Resort is also accessible from this portion of Highway 6.

#### **4.3.6 Segment 6: Highway 6, between Mountsberg Road and Leslie Road West**

This segment of Highway 6 contained predominantly linear and cluster residential development, with fewer highway commercial/rural uses than previous sections. Approximately 37 rural residences and 10 farm residences have driveways that provide access to Highway 6. Four residences did not have driveways accessing but backed onto Highway 6. Several businesses have driveways on Highway 6 and a church is also present along this segment.

#### **4.3.7 Segment 7: Highway 6, between Leslie Road West and Highway 401**

This segment of the route along Highway 6 acts as the main street in the town centre of Morriston, a small community that is experiencing new residential growth through new estate home subdivisions to the north near Highway 401. This community was considered sensitive to the effects of trucking along the haul route due to variety and proximity of residential, business, and institutional land uses, including several churches, and recreational land uses such as parks and playgrounds located along or near Highway 6.

There are approximately 18 residences in the town centre with driveways onto Highway 6 with residential development flanking either side of the central core. Three rural residences, 2 horse ranches and 3 other farm residences have driveways along the route outside of the town centre.

The North American Construction Company (NAC) has offices and a large yard in the north part of Morriston. Numerous businesses such as restaurants, services and a peanut specialty store line the streets. Two vacant homes are present in the town centre, which fall under Puslinch's central business district zoning designation. The 'Historic Corner Block' parkette has a monument located relatively close to the road. There is another park behind the NAC head office with a children's playground. The new housing developments in the north part of the segment consist of large, estate homes. These developments are, however, set back from the route.

#### **4.3.8 Segment 8: Concession 11, between Highway 6 and Milborough Line**

This route segment is characterized by its rural homes, with approximately 54 residences and 4 farms with driveways along concession 11. Residential homes and residences with horse stables are also prevalent. Horse-related businesses such as training stables and ranches are present alongside other farms, including a livestock farm. These farms, particularly the livestock/horse farms, and Lawson Park located on the south side of the route are considered sensitive uses. Two other businesses exist but their setback is largely away from the street, including Benson's Chemical Plant.

#### **4.3.9 Segment 9: Milborough Line, between Concession 11 and Campbellville Road**

This segment includes the primary access to the proposed quarry. This access is located in a primarily rural residential area containing estate homes and horse stables. There are approximately 18 rural residence and two farm residences along the route; and 1 rural residence that does not have a driveway onto the route. Businesses include a kennel and horse stables/ranches, which do not advertise sales at the roadside.

#### **4.3.10 Segment 10: Centre Road, between Concession 11 and Campbellville Road**

This route segment falls within the community of Mountsberg, with a cluster of community features such as a community centre (a historic schoolhouse), memorial park, residential cluster and linear development, and rural/agricultural residences. A tree nursery along this segment, the community centre/historic schoolhouse and park were considered sensitive uses. There are approximately 43 rural residences and one farm with driveways along the route, and 1 residence backing onto the route.

#### **4.3.11 Segment 11: Campbellville Road, between Highway 6 and Centre Road**

This segment is characterized by large individual residences and horse farms, along with the new subdivision development of Chesswood located within the segment. There are a number of sensitive land uses and features such as residences, a horse-training centre and racetrack, and a church. The new nearby Chestnut Grove development is set back from the route. A solar and wind power farm business is also present.

#### **4.3.12 Segment 12: Campbellville Road, between Milborough Line and Twiss Road**

This segment is dominated by residential and rural uses such as horse stables and related business. These horse farms were considered to be sensitive land uses. The Mountsberg Wildlife Centre is also located to the northwest of the route segment. Natural features such as two woodlots flank the route to the west of the railway crossing.

#### **4.3.13 Segment 13: Twiss Road, between Campbellville Road and Reid Sideroad**

This small segment of haul route contains a lumberyard with a cluster of lumber-related businesses. A large “storage solutions” storage business also has a driveway from Twiss Road. A rail crossing at grade may require improvements, however, residential/farm uses were limited with 2 rural residences and 1 farm residence with driveways onto the route.

#### **4.3.14 Segment 14: Reid Sideroad, between Twiss Road and Guelph Line**

This segment contains few residences with driveways directly onto the route; however, one commercial business, two farms, recreation land uses and the Campbellville Emergency Response Centre (Fire Station #2) are located here and the Village of Campbellville is also located directly behind the land uses fronting on the route. Two new estate residential subdivisions, Crawford Crescent and Carson Reid, are planned for the route segment, and 2 rural and 1 farm- residence have driveways along the haul route (two other farms do not have driveways on the route).

### 4.3.15 Segment 15: Guelph Line, between Reid Sideroad and Highway 401

Segment 15, while small, is one of the main entrances or gateways to the village of Campbellville. Campbellville is local and regional tourist destination. Historic residences, many converted to shops; and a church is located to the south of this route segment along Campbellville Road and Guelph Line (Main Street). Guelph Line north of Reid Sideroad, however, does not contain any socio-economic features other than the Highway 401 on-ramps and a signalized intersection.

## 4.4 Sensitive and Vulnerable Features

The following criteria were used to identify sensitive and vulnerable community features and institutions:

- a) feature serves children/youth (e.g., School or Daycare);
- b) feature serves senior citizens or ill (e.g., Home for the Aged, hospitals, medical centre);
- c) feature has an outdoor component (e.g., Playground, patio); or
- d) other feature considered to be sensitive to nuisances such as noise, dust odour, traffic (e.g., Church).

**Table 1** lists all of the sensitive and vulnerable community features and institutions identified along the alternative haul routes and provides a rationale for this designation.

**Table 1. Sensitive and Vulnerable Community Features and Institutions**

Features	Criteria 1: Feature serves children/youth	Criteria 2: Feature serves senior citizens or invalids	Criteria 3: Feature has an outdoor component	Criteria 4: Feature sensitive to nuisances	Alternative Routes that include feature
Church- in Morriston Town Centre on Highway 6		X		X	1-5
Lawson Park			X	X	1,2,4,5
Mountsberg Community Centre (Historic schoolhouse)	X	X			2,5
Mountsberg Memorial Park	X		X	X	2,5
Mountsberg Baptist Church + Cemetery		X		X	2,5
Lacking Tract			X		3,4,5
Thomas William Harrison Tract			X		3,4,5
Campbellville Ball Park	X		X		3,4,5
St David's Presbyterian Church + Cemetery (Campbellville)	X	X	X	X	3,4,5

The following criteria were used to identify sensitive and vulnerable businesses:

- a) business has an outdoor component (e.g., Agricultural operation with livestock);
- b) business sensitive to nuisances such as dust, noise, odour, traffic (e.g., Knight’s Motel); or
- c) business is tourism related (e.g., Antique store).

Similar to the previous section, **Table 2** illustrates all of the sensitive and vulnerable businesses along the alternative haul routes and provides a rationale for this designation.

**Table 2. Sensitive and Vulnerable Businesses**

Business	Criteria 1: Feature has an outdoor component	Criteria 2: Feature sensitive to nuisances	Criteria 3: Feature is tourism related	Alternative Routes that include feature
Golf Land	X		X	1-5
Wedgewood Golf Centre- Driving Range	X		X	1-5
Tourism Hamilton			X	1-5
Clappenson Vet Services		X		1-5
Taylor Coach (Bus line)		X		1-5
Landscaping company	X			1-5
Antiques store			X	1-5
Live Bait for sale-House	X		X	1-5
Knights Inn (Motel)		X	X	1-5
Horse Farms	X			1-5
Bruce Trail Eatery			X	3,4,5
San Antonio Bistro			X	3,4,5
Campbellville Animal Hospital		X		3,4,5
New Ice House Restaurant			X	3,4,5

## 5. Analysis Criteria and Indicators

All of the criteria used in this haul route study from social and economic perspectives were based on comments received from members of the Flamborough community to ensure that community concerns were the driving force of the analysis. As well as experience on past projects, professional expertise and those suggested in the Terms of Reference.

These criteria were applied to the alternative haul routes to determine which route would have the least impact to the community from a socio-economic perspective and to help determine whether adverse effects should be mitigated. For the complete Socio-Economic Evaluation Matrix see **Appendix B**.

## **Social Environment and Community Impacts**

**Criteria:** *Potential for disruption to residents' use and enjoyment of property.*

Residents rely on their homes and property for a variety of indoor and outdoor social activities. The use of the haul route may create nuisances (i.e., noise, dust, odour or traffic), which may be considered by local residents as a hindrance to their use and enjoyment of property. This criterion is important to the study to ensure that the haul route causes minimal disruption and does not hinder members of the community from enjoying their property.

### **Indicators:**

- Number of residences fronting and/or backing directly onto a potential truck route.
- Ingress and egress interference at residential driveways.
- Number of defined neighbourhoods along a potential truck route.
- Ingress and egress interference at roadways used to access neighbourhoods along a potential truck route.

*Defined Neighbourhood* - identifiable subdivisions or clusters of homes within the Study Area.

**Criteria:** *Potential for effects on community character*

The distinctive and unique qualities of a community determine its character. The use of the haul route may influence the attractiveness of the community as a place to live, work or conduct business. This criterion is important to the study to ensure that the new haul route does not alter these unique qualities. For a list of features that were considered as a contribution to the rural character of the community view **Appendix D**.

### **Indicators:**

- Qualitative assessment of likely changes to the unique or distinctive qualities of the communities potentially affected (i.e., physical, economic and/or socio-cultural features of the communities).

*Communities* – historic settlement areas within the Study Area i.e. Freerton or Milgrove.

**Criteria:** *Potential for effects on community cohesion*

Community cohesion refers to people's sense of belonging to a self-defined community. This criterion is important to the study to ensure that the preferred route avoids alternatives that would bisect defined neighbourhoods, thus creating a real or perceived barrier to their movement and interaction. It also addresses the potential for the displacement or out-migration of residents, which would directly affect one of a community's most important social asset that influences its cohesiveness – its people.

**Indicators:**

- Qualitative assessment of likely changes to community cohesion due to disruption and/or displacement effects, potential for voluntary out-migration and creation of a barrier effects due to increase in truck traffic.

**Criteria:** *Potential for disruption to users of operations at recreational and community features and/or institutions.*

People living in, working in or visiting the study area and areas rely on the availability and quality of recreational and other community facilities to conduct their activities and participate in community life. This criterion is important to the study to avoid alternative routes that would impede the use of public spaces and recreational activities.

**Indicators:**

- Number of recreational or community features and/or institutions located along a potential truck route.
- Number of sensitive / vulnerable recreational or community features and/or institutions.
- Ingress and egress interference at entrances to recreational or community features and/or institutions.

**Criteria:** *Potential for displacement/removal of residents & residential property from road improvements.*

This criterion is important to the study to ensure that the preferred route favours alternatives that would minimize property impacts from potential road alterations.

**Indicators:**

- Number and area of residences/residential property required (partial removals).
- Number and area of residences/residential properties required (full displacement)
- Number of vulnerable residents/households displaced

**Criteria:** *Potential for displacement/removal of recreational or community features and/or institutions.*

This criterion is important to the study to ensure that preferred route favours alternatives that would minimize property impacts from potential road alterations on recreational or community features.

**Indicators:**

- Number and area of recreational or community features (including trails, bicycle routes, parks and open space) and/or institutional properties required (partial removals).

- Number and area of recreational or community features (including trails, bicycle routes, parks and open space) and/or institutional properties required (full displacement).
- Number of sensitive / vulnerable recreational or community features and institutions displaced.

### **Economic Environment and Business Impacts**

**Criteria:** *Potential for disruption to business enterprises.*

The local economic base, including tourism-related businesses may be vulnerable to changes in community image and nuisances associated with the use of the haul route. This criterion is important to the study to ensure that the haul route causes minimal interruption to the productivity of businesses with the community.

**Indicators:**

- Number of business enterprises fronting and/or backing along a potential truck route.
- Number of sensitive / vulnerable business enterprises fronting and/or backing along a potential truck route.
- Ingress and egress interference at entrances to business enterprises.

**Criteria:** *Potential for removal of business enterprises and/ or property.*

This criterion is important to the study to ensure that preferred route favours alternatives that would minimize property impacts from potential road alterations on local businesses.

**Indicators:**

- Number and area of business enterprise and/or other commercial or industrial property required (partial removals).
- Number and area of business enterprise and/or other commercial/industrial property required (full displacement).
- Number of sensitive / vulnerable business enterprises displaced.

**Criteria:** *Potential magnitude of effects on property values.*

The value of property will directly affect existing and prospective property owners, the economic base and stability of the community. This criterion is important to the study to ensure that preferred route has negligible effects to the property values.

**Indicators:**

- Qualitative assessment of the potential magnitude of effects on property values due to changes in traffic, traffic noise and roadway visibility at residential properties.

## 6. Analysis

---

### 6.1 Data Sources

The socio-economic data from the Flamborough Quarry Haul Study were derived from secondary sources and were confirmed through a field survey conducted on Thursday March 6<sup>th</sup>, 2008. Secondary data sources include:

- a) Statistics Canada information regarding local economies in the Study Area;
- b) Town of Milton Official Plan and mapping;
- c) Puslinch Official Plan and mapping;
- d) Hamilton Rural Official Plan and mapping;
- e) 2005 orthoimagery of the Study Area;
- f) Town of Milton economic profile;
- g) Flamborough Community profile;
- h) Haul route Terms of Reference (TOR);
- i) St. Marys Cement Group website: posted haul route study materials; and
- j) Friends of Rural Communities and the Environment (FORCE): Web material concerning haul route study and their comments on the project.

#### 6.1.1 Methodology

When possible, the effects of each indicator were described from a quantifiable approach. The project team developed a qualitative ranking system that was applied to all of the criteria that was not described quantifiable:

**Low:** Some effect on a minimal amount of community features as compared to other routes; or lower magnitude of potential effects on some features than other routes

**Medium:** potential effects to some features on route- more features affected than the low option; or higher magnitude of potential effects on some features than low option.

**Medium-High:** a number of features present along the route are potentially affected (a high number of sensitive features along the route); also may denote a high sensitivity of certain features when compared to the low or medium options. However, fewer features are affected or less magnitude of effect than high option.

**High:** highest number of potentially affected/sensitive features along the route of all alternatives, or greatest magnitude of effects to certain sensitive features.

### Features that Support the Rural Character

The project team went through the master list of businesses and community features assembled from the field visits and on a segment by segment basis identified features that are unique to a rural community. For example, an antique furniture store would be unique to the rural character of Flamborough as oppose to a Wendy's fast food restaurant, which can be found anywhere.

### 6.1.2 Results

The full results of the alternative haul route study analysis are documented in **Table 3**. To see further details regarding Social and Business Exposure counts see **Appendix C**. Some of the highlights from each criterion include:

#### Potential for Disruption to Residents' Use and Enjoyment of Property

Alternative Haul Route 3 has the lowest Truck Exposure Index for all four indicators in this category. Alternative Haul Route 1 has the lowest number of residences fronting and/or backing directly onto a potential truck route. Alternative Haul Route 3 has the least amount of ingress and egress interference at residential driveways. Alternative Haul Routes 1 and 2 have the lowest number of defined neighbourhoods along a potential truck route. Alternative Haul Routes 1 and 2 have the least amount of ingress and egress interference at roadways used to access neighbourhoods along a potential truck route. Alternative Haul Route 5 has the highest number of residences fronting and/or backing directly onto a potential truck route, the highest regarding ingress and egress interference at residential driveways, is one the highest regarding number of defined neighbourhoods along a potential truck route and is the highest regarding ingress and egress interference at roadways used to access neighbourhoods.

#### Potential for effects on community character

Alternative Haul Routes 1 was given a low qualitative rating regards to effects on community character based on proximity to defined communities, number of businesses or institutions that support local character located along the route and number of defined neighbourhoods along the route. Alternative Haul Routes 2 and 3 were given a medium rating while Alternative Haul Routes 4 and 5 were considered to have high potential to effect community character.

#### Potential for Effects on Community Cohesion

Alternative Haul Route 3 was given a low qualitative rating regards to effects on community cohesion based on the number of defined communities, neighbourhoods or clusters bisected by the route.

### Potential for Disruption at Recreational and Community Features and/or Institutions

Alternative Haul Route 1 has the lowest number of recreational or community features and/or institutions located along the potential haul route. Alternative Haul Route 1 has the lowest number of sensitive/vulnerable recreational or community features and/or institutions along the potential haul route. Alternative Haul Route 1 has the lowest number ingress and egress interference at entrances to recreational or community features and/or institutions. Alternative Haul Route 5 has the highest number of recreational or community features and/or institutions located along the potential haul route, the highest number of sensitive/vulnerable recreational or community features and/or institutions along the potential haul route and the highest number ingress and egress interference at entrances to recreational or community features and/or institutions.

### Potential for Displacement/Removal of Residents & Residential Property from Road Improvements

Alternative Haul Route 1 has the lowest number of residences/residential property requiring partial removals. Alternative Haul Route 2 has the smallest area of residences/residential property requiring partial removals. None of the Haul Routes require full displacement of residential property.

### Potential for Displacement/Removal of Recreational or Community Features and/or Institutions

There is no potential for partial displacement of recreational or community features and/or institutional properties along Alternative Haul Routes 1 and 3. Alternative Haul Route 3 has the least number of parks and community institutions along the route. Alternative Haul Routes 1 and 2 have the least amount of sensitive/vulnerable recreational or community features and institutions along the route.

### Potential for disruption to business enterprises

Alternative Haul Route 3 has the lowest Truck Exposure Index for all indicators within this category. Alternative Haul Route 1 and 2 has the lowest number of business enterprises fronting and/or backing along the potential truck route. Alternative Haul Route 1 has the lowest number of sensitive / vulnerable business enterprises fronting and/or backing along a potential truck route. Alternative Haul Route 2 has the lowest number of ingress and egress interference at entrances to business enterprises.

### Potential for Removal of Business Enterprises and/ or Property

There is no potential for full displacement of Business Enterprises along any of the alternative haul routes. Alternative Haul Route 2 has the lowest number of business enterprise and/or other commercial or industrial property requiring partial removals. Alternative Haul Route 3 has the smallest area of business enterprise and/or other commercial or industrial property requiring partial removals.

### Potential Magnitude of Effects on Property Values

Alternative Haul Route 3 received a qualitative rating of low for the potential magnitude of effects on property values. This assessment was based on noise and air quality analysis, driveway exposure index, and number of residences fronting and/or backing directly onto a potential truck route.

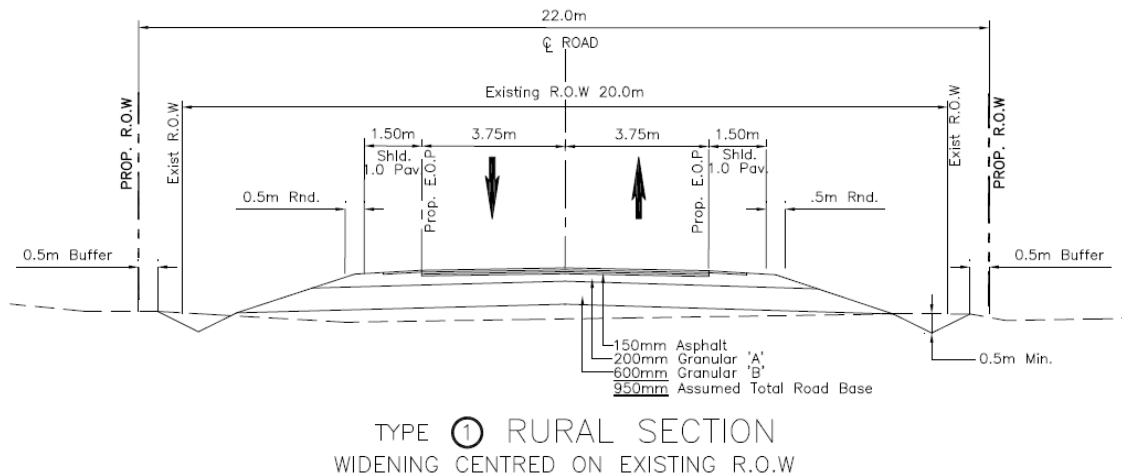
## 7. Cross Section Design and Analysis

For this study two types of cross-sections are proposed: rural (property impacts from potential road alterations) and urban (within the existing right-of-way). For the purpose of the analysis the rural cross-section was applied as it has the most significant impacts due to property impacts from potential road alterations and was therefore deemed more conservative. However, given the challenges that can be associated with land acquisition, the urban design that fits the existing right-of-way was also given consideration. It was concluded that this design would not require land acquisition however it would have a more significant impact on the existing character of the road and has a higher associated cost of construction.

Figures 7, 8, 9 and 10 illustrate the proposed road bed design and shows rural and urban alternative cross-sections for both Type 1 and Type 3 sections.

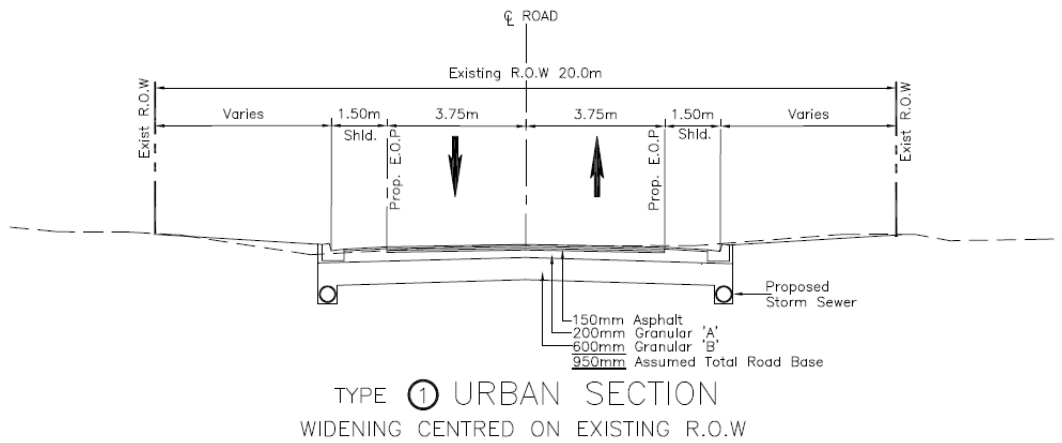
### Type 1

With the rural cross-section the proposed right-of-way is 2.0m greater than the existing 20m right of way. This cross-section allows for 3.75m travel lanes, 1.0m paved shoulder, 0.5m gravel shoulder, 0.5m rounding, and a drainage ditch.



**Figure 7. Type 1 Rural Cross-Section**

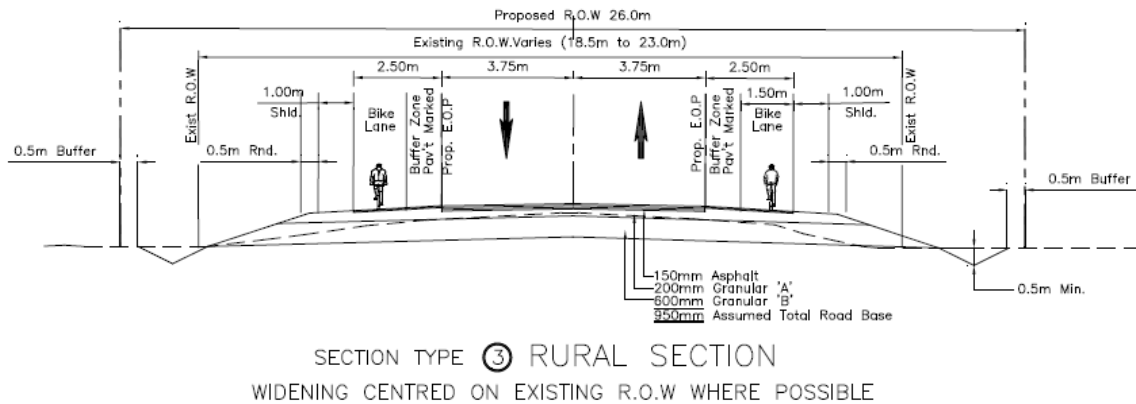
With the urban cross-section the proposed right-of-way fits into the existing 20m right-of-way. The cross-section allows for 3.75m travel lanes, and a 1.5m paved shoulder with curb and gutter.



**Figure 8. Type 1 Urban Cross-Section**

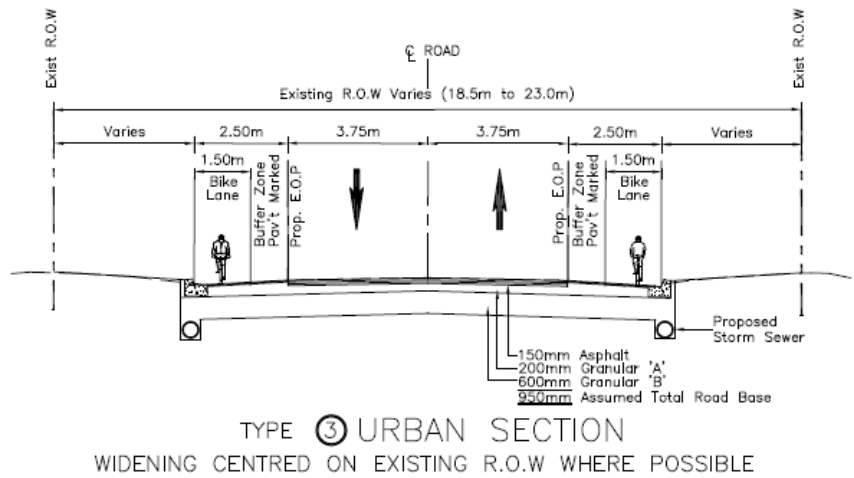
**Type 3**

With the rural cross-section the proposed right-of-way is 3m to 7.5m greater than the existing right-of-way depending on the varying existing cross-section. This cross-section allows for 3.75m travel lanes, 1.0m paved buffer, 1.5m paved bike lane, 1.0m gravel shoulder, 0.5m rounding, a drainage ditch and a 0.5m buffer.



**Figure 9. Type 3 Rural Cross-Section**

With the urban cross-section the proposed right-of-way can be fit into the existing right-of-way that varies from 18.5m to 23m. The cross-section allows for 3.75m travel lanes, a 1.0m paved buffer, a 1.5m paved bike lake, and curb and gutter with a minimum boulevard of 3m.



**Figure 10. Type 3 Urban Cross-Section**

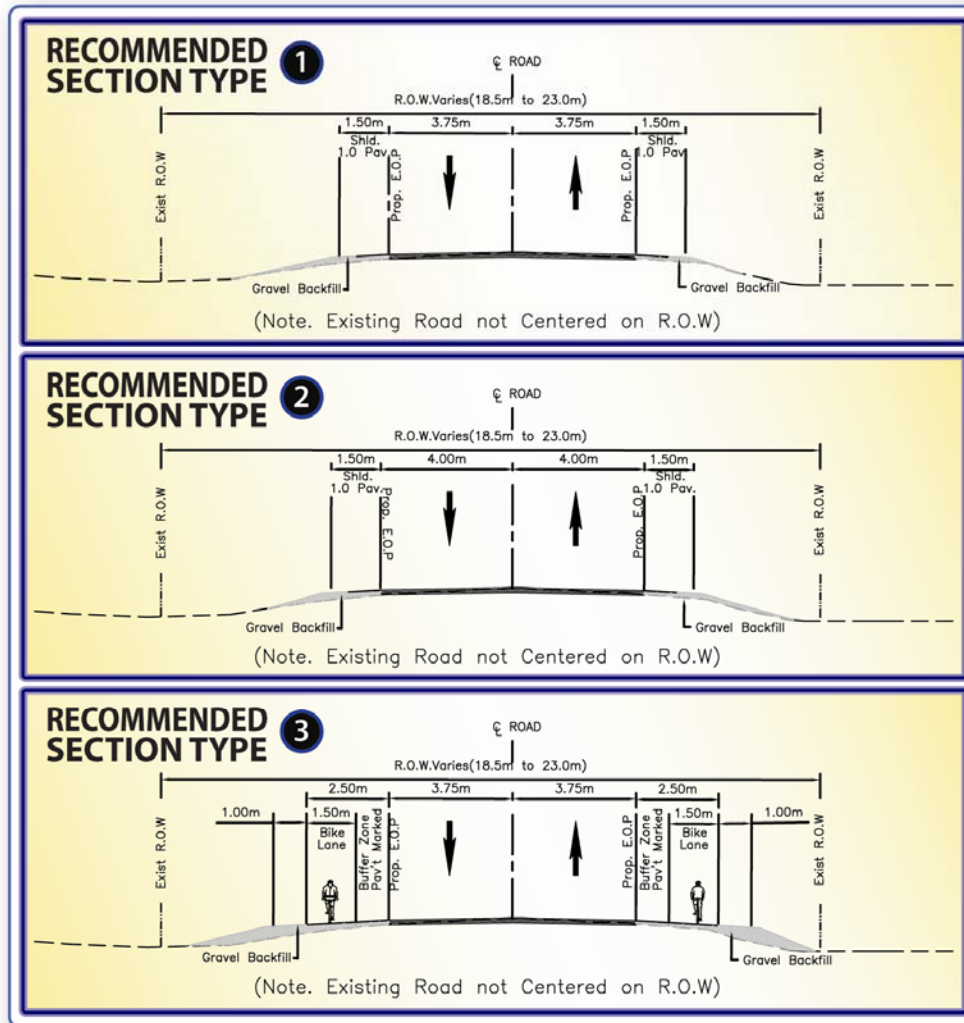
It is important to note that both Type 1 and Type 3 section designs do not account for any changes in the existing profile and assume that widening is at existing profile grade.

While the urban cross-section fits into the existing right-of-ways, the storm sewer infrastructure and appurtenances increase the construction costs approximately 50 percent over the rural design. It is a trade off between the cost (and challenge) of purchasing land and constructing a more expensive infrastructure.

Applying the rural cross-section that would require land acquisition is a conservative approach for haul route comparative evaluation purposes. The decision on which cross-section to move forward with would be decided at the detailed design stage of an Environmental Assessment when pavement recommendations are finalized. Typically, resolution of the design details would occur during the subsequent Municipal Class EA process.

## 8. Change in the Existing Character of the Road

The character of the surrounding road network was assessed giving consideration to a change in experience to drivers, cyclists, and pedestrians. Based on the cross-section (Figure 11) applied to each link and giving consideration to the existing character of the road, each link was given a low, medium, or high impact.



**Figure 11. Illustration of the Three Recommended Rural Cross Sections**

Campbellville between Milbrough and Twiss was assigned a medium-high impact because of its current function and the fact that the change in character would be less evident in comparison to Milbrough Line (Table 3).

**Table 3. Impact on Road Character by Segment and Alternative**

Location	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Highway 6 (Hwy 401 to Hwy 403)	LOW Impact	LOW Impact		LOW Impact	LOW Impact
Concession 11 (Hwy 6 to Centre)	HIGH Impact			MEDIUM Impact	
Concession 11 (Centre to Milborough)	LOW Impact	LOW Impact		LOW Impact	LOW Impact
Centre (Concession 11 to Campbellville)		HIGH Impact			MEDIUM Impact
Campbellville (Hwy 6 to Centre)		LOW Impact			LOW Impact
Milborough (Concession 11 to Campbellville)			HIGH Impact	HIGH Impact	HIGH Impact
Campbellville (Milborough to Twiss)			MEDIUM-HIGH Impact	MEDIUM -HIGH Impact	MEDIUM-HIGH Impact
Twiss (Campbellville to Reid)			LOW Impact	LOW Impact	LOW Impact
Reid Sideroad (Twiss to Guelph Line)			LOW Impact	LOW Impact	LOW Impact

## 9. Recommendations

The following mitigation measures are recommended to address adverse effects identified above:

- Enhanced liaison with recreational user groups of the socio-economic features located along the haul route, including cycling, motoring or naturalist groups aimed at keeping them aware of the proposed trucking activities, peak traffic periods and any potential access restrictions;
- Incorporate contract clauses requiring all trucking contractors to demonstrate that vehicles are regularly maintained and drivers are licensed and trained to ensure safe operation of trucks;
- Implement contract clauses to ensure trucks adhere to designated transportation routes. Impose financial penalties for non-compliance to ensure safe operation of trucks on local roads;

- Truck drivers should undergo an orientation program focused on safety issues along the transportation routes (e.g., bus stops, recreational trails and crossings, existing hazards);
- Design and deliver a complaints reporting and resolution procedure specifically related to truck traffic.
- Enhanced communications with local residents to address the enjoyment of property, including targeted communications with newcomers aimed at keeping them informed of air quality and noise levels, environmental monitoring results, and where to call for answers to questions they may have; and
- Implement an information program for all affected communities to address the loss of use and enjoyment of property, including monitoring of noise, dust and traffic levels.

**Report Prepared By:**

Edward Terry, B.U.R.PI  
Environmental Planner

**Report Reviewed By:**

Tomasz L. Włodarczyk, M.E.S.  
Senior Consultant, Principal

## 10. References

---

Burlington Chamber of Commerce, 2008:

“Burlington Business Information.” From

<http://www.burlingtonchamber.com/referencehome.html>

City of Hamilton, 2005:

“Socio-economic Profile.” 2005 Social and Health Issues Report. From

[http://www.myhamilton.ca/NR/rdonlyres/93B67223-1C31-4A6B-BD14-2798717D170C/0/SHIR2005Socio-economic\\_Profile.pdf](http://www.myhamilton.ca/NR/rdonlyres/93B67223-1C31-4A6B-BD14-2798717D170C/0/SHIR2005Socio-economic_Profile.pdf)

City of Hamilton, 2006:

Rural Hamilton Official Plan. From

<http://www.myhamilton.ca/myhamilton/CityandGovernment/CityDepartments/PlanningEcDev/LongRangePlanning/OfficialPlan/HamiltonNewOfficialPlan/RuralOfficialPlan.htm>

Dillon Consulting Limited, 2006:

City of Hamilton: Terms of Reference; Mountsberg Quarry Haul Route Evaluation; April 2006. From:

[http://www.stmaryscement.ca/saintmaryscementinc/\\_Uploads/CurrentInfo/Haul%20Route%20Terms%20of%20Reference.pdf](http://www.stmaryscement.ca/saintmaryscementinc/_Uploads/CurrentInfo/Haul%20Route%20Terms%20of%20Reference.pdf)

Flamborough Community Profile:

From: [http://en.wikipedia.org/wiki/Flamborough,\\_Ontario](http://en.wikipedia.org/wiki/Flamborough,_Ontario)

Friends of Rural Communities and the Environment, 2008:

Stop the Quarry: Transportation Study. 2008. From

<http://www.stopthequarry.ca/StMarys/transportation.php>

Hamilton Economic Development, 2007:

“Business Parks.” From <http://www.flamboroughchamber.ca/community.asp>

Puslinch.net, 2008:

From <http://www.puslinch.net/aboutpus.html>

Town of Milton Community, 2005:

Profile and Development Information. Town of Milton Economic Development Office, October 2005.

Town of Milton Official Plan, Dec 1997, consolidated 2001:

From <http://www.milton.ca/plandev/officialplan.pdf>

Township of Puslinch, 2008:

From <http://www.twp.puslinch.on.ca/>

Wellington County, 2007:

*Growth Forecast.*

# Appendix A

## Route Segments

# Appendix B

## Evaluation Matrix

# Appendix C

## Social and Business Exposure Counts

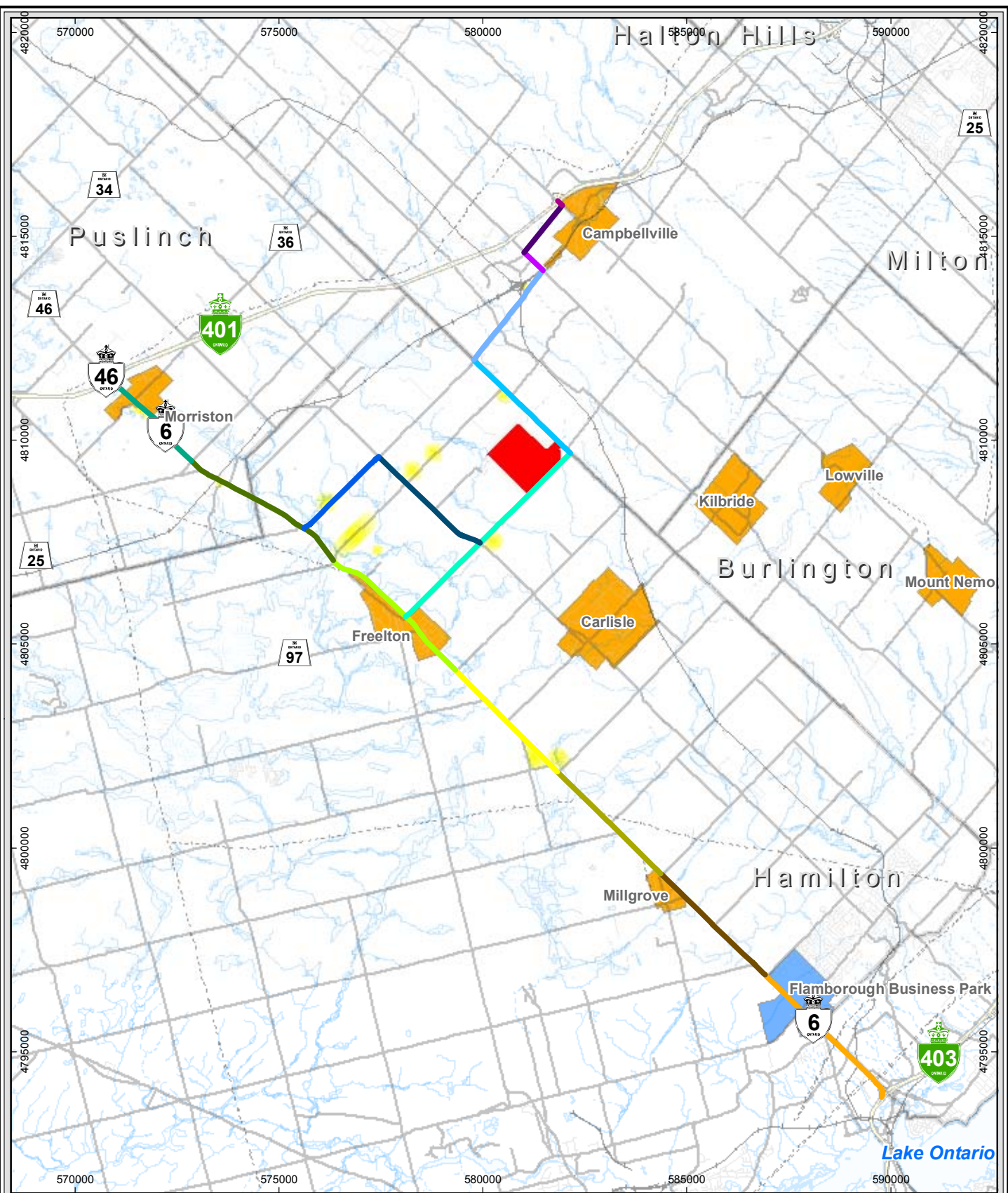
# Appendix D

## Rural Character - Business and Community Feature List

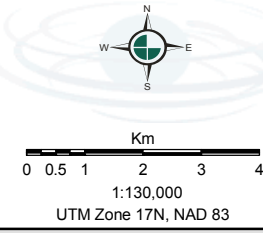
# Appendix A

## Route Segments

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegments.mxd)  
 2/12/2008 - 9:45:52 AM



Basemapping from Ontario Ministry of Natural Resources



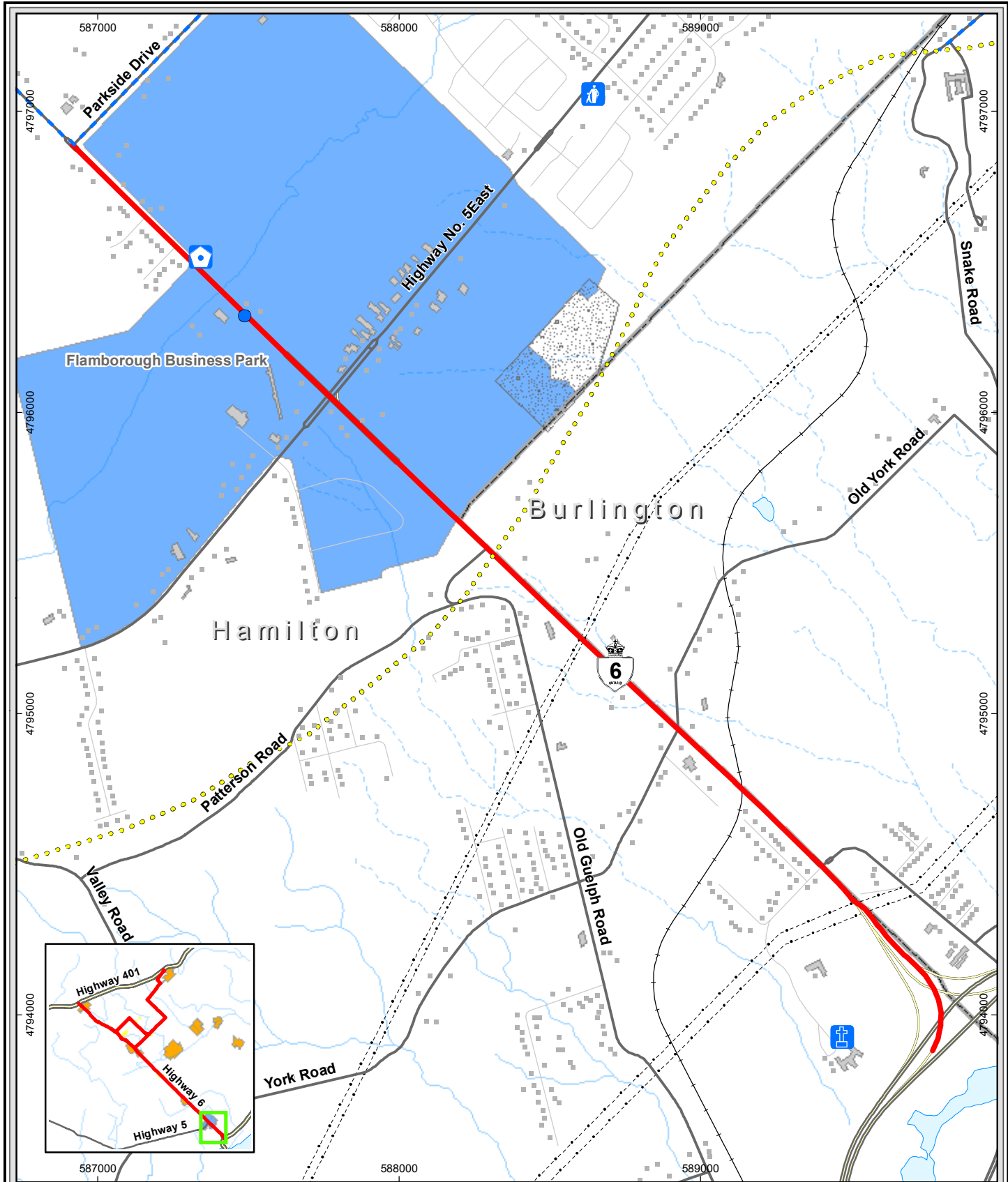
Legend	
	Residential Cluster
	Proposed Quarry
	Urban/Rural Area
	Business Park
	Haul Route Segment 8
	Haul Route Segment 1
	Haul Route Segment 2
	Haul Route Segment 3
	Haul Route Segment 4
	Haul Route Segment 5
	Haul Route Segment 6
	Haul Route Segment 7
	Haul Route Segment 9
	Haul Route Segment 10
	Haul Route Segment 11
	Haul Route Segment 12
	Haul Route Segment 13
	Haul Route Segment 14
	Haul Route Segment 15

Flamborough Quarry  
Haul Route Study

## Potential Haul Route Segments

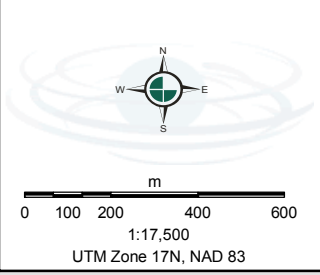
March 2008  
Project 80205

Figure 1



Map Document: (N:\Projects\2008\80205\2008\Final\GIS\SpatialMXDs\80205RouteSegments.mxd) 2/12/2008 - 11:57:42 AM

Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Commercial
  - Ⓜ Monastery
  - Ⓜ Day care
  - Ⓜ Recreation Centre
  - Bruce Trail
  - On-street Bike Route
  - Haul Route Segment
  - Pit
  - Building (to scale)
  - Business Park

Flamborough Quarry  
Haul Route Study

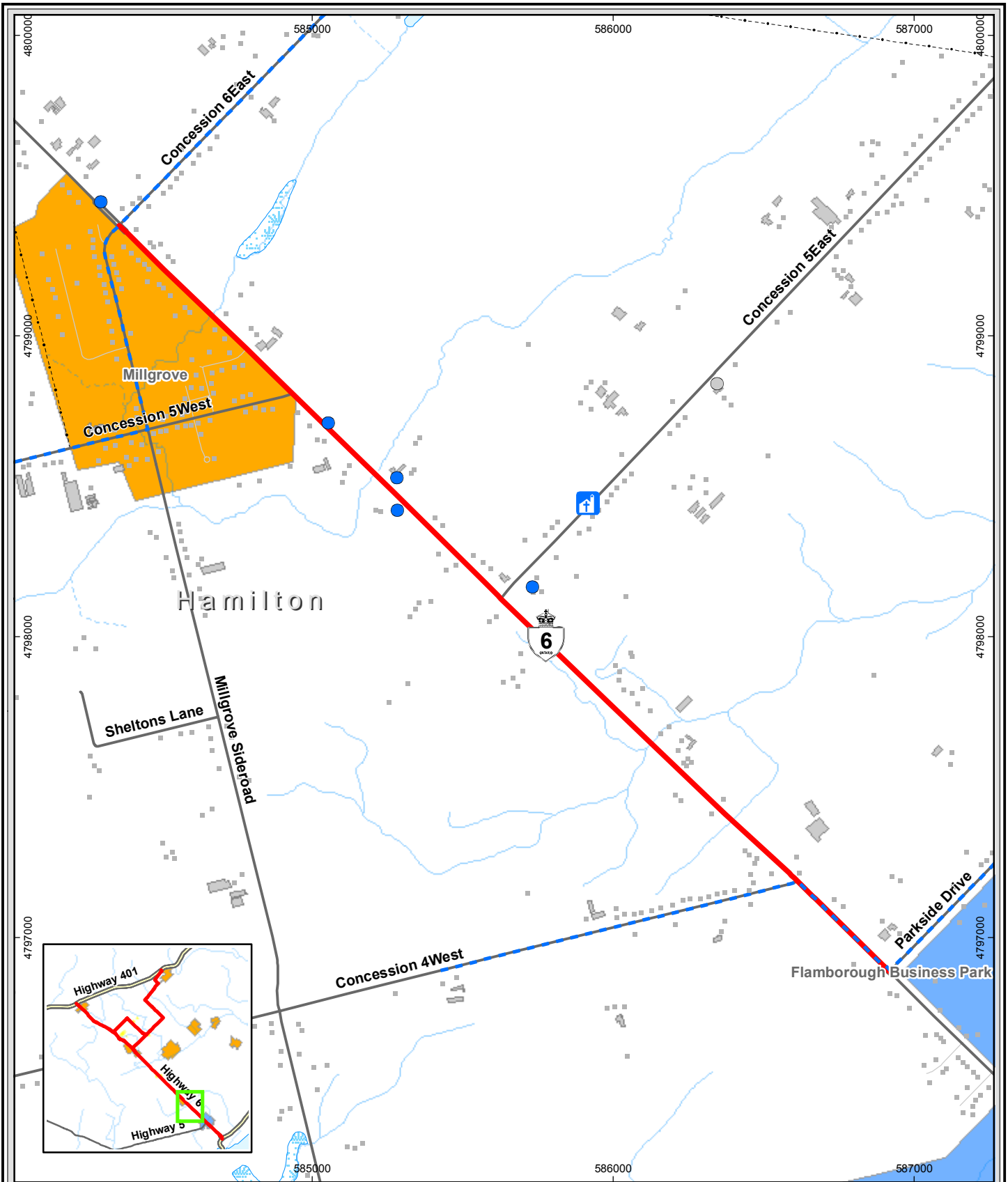
## Route Segment 1

March 2008  
Project 80205

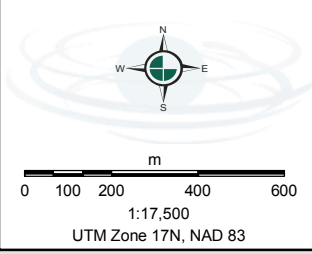
**Gartner Lee**

Figure 2

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXDs\80205RouteSegment2.mxd)  
 2/12/2008 - 1:43:31 PM



Basemapping from Ontario Ministry of Natural Resources



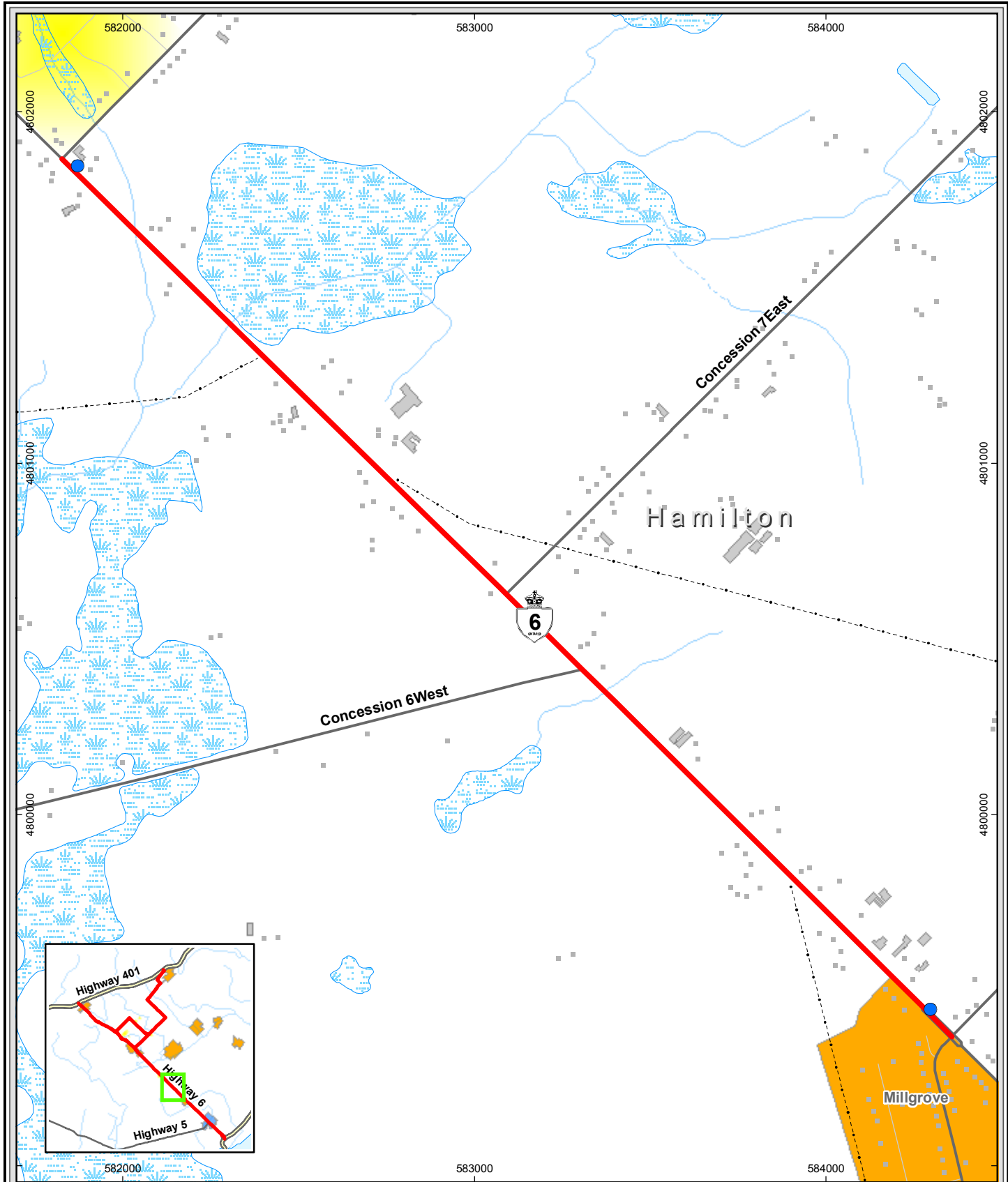
- Legend**
- Building (not to scale)
  - Commercial
  - Industrial
  - ⛪ Church
  - - - On-street Bike Route
  - Haul Route Segment
  - Building (to scale)
  - Urban/Rural Area
  - Business Park

Flamborough Quarry  
Haul Route Study

## Route Segment 2

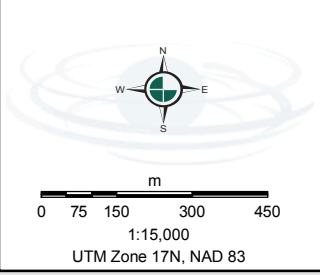
March 2008  
Project 80205

Figure 3



Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment3.mxd) 2/12/2008 - 1:50:35 PM

Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Building (to scale)
  - Commercial
  - Haul Route Segment
  - Residential Cluster
  - Urban/Rural Area

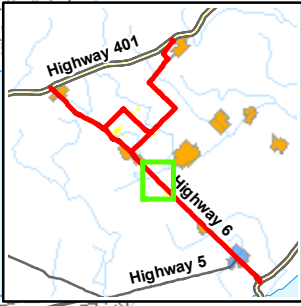
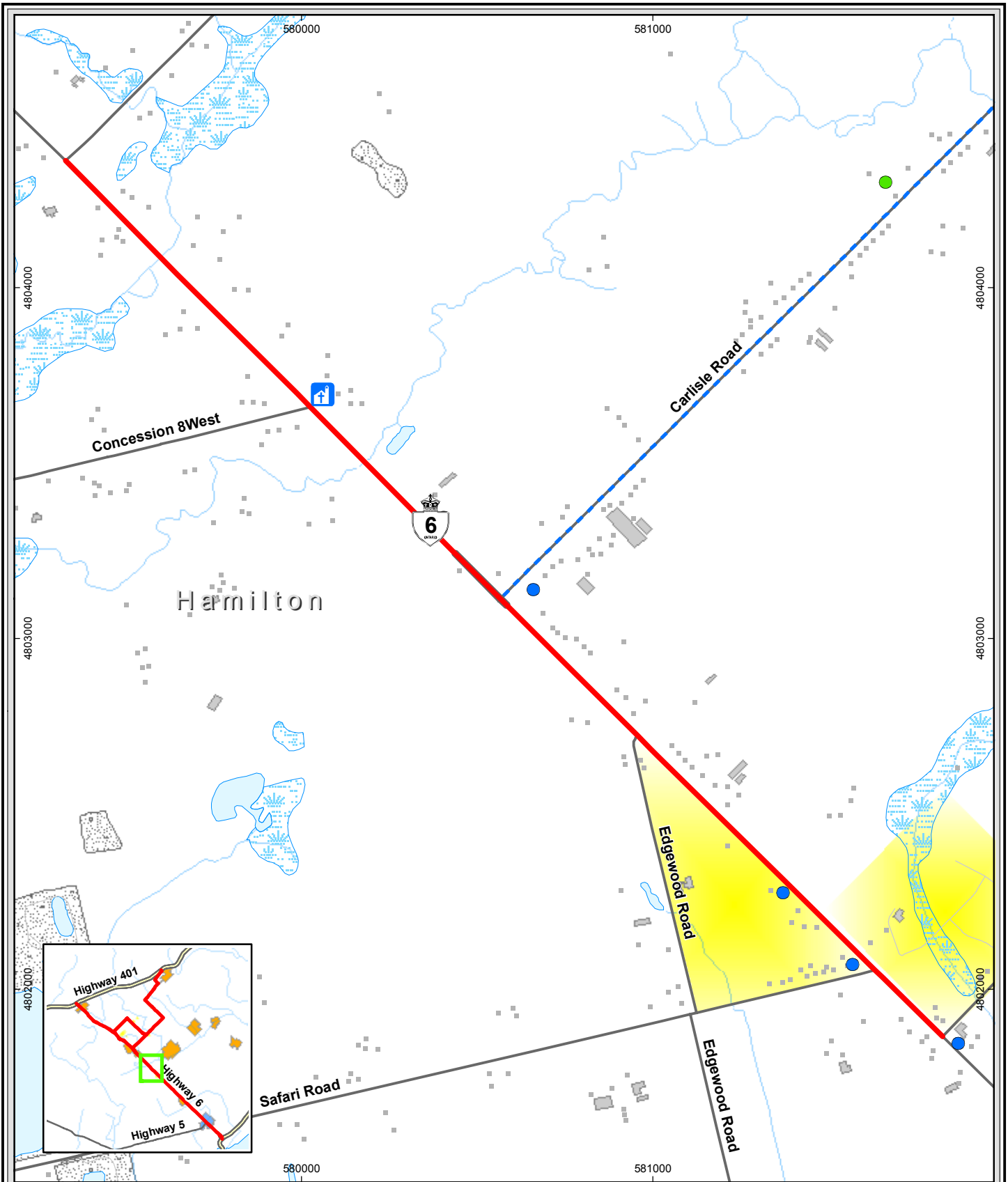
Flamborough Quarry  
Haul Route Study

## Route Segment 3

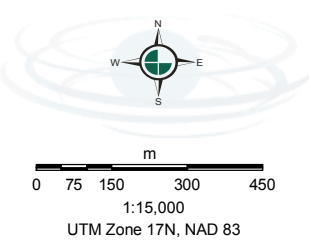
March 2008  
Project 80205

Figure 4

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment4.mxd)  
2/12/2008 - 1:50:44 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Park
  - Commercial
  - ⛪ Church
  - Building (not to scale)
  - Building (to scale)
  - On-street Bike Route
  - Haul Route Segment
  - Residential Cluster
  - Pit

Flamborough Quarry  
Haul Route Study

### Route Segment 4

March 2008  
Project 80205


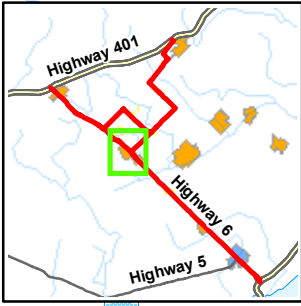
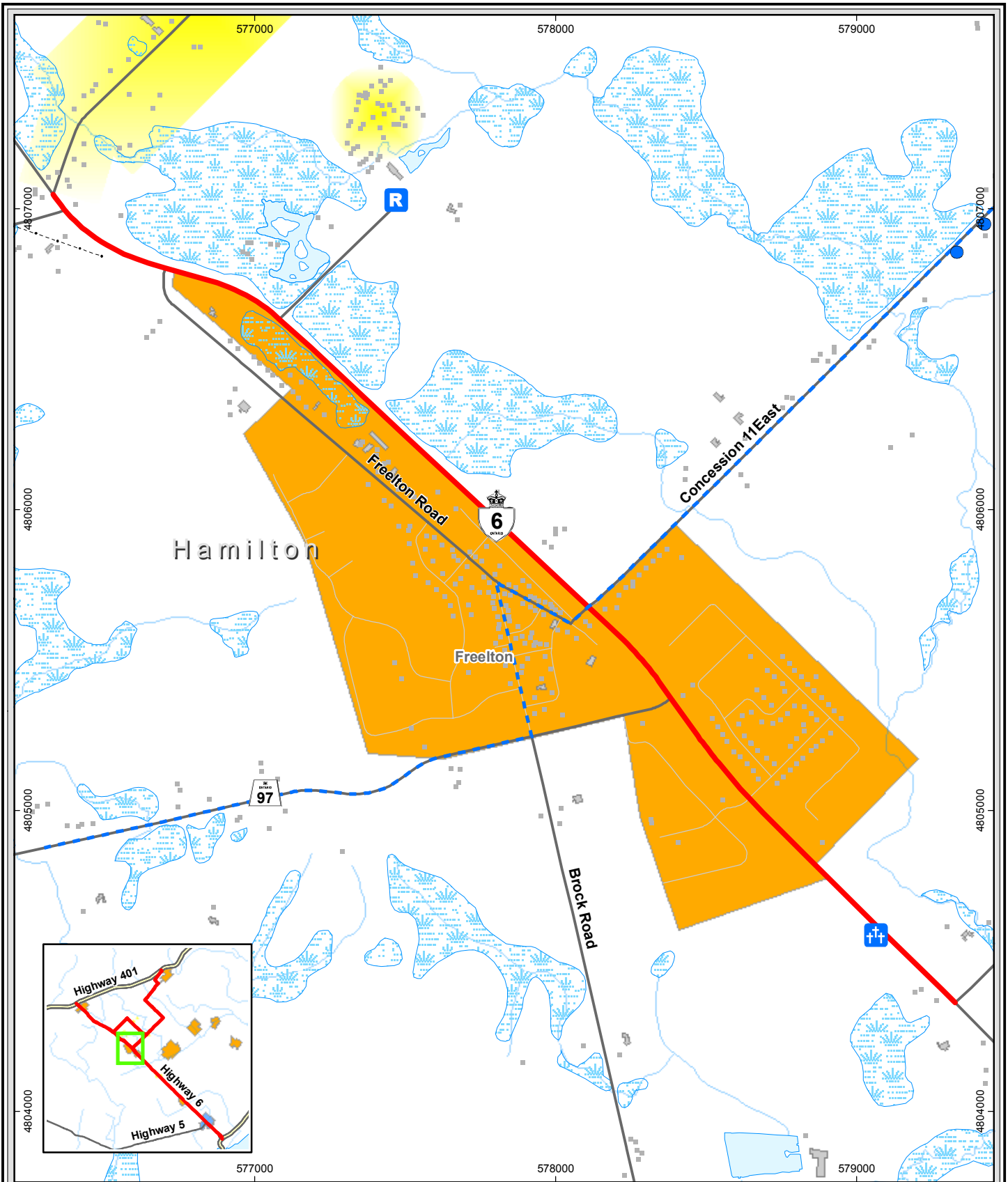
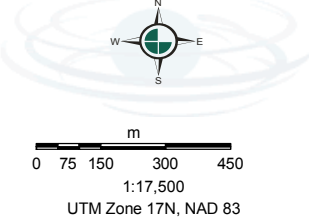


Figure 5

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment5.mxd)  
 2/12/2008 - 1:56:37 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Commercial
  - †† Cemetery
  - R Resort
  - Building (not to scale)
  - On-street Bike Route
  - Haul Route Segment
  - Building (to scale)
  - Residential Cluster
  - Urban/Rural Area

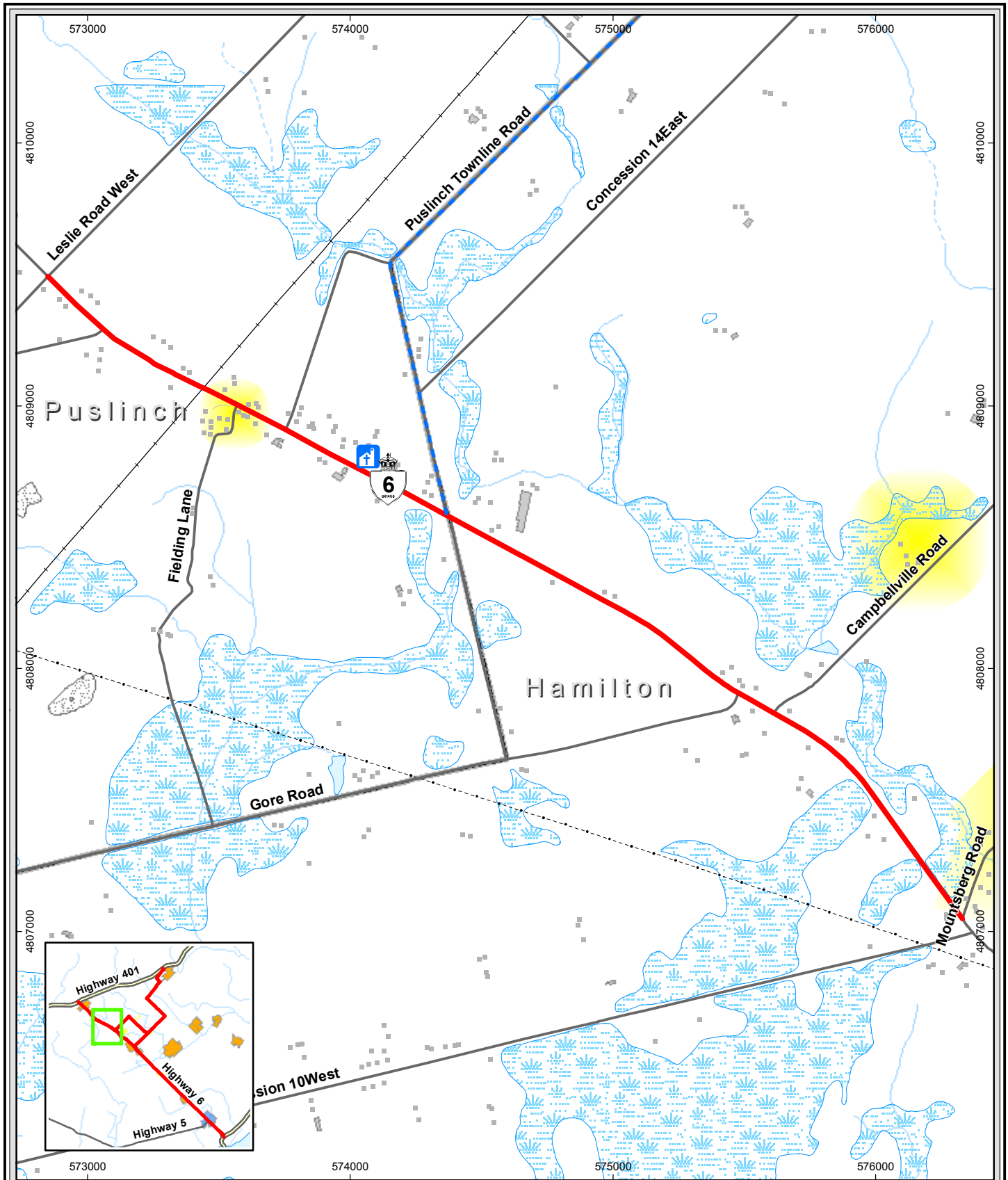
Flamborough Quarry  
Haul Route Study

## Route Segment 5

March 2008  
Project 80205

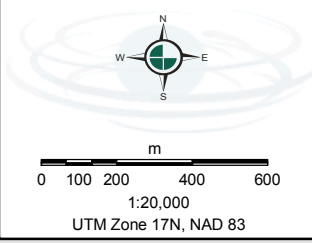
**Gartner Lee**

Figure 6



Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment6.mxd) 2/12/2008 - 12:46:57 PM

Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Residential Cluster
  - Pit
  - Building (to scale)
  - Church
  - On-street Bike Route
  - Haul Route Segment

Flamborough Quarry  
Haul Route Study

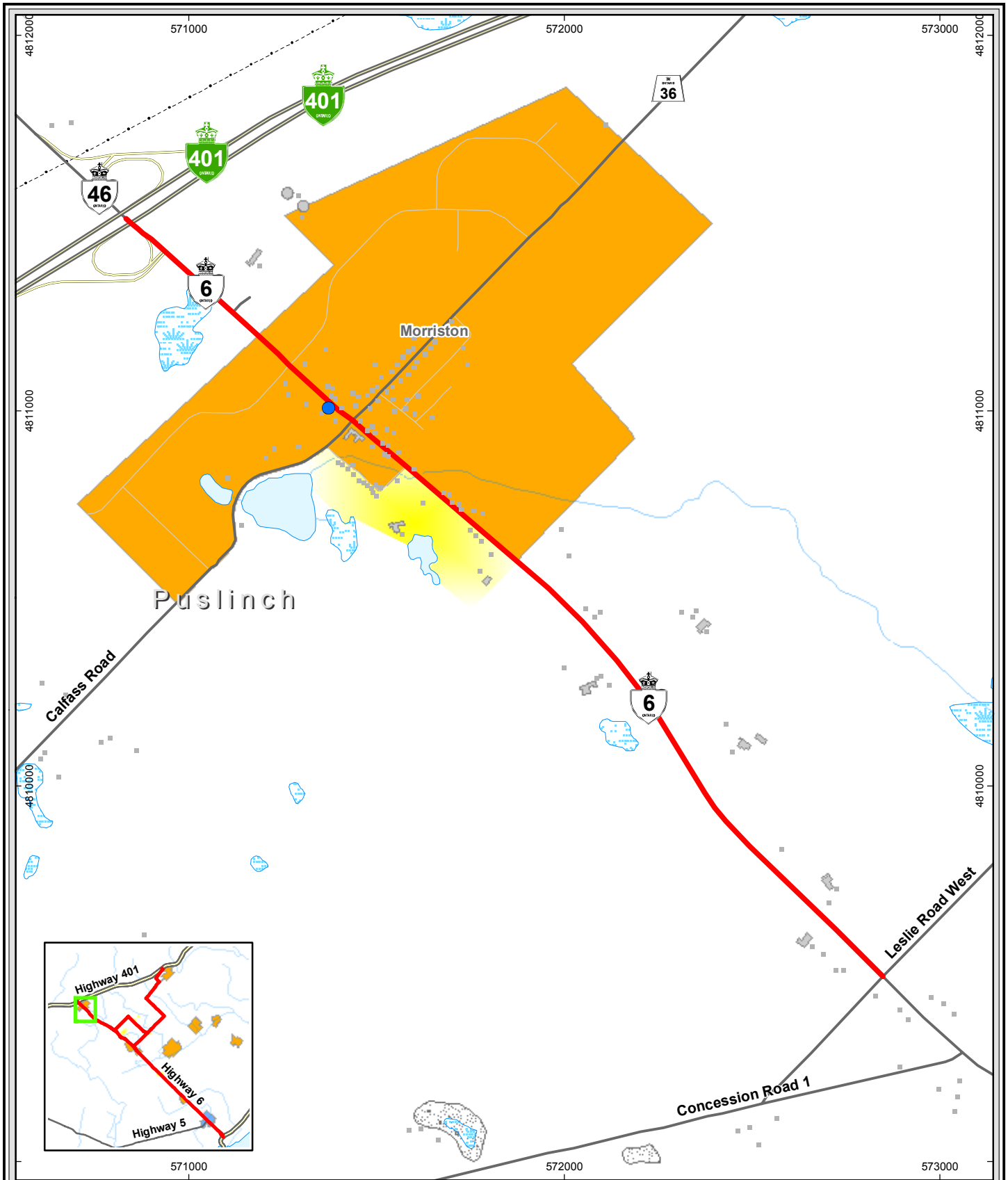
## Route Segment 6

March 2008  
Project 80205

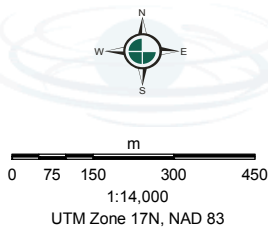
Gartner Lee

Figure 7

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment7.mxd)  
2/12/2008 - 12:49:49 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Commercial
  - Building (not to scale)
  - Haul Route Segment
  - Residential Cluster
  - Pit
  - Building (to scale)
  - Urban/Rural Area

Flamborough Quarry  
Haul Route Study

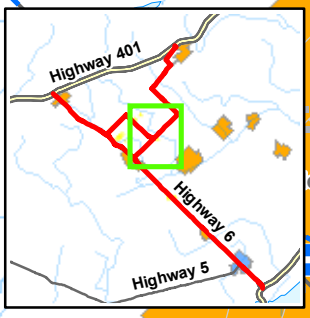
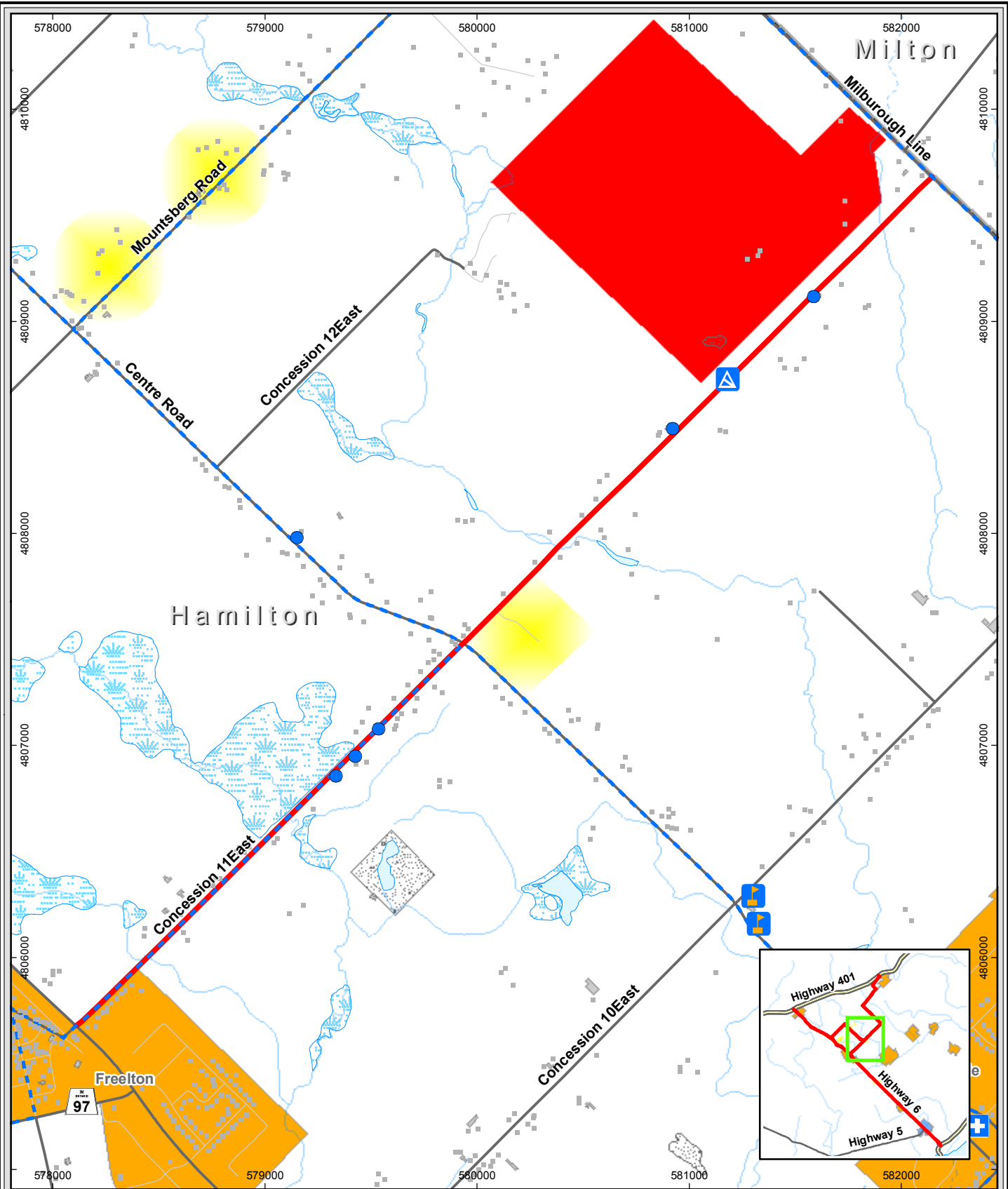
## Route Segment 7

March 2008  
Project 80205

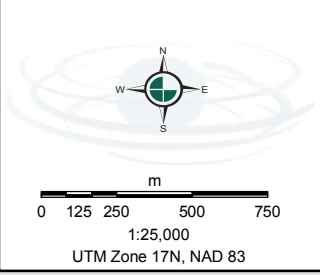


Figure 8

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment8.mxd)  
2/12/2008 - 1:02:18 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Commercial
  - ⊕ Medical Centre
  - ⚠ Quarry
  - 🏫 School
  - On-street Bike Route
  - Haul Route Segment
  - Residential Cluster
  - Pit
  - Proposed Quarry
  - Building (to scale)
  - Urban/Rural Area

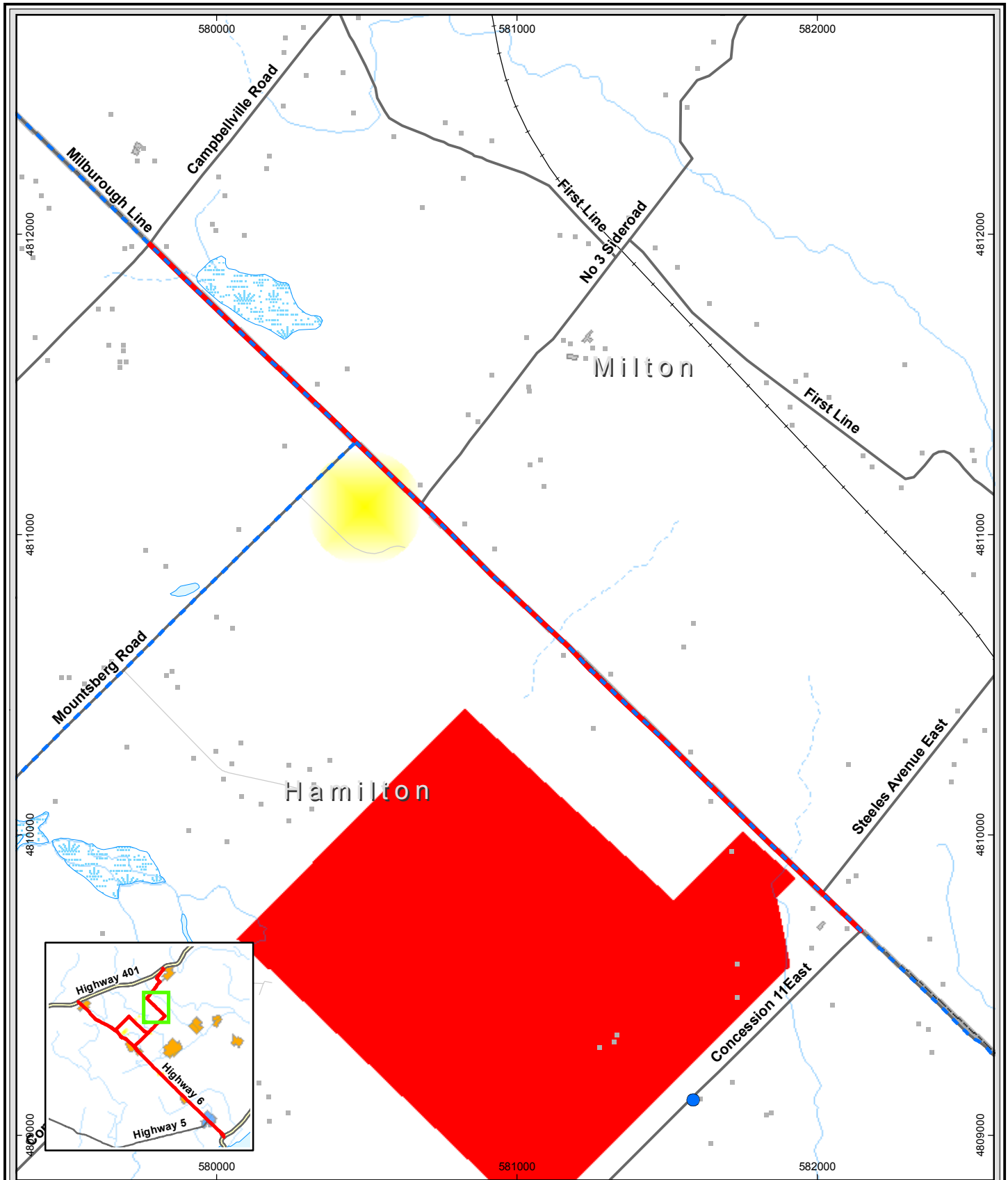
Flamborough Quarry  
Haul Route Study

## Route Segment 8

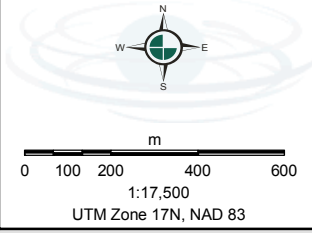
March 2008  
Project 80205

**Gartner Lee**

Figure 9



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Commercial
  - On-street Bike Route
  - Haul Route Segment
  - Residential Cluster
  - Proposed Quarry
  - Building (to scale)

Flamborough Quarry  
Haul Route Study

## Route Segment 9

March 2008  
Project 80205


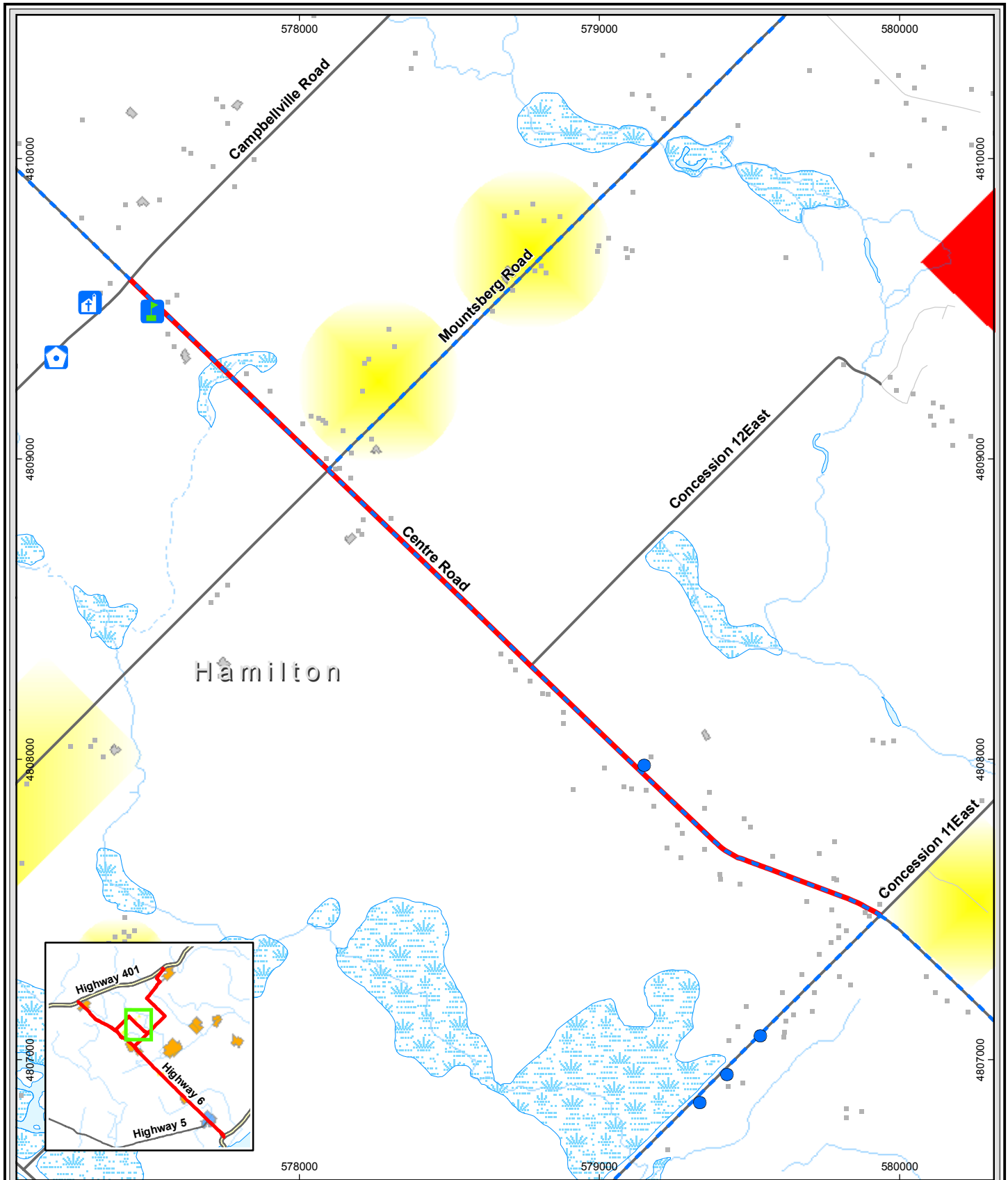


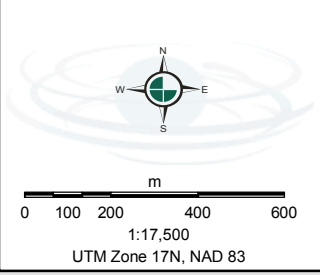
Figure 10

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment9.mxd) 2/12/2008 - 1:09:48 PM



Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment10.mxd) 2/12/2008 - 1:14:21 PM

Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Commercial
  - ⛪ Church
  - ⛵ Recreation Centre
  - ⚽ School/Park Community Centre
  - On-street Bike Route
  - Haul Route Segment
  - Residential Cluster
  - Proposed Quarry
  - Building (to scale)

Flamborough Quarry  
Haul Route Study

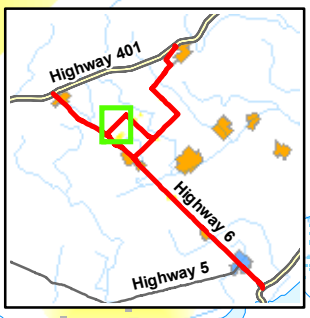
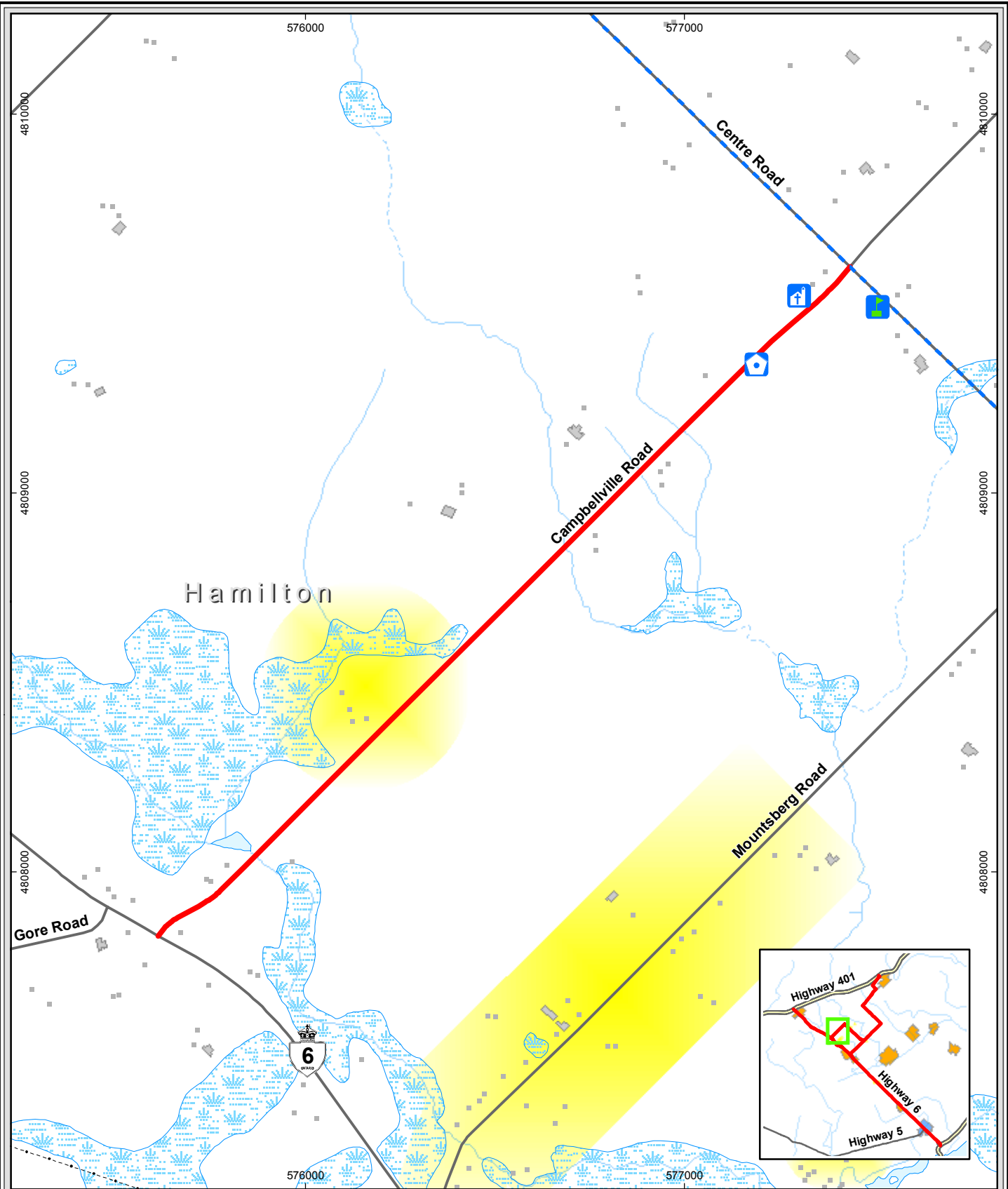
## Route Segment 10

March 2008  
Project 80205

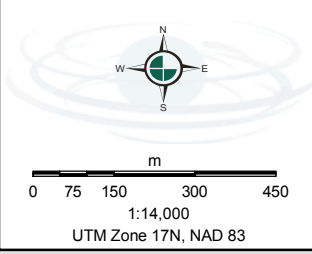
Gartner Lee

Figure 11

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\SpatialMXDs\80205RouteSegment11.mxd)  
 2/12/2008 - 1:16:57 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Church
  - Recreation Centre
  - School/Park Community Centre
  - On-street Bike Route
  - Haul Route Segment
  - Residential Cluster
  - Building (to scale)

Flamborough Quarry  
Haul Route Study

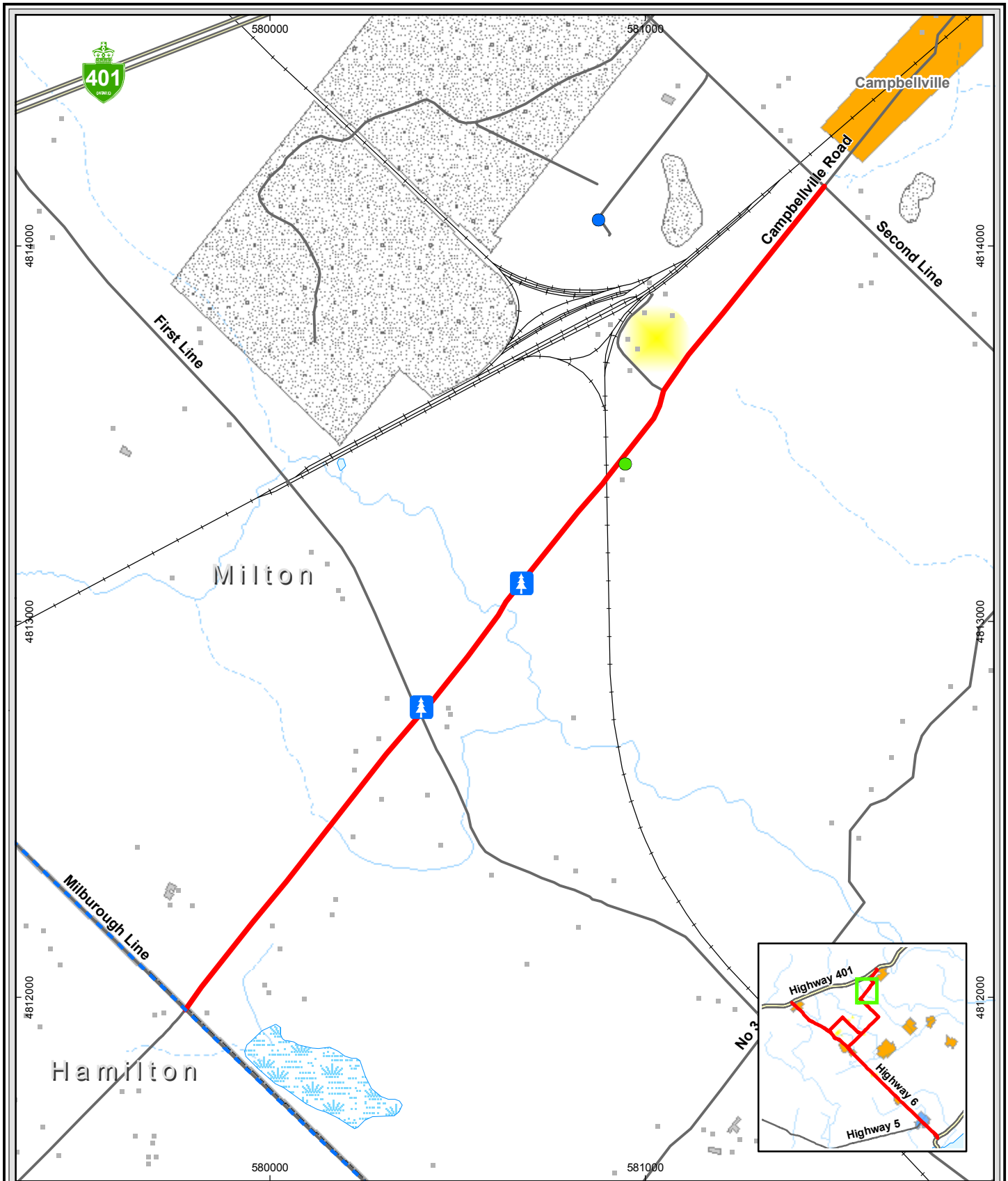
## Route Segment 11

March 2008  
Project 80205

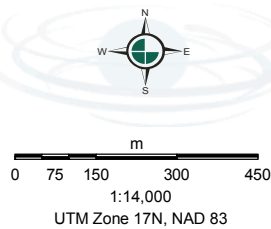
**Gartner Lee**

Figure 12

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment12.mxd)  
2/12/2008 - 1:25:04 PM



Basemapping from Ontario Ministry of Natural Resources



**Legend**

- Building (not to scale)
- Park
- Commercial
- 🌲 Conservation Area
- On-street Bike Route
- Haul Route Segment
- Residential Cluster
- Pit
- Building (to scale)
- Urban/Rural Area

Flamborough Quarry  
Haul Route Study

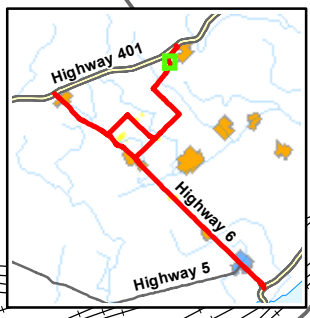
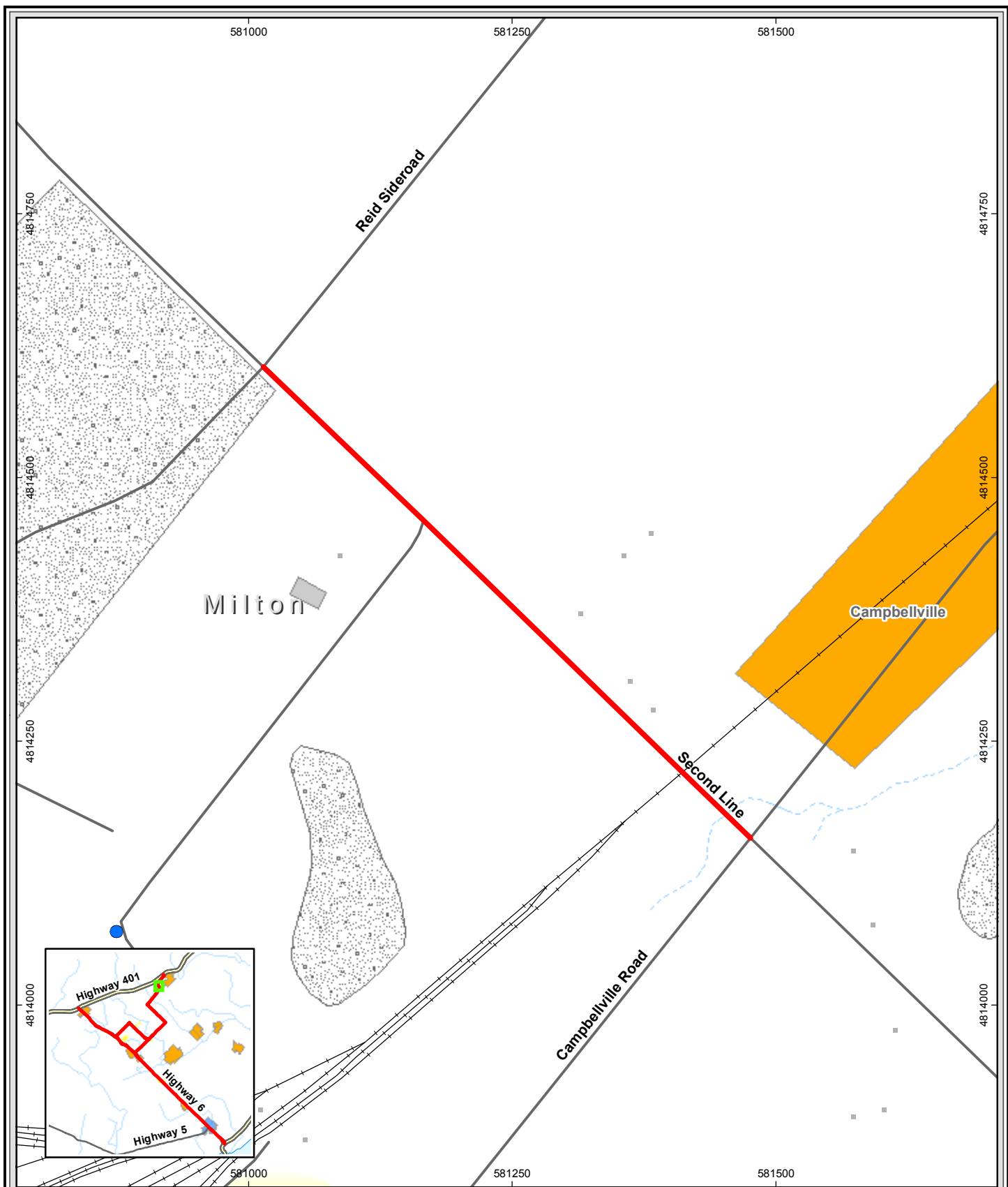
**Route Segment 12**

March 2008  
Project 80205

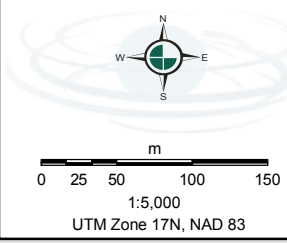


Figure 13

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment13.mxd)  
2/12/2008 - 1:30:26 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - Commercial
  - Haul Route Segment
  - Residential Cluster
  - ▨ Pit
  - ▭ Building (to scale)
  - Urban/Rural Area

Flamborough Quarry  
Haul Route Study

**Route Segment 13**

March 2008  
Project 80205


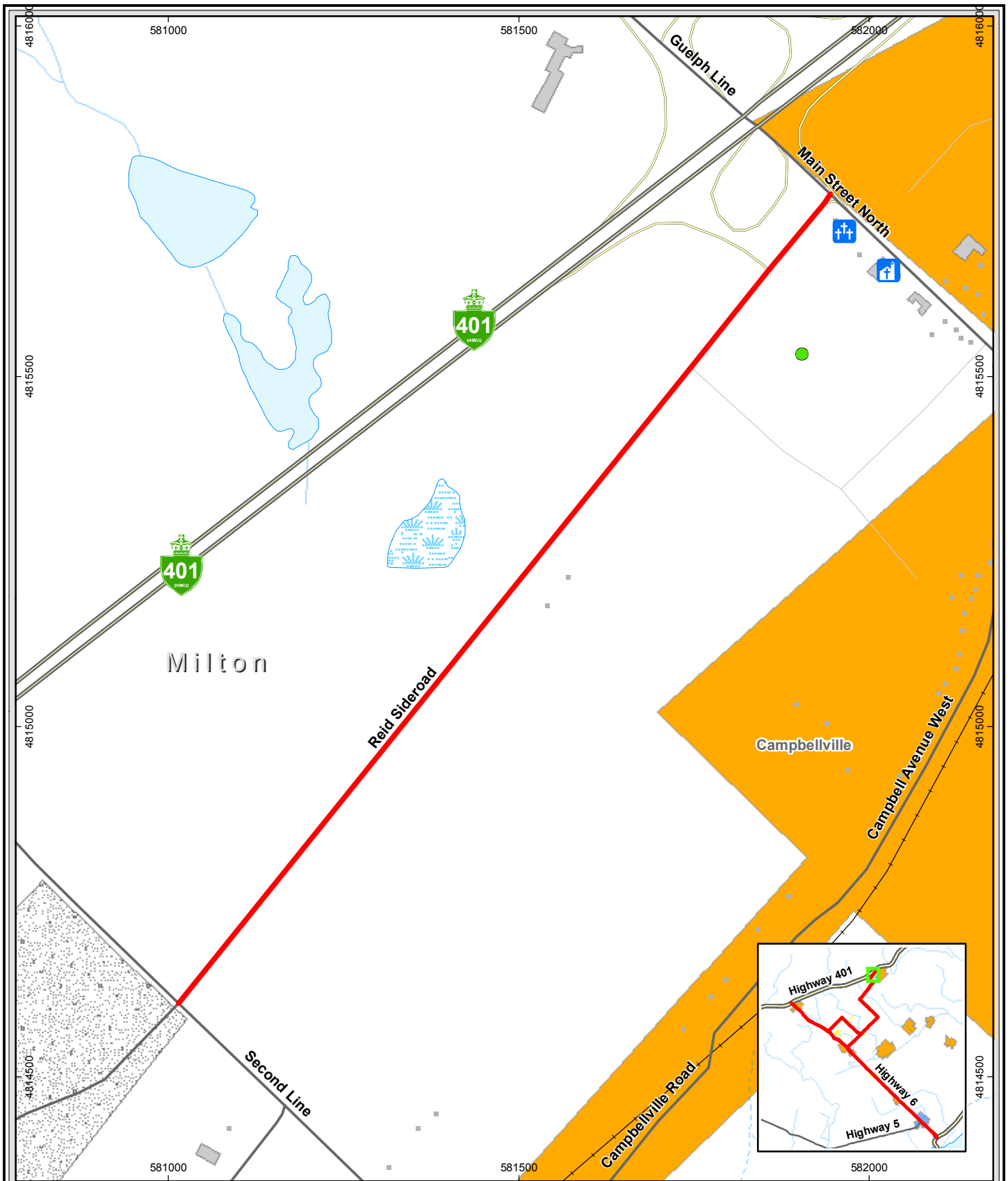
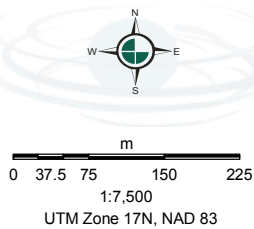
 Gartner Lee

Figure 14

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment14.mxd)  
27/12/2008 - 1:36:01 PM



Basemapping from Ontario Ministry of Natural Resources



**Legend**

- Building (not to scale)
- Pit
- Building (to scale)
- Urban/Rural Area
- Park
- ⛪ Cemetery
- ⛪ Church
- Haul Route Segment

Flamborough Quarry  
Haul Route Study

**Route Segment 14**

March 2008  
Project 80205

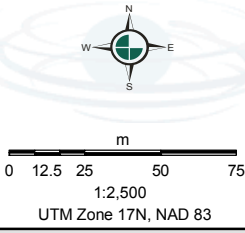


Figure 15

Map Document: (N:\Projects\2008\80205\2008\Final\GIS\Spatial\MXD\80205RouteSegment15.mxd)  
2/12/2008 - 1:38:38 PM



Basemapping from Ontario Ministry of Natural Resources



- Legend**
- Building (not to scale)
  - ⛪ Cemetery
  - ⛪ Church
  - Haul Route Segment
  - Residential Cluster
  - Building (to scale)
  - Urban/Rural Area

Flamborough Quarry  
Haul Route Study

**Route Segment 15**

March 2008  
Project 80205


 **Gartner Lee**

Figure 16

# Appendix B

## Evaluation Matrix

**Table 1: Social Environment and Community Impacts**

Criteria	Indicators	Alternative Haul Route 1	Alternative Haul Route 2	Alternative Haul Route 3	Alternative Haul Route 4	Alternative Haul Route 5
<b>Gartner Lee Limited</b>						
Potential for disruption to residents' use and enjoyment of property.	Number of residences fronting and/or backing directly onto a potential truck route. Consideration of truck exposure (No. residences x No. quarry trucks one direction)	940 Truck Exposure Index (258,830)	976 Truck Exposure Index (215,350)	992 Truck Exposure Index (89,160)	1050 Truck Exposure Index (107,755)	1086 Truck Exposure Index (112,695)
	Ingress and egress interference at residential driveways Consideration of truck exposure (No. ingress and egress interference x No. quarry trucks one direction)	349 Truck Exposure Index (101,555)	366 Truck Exposure Index (107,645)	318 Truck Exposure Index (32,760)	392 Truck Exposure Index (44,125)	409 Truck Exposure Index (46,125)
	Number of defined neighbourhoods and communities along a potential truck route. Consideration of truck exposure (No. defined neighbourhoods x No. quarry trucks one direction)	15 Truck Exposure Index (3,275)	17 Truck Exposure Index (3,615)	18 Truck Exposure Index (2,160)	18 Truck Exposure Index (2,240)	20 Truck Exposure Index (2,480)
	Ingress and egress interference at roadways used to access neighbourhoods and communities along a potential truck route Consideration of truck exposure (No. ingress and egress interference x No. quarry trucks one direction)	20 Truck Exposure Index (5,300)	22 Truck Exposure Index (4,500)	23 Truck Exposure Index (2,310)	23 Truck Exposure Index (2,520)	25 Truck Exposure Index (2,530)
Potential for effects on community character	Qualitative assessment of likely changes to the unique or distinctive qualities of the communities potentially affected (i.e., physical, economic and/or socio-cultural features of the communities)	<p><b>LOW</b></p> <p>This route affects the community of Morriston and to a lesser extent the communities of Freelton, Mountsberg and Milgrove because they are located off the main highway.</p> <p>37 businesses or institutions that support the rural character of this community are located along this route.</p> <p>15 defined neighbourhoods and communities along this route.</p>	<p><b>MEDIUM</b></p> <p>This route affects the communities of Morriston, Mountsberg and to a lesser extent the communities of Freelton and Milgrove because they are located off the main highway.</p> <p>39 businesses or institutions that support the rural character of this community are located along this route.</p> <p>17 defined neighbourhoods and communities along this route.</p>	<p><b>MEDIUM</b></p> <p>This route affects the community of Morriston and to a lesser extent the communities of Freelton, Campbellville, Mountsberg and Milgrove because they are located off the main highway.</p> <p>39 businesses or institutions that support the rural character of this community are located along this route.</p> <p>18 defined neighbourhoods and communities along this route.</p>	<p><b>HIGH</b></p> <p>This route affects the community of Morriston and to a lesser extent the communities of Freelton, Campbellville, Mountsberg and Milgrove because they are located off the main highway.</p> <p>44 businesses or institutions that support the rural character of this community are located along this route.</p> <p>18 defined neighbourhoods and communities along this route.</p>	<p><b>HIGH</b></p> <p>This route affects the community of Mountsberg, Morriston and to a lesser extent the communities of Freelton, Campbellville and Milgrove because they are located off the main highway.</p> <p>46 businesses or institutions that support the rural character of this community are located along this route.</p> <p>20 defined neighbourhoods and communities along this route.</p>
Potential for effects on community cohesion	Qualitative assessment of likely changes to community cohesion due to disruption and/or displacement effects, potential for voluntary out-migration and creation of a barrier effects due to truck traffic.	<p><b>MEDIUM:</b></p> <p>The haul route travels along Highway 6 through the main street/town centre of the Village of Morriston therefore bisecting the community.</p> <p>The community of Freelton and</p>	<p><b>HIGH:</b></p> <p>The haul route travels along Highway 6 through the main street/town centre of the Village of Morriston; and along Centre street; therefore bisecting the communities of Mountsberg and Morriston.</p>	<p><b>LOW:</b></p> <p>Some trucks may travel along Highway 6 through the main street/town centre of the Village of Morriston therefore bisecting the community.</p> <p>The community of Freelton and</p>	<p><b>MEDIUM:</b></p> <p>The haul route travels along Highway 6 through the main street/town centre of the Village of Morriston therefore bisecting the community.</p> <p>The community of Freelton and</p>	<p><b>HIGH:</b></p> <p>The haul route travels along Highway 6 through the main street/town centre of the Village of Morriston; and along Centre street; therefore bisecting the communities of Mountsberg and Morriston.</p>

**Table 1: Social Environment and Community Impacts**

Criteria	Indicators	Alternative Haul Route 1	Alternative Haul Route 2	Alternative Haul Route 3	Alternative Haul Route 4	Alternative Haul Route 5
		Milgrove is located along the route on Highway 6; however, this is a major road that already experiences heavy traffic. The Freelton and Milgrove town centres are located to west of Highway 6; therefore, the effect on community cohesion in these communities is considered low.  This route does not bisect any defined neighbourhoods or clusters.	The community of Freelton and Milgrove is located along the route on Highway 6; however, this is a major road that already experiences heavy traffic. The Freelton and Milgrove town centres are located to west of Highway 6; therefore, the effect on community cohesion in these communities is considered low.  This route does not bisect any defined neighbourhoods or clusters.	Milgrove is located along the route on Highway 6; however, this is a major road that already experiences heavy traffic. The Freelton and Milgrove town centres are located to west of Highway 6; therefore, the effect on community cohesion in these communities is considered low. Similarly, Campbellville is located to the south of Reid Rd. therefore, the effect on community cohesion is also considered low.  This route does not bisect any defined neighbourhoods or clusters.	Milgrove is located along the route on Highway 6; however, this is a major road that already experiences heavy traffic. The Freelton and Milgrove town centres are located to the north of Highway 6; therefore, the effect on community cohesion in these communities is considered low. Similarly, Campbellville is located to the south of Reid Rd. therefore, the effect on community cohesion is also considered low.  This route does not bisect any defined neighbourhoods or clusters.	The community of Freelton and Milgrove is located along the route on Highway 6; however, this is a major road that already experiences heavy traffic. The Freelton and Milgrove town centres are located to west of Highway 6; therefore, the effect on community cohesion in these communities is considered low. Similarly, Campbellville is located to the south of Reid Rd. therefore, the effect on community cohesion is also considered low.  This route does not bisect any defined neighbourhoods or clusters.
Potential for disruption to users of operations at recreational and community features and/or institutions.	Number of recreational or community features and/or institutions located along a potential truck route.  Consideration of truck exposure (No. community features x No. quarry trucks one direction)	22  Truck Exposure Index (6,125)	24  Truck Exposure Index (6,465)	27  Truck Exposure Index (5130)	30  Truck Exposure Index (5,090)	32  Truck Exposure Index (5,330)
	Number of sensitive / vulnerable recreational or community features and/or institutions.  Consideration of truck exposure (No. vulnerable community features x No. quarry trucks one direction)	19  Truck Exposure Index (5,870)	21  Truck Exposure Index (6,210)	22  Truck Exposure Index (3,900)	25  Truck Exposure Index (4,000)	27  Truck Exposure Index (4,240)
	Ingress and egress interference at entrances to recreational or community features and/or institutions.  Consideration of truck exposure (No. ingress and egress interference x No. quarry trucks one direction)	12  Truck Exposure Index (3,905)	16  Truck Exposure Index (5,785)	20  Truck Exposure Index (5,460)	21  Truck Exposure Index (4,840)	25  Truck Exposure Index (5,305)
Potential for displacement/ removal of residents & residential property from road improvements.	Number and area of residences/residential property required (partial removals).	58  6,274 sqm	123  5,914 sqm	79  10,105 sqm	137  16,404 sqm	202  17,243 sqm
	Number and area of residences/residential properties required (full displacement)	None	None	None	None	None
	Number of vulnerable residents/households displaced	None	None	None	None	None

**Table 1: Social Environment and Community Impacts**

Criteria	Indicators	Alternative Haul Route 1	Alternative Haul Route 2	Alternative Haul Route 3	Alternative Haul Route 4	Alternative Haul Route 5
Potential for displacement/ removal of recreational or community features and/or institutions.	Number and area of recreational or community features (including trails, bicycle routes and parks) and/or institutional properties required (partial removals).	There are 6 parks and community institutions along this route. There is potential for 0 sqm partial displacement.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 8 parks and community institutions along this route. There is potential for 332 sqm partial displacement.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 4 parks and community institutions along this route. There is potential for 0 sqm partial displacement.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 10 parks and community institutions along this route. There is potential for 0 sqm partial displacement.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 12 parks and community institutions along this route. There is potential for 207 sqm partial displacement.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.
	Number and area of recreational or community features (including trails, bicycle routes and parks) and/or institutional properties required (full displacement).	There are 6 parks and community institutions along this route. None will require full removals.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 8 parks and community institutions along this route. None will require full removals.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 4 parks and community institutions along this route. None will require full removals.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 10 parks and community institutions along this route. None will require full removals.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.	There are 12 parks and community institutions along this route. None will require full removals.  After the proposed cross-section changes are implemented there is 0 km of the route without adequate shoulders for pedestrians and cyclists.
	Number of sensitive / vulnerable recreational or community features and institutions displaced.	There are 19 sensitive / vulnerable recreational or community features and institutions that may be impacted by the route.  The route will not displace any of these features.	There are 21 sensitive / vulnerable recreational or community features and institutions that may be impacted by the route.  The route will not displace any of these features.	There are 22 sensitive / vulnerable recreational or community features and institutions that may be impacted by the route.  The route will not displace any of these features.	There are 25 sensitive / vulnerable recreational or community features and institutions that may be impacted by the route.  The route will not displace any of these features.	There are 27 sensitive / vulnerable recreational or community features and institutions that may be impacted by the route.  The route will not displace any of these features.

**Table 2: Economic Environment and Business Impacts**

Criteria	Indicators	Alternative Haul Route 1	Alternative Haul Route 2	Alternative Haul Route 3	Alternative Haul Route 4	Alternative Haul Route 5
<b>Gartner Lee Limited</b>						
Potential for disruption to business enterprises.	Number of business enterprises fronting and/or backing along a potential truck route. Consideration of truck exposure (No. businesses x No. quarry trucks one direction)	152 Truck Exposure Index (31,030)	152 Truck Exposure Index (29,030)	178 Truck Exposure Index (22,620)	184 Truck Exposure Index (23,820)	184 Truck Exposure Index (23,845)
	Number of sensitive / vulnerable business enterprises fronting and/or backing along a potential truck route Consideration of truck exposure (No. sensitive businesses x No. quarry trucks one direction)	40 Truck Exposure Index (10,455)	42 Truck Exposure Index (10,395)	44 Truck Exposure Index (8,400)	49 Truck Exposure Index (8,410)	51 Truck Exposure Index (8,655)
	Ingress and egress interference at entrances to business enterprises. Consideration of truck exposure (No. ingress and egress x No. quarry trucks one direction)	155 Truck Exposure Index (30,885)	154 Truck Exposure Index (28,315)	158 Truck Exposure Index (9,600)	164 Truck Exposure Index (13,540)	163 Truck Exposure Index (13,450)
Potential for removal of business enterprises and/or property.	Number and area of business enterprise and/or other commercial or industrial property required (partial removals).	4 1,648 sqm	2 2,009 sqm	3 1,515 sqm	7 2,574 sqm	5 3,295 sqm
	Number and area of business enterprise and/or other commercial/industrial property required (full displacement)	None	None	None	None	None
	Number of sensitive / vulnerable business enterprises displaced.	None	None	None	None	None
Potential magnitude of effects on property values.	Qualitative assessment of the potential magnitude of effects on property values due to changes in traffic, traffic noise and roadway visibility at residential properties.  Assessment is based on noise and air quality analysis, driveway exposure index, and number of residences fronting and/or backing directly onto a potential truck route	LOW - MEDIUM	MEDIUM - HIGH	LOW	MEDIUM	HIGH

# Appendix C

## Social and Business Exposure Counts

Appendix C - Social Exposure

Alternative	G.L Segment	Link	Quarry Truck Volume (daily 1-direction)	Residences		Ingress and Egress - Residences		Defined Neighbourhood/ Communities		Ingress and Egress - D.N.		Recreational/ Community Facilities		Ingress and Egress - Com.		Vulnerable Recreational/ Community Facilities		Total Social Driveways	
				Quantity	Truck Exposure Index	Quantity	Truck Exposure Index	Quantity	Truck Exposure Index	Quantity	Truck Exposure Index	Quantity	Truck Exposure Index	Quantity	Truck Exposure Index	Quantity	Truck Exposure Index		
Alternative 1	1	Hwy 6 (S of Conc 11)	85	87	7395	10	850	4	340	4	340	2	170	0	0	2	170	10	
	2	Hwy 6 (S of Conc 11)	85	95	8075	75	6375	1	85	2	170	3	255	3	255	2	170	78	
	3	Hwy 6 (S of Conc 11)	85	81	6885	55	4675	1	85	1	85	0	0	0	0	0	0	55	
	4	Hwy 6 (S of Conc 11)	85	82	6970	36	3060	1	85	1	85	2	170	2	170	2	170	38	
	S half of 5	Hwy 6 (S of Conc 11)	85	160	13600	9	765	3	255	3	255	5	425	0	0	3	255	9	
	N half of 5	Hwy 6 (Campbellville to Conc 11)	485	160	77600	9	4365	2	970	2	970	2	970	1	485	2	970	10	
	6	Hwy 6 (N of Campbellville)	485	55	26675	49	23765	0	0	0	0	1	485	1	485	1	485	50	
	7	Hwy 6 (N of Campbellville)	485	162	78570	32	15520	3	1455	7	3395	4	1940	4	1940	4	1940	36	
W half of 8	Conc 11 (Hwy 6 to Centre)	570	29	16530	34	19380	0	0	0	0	2	1140	0	0	2	1140	34		
E half of 8	Conc 11 (Centre to Milborough)	570	29	16530	40	22800	0	0	0	0	1	570	1	570	1	570	41		
<b>Total</b>				<b>940</b>	<b>258830</b>	<b>349</b>	<b>101555</b>	<b>15</b>	<b>3275</b>	<b>20</b>	<b>5300</b>	<b>22</b>	<b>6125</b>	<b>12</b>	<b>3905</b>	<b>19</b>	<b>5870</b>	<b>361</b>	
Alternative 2	1	Hwy 6 (S of Campbellville)	85	87	7395	10	850	4	340	4	340	2	170	0	0	2	170	10	
	2	Hwy 6 (S of Campbellville)	85	95	8075	75	6375	1	85	2	170	3	255	3	255	2	170	78	
	3	Hwy 6 (S of Campbellville)	85	81	6885	55	4675	1	85	1	85	0	0	0	0	0	0	55	
	4	Hwy 6 (S of Campbellville)	85	82	6970	36	3060	1	85	1	85	2	170	2	170	2	170	38	
	5	Hwy 6 (S of Campbellville)	85	320	27200	18	1530	5	425	5	425	7	595	1	85	5	425	19	
	6	Hwy 6 (N of Campbellville)	485	55	26675	49	23765	0	0	0	0	1	485	1	485	1	485	50	
	7	Hwy 6 (N of Campbellville)	485	162	78570	32	15520	3	1455	7	3395	4	1940	4	1940	4	1940	36	
	E half of 8	Conc 11 (Centre to Milborough)	570	29	16530	34	19380	0	0	0	0	1	570	1	570	1	570	35	
	10	Centre (Conc 11 to Campbellville)	570	51	29070	42	23940	0	0	0	0	2	1140	2	1140	2	1140	44	
	11	Campbellville (Hwy 6 to Centre)	570	14	7980	15	8550	2	1140	2	1140	2	1140	2	1140	2	1140	17	
	<b>Total</b>				<b>976</b>	<b>215350</b>	<b>366</b>	<b>107645</b>	<b>17</b>	<b>3615</b>	<b>22</b>	<b>5640</b>	<b>24</b>	<b>6465</b>	<b>16</b>	<b>5785</b>	<b>21</b>	<b>6210</b>	<b>382</b>
Alternative 3	1	Hwy 6 (S of Conc 11)	30	87	2610	10	300	4	120	4	120	2	60	0	0	2	60	10	
	2	Hwy 6 (S of Conc 11)	30	95	2850	75	2250	1	30	2	60	3	90	3	90	2	60	78	
	3	Hwy 6 (S of Conc 11)	30	81	2430	55	1650	1	30	1	30	0	0	0	0	0	0	55	
	4	Hwy 6 (S of Conc 11)	30	82	2460	36	1080	1	30	1	30	2	60	2	60	2	60	38	
	5	Hwy 6 (N of Conc 11)	30	320	9600	18	540	5	150	5	150	7	210	1	30	5	150	19	
	6	Hwy 6 (N of Conc 11)	30	55	1650	49	1470	0	0	0	0	1	30	1	30	1	30	50	
	7	Hwy 6 (N of Conc 11)	30	162	4860	32	960	3	90	7	210	4	120	4	120	4	120	36	
	9	Milborough (Conc 11 to Campbellville)	570	37	21090	23	13110	1	570	1	570	1	570	0	0	0	0	24	
	12	Campbellville (Milborough to Twiss)	570	12	6840	11	6270	0	0	0	0	5	2850	5	2850	4	2280	16	
	13	Twiss	570	3	1710	3	1710	0	0	0	0	0	0	0	0	0	0	3	
	14	Reid Sdrd	570	58	33060	6	3420	2	1140	2	1140	2	1140	3	1710	2	1140	9	
	<b>Total</b>				<b>992</b>	<b>89160</b>	<b>318</b>	<b>32760</b>	<b>18</b>	<b>2160</b>	<b>23</b>	<b>2310</b>	<b>27</b>	<b>5130</b>	<b>20</b>	<b>5460</b>	<b>22</b>	<b>3900</b>	<b>338</b>
	Alternative 4	1	Hwy 6 (S of Conc 11)	60	87	5220	10	600	4	240	4	240	2	120	0	0	2	120	10
		2	Hwy 6 (S of Conc 11)	60	95	5700	75	4500	1	60	2	120	3	180	3	180	2	120	78
3		Hwy 6 (S of Conc 11)	60	81	4860	55	3300	1	60	1	60	0	0	0	0	0	0	55	
4		Hwy 6 (S of Conc 11)	60	82	4920	36	2160	1	60	1	60	2	120	2	120	2	120	38	
S half of 5		Hwy 6 (S of Conc 11)	60	160	9600	9	540	3	180	3	180	5	300	0	0	3	180	9	
N half of 5		Hwy 6 (Campbellville to Conc 11)	55	160	8800	9	495	2	110	2	110	2	110	1	55	2	110	10	
6		Hwy 6 (N of Campbellville)	55	55	3025	49	2695	0	0	0	0	1	55	1	55	1	55	50	
7		Hwy 6 (N of Campbellville)	55	162	8910	32	1760	3	165	7	385	4	220	4	220	4	220	36	
E half of 8		Conc 11 (Hwy 6 to Centre)	115	29	3335	34	3910	0	0	0	0	2	230	0	0	2	230	34	
W half of 8		Conc 11 (Centre to Milborough)	115	29	3335	40	4600	0	0	0	0	1	115	1	115	1	115	41	
9		Milborough (Conc 11 to Campbellville)	455	37	16835	23	10465	1	455	1	455	1	455	1	455	0	0	24	
12		Campbellville (Milborough to Twiss)	455	12	5460	11	5005	0	0	0	0	5	2275	5	2275	4	1820	16	
13		Twiss	455	3	1365	3	1365	0	0	0	0	0	0	0	0	0	0	3	
14		Reid Sdrd	455	58	26390	6	2730	2	910	2	910	2	910	3	1365	2	910	9	
<b>Total</b>				<b>1050</b>	<b>107755</b>	<b>392</b>	<b>44125</b>	<b>18</b>	<b>2240</b>	<b>23</b>	<b>2520</b>	<b>30</b>	<b>5090</b>	<b>21</b>	<b>4840</b>	<b>25</b>	<b>4000</b>	<b>413</b>	
Alternative 5	1	Hwy 6 (S of Campbellville)	60	87	5220	10	600	4	240	4	240	2	120	0	0	2	120	10	
	2	Hwy 6 (S of Campbellville)	60	95	5700	75	4500	1	60	2	120	3	180	3	180	2	120	78	
	3	Hwy 6 (S of Campbellville)	60	81	4860	55	3300	1	60	1	60	0	0	0	0	0	0	55	
	4	Hwy 6 (S of Campbellville)	60	82	4920	36	2160	1	60	1	60	2	120	2	120	2	120	38	
	5	Hwy 6 (S of Campbellville)	60	320	19200	18	1080	5	300	5	300	7	420	1	60	5	300	19	
	6	Hwy 6 (N of Campbellville)	55	55	3025	49	2695	0	0	0	0	1	55	1	55	1	55	50	
	7	Hwy 6 (N of Campbellville)	55	162	8910	32	1760	3	165	7	385	4	220	4	220	4	220	36	
	E half of 8	Conc 11 (Centre to Milborough)	115	29	3335	34	3910	0	0	0	0	1	115	1	115	1	115	35	
	10	Centre (Conc 11 to Campbellville)	115	51	5865	42	4830	0	0	0	0	2	230	2	230	2	230	44	
	11	Campbellville (Hwy 6 to Centre)	115	14	1610	15	1725	2	230	2	230	2	230	2	230	2	230	17	
	9	Milborough (Conc 11 to Campbellville)	455	37	16835	23	10465	1	455	1	455	1	455	1	455	0	0	24	
	12	Campbellville (Milborough to Twiss)	455	12	5460	11	5005	0	0	0	0	5	2275	5	2275	4	1820	16	
	13	Twiss	455	3	1365	3	1365	0	0	0	0	0	0	0	0	0	0	3	
	14	Reid Sdrd	455	58	26390	6	2730	2	910	2	910	2	910	3	1365	2	910	9	
<b>Total</b>				<b>1086</b>	<b>112695</b>	<b>409</b>	<b>46125</b>	<b>20</b>	<b>2480</b>	<b>25</b>	<b>2760</b>	<b>32</b>	<b>5330</b>	<b>25</b>	<b>5305</b>	<b>27</b>	<b>4240</b>	<b>434</b>	

**Appendix C - Business Exposure**

Alternative	G.L Link ID	Link	Quarry Truck Volume (daily 1-direction)	Businesses	Truck Exposure Index	Ingress/Egree Businesses	Truck Exposure Index	Sensitive and Vulnerable Businesses	Truck Exposure Index	
				Quantity		Quantity		Quantity		
Alternative 1	1	Hwy 6 (S of Conc 11)	85	15	1275	17	1445	3	255	
	2	Hwy 6 (S of Conc 11)	85	24	2040	23	1955	7	595	
	3	Hwy 6 (S of Conc 11)	85	46	3910	48	4080	5	425	
	4	Hwy 6 (S of Conc 11)	85	18	1530	19	1615	4	340	
	S half of 5	Hwy 6 (S of Conc 11)	85	5	425	5	425	2	170	
	N half of 5	Hwy 6 (Campbellville to Conc 11)	485	5	2425	5	2425	3	1455	
	6	Hwy 6 (N of Campbellville)	485	16	7760	12	5820	1	485	
	7	Hwy 6 (N of Campbellville)	485	17	8245	20	9700	8	3880	
	E half of 8	Conc 11 (Hwy 6 to Centre)	570	3	1710	3	1710	2	1140	
W half of 8	Conc 11 (Centre to Milborough)	570	3	1710	3	1710	3	1710		
<b>Total</b>				<b>152</b>	<b>31030</b>	<b>155</b>	<b>30885</b>	<b>38</b>	<b>10455</b>	
Alternative 2	1	Hwy 6 (S of Campbellville)	85	15	1275	17	1445	3	255	
	2	Hwy 6 (S of Campbellville)	85	24	2040	23	1955	7	595	
	3	Hwy 6 (S of Campbellville)	85	46	3910	48	4080	5	425	
	4	Hwy 6 (S of Campbellville)	85	18	1530	19	1615	4	340	
	5	Hwy 6 (S of Campbellville)	85	10	850	10	850	5	425	
	6	Hwy 6 (N of Campbellville)	485	16	7760	12	5820	1	485	
	7	Hwy 6 (N of Campbellville)	485	17	8245	20	9700	8	3880	
	E half of 8	Conc 11 (Centre to Milborough)	570	3	1710	3	1710	2	1140	
	10	Centre (Conc 11 to Campbellville)	570	1	570	1	570	2	1140	
	11	Campbellville (Hwy 6 to Centre)	570	2	1140	1	570	3	1710	
	<b>Total</b>				<b>152</b>	<b>29030</b>	<b>154</b>	<b>28315</b>	<b>40</b>	<b>10395</b>
Alternative 3	1	Hwy 6 (S of Conc 11)	30	15	450	17	510	3	90	
	2	Hwy 6 (S of Conc 11)	30	24	720	23	690	7	210	
	3	Hwy 6 (S of Conc 11)	30	46	1380	48	1440	5	150	
	4	Hwy 6 (S of Conc 11)	30	18	540	19	570	4	120	
	5	Hwy 6 (N of Conc 11)	30	10	300	10	300	5	150	
	6	Hwy 6 (N of Conc 11)	30	16	480	12	360	1	30	
	7	Hwy 6 (N of Conc 11)	30	17	510	20	600	8	240	
	9	Milborough (Conc 11 to Campbellville)	570	2	1140	1	570	3	1710	
	12	Campbellville (Milborough to Twiss)	570	2	1140	1	570	3	1710	
	13	Twiss	570	8	4560	3	1710	0	0	
	14	Reid Sdrd	570	20	11400	4	2280	7	3990	
	<b>Total</b>				<b>178</b>	<b>22620</b>	<b>158</b>	<b>9600</b>	<b>46</b>	<b>8400</b>
	Alternative 4	1	Hwy 6 (S of Conc 11)	60	15	900	17	1020	3	180
		2	Hwy 6 (S of Conc 11)	60	24	1440	23	1380	7	420
3		Hwy 6 (S of Conc 11)	60	46	2760	48	2880	5	300	
4		Hwy 6 (S of Conc 11)	60	18	1080	19	1140	4	240	
S half of 5		Hwy 6 (S of Conc 11)	60	5	300	5	300	2	120	
N half of 5		Hwy 6 (Campbellville to Conc 11)	55	5	275	5	275	3	165	
6		Hwy 6 (N of Campbellville)	55	16	880	12	660	1	55	
7		Hwy 6 (N of Campbellville)	55	17	935	20	1100	8	440	
E half of 8		Conc 11 (Hwy 6 to Centre)	115	3	345	3	345	2	230	
W half of 8		Conc 11 (Centre to Milborough)	115	3	345	3	345	3	345	
9		Milborough (Conc 11 to Campbellville)	455	2	910	1	455	3	1365	
12		Campbellville (Milborough to Twiss)	455	2	910	1	455	3	1365	
13		Twiss	455	8	3640	3	1365	0	0	
14		Reid Sdrd	455	20	9100	4	1820	7	3185	
<b>Total</b>				<b>184</b>	<b>23820</b>	<b>164</b>	<b>13540</b>	<b>51</b>	<b>8410</b>	
Alternative 5	1	Hwy 6 (S of Campbellville)	60	15	900	17	1020	3	180	
	2	Hwy 6 (S of Campbellville)	60	24	1440	23	1380	7	420	
	3	Hwy 6 (S of Campbellville)	60	46	2760	48	2880	5	300	
	4	Hwy 6 (S of Campbellville)	60	18	1080	19	1140	4	240	
	5	Hwy 6 (S of Campbellville)	60	10	600	10	600	5	300	
	6	Hwy 6 (N of Campbellville)	55	16	880	12	660	1	55	
	7	Hwy 6 (N of Campbellville)	55	17	935	20	1100	8	440	
	E half of 8	Conc 11 (Centre to Milborough)	115	3	345	3	345	2	230	
	10	Centre (Conc 11 to Campbellville)	115	1	115	1	115	2	230	
	11	Campbellville (Hwy 6 to Centre)	115	2	230	1	115	3	345	
	9	Milborough (Conc 11 to Campbellville)	455	2	910	1	455	3	1365	
	12	Campbellville (Milborough to Twiss)	455	2	910	1	455	3	1365	
	13	Twiss	455	8	3640	3	1365	0	0	
	14	Reid Sdrd	455	20	9100	4	1820	7	3185	
<b>Total</b>				<b>184</b>	<b>23845</b>	<b>163</b>	<b>13450</b>	<b>53</b>	<b>8655</b>	

# Appendix D

## Rural Character - Business and Community Feature List

# Rural Character Business and Community Features List

## Route Segment 1

- Monastery: Sisters of the Precious Blood
- Monastery: Sisters of St Joseph
- Ruston RV/Trailer Centre

## Route Segment 2

- Antiques store
- Live Bait for sale-House
- Knights Inn- Motel

## Route Segment 3

- Farm Market
- Grasshopper Imports/Pottery
- Chillout ice cream stand
- Tree Farm

## Route Segment 4

- Trdaks Western Workwear Shop
- Breezy Corners Family Restaurant
- Willowbrook Stables
- New Holland Regional Tractor Sales
- Woodland Farm Market
- Self Storage- RV Park

## Route Segment 5

- Trailer Park

## Route Segment 6

- Farm
- Bryan's Farms and Industrial Supply
- Pacific Cedar

**Route Segment 7**

- Cherrylane Farms
- Nipponia Holsteins
- Horse Ranch
- Morriston Village Plaza
- Change of Pace Restaurant
- Penwood Furniture
- Picard's Peanuts
- Church- historic
- Le Bel Furniture

**Route Segment 8**

- Carlisle Canoe
- Baycairn- Training Stables
- Livestock Farm
- Bob Myl Farms
- Spruce Meadow Ranch

**Route Segment 9**

- Horse Farm

**Route Segment 10**

- Mountsberg Community Centre- Historic Schoolhouse
- Tree Nursery

**Route Segment 11**

- Solar and Wind Centre/Farm
- Campbellville Horse Training Centre/Racetrack
- Mountsberg Baptist Church + Cemetery

**Route Segment 12**

- Touch n' Go Horse Business
- Mountsberg Wildlife Centre

**Route Segment 13**

- Rockett Lumber
- Goodfellow Wood Specialists
- Timber Preservations

**Route Segment 14**

- No features that contribute to rural community character

**Route Segment 15**

- St David's Historic church + cemetery