

3.0 LAND USE / SOCIO-ECONOMIC ENVIRONMENT

A map of land use and select community facilities is shown on **Exhibit 3-1**.

3.1 Land Use Planning Policies, Goals, Objectives

3.1.1 First Nations Land Claims

There are five filed land claims that may apply to the preferred corridor:

- Stoney Point Indian Reserve (1 court file)
- Chippewas of Kettle and Stoney Point (3 court files)
- Walpole Island First Nation (1 court file)

3.1.2 Municipal Land Use Planning Policies/Goals/Objectives

The corridor traverses the City of Stratford and the townships of Perth East, and Perth South in the County of Perth, and township of Wilmot in the Region of Waterloo. No specific transportation policies were identified relevant to particular corridor sections. Land use designations along each corridor section are discussed within section descriptions below.

3.1.3 Development Objectives of Private Property Owners

Major private property owner development proposals within the preferred corridor will be identified in consultation with municipalities during the detailed planning phase of the study.

3.2 Land Use/Community

AECOM obtained land use information from local and Regional Official Plans and reviewed air photos of the study area to identify general land uses and development areas. Windshield survey of the preferred corridor was conducted in May of 2009 to numerate and confirm findings from the air photo and land use analysis. These findings are detailed in sections 3.2.3 - 3.2.7.

3.2.1 Indian Reserves

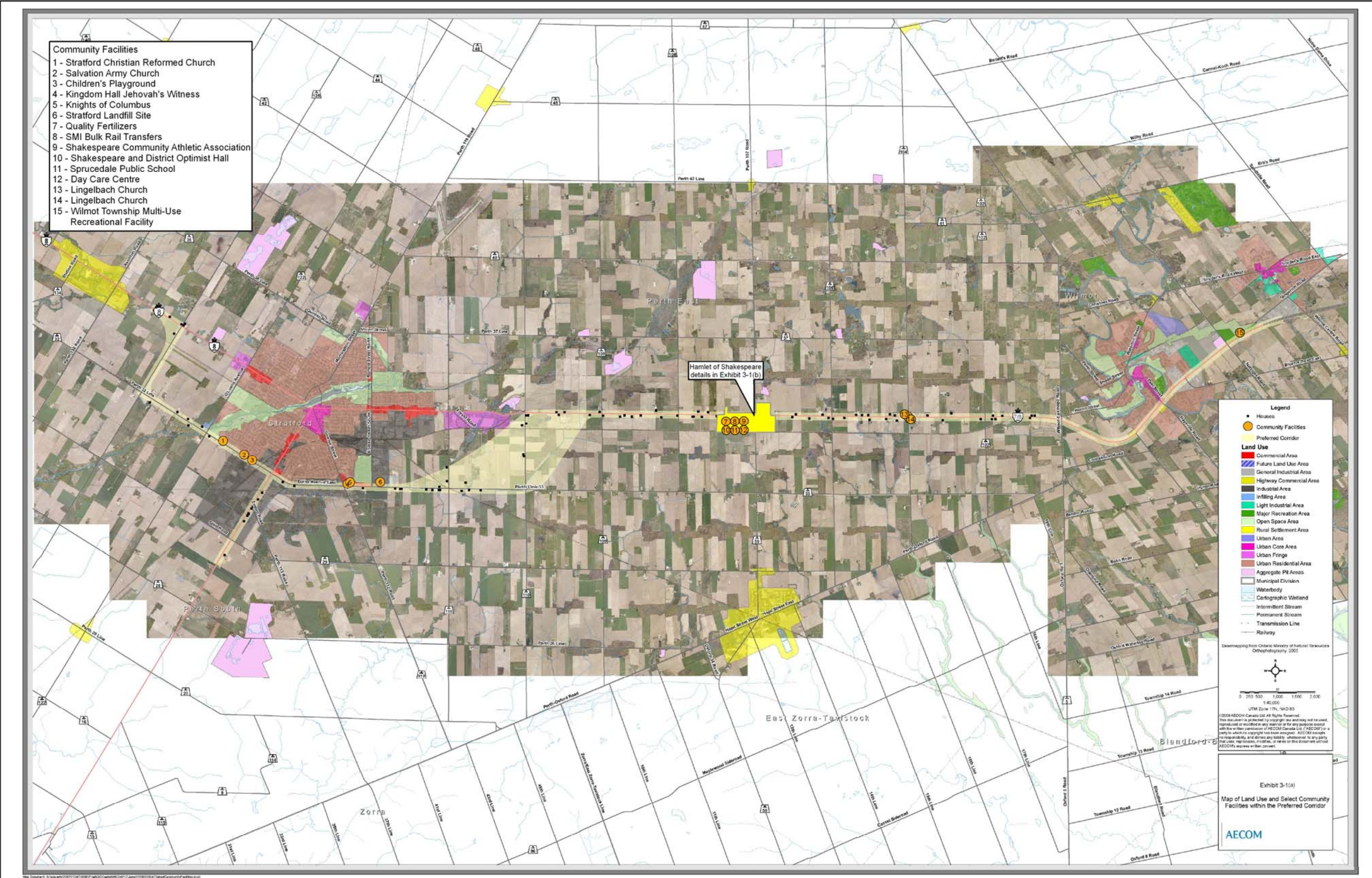
There are no Indian Reserves within the preferred corridor.

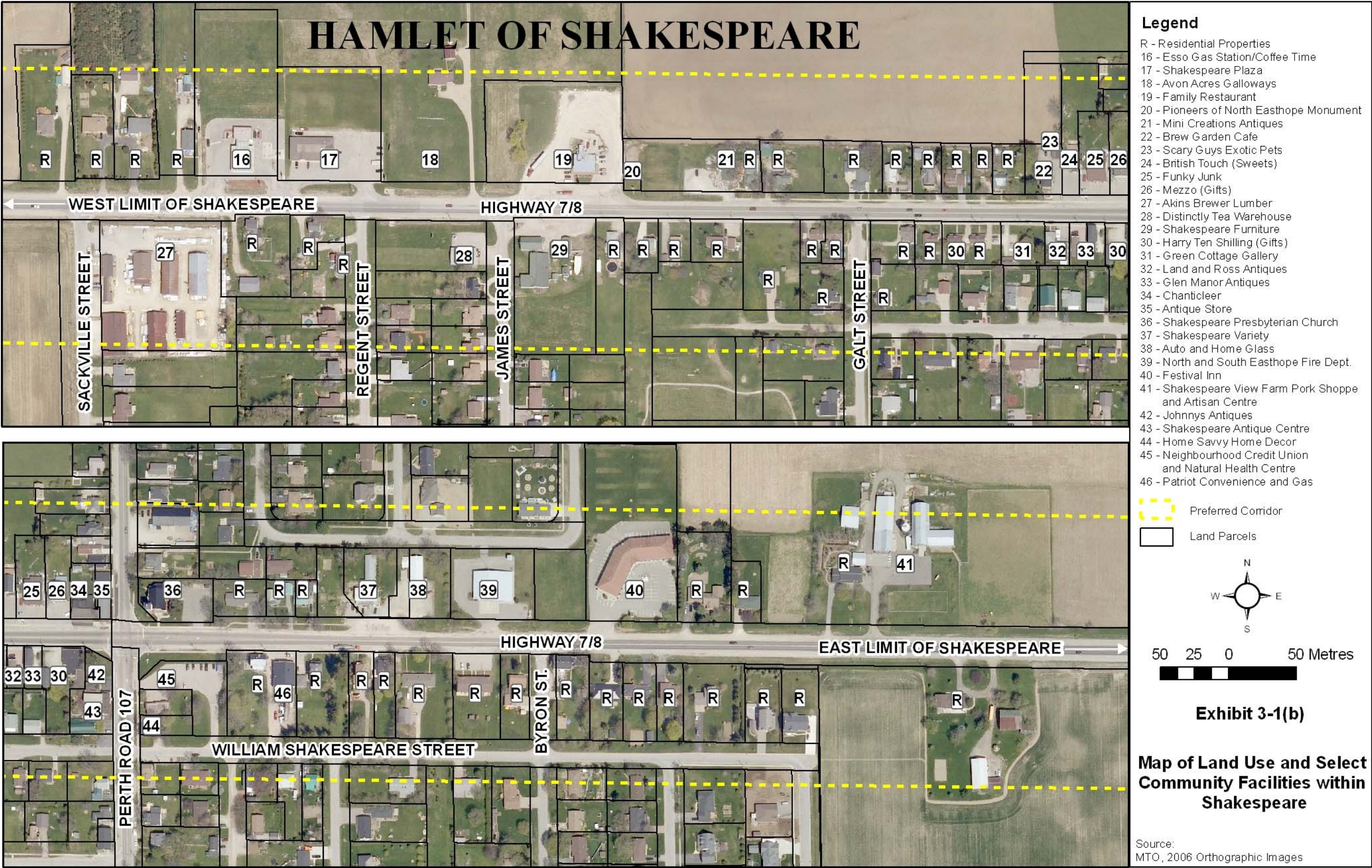
3.2.2 First Nation Sacred Grounds

No First Nations sacred grounds have been identified within the preferred corridor.

3.2.3 Urban and Rural Residential

The preferred corridor contains a variety of rural residences located outside of designated urban residential areas, as well as a number of fairly densely developed residential areas. Most of the individual rural residences have driveways that situate them some distance from the adjacent





road, (main highway) though some are located quite close to the road. A detailed description of the residential areas is included in **Exhibit 3-2**.

| Exhibit 3-2 | |
|--|--|
| Residential Areas within the Preferred Corridor | |
| Segment (Nodes) | Area description |
| 1.1 - 1.2 | <ul style="list-style-type: none"> Approximately 10 single family rural residential dwellings are located adjacent to Highway 8 Houses are located on both the north and south side of the road, with one house situated on the NW corner of Highway 8 and Line 125 All have driveways directly connecting to the main highway The dwellings are situated on agricultural land most seem to be associated with farm operations |
| 1.2 – 1.4 | <ul style="list-style-type: none"> Approximately 2 single family rural residential dwellings are located adjacent to Perth Road 125 The first is situated on the NE corner of Highway 8 and Line 125; the second is located on the east side of Line 125 and is situated on agricultural land Both dwellings have driveways directly connecting to the main highway |
| 1.4 - 1.5 | <ul style="list-style-type: none"> Approximately 7 single family rural residential dwellings located adjacent to Lorne Avenue West Dwellings are located on the north and south side of Lorne Ave West with most eastern dwelling within this span situated adjacent to a small creek All dwellings have driveways connecting to the main highway |
| 1.5 – 1.6 | <ul style="list-style-type: none"> 3 rural residences on the north and south side of Lorne Avenue West; each with driveways connecting to the main highway North side of Lorne Avenue West corridor backs onto a Urban Residential Area (single family dwellings with rear lots) with no road access to the main highway |
| 1.6 – 1.10 | <ul style="list-style-type: none"> Approximately 10 residential dwellings including 8 situated within industrial lands on the east side of Erie Street and 2 residences located at the south end at node 1.10 All have driveways with access to the main road |
| 2.3 – 2.4 | <ul style="list-style-type: none"> North side of Lorne Avenue East corridor backs onto a Urban Residential Area with no road access to the main highway Approximately 21 rural residential dwellings located on the north and south side of Lorne Avenue East all with driveways connecting to Highway 33 and Perth 111. Rd. These residences located on industrial and agricultural lands. |
| 2.4 -2.6 | <ul style="list-style-type: none"> Approximately 9 rural residential dwellings situated on agricultural land, located off Perth 33 Line and Perth 110 Road. Located within a wide section of this corridor |
| 3.1 – 3.3 | <ul style="list-style-type: none"> Approximately 13 rural residential dwellings situated on agricultural land, located adjacent to Highway 7&8 All have driveways with access to the main road |
| 3.3 – 3.5 | <ul style="list-style-type: none"> The corridor goes through the hamlet of Shakespeare and a zoned rural residential area, with a large number of single family dwellings |
| 3.5 – 4.1 | <ul style="list-style-type: none"> Approximately 24 rural residential dwellings located on the north and south sides of Highway 7&8 All have driveways with access to Highway 7&8 |
| 4.1 – 4.2 | <ul style="list-style-type: none"> Approximately 8 rural residential dwellings located on both sides of Highway 7&8 driveways with access to the Highway 7&8 |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No residential dwellings located within this corridor |

| Exhibit 3-2 | |
|--|--|
| Residential Areas within the Preferred Corridor | |
| Segment (Nodes) | Area description |
| 4.3 – 4.5 | <ul style="list-style-type: none"> Sections of this corridor are adjacent to and contain portions of more densely developed urban residential areas None of the residences in these areas have driveways with access to the main road The corridor includes the back lots of these residential areas. |
| Note: Node locations are shown in Exhibit 1-2. | |

3.2.4 Commercial/Industrial

This corridor is characterized by a mix of commercial and industrial uses. Some sections of the corridor contain restaurants and shops, while the industrial sections of the corridor contain mostly automotive, construction, and farm-related industries. A detailed description is given in **Exhibit 3-3**.

| Exhibit 3-3 | |
|--|---|
| Commercial and Industrial Areas within the Preferred Corridor | |
| Segment (Nodes) | Area description |
| 1.1 - 1.2 | <ul style="list-style-type: none"> One commercial business, Camp Out RV Sales Rental, located the north side of Highway 8. Camp Out RV Sales Rental has no entrance to Highway 8, access provided from secondary roads |
| 1.2 – 1.4 | <ul style="list-style-type: none"> One commercial business located the east side of Line 125. Spinning Wheels Farm Equipment has a driveway connecting to Line 125 and is situated in and around agricultural land |
| 1.4 - 1.5 | <ul style="list-style-type: none"> No commercial or industrial areas located within this section of the corridor |
| 1.5 – 1.6 | <ul style="list-style-type: none"> Shopping centre located on north side of Lorne Avenue West including Sobey's food store Other commercial office buildings for automotive and parts sales located on the south side All have driveways connecting to Lorne Avenue |
| 1.6 – 1.9 | <ul style="list-style-type: none"> Densely developed commercial with businesses located on both the east and west sides of Erie Street. Business types include restaurant, retail, utility providers, construction services and repair, and automotive parts and services. Large industrial manufacturing plant situated on the east side of Erie Street; KSR International |
| 1.9 -1.10 | <ul style="list-style-type: none"> No commercial or industrial areas located within this section of the corridor |
| 2.3 -2.4 | <ul style="list-style-type: none"> Designated Commercial Area on the north east corner of the Lorne Avenue East and Erie Street intersection Second Designated Commercial Area situated on the north east corner of Downie Street and Lorne Avenue East Other commercial, construction, auto and industry type business located on the north and south sides of Lorne Avenue / Perth Line 33 |

| Exhibit 3-3 Commercial and Industrial Areas within the Preferred Corridor | |
|--|---|
| Segment (Nodes) | Area description |
| | <ul style="list-style-type: none"> At 55 Lorne Avenue East several regional support services including: <ul style="list-style-type: none"> Stratford and District Chamber of Commerce Paramed Home Health Care\ Huron/Perth Community Legal Town and Country Support Services Autobody Repair Community Care Access Centre (89 Lorne Avenue.) |
| 2.4-2.6 | <ul style="list-style-type: none"> Approximately three commercial buildings, including the Suburban Motel, a golf center and a garden center access to Perth 110 Rd or Highway 7&8. |
| 2.6 – 3.3 | <ul style="list-style-type: none"> Some commercial/industrial operations, including a farm equipment sales and repair shop. With access to Highway 7&8 |
| 3.3 – 3.5 | <ul style="list-style-type: none"> Numerous businesses within the hamlet of Shakespeare including several antique shops. |
| 3.4 - 3.5 | <ul style="list-style-type: none"> No commercial or industrial operations in this section of the corridor |
| 3.5 -4.1 | <ul style="list-style-type: none"> Some commercial buildings located within this corridor, mainly associated with vehicle repair and maintenance and farm-related businesses One tavern located on the south side of Highway 7&8 |
| 4.1 - 4.2 | <ul style="list-style-type: none"> No commercial or industrial buildings located within this section of the corridor |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No commercial or industrial buildings located within this section of the corridor |
| 4.3 – 4.5 | <ul style="list-style-type: none"> Several commercial and industrial buildings in this section of the corridor, including a No-Frills supermarket, Ford Dealership, Tim Horton's, McDonald's, Maple Leaf Factory and used car dealerships This section of the corridor runs through an urban core area and urban residential area, therefore, there are a range of commercial and industrial uses normally associated with a more densely populated region. |
| Note: Node locations are shown in Exhibit 1-2. | |

3.2.5 Tourist Areas and Attractions

This corridor bypasses the tourist attractions in Stratford and Shakespeare, but continues to serve the antique and other local shops in Shakespeare that are an en-route destination for tourists going to the Stratford festival. The impact of widening the highway through Shakespeare (as a tourist destination) will be analysed in a forthcoming Business Impact Analysis study, as the proposed highway may have both positive and negative impacts on tourist areas in the study area. A detailed description is given in **Exhibit 3-4**.

| Exhibit 3-4 Tourist Areas and Attractions within the Preferred Corridor | |
|--|---|
| Segment (Nodes) | Area description |
| 1.1 - 1.2 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 1.2 – 1.4 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 1.4 - 1.5 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 1.5 – 1.6 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |

| Exhibit 3-4 Tourist Areas and Attractions within the Preferred Corridor | |
|--|--|
| Segment (Nodes) | Area description |
| 1.6 – 1.9 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 1.9 -1.10 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 2.3 -2.4 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 2.4-2.6 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 2.6 – 3.3 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 3.3 – 3.5 | <ul style="list-style-type: none"> The hamlet of Shakespeare, which has many tourist attractions and local shops which many tourists visit while travelling to and from Stratford |
| 3.5 -4.1 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 4.1 - 4.2 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| 4.3 – 4.5 | <ul style="list-style-type: none"> No tourist areas or attractions in this section of the corridor |
| Note: Node locations are shown in Exhibit 1-2. | |

3.2.6 Community Facilities/Institutions

Several churches are located within the proposed corridor. Relatively few community facilities or other institutions are located within the proposed corridor. A detailed description is given in **Exhibit 3-5**.

| Exhibit 3-5 Community Facilities/Institutions within the Preferred Corridor | |
|--|---|
| Segment (Nodes) | Area description |
| 1.1 - 1.2 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 1.2 – 1.4 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 1.4 - 1.5 | <ul style="list-style-type: none"> Stratford Christian Reformed Church located on the North side of Lorne Avenue West situated within the Urban Residential Area; no entrance connecting to the main highway and access to secondary roads are necessary Salvation Army Church located on the north side of Lorne Avenue West situated on the outer edge of the Urban Residential Area; driveway access to main highway |
| 1.5 – 1.6 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 1.6 – 1.9 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 1.9 -1.10 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 2.3 -2.4 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 2.4-2.6 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 2.6 – 3.3 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor Community center located within the Hamlet of Shakespeare, adjacent (north) of the corridor |
| 3.3 – 3.5 | <ul style="list-style-type: none"> Church in the hamlet of Shakespeare on the northeast corner of Highway 7&8 and Perth Road 107 |
| 3.5 – 4.1 | <ul style="list-style-type: none"> Lingelbach Church located on the north side of Highway 7&8 |
| 4.1 – 4.2 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No community facilities or institutions located within this section of the corridor |
| 4.3 – 4.5 | <ul style="list-style-type: none"> Wilmot Township Recreational Facility located on the north side of Highway 7&8 No direct access to main road, located with a driveway off a secondary road and somewhat off the main highway |
| Note: Node locations are shown in Exhibit 1-2. | |

3.2.7 Municipal Infrastructure and Public Service Facilities

The only municipal infrastructure and public service facility located within the corridor is the Stratford Landfill. A detailed description is given in **Exhibit 3-6**.

| Exhibit 3-6: Municipal Infrastructure and Public Service Facilities within the Preferred Corridor | |
|--|--|
| Segment (Nodes) | Area description |
| 1.1 - 1.2 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 1.2 – 1.4 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 1.4 - 1.5 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 1.5 – 1.6 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 1.6 – 1.9 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 1.9 – 1.10 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 2.3 – 2.4 | <ul style="list-style-type: none"> Stratford Landfill Site located on the north side of Lorne Avenue East The south side of the landfill is directly adjacent to the main road |
| 2.4 – 2.6 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 3.1 – 3.3 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 3.3 – 3.5 | <ul style="list-style-type: none"> Fire hall and post office located within the hamlet of Shakespeare |
| 3.5 – 4.1 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 4.1 – 4.2 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| 4.3 – 4.5 | <ul style="list-style-type: none"> No municipal infrastructure or public service facilities in this section of the corridor |
| Note: Node locations are shown in Exhibit 1-2. | |

3.3 Noise Sensitive Areas

Exhibit 3-7 provides predictions of impacts related to transportation noise and construction noise along the selected corridor. Recommendations are provided with respect to potential route and widening alternatives along this corridor.

| Exhibit 3-7: Predicted Impacts in Noise Sensitive Areas | |
|--|--|
| Segment (Nodes) | Transportation Noise Impacts |
| 1-1 to 1-2 | Low potential for noise impacts. Impacts possible to the south of 1-1 and north of 1-2. |
| 1-2 to 1-4 | Low potential for noise impacts. |
| 1-4 to 1-5 | Low potential for noise impacts. |
| 1-5 to 1-6 | High potential for noise impacts to the north of the segment. |
| 2-1 to 2-2 | Low potential for noise impacts. |
| 2-2 to 2-3 | Low potential for noise impacts. More potential for impacts on east side |

| Exhibit 3-7: Predicted Impacts in Noise Sensitive Areas | |
|--|---|
| Segment (Nodes) | Transportation Noise Impacts |
| 2-3 to 2-4 | High potential for noise impacts to the north of the corridor, west of Romeo Street. |
| 2-4 to 2-6 | Medium potential for noise impacts to the northwest of the Segment. |
| 3-1 to 3-3 | Low potential for noise impacts. |
| 3-3 to 3-5 | High potential for noise impacts through this noise sensitive area (mixed commercial and residential) |
| 3-5 to 3-6 | Low potential for noise impacts. |
| 4-1 to 4-2 | Medium potential for noise impacts at Wilmot-Easthope Road. |
| 4-2 to 4-3 | Low potential for noise impacts. |
| 4-3 to 4-5 | High potential for noise impacts west of Peel Street/Haysville Road. High potential for impacts on both sides of Peel Street to Hamilton Road/Bleams Road. Low potential for impacts from 200m east of Hamilton Road/Bleams Road eastwards. |
| Note: Node locations are shown in Exhibit 1-2. | |

3.4 Agriculture

3.4.1 Agriculture – Canada Land Inventory Class 1, 2, 3 Soils

Agricultural soils in the Greater Stratford to New Hamburg area are predominantly Canada Land Inventory (CLI) Class 1, which has no significant growth limitations, and CLI Class 2, which has moderate growth limitations. There are pockets of CLI Class 3 soils, which have moderately severe growth limitations. Details are provided below for each section of the preferred corridor.

Section 1, from Highway 8 west of Stratford to Erie Street

This section of the preferred corridor is within existing roadways both outside and inside of an urban setting.

The portion of the corridor along Highway 8 and Perth Road 125 is within the Huron Clay Loam soil series which is 60% CLI Class 1 soils and 40% CLI Class 3 soils.

The portion of the corridor along Lorne Avenue is within 3 soil types. Huron Silt Loam is 60% CLI Class 1 soils and 40% CLI Class 3 soils; Perth Silt Loam is 100% CLI Class 1 soils; and Brookston Silt Loam is 100% CLI Class 2 soils.

Section 2. from Erie Street to Highway 7&8 east of Stratford:

The western half of this section of the preferred corridor is within an urban setting on existing roadway, and the eastern half is outside of an urban setting on new corridor.

The portion of the corridor west of Perth Road 111 and south of Lorne Avenue is situated within Perth Silt Loam, which is 100% comprised of CLI Class 1 soils. This portion of the corridor also includes Brookston Silt Loam soil series, which is 100% CLI Class 2 soils. East of Perth Road 109 there is a pocket of Bottom Land soil, which is CLI Class 5 soils (heavy severe limitations). In addition, at Lorne Avenue, there is an isolated pocket of Brookston Clay Loam soil, which is 100% CLI Class 2 soils.

The portion of the corridor east of Perth Road 111 and north of Lorne Avenue is within Perth Silt Loam soil series as well as a small portion of Huron Clay Loam soil series, which is 60% CLI Class 1 soils and 40% CLI Class 3 soils. A small portion of Muck exists at the northern corridor limits.

Section 3. from east of Stratford to west of New Hamburg

This section of the preferred corridor alternative is both outside and inside of an urban setting on an existing roadway.

The portion of the corridor on Highway 7&8 between Perth Road 110 and Perth Road 108 is predominately within Perth Silt Loam soil, which is 100% CLI Class 1 soils (no significant growth limitations). There are also smaller areas of Brookston Silt Loam (100% CLI Class 2 soils) and Huron Silt Loam (60% of CLI Class 1 soils and 40% CLI Class 3 soils).

The portion of the corridor that runs through Shakespeare between Perth Road 108 and Perth Road 106 is within Perth Silt Loam and Huron Clay Loam which is 60% CLI Class 1 soils and 40% CLI Class 3 soils.

The portion of the corridor on Highway 7&8 east of Perth Road 106 is predominately within Huron Clay Loam soil, with several areas of Bottom Land soil series which is 100% CLI Class 5 soils (heavy severe limitations).

Section 4. from west of New Hamburg to east of New Hamburg

This section of the preferred corridor is both outside and inside of an urban setting on an existing roadway.

The portion of the corridor west of Walker Road is predominately situated within Huron Clay Loam soil series which is 60% CLI Class 1 soils and 40% CLI Class 3 soils. Mid-way between Wilmot-Easthope Road and Walker Road is an area of Huron Loam soil, which is 100% CLI Class 2 soils. In addition, there are two (2) intersecting areas of Bottom Land soil series, which is 100% CLI Class 5 soils (heavy severe limitations). In the vicinity of Walker Road, there is an

area of Tavistock Loam and Bennington Loam which are both 100% CLI Class 1 soils, and a small portion of Huron Clay Loam and Perth Loam which are 100% CLI Class 2 soils.

The portion of the corridor east of Walker Road is situated within several soil series and soil compositions. On the east side of the Nith River the soils are 60% Macton Loam, 20% Kirkland Sandy Loam and 20% Maysville Sandy Loam composition and are 100% CLI Class 3 soils. At two locations, the corridor traverses soils that are 30% Lisbon Sandy Loam, 30% Brant Loam and 40% Waterloo Fine Sandy Loam, which are 70% CLI Class 1 soils and 30% CLI Class 2 soils. There is also an isolated pocket of 30% Perth Sandy Loam, 30% Perth Clay Loam and 40% disturbed land is situated within the corridor which is 100% CLI Class 2 soils. The Elmira soils within the urban area of New Hamburg are not ranked from an agricultural perspective. However there is also a soil series composition of 60% Tavistock Loam, 20% Maplewood Loam and 20% Huron Clay Loam which is 60% CLI Class 1 soils, 20% CLI Class 2 soils and 20% Class 3 soils. On either side of Nafziger Road, the soils are 60% Perth Clay Loam and 40% Huron Clay Loam soil which are 100% CLI Class 2 soils. East of Nafziger Road the soils area is 60% Huron Clay Loam, 20% Perth Clay Loam and 20% Wilmot Silty Clay Loam, which is 80% comprised of CLI Class 2 soils and 20% Class 4 soils (severe limitations).

At the east end of the corridor, there is an area which is 60% Perth Loam, 20% Perth Clay Loam and 20% Huron Clay Loam, which is 100% comprised of CLI Class 2 soils. There is also an area which is 60% Lisbon Sandy Loam, 20% Burford Gravelly Loam and 20% Burford Cobby Loam, which are all CLI Class 3 soil.

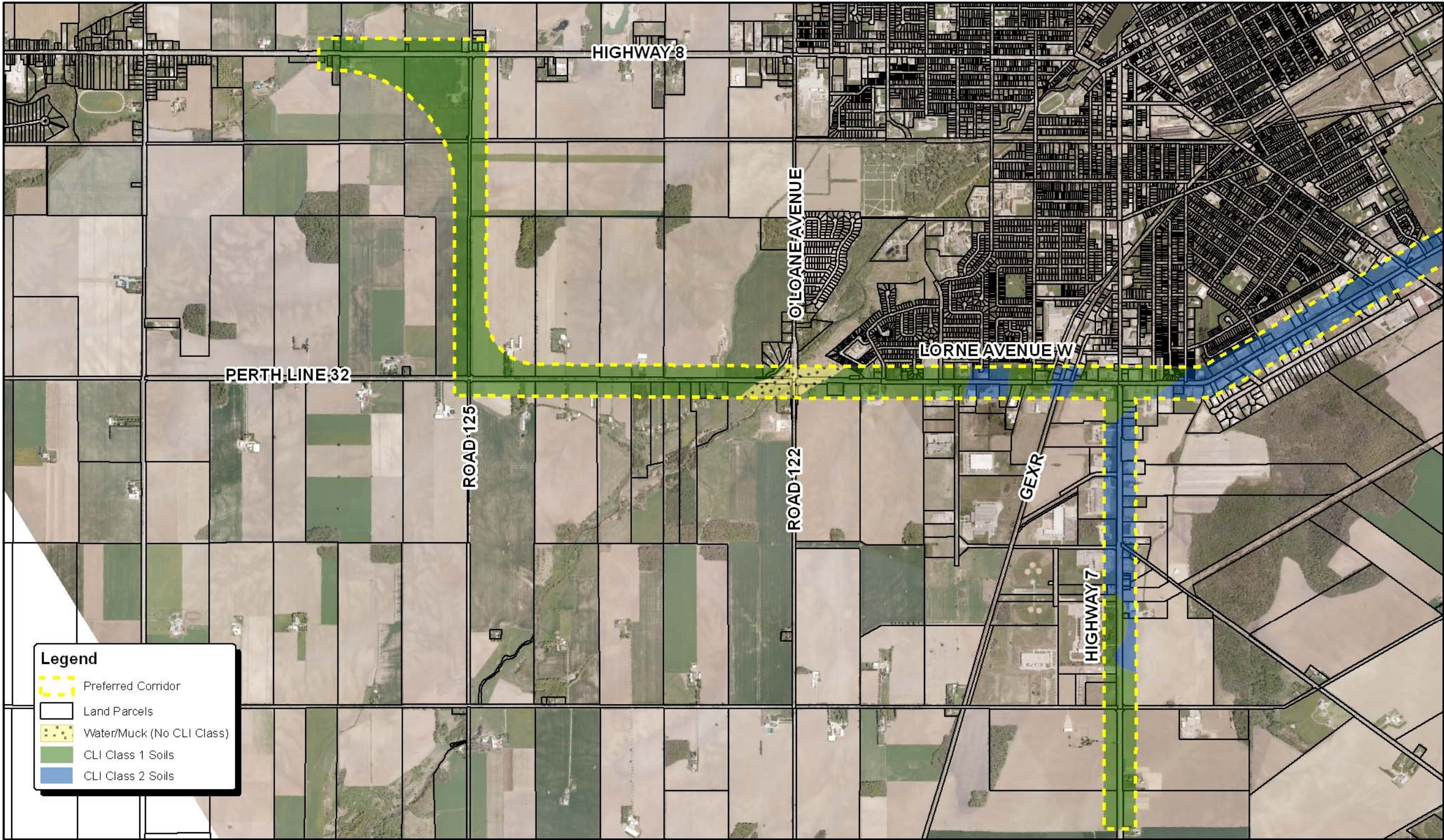
A map of Canada Land Inventory (CLI) soil classes within the preferred corridor is provided in **Exhibit 3-8**.

In the areas where the preferred corridor is located on existing roadways (the majority of the corridor), the loss of a small amount of farm frontage associated with widening/improvement will cause minimal loss of agricultural soils.

In the three key areas where the preferred corridor is not located on exiting roadways, there will be loss of agricultural soils, particularly associated with the new route from Perth Line 33 east of Romeo Street to Highway 7&8 east of Perth Road 110. Impacts will also be associated with the major intersection improvements at Highway 8 and Perth Road 125, and to a lesser degree, with major intersection improvements at Perth Road 125 Perth Line 23.

3.4.2 Agriculture - Farm Infrastructure

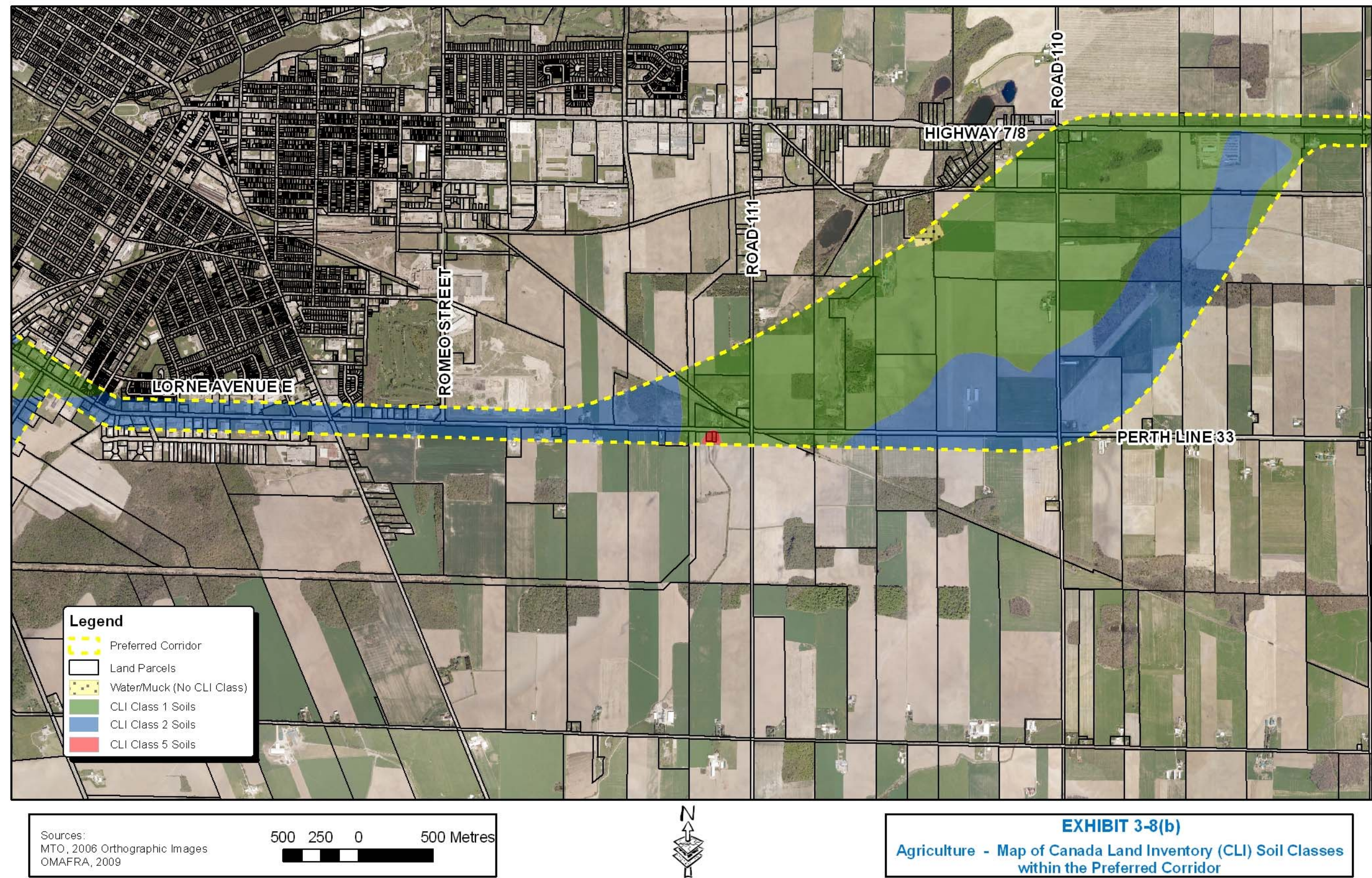
Information on field tile drainage systems for this corridor has been drawn from Ontario Ministry of Agriculture and Food records. This is shown in **Exhibit 3-9**.

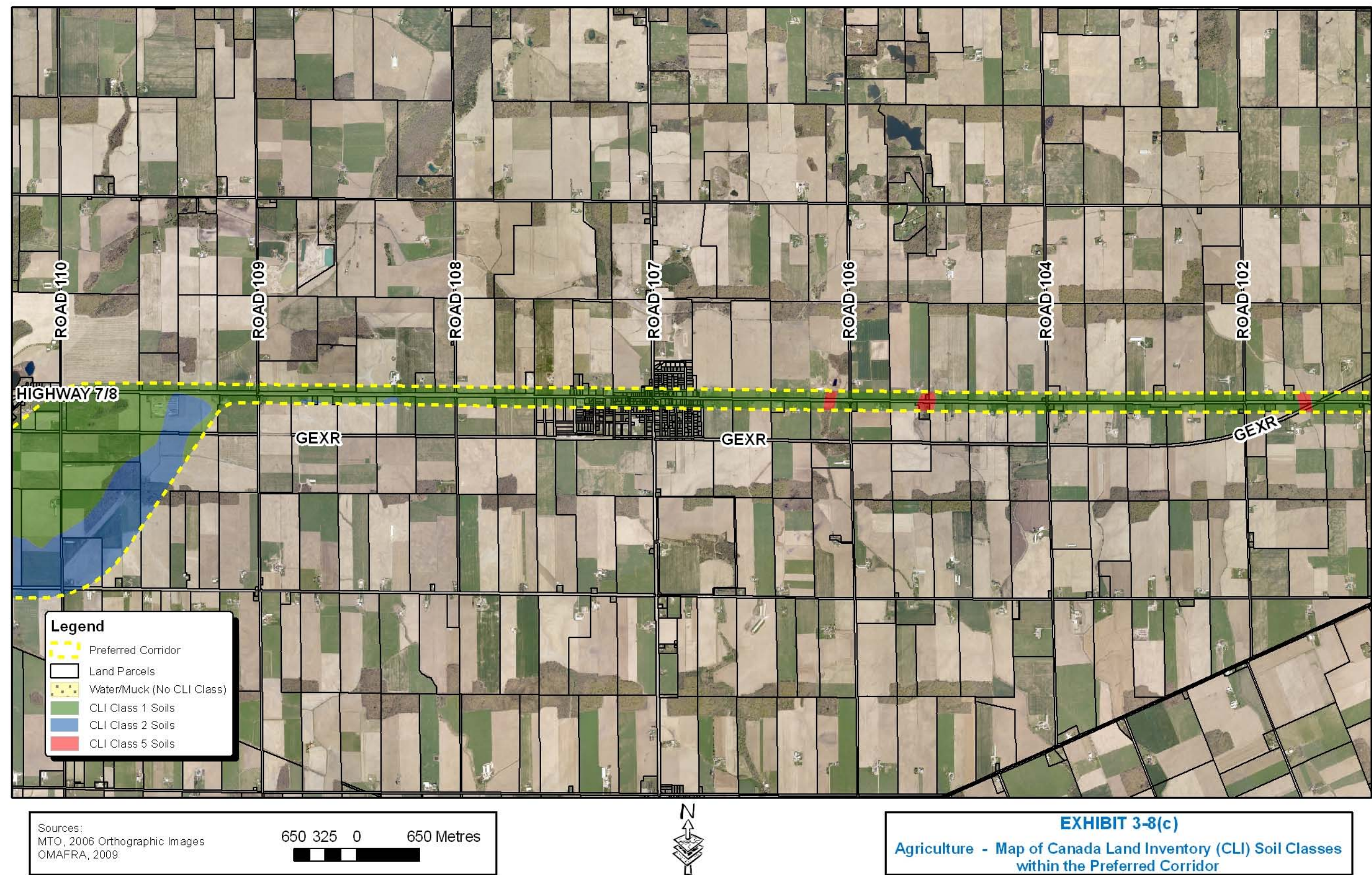


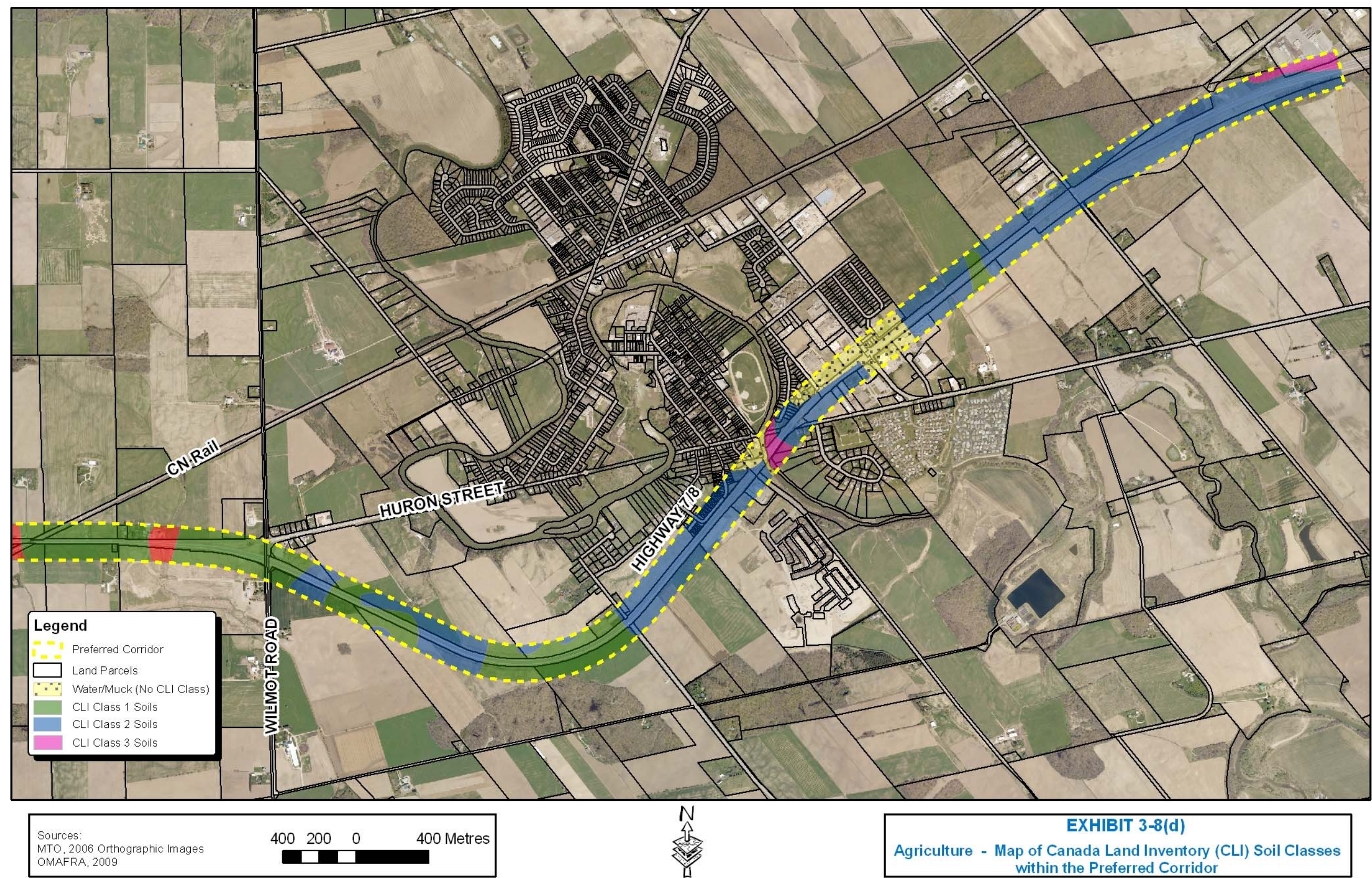
Sources:
MTO, 2006 Orthographic Images
OMAFRA, 2009

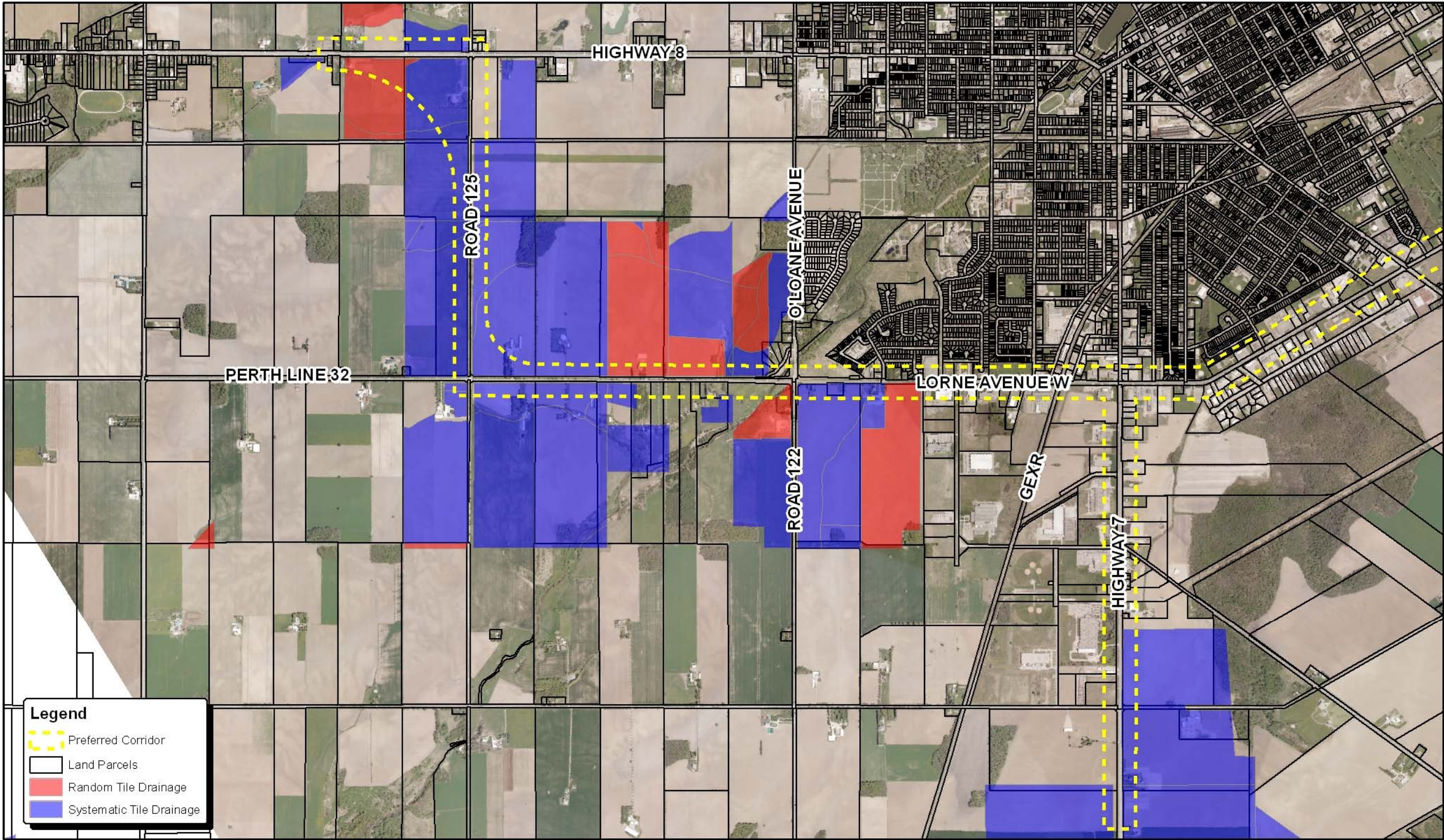
500 250 0 500 Metres

EXHIBIT 3-8(a)
Agriculture - Map of Canada Land Inventory (CLI) Soil Classes within the Preferred Corridor







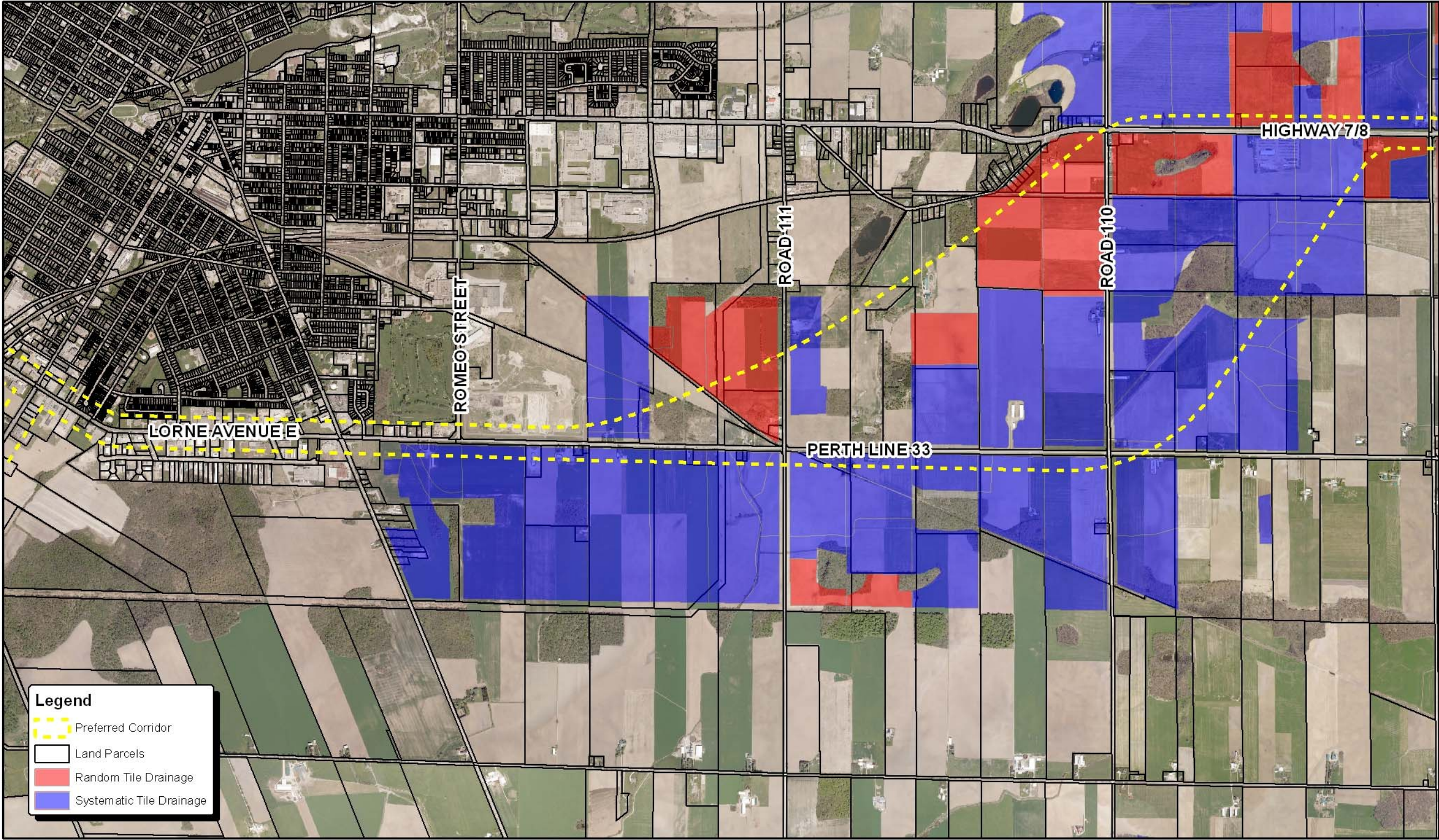


Sources:
MTO, 2006 Orthographic Images
OMAFRA, 2009

500 250 0 500 Metres



EXHIBIT 3-9(a)
Agriculture - Map of Field Tile Drainage Systems within
the Preferred Corridor



Legend

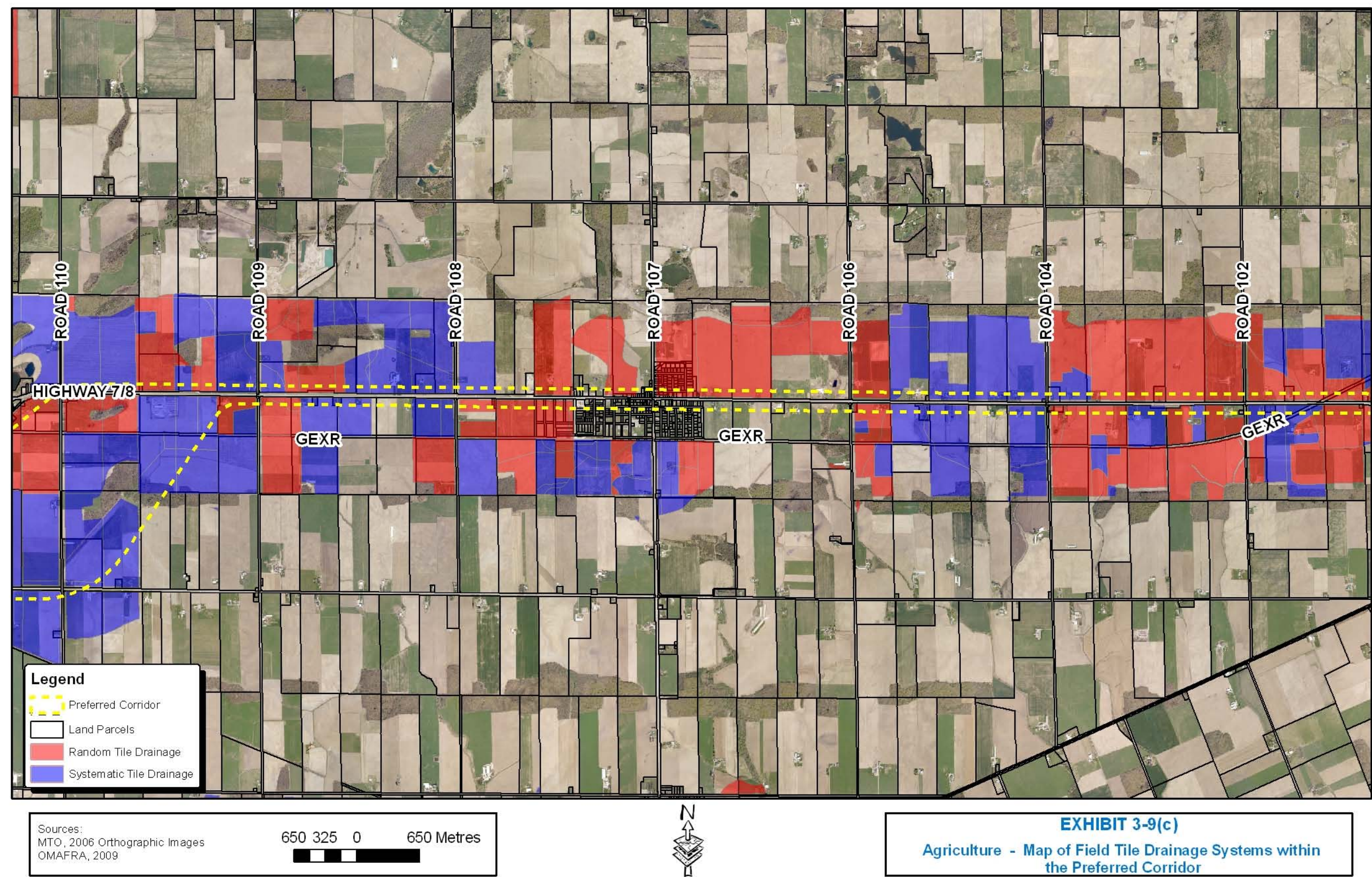
- Preferred Corridor
- Land Parcels
- Random Tile Drainage
- Systematic Tile Drainage

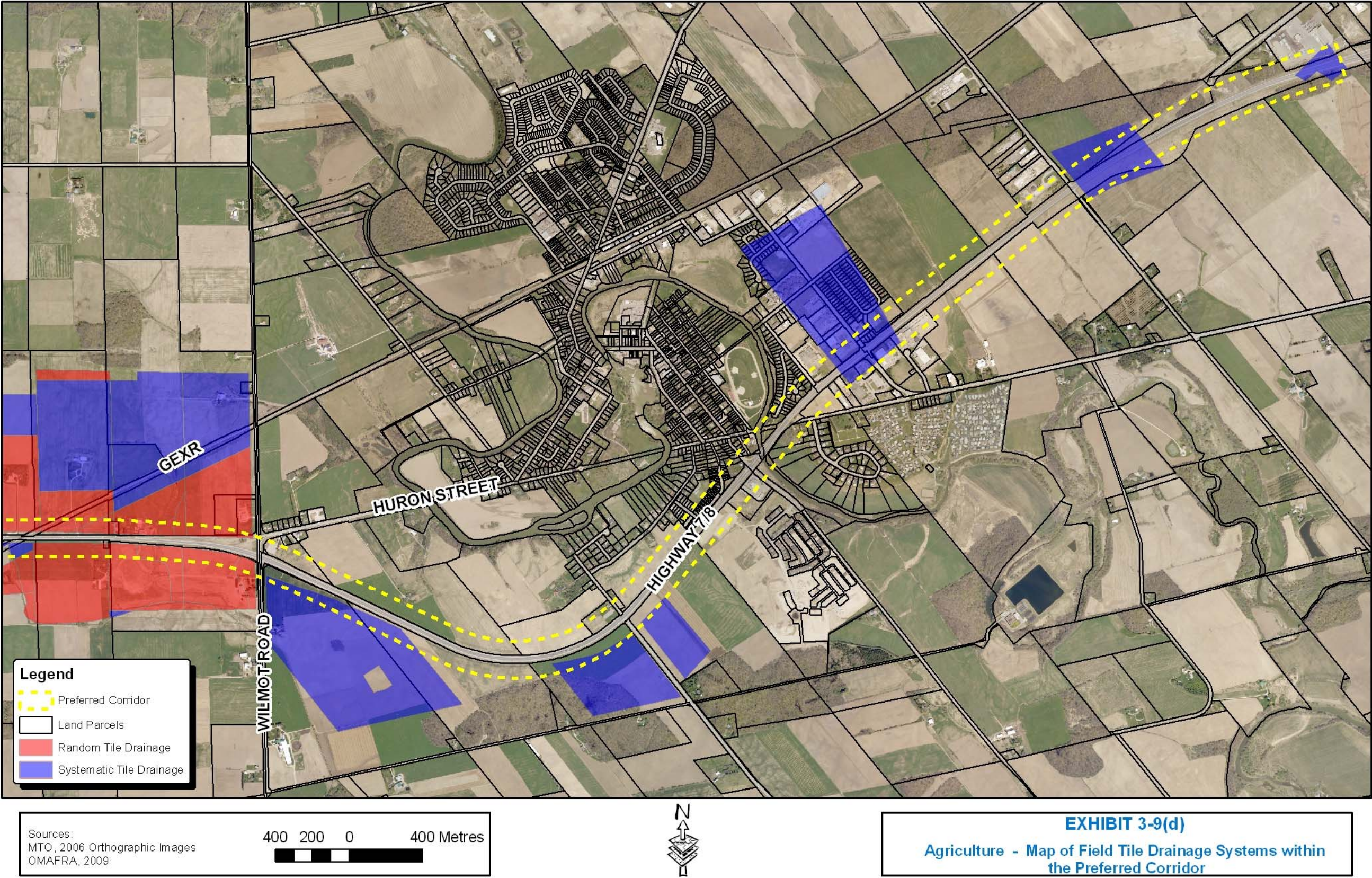
Sources:
MTO, 2006 Orthographic Images
OMAFRA, 2009

500 250 0 500 Metres



EXHIBIT 3-9(b)
Agriculture - Map of Field Tile Drainage Systems within
the Preferred Corridor





In June of 2009, members of the project team undertook an inventory of farm buildings within the preferred corridor using aerial photos supplemented by field observations. **Exhibit 3-10** provides the details of this inventory, and **Exhibit 3-11** provides a map that identifies the locations of the farms by fire/emergency address number.

| Exhibit 3-10: | | | |
|---|-----------------------|---|----------------|
| Agriculture – List of Farm Buildings within the Preferred Corridor | | | |
| Farm Fire/Emergency Address Number | Farm Type | Description | Ranking |
| Section 1-1 | | | |
| 4502 Hwy 8 | Beef | Wood bank barn + extension (poor/remnant), 2 x capped concrete silo, shed, | 3 |
| 4474 Hwy 8 | Dairy | red barn + extension, 2 x steel imp shed, 3x capped concrete silo | 1 |
| Section 1-2 | | | |
| | Agricultural business | Wib Herman Farm Equipment Sales (Vacant) | |
| 3970 Road 125 | Agricultural business | Spinning Wheel Motors (vacant) | |
| 3980 Road 125 Inactive | Inactive | Wood bank barn + extension, 2xsheds (good repair) – Vacant | 2 |
| Section 1-4 | | | |
| 4374 Line 32 | Chickens | 2 x chicken barns, 1 x capped concrete silo, manure storage | 1 |
| 4367 Line 32 | Pigs | Wood bank barn + ext, steel clad barn, uncapped concrete silo, capped concrete silo, manure storage | 2 |
| 4342 Line 32 | Beef | Wood bank barn = extension, capped concrete silo, steel imp shed (vacant) | 2/3 |
| 4339 Line 32 | Inactive | Wood bank barn + extension, shed, vacant | 2/3 |
| 4321 Line 32 | Chicken | 2 x chicken barns (two tiers), new steel shed | 1 |
| 4313 Line 32 | Inactive | drive shed, wood bank barn vacant | 3 |
| 4284b Line 32 | Pig/Grain | grain elevator, Rosco storage bin/silo (manufactured steel), 1 x capped concrete silo, steel shed, pig barn | 1 / 2 |
| 4246 Line 32 | Not a Farm | not a farm operation now as barns have been removed , 1 capped concrete silo | |
| Section 1-5 | | | |
| 3780 O'Loane | Horses | large steel clad barn + ext, 3 x Quonsets, large corral | 1 |
| 4159 Line 32 | Agricultural business | Charlot Grains Ltd. – elevator complex + steel shed | |
| Section 1-6 | | | |
| -NA- | Chicke | chicken barn (abandoned) + steel shed | 3 |
| 3115 Line 33 | Agricultural business | Stratford Assembly Yard | |
| 3080 Line 33 | Not a Farm | Canadian Sign Crafters, wood bank barn | |
| 3075 Line 33 | Dairy | barn (good condition) + steel shed + 3xccc | 1 |
| Section 1-9 | | | |
| 1131 Hwy 7/19 | Agricultural business | DACO Agri Analysis – grain elevators + offices | |

| Exhibit 3-10: | | | |
|---|-----------------------|--|----------------|
| Agriculture – List of Farm Buildings within the Preferred Corridor | | | |
| Farm Fire/Emergency Address Number | Farm Type | Description | Ranking |
| Section 2-4/2-5 | | | |
| 3856 Road 111 | Inactive | Old wood bank barn + ext, uncapped concrete silo (poor) | 3 |
| 3875 Road 111 | Inactive | steel shed (no livestock) | 3 |
| 2921/19 Little Lakes | Chicken | chicken bars, wood bank barn, 3x capped concrete silo | 1 |
| 2858 Line 33 | Beef | 2 x large new, barns for feedlot | 1 |
| 3883 Road 110 | Chicken | large chicken barn (good condition) | 1 |
| 2829 Little Lakes | Beef | Wood bank barn + extension | 2/3 |
| 2785 Hwy 7/8 | Agricultural business | Stratford Garden Centre | |
| 2797 Road 110 | Inactive | Capped concrete silo, Rosco storage bin/silo (manufactured steel), steel barn, steel clad shed | 3 |
| 3939 Road 110 | Chicken | chicken barn | 1 |
| 3925 Road 110 | Chicken | chicken barn | 1 |
| 3845 Road 110 | Chicken | chicken barn | 1 |
| 2773 Line 33 | Pigs | 3 x steel clad barns, implement shed, Quonset shed | 2 |
| 2739 Line 33 | inactive | Wood bank barn + extension, uncapped concrete silo | 2/3 |
| 2740 Line 33 | Beef | no buildings, just pasturing at site | |
| 2730 Line 33 | wood shed | (probably associated with 2740) | 3 |
| 2713 Line 33 | Dairy/beef | steel shed, harvestore silo, uncapped concrete silo, wood bank barn + extension, 2 x Rosco storage bin/silo (manufactured steel) | 2 |
| Section 2-6 | | | |
| 2695 Hwy7/ 8 | Agricultural business | Hahn Farm Equipment | |
| 2633 Hwy 7/8 | Horse | hobby farm, 2 x sheds | 3 |
| 4004 Road 109 | Dairy | steel shed, Rosco storage bin/silo (manufactured steel), wood bank barn + extension, Quonset shed | 1 |
| ??? Road 109 | Inactive | Wood bank barn, Quonset | 2/3 |
| 2559 Hwy 7/8 | Unknown | implement shed | 3 |
| 2460 Hwy 7/8 | ? | 3x capped concrete silo, grain elevator, large barn complex, (Schuler) | 1 |
| 2447 Hwy 7/8 | Goats | hobby farm, new shed, Quonset shed | 2 |
| 2432 Hwy 7/8 | Hobby | old wood barn + extension, few chickens, horse | 3 |
| 3994 Road 108 | Inactive | wood bank barn + extension (poor condition) | 3 |
| Section 3-3 | | | |
| 3979 Road 108 | Goats | Hobby farm, small steel barn | 2/3 |
| 2341 Hwy 7/8 | Inactive | no livestock noticed, small harvestore silo, conc. Shed | 3 |
| 3976 | Agricultural business | Fertilizer Plant with railroad siding, several conc. Silos | |

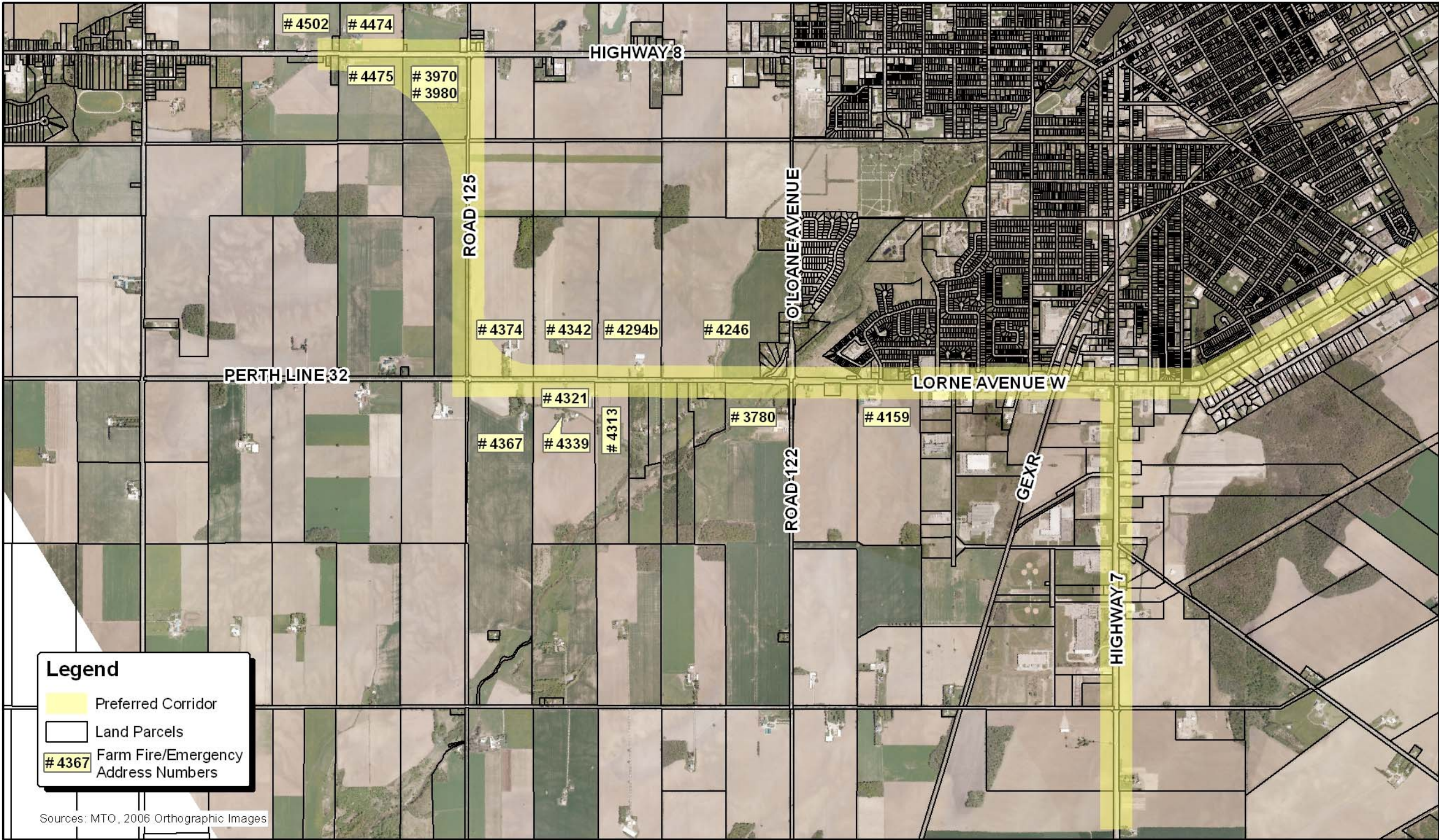
| Exhibit 3-10: | | | |
|---|-----------------------|---|----------------|
| Agriculture – List of Farm Buildings within the Preferred Corridor | | | |
| Farm Fire/Emergency Address Number | Farm Type | Description | Ranking |
| 2146 Hwy 7/8 | Agricultural business | The Pork Shoppe – blue harvestore silo, barn/shed complex | 1 |
| 2137 Hwy 7/8 | Inactive | small wood bank barn – no livestock noticed | 3 |
| ??? Hwy 7/8 | Agricultural business | Faromor Stonecrest Engineering – steel shed/building | |
| 2053 Hwy 7/8 | Inactive | Wood bank barn (fair), no livestock noticed | 3 |
| Section 3-4 | | | |
| 3929 | Agricultural business | Shakespeare Mills Inc. | |
| 3906 | Beef | wood bank barn, shed concrete capped silo, small beef op | 2/3 |
| Section 3-5 | | | |
| 2026 Hwy 7/8 | Horse | Shakespeare Stables – corral, L-shaped wood bank barn + extension, shed | 2 |
| 2007 Hwy 7/8 | Inactive | no livestock noticed – wood bank barn + extension, wood shed | 3 |
| 4017 Hwy 7/8 | beef | L-shaped barn (fair), Quonset shed, 2 x capped concrete silo | 2 |
| 1971 Hwy 7/8 | Inactive | Flynndale Farms – no livestock noticed, small barn | 2/3 |
| 1934 Hwy 7/8 | Dairy | wood bank barn + extension, shed, 2 x Roscos storage bin/silo (manufactured steel), 3 x capped concrete silo | 1 |
| 1931 Hwy 7/8 | Fryfogel Inn | | |
| 1904 Hwy 7/8 | Inactive | Raincrest Farms, capped concrete silo, wood bank barn + extension, probably beef | 2 |
| 1899 Hwy 7/8 | Inactive | Smelski - possibly beef and pigs, wood bank barn + extension | 2/3 |
| 1859 Hwy 7/8 | Emu | Ruth Yantzi - wood bank barn | 2 |
| 1850 Hwy 7/8 | Inactive | beef, 2 x capped concrete silo, wood barn + extension, 2 x steel sheds | 2 |
| 1834 Hwy 7/8 | Beef | wood bank barn + extension, shed | 2 |
| 1825 Hwy 7/8 | Horse | Hobby farm, wood bank barn, shed | 2/3 |
| 1748 Hwy 7/8 | Inactive | Wood bank barn + extension, shed, capped concrete silo, poor condition | 2/3 |
| 1733 Hwy 7/8 | Inactive | wood barn + extension, shed (former beef) | 3 |
| 1709 Hwy 7/8 | Beef | bank barn + extension, steel shed, 2 x capped concrete silo, 2 x Rosco storage bin/silo (manufactured steel) | 2 |
| 1700 Hwy 7/8 | Chickens? | Large, new barn + shed (check type) | 1 |
| 1666 Hwy 7/8 | Inactive | small wood barn | 3 |
| 1655 Hwy 7/8 | ??? | steel clad barn, old shed | 2/3 |
| 1614 Hwy 7/8 | Chickens | double level new barn | 1 |
| 1613 Hwy 7/8 | Inactive | Wood bank barn + extension, 2 x steel sheds, 3x Rosco storage bin/silo (manufactured steel), uncapped concrete silo, capped concrete silo | 2/3 |
| 1580 Hwy 7/8 | Dairy | Wood bank barn = extension, 2 x capped concrete silo, sheds, Rosco storage bin/silo (manufactured steel) | 1 |

| Exhibit 3-10: | | | |
|---|-----------------------|--|----------------|
| Agriculture – List of Farm Buildings within the Preferred Corridor | | | |
| Farm Fire/Emergency Address Number | Farm Type | Description | Ranking |
| 1559 Hwy 7/8 | Dairy | Highrail Farms - large barn complex, 4 x capped concrete silo | 1 |
| 1534 Hwy 7/8 | Inactive | Quonset shed, shed (no livestock noticed) | 3 |
| Section 3-6 | | | |
| 1481 Hwy 7/8 | Chicken? | Newer barn + extension, shed, Rosco storage bin/silo (manufactured steel) (good to fair condition) | 1 / 2 |
| 1466 Hwy 7/8 | Horse | hobby farm, harvestore, 2 x wood shed, odl wood bank barn + extension (poor) | 2/3 |
| | Agricultural business | Stratford Farm Equipment | |
| 3976 Wilmot Road 1 | Agricultural business | farm manufacturing business / machine shop (?) | |
| 3939 Wilmot Road 1 | Inactive | wood bank barn + extension, wood shed (old, poor) | 3 |
| Note: <ul style="list-style-type: none"> #1 ranking = the best or highest apparent capital investment related to agriculture #3 ranking = limited apparent capital investment in agriculture | | | |

Information on other farm infrastructure such as irrigation systems may be requested from farmers during the detailed planning phase of the study.

In the areas where the preferred corridor is located on existing roadways (the majority of the corridor), the loss of a small amount of farm frontage associated with widening/improvement will cause minimal disruption/diversion of field tile drainage systems and irrigation systems within individual farms, and to most farm buildings (since the majority of them are set back from the highway)

In the three key areas where the preferred corridor is not located on exiting roadways, there will be impacts to agricultural infrastructure, particularly associated with the new route from Perth Line 33 east of Romeo Street to Highway 7&8 east of Perth Road 110. Impacts will also be associated with the major intersection improvements at Highway 8 and Perth Road 125, and to a lesser degree, with major intersection improvements at Perth Road 125 Perth Line 23.

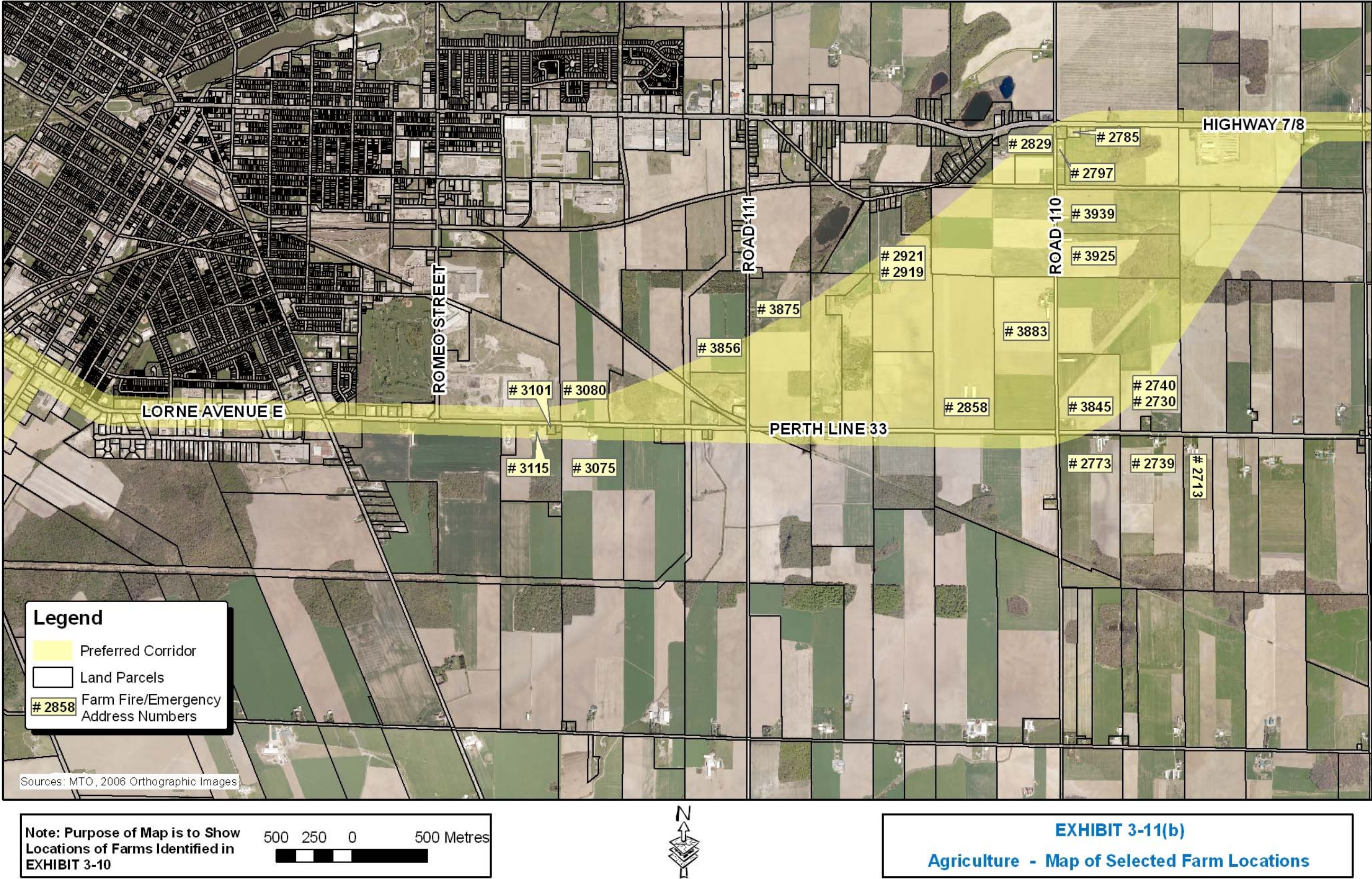


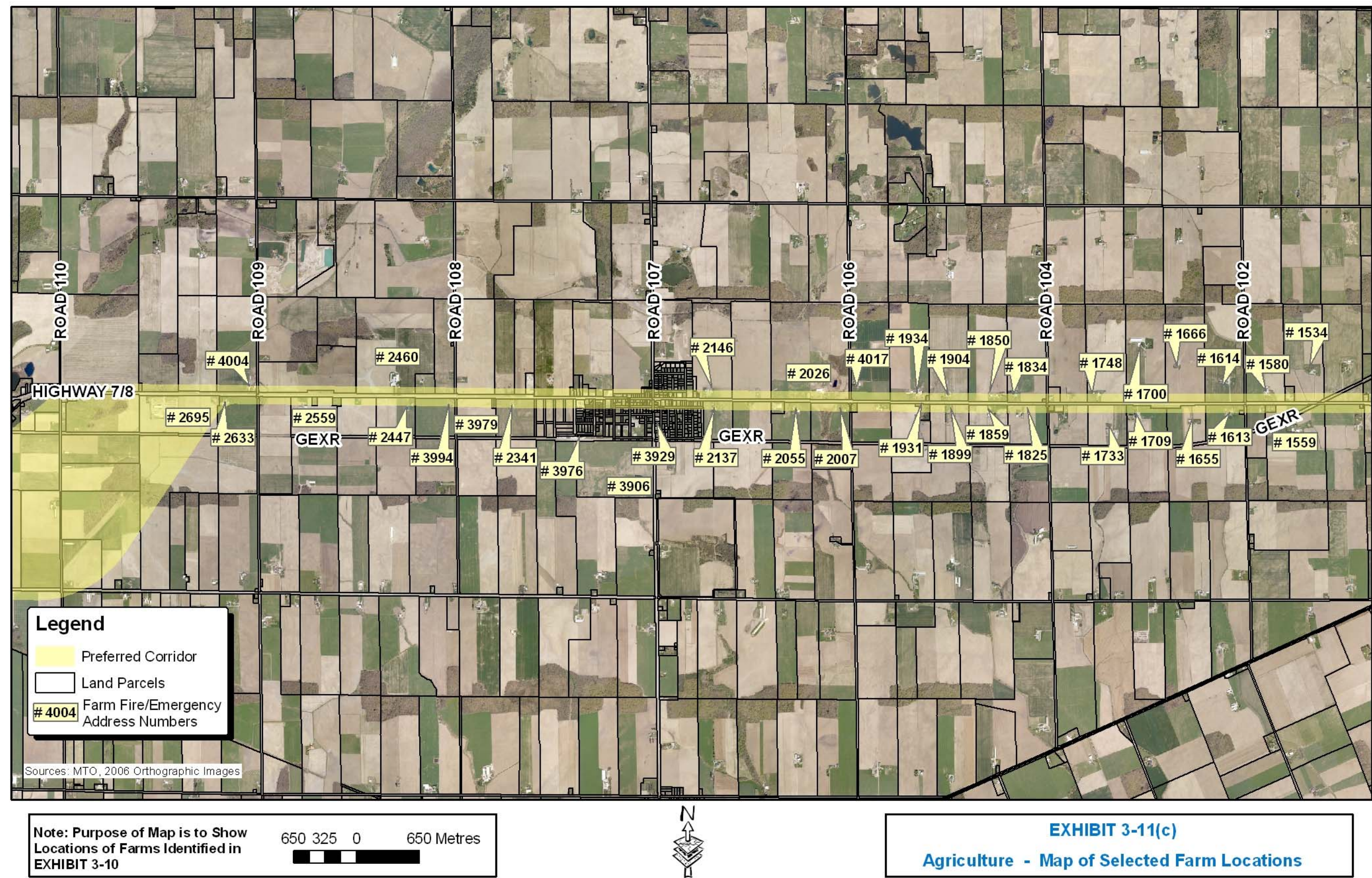
Note: Purpose of Map is to Show
Locations of Farms Identified in
EXHIBIT 3-10

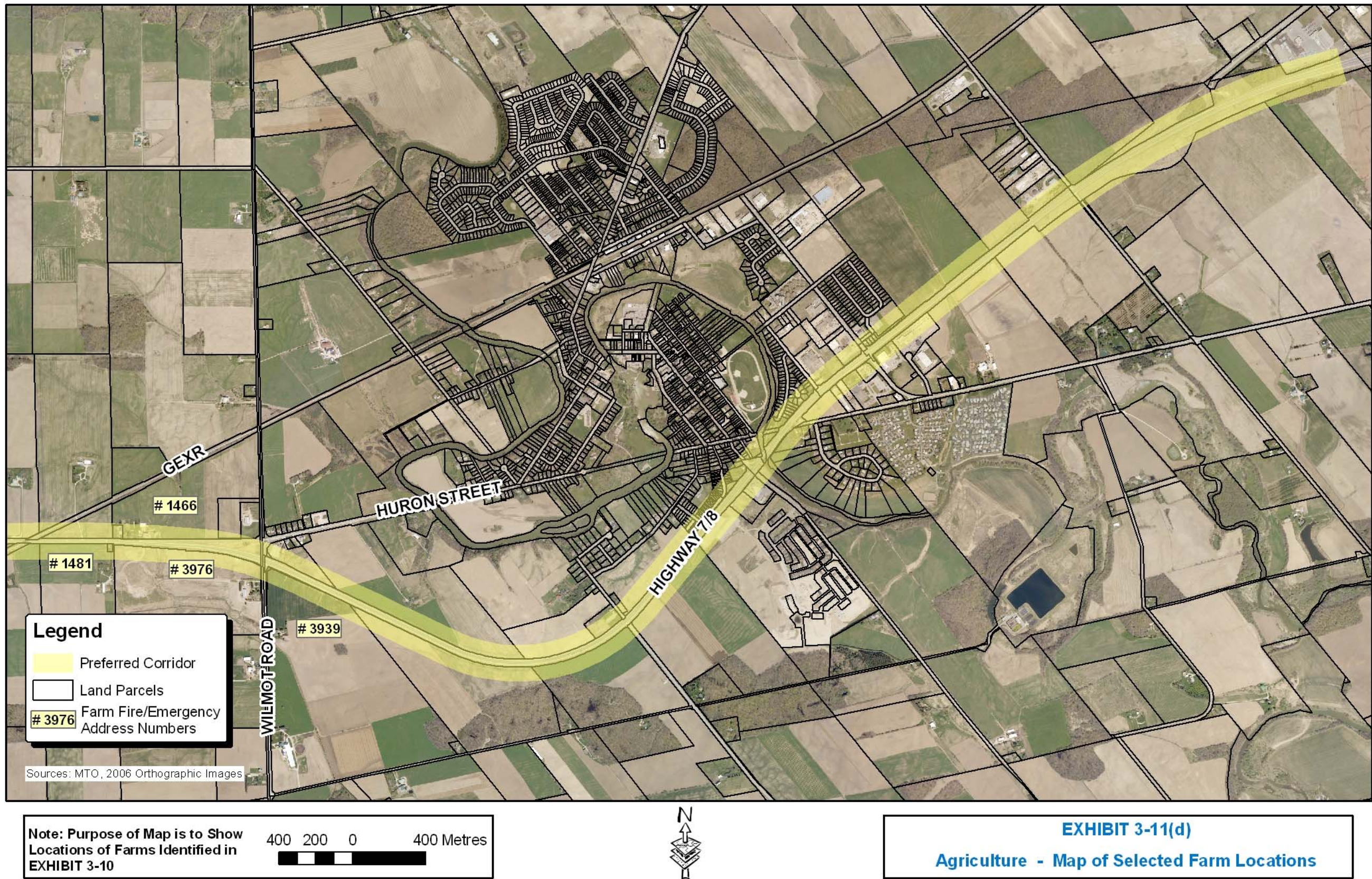
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EXHIBIT 3-11(a)
Agriculture - Map of Selected Farm Locations







3.4.3 Agriculture – Operations on Individual Farms

In the areas where the preferred corridor is located on existing roadways (the majority of the corridor), the loss of small amount of farm frontage associated with widening/improvement will cause minimal disruption of planting harvesting, grazing, nutrient management etc, within an individual farm.

In the three key areas where the preferred corridor is not located on exiting roadways, there will be impacts to operations on individual farms, particularly associated with the new route from Perth Line 33 east of Romeo Street to Highway 7&8 east of Perth Road 110. Impacts will also be associated with the major intersection improvements at Highway 8 and Perth Road 125, and to a lesser degree, with major intersection improvements at Perth Road 125 Perth Line 23.

3.4.4 Agriculture – Transportation Linkages Between Multiple Farm Operations

In the areas where the preferred corridor is located on existing roadways (the majority of the corridor), the widening of existing roadways has the potential to make transportation linkages between multiple farm operations more difficult. For the section of Highway 7&8 between Stratford and New Hamburg, four farmers have to date indicated that they have operations on both sides of the highway.

In the area of new route from Perth Line 33 east of Romeo Street in a north easterly direction to Highway 7&8 east of Perth Road 110, the preferred corridor has the potential to sever/disrupt transportation linkages between multiple farm operations. To date, no farmers have indicated that they have operations on both sides of that route.

Additional input on this subject will be requested from area farmers during the next phase of the study.

3.5 Land Use/Resources

3.5.1 First Nations Treaty Rights and Interests and Use of Land and Resources for Traditional Purposes

No First Nations treaty rights and interests or use of land for traditional purposes have been specifically identified within the preferred corridor. However, it is noted that the protection of the natural environment is important to the continued use of lands for traditional First Nations activities.

3.5.2 Parks and Recreational Areas

A few parks and recreational areas are located within the proposed corridor. A detailed description is given in **Exhibit 3-12**.

| Exhibit 3-12: Parks and Recreational Areas Within the Preferred Corridor | |
|---|--|
| Segment (Nodes) | Area description |
| 1.1 – 1.2 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 1.2 – 1.4 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 1.4 – 1.5 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 1.5 – 1.6 | <ul style="list-style-type: none"> Park with children's playground located on the north corner of St. Vincent Street and Lorne Avenue West Some open space areas located on the north side of Lorne Avenue West |
| 1.6 – 1.9 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 1.9 – 1.10 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 2.3 – 2.4 | <ul style="list-style-type: none"> Stratford Municipal Golf Course located on the north side of Lorne Avenue West |
| 2.4 – 2.6 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 3.1 – 3.3 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 3.3 – 3.5 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 3.5 – 4.1 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 4.1 – 4.2 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No parks or recreational areas located within this section of the corridor |
| 4.3 – 4.5 | <ul style="list-style-type: none"> Major recreation area located on the north side of Highway 7&8, associated with the Wilmot Township Recreation Center, access is from Nafziger Rd Major recreation area (New Hamburg Arena and Community Center) located directly adjacent to (but not within the corridor) the north side of Highway 7&8 |
| Note: Node locations are shown in Exhibit 1-2. | |

3.5.3 Aggregates and Mineral Resources

No aggregate or mineral resources are located within the proposed corridor. A detailed description is given in **Exhibit 3-13** below.

| Exhibit 3-13: Aggregates and Mineral Resources within the Preferred Corridor | |
|---|---|
| Segment (Nodes) | Area description |
| 1.1 - 1.2 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 1.2 – 1.4 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 1.4 - 1.5 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 1.5 – 1.6 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 1.6 – 1.9 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 1.9 – 1.10 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 2.3 – 2.4 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 2.4 – 2.6 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 3.1 – 3.3 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 3.3 – 3.5 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 3.5 – 4.1 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 4.1 – 4.2 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 4.2 – 4.3 | <ul style="list-style-type: none"> No aggregates or mineral resources located within this section of the corridor |
| 4.3 – 4.5 | <ul style="list-style-type: none"> One designated aggregate area located on the north side of Highway 7&8 Windshield surveys revealed all aggregate operations are well back from the main road |
| Note: Node locations are shown in Exhibit 1-2. | |

3.6 Major Utility Corridors

3.6.1 Utilities

There are no major hydro transmission corridors or pipelines within the analysis area.

Buried gas lines exist at various locations within the highway right-of-way throughout the analysis area. Most of the gas lines exist along the 2-lane and 4-lane sections between Stratford and Waterloo Road 1. Within the section of Highway 7&8 holding the Class II staged freeway/expressway, in the New Hamburg area, Union Gas has limited presence.

Rogers has a Fiber Optics Transport System within the corridor between Stratford and Waterloo Road 1. This plant is both overhead and buried. Although there are no lines within the corridor between Waterloo Road 1 and Waterloo Road 51, there are various locations where it crosses the highway.

The presence of utilities along the Class II expressway/freeway corridor is limited. Kitchener-Wilmot Hydro do have overhead transmission lines crossing Highway 7&8 at various locations. There is also an overhead line that parallels the highway on the south side between Waterloo Road 5 and the former intersection at Waterloo Road 6.

3.6.2 Railways

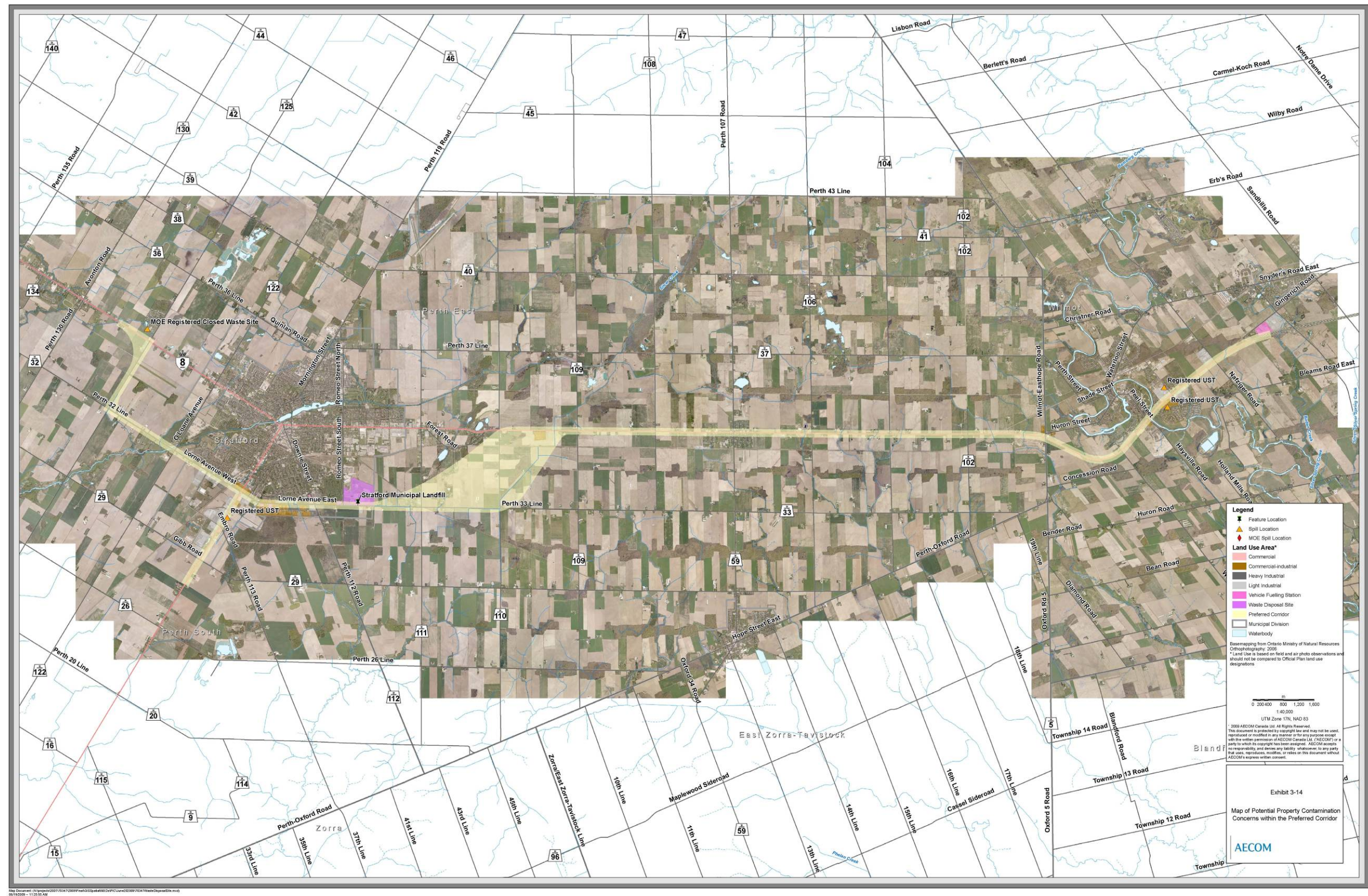
The Goderich-Exeter Railway corridor runs parallel to Highway 7&8 from Stratford easterly to Kitchener. The railway is generally located 400 m to the south of Highway 7&8 from Stratford, to approximately 1.5 km west of the intersection with Waterloo Regional Road 1 where the railway crosses the highway. This rail corridor then extends eastward paralleling Highway 7&8 to the north through New Hamburg.

This section of rail carries approximately eight to ten trains per day. The volume of rail traffic consists of both freight and passenger trains, travelling from destinations such as Sarnia and Chicago (from the west), and Toronto (from the east). Via Rail and Amtrack use this track for their passenger service.

3.7 Contaminated Property and Waste Management

An existing environmental conditions screening assessment of the proposed Highway 7-8 transportation corridor was carried out to identify potential property contamination concerns. This include a visual survey of the study corridor, information review, and reporting. The primary purpose of this assessment was to review the properties in the proposed corridor study area to determine the potential for issues related to waste disposal and contaminated sites. *Properties were observed from publicly accessible areas only.* No private properties were accessed by AECOM as part of this investigation.

An overview of the findings of our investigation is presented on **Exhibit 3-14**.



This map shows information recorded in public databases. It also shows land uses which are sometimes associated with property contamination concerns, however, this is in no way an indication that such contamination exists.

3.7.1 Waste Disposal Sites

The Stratford Landfill Facility is located in the southwest section of the study area, at 777 Romeo St. South, on the northeast side of the Romeo Street South and Perth 33 Line intersection. Recent aerial photographs and our field observations indicated that active land filling continues at this 45.5 hectare property. The site also serves the community as household hazardous waste and recyclable material drop-off and transfer station, and organic materials compost facility. The location of this site is shown on Exhibit 3-14. AECOM's review of aerial photographs indicated that this waste disposal site has been in use since at least the 1960s.

Although not corroborated by AECOM, it is our understanding that environmental monitoring is being conducted at the landfill site. Groundwater monitoring wells were noted on parts of the landfill property bordering Perth 33 Line. Site-specific environmental data may be required to obtain a better understanding of the environmental conditions at the landfill site. The City of Stratford should be contacted to request any file information that they may have about the landfill prior to construction activities in the vicinity.

A second MOE-registered closed waste disposal site was located near the northwest part of the study corridor, on the northwest side of the intersection of 125th Road and Huron Street. MOE records indicated that this site was a municipal non-hazardous waste disposal site that was closed in 1968. AECOM's review of aerial photographs from 1966 suggested that this 2-ha waste disposal site was located more than 250 m north of the intersection, outside of the study corridor. A review of modern aerial photographs and our field survey noted that the area has been developed with parkland and residential dwellings. The City of Stratford should be contacted to request any file information that they may have about the landfill prior to road construction activities in the vicinity; however this former waste site is not expected to have any significant impact on the highway corridor.

No records of any other former MOE-registered landfills were identified in other areas of the study corridor during our information review, and no visual evidence of waste disposal activities was observed by AECOM from publically accessible areas during the site visit, or review of modern and historical aerial photographs.

3.7.2 Vehicle Fuel and Repair Facilities

AECOM observed 20 Auto Fuel and service repair garages within the study corridor. Eight of these were noted to be fuel dispensing or fuel retailers, with evidence of underground storage tanks. At the auto service garages, below-grade tanks for waste oil or hydraulic reservoirs for auto lifts may also be present.

A summary of the facilities is provided in **Exhibit 3-15**.

| Exhibit 3-15: Vehicle Fuel and Repair Facilities within the Preferred Corridor | | | |
|--|--|----------------------------------|---|
| Location | Description | Site Area | Storage Tanks on Property |
| 1041 Erie St, Stratford (east side of study corridor south of Embro Road) | <i>Esso Gasoline Service Station</i> | Approx. 0.5 ha of 1.6 ha parcel | AECOM noted two gasoline and one diesel USTs |
| 827 Erie St, Stratford (east side of study corridor west of intersection with Crane Avenue) | <i>Union Gas</i> | 1.1 ha | One 13,700 L private fuel UST was registered, not observable during corridor reconnaissance. |
| 751 Erie St, Stratford (southeast side of study corridor 300m south of intersection with Lorne Avenue) | <i>Expressway Ford-Lincoln (formerly Fast Lane Auto)</i> | 1.1 ha | Possible aboveground fuel tanks at rear of main building, no USTs observable during reconnaissance. |
| 354 Lorne Avenue West, Stratford (north side) | Stratford Kia | 0.98 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 651 Erie St, Stratford (north of study corridor intersection) | <i>Speedy Glass (formerly Standard Auto Glass)</i> | 0.18 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 633 Erie St, Stratford (north of study corridor intersection) | <i>Stratford Mazda</i> | 0.35 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 50 Lorne Street East Stratford ON (north side of study corridor west of Railway Avenue) | <i>Festoso Bros Auto Body Inc.</i> | Approx. 0.3 ha of 0.94 ha parcel | No USTs or ASTs observable during corridor reconnaissance. |
| 229 Lorne Street East Stratford ON (south side of study corridor west of Dunlop Place) | <i>Perth Tire & Auto Ltd</i> | 0.75 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 279 Lorne Avenue East (south side of study corridor east of Dunlop Place) | <i>D H Jutzi Ltd Fuels</i> | 0.53 ha | ASTs and USTs noted on site for gasoline, diesel fuel, and lubricants |
| 249 Lorne Avenue East (south side of study corridor west of Dunlop Place) | <i>Parkdale Automotive</i> | 0.5 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 219 Lorne Avenue East (south side of study corridor east of Dunlop Place) | <i>Core Fuels Ltd</i> | 1.1 ha | ASTs and USTs noted on site for gasoline, diesel fuel, lubricants and solvents. |
| 652 Lorne Avenue East Stratford (north side of study corridor 300 m west of Romeo Street South) | <i>Art Marshall Motors</i> | 0.42 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 676 Lorne Avenue East, Stratford (north side of study corridor 200 m west of Romeo Street South) | <i>Stockie Motors Sales & Service</i> | 0.63 ha | No USTs or ASTs observable during corridor reconnaissance. |
| 640 Lorne Avenue East, Stratford (north side of study corridor west of Downie St.) | <i>Stratford Hyundai</i> | 0.8 ha | No USTs or ASTs observable during corridor reconnaissance. |
| #3814 Road 111, Stratford, within study corridor northwest of the intersection with Perth 33 Line. | <i>Wilhelm Concrete</i> | 1.4 ha | Noted in corridor reconnaissance. And aerial photographs to have fuel ASTs and a number of stored scrap vehicles. |

| Exhibit 3-15: Vehicle Fuel and Repair Facilities within the Preferred Corridor | | | |
|---|---|-----------------------------|--|
| Location | Description | Site Area | Storage Tanks on Property |
| 2270-A Line 34 (Hwy 7&8), Shakespeare (north side of study corridor 100 m east of Sackville Street) | <i>Esso Gasoline Service Station</i> | 0.25 ha of a 0.74 ha parcel | AECOM noted two gasoline and one diesel USTs. |
| 2187 Line 34 (Hwy 7&8), Shakespeare (south side of study corridor 120 m east of Shakespeare Street) | <i>Patriot Gas</i> | 0.33 ha | Gasoline USTs on property |
| 1473 Gingerich Rd. Baden (north side of east terminus of study corridor) | <i>Erb Transport</i> | 9.6 ha | Diesel USTs noted on property, total registered capacity was 90,000L |
| 212 Bergey Court, New Hamburg (south side of study corridor 275 m east of Bleams Rd East) | <i>Grant Transport</i> | 0.7 ha | Private fuel UST(s) with a capacity of 68,190 L were registered, not observable during reconnaissance. |
| RR4 Stratford, Ontario, located on the south side of Hwy 7-8, 1 km west of 109 th Road. | <i>Hahn Farms Ltd Equipment Sales & Service</i> | 7 ha (of 31 ha parcel) | No USTs or ASTs observable during corridor reconnaissance. |

In addition, a large number of agricultural properties in the corridor study area were noted to employ aboveground storage tanks for diesel fuel. Owing to the typical separation distances of these properties from the publically accessible roadways, an inventory of these fuel tanks was not conducted.

Prior to any excavation on, or immediately adjacent to, properties with fuel storage, a Phase I and/or Phase II ESA to the CSA Z768-01/Z769-00 standards is recommended in order to determine if any releases of material from these tanks has impacted the soils and groundwater underlying the highway corridor.

3.7.3 Automobile Wrecking/Scrap yard

A 1.4-ha automobile wrecking and metal scrap yard, *Lorne Avenue Salvage* was located near the southwest part of the study corridor, the northwest side of the Romeo Street South and Perth 33 Line intersection. A review of historical aerial photographs indicated that the automobile wrecking site has been in use since the 1960s.

Prior to any excavation on or adjacent to this property a Phase I and/or Phase II ESA to the CSA Z768-01/Z769-00 standards is recommended in order to determine if any releases of material from the scrap metal operations has impacted the soils and groundwater underlying the highway corridor.

3.7.4 Coal Gasification Facilities

There are no former coal gasification facilities noted in the study corridor area.

3.7.5 Drycleaning Facilities

There are no existing drycleaning facilities (with on-site solvent use) noted in the study corridor area during the visual survey of the study corridor area. There is potential for past drycleaning operations in existing commercial or industrial buildings to have used chlorinated solvents without documentation in public databases. Prior to acquiring any commercial or industrial properties for the project right-of-way, a Phase I ESA to the CSA Z768-01 standard is recommended in order to determine the occupancy history of the property.

3.7.6 MOE Spills Reporting

No visual evidence of spills was observed during the survey of the study corridor. Although no evidence of potential issues was revealed, there are inherent risks with the use and storage of industrial liquids and hazardous materials. A review of the MOE occurrence reporting database, provided by Ecolog ERIS, has also been consulted.

A number of other spills had general descriptions that indicated they are likely located within the corridor study area, however no detailed location information was provided. Based on the descriptions and quantities of these spills in the MOE database, none appeared to represent a significant contamination risk to the project study area. However, further assessment is recommended to confirm the absence of environmental issues at any industrial or fuel storage properties to be acquired.

3.7.7 Petroleum Wells

There were no existing or former petroleum wells noted in the study corridor area.

3.7.8 Underground Storage Tanks

Underground storage tanks for vehicle fuel and service facilities were previously identified in subsection 3.7.2. No other evidence of underground storage tanks (USTs) was noted in the study corridor area by AECOM in the course of this investigation; however existing and former tanks may be also associated with industrial land uses such as manufacturing facilities.

3.7.9 MOE Registered Waste Receivers

A large manufacturing facility located on Erie Street in Stratford (west side of study corridor south of Packham Road) was registered with the MOE as a registered waste receiver of PCBs from 1992 to 2002. Based on the timeframe and expected nature of PCB handling during this timeframe in Ontario (collection and storage of PCB-containing electrical equipment for disposal off-site), this operation did not appear to have significant potential to impact to the project study area.

3.7.10 Quarries and Aggregate Pits

There were no existing or former quarries or aggregate pits noted in the study corridor area.

3.7.11 Heavy Industrial Land Uses

AECOM observed two facilities within the study corridor that appeared to represent heavy industrial land use. A summary of the facilities is provided in **Exhibit 3-16**.

| Exhibit 3-16: Heavy Industrial Land Use within the Preferred Corridor | | | |
|--|---|---|--|
| Location | Description | Site Area | Features of Property |
| 161 Lorne Avenue West, Stratford (south side of study corridor at intersection with Monteith Avenue) | <i>Cleaver-Brooks of Canada Ltd</i> Manufacturers of Industrial Boilers and Burners, noted on site since at least 1960s | 8,500 m ² building on 3.75 ha parcel | No USTs or ASTs observable during corridor reconnaissance. |
| 500 Lorne Avenue East, Stratford (south side of study corridor west intersection with Scott Street) | <i>Hunter Steel</i> , industrial metalworking facility | 5,000 m ² building on 3.3 ha parcel | No USTs or ASTs observable during corridor reconnaissance. Outdoor metal storage yard. |

Based on a visual check of these properties, environmental database review, and review of aerial photographs, no large-scale storage of petroleum or chemicals, or other practices with significant potential to impact to the project study area were noted. However, prior to any property acquisition, it is recommended that Phase I and/or Phase II ESAs to the CSA Z768-01/Z769-00 standards be conducted on any industrial properties.

3.7.12 Commercial/Light Industrial Land Uses

A large number of commercial and light industrial land uses were noted in the preferred corridor, primarily in the sections along Lorne Avenue East/West and Erie Street in South Stratford, as shown in **Exhibit 3-14**. A complete inventory of all light industrial land uses and activities in the study area was not in the scope of this investigation, however based on a visual inspection of the study area, environmental database review, and review of aerial photographs, these land uses did not appear to have significant potential to impact to the project study area.

Prior to any property acquisition, it is recommended that Phase I and/or Phase II ESAs to the CSA Z768-01/Z769-00 standards be conducted on any commercial or light industrial properties.

3.8 Landscape Composition

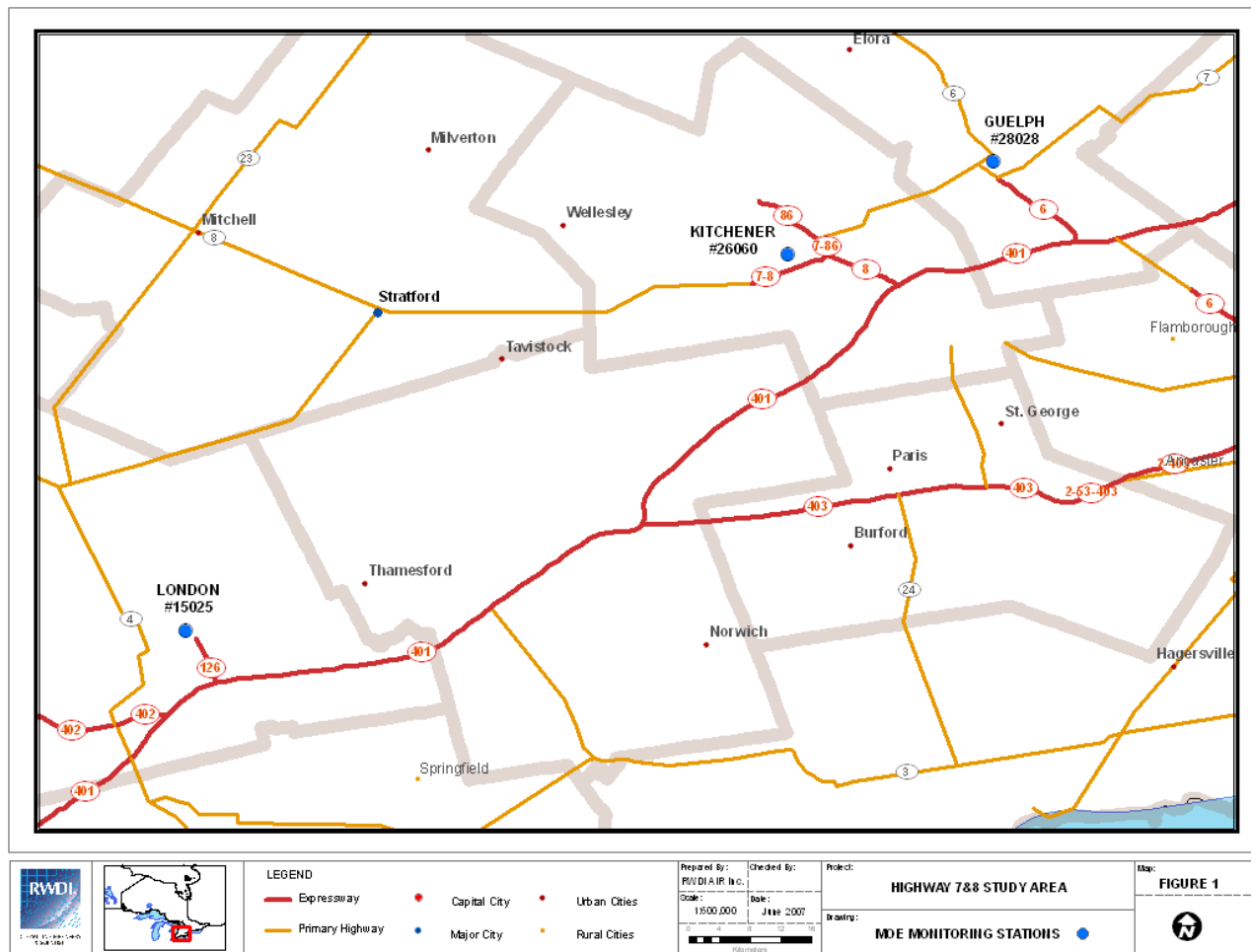
At the time this draft report was published, landscape composition detail was under preparation. This information will be included in the final report.

3.9 Air Quality

3.9.1 Regional Air Quality and Total Contaminants

The current air quality in the Highway 7&8 Kitchener to Stratford study area was evaluated using currently available monitoring data. Air quality monitoring data from Ontario Ministry of Environment (MOE) and Environment Canada (EC) monitoring station for relevant traffic related compounds were examined in the study area. The stations closest to the Highway 7&8 Expansion Study area were located in Kitchener (West Avenue./Homewood) and London (900 Highbury Avenue.) (**Exhibit 3.17**).

Exhibit 3.17 Air Quality Monitoring Stations



The data examined were extracted from the MOE's "Air Quality in Ontario – 2007 Report" and represent conditions over the year 2007, the most recent data available from the MOE. **Exhibit 3-18** and **Exhibit 3-19** provide the mean values and 90th percentile values of measured concentrations for criteria air contaminants from the Kitchener and London monitoring stations.

The mean values are presented to establish typical conditions, while concentrations at the 90th percentile are more indicative of expected worst-case concentrations.

| Exhibit 3.18: | | | | | |
|--|--|--|--|--|---|
| Mean Concentration of Contaminants for 2007 | | | | | |
| MOE Station (ID-Location) | Contaminant Concentration (Mean Value) ^[1,2] | | | | |
| | CO 1 Hour Average (ppm) | NO₂ 1 Hour Average (ppb) | NO_x 1 Hour Average (ppb) | PM_{2.5} 24 Hour Average (µg/m³) | O₃ 1 Hour Average (ppb) |
| Kitchener (26060) | N/A | 9.7 | 12.4 | 8.0 | 26.8 |
| London (15025) | 0.16 | 15.3 | 11.7 | 6.5 | 27.2 |
| Notes: 1. N/A - Not Available 2. ppm, ppb, and µg/m ³ stand for parts per million, parts per billion, and microgram per cubic metre, respectively. | | | | | |

| Exhibit 3.19: | | | | | |
|--|--|--|--|--|---|
| 90th Percentile Concentration of Contaminants for 2007 | | | | | |
| MOE Station (ID-Location) | Contaminant Concentration (90th Percentile Value) ^[1,2] | | | | |
| | CO 1 Hour Average (ppm) | NO₂ 1 Hour Average (ppb) | NO_x 1 Hour Average (ppb) | PM_{2.5} 24 Hour Average (µg/m³) | O₃ 1 Hour Average (ppb) |
| Kitchener (26060) | N/A | 20 | 25 | 18 | 48 |
| London (15025) | 0.29 | 30 | 23 | 15 | 46 |
| Notes: 1. N/A - Not Available 2. ppm, ppb, and µg/m ³ stand for parts per million, parts per billion, and microgram per cubic metre, respectively. | | | | | |

Among the contaminants presented, carbon monoxide (CO), nitrogen dioxide (NO₂) and fine particulate matter (PM_{2.5}) are direct products of the combustion of fossil fuels. Nitrogen oxides produced can react photo-chemically to produce ground-level ozone. The volatile organic compounds from combustion can react to form ozone. Since CO has not been monitored in Kitchener for several years, the CO levels monitored at the London station are considered representative of CO background levels in the project area.

Ozone levels are a regional phenomenon and are imported by long range transport as well as locally produced by secondary photochemical processes. It has been well documented (by the Ontario Ministry of the Environment, Environment Canada, RWDI and numerous other investigators) that trans-boundary air pollution (from the U.S.) is a large contributor to smog

events experienced in Ontario during summer months. As such, the concentrations of ozone observed in the study area are a combination of both local and trans-boundary effects.

In comparison with the applicable air quality standards shown in **Exhibit 3-20** existing pollutant levels (CO, NO₂, NO_x, PM_{2.5} and O₃) associated with transportation sources are below criterion values for both typical conditions (average values) as well as worst case conditions (levels at the 90th percentile).

| Exhibit 3.20: | | |
|---|---|--|
| Provincial Ambient Air Quality Criteria (AAQC) and Canada-Wide Standards (CWS) | | |
| Contaminant | Current AAQC^[1,2] | 2010 CWS^[1,2] |
| CO | 30 ppm (1 hour average) 13 ppm (8 hour average) | N/A |
| NO ₂ | 0.2 ppm (1 hour average) | N/A |
| Ozone | 0.080 ppm (1 hour average) | 0.065 ppm (8 hour average) |
| PM ₁₀ | 50 µg/m ³ (24 hour average) | N/A |
| PM _{2.5} | N/A | 30 µg/m ³ (24 hour average) |
| Benzene | N/A | N/A |
| 1,3-Butadiene | N/A | N/A |
| Formaldehyde | 65 µg/m ³ (24 hour average) | N/A |
| Acetaldehyde | 500 µg/m ³ (24 hour average) | N/A |
| Acrolein | 0.08 µg/m ³ (1/2 hour average) 0.24 µg/m ³ (24 hour average) | N/A |
| Notes: 1. N/A - Not Available 2. ppm and µg/m ³ stand for parts per million and microgram per cubic metre, respectively | | |

Speciated air toxic contaminants are more difficult to measure and hence few stations in Ontario monitor toxics. **Exhibit 3-21** summarizes the concentrations for five air toxic species associated with transportation sources. The data in **Exhibit 3-21** were obtained from Environment Canada NAPS monitoring network. For benzene and 1,3-butadiene, the air monitoring stations in Kitchener and London in 2006 were used to quantify background levels. For formaldehyde and acetaldehyde background levels, no nearby monitoring data were available. To provide a good estimate of area wide background levels, all stations in Ontario were included to derive average background values using the most currently available 5 years. For acrolein, data were derived from the Ontario Ministry of the Environment 'Air Quality in Ontario Report', 2000 to 2004, for the Simcoe and the Windsor stations. To represent the regional background levels, a range of values is presented.

The average and 90th percentile concentrations for VOCs presented in **Exhibit 3-21** show that with the exception of acrolein, VOC levels are in compliance with provincial and national criteria and standards, for contaminants with existing criteria. The criterion for acrolein of 0.08µg/m³ is based on a half hour sampling period. Only hourly data were available for Windsor and Simcoe. While these data are current and have been validated, the sampling locations do not reflect local background conditions in the study area. These values are presented in absence of local

data and should be viewed as such. However, background levels of acrolein could become an issue if levels similar to Windsor or Simcoe exist in Stratford.

| Exhibit 3-21: Concentration of Air Toxics in the Kitchener-Stratford Area | | | | | |
|--|--|---|---|---|---|
| Location | Benzene ($\mu\text{g}/\text{m}^3$) | 1,3- Butadiene ($\mu\text{g}/\text{m}^3$) | Acetaldehyde ($\mu\text{g}/\text{m}^3$) | Formaldehyde ($\mu\text{g}/\text{m}^3$) | Acrolein ($\mu\text{g}/\text{m}^3$) |
| Mean | | | | | |
| Ontario(all) | N/A | N/A | 1.16 | 2.24 | 0.14 - 0.25 |
| Kitchener (26060) | * | * | N/A | N/A | N/A |
| London (15025) | * | * | N/A | N/A | N/A |
| 90th % | | | | | |
| Ontario(all) | N/A | N/A | 2.24 | 4.07 | 0.56 – 0.71 |
| Kitchener (26060) | 1.0 | 0.1 | N/A | N/A | N/A |
| London (15025) | 1.0 | 0.1 | N/A | N/A | N/A |
| Notes: * Mean could not be determined due to many data points below the detection limit. 1. N/A - Not Available 2. $\mu\text{g}/\text{m}^3$ stand for microgram per cubic metre. | | | | | |

3.9.2 Local Air Quality and Sensitive Receptors to Air Pollutants

Exhibit 3-22 provides predictions of impacts related to transportation related air quality impacts along the selected corridor. Recommendations are provided with respect to the route and widening alternatives along this corridor.

| Exhibit 3-22 Air Quality Impacts | |
|---|--|
| Segment (Nodes) | Air Quality Impacts |
| 1-1 to 1-2 | Low potential for air quality impacts. Impacts possible to the south of 1-1 and north of 1-2. |
| 1-2 to 1-4 | Low potential for air quality impacts. |
| 1-4 to 1-5 | Low potential for air quality impacts. |
| 1-5 to 1-6 | High potential for air quality impacts to sensitive receptors to the north of the segment. |
| 2-1 to 2-2 | Low potential for air quality impacts, few sensitive receptors. |
| 2-2 to 2-3 | Low potential for air quality impacts. More sensitive receptors on east side. |
| 2-3 to 2-4 | High potential for air quality impacts to the critical receptors to the north of the corridor, west of Romeo Street. This segment lies within 1 km of two daycare centers and one school. |
| 2-4 to 2-6 | Medium potential for air quality impacts to the northwest of the Segment. |
| 3-1 to 3-3 | Low potential for air quality impacts. |
| 3-3 to 3-4 | Medium potential for air quality to the north of the Segment, several sensitive receptors. |
| 3-4 to 3-5 | Medium potential for air quality impacts to the north of the Segment. Several sensitive receptors. |
| 3-5 to 3-6 | Low potential for air quality impact. Few sensitive receptors. |
| 4-1 to 4-2 | Medium potential for air quality impacts at Wilmot-Easthope Road. |
| 4-2 to 4-3 | Low potential for air quality impacts, few sensitive receptors. |
| 4-3 to 4-5 | High potential for air quality impacts west of Peel Street/Haysville Road. High potential for impacts on both sides of Peel Street to Hamilton Road/Bleams Road. In addition to sensitive receptors, a retirement home exists between Haysville Rd. and Bleams Rd. Low potential for impacts from 200m east of Hamilton Road/Bleams Road eastwards. |
| Note: Node locations are shown in Exhibit 1-2. | |

4.0 CULTURAL ENVIRONMENT

4.1 Cultural Heritage-Built Heritage and Cultural Landscapes

Two previous studies provided base line information regarding built heritage features and cultural landscapes within the analysis area. One of these was a 1981 study by Paul Dilse for a section of Highway 7 and 8 from east of Stratford to New Hamburg, entitled *Description of Man-Made Heritage in the Environment: Preliminary Report*. That study considered both standing structures and cultural heritage landscapes for the aforementioned portion of the current highway. Timmins Martelle Heritage Consultants Inc. also prepared a base line study of inventoried built heritage features within the entire analysis area. The latter study synthesized existing municipal and provincial inventories and provided a summary of the prior work of Dilse. It also noted that a thorough field review for the entire corridor had not been conducted and that many municipalities had either no official inventory of built heritage resources or only minimal ones.

The preferred corridor was considered with respect to buildings or standing sites of known or potential architectural significance, heritage bridges, areas of historic 19th century settlement and cemeteries. **Exhibit 4-1** maps the location of these heritage resources. **Exhibit 4-2** provides photos of the majority of these resources.

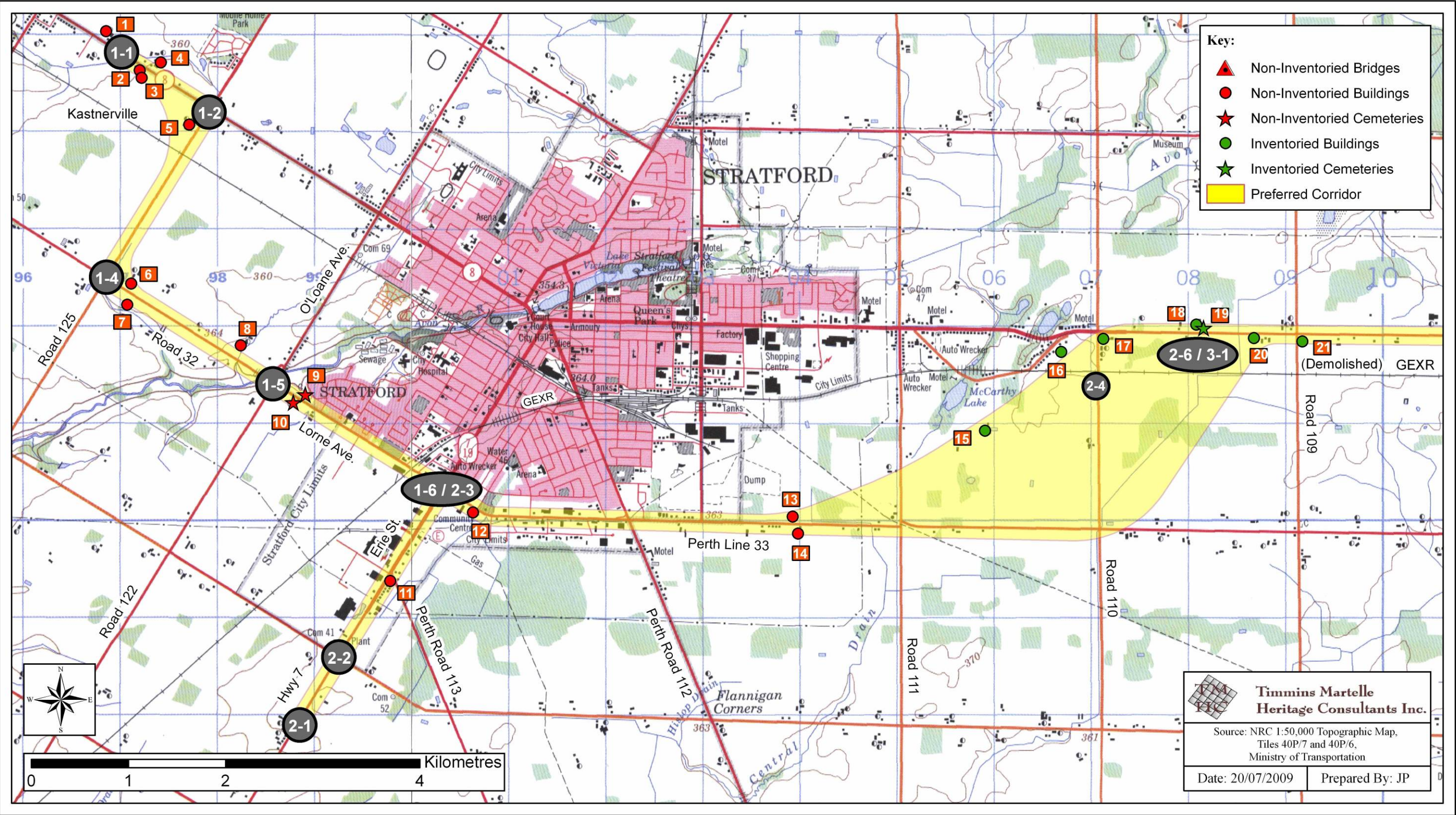


Exhibit 4.1 (a): Map of Built Heritage Resources Within the Preferred Corridor

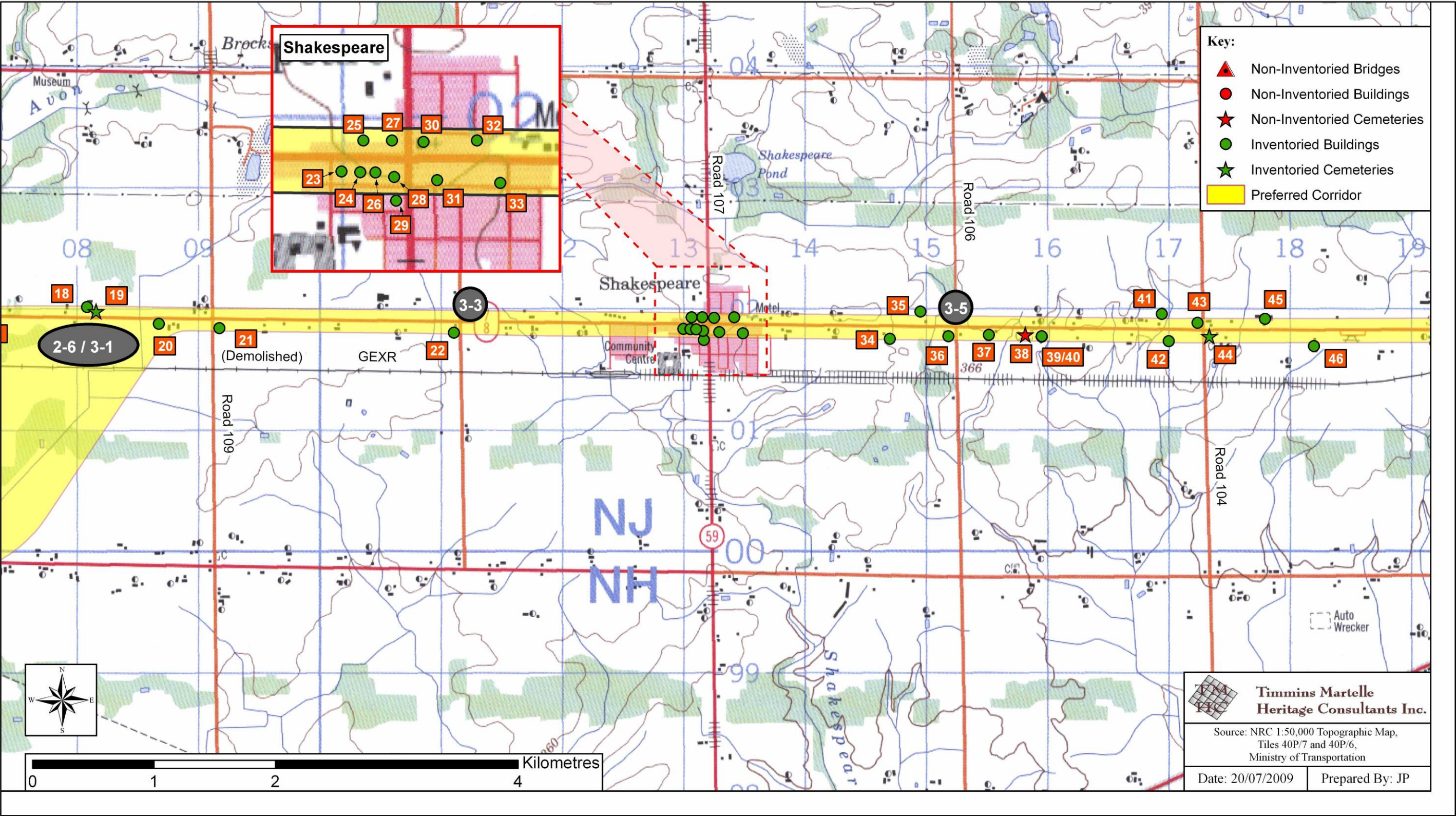


Exhibit 4.1 (b): Map of Built Heritage Resources Within the Preferred Corridor

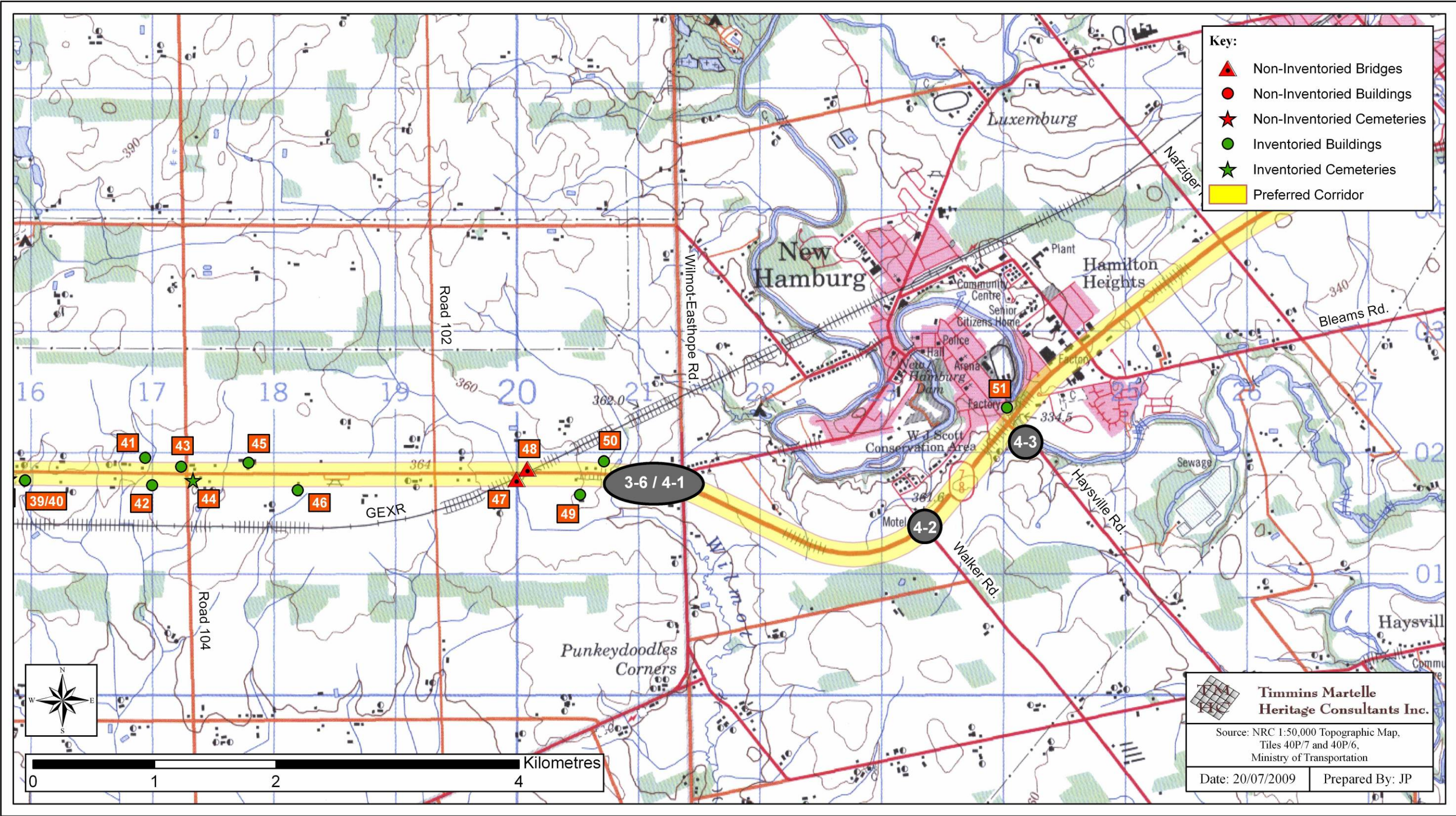


Exhibit 4.1 (c): Map of Built Heritage Resources Within the Preferred Corridor

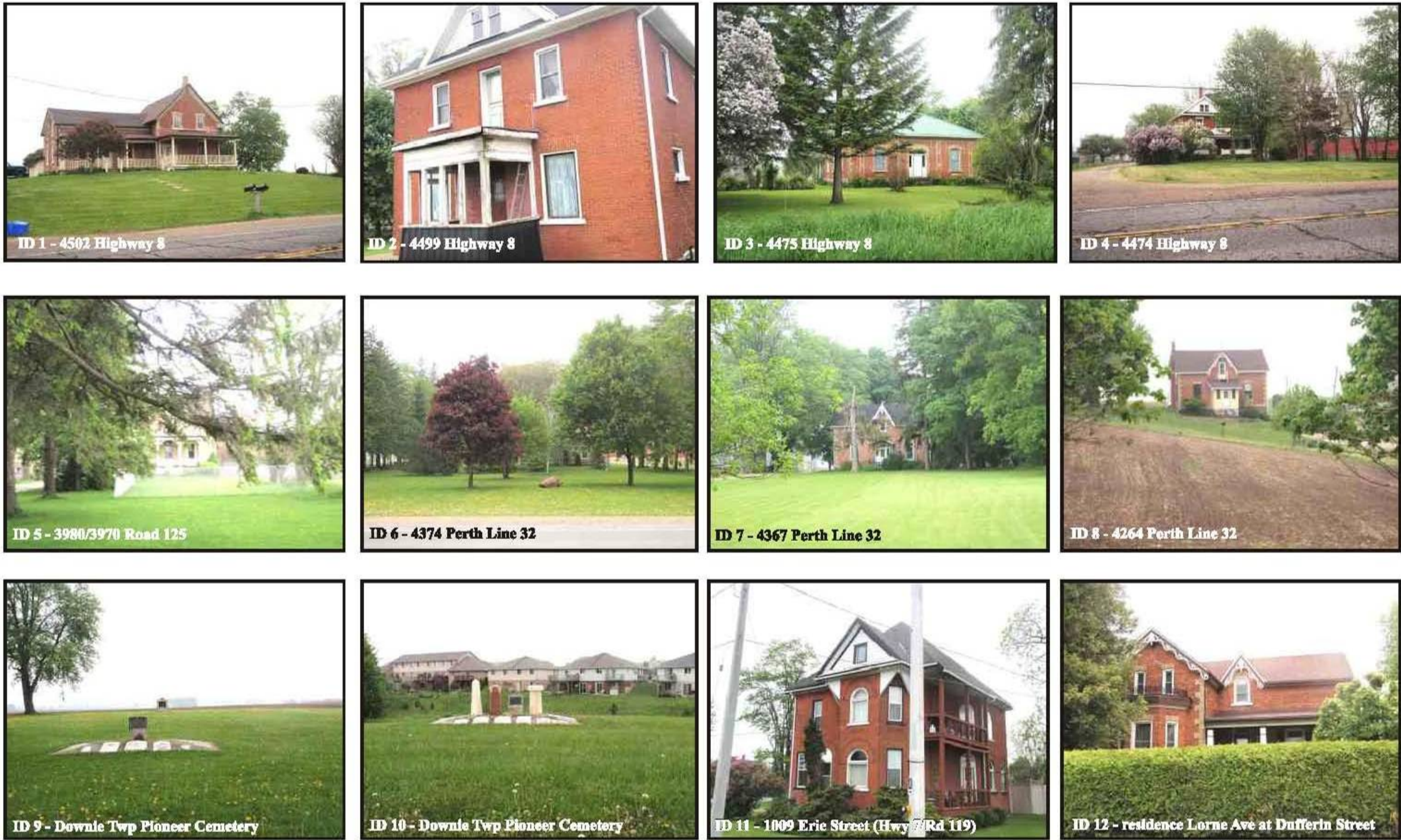


Exhibit 4-2(a): Photos of Heritage Structures within the Preferred Corridor

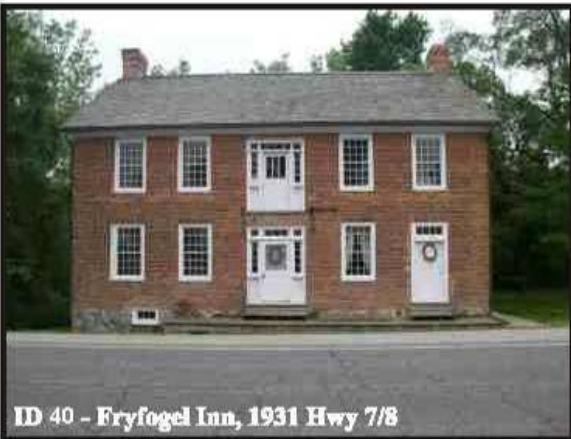


Exhibit 4-2(b): Photos of Heritage Structures within the Preferred Corridor

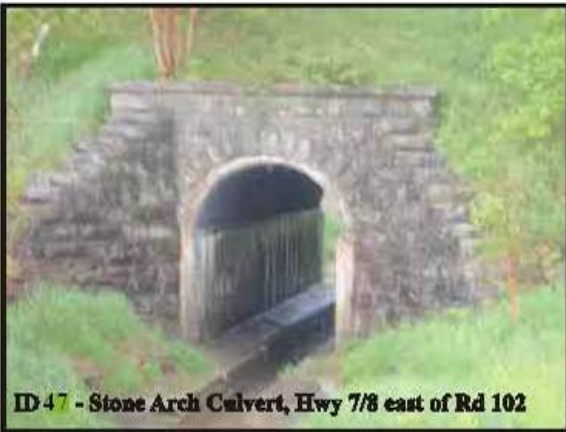


Exhibit 4-2(c): Photos of Heritage Structures within the Preferred Corridor

Exhibit 4-3 identifies each resource by name and address, and provides a brief description for some of them

| Exhibit 4-3: List of Heritage Structures within the Preferred Corridor | | | | |
|---|---|---------------|---|---|
| Name | I.D. Number On Map Exhibit 4-1 | Status | Location/Address | Description |
| farmstead | 1 | extant | 4502 Highway 8 | (non-inventoried structure) |
| residence | 2 | extant | 4499 Hwy 8 | (non-inventoried structure) |
| residence | 3 | extant | 4475 Hwy 8 | |
| farmstead | 4 | extant | 4474 Hwy 8 | (non-inventoried structure) |
| farmstead | 5 | extant | 3980/3970 Rd 125 | (non-inventoried structure) |
| farmstead | 6 | extant | 4374 Perth Line 32 | (non-inventoried structure) |
| farmstead | 7 | extant | 4367 Perth Line 32 | (non-inventoried structure) |
| farmstead | 8 | extant | 4264 Perth Line 32 | (non-inventoried structure) |
| Downie Twp Pioneer Cemetery | 9 | extant | south side Lorne Avenue, east of Rd 122 | (non-inventoried structure) |
| Downie Twp Pioneer Cemetery | 10 | extant | north side of Lorne Avenue, east of Rd 122 | (non-inventoried structure) |
| corner residence | 11 | extant | 1009 Hwy 7/Erie St./ Rd 119 | (non-inventoried structure) |
| Klumper residence | 12 | extant | south side Lorne Avenue, east of Hwy 7 | (non-inventoried structure) |
| farmstead | 13 | extant | 3080 Perth Line 33 | (non-inventoried structure) |
| farmstead | 14 | extant | 3075 Perth Line 33 | (non-inventoried structure) |
| James Reaney's Birthplace | 15 | extant | 2919, 2921 Forest Road off Hwy 7/8 | yellow brick Gothic Revival house (inventoried structure) |
| Barn and Shed | 16 | extant | 2829 Hwy 7/8 | Pennsylvania German barn and shed (inventoried structure) |
| McCallum Farmstead | 17 | extant | 2797 Hwy 7/8 | Gothic Revival house (inventoried structure) |
| James Rankin Farmstead | 18 | extant | 2698 Hwy 7/8 | Georgian house; Pennsylvania (inventoried structure)German barn |
| James Rankin Cemetery | 19 | extant | 2698 Hwy 7/8 north side | |
| Alexander Anderson Farmstead | 20 | extant | 3993 Road 109 | Gothic Revival house; Central Ontario barn (inventoried structure) |
| Barn | 21 | demolished | Hwy 7/8 west of Road 109 | Central Ontario barn (inventoried structure) |
| Barn | 22 | extant | Hwy 7/8 at Road 108 | Pennsylvania German barn (inventoried structure) |
| Row of Gothic Revival Houses | 23 | extant | 2215, 2217, 2219 Hwy 7/8 south side; 3997A & B Galt Street | Row of Gothic Revival Houses |
| House | 24 | extant | 2213 Hwy 7/8 south side | |
| Commercial Block | 25 | extant | 2204A 2204B Hwy 7/8 north side | |
| Cottage | 26 | extant | 2209 Hwy 7/8 south | |
| Union Hotel | 27 | extant | Hwy 7/8 north side | |
| The Capeling House | 28 | extant | Hwy 59 near Hwy 7 & 8 in Shakespeare | |
| Hall | 29 | extant | 2202 Hwy 59 (Perth Road 109) west side | |

| Exhibit 4-3: List of Heritage Structures within the Preferred Corridor | | | | |
|---|---------------------------------------|---------------|---|--|
| Name | I.D. Number On Map Exhibit 4-1 | Status | Location/Address | Description |
| Shakespeare Presbyterian Church | 30 | extant | 2196 Hwy 7/8 north side | |
| Gothic Revival House | 31 | extant | Hwy 7/8 near Hwy 59 (Perth Road 107 / Woodstock St) | |
| Georgian House | 32 | extant | Hwy 7/8 in Shakespeare; north side | |
| Small House | 33 | extant | Hwy 7/8 in Shakespeare; south side | |
| Andrew Riddell Junior Farmstead | 34 | extant | 2053 Hwy 7/8 | Gothic Revival house; rubblestone outbuilding and barn (inventoried structure) |
| John McTavish Farmstead | 35 | extant | 2026 Hwy 7/8 | rubblestone Georgian House; outbuilding (inventoried structure) |
| Andrew Riddell Farmstead | 36 | extant | 2007 Hwy 7/8 at Road 106 | Pennsylvania German barn; house (inventoried structure) |
| Dr. Flynn's House | 37 | extant | 1971 Hwy 7/8 | house of first doctor; red brick painted cream (inventoried structure) |
| Fryfogel Cemetery | 38 | extant | Hwy 7/8 near Fryfogel Inn | |
| Sebastian Fryfogel Farmstead | 39 | extant | 1899 Hwy 7/8 | Georgian stucco house; Pennsylvania German barn (inventoried structure) |
| Fryfogel Tavern | 40 | extant | 1931 Hwy 7/8 | 1844; historic inn; Georgian (inventoried structure) |
| Outbuilding | 41 | extant | 1834 Hwy 7/8 | Rubblestone (inventoried structure) |
| George Kleinknecht Farmstead | 42 | extant | 1825 Hwy 7/8 | mid 19th c shed; Pennsylvania Dutch barn (inventoried structure) |
| Lingelbach Evangelical Church | 43 | extant | 1802 Hwy 7/8 | yellow brick Gothic Revival (inventoried structure) |
| Lingelbach Cemetery | 44 | extant | 3995 Road 104 | |
| First Koch Farm Barn | 45 | extant | 1748 Hwy 7/8 | Pennsylvania German barn (inventoried structure) |
| Charles Koch Farmstead | 46 | extant | 1709 Hwy 7/8 | shed and Central Ontario barn (inventoried structure) |
| Stone Arch Culvert | 47 | extant | Hwy 7/8 at railway crossing | |
| Railway Overpass | 48 | extant | Hwy 7/8 at railway crossing | |
| Otto Family Farmstead | 49 | extant | 1481 Hwy 7/8 | Georgian house, Pennsylvania German barn (inventoried structure) |
| Shildroth Family Farmstead | 50 | extant | 1466 Hwy 7/8 | yellow brick Italianate house 1880 (inventoried structure) |
| Frank-Rau Brewery | 51 | extant | 29 Bleams Road East | 1850s brewery converted to cheese factory (inventoried structure) |

4.1.1 Buildings or Standing Sites of Architectural Significance

Twenty-three previously inventoried heritage buildings fall within the preferred corridor and its buffer. All of these were inventoried during Dilse's 1981 study and fall within his study area between Stratford and New Hamburg. The majority of buildings are 19th century structures (residences, barns, former taverns, outbuildings, factories) fronting Highway 7&8 or in close proximity to it. The majority of these buildings do not appear on official municipal inventories. However, one building – the Fryfogel Inn - appears on the inventory of the Township of Perth East and is listed in the *Ontario Heritage Properties Database*. The Fryfogel Inn, as well as its associated homestead site and cemetery, is of great significance to the local community. An Ontario Heritage Foundation (now Ontario Heritage Trust) plaque marks the property. **Exhibit 4-3** indicates which of the heritage buildings are inventoried structures, but they include James Reaney's Birthplace near Little Lakes, the McCallum, Rankin, Anderson, Riddell, McTavish, Kleinknecht, Koch, Otto and Shildroth farmsteads, the Frank-Rau Brewery and the Lingelbach Evangelical Church. Three buildings on Dilse's inventory have since been demolished.

Because complete municipal heritage inventories do not exist for some sections of the preferred corridor, a preliminary field review was also conducted to identify non-inventoried buildings of potential heritage significance. **Exhibit 4-3** indicates which of the heritage buildings are non-inventories structures, but they are restricted to the portions of the corridor west and south of Stratford. There is a concentration of non-inventoried heritage structures (residences and farmsteads) on Highway 8, surrounding the historic settlement community of Kastnerville. There is another residence and farmstead just south of Highway 8 on the west side of Perth Road 125. Two additional farmsteads occur on the north and south sides of Perth Road 32, just west of its intersection with Perth Road 125. Another 19th century farmstead appears on the north side of Perth Road 32 just west of a small tributary that drains into the Avon River. There is a two-storey red brick structure occupying a south corner lot of the intersection of Highway 7 (Erie Street – Road 119) and Embro Road (Road 113), within an historical settlement area. There is one non-inventoried heritage structure on the south side of Lorne Avenue east of Highway 7 and now within a relatively built up residential area. Two additional non-inventoried farmsteads appear on the north and south sides of Perth Road 33, southeast of Stratford near the municipal landfill site.

4.1.2 Heritage Bridges

There are no inventoried heritage bridges within the preferred corridor and its buffer. However, municipal inventories that exist are incomplete and few pay particular attention to bridges. The only currently identified potential heritage resources of this nature are a railway overpass on Highway 7&8 east of Perth Road 102 and an associated stone arch culvert at the creek crossing in the same location. Both are identified in **Exhibit 4-1** and **Exhibit 4-3**. The Lorne Avenue Bridge at Road 122 (O'Loane Avenue) was constructed in 1969 and subsequently is not considered in this study as it does not qualify as a heritage structure based on provincial guidelines.

4.1.3 Areas of 19th Century Settlement

There are several areas of early and important 19th century settlement within the preferred corridor and its buffer. Highway 7&8 once formed part of one of the earliest roads constructed by the Canada Company – first named the Goderich Road and later the Huron Road. It was opened in 1828 and connected two major planned centres established by the Canada Company – Goderich, on the shore of Lake Huron, and Guelph. Many early- to mid-19th century communities and homesteads can be found along the highway proper. The homesteads are represented by both inventoried and non-inventoried heritage structures. Significant communities along the corridor include Kastnerville (east of Sebringville), the Little Lakes area, Shakespeare and New Hamburg. The historic town core of New Hamburg will not be affected. There is a small historic cross-roads centre at the intersection of Highway 7 (Road 119) and Embro Road (Road 113), south of Stratford.

4.1.4 Cultural Heritage Landscapes

A comprehensive study of cultural heritage landscapes within the preferred corridor and its buffer zone has not yet been conducted. However, Disle's 1981 study identified landmarks and views within his then defined study area, some of which fall within the preferred corridor. These are listed as:

1. the view of New Hamburg and the Baden Hills from Highway 7 & 8 between Bleams Road and the Waterloo-Perth boundary;
2. the Shildroth Farmstead and neighbouring Otto Farmstead, both identified in **Exhibit 4-1** and **Exhibit 4-3**; and
3. the landscape along Highway 7 & 8 from Lingelbach Cemetery (Road 104); to the Andrew Riddell Junior Farmstead west of Sideroad 15 (now Road 106) and just east of Shakespeare (both locations are also identified in **Exhibit 4-1** and **Exhibit 4-3**).

Dilse also emphasized the significance of the scenic landscape along Highway 7&8 in general, between the Waterloo-Perth boundary and Stratford's eastern limits, noting its historical nature. He noted that "the landscape seen from this stretch of highway is the evolution of the landscape seen from the Huron Road, the colonization road of the Canada Company's large tract" (1981:17).

4.1.5 First Nations Burial Sites

There are no known First Nations burial sites within the preferred corridor or its buffer.

4.1.6 Cemeteries

There are six known cemeteries within the preferred corridor and its buffer. These all have roots in the 19th century. Three of these were inventoried by Dilse in 1981 and the remaining three do not appear on heritage registers. The Fryfogel Cemetery is part of the larger cultural complex including the Fryfogel Tavern and Fryfogel Homestead. There are two small pioneer cemeteries on Lorne Avenue east of Road 122. One of these is on the north side of the road and the other

on the south. The James Rankin Cemetery is a family plot associated with the James Rankin Homestead on Highway 7&8 east of Little Lakes. The South Easthope Cemetery is on the east side of Perth Road 107 south of Shakespeare, and will not be affected by the preferred corridor. The Lingelbach Cemetery rests in the southeast corner of the intersection of Highway 7&8 and Road 104. These cemeteries are identified in **Exhibit 4-1** and **Exhibit 4-3**.

4.2 Cultural Heritage – Archaeology

The preferred corridor was considered in terms of potential for impacts to known and previously undocumented archaeological resources.

4.2.1 Registered Archaeological Sites

Registered sites within the preferred corridor and its associated buffer are listed in **Exhibit 4-4**. The majority of these were identified during archaeological assessments conducted for previous improvements to the Highway 7&8 corridor. They all occur adjacent to the existing Highway 7&8 corridor, east of Stratford. Some sites have been partially or fully mitigated and some are still completely intact. Those that remain a planning concern for this project are shown in the table below. These are predominantly EuroCanadian industrial and homestead sites. Most are associated with extant heritage buildings. The currently proposed highway improvements have the potential to impact these sites, if construction plans incorporate any portion of the site areas. If impacts to these areas are identified, mitigation through excavation or avoidance will be necessary.

| Exhibit 4-4 | | | |
|--|------------------------|-------------|--------------|
| Registered Archaeological Sites within the Preferred Corridor | | | |
| Borden | Name | Type | Age |
| AiHf-1 | Easthope Kiln | industrial | EuroCanadian |
| AiHf-2 | Heinkel | unknown | unknown |
| AiHf-3 | Stratford-Little Lakes | unknown | unknown |
| AiHf-4 | Stratford-Little Lakes | homestead | EuroCanadian |
| AiHe-14 | Bergey 1 & 2 | Archaic | camp |
| AiHe-20 | Boehler Pottery | industrial | EuroCanadian |
| AiHe-21 | Fryfogel Inn | tavern | EuroCanadian |
| AiHe-22 | Riddell 1 | homestead | EuroCanadian |
| AiHe-23 | Riddell 2 | homestead | EuroCanadian |
| AiHe-24 | Fryfogel | homestead | EuroCanadian |
| AiHe-25 | Amacher | homestead | EuroCanadian |
| AiHe-26 | Guilk | homestead | EuroCanadian |
| AiHe-27 | Buschler | homestead | EuroCanadian |

4.2.2 Potential for Undocumented Archaeological Sites

The potential for lands to contain previously undocumented archaeological sites is determined through the consideration of provincially-established criteria. According to the Ministry of Culture's *Checklist for Determining Archaeological Potential*, any lands falling within:

- 250 metres of a known archaeological site
- 300 metres of a potable water source (extant or ancient)
- an area of elevated topography (knolls, drumlins, eskers, plateaus)
- pockets of sandy soil in a clay or rocky area
- an extractive area (for food or scarce resources)
- an area of early European settlement
- proximity to an historic transportation route
- an *Ontario Heritage Act* designated property
- or containing unusual land formations (mounds, caverns, waterfalls)

have potential for the discovery of archaeological resources. Proximity to water is the primary factor determining archaeological site locations. Several primary, secondary and tertiary watercourses cross the preferred corridor. The northwest section of the corridor falls within the Thames River Drainage System and is drained by Black Creek, the Avon River, Trout Creek and related tributaries. The central and east portion of the corridor falls within the Grand River Drainage System and is drained by the Nith River, Silver Creek, Wilmot Creek, Horner Creek and Baden Creek.

New construction along the preferred corridor and within its buffer has the potential to impact previously undocumented archaeological resources. Areas within the corridor and buffer meet Ministry of Culture criteria for lands having archaeological potential. Based on the above criteria, archaeological potential was mapped and plotted in **Exhibit 4-5**.

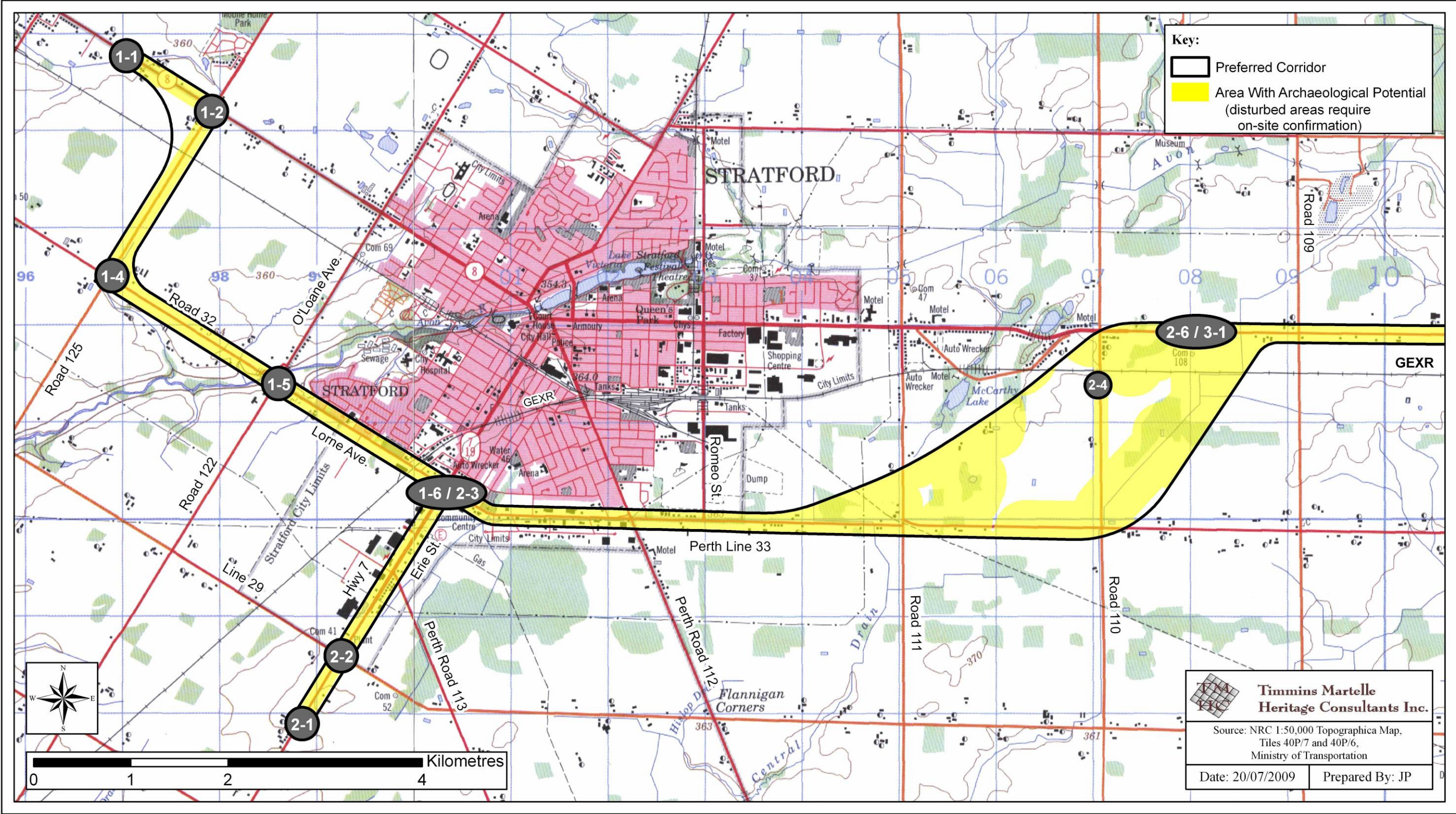


Exhibit 4.5 (a): Map of Archaeological Potential within the Preferred Corridor

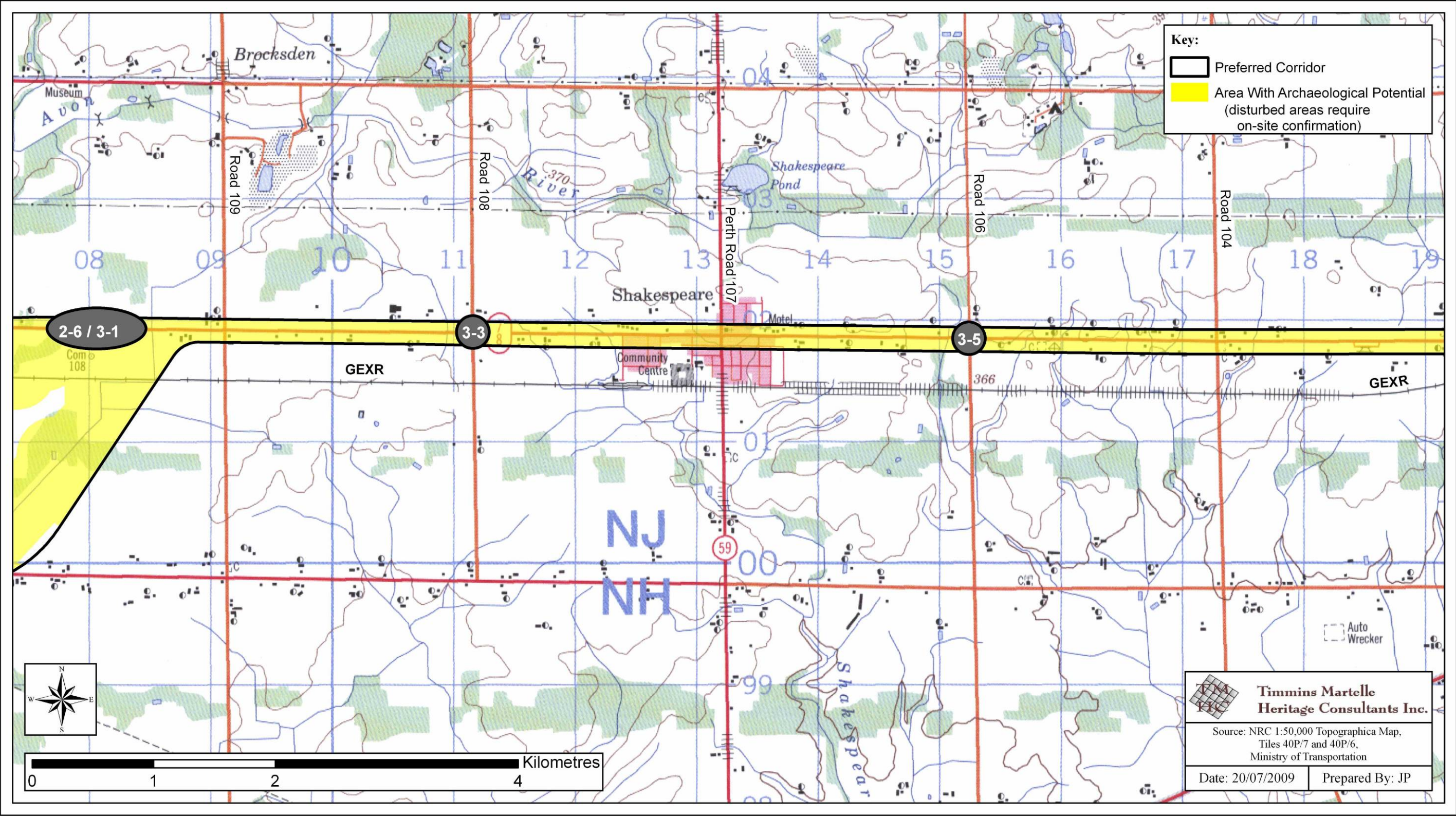


Exhibit 4.5 (b): Map of Archaeological Potential within the Preferred Corridor

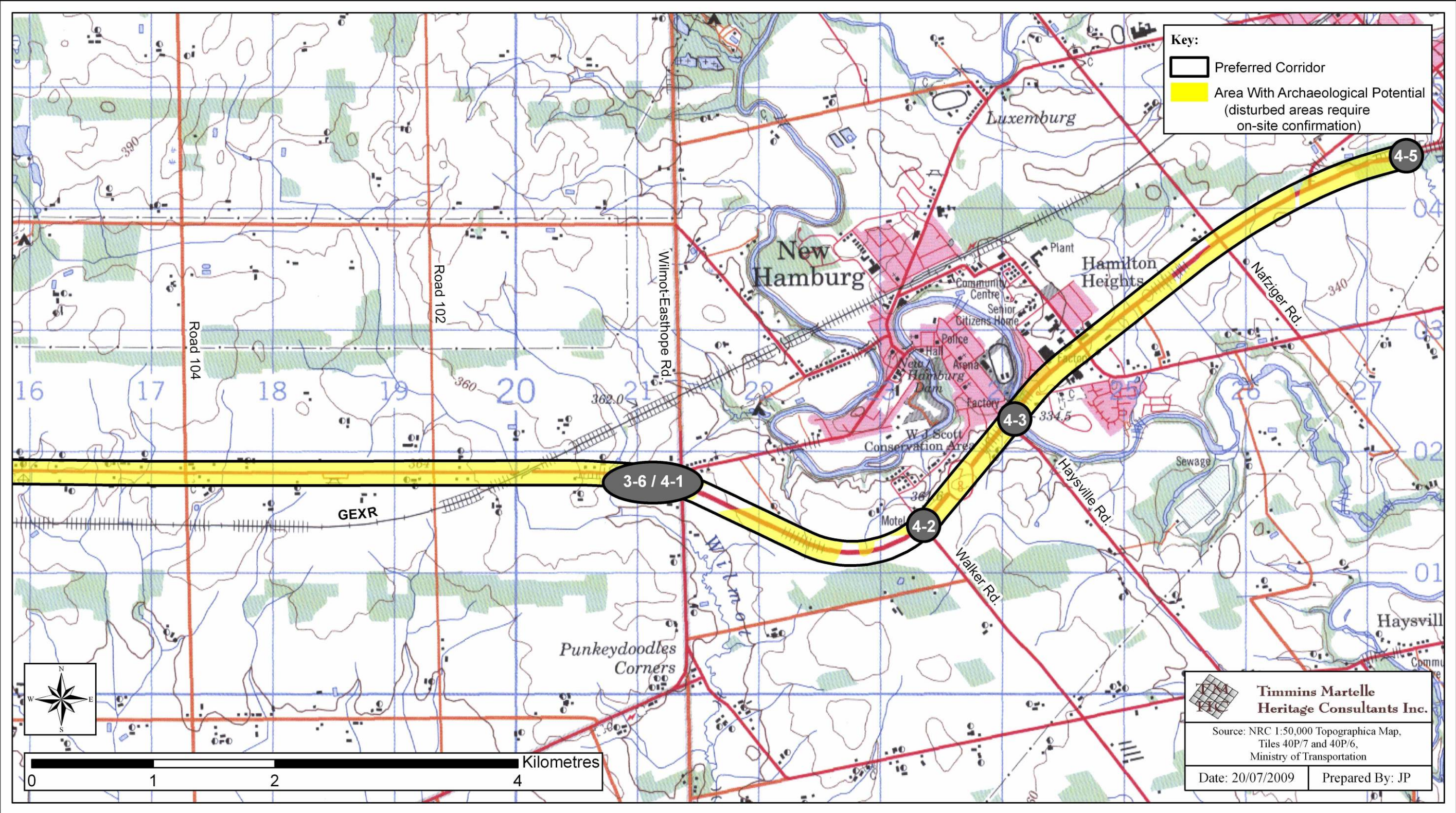


Exhibit 4.5 (c): Map of Archaeological Potential within the Preferred Corridor

4.2.2.1 Pre-Historic and Historic First Nations Archaeological Sites

Potential for First Nations archaeological sites is determined primarily on the physiographic features described above (proximity to water, elevated topography, well-drained soil). Given this, many areas within the preferred corridor have potential for the discovery of as yet undocumented First Nations archaeological sites.

4.2.2.2 Historic Euro-Canadian Archaeological Sites

Potential for historic Euro-Canadian archaeological sites is determined primarily based on proximity to water, elevated topography, historic transportation routes, extractive areas and locales of early Euro-Canadian settlement. Historic era archaeological sites are also found in association with extant 19th century buildings. Report F (Part 1) described the importance of Highway 7&8 as an early colonization road created by the Canada Company in 1828. It also noted that most of the major concession roads in the affected portions of Perth County and Waterloo County were open by the last quarter of the 19th century. Several early centres of settlement were noted including Stratford, Shakespeare and New Hamburg, in addition to the entire historic Highway 7&8 corridor.

Based on this information, many lands within the preferred corridor and its buffer have high potential for the discovery of historic Euro-Canadian archaeological resources. Areas most affected in this way are those peripheral to the existing highway and concession roads (routes that were open in the 19th century), as well as extant heritage structures.

4.2.3 Project Area and Application of Specific Information

Another miscellaneous criteria is also considered when evaluating archaeological potential. This is extent of recent disturbance and subsequent probability for the recovery of intact archaeological deposits. The disturbance of natural soil horizons through major development-related activities, primarily road construction, subdivision development, and infrastructure projects, can negate potential for the recovery of archaeological resources. Throughout the preferred corridor there are several locales where prior, extensive disturbance can be confirmed, including along roadways and in the more urban zones. Other, less noticeable, disturbance likely also exists in several areas, but this would have to be confirmed by an on-site inspection.

5.0 SUMMARY OF INPUT RECEIVED ON ENVIRONMENTAL CONDITIONS AND MTO RESPONSES AND CHANGES

In the final copy of this document, this section will provide a summary of comments and input received on the draft *Report F (Part 2): Environmental Conditions and Constraints* during the public review period, as well as an explanation of how this feedback was addressed in this version of the report by MTO.