City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment

Environmental Study Report

C11-21-13

DRAFT

August 2017

TP113070 / B000355

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Executive Summary

The City of Hamilton has completed a Class Environmental Assessment (EA) for a Brantford-bound access ramp to Highway 403 within Ancaster with emphasis on access from Mohawk Road. In developing a preferred design, consideration was given to the technical concerns of the City and the Ministry of Transportation (MTO), needs/concerns or the local community, as well as local environmental and economic constraints. This study was completed as a Schedule C project under the Municipal Class EA. As a Schedule C project, the study fulfilled Phases 1 to 4 of the Class EA process in accordance with the Ontario *Environmental Assessment Act*, the study followed the *Municipal Engineers Association Municipal Class Environmental Assessment* (Municipal Class EA) (October 2000, as amended in 2007, 2011 and 2015).

Study Area

The Study Area is situated primarily within Ancaster and is comprised of three potential locations for additional ramp access to Brantford-bound Highway 403:

- Highway 403 interchange with Mohawk Road in Ancaster,
- Highway 403 interchange with Main Street in West Hamilton, and
- Highway 403 and Golf Links Road in Ancaster.

Figure 1 shows the Study Area for the Highway 403 interchange with Mohawk Road.

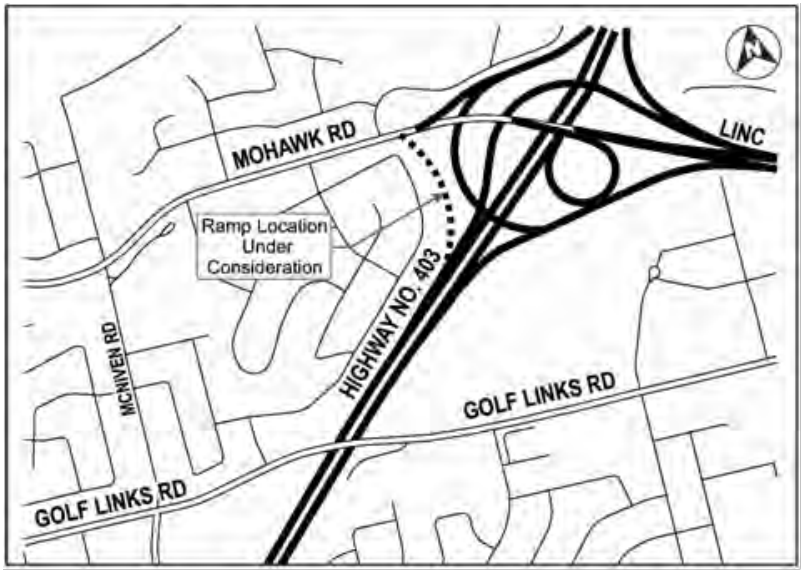

Figure 1: Study Area

Problem and Opportunity Statement

Under Phase 1 of the Schedule C Class EA process, a Problem and Opportunity Statement was developed which identifies the issues to be addressed by the study. Based on a review of background

materials, consultation with technical agencies and the public, the Problem and Opportunity Statement was developed:

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Linc interchange was constructed. Removal of the Brantford-bound ramp has left a missing link in access from Ancaster. In addition, residents have requested that the Brantford-bound ramp be replaced due to increasing traffic demands on Wilson Street in the Ancaster core. Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street.

Public Consultation

Public Consultation is a key feature of the Class EA process to obtain input regarding the study planning process, analyses, findings and recommendations from agencies and the public. Consultation activities conducted as part of this study include:

- Notice of Study Commencement;
- Public Information Centre (PIC) No. 1,
- Meetings with Technical Agencies – Ministry of Transportation,
- Meeting with Environmental Agencies – Ministry of Natural Resources and Forestry, Hamilton Conservation Authority,
- Meetings with Ancaster Community Council,
- Public Information Centre (PIC) No. 2,
- Notice of Study Completion, and
- 30 day public review of the Environmental Study Report.

Preferred Planning Solution

Under Phase 2 of the Class EA process, all reasonable and feasible solutions to the problem are identified and evaluated. For the study, five (5) alternative planning solutions include the “Do Nothing” option were considered and evaluated based on traffic operations and economic, environmental, cultural and social impacts.

Based on the evaluation and agency/public input, a combination of the following alternatives was selected as the preferred solution,

- Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403, and
- Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation (as part of future projects).

Preferred Design Concept

Following the identification of the preferred solution, alternative design concepts which may be utilized to implement the preferred solution were identified, developed and evaluated. Four (4) alternative design concepts were examined for the Mohawk Road on-ramp. Based on the evaluation of the alternative design concepts against various criteria including traffic operations and economic,

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environmental, cultural, and social impacts as well as consultation with stakeholders, technical agencies and the public, the preferred design concept (**Appendix H**) was selected:

- New Mohawk Road deceleration lane with direct spiral design,
- New single lane ramp connecting the Mohawk Road deceleration lane to the realigned Linc-Highway 403 Brantford-bound ramp,
- Realignment of the Linc-Highway 403 Brantford-bound ramp with a new Mohawk Road ramp acceleration lane with parallel lane design and modified Highway 403 acceleration lane, and
- Extension of the existing Highway 403 Brantford-bound climbing lane to accommodate the realigned Linc-Highway 403 Brantford-bound ramp and associated Highway 403 acceleration lane.

Potential Environmental Impacts and Mitigation

The preferred design concept for the Mohawk Road 403 Brantford-bound ramp is not anticipated to result in any significant environmental impacts if adequate mitigation measures are employed. Key environmental impacts resulting from the implementation of the preferred design may include:

- Potential air quality impacts. Dust control measures (e.g., water spraying, street sweeping) will be applied during construction. Future traffic levels are not expected to create a significant negative cumulative effect on the local air quality. Mitigation for air quality following construction is not required.
- Potential drainage impacts. In order to convey existing and proposed drainage to the tributary of Tiffany Creek, two culverts will be required as part of the proposed North-West on-ramp. Stormwater management for the new ramp surface has been proposed to be provided in a system of new enhanced grass swales.
- Potential noise impacts resulting from increased traffic volumes and construction. It is recommended that a noise barrier be installed for receptor NR01 to mitigate increased traffic volumes. Construction noise impacts are temporary in nature but will be noticeable at times at residential receptors. Contractors will comply with applicable requirements of construction contract and local noise by-laws.
- Potential impacts to vegetation and terrestrial wildlife species. Efforts will be made to avoid injury or harassment to wildlife within the project site. Vegetation clearing in migratory bird habitat will be scheduled outside active breeding season (May 1 to August 31).
- Potential traffic impacts at the intersection of Old Dundas Road, Wilson Street and Rousseaux Street and impact on traffic demand at the intersection of Mohawk Road and McNiven Road. Interim improvements were recommended for this intersection in the City of Hamilton Active Transportation Master Plan (ATMP) and are still valid (more improvement is required to address long-term issue). As confirmed in the ATMP, no improvements are required at this intersection.

Commitments to Further Work

Additional works to be completed during the detail design phase of this project, prior to construction are outlined in **Table 1**.

Table 1: Environmental Commitments

Factor	Interested Party	Commitment
Archaeology	Ministry of Tourism, Culture and Sport	Stage 1 Archaeological Assessment on lands identified as having archaeological potential within the Study Area.
Drainage	Hamilton Conservation Authority	Conformance to Stormwater Management Plan.
Property	Property Owners	No public property acquisition (slight impact on City property).
Terrestrial	Ministry of Natural Resources	Consultation to ascertain Species at Risk permitting or authorizations in association with proposed works.
Traffic	Road Users and Property Owners	Advanced notice of construction through signage and flyers. Develop Traffic Management Plan. Reduce construction time, when possible.
Utilities	Utility Agencies	Relocation of utilities with anticipated conflicts.

1. Introduction

1.1 Background

The original Highway 403 interchange at Mohawk Road included a Brantford-bound access ramp from Mohawk Road to Highway 403; however, the ramp was removed in 2000-2001 as part of the Highway 403 and Lincoln Alexander Parkway (Linc) interchange construction. Removal of the Brantford-bound ramp has left a missing link in access from the Community of Ancaster (Ancaster). Residents have requested that the Brantford-bound ramp be reinstated to address the lack of Highway 403 Brantford-bound access within Ancaster and to alleviate increasing traffic demands on Wilson Street in the Ancaster core since removal of the ramp.

The Ancaster Transportation Master Plan (2011) (ATMP) examined options for additional Ancaster access/egress to and from Highway 403 to reduce vehicle demand on local arterial corridors. Ramps from both Golf Links Road and Mohawk Road were evaluated. Additional on and off-ramps at Golf Links Road were considered to provide direct Highway 403 access, move traffic away from Wilson Street, and reduce traffic volumes on sections of Golf Links Road and Garner Road. A ramp at Mohawk Road was also considered to provide localized access to Brantford-bound Highway 403 and some reduction in traffic volumes on Wilson Street. It was found that a connection at Golf Links Road would provide a greater benefit to both Ancaster and Meadowlands residents travelling to/from the west on Highway 403, than a ramp at Mohawk Road. The ATMP recommended that access at Golf Links Road be pursued subject to the findings of a separate technical study being undertaken by the City of Hamilton (City) in coordination with the Ministry of Transportation Ontario (MTO) to assess improved Ancaster access to Highway 403. Any recommendation for additional connections to Highway 403 within Ancaster would be subject to MTO approval.

Following completion of the ATMP, a preliminary technical assessment was completed by the City in conjunction with the MTO on the feasibility of providing a new Brantford-bound on-ramp within Ancaster. Conceptual designs were developed and evaluated at Mohawk Road and Golf Links Road. Both alternatives were found to have design and construction challenges and a third alternative at Main Street/Aberdeen Avenue was considered.

The City Councillor and local Member of Provincial Parliament (MPP) met with the Minister of Transportation and MTO Central Region Regional Director in August 2011 to discuss improved Ancaster access to Highway 403 and associated assessment. It was indicated that the City would not be pursuing Highway 403 access at Golf Links Road due to significant operational concerns due to the proximity to the existing Highway 6 interchange. The Ministry subsequently issued a letter indicating support for Brantford-bound access from either Mohawk Road or Main Street and implementation of a ramp-to-ramp connection at either location subject to meeting MTO geometric and safety design standards and not adversely impacting the safe operation of Highway 403.

In response to the MTO's letter, the City's Councillor and Staff met with MTO Staff and determined an "order of priority" for Brantford-bound access to Highway 403 as follows:

(1) Ramp at Mohawk Road,

(2) Ramp at Main Street, and

(3) Ramp at Golf Links Road.

The Main Street ramp was considered feasible in principle however, it had several issues that made it cost prohibitive. A ramp at Golf Links Road was considered problematic and potentially cost prohibitive and therefore would be considered last. Based on the above, City Council directed Staff to initiate a Municipal Class EA study for a Brantford-bound access ramp to Highway 403 within Ancaster with emphasis on access from Mohawk Road.

In 2013, the City initiated a study to determine the feasibility of a Brantford-bound access ramp to Highway 403 in Ancaster. A copy of this report is provided in the appendix.

1.2 Study Area

The Study Area is situated primarily within Ancaster and is comprised of three potential locations for additional ramp access to Brantford-bound Highway 403:

+ Highway 403 interchange with Mohawk Road in Ancaster,
+ Highway 403 interchange with Main Street in West Hamilton, and
+ Highway 403 and Golf Links Road in Ancaster.

Figure 1 shows the Study Area for the Highway 403 interchange with Mohawk Road.

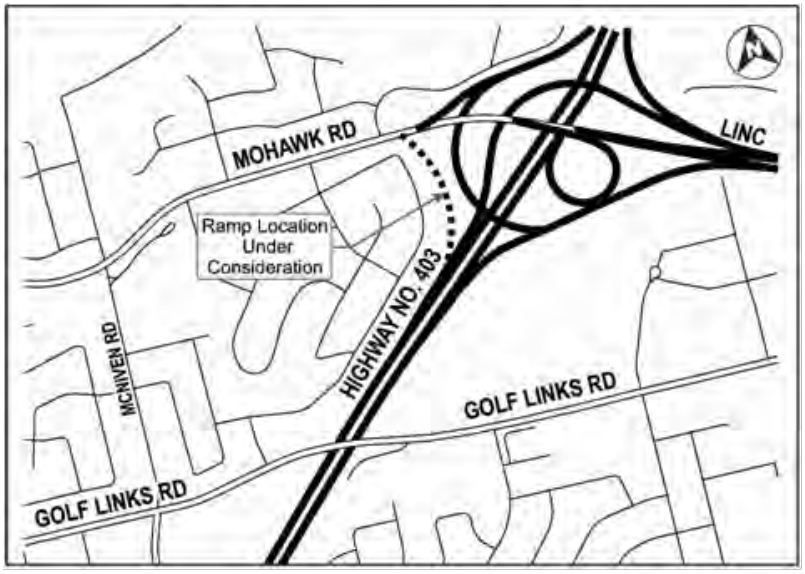

Figure 1: Study Area

1.3 Project Team Organization

This study was managed by the City in cooperation with the MTO. The study was completed on behalf of the City by a consultant team led by AMEC Environment and Infrastructure (AMEC) for project management, highway engineering, and environmental investigations; and CIMA Canada Inc. (CIMA)

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for traffic analysis, environmental assessment process, and public consultation. The Project Team was comprised of the City's Project Manager and Technical Team, and consultant Engineers, Planners, Environmental Specialists, and Technicians. The City's Technical Team consisted of representatives from the Public Works, Planning, and Transit departments.

1.4 Class Environmental Assessment

1.4.1 Process

To comply with the Ontario *Environmental Assessment Act*, the study followed the *Municipal Engineers Association Municipal Class Environmental Assessment* (Municipal Class EA) (October 2000, as amended in 2007, 2011 and 2015).

The goals and objectives of the study were to:

+ Determine the operational and geometric feasibility of a Brantford-bound on-ramp to Highway 403,
+ Assess the limitations and impact of the proposed ramp on Highway 403 operations and future plans, and
+ Complete Phases 1 through 4 of the Class EA process.

The study has:

+ Identified the transportation problems and/or opportunities within the Study Area (see Figure 1);
+ Identified alternative solutions and design concepts to address the identified problems/opportunities;
+ Assessed the technical, social, cultural, economic and natural environmental impacts of the identified alternatives; and
+ Selected a preferred solution/design in consultation with the public and technical/regulatory agencies.

This study was initiated as a Schedule C project under the Municipal Class EA, having the potential for adverse environmental effects. As a Schedule C project, the study fulfilled Phases 1 to 4 of the Class EA process (see **Figure 2**):

+ Phase 1 identified the problem and/or opportunity,
+ Phase 2 examined alternative solutions to the identified problem and/or opportunity,
+ Phase 3 examined alternative design concepts for the preferred solution, and
+ Phase 4 documented the study process in an Environmental Study Report.

As part of the Class EA process, a public consultation plan was developed to identify:

+ Potential stakeholders (i.e., affected public and agencies),
+ Issues that are likely to be of interest to the identified stakeholders, and
+ Techniques for informing and soliciting input from stakeholders and the general public.

The study has been documented in this Environmental Study Report, which will be filed on the public record and made available for a 30-day review period at the City's Clerk's Office and the Ancaster Municipal Centre. The review period will be announced in a Notice of Study Completion, advertised on two separate dates in each of the local newspapers, namely *Hamilton Spectator* and *Ancaster News*. During the review period, any member of the public may visit the above locations to review the report and contact the City to discuss and resolve outstanding concerns. The Notice of Study Completion will explain the provision for requesting a "Part II Order" during the review period, should concerns remain unresolved.

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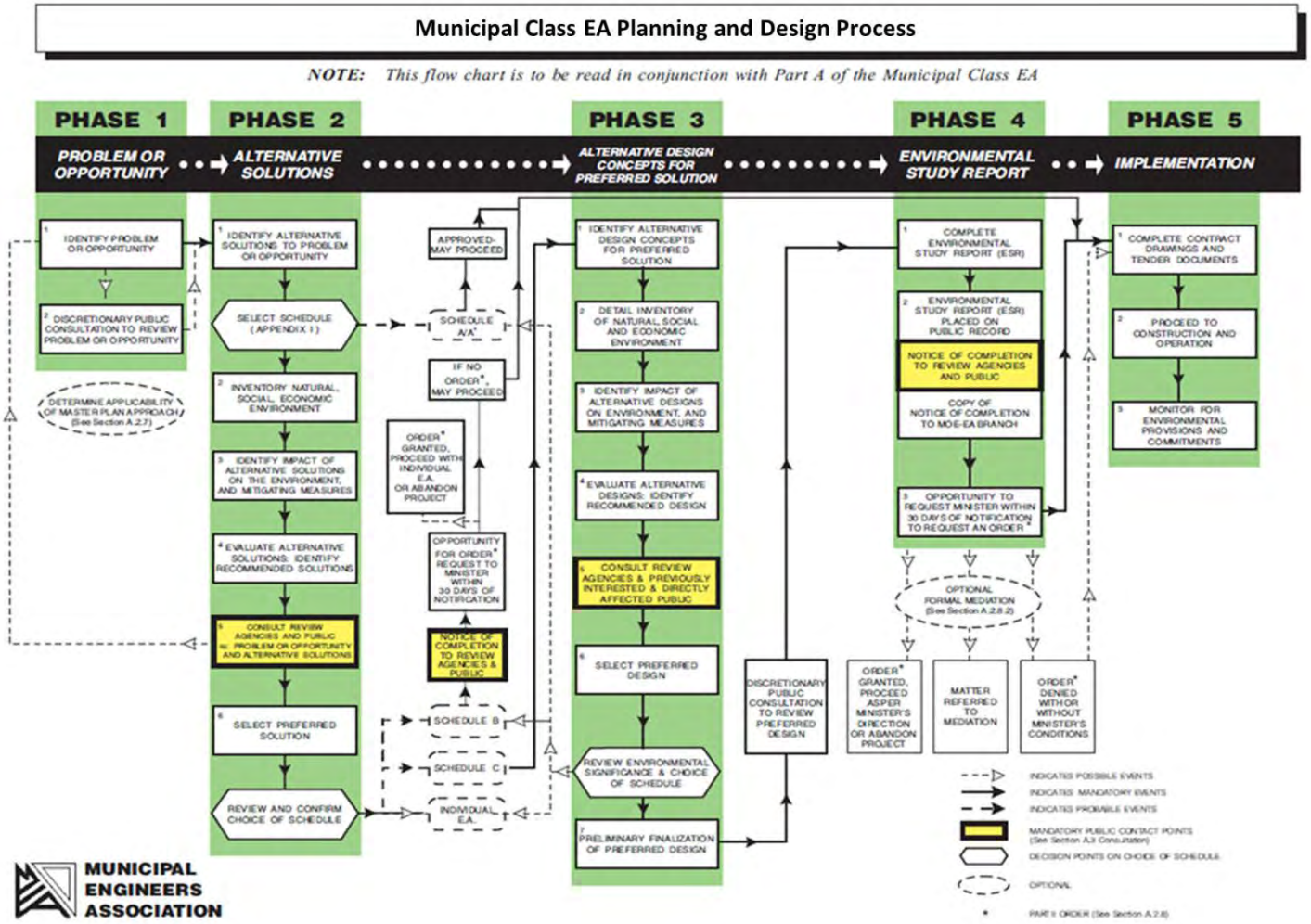

Figure 2: Municipal Class EA Process

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1.4.2 Consultation Plan

The purpose of the public consultation plan was to guide the Project Team in its effort to communicate effectively with agencies and the public, and to obtain input regarding the study's planning process, analyses, findings and recommendations (see **Appendix A**). The goals of the plan were to:

+ Enhance public understanding of the study by providing project information to the public in a timely manner,
+ Improve Project Team understanding of public and agency interests by providing the public and agencies with opportunities to discuss and/or submit comments,
+ Obtain input from the public and agencies for consideration in the identification of problems/opportunities and in the development and evaluation of alternative solutions/designs, and
+ Reduce the potential for unresolved concerns and/or objections by engaging stakeholders as early in the study as possible and in advance of key decision points.

The goals of the plan were achieved through the implementation of the following activities:

+ Identify stakeholders, including the interested public, adjacent property owners, First Nations, technical/regulatory agencies and utilities,
+ Inform the general public and stakeholders of the study's initiation, progress, findings and recommendations,
+ Request and receive input from the interested public and stakeholders regarding alternative solutions/designs, environmental impacts and recommendations,
+ Request and receive input from regulatory agencies to comply with their respective policies and to obtain their approvals in principle for the project, and
+ Meet, and where possible exceed, the requirements for public consultation as outlined in the Municipal Class EA.

Key stakeholders and their potential interests were identified, based on the characteristics and background of the study area (see **Table 1** and **Appendix B**).

Table 1: Key Stakeholders and Interests

Key Stakeholders	Interests
Bruce Trail Conservancy	• Bruce Trail
First Nations	• Traditional land uses and resources
Hamilton Conservation Authority (HCA)	• Ancaster and Tiffany Creek Subwatersheds • Watercourse crossings • Stormwater management • Natural areas • Endangered species

Key Stakeholders	Interests
Ministry of Environment (MOE)	• EA and approvals • Noise impacts • Air quality impacts
Ministry of Municipal Affairs and Housing (MMAH)	• Greenbelt Plan
Ministry of Natural Resources (MNR)	• Watercourse crossings • Natural areas and endangered species
Ministry of Tourism, Culture and Sport	• Archaeology • Built heritage and cultural heritage landscapes
Ministry of Transportation	• Feasibility of westbound ramp • Highway 403 operations • Acceptable design standards • Future ownership of ramp
Niagara Escarpment Commission	• Niagara Escarpment Plan
Residents Businesses Property Owners Area Developers	• Property impacts and access • Traffic impacts/traffic congestion • Traffic safety • Environmental impacts • Noise impacts
Utilities (Electricity, Gas, Phone, Cable)	• Utility corridors

The consultation approach included methods of informing the public, meeting with stakeholders, hosting public information centres, and sharing the study report. Specific techniques used for consultation are described throughout this report.

2. Problem and Opportunity Statement

A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Linc interchange was constructed. Removal of the Brantford-bound ramp has left a missing link in access from Ancaster. In addition, residents have requested that the Brantford-bound ramp be replaced due to increasing traffic demands on Wilson Street in the Ancaster core. Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street.

3. Development and Evaluation of Alternative Planning Solutions

3.1 Alternative Planning Solutions

Five (5) alternative planning solutions were identified to address the problem and opportunity statement:

Alternative 1: Do Nothing (i.e., no additional Brantford-bound access to Highway 403)

Alternative 2: Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403

Alternative 3: Improve access to Highway 403 by adding a Brantford-bound ramp from Main Street to Highway 403

Alternative 4: Improve access to Highway 403 by adding a Brantford-bound ramp from Golf Links Road to Highway 403

Alternative 5: Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

3.2 Existing and Future Conditions

3.2.1 Roadway Network

Mohawk Road is a two-lane arterial with Toronto-bound access to Highway 403. The road crosses over Highway 403 and connects to the Linc. The posted speed on Mohawk Road at the highway interchange is 70 km/h.

Wilson Street is generally a north/south corridor connecting to Main Street West in Hamilton and to Highways 2 and 53, and Colborne Street East in Brant. It runs through the old Town of Ancaster (Village core) and intersects with Old Dundas Road/Rousseaux Street. Rousseaux Street turns into Mohawk Road heading eastward over Highway 403. Approaching this intersection, Wilson Street is a two-lane roadway with an assumed speed limit of 50 km/h.

Golf Links Road is a two-lane arterial with no direct access to Highway 403. The road crosses over the highway. The speed limit on Golf Links Road is assumed to be 50 km/h. Reserved bicycle lanes are present on both sides of Golf Links Road and a sidewalk is present on the north side of the overpass. The Hamilton Street Railway (HSR) provides transit service on Golf Links Road at this location via Routes 5A, 5C and 16 (Ancaster).

The Linc is a four-lane, divided parkway with Toronto-bound and Brantford-bound access to Highway 403. The posted speed on the Linc is 90 km/h.

Highway 403 is a five-lane divided highway (2 Toronto-bound; 3 Brantford-bound, including truck climbing lane), with access to Mohawk Road/Linc from Brantford-bound Highway 403, access to the Linc from Toronto-bound Highway 403, and no access to Mohawk Road from Toronto-bound Highway 403. Access to Main Street is from Brantford-bound Highway 403. The posted speed on Highway 403 is 100 km/h.

3.2.2 Traffic Operations

Macro- and micro-modelling reports were completed for this study to determine the need and justification for the project (see **Appendix C**). For the analyses, existing (2008) traffic volumes accessing Highway 403 within the Study Area were used. The following conclusions were drawn:

+ Traffic demand from the west side of Ancaster towards the west (Brantford) in the current morning (AM) peak hour is essentially captured by the Wilson Street Brantford-bound on-ramp which has

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a current volume of approximately 116 autos (128 including trucks). The addition of a similar ramp at Mohawk Road is likely to capture some portion of this demand.

+ There is a potential AM peak hour demand of 86 autos for a new Brantford-bound on-ramp at Mohawk Road; while the Wilson Street on-ramp would reduce by 50 autos as a result. A realistic AM peak hour forecast for the Mohawk Road Brantford-bound on-ramp is approximately 55 vehicles (including trucks) up to a maximum of 86.
+ Part of the rationale for considering a new Brantford-bound on-ramp at Mohawk Road is the desire to reduce traffic along Wilson Street in the Village of Ancaster. The addition of the Brantford-bound on-ramp at Mohawk Road results in a reduction in traffic on Wilson Street of approximately 40 vehicles in the AM peak hour southbound (approximately 300 vehicles per day).
+ Some Ancaster residents wishing to travel to the southwest may find a reduction in travel time due to the addition of the ramp.

3.2.3 Natural Environment

3.2.3.1 Terrestrial

The Project Team identified a mature Fresh-Moist Black Walnut Lowland Deciduous Forest within the Study Area north of Mohawk Road, west of Highway 403. Fresh-Moist Black Walnut Lowland Deciduous Forest communities are provincially rare (imperilled to vulnerable). This forest is also located within the Niagara Escarpment and consequently also within the Greenbelt Plan. See **Appendix D** for more information.

The Hamilton Golf and Country Club encompasses a significant amount of land to the north of the current Highway 6/Highway 403 interchange. The golf course mainly consists of manicured lands; open green spaces with small wooded patches and marshes throughout. An abundance of old growth trees, mainly oak species, are scattered throughout the old woods. Very large and mature Black Cherry trees are the dominant species of the woodland patches located in the southwest section of the area, and may likely be remnants of a plantation. There are also sections of old coniferous plantations in the southern and eastern part of the area that are separated by golf course fairways, greens, and trails. Species such as Black Walnut and Black Locust are abundant throughout this forest type, with Hawthorn thickets and European Buckthorn in the understory. At the south end of the Golf and Country Club there are larger wooded areas, and two woodlots (coniferous plantations) that abut a portion of the highway. The woodlot to the northeast of the Highway 6 interchange appears to be a mixed forest with a section dominated by evergreens at the Highway 6 off-ramp. The evergreen dominated coniferous forest is a plantation patch with little or no understory and sparse ground cover.

3.2.3.2 Terrestrial Wildlife

The Study Area includes cultural land uses and developed lands where common wildlife species were observed. These lands do not provide any specialized habitat and no wildlife Species at Risk were reported and have a low probability of occurrence. Within the Study Area, the common species identified are considered urban-tolerant and are known to inhabit and nest in trees and buildings in

urban areas. Although these areas will be impacted, employment of best management practices and mitigation measures will ensure that the overall impacts to the terrestrial habitat will be minimal.

3.2.3.3 Species at Risk

Two Species at Risk under the provincial *Endangered Species Act* were observed within the Mohawk Road/Highway 403 Study Area.

Review of the Natural Heritage Information Centre (NHIC) database revealed records of Common Snapping Turtle within one kilometre of the Study Area, as well as occurring within the broader Niagara region. Preferred aquatic habitat is very limited within the Study Area, however individuals may be observed.

Preliminary review indicates that there is a low probability of Species at Risk at in the vicinity of Main Street. Review of NHIC data indicates historical records of Virginia Lungwort (Vulnerable), American Chestnut (Endangered) and Perfoliate Bellwort (Critically imperilled) within one kilometre of the Study Area (latest record being in 2001). There is a low probability of these three species occurring due to the historical nature of their records and lack of suitable habitat. While preferred aquatic habitat for the Snapping Turtle (Special Concern) is limited within the Study Area, there is a probability of encountering this species as it is tolerant of human activity and has been found in small ponds and ditches. Department of Fisheries and Oceans (DFO) Species at Risk mapping does not indicate the presence of any aquatic Species at Risk in the area. Confirmation of Species at Risk data will be required through consultation with the MNR and DFO.

At the Highway 6 interchange area, the Hamilton Golf and Country Club is a locally important area that has received designation as a Certified Audubon Cooperative Sanctuary through an Audubon International program. American Chestnut (provincially Endangered) has historically (within the past 20 years) been recorded to occur in the area. While there is a low probability of American Chestnut occurring in this Study Area today, there is potential that Butternut (provincially Endangered) – either pure trees or hybrids – may occur within the woodlots as Butternut has recently been identified at multiple locations along Highway 403 in the area of the project. Significant wildlife species Snapping Turtle (Special Concern), Monarch (Special Concern) and Eastern Milksnake (Special Concern) have previously been documented at the Golf and Country Club.

3.2.3.4 Significant Natural Areas

Three (3) significant natural areas were identified in close proximity to the Mohawk Road/Highway 403 study area (see **Figure 3**):

+ Iroquoia Heights Conservation Area,
+ The Greenbelt, and
+ Niagara Escarpment and the Bruce Trail.

See **Appendix D** for more information.

The Iroquoia Heights Conservation Area is located at the northeast corner of the Highway 403-Linc interchange, bordered by Highway 403 along the north and west sides, and Old Mohawk Road to the

south (see **Figure 3**). The conservation area is comprised of former agricultural and industrial areas in the early stages of succession, along with forested areas along the Niagara Escarpment rim and a wooded gorge which drains the wetland along Chedoke Creek. The headwaters of Chedoke Creek consist of an intermittent stream that runs through the conservation area and over the escarpment into a small bedrock gorge. Below the escarpment, the creek is routed into culverts beneath Highway 403. The conservation area is used for recreational activities such as hiking and biking. The Bruce Trail, located along an abandoned railway line, and other trails run through the conservation area. The Iroquoia Heights Conservation Area has also been identified as a significant natural area for the following reasons:

- Encompasses part of the Niagara Escarpment;
- Is part of a linkage (the conservation area is the western most portion of a long northeast greenbelt through the core of Hamilton);
- Provides habitat for significant species;
- Contains interior forest habitat; and,
- Is locally significant as the conservation area is a remnant natural area in an intensely developed area.

Established under Section 3 of Ontario's *Greenbelt Act*, 2005, the Greenbelt Plan includes lands within the Niagara Escarpment Plan Area, the Oak Ridges Moraine Area, the Parkway Belt West Plan Area and lands designated as Protected Countryside. The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands currently covered by the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan while at the same time improving linkages between these areas and the surrounding major lake systems and watersheds (MMAH, 2013). Natural areas included in the Greenbelt Plan (Niagara Escarpment) border Mohawk Road and are to the immediate north of the Highway 403-Linc interchange (see **Figure 3**).

Recognized as a United Nations Education, Scientific and Cultural Organization (UNESCO) World Biosphere Reserve, the Niagara Escarpment stretches 725 km, from Lake Ontario (near Niagara Falls) to the tip of the Bruce Peninsula (between Georgian Bay and Lake Huron), spanning a total area of 190,270 hectares (ha). In addition to including wetland complexes, cliff faces, slopes and aquatic ecosystems, the escarpment corridor crosses two major biomes: the Boreal Needle Leaf Forest in the north and the Temperate Broadleaf Forest in the south (Canadian Biosphere Reserves Association (CBRA), 2013). The Niagara Escarpment is a significant natural area which acts as a major ecological corridor for terrestrial species. It also serves to maintain water quality and quantity within the stream reaches that pass through the area, to the benefit of aquatic species (HCA, 2008). Biologists have said that the Niagara Escarpment is the most diverse region in Ontario, home to an assortment of flora and fauna including 36 species of reptiles and amphibian, 53 species of mammals, 90 species of fish, and more than 350 species of birds (Bruce Trail Conservancy (BTC), 2013). Of these species, 109 are

listed as provincially Threatened or Endangered (BTC, 2013). The Niagara Escarpment is accessible via a public footpath (the Bruce Trail) spanning its entire length. The Mohawk Road Study Area resides in an urban settlement area with natural areas included in the Niagara Escarpment Plan and Bruce Trail entrance routes to the immediate north of this Study Area (see **Figure 3**).

Preliminary background assessment indicates the Main Street Study Area resides within an urban settlement area outside of the Greenbelt. Natural areas included in the Greenbelt Plan ("protected countryside") border the Main Street/Highway 403 on-ramp Study Area to the immediate south of the proposed ramp, at the railway crossing.

The Highway 6/Highway 403 interchange area is situated within a settlement area outside of the Greenbelt.

3.2.3.5 Aquatic

The Mohawk Road/Highway 403 Study Area is located within the Tiffany Creek subwatershed of the Spencer Creek watershed. Two drainage structures were identified within the Study Area for Mohawk Road:

+ Culvert under Brantford-bound on-ramp from the Linc, and
+ Inlet approximately 25 m south of Mohawk Road within the west ditch of the Linc.

There is no direct or indirect fish habitat within 30 m of the Mohawk Road Study Area. See **Appendix D** for more information.

Main Street falls within the Chedoke Creek subwatershed and a water feature runs along the north side of Highway 403 and the Aberdeen Avenue on-ramp to the highway. The channel appears to be channelized with concrete banks along the majority of the length between Aberdeen Avenue and the railway tracks. The area between the current highway and the watercourse is vegetated with tall plants (e.g. Goldenrod), shrubs (e.g., Sumac) and scattered trees. On the opposite side of the watercourse, there is a small wooded area between residential properties and the north side of the watercourse; however, the trees provide shade to only a small portion of the channel. Cultural communities appear to be present between the current highway and the watercourse, as well as between the residential properties and the watercourse. Cultural communities are a result of, or maintained by, cultural or anthropogenic based disturbances and are typically characterized by non-native species. Surrounding areas include cultural land uses and developed lands. On the north side of the watercourse, these include residential properties, a power plant, and a school campus at Main Street West.

Golf Links Road falls within the Ancaster Creek subwatershed. Ancaster Creek flows through the golf course, crossing Highway 403 over 400 m from the Highway 6 interchange. Fish were assessed in Ancaster Creek at the Hamilton Golf and Country Club in 1991 and 1999. In total, three species were recorded – Goldfish, Blacknose Dace, and Creek Chub. Riparian habitat along the creek has been heavily altered by online ponds and golf course management of greens and fairways. The Creek is not anticipated to be affected by the proposed works in the Golf Links Road area.

3.2.3.6 Archaeology

AMEC completed a Stage 1 Archaeological Assessment for the Mohawk Road Study Area, dated May 12, 2014, attached in **Appendix E.** A Stage 1 archaeological assessment is a systematic qualitative process executed in order to assess the archaeological potential of a property based on its historical use and its potential for early Euro-Canadian (early settler) and pre-contact Aboriginal occupation. The objectives of a Stage 1 background study are: 1) to provide information about the property's geography, history, previous archaeological fieldwork and current land condition; 2) to evaluate in detail the property's archaeological potential which will support recommendations for a Stage 2 property assessment for all or parts of the property if warranted; and 3) to recommend appropriate strategies for a Stage 2 property assessment if warranted.

The Stage 1 background study indicates that the Study Area ostensibly has archaeological potential due to three factors: 1) the rich settlement and transportation history of the immediate area (Mohawk Road); 2) the presence of 40 registered archaeological sites within a one-kilometre radius of the Study Area; and 3) a tributary of Tiffany Creek is present within the Study Area.

The Stage 1 property inspection indicates that: 24% or 3.21 ha is excessively sloped (i.e. >20°); 59% or 7.9 ha has had recent disturbance (i.e. recent construction, highway and roads); 7.9% or 1.06 ha has had archaeological potential removed due to previous grading; 5.4% or 0.72 ha is low and wet; and 3.9% or 0.52 ha has archaeological potential. In light of these results, the recommendations are as follows:

- Prior to development-related disturbance, a Stage 2 archaeological assessment should be conducted by means of a shovel test pit survey in accordance with Section 2.1.2 in the Standards and Guidelines for Consultant Archaeologists (2011) on the lands noted as having archaeological potential (approximately 0.52 hectares).
- The balance of the Study Area does not require additional archaeological assessment.

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Figure 3: Significant Natural Areas

Construction noise impacts are temporary in nature but will be noticeable at times at residential receptors. Methods to minimize construction noise impacts should be included in the Construction Code of Practice.

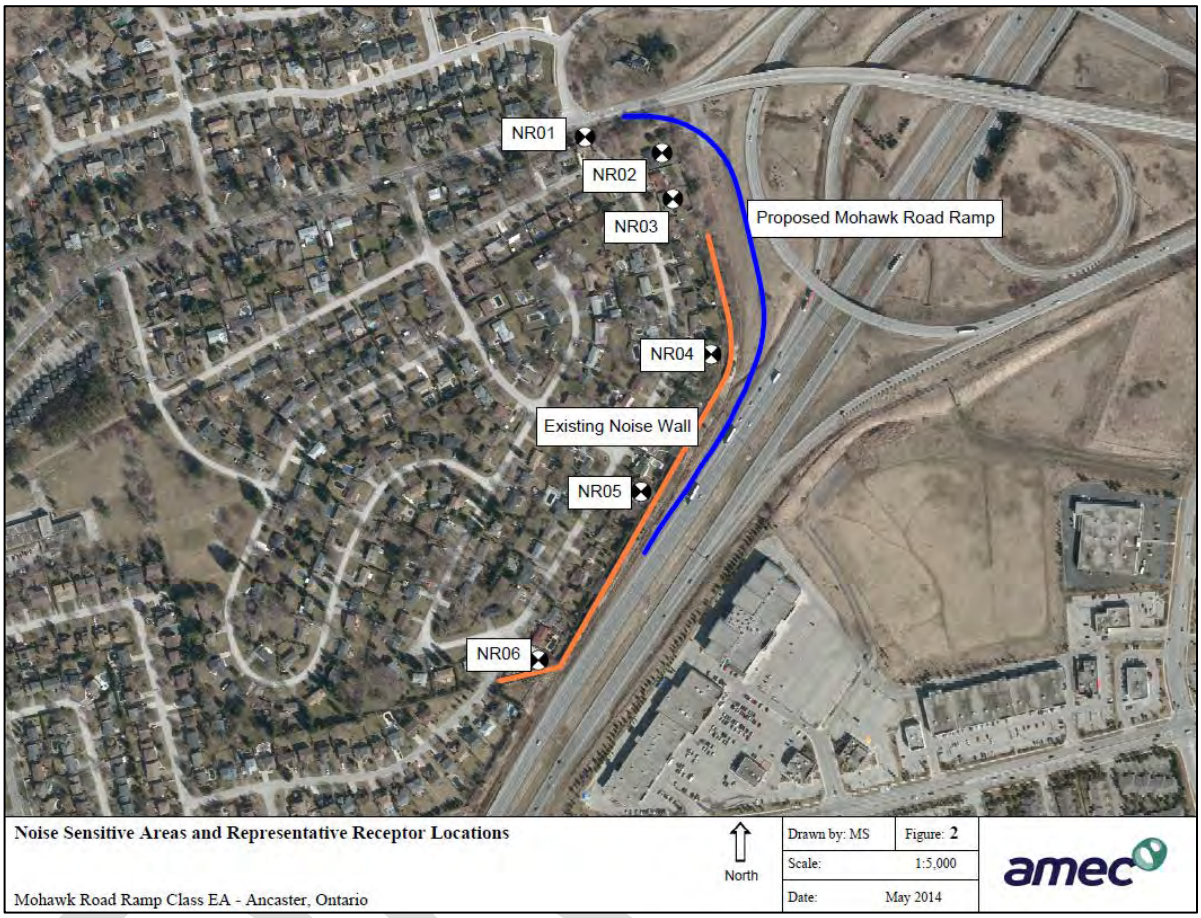

Figure 4: Noise Sensitive Areas and Representative Receptor Locations

5.12 Retaining Walls

Implementation of the recommended plan will not require construction of retaining walls to mitigate environmental or property impacts.

5.13 Construction Staging

Construction staging will primarily be implemented for completion of the Highway 403 roadway pavement structure and embankment widening and realignment of the Linc-Highway 403 Brantford-bound ramp. Long-term (greater than 24 hours) localized detouring of the Highway 403 westbound lanes towards the Highway 403 median will be required to facilitate placement of temporary concrete barrier and energy attenuation along the existing edge of pavement to provide separation of the work zone from the Highway 403 through traffic. The proposed permanent median widening combined with temporary shoulder strengthening will be utilized to permit shifting of the Highway 403 westbound lanes during construction. Construction of the temporary and permanent median widening will be

completed utilizing short term (less than 24 hours) off-peak lane closures. No long term (greater than 24 hours) lane or ramp closures will be required to facilitate construction of the recommended plan. Minimum lane and shoulder widths of 3.5 m and 0.5 m will be maintained for all lanes and shoulders during construction.

Construction details including access, egress, work zone traffic capacity, evaluation of permitted lane closures times and assessment of shoulder strengthening requirements will be completed as part of the detailed design. Construction access is anticipated to be primarily provided from Mohawk Road. Construction staging will be designed in accordance with MTO design standards and specifications.

Operational constraints will be incorporated into the construction contract to minimize impacts to motorists, pedestrians and adjacent environmental features.

5.14 Electrical Condition Assessment

A detailed assessment of the existing electrical systems at the Highway 403 interchange in the vicinity of the proposed Mohawk Road ramp has been completed. The electrical systems at this interchange are owned and maintained by the Ministry of Transportation (MTO) and were installed in 2001. After inspection, the systems were found to be operational and generally in good condition. The systems are in general accordance with current Ministry standards aside from one exception – the Distribution Assembly.

Existing electrical systems that will be impacted by the proposed ramp construction include power supply distribution assembly, maintenance holes and roadway illumination, and hydro power servicing. The electrical Distribution Assembly for the Highway 403 Interchange at Lincoln Alexander Parkway/Mohawk Road is located on the south/west side of Mohawk Road and is accessible via an entrance way. The Distribution Assembly is currently located in the shoulder of the proposed Mohawk Road on-ramp and will require removal. A nearby hydro pole with three (3) pole mounted transformers will also be affected by construction and requires relocation. Additionally, the existing MTO light standard EP29 may be too close to the edge of the proposed N-W on-ramp pavement and may require relocation. This light standard may be salvageable and can be reused in the Contract. Further details regarding the location and orientation of the electrical systems is discussed in the Electrical Condition Assessment Report; which can be found in **Appendix L**.

6. Potential Environmental Impacts and Mitigation

6.1 Air Quality

The findings of the air quality study for the future scenario were as follows:

+ The incremental (project) effects for NOx, PM2.5, PM10, CO, and SO2 were predicted to be below the respective ambient air quality criteria;
+ Highest effects are located proximate to intersections, most significantly Mohawk Road and Filman Road;

- The vehicle emission model (Mobile 6.2C) considers the gradual fleet replacement as the higher polluting vehicles are removed from service;
- The predicted effects for NOx were highest for the year 2008 scenario. Significant reduction of NOx emissions even for the increased traffic volumes for the year 2031 scenario were achieved as older vehicles were removed from service. Although the emission factors for the other target pollutants (PM2.5, PM10, CO, and SO2) also decreased over time, the reductions were not as significant as for NOx and the increased traffic volumes resulted in higher impacts on air quality in 2021 and 2031, but still being in compliance limits;
- The cumulative effects of the roadway PM2.5, PM10, CO, and SO2 emissions within the Study Area and the background concentrations were below the respective ambient air quality criteria for all averaging times under each scenario;
- For the existing 2008 scenario (without westbound ramp to Highway 403 from Mohawk Road) the cumulative effect of the roadway NOx emissions within the Study Area and the background concentrations were found to be higher than the respective ambient air quality criteria for the 1-hour and 24-hour averaging periods; and
- Based on the modelling results, the addition of the proposed Mohawk Road ramp and the future traffic volumes (scenarios 2021 and 2031) on Highway 403 in the area of the Mohawk Road/Linc interchange are not expected to create a significant negative cumulative effect on the local air quality.

The Air Quality Assessment Report concluded that the preliminary analysis indicated that all target pollutants were lower than the applicable criteria. Based on these findings, the addition of the proposed Mohawk Road ramp and the future traffic volumes (scenarios 2021 and 2031) on Highway 403 in the area of the Mohawk Road/Linc interchange are not expected to create a significant negative cumulative effect on the local air quality.

6.2 Stormwater Design

The impacts of the new Mohawk Road ramp on the hydrology within the study area have been assessed as discussed in Section 5.7. It is anticipated that the construction of the new Mohawk Road ramp will introduce changes in the topography of the area (combination of cuts and fills are expected) and will impact the existing drainage to the tributary of Tiffany Creek. The following measures will be implemented to mitigate impacts:

- In order to convey existing and proposed drainage to the tributary of Tiffany Creek, two (2) culverts will be required as part of the proposed N-W on-ramp; and
- Water quality treatment will be required to manage the impacts of the proposed ramp on the receiving watercourse. Flat-bottom, grassed swales can provide effective stormwater management for sediment/pollutant removal and have been proposed to be utilized in this design to optimize the area treated.

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6.3 Noise Impact

The potential environmental noise impacts of the new Mohawk Road ramp construction have been assessed as discussed in Section 5.11. A new 3.0 m high noise wall will be installed on Mohawk Road to mitigate localized increases in noise associated with the implementation of the recommended plan. The location, material composition and associated grading will be developed during detail design.

Provisions will be included in the construction contract to minimize potential noise impacts to adjacent receivers. Exceptions to the City of Hamilton's noise bylaw may be required to facilitate widening of the Highway 403 roadway platform given applicable MTO lane closure restrictions and this will be identified as part of the detailed design.

6.4 Fisheries and Terrestrial Impacts

As there are no watercourses/fish habitat within the Mohawk Road Study Area, mitigation measures are primarily related to terrestrial concerns. The following general mitigation measures are expected to be implemented to protect and minimize impacts to vegetation and terrestrial wildlife species:

- Use Standard Erosion and Sediment Control to contain/isolate the construction zone during and following vegetation clearing and to manage site drainage to prevent erosion and sedimentation from reaching the waterbody. Erosion and Sediment Control measures will be installed and maintained to meet Ontario Provincial Standards and Specifications and as detailed by the Erosion & Sediment Control Guideline for Urban Construction (2006). Erosion and Sediment Control measures will be maintained until all areas are stabilized;
- Consider construction staging such that spills and leaks into the watercourse will be avoided or minimized;
- All construction debris and litter will be removed regularly;
- Minimize the disturbance or removal of riparian vegetation; and
- Promptly stabilize and vegetate all disturbed areas of the work site, and/or treat the area with appropriate erosion protection materials.

The Study Area is characterized by a high level of disturbance and fragmentation. The majority of the Study Area includes developed lands in the form of existing roadways and residential areas, with green lands and meadows in the remaining areas. There is no direct or indirect fish habitat within the proposed impacted area.

One avian and one plant Species at Risk were observed within the Study Area. Both species are protected under the *Endangered Species Act*. Based on the Preliminary Design footprint, the plant Species at Risk is located outside of the project impact area. Ongoing consultation with MNR will be required during the detailed design phase to confirm the presence/absence of any additional Species at Risk. Additionally, wildlife Species at Risk can move into an area at any given time and future inspections may be necessary.

The cumulative impacts as a result of the proposed works will result in the removal of common vegetation species and temporary impacts to wildlife.

Table 5 summarizes the potential impacts and recommendations for mitigation and monitoring.

Table 5: Summary of Potential Impacts, Mitigation and Monitoring

Potential Impacts	Mitigation and/or Monitoring
Air Quality Impacts	
• Poor air quality during construction.	• Apply dust control measures (e.g., water spraying, street sweeping) during construction.
• The cumulative ground level concentrations (impact created by the project plus the background air quality) of emissions were predicted to be below the respective ambient air quality criteria under each traffic scenario: current (year 2008) and future (years 2021 and 2031).	• The addition of the proposed Mohawk Road ramp and the future traffic volumes (scenarios 2021 and 2031) on Highway 403 in the area of the Mohawk Road/Linc interchange are not expected to create a significant negative cumulative effect on the local air quality. Mitigation for air quality following construction is not required.
Drainage Impacts	
• Crossing of roadside swale at East-South ramp.	• Two (2) culverts will be required as part of the proposed N-W on-ramp.
• Impact to local swales adjacent to Mohawk Road.	• Minor modifications to swales and/or culvert extensions adjacent to Mohawk Road.
• Additional impervious surface to watershed.	• New enhanced grassed swales to mitigate pollutant loading from additional impervious surface.
Noise Impacts	
• Construction noise	• Equipment maintained and operated with effective muffling devices in good working order. • Contractors to comply with applicable requirements of construction contract and local noise by-laws. • Initial noise complaint will trigger verification that general noise control measures are in effect. • For persistent noise complaints, equipment will be verified to comply with MOE NPC-115 guidelines. • For persistent complaints and subject to field investigation, alternative noise control measures may be required with consideration for technical, administrative and economic feasibility.
• Operational noise	• 3 m high noise wall for three houses with backyard facing Mohawk Road.
Terrestrial Impacts	
• Incidental impacts to nesting migratory birds.	• Vegetation clearing in migratory bird habitat outside active breeding season (May 1 to August 31). • If clearing or other work in migratory bird habitat is required during nesting season, a nest survey will be conducted by a qualified avian specialist within two days prior to commencement of works to identify and locate active nests of species covered by the *Migratory Birds Convention Act.*

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Potential Impacts	Mitigation and/or Monitoring
• Encountering wildlife. • Possible disturbance to Species at Risk.	• Efforts will be made to avoid injury or harassment to wildlife within the project site. • Appropriate MNR protocol following new MAPS self-regulated process for Species at Risk will be followed during detailed design. • SAR trees will be tagged and surveyed to confirm location relative to proposed grading.
Traffic Impacts	
• Little net impact on traffic demands (essentially a redistribution of existing demand) at the intersection of Old Dundas Road, Wilson Street and Rousseaux Street. • Little net impact on traffic demand at the intersection of Mohawk Road and McNiven Road.	• Interim improvements were recommended for this intersection in the ATMP and are still valid (more improvement is required to address long term issue). • As confirmed in the ATMP, no improvements are required at this intersection.

7. Commitments to Further Work

Additional works to be completed during the detail design phase of this project, prior to construction are outlined in **Table 6**.

Table 6: Summary of Commitments

Factor	Interested Party	Commitment
Archaeology	Ministry of Tourism, Culture and Sport	• Stage 1 Archaeological Assessment on lands identified as having archaeological potential within the Study Area.
Drainage	Hamilton Conservation Authority	• Conformance to Stormwater Management Plan.
Property	Property Owners	• No public property acquisition (slight impact on City property).
Terrestrial	Ministry of Natural Resources	• Consultation to ascertain Species at Risk permitting or authorizations in association with proposed works.
Traffic	Road Users and Property Owners	• Advanced notice of construction through signage and flyers. • Develop Traffic Management Plan. • Reduce construction time, when possible.
Utilities	Utility Agencies	• Relocation of utilities with anticipated conflicts.

Appendix A: Agency and Public Consultation Plan

City of Hamilton

Mohawk Road Ramp Feasibility and Environmental Assessment Study

Agency and Public Consultation Plan

CIMA Canada Inc.

for

AMEC Environment and Infrastructure

November 2013

B000355

Partners in excellence

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1. Introduction

CIMA Canada Inc. (CIMA) has been retained as a sub-consultant to AMEC Environment and Infrastructure (AMEC) for environmental planning and consultation services for the City of Hamilton's *Feasibility and Class Environmental Assessment* (Class EA) study for the proposed Highway 403 Mohawk Road westbound on-ramp.

The Class EA study will fulfill the requirements for Schedule C projects as outlined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* (October 2000, as amended in 2007 and 2011). The study will:

- Identify the transportation problems and/or opportunities within the Highway 403 Mohawk Road study area;
- Identify alternative solutions and design concepts to address the identified problems/opportunities;
- Assess the technical, social, cultural, economic and natural environmental impacts of the identified alternatives; and
- Select a preferred solution/design in consultation with the public and technical/regulatory agencies.

This report outlines an Agency and Public Consultation Plan for the Highway 403 Mohawk Road Westbound On-Ramp Class EA study. The plan identifies:

- Potential stakeholders (i.e., affected public and agencies);
- Issues that are likely to be of interest to the identified stakeholders; and
- Techniques for informing and soliciting input from stakeholders and the general public.

2. Agency and Public Consultation Plan

The purpose of the Agency and Public Consultation Plan is to guide the project team in its effort to communicate effectively with agencies and the public, and to obtain input regarding the study's planning process, analyses, findings and recommendations.

The goals of the plan are to:

- Enhance public understanding of the study by providing project information to the public in a timely manner;
- Improve project team understanding of public and agency interests by providing the public and agencies with opportunities to discuss and/or submit comments;
- Obtain input from the public and agencies for consideration in the identification of problems/opportunities and in the development and evaluation of alternative solutions/designs; and
- Reduce the potential for unresolved concerns and/or objections by engaging stakeholders as early in the study as possible and in advance of key decision points.

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The objectives of the plan are to:

- Identify stakeholders, including the interested public, adjacent property owners, First Nations, technical/regulatory agencies and utilities;
- Inform the general public and stakeholders of the study's initiation, progress, findings and recommendations;
- Request and receive input from the interested public and stakeholders regarding alternative solutions/designs, environmental impacts and recommendations;
- Request and receive input from regulatory agencies to comply with their respective policies and to obtain their approvals in principal for the project; and
- Meet, and where possible exceed, the requirements for public consultation as outlined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* (2000, as amended in 2007 and 2011).

2.1 Identification of Stakeholders

The City of Hamilton will generate and maintain a mailing list of relevant technical/regulatory agencies, First Nations, utilities, and the general public (property owners, businesses, area residents, developers and special interest groups). Key stakeholders and their potential interests have been identified in the table below, based on the characteristics and background of the study area.

Key Stakeholders	Interests
Bruce Trail Conservancy	Bruce Trail
First Nations	Traditional land uses and resources
Hamilton Conservation Authority	Ancaster and Tiffany Creek Subwatersheds Watercourse crossings Stormwater management Natural areas Endangered species
Ministry of Environment	Environmental assessment and approvals Noise impacts Air quality impacts
Ministry of Municipal Affairs and Housing	Greenbelt Plan
Ministry of Natural Resources	Watercourse crossings Natural areas and endangered species

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Key Stakeholders	Interests
Ministry of Tourism, Culture and Sport	Archaeology Built Heritage and Cultural Heritage Landscapes
Ministry of Transportation	Feasibility of westbound ramp Highway 403 operations Acceptable design standards Future ownership of ramp
Niagara Escarpment Commission	Niagara Escarpment Plan
Residents **Businesses** **Property Owners** **Area Developers**	Property impacts and access
Utilities **(Electricity, Gas, Phone, Cable)**	Utility corridors

2.2 Consultation Techniques

The consultation approach for the Class EA study will include methods of informing the public, meeting with stakeholders, hosting public information centres and sharing the study report. Specific techniques for consultation are described below.

2.2.1 Informing the Public

The City of Hamilton will prepare and circulate the required public notices following the guidelines of the Municipal Engineers Association's *Municipal Class Environmental Assessment* (2000, as amended in 2007 and 2011). Each of the following public notices will be advertised in two separate issues of a local newspaper (e.g. Hamilton Spectator) and circulated to the affected public (e.g., adjacent property owners), technical/regulatory agencies, First Nations, and utilities:

- Notice of Study Commencement to introduce the project and invite public participation;
- Notice of the first Public Information Centre (PIC) to invite public comment on the problems/opportunities, alternative solutions, and assessment of environmental impacts;
- Notice of the second PIC to invite public comment on the alternative design concepts for the preferred solution and assessment of environmental impacts; and
- Notice of Study Completion to invite the public and interested stakeholders to review the Environmental Study Report.

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The City may also publish the above notices in the local community newspaper (e.g., Ancaster News) and/or post notices to the City's website at www.hamilton.ca.

2.2.2 Meeting with Stakeholders

The Ancaster Community Council (ACC) will function as the Community Liaison Committee (CLC) for this project. The ACC is an established committee with representation from the local community. The ACC will be consulted to better understand community values and perspectives, particularly for consideration in the identification of problems/opportunities and in the development and evaluation of alternatives.

Meetings with the ACC will be an opportunity to review the study's progress and share ideas in advance of the two Public Information Centres (PICs) planned for this study and posting of the notice of study completion. Four (4) meetings with the ACC will be scheduled as follows:

- One meeting during Phase 1 to introduce the project and review the study's goals and objectives;
- One meeting in advance of the first PIC to review the problem/opportunity, alternative solutions, and assessment of impacts;
- One meeting in advance of the second PIC to review the alternative designs for the preferred solution and assessment of impacts; and
- One meeting to review the recommendations of the draft study report.

The City will arrange for an accessible venue to host each meeting during a weekday evening. The consultant team will facilitate each meeting using a presentation and discussion format.

Separate meetings with agencies such as the Ministry of Transportation, Niagara Escarpment Commission, Ministry of Natural Resources, Hamilton Conservation Authority and Utilities may be necessary depending on the extent of project impacts and requirements for approvals. These meetings will be scheduled as needed in advance of each of the two PICs planned for this study. For example, study results will be presented to the Ministry of Transportation technical staff and Senior Executive in advance of each PIC and toward completion of the study to obtain final approval of the preferred ramp design.

2.2.3 Hosting Public Information Centres

Two Public Information Centres (PICs) will be held at appropriate stages of the Class EA process to receive public input on the study:

- The first PIC will be held during Phase 2 of the Class EA process to review the study's approach, the transportation problems and opportunities identified within the study area, and an assessment of alternative planning solutions to the identified problems; and
- The second PIC will be held during Phase 3 of the Class EA process to review the alternative design concepts for the preferred planning solution, the results of site-specific investigations and assessment of impacts, and an evaluation of the design alternatives.

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Each PIC will be arranged as an open house where project information is displayed on boards and project team members are present for one-to-one discussions. Comment forms and project summary sheets will be made available to all PIC participants.

The City will arrange for an accessible venue to host each PIC during a weekday evening. The City and its project team will work together to accommodate any individuals requesting assistance to participate in the PICs, as may be required under the *Accessibility for Ontarians with Disabilities Act*.

2.2.4 Sharing the Study Report

Toward completion of the Class EA process, the project team will document the study's process, consultation, results and recommendations in an Environmental Study Report (ESR) for the public's review. This report will be accessible to the public for 30 calendar days at the City of Hamilton Clerk's office, at the Ministry of Transportation's regional office, and at a municipal centre or other public facility near the study area. The 30-day review period will be advertised in the Notice of Study Completion with an explanation of the public's rights to a Part II Order request under the *Ontario Environmental Assessment Act*.

2.3 Consultation Schedule

Consultation will take place in advance of key decision points so that stakeholders are kept well informed of the project and are able to provide meaningful input before key decisions are made. Consultation will occur as follows:

Consultation	Schedule
Notice of Study Commencement	August 2013
ACC Meetings	December, 2013 January and May, 2014
Agency Meetings	As needed
PICs	January and June, 2014
Notice of Study Completion	August, 2014
Public Review Period	August/September, 2014

3. Summary of Next Steps

The Notice of Study Commencement will be prepared and issued once this plan has been approved by the City of Hamilton. The notice will advise the public that all comments, with the exception of personal information, will become part of the public record. During the study, the project team will summarize public input as it is received and document how issues or concerns are addressed in tabular form.

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Appendix B: Public Consultation

Appendix B1: Notices

ANCASTER NEWS - Pg 50

SEPT 26, 2013

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF STUDY COMMENCEMENT

September 10, 2013

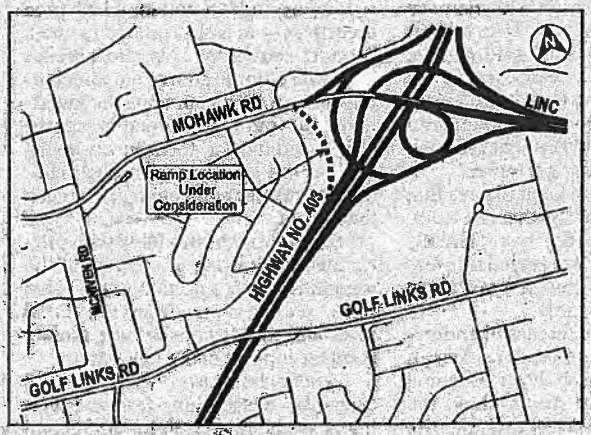
The City of Hamilton has initiated a study to determine the feasibility of a westbound access ramp to Highway 403 in Ancaster. The study includes undertaking the Municipal Class Environmental Assessment (EA) process for the assessment of alternatives and development of preferred solutions including investigating the operational and geometric feasibility of the proposed westbound ramp.

In 2011 the City completed the Ancaster Transportation Master Plan. At the completion of the study the City Council direction was to pursue the westbound ramp access to Highway 403 from Mohawk Road in collaboration with the Ministry of Transportation.

To comply with the Environmental Assessment Act, the study will follow the Municipal Engineer's Association Municipal Class Environmental Assessment (October 2000, as amended in 2007 and 2011). The study will fulfill Phases 1 to 4 of the Class EA process.

Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road.
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process



There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers. A Public Information Centre (PIC) is planned for early 2014. A separate notice, indicating the date and location of the PIC will be published and sent to the study mailing list.

If you require additional information related to the study or wish to be added to the project mailing list, please contact:

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More information will be posted on the project website www.hamilton.ca/mohawkroadramp as the study proceeds.

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT(AT MOHAWK ROAD)

NOTICE OF STUDY COMMENCEMENT

September 10, 2013

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pg A6
SEPT 27, 2013

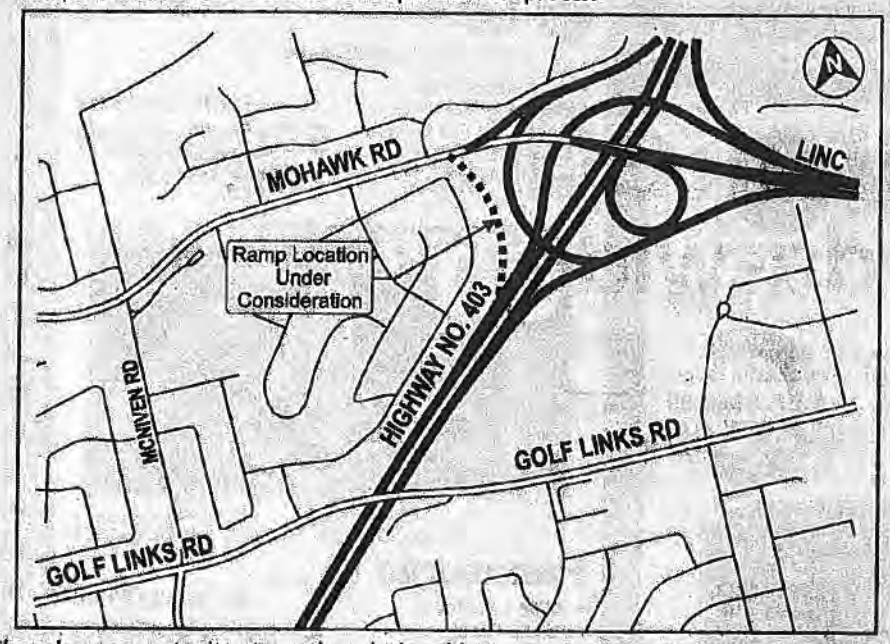
The City of Hamilton has initiated a study to determine the feasibility of a westbound access ramp to Highway 403 in Ancaster. The study includes undertaking the Municipal Class Environmental Assessment (EA) process for the assessment of alternatives and development of preferred solutions including investigating the operational and geometric feasibility of the proposed westbound ramp.

In 2011 the City completed the Ancaster Transportation Master Plan. At the completion of the study the City Council direction was to pursue the westbound ramp access to Highway 403 from Mohawk Road in collaboration with the Ministry of Transportation.

To comply with the *Environmental Assessment Act*, the study will follow the Municipal Engineer's Association Municipal Class Environmental Assessment (October 2000, as amended in 2007 and 2011). The study will fulfill Phases 1 to 4 of the Class EA process.

Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road.
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process



There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers. A Public Information Centre (PIC) is planned for early 2014. A separate notice, indicating the date and location of the PIC will be published and sent to the study mailing list.

If you require additional information related to the study or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2093 tplanning@hamilton.ca	David Sinke, B. Eng. Mgt., P. Eng. Project Manager AMEC Environment & Infrastructure 3215 North Service Road, Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

More information will be posted on the project website www.hamilton.ca/mohawkroadramp as the study proceeds.

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

A P

Hamilton

HIGHWAY 403 WESTBOUND ACCESS AMP
(AT MOHAWK ROAD)
NOTICE OF STUDY COMM NCE

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P Manager
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Other Issues

25. The City advised that updates to cost estimates will be required early in the preliminary design, with regular updates, as warranted by significant changes in design. **AMEC**

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

David Sinke

Per: David Sinke, P. Eng.
Principal, Transportation Engineering

DS/kf

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MEETING MINUTES

Client: City of Hamilton

Project: Mohawk Ramp to Highway 403 EA

Meeting: MTO liaison meeting re: modeling

Date & Time: August 7, 2013, 09:30 am

Location: 4th Floor, Building D, MTO Downsview

Attendance: Bill Cung (MTO); Graeme (MTO); el), Arthur Tai (MTO); Goran (MTO); Mohan Philip (City of Hamilton); Stephen Keen (CIMA)

Item No.	Note	Action

1	**Macro-modelling**
	• Mohan explained that previously the City has examined an on-ramp in this area from Main Street West at Ainsle Wood area , Golf Links Road and Mohawk Road; however, none of them have undergone a rigorous examination and the current direction is to pursue a WB on-ramp at Mohawk Road as it appears to be feasible (subject to review in this study)
	• Steve Keen handed out a proposed macro-modelling process
	• Arthur asked that the calibration include Highway 403 and its ramps in the study area (MTO has received a request for count data to complete this task);
	• Once a basic calibration run is arrived at, Arthur said he would compare it with the calibration results from the MTO model for the area
	• It was also noted that the array of scenarios that had to be modelled can be found in the RFP – these include:
	  • 2013 no ramp
	  • 2021 no ramp
	  • 2031 no ramp without HOV
	  • 2031 no ramp with HOV
	  • 2013 with ramp
	  • 2021 with ramp
	  • 2031 with ramp, without HOV
	  • 2031 with ramp, with HOV
	• The initial modelling should test the base year scenarios with and without the new ramp in order to provide a quick snap-shot of the likely demand range for the ramp (this activity was added to the chart in the updated version attached);
	• The question over whether this section of Highway 403 is indeed
		CIMA

	recommended for HOV treatment came up – Bill Cung suggested the HOV strategy is on the MTO website http://www.mto.gov.on.ca/english/traveller/hov/plan2007.shtml • The long term plan according to this website shows the HOV network finishing at Hwy 6 close to the Burlington border and does not go up the "mountain" towards Brantford;	
2	**Micro-modelling** • After much discussion about the merits and extent of the micro simulation exercise, Goran noted the main weaving issue in this area to be examined is vehicles moving from lane 1 of Highway 403 to the next off-ramp at Fiddlers Green road; and • the merge of this proposed on-ramp with the adjacent on-ramp and truck climbing lane • It was decided to proceed with the macro-modelling for now and to review the outputs in terms of overall demand. A decision can then be made on how detailed the micro-simulation needs to be. For example, rather than try to produce HOV demand, it may be possible to scenario build (e.g. assume a high number of HOV trips to see if there is an operational problem); • Given the current MTO HOV long range plan, this section of Hwy 403 may not merit HOV lanes in the future (further discussion on this issue is required following completion of the macro-modelling) • Meanwhile the City and CIMA are to keep MTO staff informed on progress and to meet with them when interim products are available for review	CIMA

Prepared By: Steve Keen

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MEETING MINUTES

Client: City of Hamilton

Project: Mohawk Ramp to Highway 403 EA

Meeting: MTO liaison meeting re: modelling

Date & Time: November 28, 2013, 10:00 am

Location: 2nd Floor, Building D, MTO Downsview

Attendance: Bill Cung (MTO); Graeme Price (MTO); Arthur Tai (MTO); Goran Nikolic (MTO); Mohan Philip (City of Hamilton); James Scale (AMEC); Stephen Keen (CIMA)

Item No.	Note	Action
1	**Macro-modelling** Steve Keen handed out a package of background information on the project including the most recent counts on the key links; Jim Scale displayed the functional design drawings included in the rfp by the City for the proposed Mohawk Road ramp; Steve then summarized the contents of the draft Macro-Modelling report that had been distributed previously. The following notes/points of action are noted: • Check Wilson Street capacity to ensure it is realistic given its downtown village nature; • Show Golf Links Road volumes in the exhibit prepared for the public as well as the location of Southcote Road; • Mohawk / Rousseau is planned to be widened to 3 lanes (from Ancaster TMP), ensure future capacity reflects the improvement; • Figure 12 in the report should show the unit of scale for the 'y' axis; • Figure 13 should be split into 2 separate graphs; • An extra calibration graph should be included that compares the trip length frequency distribution (before and after matrix adjustment); • Re-run 2031 forecasts with Highway 403 having 1 extra GPL in each direction; • Send Arthur a screen capture of the overall extent of the City's model; • Arthur noted that the CIMA forecasts for the Mohawk ramp are similar to that obtained from the MTO model; • Arthur would like to see how the volumes change on Highway	CIMA

	403 with and without the different ramp configurations; Bill Cung will coordinate and provide MTO's final comments on the draft macro-modelling report in 1 weeks' time. CIMA will then make all the required changes/clarifications as necessary.	Bill Cung

2	**Micro-modelling**
	• Goran joined the meeting to discuss the scope of the micro-simulation exercise for the next phase of the project. The following guidance was given:
	  • VISSIM needs to show the acceleration and merge areas of the new ramp;
	  • In the calibration exercise, lane density up-stream is to be checked to ensure the merge is properly reflected;
	  • Scenarios with an additional GPL and alternatively a HOV lane (additional lane added next to the median) are to be modelled;
	  • As the forecast demand for the ramp is only 50 veh/hr, a sensitivity testing using 200 veh/hr should also be tried; and
	  • Study area for VISSIM is to be just up-stream of the Mohawk Ramp and immediately downstream of the narrow part of the highway corridor at the Southcote Road bridge.
		CIMA

3	**General** A general discussion ensued about the rationale for the project and what will ultimately determine the feasibility of the ramp and its ultimate approval by the MTO. It was noted that the ability to meet MTO's design guidelines will be the most critical. For this reason, it was decided to bring forward AMEC's review of the geometry previously prepared by others.	AMEC
	The meeting adjourned at 11:25am The next scheduled meeting is the MTO Executive Review (January 13th, 2014) in advance of the planned PIC.	All

Prepared By: Steve Keen

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MINUTES OF MEETING

CLIENT	:	City of Hamilton
PROJECT	:	Highway 403 Westbound Access Ramp at Mohawk Road
MEETING N°	:	1
DATE OF MEETING	:	December 2, 2013
LOCATION	:	300 Wilson Street East, Ancaster
ATTENDEES	:	Thirteen (13) members of the Ancaster Community Council (ACC), Mohan Philip (City of Hamilton (City)), Al Kirkpatrick (City), David Sinke (AMEC Environment and Infrastructure (AMEC)), Brian Malone (CIMA Canada Inc. (CIMA)), Sonya Kapusin (CIMA)
C.C. TO	:	People attending

	Discussion Topics	Action By
1.	**Introductions** - The ACC Chair explained the background to the project. - The City introduced the project team and explained the status of the project. - The attached presentation summarizes the background as it pertains to transportation planning, project managers from the City and its consultant team, and status of the project. - The study is currently in Phase 1 of the Class EA process.	
2.	**Brief Presentation on Study Process** - The attached presentation was projected on screen and distributed to all present. - Presentation topics included: Background, Study Area, Purpose/Goals/Objectives, Class EA/Public Consultation, ACC	

	Role/Meetings, Existing Conditions, Traffic Volumes Accessing Highway 403, and Next Steps. - AMEC presented slides 1 to 9 and 12 to 13. - CIMA presented slides 10 to 11.	
3.	**Your Input to the Study** - The purpose of the presentation was to provide the ACC with an opportunity to share concerns, discuss issues, and ask questions regarding the project. Questions received and responses provided were: - ***There are 3 to 4 eastbound accesses and only 1 westbound access to Highway 403, which is impacting a 2-lane road in Ancaster; How do you weigh this traffic issue?*** This traffic issue will be a factor in determining the need and justification for the project. - ***Can you confirm that no land or noise attenuation is required?*** The need for land or noise attenuation cannot be confirmed at this time because the project team has not yet developed design alternatives (i.e., details of alignment and grading). At this time, the project team is considering high-level alternative solutions. The City may need property near Fillman Road to ensure the intersection with Fillman Road works well. However, this possibility has not been confirmed. - ***Drivers on Mohawk Road will drive onto the Linc to Golf Links Road and turn left to go westbound, which is dangerous.*** The project team is aware of circuitous movements and appreciates this input to understand the movements undertaken today. Understanding the movements is critical to determine the needs of users, demands, and design parameters. - ***Is a Stage 1 archaeological assessment required considering the westbound ramp had been considered in the past?*** The project team needs to document its review of environmental impacts. The scope of a Stage 1 assessment would be prepared within the context of the project. - ***Could the MTO share work that was previously completed? Have projections come true?*** Although the westbound ramp was previously considered, the overall condition for the study area has changed. The project team will consider work that was previously completed. - An interchange at Golf Links Road was considered in the Ancaster Transportation Master Plan. Providing for both on and off ramp moving traffic would be problematic. The eastbound off ramp would conflict with an historic stone farmhouse.	**Project Team**

- ***Have you considered westbound access from Southcote Road?***
  Previous studies in 2008 and 2011 looked at all options. This option was not feasible due to geometry and traffic conditions on Highway 403.

- ***Does modelling take into account accidents or bad weather (i.e., when everything is not working perfectly)?***
  These scenarios are not modelled, however they are important. The modelling takes into account recurring problems (e.g., AM rush hour traffic). A storm, for example, is not included because it does not occur regularly.

- ***These situations [of accidents or bad weather] are problematic and frequent. A ramp could have alleviated this problem.***
  There is no easy alternative to Highway 403. Wilson Street is the only east-west route. The alternative is a residential street, which can be a problem for the village.

- ***MTO will be repairing all bridges on Highway 403. Will that work affect or be considered in this project?***
  The project team expects that the currently tendered MTO bridge work will be completed by the time this project is built. The City will coordinate timing and work zones for any additional Hwy 403 work (including rehabilitation of Highway 403 from Mohawk Road to Old Guelph Road) with MTO.

- ***New high density areas are being built. How do [the traffic] numbers get updated with other proposals?***
  The project team uses what it considers to be the best information on existing conditions. Background growth is then considered (e.g., increase in density, land use, growth in adjacent areas). The [traffic] numbers are projected to a horizon year.

- ***Who will use the westbound ramp? Will it negatively impact Rousseau Street?***
  Initial work does not show an influx of users from Dundas/Westdale. Users are coming from Wilson Street to the east.

- ***Surprised to see quantitates of 100 in the traffic volumes.***
  The traffic volumes represent hourly volumes during morning and afternoon rush hour. More traffic is shown at the core than in the fringes. More traffic is shown on Highway 403.

- ***What is the anticipated date for completion?***
  The project team will complete a series of studies per MTO and Ministry of Environment (MOE) requirements. Completion is

	anticipated in 24 months. The Class EA study is planned for completion in September 2014. Detail design will follow. The project is not in the capital budget. City staff will need to report back to Council. The capital budget and possible funding will be discussed at that time. - ***We are interested in public feedback and request that the next meeting occur after the Public Information Centre (PIC).*** The next ACC meeting with the project team will be scheduled following the first PIC. The PIC is tentatively scheduled in early February at the Old Town Hall. A presentation with a question and answer period will be included.	

The City of Hamilton

Highway 403 Westbound Access Ramp at Mohawk Road

Ancaster Community Council Presentation

December 2, 2013

Agenda

- Introductions
- Brief presentation on study process
- **Your input to the study**
  - **Share concerns**
  - **Discuss issues**
  - **Ask questions**

Project Team

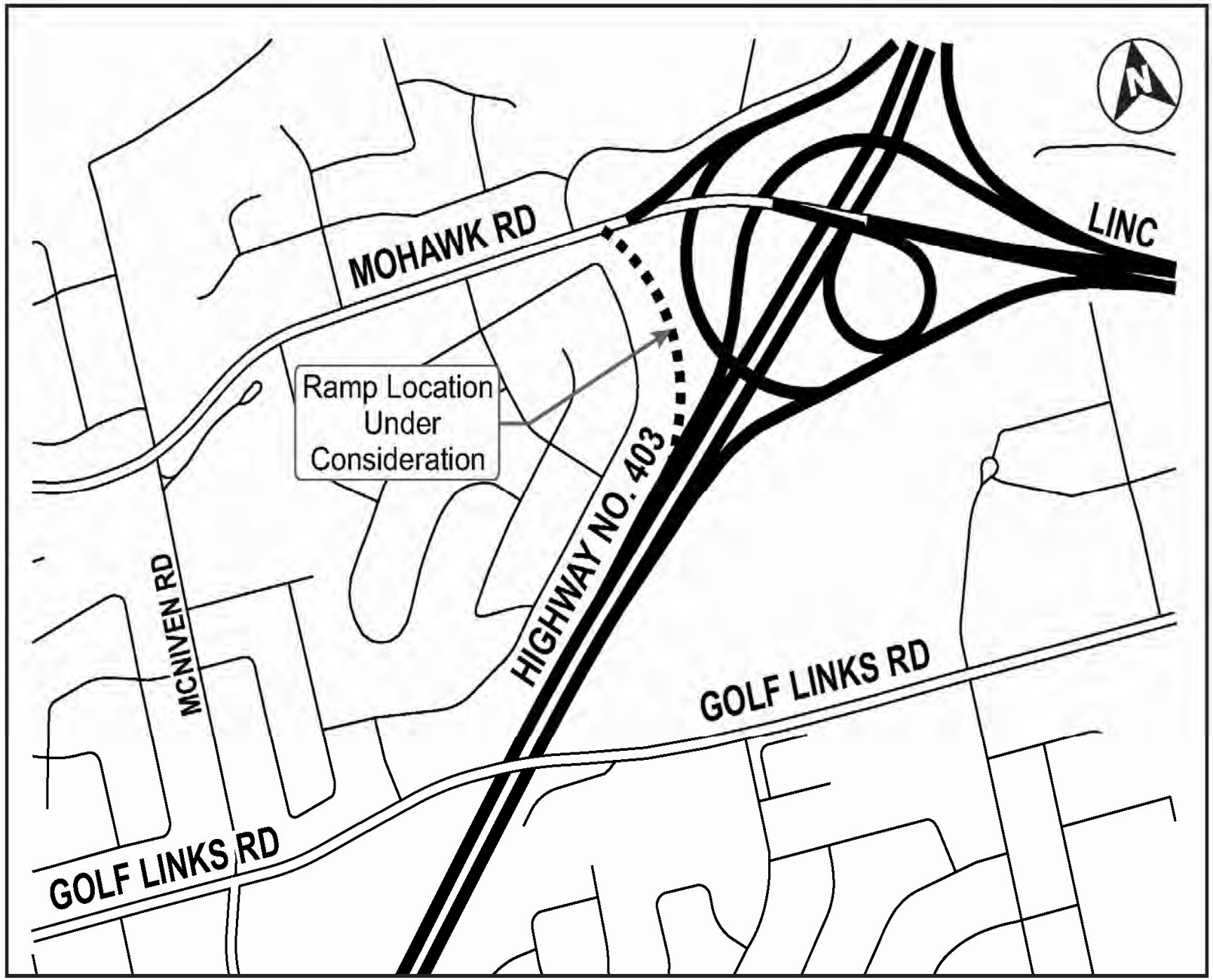
- **City of Hamilton**
  - Mohan Philip, M. Eng., P. Eng., Project Manager
- **AMEC Environment & Infrastructure**
  - David Sinke, P. Eng., Project Manager
  - James Scale, P. Eng., Highway Engineering Design Manager
- **CIMA Canada Inc.**
  - Brian Malone, P. Eng., Transportation Planning Manager
  - Sonya Kapusin, MCIP, RPP, Environmental Manager and Lead Planner

Background

The Ancaster Transportation Master Plan (TMP) was completed in 2011. Following that:

- A technical study was completed by the City and Ministry of Transportation (MTO) on the feasibility of where a new westbound on-ramp could be provided
- MTO advised that they are not supportive of new Golf Links Road ramps
- MTO advised that a new ramp was potentially feasible (subject to detailed study and an Environmental Assessment (EA) study being done) at Mohawk Road
- City Council directed staff to study a new westbound access ramp from Mohawk Road

Study Area


MOHAWK RD
LINC
Ramp Location
Under
Consideration
HIGHWAY NO. 403
MCNIVEN RD
GOLF LINKS RD
GOLF LINKS RD
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Purpose, Goals and Objectives

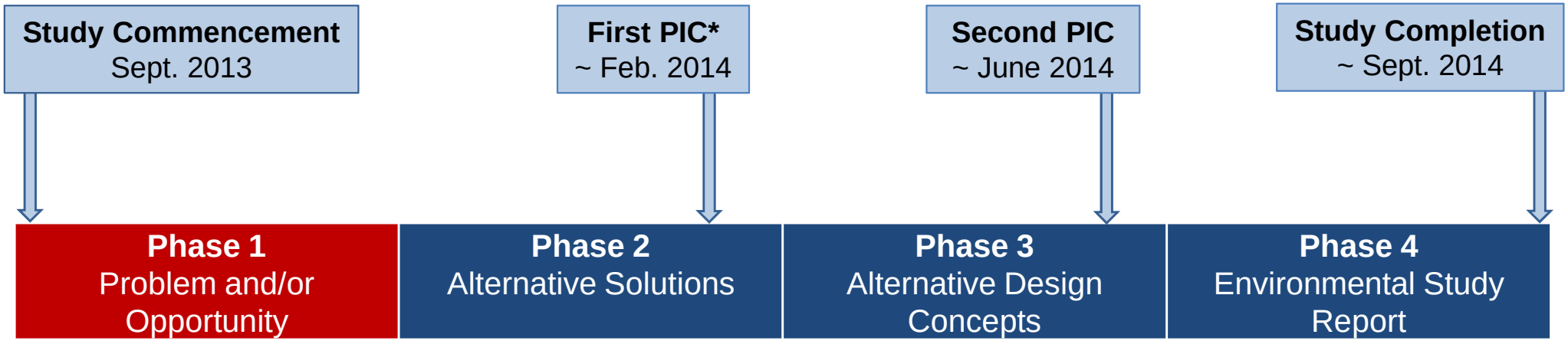
Purpose

- Complete a feasibility study and Class EA process for the proposed ramp

Goals and Objectives

- Confirm the need and justification for improvements
- Determine the operational and geometric feasibility of the proposed ramp
- Assess the impact of the proposed ramp on Highway 403 operations
- Assess the impact of the proposed ramp on the natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of the Municipal Class EA process

Class EA and Public Consultation



***Public Information Centre**

- The Study will follow the **Municipal Engineers Association Municipal Class EA** process (October 2000, as amended in 2007 and 2011)
- This Study has been initiated as a **Schedule C project**, which will fulfill Phases 1 to 4 of the Municipal Class EA process
- At present, the Study is in Phase 1
- Study updates will be posted to the project website at **www.hamilton.ca/Mohawkroadramp**

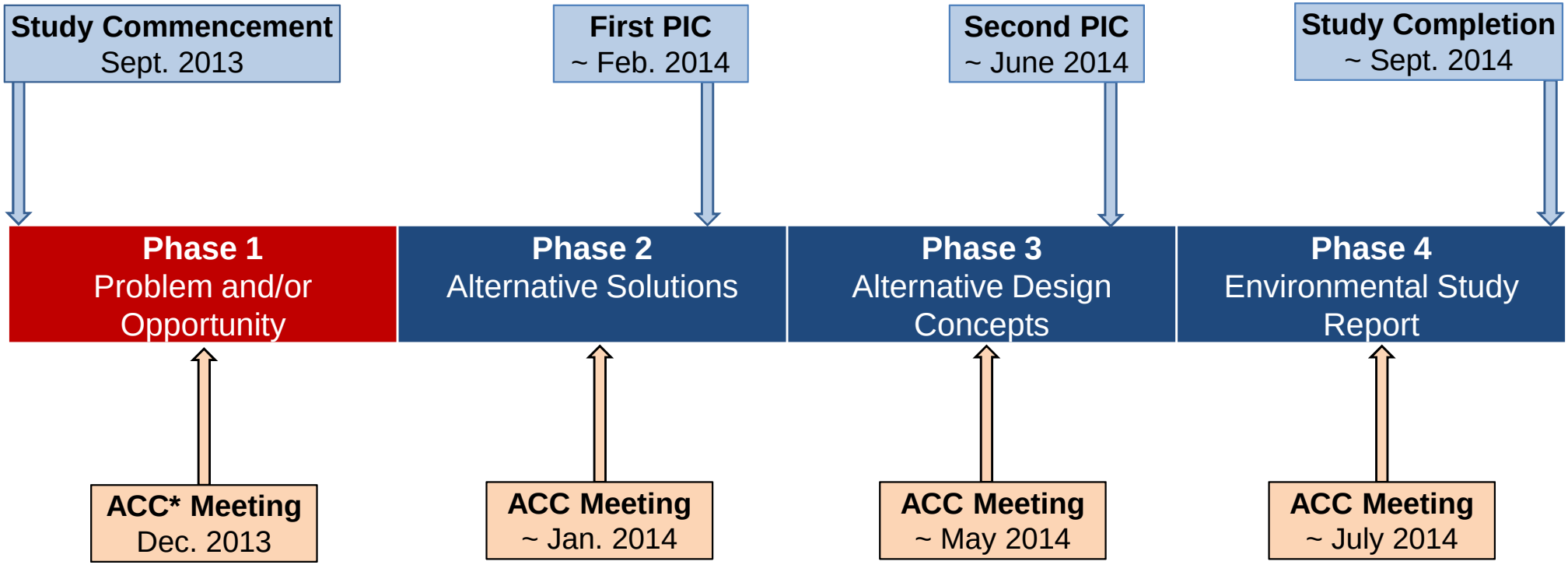
Role of ACC

- **The ACC will:**
  - Act as a Community Liaison Committee for this study
  - Represent the local community
  - Share community values and perspectives
  - Provide insight on relevant community issues and possible solutions

- **The role of the ACC is to:**
  - Serve an advisory role to the City with respect to this study
  - Advise on transportation and/or community interests relevant to the study
  - Review project information and provide input at key stages of the study
  - Attend and participate in ACC meetings and study-related PICs
  - Encourage represented communities to attend and participate in PICs

- **The role of the City is to:**
  - Facilitate consultation with the ACC
  - Attend and present study findings at ACC meetings
  - Serve as the main contact to receive ACC correspondence on this study

ACC Meetings



***Ancaster Community Council**

Existing Conditions

Mohawk Road

- Two-lane, divided, arterial with eastbound access to Northbound Highway 403
- Crosses over Highway 403 and connects to the Lincoln Alexander Parkway (The Linc)
- 70 km/h posted speed at the Highway interchange
- Urban cross-section at the Highway interchange

The Linc

- Four-lane, divided parkway with eastbound and westbound access to Highway 403
- 90 km/h posted speed
- Rural cross-section

Highway 403

- Five-lane (2 eastbound; 3 westbound), divided highway
- Access to Mohawk Road/The Linc in both directions from Southbound Highway 403
- Access to Linc from Northbound Highway 403
- No access to Mohawk Road from Northbound Highway 403
- 100 km/h posted speed
- Rural cross-section

Natural Environment

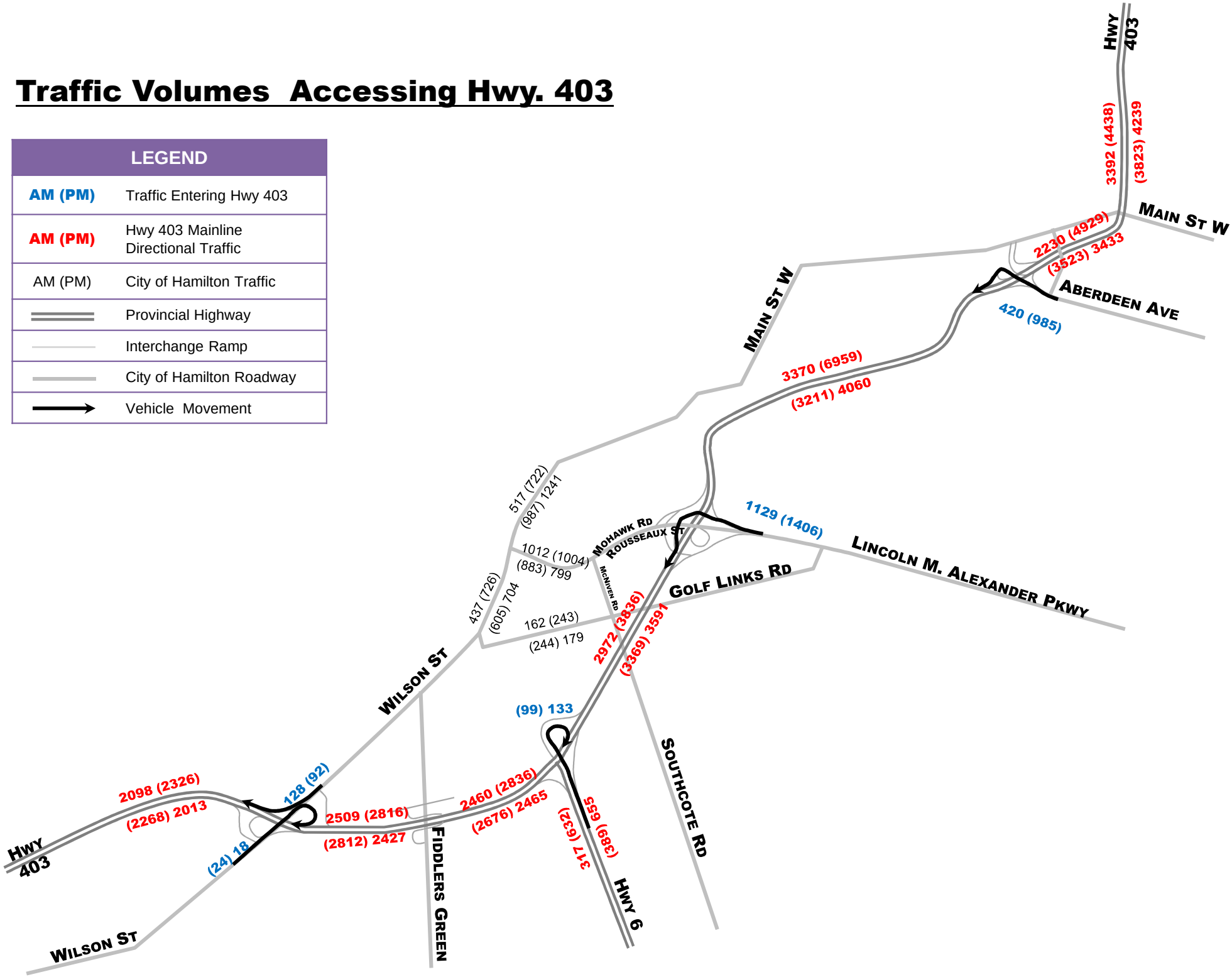
- Niagara Escarpment Plan Area
- Greenbelt Plan Area
- Bruce Trail entrance routes
- Tiffany Creek
- Iroquois Heights Conservation Area

Socio-economic Environment

- Urban settlement area

Traffic Volumes Accessing Hwy. 403

LEGEND	
AM (PM)	Traffic Entering Hwy 403
AM (PM)	Hwy 403 Mainline Directional Traffic
AM (PM)	City of Hamilton Traffic
	Provincial Highway
	Interchange Ramp
	City of Hamilton Roadway
→	Vehicle Movement



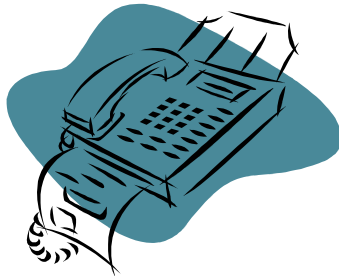
Next Steps

Following this presentation, we will:

- Complete the feasibility study
- Identify the problem and/or opportunity
- Identify and evaluate alternative solutions
- Meet with you to review results of the above tasks
- Plan for the first PIC to obtain public input

Questions and Comments

Submit your comments by December 16, 2013:



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Fax: (905) 335-1414
Email: david.sinke@amec.com

Thank you!

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MINUTES OF MEETING

CLIENT	:	City of Hamilton (City)
PROJECT	:	Highway 403 Brantford-bound Access Ramp at Mohawk Road Class Environmental Assessment
MEETING	:	Presentation to the Ministry of Transportation (MTO)
DATE OF MEETING	:	January 13, 2014
LOCATION	:	1201 Wilson Avenue, Downsview Building D, 5th Floor, Main Boardroom
ATTENDEES	:	Bill Cung (Highway Engineering), Peter Korpal (Traffic), Jason White (Engineering), Martin Michalek (Engineering), Graeme Price (Traffic), Linda Fischer (Environment), Fabio Saccon (Traffic), Mohan Philip (City), David Sinke (AMEC), Jim Scale (AMEC), Stephen Keen (CIMA), Sonya Kapusin (CIMA)
C.C. TO	:	People attending

	Discussion Topics	Action By
1.	**Introductions** MTO and the City provided a brief introduction to the project and its history. AMEC introduced the consultant team and began the powerpoint presentation. Hardcopies of the presentation were distributed.	
2.	**Project History** AMEC presented the project history as outlined in the presentation	
3.	**Draft Public Information Centre (PIC) Panel** CIMA presented the PIC panels as outlined in the presentation. The first PIC is planned for February 5, 2014 from 6 pm to 8 pm at the Ancaster Old Town Hall. The City will be advertising and mailing notices to public and agencies, including the MTO. The PIC will be an open house format with information presented on panels and the project team present to answer questions and receive comments. MTO commented on the following: - Evaluation Criteria: Expand first and/or second bullet under Technical to note the objective of not impacting Highway operations. For example, "Improved access to Highway 403 / Improved traffic flow within local road network without impacting Highway 403 operations."	**City** **City/AMEC/CIMA**

	Discussion Topics	Action By
	- Evaluation of Alternative Solutions: Consider the need for property and impact on residents when evaluating Alternative 3 (ramp at Main Street) against the social and/or cultural criteria. There may be more negative social and/or cultural impacts than "do nothing".	City/AMEC/CIMA
	- Evaluation of Alternative Solutions: Consider why Alternative 4 (ramp at Golf Links Road) is rated as neutral when there appear to be technical issues with a ramp at that location.	City/AMEC/CIMA
	- Consider a change to the title given that the study includes two ramp alternatives to Mohawk Road. For example, "Additional Access to Brantford-bound Highway 403".	City/AMEC/CIMA
	- Background: Clarify first bullet. For example, "A preliminary technical assessment was completed by the City in conjunction with the Ministry of Transportation (MTO) on the feasibility of where a new Brantford-bound on-ramp could be provided".	City/AMEC/CIMA
4.	**Ramp Feasibility (Geometric Review)** AMEC presented the ramp design criteria as outlined in the presentation. The following was discussed: - Previous ramp analysis (completed by others) was based purely on geometric design standards assuming an 80km/h design speed for the Linc East to Hwy 403 Brantford-bound ramp - The existing Linc East to Hwy 403 Brantford-bound ramp is close to capacity and the ramp design will be subject to further traffic analysis to assess the merge movements and required ramp configuration - The proposed Linc East to Hwy 403 Brantford-bound entrance ramp will be designed as a single lane at the Hwy 403 bullnose - Options for the design of the ramp exit off of Mohawk Road will be developed and property impacts/mitigation will be reviewed Changes in public support for the reinstatement of the ramp are likely due to intensification and development within the area resulting in increased traffic volumes through the Ancaster core, and increased travel time to access the Wilson entrance ramp.	City/AMEC/CIMA
5.	**Next Steps** 1. Review MTO comments 2. Conduct first PIC to obtain public input 3. Select the preferred solution 4. Identify and evaluate alternative design concepts for the preferred solution 5. Meet with MTO to review the design concepts 6. Plan for the second PIC to obtain public input	City/AMEC/CIMA

The City of Hamilton

Highway 403 Brantford-bound Access Ramp at Mohawk Road

Class Environmental Assessment

Presentation to the Ministry of Transportation

January 13, 2014

Agenda

1. Project History
2. Draft Public Information Centre (PIC) Panels
3. Ramp Feasibility (Geometric Review)
4. Next Steps

Hamilton

1. Project History

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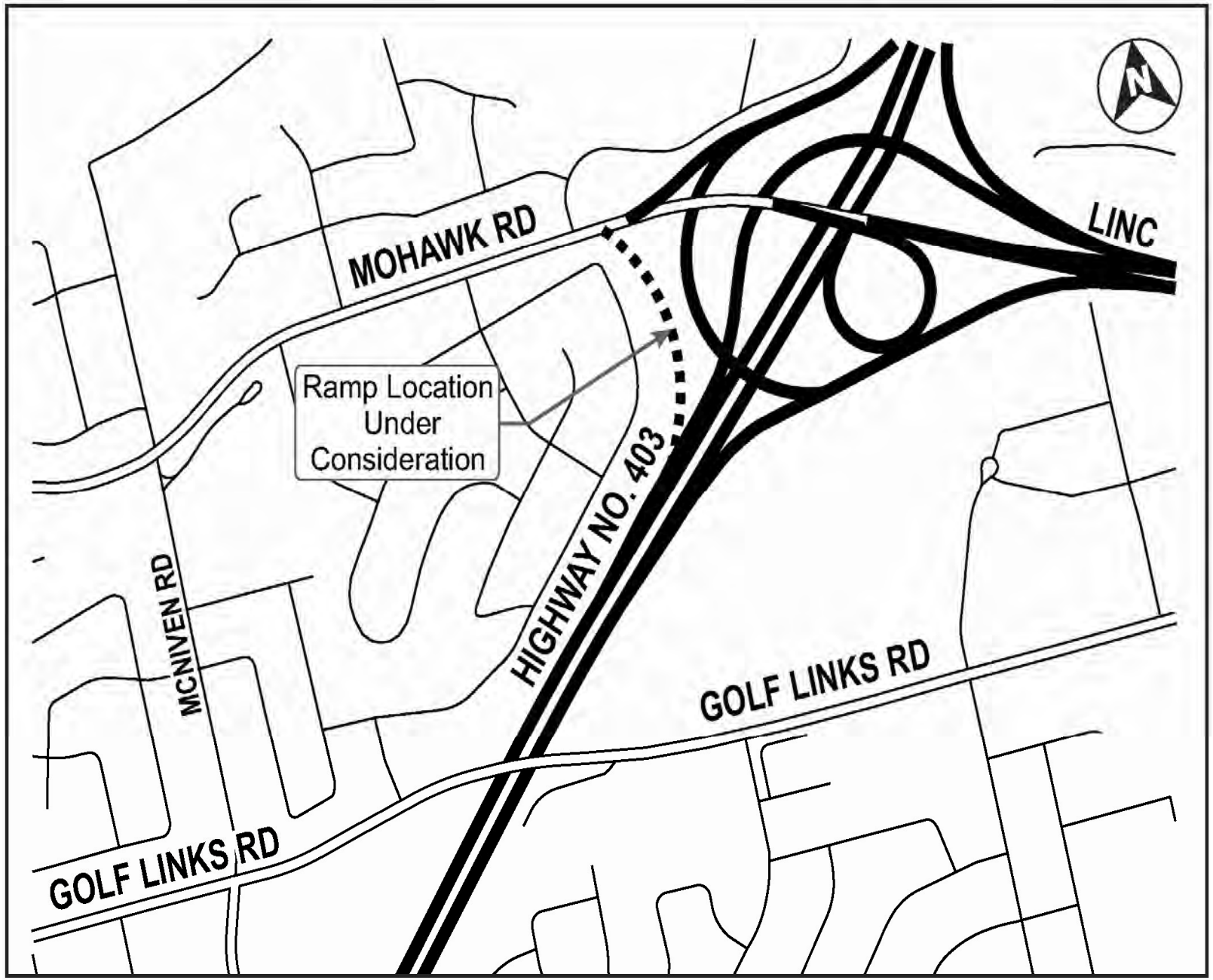
Study Area


MOHAWK RD
LINC
Ramp Location
Under
Consideration
HIGHWAY NO. 403
MCNIVEN RD
GOLF LINKS RD
GOLF LINKS RD
N

Project History

- **Ancaster Transportation Master Plan (TMP), June 2011**
  - An assessment was completed by the City and Ministry of Transportation (MTO) on the feasibility of where a new Brantford-bound on-ramp could be provided
  - Ramps at Mohawk Road and Golf Links Road were investigated
  - A ramp at Golf Links Road was found to have design and construction challenges
  - MTO advised that a new ramp was potentially feasible (subject to detailed study and an Environmental Assessment (EA) study being done) at Mohawk Road

- **Meetings with Ministry of Transportation, August 2011**
  - City Councillor met with the former Minister of Transportation
  - The Ministry issued a letter indicating support for Brantford-bound access from either Mohawk Road or Main Street

Project History

- **Meetings with Ministry of Transportation, November 2011**
  - City Councillor and Staff met with Ministry Staff and determined an "order of priority" for Brantford-bound access to Highway 403:
    1. Ramp at Mohawk Road
    2. Ramp at Main Street
    3. Ramp at Golf Links Road
  - The Main Street ramp was considered feasible in principle however it has several issues that make it cost prohibitive
  - A ramp at Golf Links Road was considered problematic and therefore would be considered last

- **Feasibility Study and Class Environmental Assessment**
  - Hamilton City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road
  - MTO reviewed two concept plans for the Brantford-bound ramp at Mohawk Road as part of the technical study that followed the TMP
  - Comments will be addressed during this Class EA process

Hamilton

2. Draft PIC Panels

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Meeting Minutes

January 23, 2014
Our File: TP113070-75

Subject: Mohawk Road Ramp to Westbound Highway 403
Feasibility and Class EA Study
Agency Meeting

Date: Monday, January 20, 2014

Time: 2:00 p.m.

Location: HCA Offices, Mineral Springs Road, Ancaster

In Attendance:

Mohan Philip	➢	City of Hamilton, Natural Heritage
Darren Kenny	➢	HCA
Lesley McDonell	➢	HCA
Lorraine Norminton	➢	MNR
Daryl Rideout	➢	AMEC
Izabela Kalkowski	➢	AMEC
David Sinke	➢	AMEC

MATTERS DISCUSSED: **ACTION BY:**

Introductions

1. HCA, MNR, AMEC and City staff involved in this project were introduced.

Project History/Overview

2. Mohan Philip of the City of Hamilton provided an overview of the project history. The Ancaster Transportation Master Plan completed in 2011, identified the need for westbound access to Highway 403. Following completion of the Ancaster Transportation Master Plan, a new ramp at Mohawk Road was identified as the preferred solution. Subsequently, feasibility studies were completed and a consultant assignment for a Class Environmental Assessment was initiated. AMEC has been undertaking the Class EA since July 2013 and is presently approaching completion of Phase 2 of the Class EA process.

3. To date, traffic studies and environmental baseline investigations have been completed. A copy of the Fisheries and Terrestrial Existing Conditions Report prepared by AMEC was previously forwarded to MNR and HCA for review.

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MATTERS DISCUSSED: **ACTION BY:**

Fisheries and Terrestrial Existing Conditions Inventory

4. Daryl Rideout and Izabela Kalkowski of AMEC provided an overview of the fisheries and terrestrial existing conditions within the project limits. No significant issues with respect to fisheries habitat have been identified. The anticipated project site is isolated from the downstream Tiffany Creek by a significant drop.

5. Terrestrial features include species at risk identified within the study limits, including two butternut trees along the west edge of Highway 403, and a Barn Swallow observed on the east side of Highway 403. Genetic testing has not yet been completed for the butternut, and the two specimens have not yet been assessed by a qualified butternut assessor. Both butternut specimens are believed to be Category 2.

6. AMEC's field assessment indicates the specimens are not hybrids. Appropriate MNR protocol following the new MAPS self regulated process to be followed during detailed design.

7. As the site culverts are CSP culverts, nesting of Barn Swallows in the subject culverts is highly improbable. Butternut trees to be tagged and surveyed to confirm their location relative to the proposed grading.

Drainage Overview

8. David Sinke provided a brief overview of existing drainage conditions. The subject site is within the Tiffany Creek Subwatershed of the Spencer Creek watershed. A roadside ditch drains north-easterly along the west side of Highway 403, crossing the future ramp alignment and draining to a culvert under a ramp in the interchange. A culvert which previously existed with the previous ramp alignment will need to be reinstated. The ramp cross-section will be a rural cross-section, thus, stormwater management will be by enhanced swales.

9. HCA provided a copy of the Regulation mapping, and advised that AMEC will need to more closely review existing and proposed grade elevations to confirm no impacts to flood storage. Some work has recently been completed by Costco upstream, which may have some influence on the project. In addition, a weir was constructed at the downstream end of the pond, upstream of the site, in approximately 2007.

Draft PIC Boards

10. David Sinke reviewed the Draft PIC Boards for the PIC scheduled for February 5, 2014.

MATTERS DISCUSSED: **ACTION BY:**

Schedule

11. A PIC is scheduled for February 5, 2014. Following the PIC, design alternatives will be developed and assessed. A second PIC will be held before summer 2014. A meeting with HCA and MNR will be convened if necessary, prior to the second PIC. **AMEC**

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

David Sinke

Per: David Sinke, P. Eng.
Principal, Transportation Engineering

DS/kf

c.c. Sonya Kapusin – CIMA
Jim Scale – AMEC
Brian Bishop – AMEC

Meeting Minutes

January 24, 2014
Our File: TP113070-75

Subject: Mohawk Road Ramp to Westbound Highway 403
Feasibility and Class EA Study
Presentation to City of Hamilton Staff

Date: Tuesday, January 21, 2014

Time: 10:00 a.m.

Location: City Hall, Room 264

In Attendance:

Mohan Philip	➢	City of Hamilton, Transportation Planning
Darlene Cole	➢	City of Hamilton, Real Estate
Tanya McKenna	➢	City of Hamilton, Corridor Mgmt.
Andy McLaughlin	➢	City of Hamilton, Transit
Ron Gallo	➢	City of Hamilton, Traffic
Anita Fabac	➢	City of Hamilton, Planning
Cathy Plosz	➢	City of Hamilton, Natural Heritage
Bart Brosseau	➢	City of Hamilton, Tech. Trans.
Lorissa Skrypniak	➢	City of Hamilton, EA Process
Mark Condello	➢	City of Hamilton, Student
Steve Keen	➢	CIMA
Jim Scale	➢	AMEC
David Sinke	➢	AMEC

Regrets:

Alan Kirkpatrick	➢	City of Hamilton
Richard Andoga	➢	City of Hamilton
Chris McCafferty	➢	City of Hamilton
Alan J. Jazvac	➢	City of Hamilton
David Ferguson	➢	City of Hamilton
Udo Ehrenberg	➢	City of Hamilton

MATTERS DISCUSSED: **ACTION BY:**

The purpose of this meeting was to review the background and study progress, in preparation for a Public Information Centre scheduled for February 5, 2014.

- David Sinke of AMEC presented a Powerpoint Presentation which included Project Justification and History, Goals and Objectives, Class EA Process, Consultation and Existing Conditions.

- Steven Keen of CIMA reviewed the results of the Traffic Analysis completed to date.

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MATTERS DISCUSSED: **ACTION BY:**

- An assessment of alternative planning solutions considered was provided.

- Jim Scale of AMEC reviewed ramp design criteria and MTO technical concerns.

Discussion

1. City staff questioned if alternative locations, i.e. Main Street and Golf Links, would be considered should the Mohawk Ramp location not be feasible. It was explained that previous Feasibility Studies have been completed, and it is anticipated that the Mohawk Ramp location will be technically feasible. Consultation is on-going with MTO, with no major (or irresolvable) issues of concern identified to date. The Study Team will need to demonstrate an appropriate design for merging of traffic between Mohawk Road and Golf Links, based on micro-modelling. The presentation to be provided to the public at the PIC does not begin with a pre-assumed conclusion, with respect to the feasibility of the Mohawk Ramp, but progresses through generation and evaluation of alternatives culminating in the conclusion that the Mohawk Ramp alternative is preferred.

2. City staff questioned if additional traffic will be added to Rousseaux Street. Some changes in traffic patterns are expected on Rousseaux Street, however, at the midpoint at McNiven Road the new ramp will simply change the direction of flow. City staff noted that some residents in the north-east quadrant of Ancaster may by-pass a portion of Wilson Street, when destined for Brantford, by travelling via McNiven, Golf Links and Halson. City staff expressed potential concerns with the operation of the Wilson Street and Rousseaux Street intersection due to changes in the traffic flow (increase in southbound left turns on Wilson Street).

3. City staff mentioned the opportunity for Intelligent Transportation Solutions (ITS).

4. Micro simulation is being completed by CIMA and will be forwarded to MTO.

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

David Sinke

Per: David Sinke, P. Eng.
Principal, Transportation Engineering

DS/kf

c.c. Sonya Kapusin – CIMA

The City of Hamilton

Highway 403 Brantford-bound Access Ramp at Mohawk Road

Class Environmental Assessment

Presentation to the Ministry of Transportation

January 13, 2014

Agenda

1. Project History
2. Draft Public Information Centre (PIC) Panels
3. Ramp Feasibility (Geometric Review)
4. Next Steps

Hamilton

1. Project History

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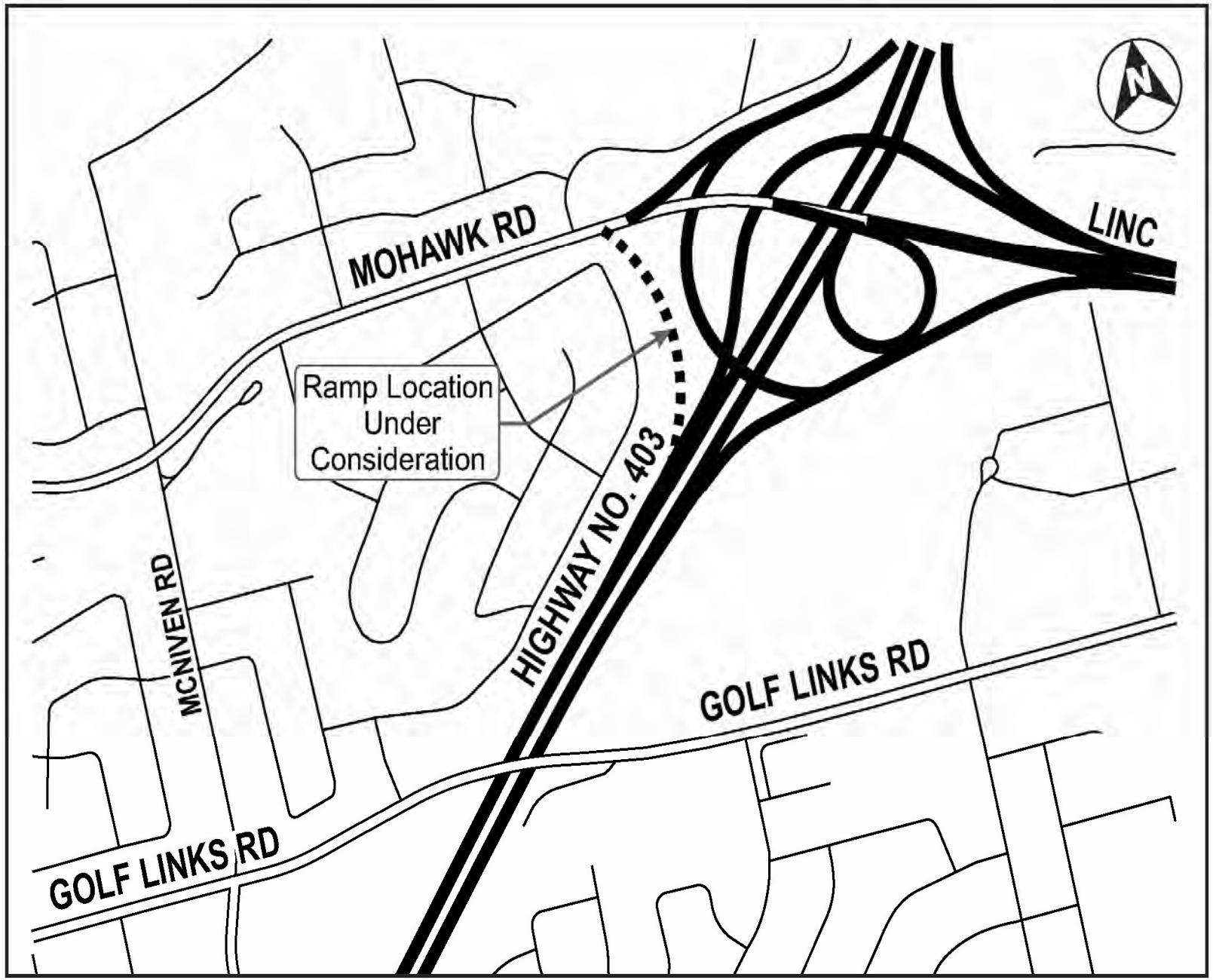
Study Area


MOHAWK RD
LINC
Ramp Location
Under
Consideration
HIGHWAY NO. 403
MCNIVEN RD
GOLF LINKS RD
GOLF LINKS RD
N

Project History

- **Ancaster Transportation Master Plan (TMP), June 2011**
  - An assessment was completed by the City and Ministry of Transportation (MTO) on the feasibility of where a new Brantford-bound on-ramp could be provided
  - Ramps at Mohawk Road and Golf Links Road were investigated
  - A ramp at Golf Links Road was found to have design and construction challenges
  - MTO advised that a new ramp was potentially feasible (subject to detailed study and an Environmental Assessment (EA) study being done) at Mohawk Road

- **Meetings with Ministry of Transportation, August 2011**
  - City Councillor met with the former Minister of Transportation
  - The Ministry issued a letter indicating support for Brantford-bound access from either Mohawk Road or Main Street

Project History

- **Meetings with Ministry of Transportation, November 2011**
  - City Councillor and Staff met with Ministry Staff and determined an "order of priority" for Brantford-bound access to Highway 403:
    1. Ramp at Mohawk Road
    2. Ramp at Main Street
    3. Ramp at Golf Links Road
  - The Main Street ramp was considered feasible in principle however it has several issues that make it cost prohibitive
  - A ramp at Golf Links Road was considered problematic and therefore would be considered last

- **Feasibility Study and Class Environmental Assessment**
  - Hamilton City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road
  - MTO reviewed two concept plans for the Brantford-bound ramp at Mohawk Road as part of the technical study that followed the TMP
  - Comments will be addressed during this Class EA process

Hamilton

2. Draft PIC Panels

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Highway 403 Brantford-bound Access Ramp at Mohawk Road

Class Environmental Assessment

Public Information Centre No. 1

DRAFT

February 5, 2014

Background

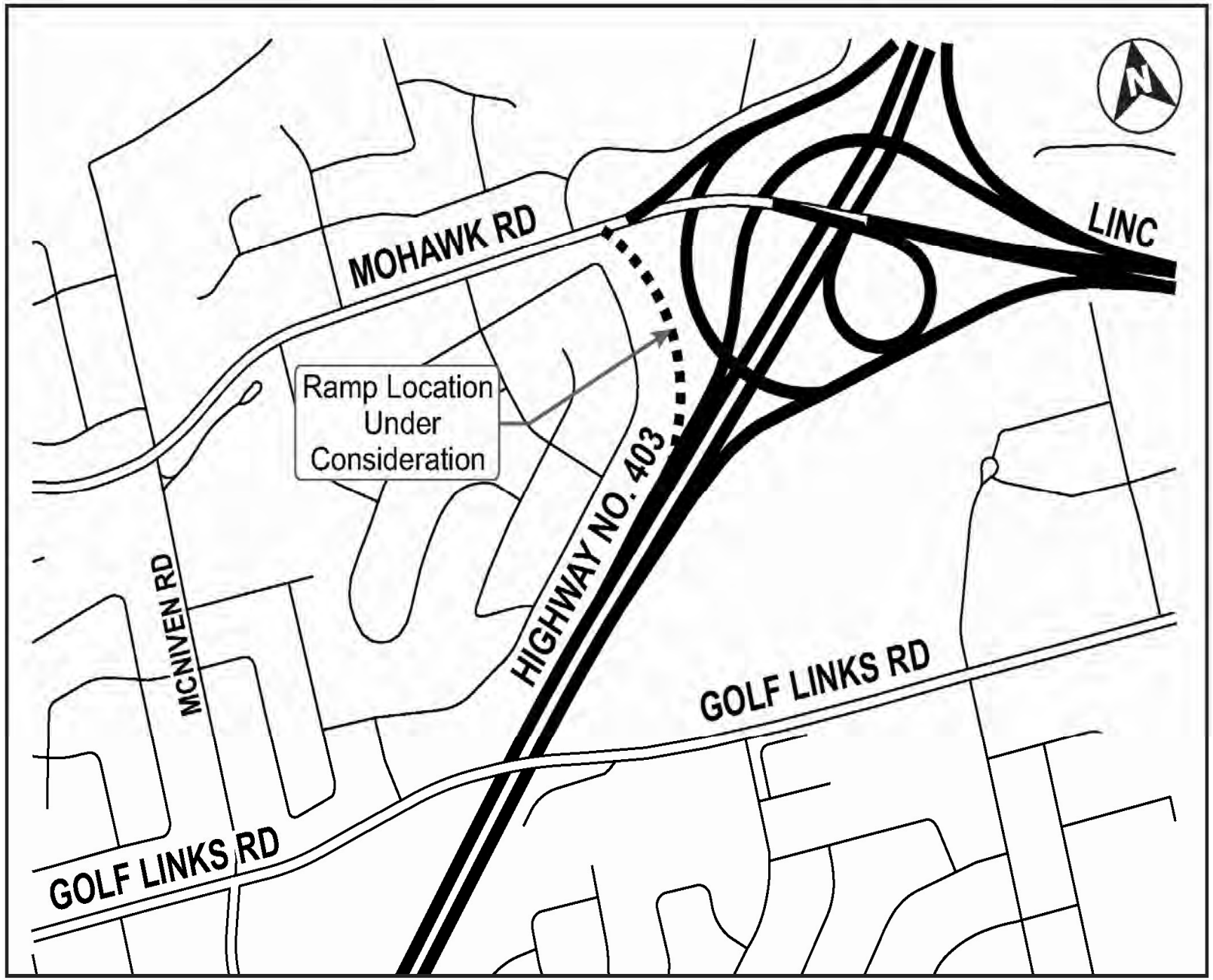
DRAFT

The Ancaster Transportation Master Plan (TMP) was completed in 2011. Following that:

- An assessment was completed by the City and Ministry of Transportation (MTO) on the feasibility of where a new Brantford-bound on-ramp could be provided
- A ramp at Golf Links Road was found to have operational concerns and its design would not meet MTO geometric standards
- A new ramp was potentially feasible (subject to detailed study and an Environmental Assessment (EA) study being done) at Mohawk Road
- City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road

Study Area

DRAFT



Purpose, Goals and Objectives

DRAFT

Purpose

- Complete a feasibility study and Class Environmental Assessment process for the proposed ramp

Goals and Objectives

- Confirm the need and justification for improvements
- Determine the operational and geometric feasibility of the proposed ramp
- Assess the impact of the proposed ramp on Highway 403 operations
- Assess the impact of the proposed ramp on the natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of the Municipal Class EA process

Class Environmental Assessment Process

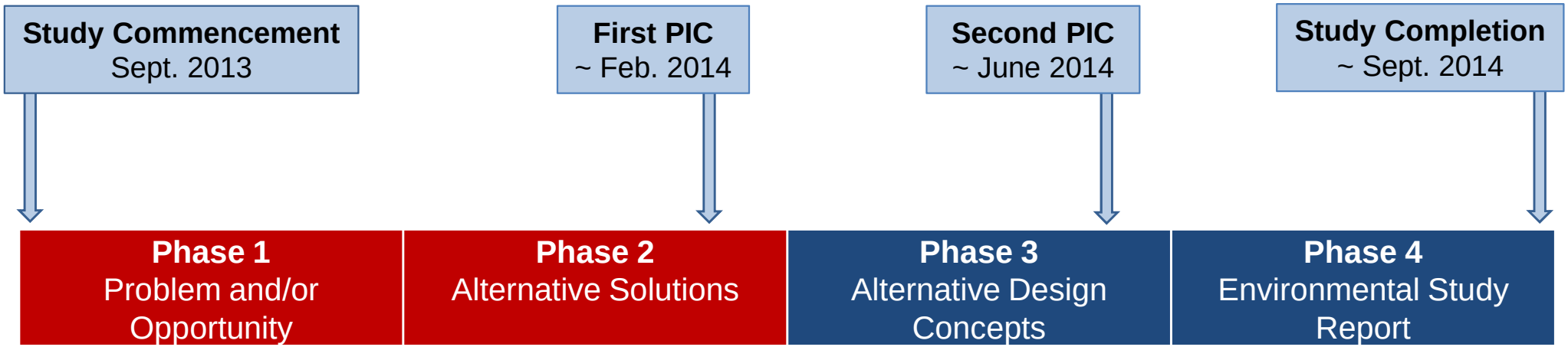
- The Study will follow the **Municipal Engineers Association Municipal Class EA** process (October 2000, as amended in 2007 and 2011)
- This Study has been initiated as a **Schedule C project**, which will fulfill Phases 1 to 4 of the Municipal Class EA process
- At present, the Study is in Phase 2

Phase 1 Problem and/or Opportunity	**Phase 2** Alternative Solutions	**Phase 3** Alternative Design Concepts	**Phase 4** Environmental Study Report

- Study updates will be posted to the project website at **www.hamilton.ca/Mohawkroadramp**

Public Consultation

- Notices regarding this study will be advertised in the newspaper and mailed to interested public and agencies.
- Notices of Study Commencement and this PIC were advertised in September 2013 and January 2014, respectively.
- The Ancaster Community Council (ACC) will act as the Community Liaison Committee for this project. The first meeting with the ACC was held in December, 2013.
- Two Public Information Centres (PICs) will be held to receive public input on the study. The first PIC is being held today.
- Meetings with agencies such as the MTO and Ministry of Natural Resources will be held to review project impacts.
- The Environmental Study Report will be prepared and filed for public review toward the end of the study.



Existing Conditions

DRAFT

Significant Natural Areas

- Iroquois Heights Conservation Area
- Niagara Escarpment (included in the Greenbelt)
- Bruce Trail

Terrestrial Environment

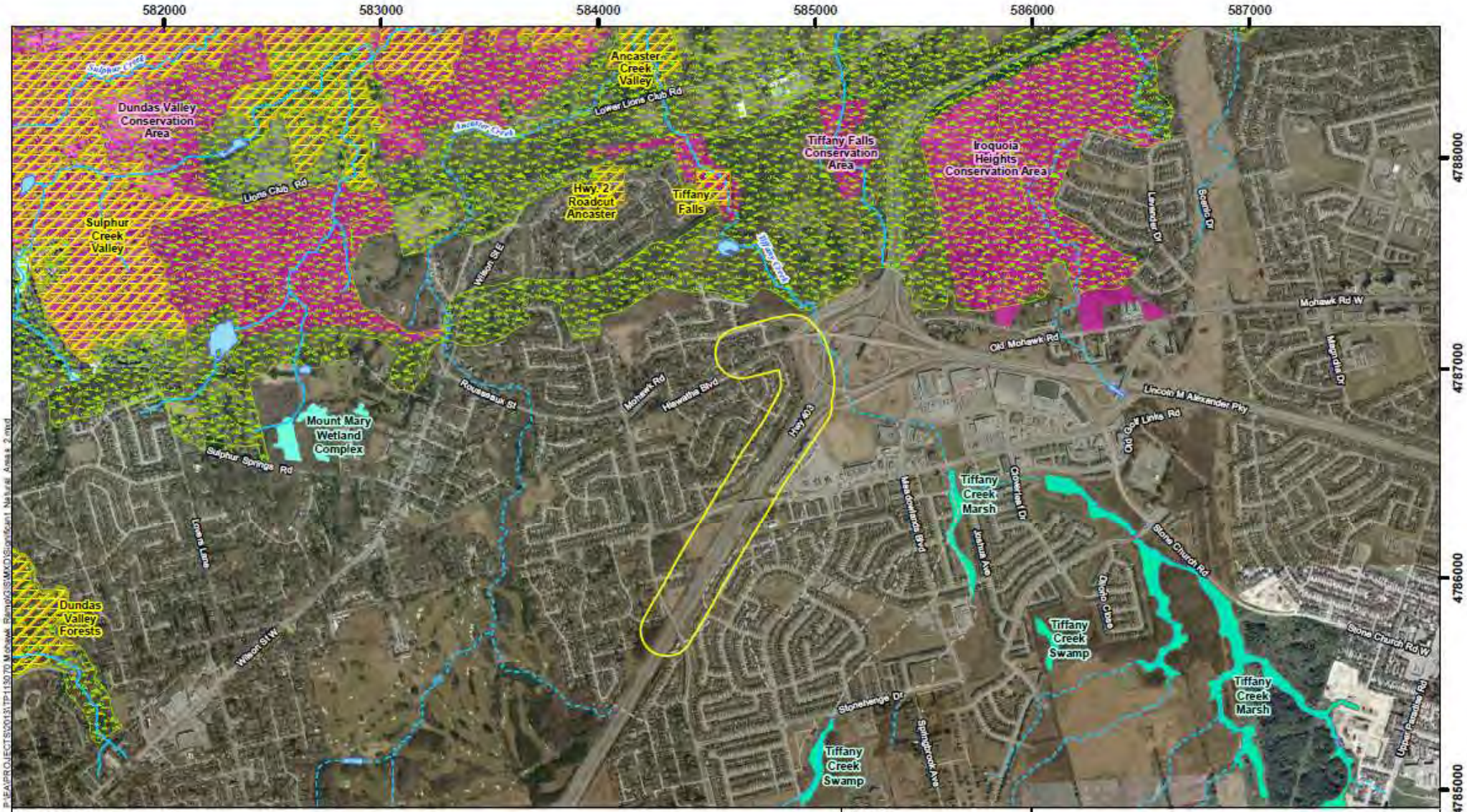
- One provincially rare forested community:
  - Fresh-Moist Black Walnut Lowland Deciduous Forest
- Two Species at Risk under the provincial *Endangered Species Act* were observed:
  - Butternut Tree (endangered)
  - Barn Swallow (threatened)

Fish and Fish Habitat

- Tiffany Creek subwatershed of the Spencer Creek watershed
- Two drainage structures:
  - Culvert under Brantford-bound on-ramp from Lincoln Alexander Parkway (Linc);
  - Inlet approximately 25 m south of Mohawk Road within the west ditch of the Linc
- No direct or indirect fish habitat within 30 m of the project site

Socio-economic Environment

- Urban settlement area



LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- ANSI
- Niagara Escarpment
- Conservation Area

Wetland

- Non-Significant
- Locally Significant
- Provincially Significant

ANSI - Area of Natural and Scientific Interest

NOTES:
-Topographic data extracted from Land Information Ontario (LIO)

DRAFT

Datum & Projection: NAD 1983 UTM Zone 17N

0 250 500 1,000 1,500 2,000 2,500 Metres

amec

Mohawk Ramp

Significant Natural Areas

PROJECT N°: TP113070 | FIGURE: 5-1

SCALE: 1:25,000 | Date: December 2013

Existing Conditions

DRAFT

Mohawk Road

- Two-lane arterial with Toronto-bound access to Highway 403
- Crosses over Highway 403 and connects to the Linc
- 70 km/h posted speed at the highway interchange

Lincoln Alexander Parkway (Linc)

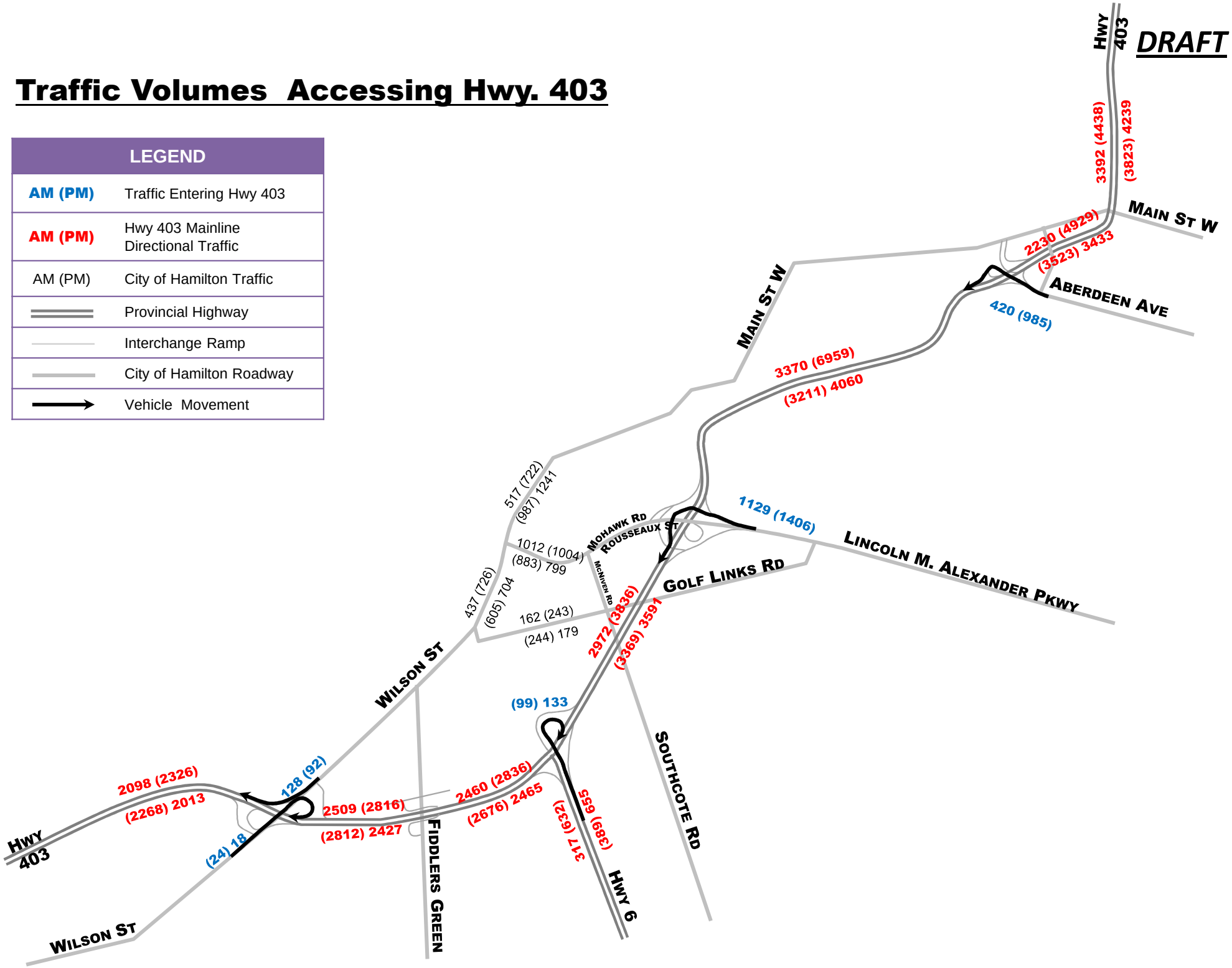
- Four-lane, divided parkway with Toronto-bound and Brantford-bound access to Highway 403
- 90 km/h posted speed

Highway 403

- Five-lane (2 Toronto-bound; 3 Brantford-bound including truck climbing lane), divided highway
- Access to Mohawk Road/The Linc from Brantford-bound Highway 403
- Access to Linc from Toronto-bound Highway 403
- No access to Mohawk Road from Toronto-bound Highway 403
- 100 km/h posted speed

Traffic Volumes Accessing Hwy. 403

LEGEND	
AM (PM)	Traffic Entering Hwy 403
AM (PM)	Hwy 403 Mainline Directional Traffic
AM (PM)	City of Hamilton Traffic
	Provincial Highway
	Interchange Ramp
	City of Hamilton Roadway
→	Vehicle Movement



Traffic Analysis

DRAFT

- Traffic forecasting process has been completed
- Addition of a Mohawk Road on-ramp would remove over 300 vehicles per day out of the Ancaster Village core (Wilson Street)
- Further detailed analysis will be done to ensure no impact on Highway 403 traffic

Problem and/or Opportunity

DRAFT

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access to and from Ancaster
- Residents have requested that the Brantford-bound ramp be placed due to increasing traffic demands on Wilson Street in the Ancaster core
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

Alternative Solutions

DRAFT

Alternative 1:	Do Nothing (i.e., no additional Brantford-bound access to Highway 403)
Alternative 2:	Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403
Alternative 3:	Improve access to Highway 403 by adding a Brantford-bound ramp from Main Street to Highway 403
Alternative 4:	Improve access to Highway 403 by adding a Brantford-bound ramp from Golf Links Road to Highway 403
Alternative 5:	Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

Evaluation Criteria

DRAFT

Technical:

- Improved access to Highway 403
- Improved traffic flow within local road network
- Opportunities for other modes of transportation (e.g., transit)
- Supports local, regional, provincial planning policies
- Meets provincial design standards and criteria
- Drainage Impacts
- Utility Impacts

Natural:

- Impact on watercourses
- Impact on aquatic species/habitat
- Impact on vegetation
- Impact on wildlife species/habitat
- Impact on significant natural areas
- Impact on Species at Risk (SAR)
- Impact on Air Quality

Cultural:

- Impact on archaeological resources
- Impact on cultural heritage resources

Social:

- Impact on existing and/or future land uses
- Noise Impacts
- Lighting Impacts

Economic:

- Property acquisition costs
- Construction costs

Evaluation of Alternative Solutions

DRAFT

Alternatives/ Criteria	Alternative 1: Do Nothing	Alternative 2: Brantford-bound Access at Mohawk Road	Alternative 3: Brantford-bound Access at Main Street	Alternative 4: Brantford-bound Access at Golf Links Road	Alternative 5: Other Modes of Transportation
Technical	○	◕	◔	◑	◔
Natural	◑	◑	◔	◔	◑
Cultural	◑	◔	◑	○	◑
Social	◑	◑	◑	○	◑
Economic	◑	◔	○	○	◑
Summary	• Does not resolve problem • Carried forward for comparison	• Resolves problem • Carried forward as part of solution	• Partially resolves problem • Not carried forward due to environmental impacts, design and construction issues, and high costs.	• Resolves problem • Not carried forward due to heritage impacts, operational issues, design and construction issues, and cost	• Partially resolves problem • Does not add access to Highway 403 • Does not significantly reduce traffic impacts to downtown core • Carried forward as part of solution

○ Very Poor ◔ Poor ◑ Neutral ◕ Good ● Very Good

MEETING SUMMARY

Project Number	B000355	Date	25 March, 2014, 10am	Meeting N°	
Project Title	Class EA for Mohawk Ramp, Hamilton			Location	MTO Bldg D, 4th Floor meeting room

☒ Coordination	☒ Design Review	☐ Other:
☐ Start-up	☐ Validation	

PERSONS PRESENT	
Bill Cung, MTO	Jim Scale (AMEC)
Graeme Price (MTO)	Mohan Philip (City of Hamilton)
Chris Pascos (MTO)	Hossam Abdelgawad (CIMA)
Stephen Keen (CIMA)	
DISTRIBUTION ☒ **To Persons Present + Sonya Kapusin**	

Points Discussed	**Person Responsible**	**Follow up**
Mohan provided an introduction to the purpose of the project and the team involved. A draft micro-simulation report was forwarded to the MTO 2 weeks prior to the meeting. Hossam gave a presentation (paper copies handed out) of the approach, methodology and results of the traffic micro-simulation exercise along with a video sample in support of the analysis of the proposed Mohawk Road westbound on-ramp to Highway 403.		
Next key meetings in the process are: • Citizens Liaison Committee; • MTO technical review meeting (April 30); • MTO Executive Review of PIC#2 material (May 20); • PIC#2 (second week of June).		
The following main comments arose from the ensuing discussion with that result that the MTO would like to see the following additions to the report:		
• The 'nominal' 200 vehicles per hour demand on the ramp should be tested for the 2031 PM peak and not just the AM peak (even though the PM peak demand is less than the AM peak);	CIMA	
• Would like to see how actual travel times from MTO survey compares with modelled results;	CIMA	
• Compare travel time differences to the Geoffrey E. Havers (GEH) statistical values contained in the FHWA toolbox guidelines;	CIMA	
• Provide color-coded speed maps of HWY 403;	CIMA	
• Plot speed contours for HWY 403;	CIMA	
• Conduct conflict analysis for 2031 GPL with NO ramp; and		
• Conduct conflict analysis for 2031 HOV with NO ramp (in order make comparison of conflicts with ramp).	CIMA	
Chris Pascos said he would provide a final set of written comments on the report by next week (April 4th).	Chris	
Following this, Jim Scale outlined some preliminary functional design options for the ramp, evaluation is not yet complete. Comments were provided for AMEC to consider in finalizing the options for further assessment. Other comments: • The parallel acceleration lane design (as opposed to a direct taper) for the Mohawk Rd. Ramp merge onto the Link-Hwy 403 ramp was preferred; and • Consideration should be given to increasing the 55m radius (minimum requirement for a 70km/h design speed on Mohawk Rd.) on the Mohawk ramp.	AMEC	

PREPARED BY Stephen Keen	**DATE 27 March 2014**

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MINUTES OF MEETING

CLIENT	:	City of Hamilton
PROJECT	:	Additional Access to Brantford-bound Highway 403
MEETING N°	:	2
DATE OF MEETING	:	April 7, 2014
LOCATION	:	300 Wilson Street East, Ancaster
ATTENDEES	:	Thirteen (13) members of the Ancaster Community Council (ACC), Mohan Philip (City of Hamilton (City)), Al Kirkpatrick (City), Lorissa Skrypniak (City), David Sinke (AMEC Environment and Infrastructure (AMEC)), Brian Malone (CIMA Canada Inc. (CIMA)), Sonya Kapusin (CIMA)
C.C. TO	:	People attending

Note: If you believe that these minutes are lacking in accuracy, please inform the author who will make the necessary changes.

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www.cima.ca

DISCUSSION TOPICS	ACTION BY

1.1 Introduction

The City introduced the project and City Staff.

AMEC introduced the presentation and Consultant Staff.

The attached presentation summarizes the status of the project and public comments received in response to the Public Information Centre (PIC), advertised in February and held on March 6, 2014.

The study is currently in Phase 2 of the Class EA process.

1.2 Study Progress

The attached presentation was projected on screen and distributed to all present. AMEC presented and CIMA assisted with questions.

Presentation topics included: Class EA and Public Consultation, Preliminary Preferred Solution, Summary of Input from ACC, Summary of Public Comments, and Next Steps.

In addition to the presentation, ACC was informed of:

- meetings held with the Ministry of Transportation (MTO) regarding traffic modelling
- the noise assessment currently underway; the noise study and specialist will be available at the next PIC
- the Stage 1 Archaeological Assessment currently underway
- the Air Quality study, which will be available at the next PIC

AMEC highlighted the following:

- difference in traffic on Rousseaux Street/Mohawk Road will be marginal; traffic volume increase is relatively low
- modelling suggests no significant impacts to service on Highway 403
- other suggested alternatives were reviewed and found to have issues

1.3 Your Input

Questions received and responses provided were:

CIMA

What is the additional traffic? On Rousseaux/Mohawk, estimated to be approximately 300 vehicle increase over the current 12,000 vehicles/day; During peak times, estimated to be approximately 30 to 50 vehicles over the current 1200 to 1500 vehicles/hour (i.e. 2.5% to 3.0% increase).

DISCUSSION TOPICS	ACTION BY
Would the project result in redirection of traffic through Wilson Street to Rousseaux Street/Mohawk Road? Yes.	
What are the suggestions for cut through traffic? Data has not identified that significant cut through traffic is occurring, nor that it will increase with the provision of the new ramp. Some additional traffic from within the adjoining neighbourhood may redirect towards the ramp, but this would not be considered cut-through traffic.	
Does this project include sidewalks? Sidewalks are identified in the Ancaster Transportation Master Plan but would not be part of the scope for this study.	
What has been the feedback from MTO? The Ministry is supportive of the concept, technically, and is providing technical comments.	
What is the timing for this project? 2016 construction as best case, but would be subject to Council approval before proceeding.	
ACC is interested in meeting with the project team after the next PIC. The next ACC meeting with the project team will be scheduled following the second PIC; The PIC is scheduled for June 12, 2014.	City

CIMA

The City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment (Class EA) Study

Ancaster Community Council (ACC) Presentation

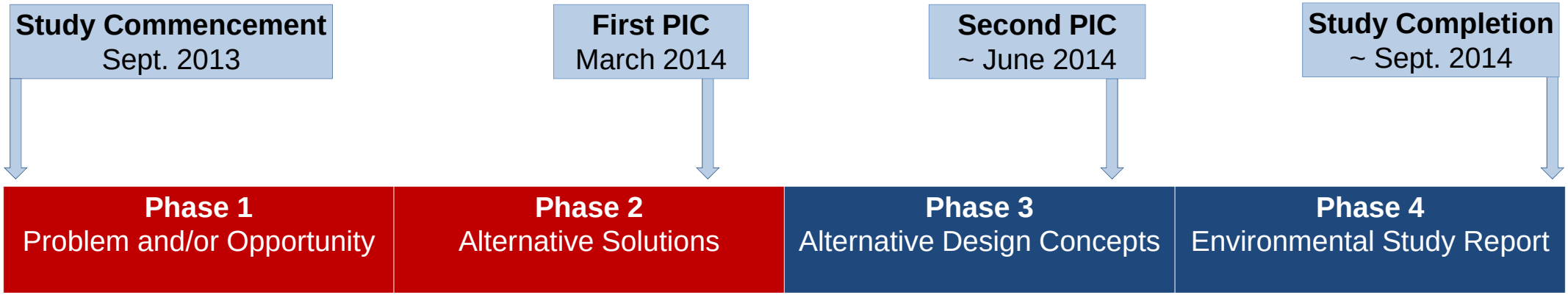
April 7, 2014

Agenda

- Introduction
- Study progress, including summary of public comments
- **Your input:**
  - **Share concerns**
  - **Discuss issues**
  - **Ask questions**

Class EA and Public Consultation

- Notices regarding this study will be advertised in the newspaper and mailed to interested public and agencies.
- Notice of Study Commencement was advertised in September 2013.
- Notice of PIC No. 1 was advertised in February 2014 for the PIC scheduled on March 6, 2014.
- ACC is acting as the Community Liaison Committee for this project. The first meeting with the ACC was held in December, 2013.
- Two Public Information Centres (PICs) will be held to receive public input on the study. The first PIC was held on March 6, 2014.
- Meetings with agencies such as the Ministry of Transportation and Ministry of Natural Resources have been held to review project impacts.
- The Environmental Study Report will be prepared and filed for public review toward the end of the study.



Preliminary Preferred Solution

A combination of the following:

Alternative 2: Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403

Alternative 5: Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

Summary of Input from ACC

Issues

- Drivers on Mohawk Road drive onto the Lincoln Alexander Parkway to Golf Links Road and turn left to go westbound, which is circuitous and increases risk
- There are 3 to 4 eastbound accesses and only 1 westbound access to Highway 403, which is impacting a 2-lane road in Ancaster
- Situations of accidents or bad weather are problematic and frequent

Challenges

- Potential noise and property impacts
- Traffic Impacts on Rousseau Street
- Need for Archaeological Assessment
- Coordination with previous work by the Ministry of Transportation
- Impact of bridge repairs by the Ministry of Transportation on Highway 403
- Traffic associated with new high density areas being built

Questions

- Westbound access from Southcote Road?
- Quantities of traffic volumes?
- Project schedule?

Summary of Public Comments

Technical

- **Traffic on Wilson Street**
  - Rush hour traffic on Wilson Street is not bad
  - Traffic on Wilson Street is not acceptable
  - Ramp will not alleviate traffic problems in Ancaster's core
  - Ramp is beneficial to only residents in the adjacent neighbourhoods
  - More traffic lights on Wilson Street
  - Leave Town as walkable; Traffic on Wilson Street does not want to stop
- **Traffic on Mohawk Road and Rousseau Street**
  - Minimal traffic impact on Wilson Street does not justify project cost or traffic diversion to a congested Mohawk Road
  - Ramp will increase traffic volume/congestion on Rousseau Street/Mohawk Road
  - Volume changes have potential to alter traffic movements at Rousseau/Wilson Street Intersection
  - Increased traffic will intensify congestion on Mohawk Road due to traffic-calming islands
  - Mohawk Road issues must be addressed before ramp is built
- **Cut-Through Traffic**
  - Potential impact on local roads
  - Noticeable decrease in "rush hour" cut through when "old" westbound ramp towards Brantford was closed
- **Congestion on Highway 403**
  - Highway 403 spillover events are causing the most traffic problems; Drivers will cut through Town
  - Traffic from ramp at Mohawk Road will merge onto highway close to merge from the Linc, a congestion point during pm peak times

Summary of Public Comments

Natural

- Natural Environment
- Trail Protection
- Collisions with Deer
- Mitigation for Species at Risk
- Air Quality

Social

- Safety and Convenience
- Pedestrian Safety along Mohawk Road
- Mail Delivery on Mohawk Road affected by Traffic and No Sidewalks
- Noise*, Property and Lighting Impacts
- Decreased Quality of Life along Rousseau Street and Mohawk Road

**Noise Assessment and Specialist will be available at the next PIC*

Cultural

- Cultural Heritage Impacts at Golf Links Road

Economic

- Cost-Benefit Analysis
- Increase Wilson Street Traffic to Increase Merchants' Business

Summary of Public Comments

Alternatives

- Ramp to Highway 403 Westbound off Mohawk Road is needed and should not have been removed
- Inadequate room for ramp at Mohawk Road
- Brantford-bound access at Golf Links Road should be the solution carried forward
- Garner Road needs to be widened and could be used to access Highway 403 Westbound
- North Ancaster has easy access via McNiven to Golf Links and the Linc westbound
- Southcote to Garner West would allow access to Highway 403 westbound

Next Steps

Following this presentation, we will:

- Review your comments and suggestions
- Review and confirm/revise the preferred solution based on the evaluation of alternatives and consideration of public and agency input
- Identify and evaluate alternative design concepts for the preferred solution
- Conduct the second PIC to obtain public input

Questions and Comments

Submit your comments by April 22, 2014:

Mohan Philip, M.Eng., P.Eng.

Project Manager
City of Hamilton
77 James Street North, Suite 400
Hamilton, Ontario L8R 2K3

Phone: (905) 546-2424 ext. 3438
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Email: tplanning@hamilton.ca

David Sinke, P.Eng.

Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington, Ontario L7N 3G2

Phone: (905) 335-2353
Fax: (905) 335-1414
Email: david.sinke@amec.com

Thank you!

Meeting Minutes

May 13, 2014
Our File: TP113070-75

Subject: Mohawk Road Ramp to Westbound Highway 403
Feasibility and Class EA Study
Presentation to City of Hamilton Staff

Date: Wednesday, April 30, 2014

Time: 9:00 a.m.

Location: MTO Central Region, 1201 Wilson Ave, Downsview, Building D 3rd Fl Boardroom

In Attendance:

Mohan Philip	➢	City of Hamilton, Transportation Planning
Bill Cung	➢	MTO Planning and Design Section
Qazi Nasrullah	➢	MTO Traffic Engineering Section
James Scale	➢	AMEC
Stephen Keen	➢	CIMA

Regrets: None

MATTERS DISCUSSED: **ACTION BY:**

The purpose of this meeting was to review the design alternatives and recommend plan.

Discussion

1. The Macro and Micro Traffic Simulation reports have been updated to address previous MTO comments. MTO to confirm modifications are acceptable. **MTO**

2. A total of six (6) alternatives were developed for the exit ramp design off of Mohawk Rd and two (2) alternatives for the Mohawk Rd ramp connection to the realigned Linc-Hwy 403 Brantford bound ramp.

3. The Mohawk Rd design alternatives are based on a 70km/h design speed (50km/h posted speed). The alternatives considered include the following:

   - Alternative No. 1 – Direct taper with 55m ramp radius
   - Alternative No. 2 – Parallel lane design with 55m ramp radius
   - Alternative No. 3 – Direct spiral with 55m ramp radius
   - Alternative No. 4 – Direct spiral (modified based on parallel lane design) with 90m ramp radius
   - Alternative No. 5 – Direct spiral with 90m ramp radius
   - Alternative No. 6 – Direct spiral (modified based on parallel lane

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design) with 55m ramp radius

The 55m radius corresponds to the minimum ramp radius and a ramp design speed of 40km/h, while the 90m radius corresponds to the standard ramp radius and a ramp speed of 50km/h.

Based on a combination of property impacts along Mohawk Rd, proximity and impacts to the Filman Rd intersection, and projected ramp volumes, Alternative No. 5 consisting of a direct spiral off of the Mohawk Rd through edge of pavement and a 90m ramp radius is recommended.

It was agreed that Alternative No. 5 would be carried forward as the recommended alternative.

4. The Mohawk Rd ramp alternatives for connection to the realigned Linc-Hwy 403 Brantford bound lanes are based on an 80km/h design speed on the Linc-Hwy 403 Brantford ramp. The design alternatives considered include the following:

- Alternative No. 1 – Direct taper design
- Alternative No. 2 – Parallel lane design

A direct taper length of 150m was utilized based on the 80km/h design speed. As the parallel lane is not warranted for a roadway/ highway design speed (or in this particular case the Linc-Hwy 403 Brantford bound ramp) of 90km/h or less, the 90km/h design speed corresponding to a minimum speed change lane length, including taper, of 220m was utilized. Given the relative geometry of the Mohawk Rd ramp and the Linc-Hwy 403 Brantford bound ramp, which resulted in an increase in the standard gore length, the 63m standard parallel lane length on the speed change lane was maintained to permit adequate merge distance beyond the painted gore.

Given the volume of traffic on the Linc-Hwy 403 Brantford bound ramp and the potential travelled speed of merging vehicles from the Mohawk Rd ramp, Alternative No. 2 was recommended to provide adequate merge opportunity.

It was agreed that Alternative No. 2 would be carried forward as the recommended alternative.

5. The termination of the Linc-Hwy 403 Brantford bound ramp speed change lane on Hwy 403 assumes a 60km/h travelled speed at the Hwy 403 bullnose, as opposed to the standard 50km/h travelled speed, given the length and geometric characteristics of the Linc-Hwy 403 Brantford bound ramp in advance of the bullnose. This reduces the length required for the entering vehicles to attain the required speed needed to safely merge with Hwy 403 through traffic from 500m to 400m.

MATTERS DISCUSSED: **ACTION BY:**

The proximity of the successive entrance bullnoses (i.e. Mohawk Rd ramp/ Linc-Hwy 403 bullnose to Linc ramp/ Hwy 403 mainline bullnose) for both Alternatives No. 1 and 2 exceed the minimum requirement of 200m.

The third Hwy 403 westbound lane is terminated 400m beyond the termination of the Linc-Hwy403 ramp speed change as per the standard for successive lane drops on a freeway.

6. Modifications have been made to the Hwy 403 Brantford bound lane alignment to mitigate impacts to the existing Golf Links Road structure (specifically the outer pier columns). An independent alignment has been developed for the Hwy 403 Brantford bound lanes to flatten the existing horizontal curve west of the Mohawk Rd/ Linc interchange and provide greater offset from the outside piers at the Golf Links Road structure.

   The modification will permit the development of a four lane cross-section below Golf Links Rd consisting of one (1) SCL (3.5m) and three (3) through lanes (2x3.75m + 1x3.50m) with a 2.5m outer shoulder width and half barrier wall adjacent to the piers. The minimum median width on the Brantford bound lanes resulting from the realignment is 8.72m which will permit future median widening to accommodate either a general purpose through lane or an HOV lane (1.25m buffer + 3.75m HOV lane + 3.72m median including half barrier width).

   The widened median pavement width will be utilized as part of the proposed construction staging which will include shifting traffic towards the Hwy 403 median and installation of temporary concrete barrier along the existing outside edge of pavement.

7. Concrete barrier (Type A-2) will be installed between the Linc-Hwy 403 ramp and the Hwy 403 Brantford bound lanes.

8. The Mohawk Rd and Linc-Hwy 403 Brantford bound ramps will be constructed with 4.75m lanes and 1.0m and 2.5m left and right full paved shoulder widths respectively. An urban section will be utilized along the Mohawk Rd speed change lane and extend beyond the bullnose to mitigate property and utility impacts. The urban section will transition to a rural design cross-section.

9. Preliminary ramp profiles and InRoads cross-sections have been developed for the recommended alternative.

   There are no grading impacts on the existing Hwy 403-Linc interchange ramps.

   Positive lateral drainage of the ramp subgrade can be provided with outlet into earth ditches to convey the longitudinal flow along the ramp. No impacts are anticipated to the existing noise walls. Further water quantity and quality analysis is being undertaken and will be incorporated into the design.

MATTERS DISCUSSED: **ACTION BY:**

10. Noise and air quality assessments will be completed as part of the preliminary design.

11. The recommended plan was accepted and will be presented to MTO Senior Management on May 20, 2014 to obtain MTO approvals prior to PIC No. 2 scheduled for early June 2014.

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

Per: James Scale, P. Eng.
Associate, Transportation Engineering

JS/js

c.c. All Attendees
David Sinke – AMEC
Sonya Kapusin – CIMA

Partners in excellence

MINUTES OF MEETING

CLIENT	:	City of Hamilton (City)
PROJECT	:	Highway 403 and Mohawk Road Ramp Feasibility and EA Study
MEETING N°	:	Ministry of Transportation Ontario (MTO) Executive Public Information Centre (PIC) No. 2 Presentation
DATE OF MEETING	:	Tuesday May 20, 2014, 9:00 am
LOCATION	:	MTO Central Region, 1201 Wilson Avenue, Downsview, Building D – 5th Floor Boardroom
ATTENDEES	:	Bill Cung (MTO), Jason White (MTO), Bob Stephenson (MTO), Peter Korpal (MTO), Fabio Saccon (MTO), Qazi Nasrullah (MTO), Mohan Philip (City), Jim Scale (AMEC Environment and Infrastructure (AMEC)), Stephen Keen (CIMA Canada Inc. (CIMA)), Hossam Abdelgawad (CIMA), Sonya Kapusin (CIMA)
C.C. TO	:	People attending and David Sinke (AMEC)

Note: If you believe that these minutes are lacking in accuracy, please inform the author who will make the necessary changes.

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DISCUSSION TOPICS	ACTION BY
1.1 Project Background	
Agendas were distributed	
MTO introduced the project and meeting	
The City provided background to the project	
Noise and air quality impact assessments are being completed as part of the environmental assessment and preliminary design and will be forwarded to MTO for their review and comments	AMEC/CIMA
1.2 Traffic Analysis – Macro and Micro Analysis	
CIMA summarized the findings of the Macro and Micro Analyses as detailed below:	
- The proposed Mohawk ramp would feed traffic onto an existing ramp from the Linc to Highway 403 WB	
- The results indicate an extra GPL (rather than HOV) lane on Highway 403 is desirable in the future	
- The 2031 Do Nothing scenario was not modelled; however, the Do Nothing scenario is somewhat similar to the HOV scenario as the HOV lane would accept 3 to 8% of the highway volume	
- The direct taper design for the Mohawk ramp merge with the Linc to Highway 403 WB ramp was modelled in order to represent the worst case scenario	
- A parallel lane design for the Mohawk ramp merge with the Linc to Highway 403 WB ramp is preferred to improve merging opportunities given current and projected traffic volumes on the Linc to Highway 403 WB ramp	
- MTO Traffic indicated more recent traffic counts appeared to be higher than the simulated volumes	
- CIMA to liaise with MTO to obtain the latest counts for the area and consider the need for updating the micro-simulation for the area of focus	MTO/CIMA
- MTO requested the "Do Nothing" scenario for 2031	CIMA

DISCUSSION TOPICS	ACTION BY

be simulated for comparison purposes

1.3 Public Consultation

Copies of the Draft PIC No. 2 Presentation were distributed

CIMA summarized public comments to date. Refer to Slide 4 of the Draft PIC presentation

1.4 Alternative and Recommended Solution

Copies of the alternative design drawings were distributed

AMEC provided an overview of the ramp design alternatives on a roll plan which included the following:

- Mohawk Road Exit Terminal
  - Alt. No. 1 – Direct taper with 55m ramp radius
  - Alt. No. 2 – Parallel lane with 55m ramp radius
  - Alt. No. 3a – Direct spiral with 55m ramp radius
  - Alt. No. 3b – Direct spiral with 90m ramp radius
  - Alt. No. 4a – Modified spiral with 55m ramp radius
  - Alt. No. 4b – Modified spiral with 90m ramp radius

- Mohawk Road Entrance Ramp to Highway 403 Brantford-Bound Ramp
  - Alt. No. 1 - Direct taper design with a ramp radius of 190m and taper length of 150m
  - Alt. No. 2 - Parallel lane design with a total speed change lane length, including taper, of 246m

Based on a combination of property and utility impacts, traffic operations, and proximity to the Filman Rd intersection, Alternative No. 3b and Alternative No. 2 are recommended as the preferred alternatives for the Mohawk Road Exit Terminal and Mohawk Road Entrance Ramp to Highway 403 Brantford-Bound Ramp respectively

The recommended plan includes realignment (flattening) of the Highway 403 westbound lanes, including associated median platform widening, to provide the required horizontal clearances to the existing Golf Links Road outside piers

DISCUSSION TOPICS	ACTION BY
The recommended plan, including the horizontal realignment, will accommodate a future Highway 403 median general purpose lane or HOV lane (1.25m buffer + 3.75m HOV lane + 3.72m median including half barrier width)	
AMEC will provide a summary of the design speeds and associated design standards applied to the design of the recommended plan	AMEC
MTO was in general agreement with the recommended plan, however would like to review and comment on the results of the updated traffic analysis based on the more recent traffic volumes to be provided by the MTO Traffic Engineering Section	
1.5 PIC Display Materials	
Copies of the Draft PIC No. 2 Presentation were distributed	
1.6 Next Steps	
PIC No. 2 will be convened on June 9, 2014 following a presentation to the City of Hamilton's Technical Review Committee	

CIMA

Meeting Minutes

July 3, 2014
Our File: TP113070-75

Subject: Mohawk Road Ramp to Westbound Highway 403
Feasibility and Class EA Study
Technical Committee Meeting No. 2

Date: June 2, 2014

Time: 10:00 a.m.

Location: City of Hamilton, Room 400A, City Centre

In Attendance:

Mohan Philip	➢	City of Hamilton, Transportation Planning
Jonathan De Vela	➢	City of Hamilton, Transportation Planning
Bart Brosseau	➢	City of Hamilton, Transportation Planning
Lorissa Skrypniak	➢	City of Hamilton, Transportation Planning
Gregory Barys	➢	City of Hamilton, Traffic Engineering
Gord Baguley	➢	City of Hamilton, Public Works
Cathy Plosz	➢	City of Hamilton, Development Planning
Chris McCafferty	➢	City of Hamilton, Design
Tanya McKenna	➢	City of Hamilton, Corridor Management
Robert Decleir (rep. Sue Russell)	➢	City of Hamilton
Steve Keen	➢	CIMA
Sonya Kapusin	➢	CIMA
James Scale	➢	AMEC
David Sinke	➢	AMEC

Regrets:

Alan Kirkpatrick	➢	City of Hamilton, Transportation Planning
Martin White	➢	City of Hamilton, Traffic Operations
Rick Andoga	➢	City of Hamilton, Asset Management
Alan Jazvac	➢	City of Hamilton, Asset Management
David Ferguson	➢	City of Hamilton, Traffic Engineering
Ron Gallo	➢	City of Hamilton, Traffic Engineering
Andy McLaughlin	➢	City of Hamilton, HSR
Michelle Sergi	➢	City of Hamilton, Planning Department
Anita Fabac	➢	City of Hamilton, Planning Department
Darlene Cole	➢	City of Hamilton, Real Estate

MATTERS DISCUSSED: **ACTION BY:**

1. AMEC and CIMA presented draft PIC story boards to the City of Hamilton staff. The presentation material included some added detail which will not be provided at the PIC. The material presented included the following:

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MATTERS DISCUSSED: **ACTION BY:**

- Status update/Class EA process;
- Overview of Public and Agency comments to date;
- Preferred planning solution;
- Alternative design concepts and evaluation, including micro-modelling;
- Preferred design concept;
- Impact assessment in the following discipline areas: Intersection Traffic Impact Assessment; Air Quality; Noise; Drainage and Stormwater Management; Natural Environment; and Archaeology.

2. A summary of issues and mitigation was presented and next steps were discussed. The following comments and discussion were provided following the presentation:

- Chris McCafferty suggested that at the PIC no mention of future work on Mohawk/Rousseaux should be made. Mohan Philip responded that discussion of possible work on Mohawk/ Rousseaux is in response to public concerns expressed following PIC 1. Any statement by the Study Team as to future work on Mohawk/Rousseaux will be consistent with the recommendations made in the Ancaster Transportation Master Plan (ATMP).

- Gord Baguley requested explanation of why Golf Links was eliminated as a potential westbound ramp location? AMEC responded that at this location, MTO insisted on two-directional ramp access, meaning that an eastbound ramp would need to be constructed. The eastbound ramp would be in close proximity to the historic Stone Farmhouse. In addition, the Golf Links location is in much closer proximity to the Highway 6 interchange, resulting in concerns regarding weaving. Finally, the Golf Links location would require widening of Highway 403 at Southcote, in turn likely requiring reconstruction of the Southcote bridge structure.

- Steven Keen noted that the Study Team is continuing dialogue with the MTO regarding the results of the micro-modelling. MTO has given clearance to proceed to PIC #2 and additional model runs are being completed to address MTO questions.

- Tanya McKenna recommended that the Public presentation make clear that the proposed ramp will not solve congestion issues on Wilson Street. AMEC concurred with this recommendation, but also reiterated that the proposed ramp significantly improves travel time and length of travel for access to 403 westbound, eliminating circuitous routes.

MATTERS DISCUSSED: **ACTION BY:**

- Steven Keen noted that a level of service analysis of the Wilson/Rousseaux and Mohawk/McNiven intersections has been completed. There is little net impact of the proposed Mohawk Ramp at these intersections. Both intersections need improvements as per the ATMP, regardless of the ramp construction.

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

David Sinke

Per: David Sinke, P. Eng.
Principal, Transportation Engineering

DS/kf
Attach. – Technical Committee Meeting #2 Presentation

c.c. All Attendees

The City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment (Class EA)

Technical Committee Meeting No. 2

June 2, 2014

Purpose, Goals and Objectives

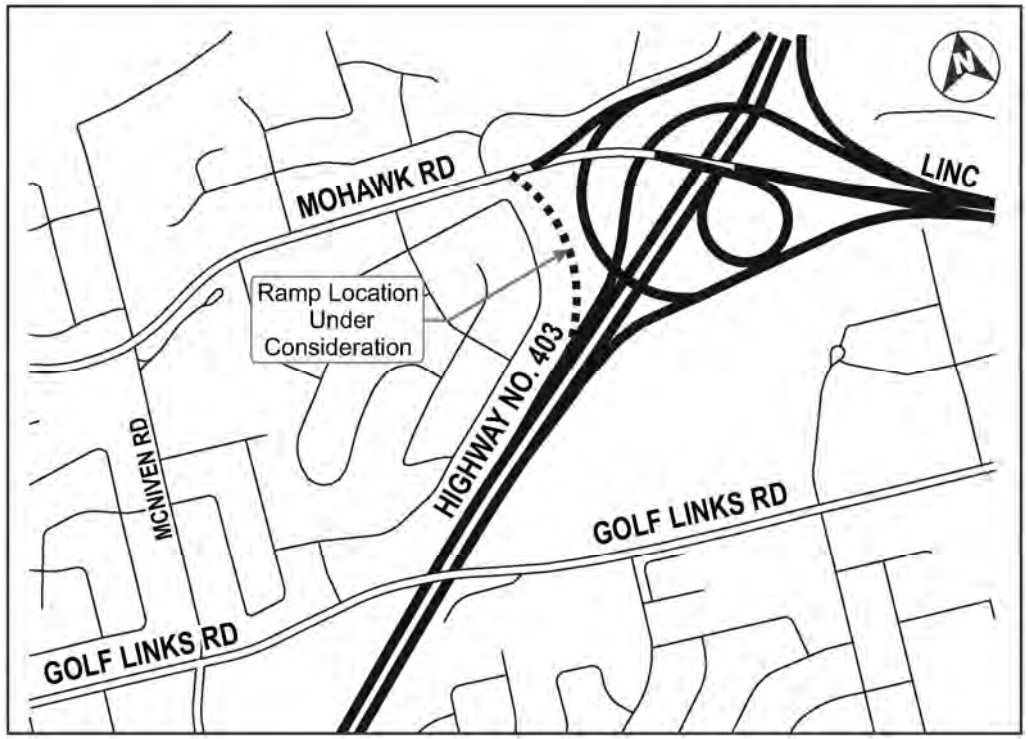
Purpose

- Complete feasibility study and Class EA process for proposed ramp

Goals and Objectives

- Confirm need and justification for improvements
- Determine operational and geometric feasibility of proposed ramp
- Assess impact of proposed ramp on Highway 403 operations
- Assess impact of proposed ramp on natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of Municipal Class EA process

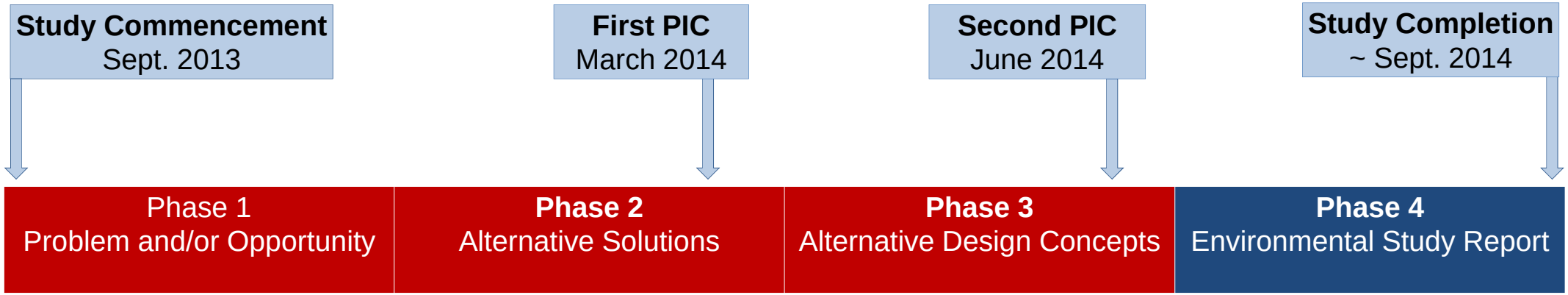
Study Area



Class EA Process

Planning and Design:

- The Study follows Phases 1 to 4 of the **Municipal Engineers Association Municipal Class EA** process for a **Schedule C project** (October 2000, as amended in 2007 and 2011)
- At present, the Study is in Phase 3



Public Consultation:

- Notice of Study Commencement in September 2013
- Meetings with Ancaster Community Council in December 2013, in April 2014, and following PIC No. 2
- Meetings with Ministries of Transportation (MTO) and Natural Resources (MNR), and the Hamilton Conservation Authority (HCA) prior to PICs
- PICs in March and June 2014
- Updates to project website at www.hamilton.ca/Mohawkroadramp
- Report and presentation to be prepared for Public Works Committee of City Council on September 15, 2014
- Environmental Study Report to be prepared for public review toward the end of the Study

Summary of Public Comments to Date

Technical

- Traffic volume on Wilson Street
- Traffic volume on Mohawk Road and Rousseau Street
- Traffic volume on Local Roads
- Traffic volume on Highway 403

Natural

- Natural Environment
- Trail Protection
- Collisions with Deer
- Mitigation for Species at Risk
- Air Quality

Social

- Safety and Convenience
- Pedestrian Safety along Mohawk Road
- Mail Delivery on Mohawk Road affected by Traffic and No Sidewalks
- Noise, Property and Lighting Impacts
- Decreased Quality of Life on Rousseau Street and Mohawk Road

Cultural

- Cultural Heritage Impacts at Golf Links Road
- Need for archaeological assessment

Economic

- Cost-Benefit Analysis
- Increase Wilson Street Traffic to Increase Merchants' Business

Comments regarding Alternatives

- Ramp to Highway 403 Westbound off Mohawk Road is needed; Should not have been removed
- Inadequate room for ramp at Mohawk Road
- Brantford-bound access at Golf Links Road should be the solution carried forward
- Garner Road needs to be widened and could be used to access Highway 403 Westbound
- North Ancaster has easy access via McNiven to Golf Links and the Linc westbound
- Southcote to Garner West would allow access to Highway 403 westbound

Problem/Opportunity and Preferred Solution

Problem and/or Opportunity

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway (Linc) interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access from Ancaster
- Residents have requested that the Brantford-bound ramp be constructed due to increasing traffic demands on Wilson Street in the Ancaster core
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

A combination of the following alternatives was selected as the preferred solution:

- Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403
- Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation (as part of future projects)

Design Criteria

- Design Speeds:
  - Mohawk Rd 70 km/h
  - Mohawk Rd Ramp 50 km/h
  - Linc to Hwy 403 Westbound Ramp 80 km/h
  - Highway 403 120 km/h
- Ramp Lane Width (Single Lane): 4.75m
- Ramp Lane Width (Two Lane): 7.50m (2 x 3.75m)
- Left Shoulder Width: 1.00m
- Right (Outside) Shoulder Width: 2.50m
- Speed Change Lane Widths: 3.50m

Alternative Design Concepts

Mohawk Road Exit Ramp

Alternative No. 1 – Direct taper with 55m ramp radius

Alternative No. 2 – Parallel lane design with 55m ramp radius

Alternative No. 3a – Direct spiral with 55m ramp radius

Alternative No. 3b – Direct spiral with 90m ramp radius

Alternative No. 4a – Modified spiral with 55m ramp radius

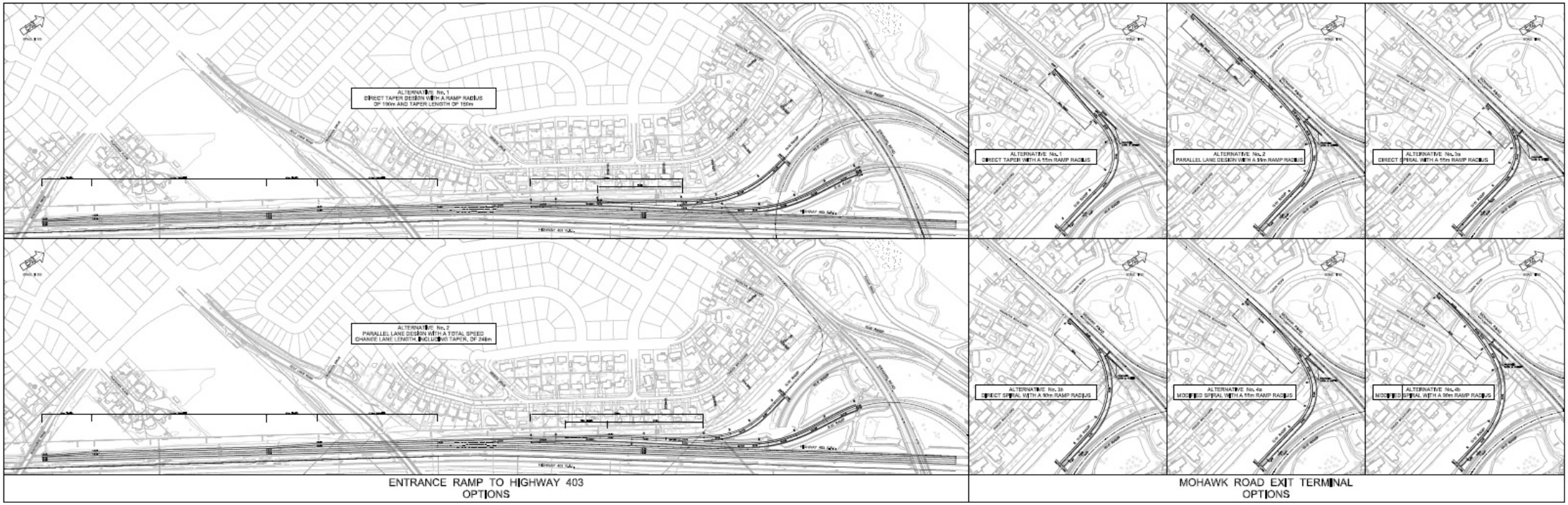
Alternative No. 4b – Modified spiral with 90m ramp radius

Mohawk Road Entrance Ramp to Linc-Highway 403 Brantford-bound Ramp

Alternative No. 1 - Direct taper design with a ramp radius of 190m and taper length of 150m

Alternative No. 2 - Parallel lane design with a total speed change lane length, including taper, of 246m

Alternative Designs



ENTRANCE RAMP TO HIGHWAY 403
OPTIONS

MOHAWK ROAD EXIT TERMINAL
OPTIONS

MTO Technical Concerns

- Development of ramp exit lane on Mohawk Road (geometric configuration) and associated impacts to the Filman Road intersection

- Mohawk Rd Ramp Design Speed
  - 55 m radius corresponding to a 40 km/h design speed (minimum)
  - 90 m radius corresponding to a 50 km/h design speed (standard)

- Lack of merge opportunity associated with direct taper merge of Mohawk Road ramp with Linc to Hwy 403 Brantford-bound ramp, due to existing ramp volumes which are close to capacity for a single lane

- Spacing of successive bullnoses (200 m required for 80 km/h design speed)

- Impacts to Highway 403 operations (merge movements, successive lane terminations and queuing/delay)

- Protection for future Highway 403 mainline expansion (single lane in each direction and potential for HOV)

Evaluation Criteria

Technical:

- Improved access to Highway 403 without impacting Highway operations
- Improved traffic flow within local road network
- Opportunities for other modes of transportation (e.g., transit)
- Supports local, regional, provincial planning policies
- Meets provincial design standards and criteria
- Drainage impacts
- Utility impacts

Natural:

- Impact on watercourses
- Impact on aquatic species/habitat
- Impact on vegetation
- Impact on wildlife species/habitat
- Impact on significant natural areas
- Impact on Species at Risk
- Impact on air quality

Cultural:

- Impact on archaeological resources
- Impact on cultural heritage resources

Social:

- Impact on existing and/or future land uses
- Noise impacts
- Lighting impacts

Economic:

- Property acquisition
- Construction costs

Evaluation of Alternatives for Exit Ramp from Mohawk Road

Factors	Criteria	Alternative 1: Direct Taper (55m ramp radius)	Alternative 2: Parallel Lane (55m ramp radius)	Alternative 3a: Direct Spiral (55m ramp radius)	Alternative 3b: Direct Spiral (90m ramp radius)	Alternative 4a: Modified Spiral (55m ramp radius)	Alternative 4b: Modified Spiral (90m ramp radius)
Technical	Improved access to Highway						
	Improved traffic flow						
	Opportunities for other modes						
	Supports planning policies						
	Meets design standards/criteria						
	Drainage impacts						
	Utility impacts						
Natural	Impact on watercourses						
	Impact on aquatic species/habitat						
	Impact on vegetation						
	Impact on wildlife species/habitat						
	Impact on natural areas						
	Impact on Species at Risk						
	Impact on Air Quality						
Cultural, Social, Economic	Impact on archeological						
	Impact on cultural heritage						
	Impact on land uses						
	Noise impacts						
	Lighting impacts						
	Property acquisition						
	Construction costs						
Summary					Preferred		

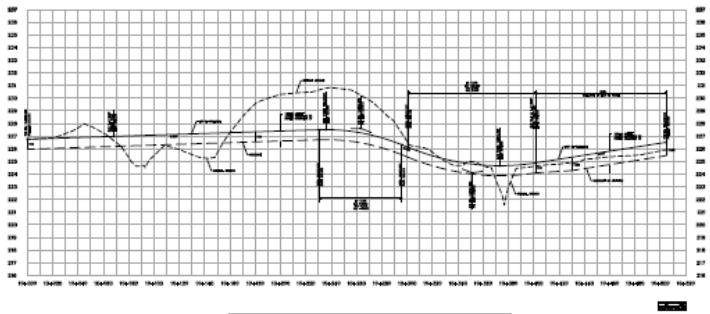
Least Preferred		Neutral		Most Preferred

Evaluation of Alternatives for Mohawk Entrance Ramp to Linc-Highway 403 Brantford-bound Ramp

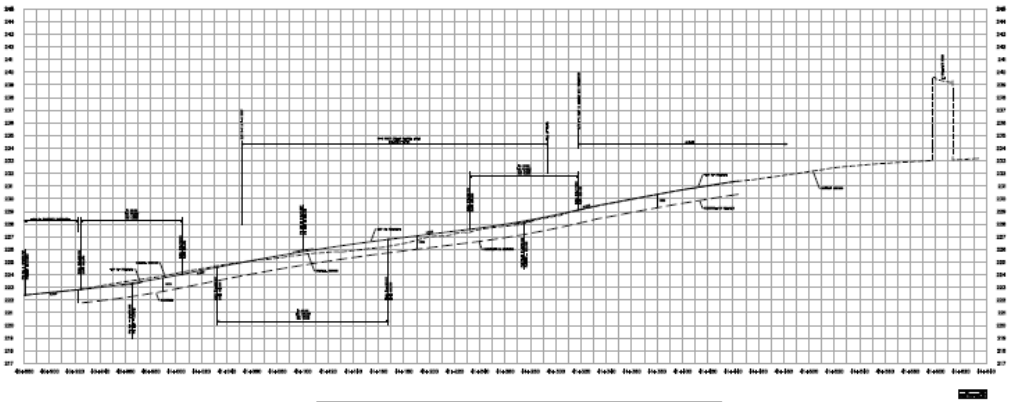
Factors	Criteria	Alternative 1: Direct Taper Design	Alternative 2: Parallel Lane Design
Technical	Improved access to Highway 403		
	Improved traffic flow		
	Opportunities for other modes		
	Supports planning policies		
	Meets design standards & criteria		
	Drainage impacts		
	Utility impacts		
Natural	Impact on watercourses		
	Impact on aquatic species/habitat		
	Impact on vegetation		
	Impact on wildlife species/habitat		
	Impact on significant natural areas		
	Impact on Species at Risk		
	Impact on Air Quality		
Cultural, Social, Economic	Impact on archeological		
	Impact on cultural heritage		
	Impact on land uses		
	Noise impacts		
	Lighting impacts		
	Property acquisition		
	Construction costs		
Summary			Preferred

Least Preferred		Neutral		Most Preferred

Preliminary Preferred Design Concept



W-S RAMP
(FROM MOHAWK ROAD TO E-S RAMP)
SCALE 1:1000



E-S RAMP
(FROM LINCOLN M. ALEXANDER PKWY TO HWY 403 SOUTH BOUND)
SCALE 1:1000

Preliminary Preferred Design Concept

Description:

- Direct spiral design for Mohawk Road deceleration lane with no impact to property or the Filman Road intersection
- 400 m realignment of existing Linc-Hwy 403 Brantford-bound ramp
- New 400 m single lane exit ramp from Mohawk Road connecting to the realigned Linc-Hwy 403 Brantford-bound ramp
- Parallel lane design for merge of Mohawk Road ramp with the Linc-Hwy 403 Brantford-bound ramp (designed to 90 km/h design speed)
- 237 m spacing between the Mohawk Road Ramp/Linc-Hwy 403 Brantford-bound ramp and the Linc-Hwy 403 Westbound ramp/Hwy 403 bullnoses (200 m minimum design standard for an 80 km/h design speed)
- 500 m acceleration lane for the Linc-Hwy 403 Brantford-bound ramp on Hwy 403
- 400 m termination of the existing truck climbing lane beyond the termination of the Linc-Hwy 403 Brantford-bound ramp on Hwy 403
- 150 m extension of existing Hwy 403 Brantford-bound climbing lane to accommodate realigned Linc-Hwy 403 Brantford-bound ramp and associated Hwy 403 speed change lane
- 75 m noise barrier along Mohawk Road
- New and modified illumination
- Stormwater quality treatment
- Estimated cost of construction is $2.9 Million

Air Quality Impacts and Mitigation

Objectives:

- To assess the impact of motor vehicle emissions on current and future ambient air quality in the vicinity of existing roads and with the proposed construction of a westbound ramp to Highway 403 from Mohawk Road
- To assess the need for air quality mitigation measures

Vehicle related pollutants:

- Most vehicles run on gasoline or diesel fuel and emit essentially the same Pollutants:
  - ✓Nitrogen oxides (NOx),
  - ✓Particles, size under 2.5 microns (PM2.5),
  - ✓Particles, size under 10 microns (PM10),
  - ✓Carbon Monoxide (CO), and
  - ✓Sulphur Dioxide (SO2).

Results:

- The cumulative ground level concentrations (impact created by the project plus the background air quality) of $PM_{2.5}$, PM_{10}, CO, and SO_2 emissions were predicted to be below the respective ambient air quality criteria under each traffic scenario: current (year 2008) and future (years 2021 and 2031)
- The predicted levels of concentration of all contaminants under consideration are decreasing from current scenario to future due to use of much cleaner engines

Air Quality Impacts	Mitigation
Air quality during construction	Apply dust control measures (e.g., water spraying, street sweeping)
Air quality following construction	The addition of the proposed Mohawk Road ramp and the future traffic volumes (scenarios 2021 and 2031) on Highway 403 in the area of the Mohawk Road/Linc interchange are not expected to create a significant negative cumulative effect on the local air quality.

Drainage Impacts and Mitigation

Existing Drainage Conditions:

- Existing open area drains via grassed swales and existing Highway 403 roadside swale into a small tributary of Tiffany Creek, which is a subwatershed of Spencer Creek (drains to Hamilton Harbour)
- Local drainage adjacent to Mohawk Road Culvert consists of swales/culverts/ditch inlet that drains to existing interchange and ultimately to Tiffany Creek main branch
- Former ramp culvert near Linc-403 on-ramp was removed, and is currently an open ditch cut through the former road base

Drainage Impacts	Mitigation
Crossing of roadside swale at East-South ramp	New culvert at crossing (just north of former culvert location)
Impact to local swales adjacent to Mohawk Road	Minor modifications (swales and/or culvert extensions) adjacent to Mohawk Road
Additional impervious surface to watershed	New enhanced grassed swales to mitigate pollutant loading from additional impervious surface

Noise Impacts and Mitigation

Methodology:

- US FHWA Traffic Noise Model, Version 2.5
- Five noise receptors (NR01 through NR05) representing approximately 26 noise sensitive areas
- Noise modelling of two scenarios:
  1. Sound levels without project for forecast year 2031
  2. Sound levels with project for forecast year 2031

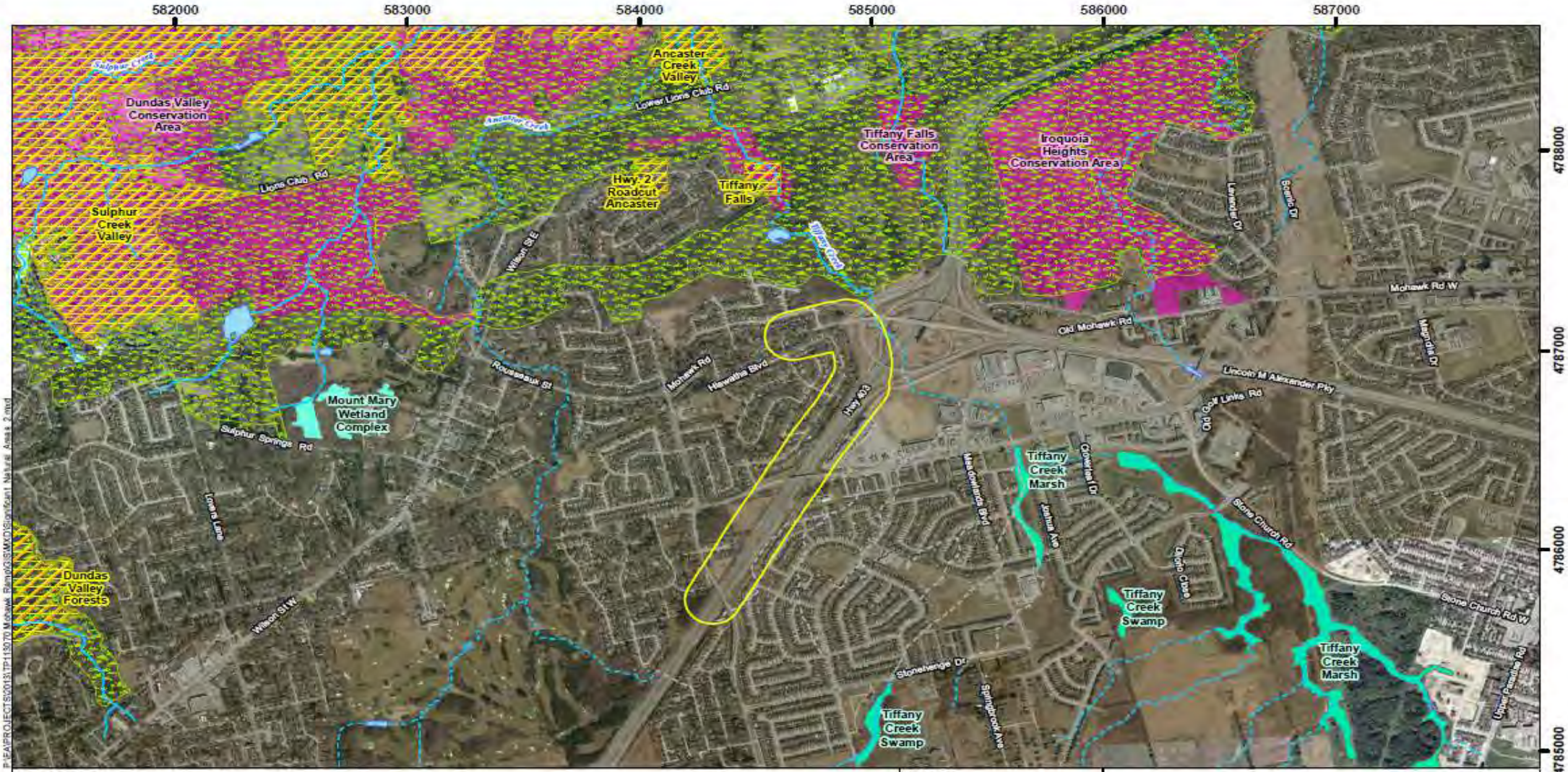
Criteria:

- MTO Environmental Guide for Noise
- Mitigation required if increase in sound levels is >5 dB or absolute sound level predicted at the receptors is >65 dBA

Results:

- Expected increase in traffic noise levels (With Project – Without Project) is 0-1 dBA, a negligible increase
- Traffic noise levels expected to range from between 56 dBA to 67 dBA at the modelled receptors

Noise Impacts	Mitigation
Operational noise	• 3 m high noise wall for three houses with backyard facing Mohawk Road
Construction noise	• Equipment maintained and operated with effective muffling devices in good working order • Contractors to comply with applicable requirements of construction contract and local noise by-laws • Initial noise complaint will trigger verification that general noise control measures are in effect • For persistent noise complaints, equipment verified to comply with MOE NPC-115 guidelines • For persistent complaints and subject to field investigation, alternative noise control measures may be required with consideration for technical, administrative and economic feasibility



LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- ANSI (Area of Natural and Scientific Interest)
- Niagara Escarpment
- Conservation Area

Wetland
- Non-Significant
- Locally Significant
- ProvinciallySignificant

Existing Terrestrial and Fisheries Environment:

- 1 provincially rare forested community adjacent to study area:
  - Fresh-Moist Black Walnut Lowland Deciduous Forest
- 2 Species at Risk under *Endangered Species Act* were observed:
  - Butternut Tree (endangered)
  - Barn Swallow (threatened)
- No direct or indirect fish habitat within 30 m of project site

NOTES:
-Topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

0 250 500 1,000 1,500 2,000 2,500 Metres

amec

Mohawk Ramp

Significant Natural Areas

PROJECT N°: TP113070 | FIGURE: 5-1

SCALE: 1:25,000 | Date: December 2013

Terrestrial Impacts and Mitigation

Terrestrial Impacts	Mitigation
Incidental impacts to nesting migratory birds	Vegetation clearing in migratory bird habitat outside active breeding season (May 1 to August 31)
	If clearing or other work in migratory bird habitat is required during nesting season, a nest survey will be conducted by a qualified avian specialist within two days prior to commencement of works to identify and locate active nests of species covered by the *Migratory Birds Convention Act*
Encountering wildlife	Efforts made to avoid injury or harassment to wildlife within project site
Possible disturbance to Species at Risk	Appropriate Ministry of Natural Resources protocol following new MAPS self regulated process for Species at Risk (Butternut and Barn Swallow) will be followed during detailed design
	Butternut trees tagged and surveyed to confirm location relative to proposed grading

Traffic Impacts and Mitigation

Traffic Impacts	Mitigation
Concern regarding the intersection of Rousseau/Wilson	Improvements at this intersection were recommended in the Ancaster Transportation Master Plan (TMP). With or without the ramp, improvements to the Rousseau/Wilson intersection are needed. An additional southbound left turn lane on Wilson Street is needed (to be carried out in a separate project).
Concern regarding the intersection of Mohawk/McNiven	Improvements at this intersection were not identified in the Ancaster TMP. Analysis shows that, with the Mohawk Road ramp in place, this conclusion does not change.

Issues and Mitigation

Factor	Interested Party	Commitment
Archaeology	Ministry of Tourism, Culture and Sport	Stage 1 Archaeological Assessment on lands identified as having archaeological potential within the project area
Drainage	Hamilton Conservation Authority	Conformance to Stormwater Management Plan
Property	Property Owners	No property acquisition
Terrestrial	Ministry of Natural Resources	Consultation to ascertain Species at Risk permitting or authorizations in association with Barn Swallow (bird) and Butternut (tree) species and proposed works
Traffic	Road Users and Property Owners	Advanced notice of construction through signage and flyers Develop Traffic Management Plan Reduce construction time, when possible

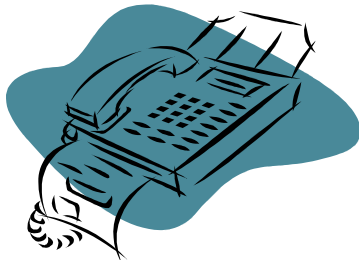
Next Steps

Following this PIC, we will:

- Review your comments
- Update Ancaster Community Council regarding PIC results
- Select preferred design concept based on evaluation of alternatives and consideration of public and agency input
- Prepare report and presentation for Public Works Committee of City Council on September 15, 2014
- Prepare Environmental Study Report for public review in Fall, 2014

Questions and Comments

Submit your comments by June 26, 2014:



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Thank you!

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MINUTES OF MEETING

CLIENT	:	City of Hamilton (City)
PROJECT	:	Highway 403 and Mohawk Road Ramp Feasibility and EA Study
MEETING N°	:	Ministry of Transportation Ontario (MTO) – Micro-Simulation Review
DATE OF MEETING	:	Monday June 09, 2014, 10:00 am – 11:45 am
LOCATION	:	MTO Central Region, 1201 Wilson Avenue, Downsview, Building D – 3rd Floor Boardroom
ATTENDEES	:	Bill Cung (MTO), Fabio Saccon (MTO), Goran Nikolic (MTO), Martin Michalek (MTO) Jim Scale (AMEC) on speaker-phone, Stephen Keen (CIMA Canada Inc. (CIMA)), Hossam Abdelgawad (CIMA)
C.C. TO	:	People attending, Mohan Philip (City Hamilton) and David Sinke (AMEC)

Note: If you believe that these minutes are lacking in accuracy, please inform the author who will make the necessary changes.

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DISCUSSION TOPICS	ACTION BY

1.1 Meeting Purpose

The meeting was held to review the latest PM peak hour micro-simulation results for the do-nothing (no highway widening scenario) as requested by MTO following the Executive Review meeting in May 2014.

1.2 Meeting Discussion and Conclusions

Steve Keen presented the latest set of micro-simulation results of the 2031 **PM peak hour** – the main conclusions being:

- With or without the proposed Mohawk Ramp, traffic operations on Highway 403 in 2021 are shown to be good;
- Using forecast 2031 volumes, without the Mohawk Ramp, operational problems appear on Highway 403 because of excess demand;
- Using 2031 volumes, and introducing the Mohawk Ramp, the problems on Highway 403 are further exacerbated;
- Using 2031 volumes and assuming an additional GPL on Highway 403, all operational problems are solved;
- In a testing of Mohawk Ramp volumes, a 'zero' demand was used (not presented) and it was found the operational problems are the same as when demand is applied – it is therefore concluded that the issue is the change in design to the WB Linc on-ramp which is effectively moved ~300 metres downstream and nearer to the truck lane drop at Southcote Road resulting in reduced weaving length opportunity and increased turbulence.

In reviewing the Highway 403 forecasted traffic volumes for 2031, it was noticed that the volumes likely exceed what the highway is able to accommodate in the do-nothing situation (e.g. 5,300 vehicles westbound on Highway 403 westbound at the two lane section at Southcote Road) – more importantly, it was thought the section of Highway 403 through the Hamilton downtown (i.e. upstream in the vicinity of King/Main) is thought to be

at capacity already and unlikely to be able to feed additional demand in the future and therefore the demand input needs to be modified to account for the restricted capacity.

1.3 Next Steps

In light of these observations, and prior to the next presentation to the MTO executive, CIMA were directed to undertake two activities:

1. Check with Arthur Tai to ensure the MTO model is similarly forecasting high future traffic demands (adjust if necessary); — CIMA

2. Meet with Goran Nikolic to agree on a methodology to capture the metering effect of upstream highway restrictions and ensure the following model scenarios are redone: — CIMA
   a. 2031 Do-nothing, with 60 vehicles (as forecast) demand on Mohawk ramp;
   b. 2031 Do-nothing, with 200 vehicle demand on Mohawk ramp.

Fabio emphasised the need for everyone to be on the "same page" before we meet again with the MTO Executive.

Martin Michalek was specifically concerned with the impact that the Mohawk ramp might have on the MTO's ability to widen the Linc WB on-ramp as additional property may be required if it is used up by the ramp. Jim Scale explained that this sort of issue can be dealt with in the risk analysis stage of the project. — AMEC

Martin Michalek asked if the analysis completed to date was sufficient to determine how much sooner the addition of the Mohawk ramp would make widening Highway 403 essential; Steve Keen indicated that it is unclear whether the analysis completed to date is capable of determining this and more thought is need on this matter. — CIMA

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MINUTES OF MEETING

CLIENT	:	City of Hamilton (City)
PROJECT	:	Highway 403 and Mohawk Road Ramp Feasibility and EA Study
MEETING N°	:	Ministry of Transportation Ontario (MTO) – Micro-Simulation Review
DATE OF MEETING	:	Friday July 18, 2014, 10:00 am – 11:40 am
LOCATION	:	MTO Central Region, 1201 Wilson Avenue, Downsview, Building D – 4th Floor Boardroom
ATTENDEES	:	Bill Cung (MTO), Fabio Saccon (MTO), Goran Nikolic (MTO), Mohan Philip (Hamilton) Jim Scale (AMEC) on speaker-phone, Stephen Keen (CIMA Canada Inc. (CIMA)), Hossam Abdelgawad (CIMA)
C.C. TO	:	David Sinke (AMEC)

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DISCUSSION TOPICS	ACTION BY

1 Meeting Purpose

The meeting was held to review outstanding items following the June 9, 2014 meeting in which the project team were asked to:

- review forecasts with the SAFO group; and
- determine a micro-simulation methodology with Goran's group that takes into account the metering effect of upstream congestion on the highway.

2 Video

In order to understand the current state of traffic flow on Highway 403 WB, Stephen Keen showed a PM peak vehicle recorded video of the corridor. The following observations were discussed in the meeting:

- Traffic is metered upstream starting at the merge section of Hwy 403, 407 and QEW and again on and off until Main Street and also approaching the 2-lane section of the highway after the truck climbing lane terminates.
- Merge behaviour from the Link ramp showed some vehicles immediately changing lanes and attempting to merge to Hwy 403 WB mainline, and very few vehicles make it to the end of the acceleration lane (which is unusual).

3 Hwy 403 Volumes

A discussion on the forecasted volumes (by EMME), vs actual volumes (observed counts), vs maximum serviceable volumes (VISSIM) took place in light of considering the following factors:

- EMME is a macro model that does not realistically replicate congestion and queues spillback; therefore the resulting higher volumes than the theoretical capacities of Hwy 403 WB in the 2031 scenario.
- Actual volumes exhibited some fluctuations with no clear growth trend (between 2008 and 2012); which emphasizes the need to question the high forecasted volumes.

DISCUSSION TOPICS	ACTION BY

- VISSIM - as a micro-simulation model - captures the congestion, effect of merge lanes and any queueing; therefore VISSIM was able to cap the volumes at the maximum serviceable capacity of freeway traffic lanes.

4. Decisions on Modelling

In light of: 1) the previous work done and presentations, 2) the drive-through video, and 3) the discussion on the volumes on Hwy 403 and the artifacts of the EMME and VISSIM; the following recommendations were made:

o Fabio noted that MTO will sign off the macro modelling part of the project (SAFO office forecasts for 2031 were lower than current counts because their network does not include the truck climbing lanes and therefore not appropriate for this study (note: capacity of the truck climbing lane is unclear).

o CIMA to cap the PM hourly volumes on Hwy 403 WB and Ramp from Link in the do-nothing scenario as follows:

Section / Year	2008	2021	2031
WB 403	3,800	4,000	4,000
Ramp from Link	1,400	1,500	1,500

City/CIMA

o CIMA to conduct new focussed modelling effort to include WB Traffic Only (direction of concern) and Lincoln Alex& Mohawk Ramp; while focusing on the Merge Section with Hwy 403 in light of the discussion and volumes above.

5. Other Issue

MTO senior management has expressed the need to look further into the current volume vs capacity of the Link Ramp. Currently the Link Ramp narrows from 2 to 1 lane and is queued in the PM peak hour – forecasts indicate an increase up to 1700 by 2031.

DISCUSSION TOPICS	ACTION BY
MTO could potentially look into short term (low cost) solutions to the current operations of this section of Hwy 403. Therefore MTO is advising the City to look into options of "*what if*" the Link Ramp is warranted widening to two lanes. This analysis would entail the following to be decided: - *Without Mohawk Ramp*: How to drop 2 lanes form the Link Ramp + an acceleration lane and merge into the mainline Hwy 403 - *With Mohawk Ramp*: : How to drop 2 lanes form the Link Ramp + an acceleration lane + the Mohawk Ramp lane + the Mohawk ramp acceleration lane, and merge into the mainline. - *Geometric Design Standards:* Is it all possible to merge all these numbers of lanes before the end of the truck climbing lane (currently ending a few hundred from the Link Ramp).	
Fabio advised the City to consider having this issue addressed at the next Executive Review meeting.	City to consider
Fabio emphasised the need for everyone to be on the "same page" before we meet the MTO Executive again.	All

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MINUTES OF MEETING

CLIENT	:	City of Hamilton
PROJECT	:	Additional Access to Brantford-bound Highway 403 Class Environmental Assessment
MEETING	:	Review of Noise Assessment
DATE OF MEETING	:	August 15, 2014, 1:30 pm
LOCATION	:	Teleconference
ATTENDEES	:	Ministry of Transportation (MTO) - Bill Cung, Chris Blaney, Shahbaz Asif, Vanessa Odaimi City of Hamilton - Mohan Philip, Bart Brosseau, Lorissa Skrypniak AMEC - David Sinke, Mohammed Salim CIMA - Sonya Kapusin
C.C. TO	:	People attending, James Scale (AMEC), Brian Bishop (AMEC), Stephen Keen (CIMA)

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DISCUSSION TOPICS	ACTION BY

1.1 Noise Assessment

- The noise assessment report (July, 2014) and memorandum (August, 2014) was circulated in advance of the meeting
- MTO reviewed the July 2014 version of the noise assessment report and not the May 2014 version
- The May 2014 version was updated in response to public comments:
  - One noise receptor was added, which provided more detail but did not affect the results
  - A contour plan was prepared in response to public request

1.2 Existing Berm

- Generally, the understanding is that the berm in place was not intended to be a noise barrier; This was interpreted from a previous MTO study (1997)
  - MTO advised that the berm was documented as a landscape feature; however, it was designed with the idea of reducing visual and acoustic impacts to address public concern
  - MTO supports status quo; however, the Ministry does not want to encounter problems from residents due to the proposed ramp

1.3 Preferred Mitigation

- Based on the above discussion, a berm without a wall on top appears to be preferred by the Ministry (i.e., modified Option 3 in the memorandum) — AMEC
  - MTO suggested showing the existing cross section, cross section with the proposed berm and ramp, and sight lines; Propose a landscape berm to mitigate visual and acoustic impacts
  - AMEC will review the vegetation, drainage, property, utilities and cost impacts of the proposed berm
  - AMEC will run the noise model with the berm in place for the Future scenario, including relocation with and without the additional berm
  - AMEC will update the noise and drainage reports

1.3 Chain Link Fence

- MTO advised that the existing chain link fence could stay in the same location

DISCUSSION TOPICS	ACTION BY
1.4 Public Comments	
- One response letter was not issued; It will be updated based on today's consultation with the MTO o AMEC/CIMA will review public comments concerning noise impacts to determine if additional responses are required	AMEC/CIMA
1.5 Communications	
- MTO requested that carbon copies of correspondence be sent to: o Chris Blaney for noise o Shahbaz Asif for drainage o Vanessa Odaimi for project management	All

PUBLIC WORKS COMMITTEE
MINUTES
9:30 a.m.
Monday, September 15, 2014
Council Chambers
Hamilton City Hall
71 Main Street West

Present: Councillors T. Whitehead (Chair), S. Merulla (Vice Chair), C. Collins, S. Duvall, L. Ferguson, T. Jackson, B. McHattie, R. Pasuta, R. Powers

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THE FOLLOWING ITEMS WERE REPORTED TO COUNCIL FOR CONSIDERATION:

1. Intersection Control List (PW14001(d)) (Wards 2, 7, 8, 10, 12 14, 15) (Item 5.1)

(Collins/Duvall)
That the appropriate By-law be presented to Council to provide traffic control as outlined in Appendix A.

CARRIED

2. Investigation Regarding Flooding Concerns on Lake Avenue Drive (PW13065(b)) (Ward 9) (Item 5.2)

(McHattie/Jackson)
That Report PW130659(b) respecting an Investigation Regarding Flooding Concerns on Lake Avenue be received.

CARRIED

3. Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment (PW14107) (Ward 2) (Item 5.3)

(Ferguson/Powers)

(a) That the General Manager, Public Works, be authorized and directed to file the Notice of Completion and issue the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment for the mandatory 30-day review period;

(b) That upon completion of the 30-day agency and public review period, the General Manager, Public Works, be authorized and directed to proceed with the implementation of the preferred alternatives within the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment;

(c) That the General Manager, Public Works, be authorized and directed to proceed with the Emergency Overflow Schedule "C" Municipal Class Environmental Assessment study;

(d) That the Class "D" estimated costs to implement the preferred alternatives and complete the Emergency Overflow Schedule "C" Class Environmental Assessment study ($1,650,000 and $200,000 respectively) be funded as part of the 2015 Capital Budget including an allowance of an additional $600,000 subject to refinement as part of the Schedule "C" undertaking.

CARRIED

4. Assessment of Development Intensification in Rural Drainage Neighbourhoods, Community of Ancaster (PW140105) (Ward 12ide) (Item 5.4)

(Ferguson/Powers)
That Report PW14105 respecting an Assessment of Development Intensification in Rural Drainage Neighbourhoods, Community of Ancaster be received.

CARRIED

5. Binbrook TransCab Update (PW13058(a)) (Ward 11) (Item 5.5)

(Powers/Duvall)

(a) That the General Manager of Public Works be authorized and directed to extend the Binbrook HSR TransCab service for an additional ten (10) months, from September 2014 until June 2015, to be funded from the remaining $225,000 tax stabilization reserve budget approved in 2013;

(b) That the General Manager of Public Works be directed to incorporate Binbrook HSR TransCab service as a service enhancement in the 2015 Transit Operating Budget.

CARRIED

6. Capital Status Report as of June 30, 2014 (PW14112) (City Wide) (Item 5.6)

(Ferguson/Jackson)

(a) That Appendix A attached to Report PW14112 respecting the "Tax Supported Capital Status of each Project by Program" be approved;

(b) That Appendix B attached to Report PW14112 respecting the "Rate Supported Capital Status of each Project by Program" be approved.

CARRIED

7. Truck Route Sub-Committee, Portable Weigh Scales – Police Enforcement Tool (PW14113) (City Wide) (Item 8.1)

(Pasuta/Ferguson)
That Report PW14112 respecting the Truck Route Sub-Committee, Portable Weigh Scales – Police Enforcement Tool, be received.

CARRIED

8. 2014 Transit Capital Fleet Replacement and Compressed Natural Gas (CNG) Station Replacement (PW12017(c)) (City Wide) (Item 8.2)

(Powers/Jackson)

(a) That the General Manager of Public Works be authorized to enter into all necessary agreements with Union Gas Limited (Union) for the design, construction and maintenance of a compressed natural gas station at the City's Transit facility at 2200 Upper James Street, in a form approved by the City Solicitor, with the understanding that the capital contribution will not exceed $3,600,000, to be funded from the Transit Provincial Gas Tax Reserve (Reserve #112204);

(b) That the General Manager of Public Works be directed to enter into an agreement up to twenty (20) years with Union, using the Business Terms outlines in the attached Union Gas Proposal to Design, Build, Own and Maintain a Compressed Natural Gas (CNG) Fuelling Station at the City's/HSR's Mountain Transit Centre (MTC).

CARRIED

9. Queen Street North Two-Way Conversion (PW14101) (Ward 1) (Item 8.3)

(McHattie/Jackson)
That Queen Street North between Stuart Street and Barton Street West remain a two-way street.

CARRIED

10. Transportation Master Plan Update (PW14104) (City Wide) (Item 8.4)

(Powers/Duvall)

That the General Manager of Public Works be authorized to transfer capital funds from capital project 4031055369, Specific-Area Transportation Master Plans, to 4031355310, Hamilton Transportation Master Plan Update, in the amount of $260,000 (inclusive of project contingency) to cover the shortfall associated with the Request for Proposals submissions for C-11-05-14 "Consulting Services required for Hamilton Transportation Master Plan, five-year Review and Update", for the proposal which achieved the highest technical score and lowest compliant bid ($578,957).

CARRIED

11. Presto Fare Card System Pilot Project (PW04117(f)) (City Wide) (Item 8.5)

(Ferguson/Powers)

(a) That the General Manager of Public Works be authorized and directed to undertake a ten month pilot project with Loblaws Inc. as a single source vendor, in accordance with Procurement Policy By-law No. 13-317, Section 4.11 Non-competitive Procurements, for the purposes of selling and reloading PRESTO smartcards;

(b) That the General Manager of Public Works be authorized and directed to negotiate and execute an agreement between the City of Hamilton and Loblaws Inc. to implement the pilot project in Recommendation (a) of Report PW04117f, together with all necessary associated documents, with content acceptable to the General Manager of Public Works, and in a form acceptable to the City Solicitor.

CARRIED

12. Highway 403 Westbound On-Ramp at Mohawk Road (PW12051(a) (Ward 12) (Item 8.6)

(Ferguson/Powers)

(a) That the General Manager, Public Works Department, be authorized to continue detailed discussions with the Ministry of Transportation (MTO), to address the Ministry's concerns and receive written approval for the City of Hamilton to proceed with the next stage of the Highway 403 Westbound On-Ramp at Mohawk Road study process;

(b) That the General Manager, Public Works Department, be authorized and directed to file the Mohawk Road On-Ramp Environmental Study Report (ESR) with the Municipal Clerk for a minimum thirty (30) day public review period, subject to MTO's written acceptance of the ESR, study findings and recommendations;

(c) That the General Manager, Public Works Department, be authorized and directed to include three hundred thousand dollars ($300,000) as part of the 2015 Capital Budget deliberations for undertaking the next stages of the Highway 403 Westbound On-Ramp at Mohawk Road study process, including risk analysis, design and tender documentation including related municipal local roads as detailed in the financial section of this report;

(d) That the General Manager, Public Works Department, be directed to report back to Council on the status of the Highway 403 Westbound On-Ramp at Mohawk Road and recommend a financing strategy;

(e) That the General Manager, Public Works Department, be authorized and directed to conduct negotiations with the MTO to explore cost-sharing options related to the full cost of design and constructing the Highway 403 Westbound On-Ramp at Mohawk Road project.

CARRIED

13. Hamilton Utilities Corporation Joint Advisory Committee Report 14-001, September 2, 2014 (Item 8.7)

(Jackson/McHattie)
That the Hamilton Utilities Corporation Joint Advisory Committee Report 14-001, September 2, 2014 be received.

CARRIED

14. Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to HCE Energy Inc. (City Wide) (Added Item 10.2)

(Jackson/McHattie)
(a) That the sale of the City's District Cooling System (DCS) Assets to Hamilton Utilities Corporation (HUC) or its wholly owned subsidiary, HCE Energy Inc. (HCE), at a purchase price of $10.5 million be approved subject to the following agreements being prepared to the satisfaction of the City Solicitor, the General Manager of Public Works and the General Manager of Finance and Corporate Services:

(i) An asset purchase and sale agreement pursuant to which HUC or HCE will acquire the assets of the City's (DCS) Assets including the City's Central Utility Plant (CUP);
(ii) An energy services agreement (ESA) pursuant to which the City will purchase cooling services from HUC or HCE over a 25 year term;

(iii) A 25-year licence of the space required for the use of the District Cooling System Assets by HUC or HCE.

(b) That staff be directed to apply the cash payment from HUC or HCE. of $2.4 million on closing to the City of Hamilton's outstanding district cooling system loan;

(c) That, subject to all required approvals, the City of Hamilton provide an interest-bearing loan at an interest rate of 4.06% to the HUC or HCE of $8.1 million to be repaid in full within 25 years from the date of the loan advance;

(d) That principal repayment of $8.1 million over the term of 25 years be applied to the Central Utilities Plant (CUP's) Control Centre and Building Automation system to an upset limit of $1.5 million, and the balance of $6.6 million be applied to the Unallocated Capital Reserve (108020) for investments towards local neighbourhood roads and sidewalks;

(e) That any future increase in dividend associated to this transaction be applied to reduce future tax levy increases;

(f) That staff report back through the 2015 Budget Process on the required redeployment of 2 FTEs from the CUP to other corporate facilities;

(g) That the Mayor and City Clerk be authorized and directed to execute all agreements referred to in subsections (a) through (f) above, together with all other necessary documents, in a form satisfactory to the City Solicitor and with content acceptable to the General Manager of Finance and Corporate Services and the General Manager of Public Works.

CARRIED

15. Borer's Falls Dog Park Site Evaluation (PW14096(a)) (Ward 13) (Added Item 8.8)

(Jackson/Collins)

(a) That the City's Responsible Animal Ownership By-law 12-031 be amended to change the hours in which Borer's Falls Dog Park (Dog Park) is open to the public from 6:00 a.m. to 11:00 p.m. year round, to 7:00 a.m. to 9:00 p.m. from April 1 through October 31 and 7:00 a.m. to 6:00 p.m. from November 1 through March 31;

(b) That a new internal fence be constructed dividing the Dog Park's naturalized area from its open space to establish a fifty foot buffer between the open space used by dog owners and the adjacent property owner;

(c) That fence line plantings be further enhanced with additional vegetation, as required, with conifers for year round visual screening;

(d) That capital improvements for signage, fencing and additional vegetation plantings be funded from the Leash Free Park Reserve - Dept. ID #112202;

CARRIED

16. Tree Removal at 7 Atkins Drive, Hamilton (Item 9.1)

(Whitehead/Duvall)
That Forestry staff be directed to remove the tree located at 7 Atkins Drive, Hamilton.

CARRIED

17. Tree Removal at 819 Garth Street, Hamilton (Item 9.2)

(Whitehead/Powers)
That Forestry staff be directed to remove the tree located at 819 Garth Street, Hamilton.

CARRIED

18. Installation of a Stop Control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton (Item 9.3)

(Jackson/Powers)

(a) That an all way stop control be installed at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; and,

(b) That the appropriate amending By-law, to install an all way stop control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; be passed.

CARRIED

19. Tree Removal at 20 Mount Pleasant Drive (Ward 6) (Added Item 10.1)

(Jackson/Powers)
That Forestry staff be directed to remove the tree located at 20 Mount Pleasant Drive, Hamilton.

CARRIED

20. Tree Removal at 714 Limeridge Road East (Added Item 10.3)

(Duvall/Merulla)
That staff be directed to remove the tree located at 714 Limeridge Road East.

CARRIED

21. Tree Removal at 162 St. Andrews Drive (Added Item 10.4)

(Merulla/Duvall)
That staff be directed to remove the tree located at 162 St. Andrews Drive.

CARRIED

22. Water Filling Stations at the Pan Am Stadium (Added Item 10.5)

(Ferguson/McHattie)
(a) That, upon substantial completion of the Pan Am Stadium, staff be directed to install water filling stations on the concourse level of the Pan Am Stadium; and,

(b) That staff, in consultation with the Hamilton Tiger Cats, formulate a policy to allow visitors to the Pan Am Stadium to bring in empty, appropriate containers to use at water filling stations.

CARRIED

FOR THE INFORMATION OF THE COUNCIL:

(a) APPROVAL OF THE AGENDA (Item 1)

The Committee Clerk advised of the following changes to the agenda.

(i) Added as Item 4.1 – a Delegation Request from Matthew Di Vona, Davis Howe Partners LLP, respecting the Hopkins Dog Park (for today's meeting)

(ii) Added as Item 8.8 – Discussion Item respecting the Borer's Falls Dog Park Site Evaluation (PW14096(a))

(iii) Added as Item 10.1 - a Notice of Motion respecting a Tree Removal at 20 Mount Pleasant Drive (Ward 6)

(iv) Added as Item 10.2 – a Notice of Motion respecting Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to HCE Energy Inc.

(Pasuta/Jackson)
The September 15, 2014 Public Works Committee Agenda be approved, as amended.

CARRIED

(b) DECLARATIONS OF INTEREST (Item 2)

Councillor Powers declared an interest respecting Items 4.1 a Delegation Request from Matthew Di Vona respecting the Hopkins Dog Park, Item 6.1 a Delegation from Matthew Di Vona respecting the Hopkins Dog Park and Item 8.8 respecting the Borer's Falls Dog Park – Site Evaluation (PW14096(a)) (Ward 13) because of solicitor/client advice that he has received.
Councillor Powers advised that he will refrain from discussion and voting on Items 4.1, 6.1, and 8.8 and that he will excuse himself from Council Chambers when these items are being discussed.

(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 3)

(Jackson/Ferguson)
That the Minutes of the September 2, 2014 Public Works Committee meeting be approved, as presented.

CARRIED

(d) DELEGATION REQUESTS (Item 4)

(i) Delegation request for Today's Meeting, from Matthew Di Vona, Davis Howe Partners LLP, respecting the Hopkins Dog Park (Added Item 4.1)

(Jackson/McHattie)
That the delegation request from Matthew Di Vona, Davis Howe Partners LLP, respecting the Hopkins Dog Park, be approved for today's meeting.

CARRIED

(e) CONSENT ITEMS (Item 5)

(i) Minutes of Various Sub-Committees (FOR INFORMATION PURPOSES ONLY) (Item 5.1)

(Pasuta/McHattie)
That the Minutes of the Glanbrook Landfill Coordinating Committee – May 26, 2014 be received.

CARRIED

(f) PUBLIC HEARINGS/DELEGATIONS (Item 6)

(i) Delegation from Matthew Di Vona (Added Item 6.1)

Mr. Di Vona addressed the Committee respecting the Hopkins Dog Park. Mr. Di Vona advised that he is counsel to Ms. Shirley Hawkins who owns property adjacent to the dog park. Mr. Di Vona stated that progress has been made on the concerns of his client but he feels that there is still more to do. Mr. Di Vona supports the recommendations in PW Report 14096(a) but would like the issues respecting the landscape plan for future plantings to be addressed.

(Collins/McHattie)
That the delegation from Matthew Di Vona respecting the Hopkins Dog Park be received.

CARRIED

(g) PRESENTATIONS

(i) 2014 Capital Budget Preamble (Item 7.1)

Mr. Gary Moore, Director, Engineering Services, presented the 2014 Capital Budget Preamble to the Committee with the aid of a PowerPoint presentation. A copy of the presentation has been retained for the public record.

The presentation included, but was not limited, to the following:

- Key Accomplishments
  - Road Network Impacts
  - Sidewalk Network Impacts
  - Council Priority Program
  - Area Rating Projects
- Challenges
- Area Rating Project Scope Review
- Capital Project Timelines
- Project Preparation
- Area Rating Funds (staff resources)
- Looking Ahead – 2015-2024 Levy Allocation
- 25 Year Roads Levels of Service
- Neighbourhood Asset Preservation – Local Roads

(Powers/Duvall)
That the presentation respecting the 2014 Capital Budget Preamble be received.

CARRIED

(ii) Highway 403 Westbound On-Ramp at Mohawk Road (Item 7.2)

(Ferguson/Jackson)
That the presentation respecting the Highway 403 Westbound On-Ramp at Mohawk Road be waived.

CARRIED

(iii) Update on the Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to Hamilton Utilities Corporation (Item 7.3)

Mr. Geoff Lupton, Director, Energy, Fleet and Traffic, and Mr. Brian McMullen, Director, Financial Planning and Policy, presented information to the Committee respecting Update on the Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to Hamilton Utilities Corporation with the aid of a PowerPoint presentation. A copy of the presentation has been retained for the public record.

The presentation included, but was not limited, to the following:

- Outline of "Who's Who"
- Previous Direction
- Current Direction
- Proposed Recommendations
- The City's Objectives
- Hamilton Utilities Objectives
- Proposed Sale Structure
- Reasons for Selling
- Financial Overview
    - Central Utilities Plan Budget – Potential Impact
    - Transfer – Efficiencies
    - Transfer – Avoided Costs
    - Transfer – Potential Benefits

(Jackson/Powers)
That the presentation respecting Update on the Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to Hamilton Utilities Corporation be received.

CARRIED

(h) MOTIONS (Item 9)

(i) Tree Removal at 7 Atkins Drive, Hamilton

Councillor S. Merulla assumed the Chair in order to allow Chair Whitehead to vacate the Chair to introduce the following Motion.

That Forestry staff be directed to remove the tree located at 7 Atkins Drive, Hamilton.

For disposition on this matter refer to Item 16.

(ii) Tree Removal at 819 Garth Street, Hamilton

Councillor S. Merulla assumed the Chair in order to allow Chair Whitehead to vacate the Chair to introduce the following Motion.

That Forestry staff be directed to remove the tree located at 819 Garth Street, Hamilton.

For disposition on this matter refer to Item 17.

(iii) Installation of a Stop Control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton

Councillor S. Merulla assumed the Chair in order to allow Chair Whitehead to vacate the Chair to introduce the following Motion.

(a) That an all way stop control be installed at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; and,

(b) That the appropriate amending By-law, to install an all way stop control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; be passed.

For disposition on this matter refer to Item 18.

(i) NOTICES OF MOTIONS (Item 10)

Councillor Jackson introduced the following Notice of Motion:

(i) Tree Removal at 20 Mount Pleasant Drive (Ward 6) (Added Item 10.1)

Whereas the residents of 20 Mount Pleasant Drive have indicated that the 30cm healthy Linden City of Hamilton tree is infested with aphids which are attracting wasps causing a nuisance; and

Whereas the wasp infestation has in the past resulted in the hospitalization of the homeowner and poses further potential health problems; and

Whereas the property owners of 20 Mount Pleasant Drive has expressed their desire to their Ward Councillor that the City remove the tree;

Therefore be it resolved:

That Forestry staff be directed to remove the tree located at 20 Mount Pleasant Drive, Hamilton.

(Jackson/Powers)
That the rules of order be waived to allow the introduction of a Motion respecting a Tree Removal at 20 Mount Pleasant Drive.

CARRIED

For disposition on this matter refer to Item 19.

Councillor Ferguson introduced the following Notice of Motion:

(ii) Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to HCE Energy Inc.) (Added Item 10.2)

(a) That the sale of the City's District Cooling System (DCS) Assets to Hamilton Utilities Corporation (HUC) or its wholly owned subsidiary, HCE Energy Inc. (HCE), at a purchase price of $10.5 million be approved subject to the following agreements being prepared to the satisfaction of the City Solicitor, the General Manager of Public Works and the General Manager of Finance and Corporate Services:

(i) An asset purchase and sale agreement pursuant to which HUC or HCE will acquire the assets of the City's (DCS) Assets including the City's Central Utility Plant (CUP);

(ii) An energy services agreement (ESA) pursuant to which the City will purchase cooling services from HUC or HCE over a 25 year term;

(iii) A 25-year licence of the space required for the use of the District Cooling System Assets by HUC or HCE..

(b) That staff be directed to apply the cash payment from HUC or HCE . of $2.4 million on closing to the City of Hamilton's outstanding district cooling system loan;

(c) That, subject to all required approvals, the City of Hamilton provide an interest-bearing loan at an interest rate of 4.06% to the HUC or HCE of $8.1 million to be repaid in full within 25 years from the date of the loan advance;

(d) ~~That principal repayment of $8.1 million over the term of 25 years be applied to Energy Reserve (112272)~~ That principal repayment of $8.1 million over the term of 25 years be applied to the Central Utilities Plant (CUP's) Control Centre and Building Automation system to an upset limit of $1.5 million, and the balance of $6.6 million be applied to the Unallocated Capital Reserve (108020) for investments towards local neighbourhood roads and sidewalks;

(e) That any future increase in dividend associated to this transaction be applied to reduce future tax levy increases;

(f) ~~That any future increase in dividend associated to this transaction be applied to reduce future tax levy increases;~~ That staff report back through the 2015 Budget Process on the required redeployment of 2 FTEs from the CUP to other corporate facilities;

(g) That the Mayor and City Clerk be authorized and directed to execute all agreements referred to in subsections (a) through (f) above, together with all other necessary documents, in a form satisfactory to the City Solicitor and with content acceptable to the General Manager of Finance and Corporate Services and the General Manager of Public Works.

(Jackson/Duvall)
That the rules of order be waived to allow the introduction of a Motion respecting a Tree Removal at 714 Limeridge Road East.

CARRIED

For disposition on this matter refer to Item 14.

Councillor Duvall introduced the following Notice of Motion:

(iii) Tree Removal at 714 Limeridge Road East(Added Item 10.3)

That staff be directed to remove the tree located at 714 Limeridge Road East.

(Duvall/Merulla)
That the rules of order be waived to allow the introduction of a Motion respecting a Tree Removal at 714 Limeridge Road East.

CARRIED

For disposition on this matter refer to Item 20.

Councillor Merulla introduced the following Notice of Motion:

(iv) Tree Removal at 162 St. Andrews Drive (Added Item 10.4)

That staff be directed to remove the tree located at 162 St. Andrews Drive.

(Merulla/Duvall)
That the rules of order be waived to allow the introduction of a Motion respecting a Tree Removal at 162 St. Andrews Drive.

CARRIED

For disposition on this matter refer to Item 21.

Councillor Ferguson introduced the following Notice of Motion:

(v) Water Filling Stations at the Pan Am Stadium (Added Item 10.5)

(a) That, upon substantial completion of the Pan Am Stadium, staff be directed to install water filling stations on the concourse level of the Pan Am Stadium; and,

(b) That staff, in consultation with the Hamilton Tiger Cats, formulate a policy to allow visitors to the Pan Am Stadium to bring in empty, appropriate containers to use at water filling stations.

(Ferguson/Jackson)
That the rules of order be waived to allow the introduction of a Motion respecting Water Filling Stations at the Pan Am Stadium.

CARRIED

For disposition on this matter refer to Item 22.

(j) GENERAL INFORMATION/OTHER BUSINESS (Item 11)

(i) Outstanding Business List (Item 11.1)

(Ferguson/Powers)
(a) That the following Items be considered complete and removed from the Outstanding Business List:

(1) Item E – Binbrook Urban Area Transit Service

(2) Item F – Two Way Conversion of Queen Street North between Stuart Street and Barton Street West

(3) Item K – CNG Stations Agreement

(4) Item T – Portable Weight Scales

CARRIED

(k) ADJOURNMENT (Item 13)

(Powers/Ferguson)
That there being no further business, the Public Works Committee be adjourned at 12:58 p.m.

CARRIED

Respectfully submitted,

Councillor T. Whitehead, Chair
Public Works Committee

Lauri Leduc
Legislative Coordinator
Office of the City Clerk

CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Transportation Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	September 15, 2014
SUBJECT/REPORT NO:	Highway 403 Westbound On-Ramp at Mohawk Road (PW12051a) - (Ward 12)
WARD(S) AFFECTED:	Ward 12
PREPARED BY:	Mohan Philip (905) 546-2424, Extension 3438
SUBMITTED BY: **SIGNATURE:**	Gerry Davis, CMA General Manager Public Works Department

RECOMMENDATION

(a) That the General Manager, Public Works Department, be authorized to continue detailed discussions with the Ministry of Transportation (MTO), to address the Ministry's concerns and receive written approval for the City of Hamilton to proceed with the next stage of the Highway 403 Westbound On-Ramp at Mohawk Road study process;

(b) That the General Manager, Public Works Department, be authorized and directed to file the Mohawk Road On-Ramp Environmental Study Report (ESR) with the Municipal Clerk for a minimum thirty (30) day public review period, subject to MTO's written acceptance of the ESR, study findings and recommendations;

(c) That the General Manager, Public Works Department, be authorized and directed to include three hundred thousand dollars ($300,000) as part of the 2015 Capital Budget deliberations for undertaking the next stages of the Highway 403 Westbound On-Ramp at Mohawk Road study process, including risk analysis, design and tender documentation including related municipal local roads as detailed in the financial section of this report;

(d) That the General Manager, Public Works Department, be directed to report back to Council on the status of the Highway 403 Westbound On-Ramp at Mohawk Road and recommend a financing strategy;

(e) That the General Manager, Public Works Department, be authorized and directed to conduct negotiations with the MTO to explore cost-sharing options related to the full cost of design and constructing the Highway 403 Westbound On-Ramp at Mohawk Road project.

EXECUTIVE SUMMARY

In June 2012, City Council directed staff to undertake a study for the proposed Westbound (Brantford bound) Ramp to Highway 403, at Mohawk Road in Ancaster. The study was to examine the geometric and operational feasibility of the proposed ramp, and to complete the Municipal Class EA process. As the proposed ramp location is within the Highway 403 corridor, the study was undertaken in consultation with the MTO, including the preparation of a Request for Proposal (RFP) and the review of the technical elements of the bids received.

The contract with the consultant was structured such that the first stage of the study (Municipal Class EA and traffic study) will be a confirmed assignment to the consultant. Following that stage, a report was to be provided to Committee to confirm proceeding to subsequent stages. The process was designed and scheduled this way as the later stages of the studies/design are dependent on the outcome of the first stage study. The Provisional items in the contract will be needed only if the geometric and operational feasibility of the proposed ramp is established and the ESR is approved. It also enables the City and MTO at each stage to agree whether to move forward to the subsequent stages of the study/project. This process also saves time and cost as we are not required to tender the studies and design works as separate contracts, and also avoids a different consultant undertaking part of the main study and design.

The MTO has identified certain concerns with the traffic operational feasibility study results. The study identified traffic merging issues for the 2031 horizon year, if Highway 403 is not widened by then. The need for the widening of Highway 403 was identified through earlier MTO studies, regardless of the proposed Mohawk Road Ramp. The recommendation is to add one (1) lane in each direction to Highway 403. The new lanes can be accommodated towards the median area of the highway. The MTO indicated that currently there is no plan to widen Highway 403 even though City Council requested MTO to implement the improvements proposed through their studies (refer to PW11027 dated April 18, 2011). The MTO suggested that their future plan may include localized improvements of the Lincoln Alexander Parkway (LINC) to Highway 403 Westbound Ramp, including possible widening of the ramp to a two (2) lane entrance, as an interim solution to address the future capacity issue on this ramp and Highway 403 at this location. As such, the MTO doesn't want to preclude their ability to implement interim improvements by the construction of the proposed Mohawk Road Ramp.

This necessitated the need for undertaking additional review and analysis works, which would include a concept design for extending the existing LINC to the Westbound Highway 403 Ramp. The MTO suggested conducting this additional work to examine the feasibility and to assess the high level impacts.

The study concluded that the environmental impacts are very minimal. There is only a slight impact on the City's non-developable property, located at the east end of Mohawk Road. Once the ramp is constructed, a portion of this city property will be included as part of the MTO's highway corridor. No private property is required for the construction of the ramp.

The additional work under the first stage of the study can be completed and presented to the MTO during the fall of 2014. However, there is not enough funding in the current year to continue with the next stages of the study. To initiate the next stage of the study, through the award of the provisional item work/s (subject to the MTO sign off on the first stage study results, ESR approval and Council direction to proceed with the project), an additional budget of three hundred thousand dollars ($300,000) is required.

The current estimate for the highway ramp construction is approximately four million dollars ($4.0 million), subject to the outcome of the detailed design process. This amount will be included in the 2016 capital budget deliberations process

Alternatives for Consideration - See Page 7

FINANCIAL - STAFFING - LEGAL IMPLICATIONS

Financial:

In a letter dated August 26, 2011, from the MTO, it stated that the City would be financially responsible for the design and construction of the proposed Mohawk Road ramp to Westbound Highway 403. Once the ramp is constructed it will become part of the Provincial Highway system and the MTO will assume the responsibility for the operation and maintenance cost, and liabilities.

The accepted bid amount for the consultant studies is seven hundred and forty thousand nine hundred and seventy seven dollars ($740,977). The budget allocated so far for this project is six hundred and forty five thousand dollars ($645,000). An additional three hundred thousand dollars ($300,000), is required to complete the rest of the studies as follows:

1.	Risk Analysis	37,416
2.	Detailed Design, Tender Documentation and Contract Administration	380,561
3.	Contingency, Staff Cost etc. (assumed)	82,023
	Total	500,000
4.	Budget remaining under Proj. ID4031255215	200,000 (approx.)
5.	**Therefore Additional Requirement**	**$300,000**

As per the report's recommendation, the City will initiate discussions with the province for cost sharing opportunities.

Staffing:

No additional staff requirement

Legal:

Agreements between the City and the MTO for this proposed project may have to be considered in the future.

HISTORICAL BACKGROUND

A Brantford bound (westbound) ramp from Mohawk Road to Highway 403 existed prior to 2001, as part of the Mohawk Road interchange. When the Highway 403-LINC interchange was constructed in 2001, the westbound ramp was eliminated. The respective MTO study was approved, which followed the appropriate EA process, including public and stakeholder consultation. The Ancaster residents are aware of this, and with the increasing traffic infiltration and cut through traffic on Wilson Street, the residents are asking for this ramp to be reinstated. A Brantford bound ramp to Highway 403 will also improve the road network connectivity and eliminate circuitous route travel by motorists in Ancaster to access the westbound Highway 403. The need for a westbound ramp was identified through the City's transportation studies for this area.

In 2008, the City of Hamilton initiated the Ancaster Transportation Master Plan (ATMP) study to identify the future road improvements required for the Ancaster area.

The Council recommendation from the Public Works Committee Report PW09086, dated September 15, 2009 includes:

(a) That the Ministry of Transportation (MTO) be advised of the City of Hamilton's desire for additional westbound access to Highway 403, and that the investigation of future ramps from the Ancaster area and from Main Street West, should be a collaborative effort between the City of Hamilton and the MTO

The Council resolution was forwarded to the MTO on October 1, 2009.

In the final stages of the ATMP Study in 2011, the MTO advised that they preferred the Mohawk Road location for a new westbound ramp and that this ramp location is more consistent with the expectation from the travelling public for highway access. The study was completed and staff report PW11027, dated April 18, 2011, was submitted to the Public Works Committee and approved by City Council on April 27, 2011. The Council directions include the following:

(c) That the Ministry of Transportation (MTO) be advised of the City of Hamilton's concerns with respect to the capacity deficiency currently being experienced and forecast for Highway 403 between Highway 6 and "New Highway 6" in Hamilton and that improvements proposed through the previous MTO studies for this corridor be implemented;

(i) That the City continue best efforts to encourage the MTO to construct west bound access to the 403 at Main Street West in Hamilton, and Mohawk Road or as an alternative Golf Links Road in Ancaster;

Councillor Ferguson and Ted McMeekin, MPP, met with the former Minister of Transportation, Kathleen Wynne, and senior MTO staff on August 24, 2011, to discuss the City's initiative for the proposed westbound ramps. The outcome of this meeting is documented in a letter from the MTO, dated August 26, 2011, indicating MTO's agreement in principle with the proposed ramps from Mohawk Road and Main Street.

To further advance this project, and to identify the next steps in the study process, a meeting was held on November 10, 2011, with Councillor Ferguson, City staff and MTO staff. The discussions included the potential impacts and relative project cost for the proposed Mohawk Road ramp in Ancaster and the Main Street West ramp in Ainsliewood. The discussions resulted in identifying the westbound on-ramp at Mohawk Road as the first priority for further investigation, and that several studies be completed before the geometric and operational feasibility of the ramp can be established.

The City put a plan in place to complete these studies in a step-by-step process, including close consultation with MTO, and City staff reporting to Council at the appropriate stages of the study process.

In January 2012, the project team submitted an Information Report (PW11027a) to update the PW Committee on the status of the projects and the various considerations and the steps leading towards pursuing the Mohawk Road Ramp option. At both the Main Street West and Mohawk Road locations various issues were identified that would impact the construction of these facilities. The concerns include environmental issues, safety, potential expansion of highway network, impact on existing bridges, stormwater management, impacts on Hydro installations, property requirements, constructability and cost.

A technical meeting was held on January 27, 2012 with the MTO to further discuss the study requirements and scope of work. Following this, the concept plan preparation and project cost estimation work was initiated. The Consultant, IBI, completed two (2) concept plan designs and preliminary cost estimates for the Mohawk Road Ramp location. This exercise helped staff to understand the potential constraints and issues that will be faced in order to proceed with this project, including the financial implications before going forward with the detailed analysis/studies.

In June 2012, Council directed staff to undertake the Municipal Class EA process, and Modelling and Operational Analysis of the proposed Highway 403 Westbound On-Ramp at Mohawk Road (PW12051).

AMEC Consultants were retained to undertake this study and currently the first stage of the study (Phases 1 through 4 of the Municipal Class EA process & Traffic operation analysis) is nearing completion. The study identified that the Mohawk Road Ramp is feasible, from a design perspective, and will have the ability to add one (1) general purpose lane for the Highway in the future. However there are certain elements to be further investigated and agreed upon with MTO, which include traffic merging and examining the feasibility of extending the existing two (2) lane LINC to Highway 403 Westbound Ramp.

The consultant will be attending the September 15, 2014 Public Works Committee meeting to make a presentation and answer questions.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

A number of Strategic City documents, including, but not limited to, the Corporate Strategic Plan, Public Works Innovate Now Business Plan, GRIDS, Vision 2020, the

Hamilton Transportation Master Plan, and the Ancaster Transportation Master Plan, in addition to provincial studies and legislation, relate to the Highway 403 Westbound Ramp in many ways, including:

- Influencing provincial policy development to benefit Hamilton; the MTO will be the approving authority for the ramp as Highway 403 and the ramps are within their jurisdiction
- Maintaining effective relationships with other public agencies; we are coordinating and collaborating with the MTO to establish the feasibility of the ramp
- Reducing air and greenhouse gas emissions; reducing traffic delay and congestion will reduce greenhouse gas emissions
- To be innovative through creative solutions: the provision of the on-ramp is identified as one of the solutions to address the current problems
- To be a leader in the Greening and stewardship of the City; provision of direct access to the highway is expected to reduce traffic delay and cut through traffic, which adds to greening
- To provide sustainable, strategic transportation infrastructure options; road network improvements are important in strategic transportation planning

RELEVANT CONSULTATION

Public and stakeholder consultations are part of the Municipal Class EA process followed for this study. As this ramp will be under the jurisdiction of MTO, and as the approving authority, there were extensive consultations with MTO throughout the study process. The project team consulted with the Ancaster Community Council, Hamilton Conservation Authority, Ministry of Natural Resources, Ministry of Tourism, Culture and Sport, Ministry of Aboriginal Affairs, Niagara Escarpment Commission and Utility Services providers. Two (2) Public Information Centre (PICs) were held for this project to obtain input from the public. In developing the plans, discussions were held with Ward 12 Councillor, and various City Departments and sections.

ANALYSIS AND RATIONAL FOR RECOMMENDATION

The Ancaster Transportation Master Plan study identified the need for a Westbound On-Ramp to Highway 403, from the Ancaster neighbourhood area. The solutions investigated through earlier studies were, one (1) ramp in Ancaster and one (1) ramp off Main Street West in Ainsliewood. However, with the higher environmental impacts and cost for the Main Street West Ramp, and with the priority for the Mohawk Road Ramp, the decision was to undertake further studies for the Mohawk Road Ramp, per the content of Report PW11027a, dated January 16, 2012.

Traffic modelling and simulation studies were undertaken in order to determine traffic operational impacts to Highway 403. The MTO required this analysis because once a ramp is constructed it becomes the responsibility and liability of the province. The MTO also wishes to protect for future highway improvements and do not wish to be faced with

limitations as a result of any works undertaken at this time. Our review concluded that the proposed Mohawk Road Ramp wouldn't preclude the ability to add one (1) general purpose lane to Highway 403, without impacting the Golf Links Road and Southcote Road Bridges. Additional assessment will be undertaken to verify MTO's ability to implement future interim improvements.

ALTERNATIVES FOR CONSIDERATION

The preferred location (at Mohawk Road) for the Highway 403 Westbound Ramp was determined, pursuant to the MTO suggestion, and Council direction. Based on the preliminary investigation and discussions, it was concluded that the environmental impact will be less for the Mohawk Road Ramp, when compared to the Main Street West Ramp. The Mohawk Road ramp is also less costly and technically preferred. This was also the option preferred by the residents.

There are two (2) alternatives for the Committee to consider:

1. Not to approve the recommendations in consideration of the project's capital cost. This option is not recommended as the transportation problems will not be addressed.
2. Include the Mohawk Road Westbound Ramp proposal as part of the MTO's Niagara to GTA Corridor Study recommendation for the Highway 403 widening/reconstruction works. Widening of Highway 403, as part of the Niagara to GTA study is one of the solutions. At this point it is uncertain whether this will be a final recommendation and what the timing of the implementation will be.

ALIGNMENT TO THE 2012 - 2015 STRATEGIC PLAN

Strategic Priority #2

Valued & Sustainable Services

WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.

Strategic Objective

2.2 Improve the City's approach to engaging and informing citizens and stakeholders.
2.3 Enhance customer service satisfaction.
2.4 Supports improvement of Transportation Infrastructure facilities. Construction of Mohawk Road Ramp provides better road network connectivity and direct access to westbound Highway 403

Strategic Priority #3

Leadership & Governance

WE work together to ensure we are a government that is respectful towards each other and that the community has confidence and trust in.

Strategic Objective

3.1 Engage in a range of inter-governmental relations (IGR) work that will advance partnerships and projects that benefit the City of Hamilton.

3.5 The Mohawk Road ramp project was undertaken in consultation and close co-ordination with the Ministry of Transportation.

APPENDICES AND SCHEDULES ATTACHED

None

PUBLIC WORKS COMMITTEE

REPORT 14-011

AS AMENDED

9:30 a.m.
Monday, September 15, 2014
Council Chambers
Hamilton City Hall
71 Main Street West

Present: Councillors T. Whitehead (Chair), S. Merulla (Vice Chair), C. Collins, S. Duvall, L. Ferguson, T. Jackson, B. McHattie, R. Pasuta, R. Powers

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THE PUBLIC WORKS COMMITTEE PRESENTS REPORT 14-10 AND RESPECTFULLY RECOMMENDS:

1. Intersection Control List (PW14001(d)) (Wards 2, 7, 8, 10, 12 14, 15) (Item 5.1)

That the appropriate By-law be presented to Council to provide traffic control as outlined in Appendix A to Public Works Committee Report 14-010.

2. Investigation Regarding Flooding Concerns on Lake Avenue Drive (PW13065(b)) (Ward 9) (Item 5.2)

That Report PW130659(b) respecting an Investigation Regarding Flooding Concerns on Lake Avenue be received.

3. Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment (PW14107) (Ward 2) (Item 5.3)

(a) That the General Manager, Public Works, be authorized and directed to file the Notice of Completion and issue the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment for the mandatory 30-day review period;

(b) That upon completion of the 30-day agency and public review period, the General Manager, Public Works, be authorized and directed to proceed with the implementation of the preferred alternatives within the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment;

(c) That the General Manager, Public Works, be authorized and directed to proceed with the Emergency Overflow Schedule "C" Municipal Class Environmental Assessment study;

(d) That the Class "D" estimated costs to implement the preferred alternatives and complete the Emergency Overflow Schedule "C" Class Environmental Assessment study ($1,650,000 and $200,000 respectively) be funded as part of the 2015 Capital Budget including an allowance of an additional $600,000 subject to refinement as part of the Schedule "C" undertaking.

4. Assessment of Development Intensification in Rural Drainage Neighbourhoods, Community of Ancaster (PW140105) (Ward 12ide) (Item 5.4)

That Report PW14105 respecting an Assessment of Development Intensification in Rural Drainage Neighbourhoods, Community of Ancaster be received.

5. Binbrook TransCab Update (PW13058(a)) (Ward 11) (Item 5.5)

(a) That the General Manager of Public Works be authorized and directed to extend the Binbrook HSR TransCab service for an additional ten (10) months, from September 2014 until June 2015, to be funded from the remaining $225,000 tax stabilization reserve budget approved in 2013;

(b) That the General Manager of Public Works be directed to incorporate Binbrook HSR TransCab service as a service enhancement in the 2015 Transit Operating Budget.

6. Capital Status Report as of June 30, 2014 (PW14112) (City Wide) (Item 5.6)

(a) That Appendix A attached to Report PW14112 respecting the "Tax Supported Capital Status of each Project by Program" be approved;

(b) That Appendix B attached to Report PW14112 respecting the "Rate Supported Capital Status of each Project by Program" be approved.

7. Truck Route Sub-Committee, Portable Weigh Scales – Police Enforcement Tool (PW14113) (City Wide) (Item 8.1)

That Report PW14112 respecting the Truck Route Sub-Committee, Portable Weigh Scales – Police Enforcement Tool be received.

8. 2014 Transit Capital Fleet Replacement and Compressed Natural Gas (CNG) Station Replacement (PW12017(c)) (City Wide) (Item 8.2)

(a) That the General Manager of Public Works be authorized to enter into all necessary agreements with Union Gas Limited (Union) for the design, construction and maintenance of a compressed natural gas station at the City's Transit facility at 2200 Upper James Street, in a form approved by the City Solicitor, with the understanding that the capital contribution will not exceed $3,600,000, to be funded from the Transit Provincial Gas Tax Reserve (Reserve #112204);

(b) That the General Manager of Public Works be directed to enter into an agreement up to twenty (20) years with Union, using the Business Terms outlines in the attached Union Gas Proposal to Design, Build, Own and Maintain a Compressed Natural Gas (CNG) Fuelling Station at the City's/HSR's Mountain Transit Centre (MTC).

9. Queen Street North Two-Way Conversion (PW14101) (Ward 1) (Item 8.3)

That Queen Street North between Stuart Street and Barton Street West remain a two-way street.

10. Transportation Master Plan Update (PW14104) (City Wide) (Item 8.4)

That the General Manager of Public Works be authorized to transfer capital funds from capital project 4031055369, Specific-Area Transportation Master Plans, to 4031355310, Hamilton Transportation Master Plan Update, in the amount of $260,000 (inclusive of project contingency) to cover the shortfall associated with the Request for Proposals submissions for C-11-05-14 "Consulting Services required for Hamilton Transportation Master Plan, five-year Review and Update", for the proposal which achieved the highest technical score and lowest compliant bid ($578,957).

11. Presto Fare Card System Pilot Project (PW04117(f)) (City Wide) (Item 8.5)

(a) That the General Manager of Public Works be authorized and directed to undertake a ten month pilot project with Loblaws Inc. as a single source vendor, in accordance with Procurement Policy By-law No. 13-317, Section 4.11 Non-competitive Procurements, for the purposes of selling and reloading PRESTO smartcards;

(b) That the General Manager of Public Works be authorized and directed to negotiate and execute an agreement between the City of Hamilton and Loblaws Inc. to implement the pilot project in Recommendation (a) of Report PW04117f, together with all necessary associated documents, with content acceptable to the General Manager of Public Works, and in a form acceptable to the City Solicitor.

12. Highway 403 Westbound On-Ramp at Mohawk Road (PW12051(a) (Ward 12) (Item 8.6)

(a) That the General Manager, Public Works Department, be authorized to continue detailed discussions with the Ministry of Transportation (MTO), to address the Ministry's concerns and receive written approval for the City of Hamilton to proceed with the next stage of the Highway 403 Westbound On-Ramp at Mohawk Road study process;

(b) That the General Manager, Public Works Department, be authorized and directed to file the Mohawk Road On-Ramp Environmental Study Report (ESR) with the Municipal Clerk for a minimum thirty (30) day public review period, subject to MTO's written acceptance of the ESR, study findings and recommendations;

(c) That the General Manager, Public Works Department, be authorized and directed to include three hundred thousand dollars ($300,000) as part of the 2015 Capital Budget deliberations for undertaking the next stages of the Highway 403 Westbound On-Ramp at Mohawk Road study process, including risk analysis, design and tender documentation including related municipal local roads as detailed in the financial section of this report;

(d) That the General Manager, Public Works Department, be directed to report back to Council on the status of the Highway 403 Westbound On-Ramp at Mohawk Road and recommend a financing strategy;

(e) That the General Manager, Public Works Department, be authorized and directed to conduct negotiations with the MTO to explore cost-sharing options related to the full cost of design and constructing the Highway 403 Westbound On-Ramp at Mohawk Road project.

13. Hamilton Utilities Corporation Joint Advisory Committee Report 14-001, September 2, 2014 (Item 8.7)

That the Hamilton Utilities Corporation Joint Advisory Committee Report 14-001, September 2, 2014 be received.

14. Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to HCE Energy Inc. (City Wide) (Added Item 10.2)

(a) That the sale of the City's District Cooling System (DCS) Assets to Hamilton Utilities Corporation (HUC) or its wholly owned subsidiary, HCE Energy Inc. (HCE), at a purchase price of $10.5 million be approved subject to the following agreements being prepared to the satisfaction of the City Solicitor, the General Manager of Public Works and the General Manager of Finance and Corporate Services:

(i) An asset purchase and sale agreement pursuant to which HUC or HCE will acquire the assets of the City's (DCS) Assets including the City's Central Utility Plant (CUP);

(ii) An energy services agreement (ESA) pursuant to which the City will purchase cooling services from HUC or HCE over a 25 year term;

(iii) A 25-year licence of the space required for the use of the District Cooling System Assets by HUC or HCE.

(b) That staff be directed to apply the cash payment from HUC or HCE. of $2.4 million on closing to the City of Hamilton's outstanding district cooling system loan;

(c) That, subject to all required approvals, the City of Hamilton provide an interest-bearing loan at an interest rate of 4.06% to the HUC or HCE of $8.1 million to be repaid in full within 25 years from the date of the loan advance;

(d) That principal repayment of $8.1 million over the term of 25 years be applied to the Central Utilities Plant (CUP's) Control Centre and Building Automation system to an upset limit of $1.5 million, and the balance of $6.6 million be applied to the Unallocated Capital Reserve (108020) for investments towards local neighbourhood roads and sidewalks;

(e) That any future increase in dividend associated to this transaction be applied to reduce future tax levy increases;

(f) That staff report back through the 2015 Budget Process on the required redeployment of 2 FTEs from the CUP to other corporate facilities;

(g) That the Mayor and City Clerk be authorized and directed to execute all agreements referred to in subsections (a) through (f) above, together with all other necessary documents, in a form satisfactory to the City Solicitor and with content acceptable to the General Manager of Finance and Corporate Services and the General Manager of Public Works.

15. Borer's Falls Dog Park Site Evaluation (PW14096(a)) (Ward 13) (Added Item 8.8)

(a) That the City's Responsible Animal Ownership By-law 12-031 be amended to change the hours in which Borer's Falls Dog Park (Dog Park) is open to the public from 6:00 a.m. to 11:00 p.m. year round, to 7:00 a.m. to 9:00 p.m. from April 1 through October 31 and 7:00 a.m. to 6:00 p.m. from November 1 through March 31;

(b) That a new internal fence be constructed dividing the Dog Park's naturalized area from its open space to establish a fifty foot buffer between the open space used by dog owners and the adjacent property owner;

(c) That fence line plantings be further enhanced with additional vegetation, as required, with conifers for year round visual screening;

(d) That capital improvements for signage, fencing and additional vegetation plantings be funded from the Leash Free Park Reserve - Dept. ID #112202;

16. Tree Removal at 7 Atkins Drive, Hamilton (Item 9.1)

That Forestry staff be directed to remove the tree located at 7 Atkins Drive, Hamilton.

17. Tree Removal at 819 Garth Street, Hamilton (Item 9.2)

That Forestry staff be directed to remove the tree located at 819 Garth Street, Hamilton.

18. Installation of a Stop Control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton (Item 9.3)

(a) That an all way stop control be installed at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; and,

(b) That the appropriate amending By-law, to install an all way stop control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; be passed.

19. Tree Removal at 20 Mount Pleasant Drive (Ward 6) (Added Item 10.1)

That Forestry staff be directed to remove the tree located at 20 Mount Pleasant Drive, Hamilton.

20. Tree Removal at ~~814~~ 714 Limeridge Road East (Added Item 10.3)

That staff be directed to remove the tree located at ~~814~~ 714 Limeridge Road East.

21. Tree Removal at 162 St. Andrews Drive (Added Item 10.4)

That staff be directed to remove the tree located at 162 St. Andrews Drive.

22. Water Filling Stations at the Pan Am Stadium (Added Item 10.5)

(a) That, upon substantial completion of the Pan Am Stadium, staff be directed to install water filling stations on the concourse level of the Pan Am Stadium; and,

(b) That staff, in consultation with the Hamilton Tiger Cats, formulate a policy to allow visitors to the Pan Am Stadium to bring in empty, appropriate containers to use at water filling stations.

FOR THE INFORMATION OF THE COUNCIL:

(a) APPROVAL OF THE AGENDA (Item 1)

The Committee Clerk advised of the following changes to the agenda.

(i) Added as Item 4.1 – a Delegation Request from Matthew Di Vona, Davis Howe Partners LLP, respecting the Hopkins Dog Park (for today's meeting)

(ii) Added as Item 8.8 – Discussion Item respecting the Borer's Falls Dog Park Site Evaluation (PW14096(a))

(iii) Added as Item 10.1 - a Notice of Motion respecting a Tree Removal at 20 Mount Pleasant Drive (Ward 6)

(iv) Added as Item 10.2 – a Notice of Motion respecting…

The September 15, 2014 Public Works Committee Agenda was approved as amended.

(b) DECLARATIONS OF INTEREST (Item 2)

Councillor Powers declared an interest respecting Items 4.1 a Delegation Request from Matthew Di Vona respecting the Hopkins Dog Park, Item 6.1 a Delegation from Matthew Di Vona respecting the Hopkins Dog Park and Item 8.8 respecting the Borer's Falls Dog Park – Site Evaluation (PW14096(a)) (Ward 13) because of solicitor/client advice that he has received.
Councillor Powers advised that he will refrain from discussion and voting on Items 4.1, 6.1, and 8.8 and that he will excuse himself from Council Chambers when these items are being discussed.

(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 3)

The Minutes of the September 2, 2014 Public Works Committee meeting were approved as presented.

(d) DELEGATION REQUESTS (Item 4)

(i) Delegation request for Today's Meeting, from Matthew Di Vona, Davis Howe Partners LLP, respecting the Hopkins Dog Park (Added Item 4.1)

The delegation request from Matthew Di Vona, Davis Howe Partners LLP, respecting the Hopkins Dog Park, was approved for today's meeting.

(e) CONSENT ITEMS (Item 5)

(i) Minutes of Various Sub-Committees (FOR INFORMATION PURPOSES ONLY) (Item 5.1)

The Minutes of the Glanbrook Landfill Coordinating Committee – May 26, 2014 were received.

(f) PUBLIC HEARINGS/DELEGATIONS (Item 6)

(i) Delegation from Matthew Di Vona (Added Item 6.1)

Mr. Di Vona addressed the Committee respecting the Hopkins Dog Park. Mr. Di Vona advised that he is counsel to Ms. Shirley Hawkins who owns property adjacent to the dog park. Mr. Di Vona stated that progress has been made on the concerns of his client but he feels that there is still more to do. Mr. Di Vona supports the recommendations in PW Report 14096(a) but would like the issues respecting the landscape plan for future plantings to be addressed.

The delegation from Matthew Di Vona respecting the Hopkins Dog Park was received.

(g) PRESENTATIONS

(i) 2014 Capital Budget Preamble (Item 7.1)

Mr. Gary Moore, Director, Engineering Services, presented the 2014 Capital Budget Preamble to the Committee with the aid of a PowerPoint presentation. A copy of the presentation has been retained for the public record.

The presentation included, but was not limited, to the following:

- Key Accomplishments
  - Road Network Impacts
  - Sidewalk Network Impacts
  - Council Priority Program
  - Area Rating Projects
- Challenges
- Area Rating Project Scope Review
- Capital Project Timelines
- Project Preparation
- Area Rating Funds (staff resources)
- Looking Ahead – 2015-2024 Levy Allocation
- 25 Year Roads Levels of Service
- Neighbourhood Asset Preservation – Local Roads

The presentation respecting the 2014 Capital Budget Preamble was received.

(ii) Highway 403 Westbound On-Ramp at Mohawk Road (Item 7.2)

The presentation respecting the Highway 403 Westbound On-Ramp at Mohawk Road was waived.

(iii) Update on the Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to Hamilton Utilities Corporation (Item 7.3)

Mr. Geoff Lupton, Director, Energy, Fleet and Traffic, and Mr. Brian McMullen, Director, Financial Planning and Policy, presented information to the Committee respecting Update on the Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to Hamilton Utilities Corporation with the aid of a PowerPoint presentation. A copy of the presentation has been retained for the public record.

The presentation included, but was not limited, to the following:

- Outline of "Who's Who"
- Previous Direction
- Current Direction
- Proposed Recommendations
- The City's Objectives
- Hamilton Utilities Objectives
- Proposed Sale Structure
- Reasons for Selling
- Financial Overview
  - Central Utilities Plan Budget – Potential Impact
  - Transfer – Efficiencies
  - Transfer – Avoided Costs
  - Transfer – Potential Benefits

The presentation respecting Update on the Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to Hamilton Utilities Corporation was received.

(h) MOTIONS (Item 9)

(i) Tree Removal at 7 Atkins Drive, Hamilton

Councillor S. Merulla assumed the Chair in order to allow Chair Whitehead to vacate the Chair to introduce the following Motion.

That Forestry staff be directed to remove the tree located at 7 Atkins Drive, Hamilton.

For disposition on this matter refer to Item 16.

(ii) Tree Removal at 819 Garth Street, Hamilton

Councillor S. Merulla assumed the Chair in order to allow Chair Whitehead to vacate the Chair to introduce the following Motion.

That Forestry staff be directed to remove the tree located at 819 Garth Street, Hamilton.

For disposition on this matter refer to Item 17.

(iii) Installation of a Stop Control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton

Councillor S. Merulla assumed the Chair in order to allow Chair Whitehead to vacate the Chair to introduce the following Motion.

(a) That an all way stop control be installed at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; and,

(b) That the appropriate amending By-law, to install an all way stop control at Davinci Boulevard and Michelangelo Lane (to the west) and Sistine Court (to the east), Hamilton; be passed.

For disposition on this matter refer to Item 18.

(i) NOTICES OF MOTIONS (Item 10)

Councillor Jackson introduced the following Notice of Motion:

(i) Tree Removal at 20 Mount Pleasant Drive (Ward 6) (Added Item 10.1)

Whereas the residents of 20 Mount Pleasant Drive have indicated that the 30cm healthy Linden City of Hamilton tree is infested with aphids which are attracting wasps causing a nuisance; and

Whereas the wasp infestation has in the past resulted in the hospitalization of the homeowner and poses further potential health problems; and

Whereas the property owners of 20 Mount Pleasant Drive has expressed their desire to their Ward Councillor that the City remove the tree;

Therefore be it resolved:

That Forestry staff be directed to remove the tree located at 20 Mount Pleasant Drive, Hamilton.

The rules of order were waived to allow the introduction of a Motion respecting a Tree Removal at 20 Mount Pleasant Drive.

For disposition on this matter refer to Item 19.

Councillor Ferguson introduced the following Notice of Motion:

(ii) Proposed Sale of the City of Hamilton's District Cooling System (DCS) Assets to HCE Energy Inc.) (Added Item 10.2)

(a) That the sale of the City's District Cooling System (DCS) Assets to Hamilton Utilities Corporation (HUC) or its wholly owned subsidiary, HCE Energy Inc. (HCE), at a purchase price of $10.5 million be approved subject to the following agreements being prepared to the satisfaction of the City Solicitor, the General Manager of Public Works and the General Manager of Finance and Corporate Services:

(i) An asset purchase and sale agreement pursuant to which HUC or HCE will acquire the assets of the City's (DCS) Assets including the City's Central Utility Plant (CUP);

(ii) An energy services agreement (ESA) pursuant to which the City will purchase cooling services from HUC or HCE over a 25 year term;

(iii) A 25-year licence of the space required for the use of the District Cooling System Assets by HUC or HCE..

(b) That staff be directed to apply the cash payment from HUC or HCE . of $2.4 million on closing to the City of Hamilton's outstanding district cooling system loan;

(c) That, subject to all required approvals, the City of Hamilton provide an interest-bearing loan at an interest rate of 4.06% to the HUC or HCE of $8.1 million to be repaid in full within 25 years from the date of the loan advance;

(d) ~~That principal repayment of $8.1 million over the term of 25 years be applied to Energy Reserve (112272)~~ That principal repayment of $8.1 million over the term of 25 years be applied to the Central Utilities Plant (CUP's) Control Centre and Building Automation system to an upset limit of $1.5 million, and the balance of $6.6 million be applied to the Unallocated Capital Reserve (108020) for investments towards local neighbourhood roads and sidewalks;

(e) That any future increase in dividend associated to this transaction be applied to reduce future tax levy increases;

(f) ~~That any future increase in dividend associated to this transaction be applied to reduce future tax levy increases;~~ That staff report back through the 2015 Budget Process on the required redeployment of 2 FTEs from the CUP to other corporate facilities;

(g) That the Mayor and City Clerk be authorized and directed to execute all agreements referred to in subsections (a) through (f) above, together with all other necessary documents, in a form satisfactory to the City Solicitor and with content acceptable to the General Manager of Finance and Corporate Services and the General Manager of Public Works.

For disposition on this matter refer to Item 14.

Councillor Duvall introduced the following Notice of Motion:

(iii) Tree Removal at ~~814~~ 714 Limeridge Road East(Added Item 10.3)

That staff be directed to remove the tree located at ~~814~~ 714 Limeridge Road East.

The rules of order were waived to allow the introduction of a Motion respecting a Tree Removal at ~~814~~ 714 Limeridge Road East.

For disposition on this matter refer to Item 20.

Councillor Merulla introduced the following Notice of Motion:

(iv) Tree Removal at 162 St. Andrews Drive (Added Item 10.4)

That staff be directed to remove the tree located at 162 St. Andrews Drive.
The rules of order were waived to allow the introduction of a Motion respecting a Tree Removal at 162 St. Andrews Drive.

For disposition on this matter refer to Item 21.

Councillor Ferguson introduced the following Notice of Motion:

(v) Water Filling Stations at the Pan Am Stadium (Added Item 10.5)

(a) That, upon substantial completion of the Pan Am Stadium, staff be directed to install water filling stations on the concourse level of the Pan Am Stadium; and,

(b) That staff, in consultation with the Hamilton Tiger Cats, formulate a policy to allow visitors to the Pan Am Stadium to bring in empty, appropriate containers to use at water filling stations.

The rules of order were waived to allow the introduction of a Motion respecting Water Filling Stations at the Pan Am Stadium.

For disposition on this matter refer to Item 22.

(j) GENERAL INFORMATION/OTHER BUSINESS (Item 11)

(i) Outstanding Business List (Item 11.1)

(a) The following Items were considered complete and removed from the Outstanding Business List:

(1) Item E – Binbrook Urban Area Transit Service

(2) Item F – Two Way Conversion of Queen Street North between Stuart Street and Barton Street West

(3) Item K – CNG Stations Agreement

(4) Item T – Portable Weight Scales

(k) ADJOURNMENT (Item 13)

There being no further business, the Public Works Committee adjourned at 12:58 p.m.

Respectfully submitted,

Councillor T. Whitehead, Chair
Public Works Committee

Lauri Leduc
Legislative Coordinator
Office of the City Clerk

Meeting Minutes

October 7, 2014
Our File: TP113070-75

Subject: Mohawk Road Ramp to Westbound Highway 403
Feasibility and Class EA Study
MTO Traffic Analysis Meeting

Date: October 3, 2014

Time: 10:00 a.m.

Location: MTO Central Region, 1201 Wilson Avenue, Downsview – Building D 4th Floor Boardroom

In Attendance:

Lorissa Skrypniak	➢	City of Hamilton, Transportation Planning
Bart Brosseau	➢	City of Hamilton, Transportation Planning
James Scale	➢	AMEC
Steve Keen	➢	CIMA
Hossam Abdelgawad	➢	CIMA
Bill Cung	➢	MTO – Planning and Design
Goran Nikolic	➢	MTO – Traffic Planning
Chris Pasco	➢	MTO – Traffic Planning
Qazi Nasrullah		MTO – Traffic Office
Kenneth Shannon	➢	MTO – Planning and Design
Graziano Masiello	➢	MTO – Environmental Section

Regrets:

Mohan Philip	➢	City of Hamilton, Transportation Planning
David Sinke	➢	AMEC

MATTERS DISCUSSED: **ACTION BY:**

1. Steve Keen began a presentation outlining decisions made to date regarding the micro—simulation analysis completed by CIMA and the latest results (see attached).

2. Previous 2031 macro-forecasts on Hwy 403 were found to be too high given the metering effect of upstream conditions on Hwy 403 and the lack of traffic growth over the last decade. It was agreed with MTO that the ultimate forecasts, without future Hwy 403 six (6) lane widening, would be capped at 4,000 veh/hr for the Hwy 403 Brantford-bound lanes and 1,500 for the Linc to Hwy 403 Brantford-bound Ramp.

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MATTERS DISCUSSED: **ACTION BY:**

3. Micro-simulation had been updated based on the revised traffic volumes with a closer focus on two merges; the Linc to Hwy 403 Brantford-bound Ramp and the proposed Mohawk Road Ramp with the Linc to Hwy 403 Brantford-bound Ramp.

4. Additional videos were taken along the Hwy 403 Brantford-bound lanes and the Linc to Hwy 403 Brantford-bound Ramp in September 2014 to supplement videos taken in May 2014. Several video recordings were then shown along with the micro-simulation runs that represent the same time periods. Observations made on the videos and micro-simulations include:

   - Drivers at this location are not aggressive and do not use the full extent of acceleration lanes or tapers as is normally seen in the GTA (micro-simulation driver-behaviour parameters were adjusted to represent this as best as possible);
   - The Linc to Hwy 403 Brantford-bound Ramp is mostly free-flow with slow-downs approaching the merge but rarely queues; and,
   - Hwy 403 Brantford-bound lanes are saturated as a result of the down-stream lane reduction from three (3) to two (2) lanes with queues extending just west of the Linc to Hwy 403 Brantford-bound Ramp bullnose with Hwy 403.

5. Several Mohawk Ramp demand scenarios (for sensitivity testing) were undertaken assuming PM peak hour demand of 0, 100 and 200 veh/ hr without future Hwy 403 six (6) lane widening. The results of the micro-simulation indicate the following:

   - There is not a significant impact on Hwy 403 Brantford-bound queuing as the minor volumes (estimated to be ~65 veh/hr) on the proposed Mohawk Road Ramp are metered onto Hwy 403 as a result of the merge with the Linc to Hwy 403 Brantford-bound Ramp traffic; and,
   - Queues on the Linc to Hwy 403 Brantford-bound Ramp are shown to form in the ultimate PM peak scenario and at their worst, the 95% queue for a Mohawk Road Ramp traffic demand of 100 veh/ hr (slightly higher than the forecast of 65) is 738m, and extends approximately half the length of the Linc to Hwy 403 Brantford-bound Ramp.

6. Previous micro-simulation demonstrated that implementation of future HOV lanes on Hwy 403 did not address future Hwy 403 traffic demands through the study area, and that an additional third general purpose lane is required to address current and future Hwy 403 queuing west of the Linc to Hwy 403 Brantford-bound Ramp bullnose with Hwy 403. Timing of MTO's construction of the six (6) lane widening of Hwy 403 through the study area has not been confirmed and is subject to further environmental assessment and preliminary design.

MATTERS DISCUSSED: **ACTION BY:**

7. The speed diagrams associated with the micro-simulation runs were also presented showing minimal impact of the Mohawk Road Ramp on Hwy 403 Brantford-bound traffic due to the metering effect of the merge of the Mohawk Road Ramp traffic with the Linc to Hwy 403 Brantford-bound Ramp traffic upstream of the Linc to Hwy 403 Brantford-bound Ramp bullnose with Hwy 403.

8. AMEC completed a geometric assessment to verify impacts associated with construction of the Hwy 403 Brantford-bound Mohawk Road Ramp on the MTO's ability to implement future localized operational improvements to address queuing of traffic on the existing Linc to Hwy 403 Brantford-bound Ramp. Specifically, the MTO requested the City of Hamilton to verify that construction of the Mohawk Road Ramp would not preclude the MTO from converting the Linc to Hwy 403 Brantford-bound Ramp from a single lane to a two (2) lane entrance onto Hwy 403.

   Conceptual lane configurations were developed to verify the theoretical lane terminations required to meet requirements of the MTO Geometric Design Standards for Ontario Highways, determine the lane arrangements at the Southcote Rd and Golf Links Rd underpass structures, and any physical impacts to the existing Hwy 403 Brantford-bound speed change lane at Hwy 6. A detailed horizontal geometric layout was not completed as part of the assessment.

   The following conclusions were derived from the assessment assuming the ultimate third Hwy 403 Brantford-bound general purpose lane will not be constructed:

   - There are no physical impacts to the Hwy 403 SCL at Hwy 6 with the proposed Mohawk Road Ramp, however the separation between the termination of the TCL lane and the start of the Hwy 6 speed change lane including lane tapers is 215m;
   - Minimum rural and urban median shoulder widths of 1.5m and 3.0m respectively can be maintained as per MTO and GDSOH requirements along with a minimum half median width of 6.2m;
   - An independent horizontal alignment will be required for Hwy 403 westbound lanes to address constraints imposed by the Southcote Rd and Golf Links Rd underpasses and mitigate property impacts; and
   - The ultimate outside Hwy 403 westbound edge of pavement can be maintained within acceptable limits of the currently proposed outside edge of pavement with no anticipated impacts to property.

MATTERS DISCUSSED: **ACTION BY:**

9. It is AMEC/ CIMA's opinion that modifying the Linc to Hwy 403 Brantford-bound Ramp to a two (2) lane entrance will likely have a negative impact on queuing on Hwy 403 given the fact that both Hwy 403 and the Linc to Hwy 403 Brantford-bound Ramp are operating at capacity. The lane reduction on the Linc to Hwy 403 Brantford-bound Ramp is metering access immediately upstream of the current Hwy 403 queue. A number of alternative improvements on Hwy 403 could be considered to address queuing on Hwy 403, which in turn may impact the level of service on the Linc to Hwy 403 Brantford-bound Ramp; however, the analysis is outside AMEC/ CIMA's current scope of work.

10. Current ownership of the Linc to Hwy 403 Brantford-bound Ramp was questioned. MTO and the City of Hamilton will review internally to verify ownership. **City Hamilton/ MTO**

11. MTO requested confirmation of the following: **AMEC**
    - The minimum separation required between the termination and development of successive freeway speed change lane tapers; and,
    - The stopping sight distance on the Linc to Hwy 403 Brantford-bound Ramp to verify sight distance is maintained for vehicles approaching the potential queue on the ramp.

12. In the discussion that followed, the MTO Traffic Planning Office indicated that the micro-simulation provided a realistic representation of existing and proposed traffic behavior. They expressed concern regarding the length of queue developed on the Linc to Hwy 403 Brantford-bound Ramp by the introduction of the Mohawk Road Ramp; especially given the fact that the ramp is a freeway to freeway ramp.

13. Further discussion between the City of Hamilton and MTO will be required following confirmation of the action items above prior to proceeding to a MTO Engineering Approval meeting.

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

James Scale

Per: James Scale, P. Eng.
Associate, Transportation Engineering

JS/js
Attach. – Meeting presentation

c.c. All Attendees and regrets

Minutes of Meeting

Date: December 1, 2014 – 2:00 p.m. **Meeting at:** Teleconference

Subject/purpose **Our File:** TP113070-75

Mohawk Road Ramp to Westbound Highway 403
Feasibility and Class EA Study
Teleconference with MTO

Attendees:

Mohan Philip	➢	City of Hamilton	Steven Keen	➢	CIMA
Lorissa Skrypniak	➢	City of Hamilton	Jim Scale	➢	AMEC
Bart Brosseau	➢	City of Hamilton	David Sinke	➢	AMEC
Bill Cung	➢	MTO			
Fabio Saccon	➢	MTO			
Qazi Nasrullah	➢	MTO			

Discussion: **Action By:**

1. Prior to the meeting held with MTO on October 3, 2014, CIMA had submitted updated micro-simulation based on capping volumes, and AMEC had submitted an assessment of geometric design options. Bill Cung confirmed that the modelling submitted to MTO and reviewed on October 3, 2014 was subsequently reviewed by MTO staff and has now been approved. The modeling completed indicates 95%ile queuing on the Linc to Highway 403 Brantford-bound ramp of over 700 m in 2031, based on the modified bullnose location west of the existing bullnose and a higher than forecast demand of 100 veh/hr. Bill Cung noted that the results of the modeling have been discussed with MTO senior management and senior management has stated that the projected 2031 queuing is unacceptable.

PLEASE NOTE: If there is any comment or amendment to be made to these meeting notes, they must be brought to the notice of Amec Foster Wheeler within 24 hours of issue and confirmed in writing

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2. Bill Cung noted that the modelling indicates that without construction of the ramp, zero queuing will occur. AMEC noted that with the revised bullnose being moved downstream into queuing occurring on Highway 403, that some of the queuing occurring is simply storage on the ramp which would occur on Highway 403 without modifications made (widening of Hwy).

3. Bill Cung advised that in order to proceed, a legal agreement will need to be entered into committing the City of Hamilton to mitigate the queuing issue in the future, should the City proceed to construction of the ramp without a solution incorporated into the contract. Alternatively, the solution to queuing would be incorporated into the contract at Day 1.

4. AMEC inquired about triggers which could be measured to warrant proceeding with the remedial work, such as length of, and frequency of, queuing. Bill Cung to consult with MTO senior management to confirm triggers. **MTO**

5. The City pointed out that it will be difficult to determine if the queuing is a direct result of the introduction of the ramp or due to other factors. The current analysis is based on the Hwy403 traffic volume capped in consideration of the metering effect occurring upstream.

6. The City of Hamilton noted that queuing on both the ramp and on Highway 403 are the result of a lack of capacity on Highway 403, in combination with termination of the truck climbing lane, which would be addressed with widening. The City cannot be held responsible for mitigating the queuing issue in the future as it is not their facility.

7. CIMA reiterated queuing on Highway 403 will lead to the queuing on the Linc ramp, and that queuing on the Linc ramp will not be mitigated by extending the 2-lane section on the ramp – such an action would only increase the queuing storage capacity.

8. AMEC suggested that a potential solution would be to extend the truck-climbing lane past Southcote, terminating either just east of or at Highway 6. Potential benefits to both queuing on Highway 403 and future queuing on the Linc ramp would need to be modelled to confirm that a benefit will be realized.

9. AMEC suggested that given that this solution could potentially have benefits to MTO, that cost sharing between the City and MTO could be considered. MTO to discuss this potential cost sharing with MTO senior management. **MTO**

10. MTO suggested that an alternative solution could be to separately terminate the Linc ramp and the Mohawk Road ramp at the truck–climbing lane, keeping both ramps separate as they run parallel with a physical separation. AMEC expressed concern that physical constraints at Golf Links would preclude this solution. MTO noted this configuration is preferred in the GDM and is similar to a Parclo A4 interchange configuration.

11. The City asked if this will affect the exit to Hwy 6 in terms of merging and weaving.

12. The potential of ramp metering on the Mohawk Road ramp was discussed. MTO noted that the frequency of departure would need to be far less frequent then what is normally implemented. Even without ramp metering, the demand on the ramp is only one vehicle every 18 seconds on average, assuming a volume of 200 veh/hr.

13. MTO to provide a formal response to the City of Hamilton to the updated micro-modelling and geometric assessment submitted prior to the October 3, 2014 meeting. **MTO**

14. Following receipt of the formal response, Hamilton staff will forward the response to City of Hamilton senior management for consideration of an appropriate course of action which may include additional modeling of an extended truck-climbing lane, investigation of potential benefits to Highway 403 queuing and future Linc ramp queuing, and preparation of a functional design investigating feasibility of the truck-climbing lane extension, etc. **Hamilton**

Meeting Minutes prepared by,

AMEC ENVIRONMENT & INFRASTRUCTURE,
a division of AMEC Americas Limited

David Sinke

Per: David Sinke, P. Eng.
Principal, Transportation Engineering

LDS/kf

c.c. Sonya Kapusin – CIMA

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Minutes

Date:	January 15, 2016
File #:	TP113070-75
Meeting Date & Time:	December 11, 2015 at 10:00 a.m.
Meeting at:	MTO Central Region, Downsview - 5th Floor Boardroom
Subject:	Mohawk Road Ramp to Westbound Highway 403 Feasibility and Class EA Study

Attendees:

Mohan Philip, City of Hamilton
Al Kirkpatrick, City of Hamilton
Lorissa Skrypniak, City of Hamilton
Hossein Hosseini, MTO
Martin Michalek, MTO
Ehab Armanious, MTO
Fabio Saccon, MTO Traffic
Goran Nikolic, MTO Traffic
Behzad Rouhieh, CIMA
Ali Hadayeghi, CIMA
David Sinke, Amec Foster Wheeler
Jim Scale, Amec Foster Wheeler

MATTERS DISCUSSED **ACTION BY:**

1. The purpose of this meeting was to review traffic operations issues related to the proposed ramp from Mohawk Road to Westbound Highway 403.

2. MTO noted that they have signed off on the proposed geometric design, are supportive of the project and would like to proceed, however, there are several issues to be resolved. MTO noted their intention to work in technical partnership with the City of Hamilton to advance the project.

3. Amec Foster Wheeler provided a summary presentation of background, modeling and design development to date.

4. MTO Traffic noted their endorsement of the technical approach to modeling, however, MTO noted concerns with the extent of the queues on the Linc ramp, which is owned by MTO. Due to these concerns, the MTO completed some in-house modeling of queue lengths in 2008 and 2031, with and without the Mohawk/Highway 403 westbound ramp, for different ramp traffic volume scenarios. A summary table was provided at the meeting by MTO.

PLEASE NOTE: If there is any comment or amendment to be made to these meeting notes, they should be brought to the notice of Amec Foster Wheeler within 24 hours of issue and confirmed in writing

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Amec Foster Wheeler Environment & Infrastructure
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Registered in Canada No. 773289-9; GST: 899879050 RT0008; DUNS: 25-362-6642

MATTERS DISCUSSED **ACTION BY:**

5. MTO noted that their concern is not with respect to the theoretical increase in queues on Highway 403 westbound, due to upstream metering, but their concern lies with the length of the queue on the Linc ramp. The projected length of queue varies from 190 m to 1200 m, depending on the scenario. If the Mohawk Road to Highway 403 westbound ramp is not constructed, no queuing is predicted. The MTO's particular concern is the increase in collision risk due to the increase in the queue length and potential termination of the queue on the Linc to Highway 403 ramp resulting in reduced visibility of stopped vehicles. The end of the queue length will be dynamic.

6. Due to the risk of a potential increase in collision frequency, particularly the risk of rear-end collisions at the end of queue, MTO suggests a co-operative agreement between the City of Hamilton and MTO, which would define a course of action in the event that collision frequency increases. The agreement would be a legal agreement which would define the threshold for action and the measures to be implemented, should the threshold be exceeded. These measures could include the following:

   .1 An automated queue end warning system. Such a system, based on current technology, involves periodically spaced sensors along the ramp providing input to a computer algorithm which can then determine the end of the queue. A changeable message sign would provide appropriate warning to motorists.

   .2 In the event that the queue end warning system is ineffective, closure of one lane of the existing two-lane ramp would be to the end of queue implemented. Closure of the left or inside lane would improve visibility on the Linc to Highway 403 ramp.

   Implementation of either or both solutions would be at the cost of the City of Hamilton. Both solutions would be accompanied by implementation of an appropriate signing plan.

7. The legal agreement would stipulate that MTO would reserve the right to close a lane on the ramp, should the queue detection system be ineffective. The legal agreement would need to define appropriate triggers based on an increase in collision rates. The trigger would be developed by the MTO traffic office in consultation with the City of Hamilton.

8. MTO suggested that development of a predictive model for collisions would be helpful in determining an appropriate trigger. CIMA noted that they have the expertise and experience to develop this prediction model and are currently undertaking similar studies with MTO.

MATTERS DISCUSSED **ACTION BY:**

9. MTO noted the timing of expansion of Highway 403 is indefinite. Any improvements to Highway 403 are competing for budget allocation with many similar roadway segments in the GTA.

10. It was agreed that the City of Hamilton would consult internally to develop a proposed work plan and report back to MTO.

Meeting Minutes prepared by:

Amec Foster Wheeler Environment & Infrastructure
A division of Amec Foster Wheeler Americas Limited

Per: David Sinke, P. Eng.
Principal, Transportation

DS/kf

Mohawk Ramp Simulation Analysis Results - 2008 & 2031 PM Peak Period

Location	Performance Measures	Without Mohawk Ramp		With Mohawk Ramp (200 veh)	With Mohawk Ramp (100 veh)	With Mohawk Ramp (NO veh)	With Mohawk Ramp (200 veh)	With Mohawk Ramp (100 veh)	With Mohawk Ramp (NO veh)
		2008	2031	2031			2008		
Highway 403 WB[1]	95%ile Queue [m]	1,020	1,260	1,400	1,340	1,280	1,342	1,329	1,166
On-ramp from Lincoln [2]	95%ile Queue [m]	0	0	1,200	738	190	919	355	57
Highway 403 WB mainline [3]	Average Speed [km/h]	40	35	31	33	34	31	34	38
Current on-ramp from Lincoln [4]	Average Speed [km/h]	46	41	23	33	39	24	37	44
New Mohawk on-ramp [5]	Average Speed [km/h]	N/A	N/A	30	35	N/A	30	39	N/A

(1) Queue on Highway 403 WB mainline upstream from the end of truck climbing lane

(2) Queue on the Lincoln ramp upstream from the end of merging section with Mohawk ramp

(3) Average speed on Highway 403 WB mainline on the section between Mohawk bridige and the end of truck climbing lane

(4) Average speed on the Lincoln ramp on the section between the beginning of the ramp and the end of merging section with Highway 403 WB mainline

(5) Average speed on the future Mohawk ramp on the section between the beginning of the ramp and the end of merging section with Highway 403 WB mainline

amec
foster
wheeler

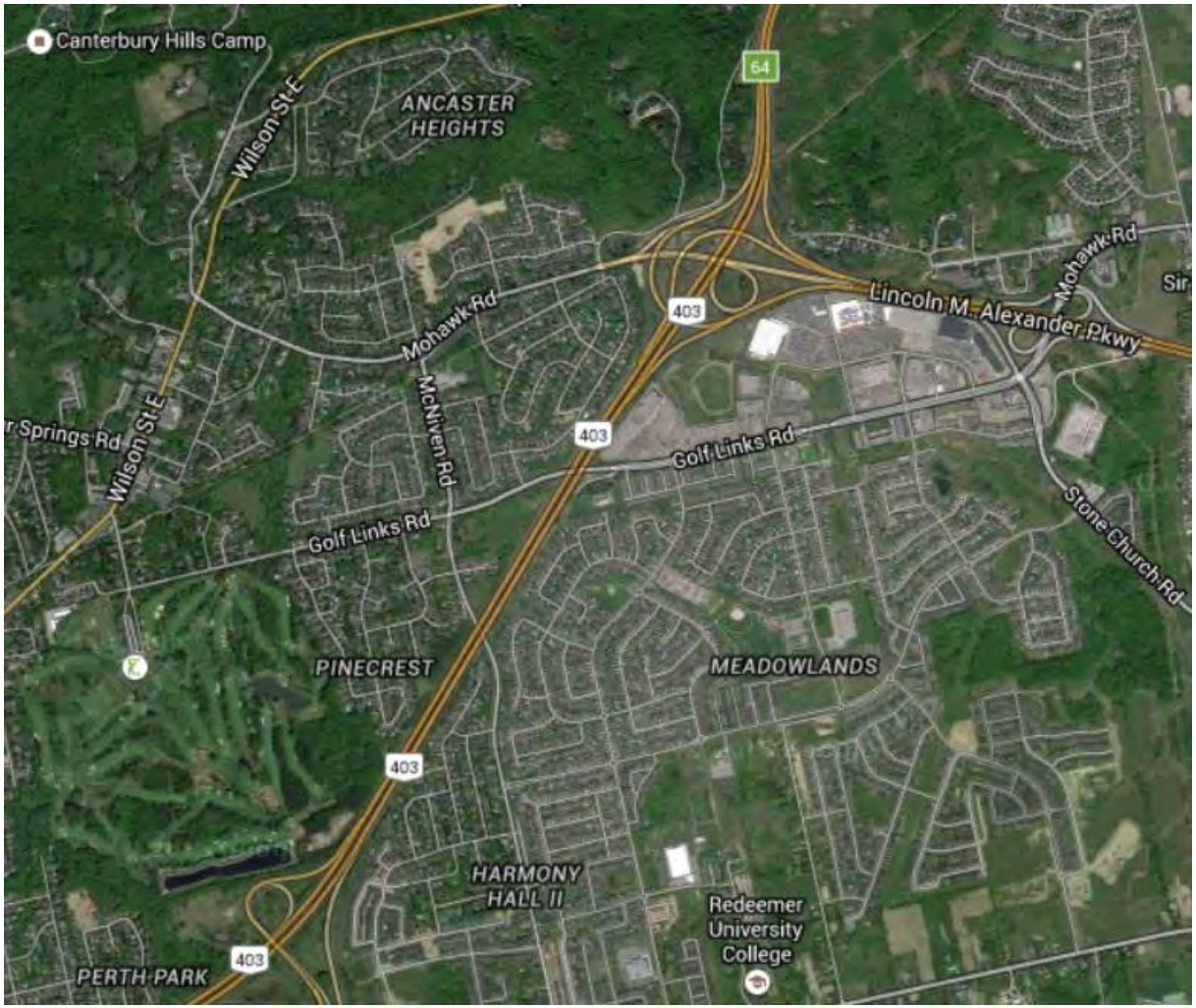
Highway 403 Mohawk Road Ramp
MTO Senior Management Presentation

December 11, 2015

Agenda

1. Introduction
2. Study Area
3. Project Background
4. Study and Assessment
5. Mohawk Road Ramp Design Alternatives
6. Traffic Assessment
7. Queuing Alternatives
8. Next Steps

Study Area


Canterbury Hills Camp
64
ANCASTER HEIGHTS
Wilson St E
Mohawk Rd
403
Lincoln M. Alexander Pkwy
Mohawk Rd
McNiven Rd
Springs Rd
Wilson St E
Golf Links Rd
Golf Links Rd
Stone Church Rd
PINECREST
MEADOWLANDS
403
HARMONY HALL II
Redeemer University College
PERTH PARK
403

Project Background

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403 and Lincoln Alexander Parkway (Linc) interchange was constructed.

- Removal of the Brantford-bound ramp has left a missing link to access the Highway 403 Brantford-bound lanes from Ancaster.

- Residents have requested that the Brantford-bound ramp be replaced due to increasing traffic demands on Wilson Street in the Ancaster core.

Project Background

- The Ancaster Transportation Master Plan (2011) (ATMP) examined options for additional access/ egress to and from Highway 403 to reduce vehicle demand on local arterial corridors.

- The ATMP including the assessment of ramps from both Golf Links Road and Mohawk Road and recommended:
  - Access at Golf Links Road be pursued subject to the findings of a separate technical study to be undertaken by the City in coordination with the MTO on the feasibility of where a new Brantford-bound on-ramp could be provided.

- The technical study concluded:
  - A ramp at Golf Links Road was not feasible due to operational concerns and inability to meet MTO geometric standards; and
  - A new ramp was potentially feasible at Mohawk Road.

Study and Assessment

- City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road.
- The study examined access to Highway 403 from Golf Links Road, Mohawk Road and Main Street, along with other alternative modes of transportation.
- The study concluded that a combination of the following alternatives was the preferred solution:
  - Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403; and
  - Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation (as part of future initiatives).

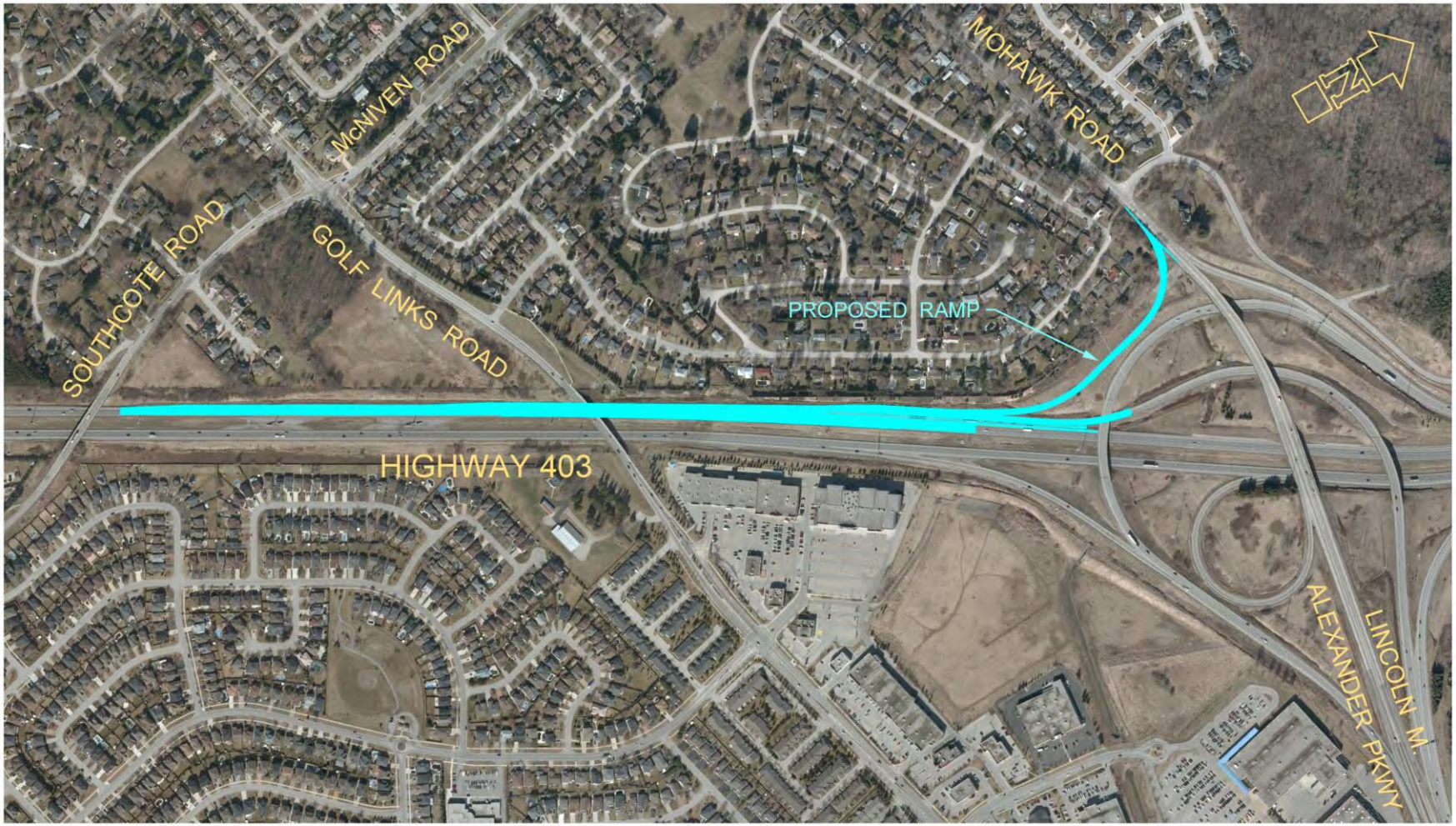
Mohawk Road Alternatives

- Alternatives for the exit ramp from Mohawk Road were evaluated and considered the following for both 40 km/h and 50 km/h ramp design speeds:
  - Parallel lane design;
  - Direct taper design; and
  - Direct spiral design.
- Alternatives for the Mohawk Road entrance ramp to the Linc-Highway 403 Brantford-bound Ramp considered the following:
  - Direct taper design; and
  - Parallel lane design.

MTO Technical Concerns

- Development of ramp exit lane on Mohawk Road (geometric configuration) and associated impacts to the Filman Road intersection
- Mohawk Road Ramp design speed
  - 55 m radius corresponding to a 40 km/h design speed (minimum)
  - 90 m radius corresponding to a 50 km/h design speed (standard)
- Lack of merge opportunity associated with direct taper merge of Mohawk Road ramp with Linc to Hwy 403 Brantford-bound ramp, due to existing ramp volumes which are close to capacity for a single lane
- Spacing of successive bullnoses (200 m required for 80 km/h design speed)
- Impacts to Highway 403 operations (merge movements, successive lane terminations and queuing/delay)
- Protection for future Highway 403 mainline expansion (single lane in each direction and potential for HOV)

Preferred Design Concept



Preferred Design Concept

- Direct spiral design for Mohawk Road deceleration lane;
- Realignment of existing Linc-Hwy 403 Brantford-bound ramp;
- New single lane exit ramp from Mohawk Rd connecting to the realigned Linc-Hwy 403 Brantford-bound ramp;
- Parallel lane design for merge of Mohawk Road ramp with the Linc-Hwy 403 Brantford-bound ramp (designed to 90 km/h design speed);
- Full acceleration lane for the Linc-Hwy 403 Brantford-bound ramp on Hwy 403 (designed to 120 km/h design speed); and
- Extension and termination of the existing truck climbing lane beyond the termination of the Linc-Hwy 403 Brantford-bound ramp on Hwy 403.

Traffic Observations

- Videos were undertaken on Highway 403 and the Linc-Hwy 403 ramp in May 2014 and September 2014 respectively.
- Observations included the following:
  - Highway 403 westbound flow is saturated as a result of the existing Highway 403 lane reduction from 3 to 2 lanes (termination of the truck climbing lane) – queue lengths vary but can be extensive, extending to the Linc-Hwy 403 ramp bullnose;
  - Linc-Hwy 403 ramp mostly free-flow, slow downs on merge with Highway 403, occasional queues; and
  - Drivers in this area are not aggressive and do not take full advantage of the existing Linc-Hwy 403 speed change lane length.

Traffic Micro-Simulation Volumes

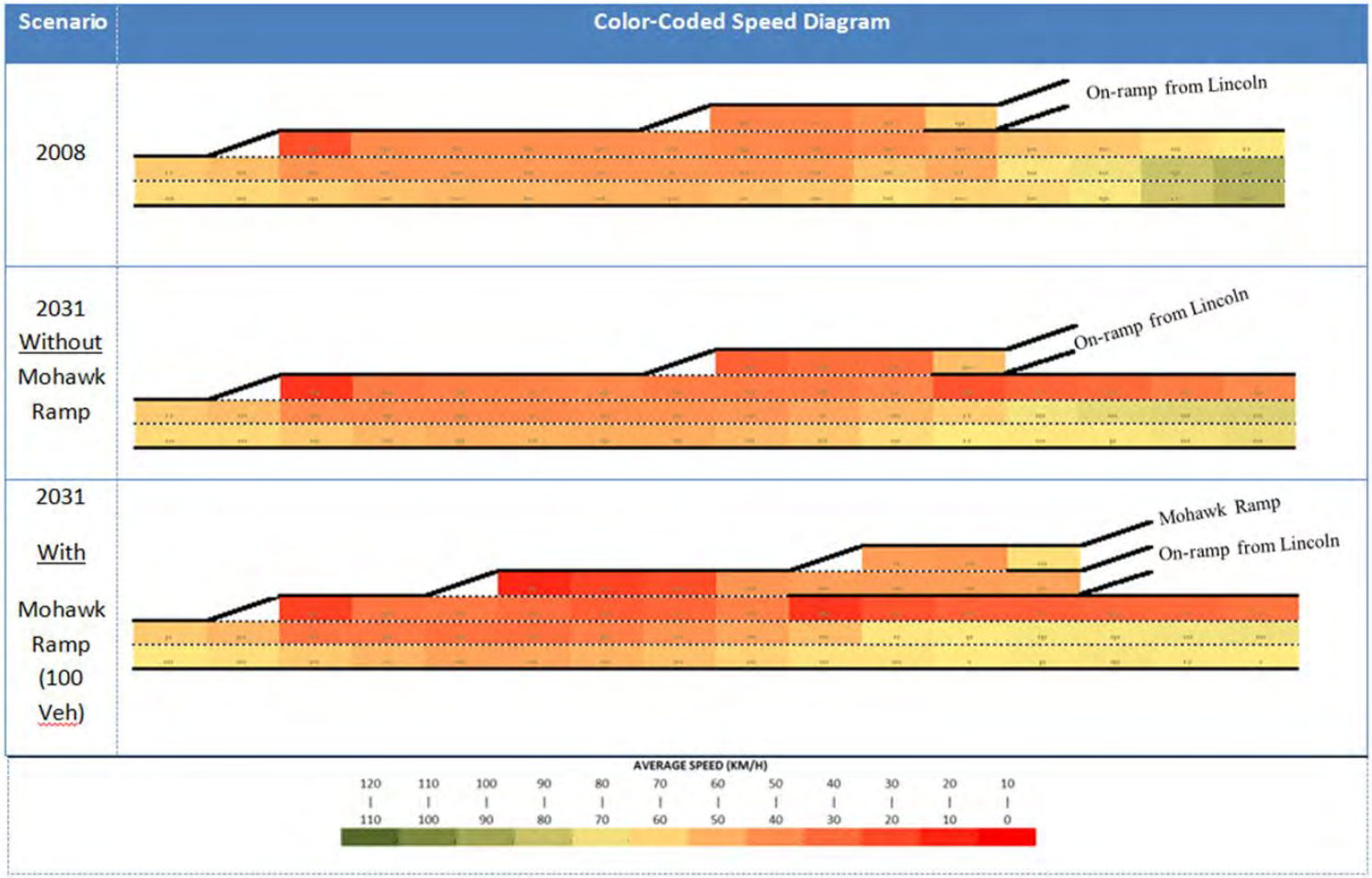
- Micro-simulation initially suggested that the 2031 forecasts without Highway 403 widening under the do-nothing scenario was problematic
  - Increasing realization that the forecasts were unobtainable without the upstream widening of Highway 403
  - In consultation with MTO, 2031 forecasts under the do-nothing (no-widening scenario) were capped at the following based on the upstream capacity restrictions:

Section/ Year	2008	2021	2031
Hwy 403 Westbound	3,800	4,000	4,000
Linc-Hwy 403 Ramp	1,400	1,500	1,500

Traffic Micro-Simulation Modelling & Analysis

- Mohawk Road Ramp volumes are highest in the AM peak period
- Highway 403 volumes are highest in the PM peak period
- Queuing extends onto the realigned Linc-Hwy 403 ramp (~ 700 m beyond the proposed bullnose) in the PM peak period and in part is attributable to:
  - Reduction in the merge length between the realigned Linc-Hwy 403 bullnose and termination of the Highway 403 westbound truck climbing lane; and
  - Storage on the ramp which would normally occur on the Highway 403 westbound lanes due to the shift in the Linc-Hwy 403 bullnose.

Traffic Micro-Simulation Modelling & Analysis



Alternatives to Address Queuing on the Linc-Hwy 403 Ramp

- Extend the Mohawk Road Ramp to merge following termination of Highway 403 westbound truck climbing lane
  - Physical constraints at Golf Links Road would necessitate replacement and lengthening of the bridge
  - Would not address existing Highway 403 queuing at the termination of the truck climbing lane
- Implement a two lane Linc-Hwy 403 entrance ramp onto Highway 403
  - Modifications would only increase the queuing storage and will not address existing Highway 403 queuing at the termination of the truck climbing lane
- Extend Highway 403 truck-climbing lane past Southcote, terminating either just east of, or connect to, the Highway 6 exit speed change lane
  - Potential benefits to both queuing on Highway 403 and future queuing on the Linc-Hwy 403 ramp
  - Additional modelling required to confirm potential benefits

Next Steps

- Identify and document any MTO concerns moving forward
- Undertake specific MTO-required studies, if required
- Complete Environmental Assessment process
- Establish cost sharing agreement
- Report to Council and secure MTO approvals
- Conduct detailed design & prepare tender documentation (City process or MTO process)
- Confirm construction scheduling (verify timing and any associated constraints)
- Complete tendering and commence construction (City or MTO contract administration)

PUBLIC WORKS COMMITTEE
MINUTES 17-002
9:30 a.m.
Monday, February 13, 2017
Council Chambers
Hamilton City Hall
71 Main Street West

Present: Councillor A. VanderBeek (Chair)
Councillor L. Ferguson (Vice Chair)
Councillors S. Merulla, C. Collins, T. Jackson, T. Whitehead and D. Conley

Absent with Regrets: Councillor R. Pasuta – Personal

Also Present: Councillors J. Farr, M. Green and M. Pearson

THE FOLLOWING ITEMS WERE REPORTED TO COUNCIL FOR CONSIDERATION:

1. Intersection Control List (PW17001(a)) (Wards 1, 7, 13 and 15) (Item 5.1)

(Conley/Collins)
That the appropriate By-law be presented to Council to provide traffic control as follows:

	Intersection		Stop Direction		Class	Location / Comments / Petition	Ward
	Street 1	Street 2	Existing	Proposed			
Section "B" Dundas							
(a)	Melville Street	Matilda Street	NB/SB	EB/WB	A	Councillor request & approved	13
Section "C" Flamborough							
(b)	Thomson Drive / Snake Road	Main Street	WB/SB	NB	A	Resident request, Councillor approved	15

Intersection			Stop Direction		Class	Location / Comments / Petition	Ward
	Street 1	Street 2	Existing	Proposed			
Section "E" Hamilton							
(c)	Berko Avenue	Edwina Place	NB	EB/WB	A	Resident request, Councillor approved	7
(d)	Florence Street	Inchbury Street	SB	EB/WB	A	Resident request, Councillor approved	1
(e)	Locke Street	Morden Street	WB	NB/SB	B	Resident request, Councillor approved	1

Legend
No Control Existing (New Subdivision) - **NC**
Intersection Class: **A** - Local/Local **B** - Local/Collector **C** - Collector/Collector

CARRIED

2. *Resource Recovery and Circular Economy Act*, 2016 (PW16007(b)) (City Wide) (Item 7.1)

(Whitehead/Conley)
That Report PW16007(b) respecting the *Resource Recovery and Circular Economy Act*, 2016, be received.

CARRIED

3. Mohawk Road to Brantford-bound King's Highway 403 Ramp Update (PW12051(b)) (Ward 12) (Item 8.1)

(Ferguson/Collins)
(a) That the General Manager of Public Works, or his designate, be authorized to negotiate the terms and conditions of an agreement with Ministry of Transportation on behalf of the Province of Ontario, respecting the design, construction and maintenance of a westbound on-ramp connecting Mohawk Road to Brantford-bound King's Highway 403;

(b) That staff be directed to report back to the Public Works Committee on the status of the negotiations of an agreement respecting the design, construction and maintenance of the new Mohawk Road Ramp with the Ministry of Transportation on behalf of the Province of Ontario, and the City's proposed capital budget funding requirements.

CARRIED

4. Wentworth Street South Rail Trail Pedestrian Crossing (Item 9.1)

(Merulla/Whitehead)
WHEREAS, PW Report 15-021(a), considered by the Public Works Committee on June 13, 2016, provided information regarding pedestrian safety when crossing the Wentworth Street South Rail Trail;

WHEREAS, PW Report 15-021(a) was amended to have staff and the affected Ward Councillors discuss the matter further;

WHEREAS, this discussion has now taken place and a recommendation has been developed;

THEREFORE BE IT RESOLVED:

(a) That staff be directed to install a Pedestrian Signal on Wentworth Street South at the Wentworth Street South Rail Trail Crossing; and,

(b) That funding for the Pedestrian Signal, at an upwards cost of $200,000 be funded 100% from the Red Light Camera Reserve 112203; and,

(c) That the matter respecting the Wentworth Street South Rail Trail Crossing and Traffic Calming Measures on Charlton Avenue East be considered complete and removed from the Outstanding Business List.

CARRIED

5. Property Remediation (PW17009/LS17005) (City Wide) (Item 12.1)

(Merulla/Whitehead)
(a) That the City of Hamilton proceed as described in Report PW17009/LS17005;

(b) That the General Manager of Public Works be authorized and directed to take all necessary steps, and to enter into and execute all necessary documents to implement subsection (a), with content satisfactory to both the General Manager of Public Works and the General Manager of Finance and Corporate Services, in a form satisfactory to the City Solicitor;

(c) That any funds received by the City of Hamilton related to Report PW17009/LS17005 be deposited into Waste Management Facilities Reserve (#112271) and identified as funding sources for future remediation projects for the property; and,

(d) That Report PW17009/LS17005 remain confidential.

CARRIED

FOR THE INFORMATION OF THE COMMITTEE:

(a) APPROVAL OF THE AGENDA (Item 1)

(Merulla/Conley)
That the Agenda for the February 13, 2017 meeting of the Public Works Committee be approved, as presented.

CARRIED

(b) DECLARATIONS OF INTEREST (Item 2)

There were no declarations of interest.

(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 3)

(i) January 16, 2017 (Item 3.1)

(Collins/Whitehead)
That the Minutes of the January 16, 2017 Public Works Committee meeting be approved, as presented.

CARRIED

(d) CONSENT ITEMS (Item 5)

(i) Minutes of the Hamilton Cycling Committee – October 5, 2016 (Item 5.2)

(Ferguson/Conley)
That the Minutes of the Hamilton Cycling Committee dated October 5, 2016, be received.

CARRIED

(ii) Minutes of the Keep Hamilton Clean and Green Committee – November 15, 2016 (Item 5.3)

(Ferguson/Jackson)
That the Minutes of the Keep Hamilton Clean and Green Committee dated November 15, 2016, be received.

CARRIED

(e) PUBLIC HEARINGS/DELEGATIONS (Item 6)

(i) Teresa Morosin respecting a retaining wall on her property (Item 6.1)

Ms. Teresa Morosin addressed the Committee respecting a retaining wall on her property.

(Whitehead/Ferguson)
That the delegation from Teresa Morosin respecting a retaining wall on her property be received and referred to staff for consideration in the report they are preparing on this matter.

CARRIED

(ii) Michael Gemmell, Executive Director, Green Venture, respecting Outreach and Education Activities conducted by Green Venture in 2016 on behalf of the Public Works Department (Item 6.2)

Mr. Michael Gemmell, Executive Director, Green Venture, addressed the Committee respecting Outreach and Education Activities conducted by Green Venture in 2016 on behalf of the Public Works Department.

A copy of Mr. Gemmell's presentation has been retained for the official record and is available on the City's website.

(Collins/Ferguson)
That the delegation from Michael Gemmell, Executive Director, Green Venture, respecting Outreach and Education Activities conducted by Green Venture in 2016 on behalf of the Public Works Department, be received.

CARRIED

(f) PRESENTATIONS (Item 7)

(i) *Resource Recovery and Circular Economy Act, 2016* (PW16007(b)) (City Wide) (Item 7.1)

Mr. Dave Gordon, Senior Advisor, Association of Municipalities of Ontario, addressed the Committee respecting the *Resource Recovery and Circular Economy Act, 2016.*

A copy of the presentation has been retained for the official record and is available on the City's website.

(Ferguson/Collins)
That the presentation respecting the *Resource Recovery and Circular Economy Act, 2016*, be received.

CARRIED

(Collins/Merulla)

(a) That staff be directed to report to the Public Works Committee with an outline of the capital investments for waste improvement projects which may need to be delayed or deferred because of provincial legislative changes; and,

(b) That the report also look at the impact that those decisions may have on the City's contractual obligations with its service providers.

CARRIED

For disposition of this matter, refer to Item 2.

(ii) Annual Update from the Hamilton Cycling Committee (Item 7.2)

Mr. Greg Blunsdon, a member of the Hamilton Cycling Committee, provided the Public Works Committee with an Annual Update. Mr. Blunsdon was joined at the podium by Mr. Bob Corsini, Ms. Ann McKay and Mr. Kevin Love who also serve on the Cycling Committee.

A copy of the presentation has been retained for the official record and is available on the City's website.

(Ferguson/Collins)

That the Annual Update from the Hamilton Cycling Committee, be received.

CARRIED

(g) DISCUSSION ITEMS (Item 8)

(i) 18 Sinclair Court (PW17006) (Ward 5) (Outstanding Business List) (Item 8.2)

(Collins/Merulla)

That Report PW17006 respecting 18 Sinclair Court be TABLED to a future Public Works Committee meeting to allow for the Ward Councillor to discuss the options outlined in the Report with the property owner.

CARRIED

(ii) Installation of a Rainbow-Coloured Crosswalk in the International Village BIA (Ward 2) (Item 9.5)

(Merulla/Whitehead)

That the motion respecting the Installation of a Rainbow-Coloured Crosswalk in the International Village BIA, be REFERRED to the February 22, 2017 meeting of City Council.

CARRIED

(h) MOTIONS (Item 9)

(i) Dundas Wastewater Treatment Plant (WWTP) and Cootes Paradise (Item 9.2)

Councillor VanderBeek relinquished the chair to Vice Chair Ferguson in order to introduce the following motion:

(VanderBeek/Jackson)
WHEREAS, Hamilton Harbour including Cootes Paradise, is designated an Area of Concern by the Federal Government of Canada under the Great Lakes Water Quality Agreement;

WHEREAS, Cootes Paradise is designated, as part of the Niagara Escarpment World Biosphere Reserve, an Area of Natural and Scientific Interest, a Class 1 provincially significant wetland, and furthermore is the largest remaining coastal marsh left on Lake Ontario;

WHEREAS, Cootes Paradise is referenced in the City of Hamilton Rural and Urban Official Plan as an Environmentally Significant Area;

WHEREAS, Cootes Paradise is set aside as a legislated nature reserve managed by Royal Botanical Gardens and serves as refuge and an area that protects multiple species at risk including birds, turtles, fish, and fresh water mussels;

WHEREAS, the Hamilton Harbour Remedial Action Plan and the Royal Botanical Gardens have a direct interest in achieving environmental targets focused on improving environmental conditions in the marsh;

WHEREAS, the City of Hamilton recognizes the environmental and social significance of the Cootes Paradise area that serves as a migratory bird stop over, and fish nursery for Western Lake Ontario with the potential for producing 10 million fish annually when in a healthy state;

WHEREAS, The Dundas Wastewater Treatment Plant located at 135 King St. East is owned and operated by the City of Hamilton and discharges treated effluent to Cootes Paradise via the Desjardins Canal which has a direct influence on the health of Cootes Paradise;

WHEREAS, the City has completed an asset replacement study for the future use of the Dundas Wastewater Treatment Plant; and,

WHEREAS, the City is committed to the goal of delisting Hamilton Harbour as an Area of Concern;

THEREFORE BE IT RESOLVED:

That staff be directed to report back to the Public Works Committee regarding planned future capital upgrades at the Dundas WWTP including the identification of opportunities for improving treatment performance and expectation for implementation timelines, in order to meet the environmental needs of Cootes Paradise.

CARRIED

Councillor VanderBeek assumed the Chair.

(ii) 3-Way Stop Signs at Scenic Drive and West 34th Street (Ward 8) (tabled at November 14, 2016 Public Works Committee meeting) (Item 9.3)

(Whitehead/Ferguson)
That the motion respecting 3-Way Stop Signs at Scenic Drive and West 34th Street, be WITHDRAWN.

CARRIED

(iii) 3-Way Stop Signs at Scenic Drive and Chateau Court (Ward 8) (tabled at November 14, 2016 Public Works Committee meeting) (Item 9.4)

(Whitehead/Ferguson)
That the motion respecting 3-Way Stop Signs at Scenic Drive and Chateau Court, be WITHDRAWN.

CARRIED

(i) GENERAL INFORMATION/OTHER BUSINESS (Item 11)

(i) Changes to the Outstanding Business List (Item 11.1)

(Ferguson/Conley)
That the following item be considered complete and removed from the Outstanding Business List:

(i) Wentworth Street South Rail Trail Pedestrian Crossing (Item 9.1 of today's agenda)

CARRIED

(j) PRIVATE AND CONFIDENTIAL (Item 12)

(i) Property Remediation (PW17009/LS17005) (City Wide) (Item 12.1)

(Merulla/Ferguson)
That Committee move into Closed Session at 12:38 p.m. respecting Report PW17009/LS15005 about Property Remediation Pursuant to Section 8.1, Sub-section (f) of the City's Procedural By-law 14-300, and Section 239(2), Sub-section (f) of the *Ontario Municipal Act, 2001,* as amended, as the subject matter pertains to the receiving of advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

CARRIED

Direction was provided to staff in Closed Session.

For further disposition on this matter, refer to Item 5.

(k) ADJOURNMENT (Item 13)

(Ferguson/Merulla)
That there being no further business, the Public Works Committee be adjourned at 1:31 p.m.

CARRIED

Respectfully submitted,

Councillor A. VanderBeek
Chair, Public Works Committee

Lauri Leduc
Legislative Coordinator
Office of the City Clerk

CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Corporate Assets and Strategic Planning

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	February 13, 2017
SUBJECT/REPORT NO:	Mohawk Road to Brantford-bound King's Highway 403 Ramp Update (Ward 12) (PW12051b)
WARD(S) AFFECTED:	Ward 12
PREPARED BY:	Alan Kirkpatrick 905-546-2424, Extension 4173 Mohan Philip 905-546-2424, Extension 3438
SUBMITTED BY: **SIGNATURE:**	John Mater, C.E.T. Director of Corporate Assets & Strategic Planning Public Works Department

RECOMMENDATION

(a) That the General Manager of Public Works, or his designate, be authorized to negotiate the terms and conditions of an agreement with Ministry of Transportation on behalf of the Province of Ontario, respecting the design, construction and maintenance of a westbound on-ramp connecting Mohawk Road to Brantford-bound King's Highway 403;

(b) That staff be directed to report back to the Public Works Committee on the status of the negotiations of an agreement respecting the design, construction and maintenance of the new Mohawk Road Ramp with the Ministry of Transportation on behalf of the Province of Ontario and the City's proposed capital budget funding requirements.

EXECUTIVE SUMMARY

Since 2013, the City of Hamilton has been working with the Ministry of Transportation (MTO) regarding the proposed construction by the City of a new ramp connecting Mohawk Road and Brantford-bound King's Highway 403 (the New Ramp). Through a variety of studies and planning efforts the MTO has approved the City proceeding with the necessary steps for design and construction of this New Ramp, subject to the City entering into an agreement with MTO on behalf of the Province of Ontario (Province) outlining conditions of the approval. A draft agreement from the MTO has been reviewed by the City. The agreement requires negotiation on several terms and

conditions in order to satisfy the needs of the City to continue with this initiative. Public Works staff is seeking City Council's approval to proceed with these negotiations.

Alternatives for Consideration – See Page 5

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: The overall New Ramp Study and Detailed Design has an estimated budget of $740,977. There are a number of phases to progress through before reaching the final MTO approval stage and construction. The completed work up to this point involved environmental planning, traffic modelling, analysis and a functional design. The cost of this work thus far has been $351,864.

If MTO approval is given to proceed, the next phase would be the Detailed Design stage to produce construction drawings and tender documents. This amount is currently estimated at $389,113 with funds available in project id 4031555215. The estimate for the detailed design, tender documents, etc. was provided by the consultant in 2013 as part of a Request for Proposal (RFP) process for this work. This amount for the detailed design and related activities may change due to the quoted fees being four years old. Staff will report back to the Committee on this when future updates are provided.

Subject to the outcome of the detailed design, the project is shown in the 2019 capital budget with a construction budget estimate of $4,030,000. The capital budget indicates a proposed net cost of $1,830,000; therefore, the remaining funding of $2,220,000 has to be identified in a future budget process. These construction estimates are also several years old and will be updated during the detailed design phase.

Currently in the Ministry's draft agreement between the City and MTO, there are two references to items not previously considered that would potentially increase the cost of the project, namely, an Automated Queue-end Warning System (AQEWS), and the present-value cost to Operate and Maintain (O&M) the New Ramp for the next fifty years. The MTO proposes that this O&M cost be paid up-front, which would require it to be added to the capital cost. These two items require further discussion and negotiation before the final amount is determined. Budget forecast information for the period of 2017 to 2021 is included in Appendix "A"

Staffing: N/A

Legal: Legal staff has been assigned to assist Public Works staff in the negotiation process with MTO once Council authority is obtained.

HISTORICAL BACKGROUND

In June 2012, Council directed staff to undertake the necessary studies for the proposed New Ramp in Ancaster (PW12051). Following this an RFP was prepared in collaboration with the MTO and a consultant was hired to undertake the studies.

The City's consultant initiated their study and review in September 2013. The current contract amount details are as shown in Table 1 below.

Table 1: New Ramp Study and Detailed Design current expenses/commitments

Phase	Activity Description	Amount
1a	Macro-modelling & Forecasting	$38,437
1b	Micro-modelling	$31,937
1c	Municipal Class EA	$252,626
	Approved additional works (contingency)	$24,031
	Stage 1 Archaeological Assessment study	$4,833
	Total	$ 351,864

In a staff report, PW12051a, dated September 14, 2015, staff was authorized to include funds in the 2015 Capital Budget to undertake additional studies required to investigate and analyse the proposed highway ramp.

Studies have determined that the New Ramp is feasible from a geometric perspective. Several traffic operational analyses (macro & micro-simulations) were completed and the Environmental Assessment (EA) study is nearing completion. To review the operational concerns raised by MTO, extra analysis/tasks was undertaken and completed as additional work for the consultant. This included further review of the demand forecast, additional simulation scenarios, in-field traffic monitoring and presentation of the results to MTO staff.

Upon presentation of the operational concerns in 2014, the MTO suggested investigating the feasibility of changing the existing Brantford-bound LINC Ramp, as this ramp is currently operating close to capacity during peak-hour periods. Micro-simulation work based on the revised future demand was also completed. The extra works include a concept design and assessment of potential impacts. These were all additional works for the consultant. This additional analyses and results were presented to MTO on October 3, 2014 and the City addressed minor questions that the MTO raised. On December 1, 2014, MTO staff advised that the results of the analysis were presented to their senior management team. The MTO's senior management team advised that the forecast queue length on the LINC Ramp to Brantford-bound Highway 403, for the future years was not acceptable. The results of the analysis were further discussed and the MTO suggested investigating other geometric options followed by simulations.

In December 2015, the MTO indicated that concerns with the design and implementation of the proposed New Ramp were largely satisfied. In September 2016, the MTO provided the City with a draft agreement stipulating terms and conditions for addressing the design, construction, maintenance and safety measures of the proposed New Ramp.

The proposed New Ramp, if approved, will attract additional traffic to the area and infrastructure improvements are required for Rousseaux Street/Mohawk Road. The Ancaster Transportation Master Plan (ATMP) completed in 2011, had also identified the need to upgrade this road link including addition of one lane, sidewalks, and conversion to an urban cross-section. The Phases 1 & 2 of the Class EA process for this road improvement project was completed through the 2011 ATMP study. The 2017 Capital Budget includes $150,000 for undertaking Phases 3 & 4 of the Class EA process for the Rousseaux Street/Mohawk Road from Highway 403 to Wilson Street. This Class EA will be initiated in 2017.

RELEVANT CONSULTATION

The subject of the New Ramp was included in the ATMP and a public engagement process was also completed. Following the MTO's approval to proceed to the next steps of the proposed ramp implementation process, a new Class EA study specific for the ramp was initiated in 2013, in consultation with the MTO. As part of this Class EA process, stakeholders/public were invited to Public Information Centres (PIC's) meetings in March and June 2014 to review the New Ramp proposals. Comments received by the stakeholders/public will be considered during the next phase of detailed design if approval is given to proceed. In addition, a Stage 1 Archaeological Assessment study for the area was completed in 2014.

A draft Ministry agreement respecting the design, construction and maintenance of a westbound on-ramp connecting Mohawk Road to Brantford-Bound King's Highway 403 has been reviewed by the Public Works, Legal and Risk Management staff. All involved indicated that further negotiations with the MTO on the terms and conditions of the agreement are required before staff would be able to bring the agreement forward to Council for approval, in order to continue with the implementation of this construction project.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Staff has reviewed the draft Ministry agreement for the proposed construction of the New Ramp and identified a number of issues that require further discussion and negotiation prior to the agreement being considered for approval by City Council.

Two key issues that were not previously discussed will need to be included in the negotiation process.

The first topic is the MTO requirement that an Automated Queue-End Warning System (AQEWS) be included on the existing LINC to Brantford-bound Highway 403 ramp. This warning device is intended to be added if a defined number of collisions occur on the existing LINC to Brantford-bound Highway 403 ramp as a result of traffic merging from the New Ramp. City staff is aware of this technology but this is a new condition in the agreement that requires further discussion.

The second topic involves the up-front payment by the City for the O&M costs of the New Ramp. The O&M costs would be the responsibility of the MTO once the ramp is

constructed. The MTO has provided a fifty year estimate of these O&M costs and the resulting present-value amount that would be required to be paid up-front when the construction is completed and the ramp is turned over to the MTO's jurisdiction. This is a new condition in the agreement that requires further discussion.

ALTERNATIVES FOR CONSIDERATION

Based on the costs of this project, and the new agreement conditions between the City and the MTO, City Council could decide not to proceed with the New Ramp at this time.

Staff recommends that if this project is still a priority in the ten-year capital budget and forecast, that they be given the authority to negotiate the terms and conditions of an agreement and report back to Committee on their efforts and to identify the necessary capital budget funding sources.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Community Engagement & Participation

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Healthy and Safe Communities

Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

APPENDICES AND SCHEDULES ATTACHED

Appendix A - Capital Budget forecast for the Mohawk Road to Brantford-bound Highway 403

Capital Budget forecast for the Mohawk Road to Brantford-bound Highway 403 Ramp and Improvements to Mohawk Road from Highway 403 to Wilson Street

	2017	2017	2018	2018	2019	2019	2020	2020	2021	2021	TOTAL	TOTAL
	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net
Highway 403 Ancaster Ramp					$4,030[1]	$1,830					$4,030	$1,830
Transportation Environmental Assessment Mohawk Road	$150[2]	$60			$150[3]	$60	$150[4]	$60	$5,000[5]	$2,000	$5,450	$2,180

[1] Current estimated ramp construction cost subject to the detailed design and potential new costs included in an agreement between the City and the Province
[2] Transportation Environmental Assessment
[3] Potential Land Acquisition
[4] Detailed Design
[5] Construction

PUBLIC WORKS COMMITTEE
REPORT 17-002
AS AMENDED BY COUNCIL ON FEBRUARY 22, 2017

9:30 a.m.
Monday, February 13, 2017
Council Chambers
Hamilton City Hall
71 Main Street West

Present: Councillor A. VanderBeek (Chair)
Councillor L. Ferguson (Vice Chair)
Councillors S. Merulla, C. Collins, T. Jackson, T. Whitehead and D. Conley

Absent with Regrets: Councillor R. Pasuta – Personal

Also Present: Councillors J. Farr, M. Green and M. Pearson

THE PUBLIC WORKS COMMITTEE PRESENTS REPORT 17-002 AND RESPECTFULLY RECOMMENDS:

~~**1. Intersection Control List (PW17001(a)) (Wards 1, 7, 13 and 15) (Item 5.1)**~~

~~That the appropriate By-law be presented to Council to provide traffic control as follows:~~

~~**Intersection**~~			~~**Stop Direction**~~		~~**Class**~~	~~**Location / Comments / Petition**~~	~~**Ward**~~
	~~**Street 1**~~	~~**Street 2**~~	~~**Existing**~~	~~**Proposed**~~			
~~**Section "B"** Dundas~~							
~~(a)~~	~~Melville Street~~	~~Matilda Street~~	~~NB/SB~~	~~EB/WB~~	~~A~~	~~Councillor request & approved~~	~~13~~
~~**Section "C"** Flamborough~~							
~~(b)~~	~~Thomson Drive / Snake Road~~	~~Main Street~~	~~WB/SB~~	~~NB~~	~~A~~	~~Resident request, Councillor approved~~	~~15~~

~~Intersection~~			~~Stop Direction~~		~~Class~~	~~Location / Comments / Petition~~	~~Ward~~
	~~Street 1~~	~~Street 2~~	~~Existing~~	~~Proposed~~			
~~Section "E" Hamilton~~							
~~(c)~~	~~Berko Avenue~~	~~Edwina Place~~	~~NB~~	~~EB/WB~~	~~A~~	~~Resident request, Councillor approved~~	~~7~~
~~(d)~~	~~Florence Street~~	~~Inchbury Street~~	~~SB~~	~~EB/WB~~	~~A~~	~~Resident request, Councillor approved~~	~~1~~
~~(e)~~	~~Locke Street~~	~~Morden Street~~	~~WB~~	~~NB/SB~~	~~B~~	~~Resident request, Councillor approved~~	~~1~~

~~**Legend**~~
~~No Control Existing (New Subdivision) - **NC**~~
~~Intersection Class: **A** - Local/Local **B** - Local/Collector **C** - Collector/Collector~~

2. *Resource Recovery and Circular Economy Act*, 2016 (PW16007(b)) (City Wide) (Item 7.1)

That Report PW16007(b) respecting the *Resource Recovery and Circular Economy Act*, 2016, be received.

3. Mohawk Road to Brantford-bound King's Highway 403 Ramp Update (PW12051(b)) (Ward 12) (Item 8.1)

(a) That the General Manager of Public Works, or his designate, be authorized to negotiate the terms and conditions of an agreement with Ministry of Transportation on behalf of the Province of Ontario, respecting the design, construction and maintenance of a westbound on-ramp connecting Mohawk Road to Brantford-bound King's Highway 403;

(b) That staff be directed to report back to the Public Works Committee on the status of the negotiations of an agreement respecting the design, construction and maintenance of the new Mohawk Road Ramp with the Ministry of Transportation on behalf of the Province of Ontario, and the City's proposed capital budget funding requirements.

4. Wentworth Street South Rail Trail Pedestrian Crossing (Item 9.1)

WHEREAS, PW Report 15-021(a), considered by the Public Works Committee on June 13, 2016, provided information regarding pedestrian safety when crossing the Wentworth Street South Rail Trail;

WHEREAS, PW Report 15-021(a) was amended to have staff and the affected Ward Councillors discuss the matter further;
WHEREAS, this discussion has now taken place and a recommendation has been developed;

THEREFORE BE IT RESOLVED:

(a) That staff be directed to install a Pedestrian Signal on Wentworth Street South at the Wentworth Street South Rail Trail Crossing; and,

(b) That funding for the Pedestrian Signal, at an upwards cost of $200,000 be funded 100% from the Red Light Camera Reserve 112203; and,

(c) That the matter respecting the Wentworth Street South Rail Trail Crossing and Traffic Calming Measures on Charlton Avenue East be considered complete and removed from the Outstanding Business List.

5. Property Remediation (PW17009/LS17005) (City Wide) (Item 12.1)

(a) That the City of Hamilton proceed as described in Report PW17009/LS17005;

(b) That the General Manager of Public Works be authorized and directed to take all necessary steps, and to enter into and execute all necessary documents to implement subsection (a), with content satisfactory to both the General Manager of Public Works and the General Manager of Finance and Corporate Services, in a form satisfactory to the City Solicitor;

(c) That any funds received by the City of Hamilton related to Report PW17009/LS17005 be deposited into Waste Management Facilities Reserve (#112271) and identified as funding sources for future remediation projects for the property; and,

(d) That Report PW17009/LS17005 remain confidential.

FOR THE INFORMATION OF COUNCIL:

(a) APPROVAL OF THE AGENDA (Item 1)

The Agenda for the February 13, 2017 meeting of the Public Works Committee was approved, as presented.

(b) DECLARATIONS OF INTEREST (Item 2)

There were no declarations of interest.

(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 3)

(i) January 16, 2017 (Item 3.1)

The Minutes of the January 16, 2017 Public Works Committee meeting were approved, as presented.

(d) CONSENT ITEMS (Item 5)

(i) Minutes of the Hamilton Cycling Committee – October 5, 2016 (Item 5.2)

The Minutes of the Hamilton Cycling Committee dated October 5, 2016, were received.

(ii) Minutes of the Keep Hamilton Clean and Green Committee – November 15, 2016 (Item 5.3)

The Minutes of the Keep Hamilton Clean and Green Committee dated November 15, 2016, were received.

(e) PUBLIC HEARINGS/DELEGATIONS (Item 6)

(i) Teresa Morosin respecting a retaining wall on her property (Item 6.1)

Ms. Teresa Morosin addressed the Committee respecting a retaining wall on her property.

The delegation from Teresa Morosin respecting a retaining wall on her property was received and referred to staff for consideration in the report they are preparing on this matter.

(ii) Michael Gemmell, Executive Director, Green Venture, respecting Outreach and Education Activities conducted by Green Venture in 2016 on behalf of the Public Works Department (Item 6.2)

Mr. Michael Gemmell, Executive Director, Green Venture, addressed the Committee respecting Outreach and Education Activities conducted by Green Venture in 2016 on behalf of the Public Works Department.

A copy of Mr. Gemmell's presentation has been retained for the official record and is available on the City's website.
The delegation from Michael Gemmell, Executive Director, Green Venture, respecting Outreach and Education Activities conducted by Green Venture in 2016 on behalf of the Public Works Department, was received.

(f) PRESENTATIONS (Item 7)

(i) *Resource Recovery and Circular Economy Act, 2016* (PW16007(b)) (City Wide) (Item 7.1)

Mr. Dave Gordon, Senior Advisor, Association of Municipalities of Ontario, addressed the Committee respecting the *Resource Recovery and Circular Economy Act, 2016.*

A copy of the presentation has been retained for the official record and is available on the City's website.

The presentation respecting the *Resource Recovery and Circular Economy Act, 2016*, was received.

Staff was directed to report to the Public Works Committee with an outline of the capital investments for waste improvement projects which may need to be delayed or deferred because of provincial legislative changes as well as a look at the impact that those decisions may have on the City's contractual obligations with its service providers.

For disposition of this matter, refer to Item 2.

(ii) Annual Update from the Hamilton Cycling Committee (Item 7.2)

Mr. Greg Blunsdon, a member of the Hamilton Cycling Committee, provided the Public Works Committee with an Annual Update. Mr. Blunsdon was joined at the podium by Mr. Bob Corsini, Ms. Ann McKay and Mr. Kevin Love who also serve on the Cycling Committee.

A copy of the presentation has been retained for the official record and is available on the City's website.

The Annual Update from the Hamilton Cycling Committee, was received.

(g) DISCUSSION ITEMS (Item 8)

(i) 18 Sinclair Court (PW17006) (Ward 5) (Outstanding Business List) (Item 8.2)

Report PW17006 respecting 18 Sinclair Court was TABLED to a future Public Works Committee meeting to allow for the Ward Councillor to discuss the options outlined in the Report with the property owner.

(ii) Installation of a Rainbow-Coloured Crosswalk in the International Village BIA (Ward 2) (Item 9.5)

The motion respecting the Installation of a Rainbow-Coloured Crosswalk in the International Village BIA, was REFERRED to the February 22, 2017 meeting of City Council.

(h) MOTIONS (Item 9)

(i) Dundas Wastewater Treatment Plant (WWTP) and Cootes Paradise (Item 9.2)

Councillor VanderBeek relinquished the chair to Vice Chair Ferguson in order to introduce the following motion:

WHEREAS, Hamilton Harbour including Cootes Paradise, is designated an Area of Concern by the Federal Government of Canada under the Great Lakes Water Quality Agreement;

WHEREAS, Cootes Paradise is designated, as part of the Niagara Escarpment World Biosphere Reserve, an Area of Natural and Scientific Interest, a Class 1 provincially significant wetland, and furthermore is the largest remaining coastal marsh left on Lake Ontario;

WHEREAS, Cootes Paradise is referenced in the City of Hamilton Rural and Urban Official Plan as an Environmentally Significant Area;

WHEREAS, Cootes Paradise is set aside as a legislated nature reserve managed by Royal Botanical Gardens and serves as refuge and an area that protects multiple species at risk including birds, turtles, fish, and fresh water mussels;

WHEREAS, the Hamilton Harbour Remedial Action Plan and the Royal Botanical Gardens have a direct interest in achieving environmental targets focused on improving environmental conditions in the marsh;

WHEREAS, the City of Hamilton recognizes the environmental and social significance of the Cootes Paradise area that serves as a migratory bird stop over, and fish nursery for Western Lake Ontario with the potential for producing 10 million fish annually when in a healthy state;

WHEREAS, The Dundas Wastewater Treatment Plant located at 135 King St. East is owned and operated by the City of Hamilton and discharges treated effluent to Cootes Paradise via the Desjardins Canal which has a direct influence on the health of Cootes Paradise;

WHEREAS, the City has completed an asset replacement study for the future use of the Dundas Wastewater Treatment Plant; and,

WHEREAS, the City is committed to the goal of delisting Hamilton Harbour as an Area of Concern;

THEREFORE BE IT RESOLVED:

That staff be directed to report back to the Public Works Committee regarding planned future capital upgrades at the Dundas WWTP including the identification of opportunities for improving treatment performance and expectation for implementation timelines, in order to meet the environmental needs of Cootes Paradise.

Councillor VanderBeek assumed the Chair.

(ii) 3-Way Stop Signs at Scenic Drive and West 34th Street (Ward 8) (tabled at November 14, 2016 Public Works Committee meeting) (Item 9.3)

The motion respecting 3-Way Stop Signs at Scenic Drive and West 34th Street, was WITHDRAWN.

(iii) 3-Way Stop Signs at Scenic Drive and Chateau Court (Ward 8) (tabled at November 14, 2016 Public Works Committee meeting) (Item 9.4)

The motion respecting 3-Way Stop Signs at Scenic Drive and Chateau Court, was WITHDRAWN.

(i) GENERAL INFORMATION/OTHER BUSINESS (Item 11)

(i) Changes to the Outstanding Business List (Item 11.1)

The following item was considered complete and removed from the Outstanding Business List:

(i) Wentworth Street South Rail Trail Pedestrian Crossing (Item 9.1 of today's agenda)

(j) PRIVATE AND CONFIDENTIAL (Item 12)

(i) Property Remediation (PW17009/LS17005) (City Wide) (Item 12.1)

Committee moved into Closed Session at 12:38 p.m. respecting Report PW17009/LS15005 about Property Remediation Pursuant to Section 8.1, Sub-section (f) of the City's Procedural By-law 14-300, and Section 239(2), Sub-section (f) of the *Ontario Municipal Act, 2001,* as amended, as the subject matter pertains to the receiving of advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

Direction was provided to staff in Closed Session.

For further disposition on this matter, refer to Item 5.

(k) ADJOURNMENT (Item 13)

There being no further business, the Public Works Committee adjourned at 1:31 p.m.

Respectfully submitted,

Councillor A. VanderBeek
Chair, Public Works Committee

Lauri Leduc
Legislative Coordinator
Office of the City Clerk

Appendix B3: Public Correspondence

Cc: 'Philip, Mohan'
Subject: RE: proposed ramp to 403W

Hello

If you could check your deed that would be helpful. I the meantime we will check back again with Hydro One to confirm their understanding of their access rights to your property.

I will also review the design drawings to confirm the approximate planned offset of the ramp to your fence line, and get back to you with this information.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: April-03-14 10:40 PM
To: Sinke, David
Subject: RE: proposed ramp to 403W

Hi Mr. Sinke,
My understanding was, when I purchased my home, that there was a Hydro 1 access beyond my fence in order for them to service their lines. I will check my title to see. They have been using the area behind my property line to do this for the past. How close to my property linre does the proposed ramp come?

Thanks.

From: David.Sinke@amec.com
To:
CC: Mohan.Philip@hamilton.ca; jim.scale@amec.com; Sonya.Kapusin@cima.ca
Date: Thu, 3 Apr 2014 16:21:45 -0400
Subject: RE: proposed ramp to 403W

Hello

We have reviewed the offset of the existing Hydro Line in the rear lots of the homes on Oneida Blvd. The hydro line is typically about 10 feet inside the rear fence line of the homes, but in some cases as close as approximately 2 feet inside the rear fence line. These dimensions are approximately scaled from aerial photography. Any easement that Hydro One has along this line would be limited to the private lands – Hydro One would not have an easement within the public ROW associated with the Highway 403/Linc/Mohawk Road interchange.

We have been corresponding with Hydro One and have received information from them on their plant. We do not anticipate that the hydro line within the fence line will be affected by the proposed ramp construction. However, there may be some impacts to hydro one plant near Mohawk Rd, within City owned lands, which will be investigated further. We do not anticipate this to be a significant issue..

You had provided several more comments/questions for us to consider – these will be responded to at a later date.

Let us know if you have any further questions.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414
david.sinke@amec.com
amec.com
Be more sustainable - think before you print.

From:
Sent: March-20-14 11:32 AM
To: Transportation Planning
Subject: proposed ramp to 403W

Hi
I believe Hydro 1 has an easement behind the properties on Oneida Blvd, which would be between the proposed ramp and the residential properties. How many feet behind the residential property at Oneida does the Hydro land extend and will the ramp infringe on Hydro's land?
Thanks.

The information contained in this e-mail is intended only for the individual or entity to whom it is addressed.
Its contents (including any attachments) may contain confidential and/or privileged information.
If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents.
If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

From:
Sent: April-28-14 4:41 PM
To: Haron Afzalzada
Cc: Scale, Jim; Philip, Mohan; Sonya Kapusin; tplanning@hamilton.ca
Subject: Re: Surveying in Ancaster

Haron:

Many thanks for the quick response.

Regards,

On 2014-04-28, at 10:20 AM, Haron Afzalzada wrote:

Good morning

My name is Haron Afzalzada and I am the supervisor of this project and will be glad to answer any questions you may have.
J.D. Barnes was conducting a topographic survey for engineering purposes for the City of Hamilton and the Ministry of Transportation. This survey in particular involved us surveying everything to the property limits of Highway 403 (the south limit of your backyard). This includes the strip of land between the noise barrier wall and the fence line at the back of your house. This survey is being carried out for the expansion of Highway 403. Our party chief in the field (Mr. Hassan) asked your mother to gain access to this strip of land because there is no access to it on the southwest end. The noise barrier wall veers north and closes off any access from the Highway. However, your mother was kind enough to provide this access and our crews were able to complete their work quickly and efficiently. Mr. Hassan also provided his business card as I am assuming that is how you got Mr. Hassan's email address. I hope that this matter did not cause any inconvenience to you or your kind mother. If any of you have any further questions I will be more than happy to answer them. Please feel free to contact me by email or by telephone any time.

Have a wonderful day.

Regards,

Haron Afzalzada, B.Eng, O.L.S.
Field Supervisor
Geodetic & Engineering Surveys
J.D. Barnes Limited
140 Renfrew Drive | Suite 100
Markham | ON | L3R 6B3
T: 905-477-3600 x290
F: 905-477-3882

On 4/28/2014 8:29 AM, Faiz Hassan wrote:

Sent from Samsung Mobile

-------- Original message --------
Subject: Surveying in Ancaster
From:
To: fhassan@jdbarnes.com
CC:

Mr. Hassan:

My mother, who is 83, indicates that J.D. Barnes staff knocked on her door this morning with regard to surveying activity being carried out in the area. She had not received any advance notice that there would be surveying activity on - or in the vicinity of, or requiring access through - her property.

Can you please provide some details regarding J.D. Barnes' work in this location? Specifically,

* For whom is J.D. Barnes working for here? City of Hamilton? MTO? Hydro? Cable? Bell? Other?

* Can we obtain contact information for the proponent's representative?

* Why is the survey being carried out?

* What is the nature of the survey work being carried out? OLS? Topographic? Other?

Thanks,

Sonya Kapusin

From: Sinke, David <David.Sinke@amec.com>
Sent: May-08-14 3:33 PM
To: '
Cc: Sonya Kapusin; Scale, Jim; Philip, Mohan
Subject: FW: Surveying in Ancaster
Attachments: Cross Section (House .pdf; Plan Section.pdf

Hello

As requested, attached is our preliminary plan and section for the Hwy 403 Westbound Ramp, at the back of Oneida. This is based on the preliminary information and design we have at this point and may be revised as the study proceeds.

Let us know if you have any questions or concerns at this point.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: May-07-14 7:04 AM
To: Sinke, David
Subject: Re: Surveying in Ancaster

Hi David:

Have you been able to obtain more information on the proximity of the ramp to the subject property?

Ideally, "existing" and "proposed" cross sections would be the most illustrative.

No doubt AMEC's practice is to produce cross sections which show actual topographic elevations all the way to the residential property line, rather than the bad habit of some consultants who just show a nebulous dashed line from the edge of the roadway to some nebulous property line beyond.

Thanks,

On 2014-05-02, at 8:53 AM, Sinke, David wrote:

a correction regarding the PIC date. The PIC is scheduled for June 12, not June 18 as noted below.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: Sinke, David
Sent: May-02-14 8:39 AM
To:
Cc: Scale, Jim; Philip, Mohan; Sonya Kapusin; tplanning@hamilton.ca
Subject: RE: Surveying in Ancaster

Hello

We are currently completing our preferred preliminary design, but it will not be available for review until the Public Information Center scheduled for June 18.

If you can provide us with the address of your mother's house, we can provide you with more information on the proximity of the ramp to the rear of her property.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
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Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: April-28-14 4:59 PM
To: Sinke, David
Cc: Scale, Jim; Philip, Mohan; Sonya Kapusin; tplanning@hamilton.ca
Subject: Re: Surveying in Ancaster

Hi David:

Many thanks for the response.

We're glad to see work underway toward eventual reinstatement of the on-ramp that was ill-advisedly removed back in 2001.

Given the extents of the topographic survey, are these extents a matter of conservative prudence, or are property acquisitions anticipated? We noticed that the PIC #1 Information package rates the new WB on-ramp alternative as "poor" on the Economic criterion (property acquisition costs, construction costs). Is a preliminary functional plan and profile available? Are preliminary Property Impact Plans available, if applicable?

Many thanks,

On 2014-04-28, at 10:50 AM, Sinke, David wrote:

Hello

JD Barnes was completing survey work along the rear lots of properties on Oneida Blvd (between the rear lot line and the noise barrier wall). This work was being completed as a sub-consultant to AMEC, as part of the Mohawk Westbound Ramp Class EA.

Please see our responses to your enquiries, below. Please do not hesitate to contact us if you have any further questions or any concern with this work.

Regards,

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Principal, Transportation Engineering
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Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From:
Sent: April-26-14 8:13 PM
To: tplanning@hamilton.ca; Sinke, David
Subject: Fwd: Surveying in Ancaster

Mohan / David:

Please see below regarding survey work being carried out in the vicinity of Oneida Blvd. and the 403 corridor in Ancaster.

Do you have any knowledge of this work?

Thanks,

Begin forwarded message:

From:
Date: April 25, 2014 6:44:06 PM EDT
To: fhassan@jdbarnes.com
Subject: Surveying in Ancaster

Mr. Hassan:

My mother, who is 83, indicates that J.D. Barnes staff knocked on her door this morning with regard to surveying activity being carried out in the area. She had not received any advance notice that there would be surveying activity on - or in the vicinity of, or requiring access through - her property.

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* What is the nature of the survey work being carried out? OLS? Topographic? Other? Topographic

Thanks,

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If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

Sonya Kapusin

From:
Sent: May-08-14 5:53 PM
To: Sinke, David
Cc: Sonya Kapusin; Scale, Jim; Philip, Mohan
Subject: Re: Surveying in Ancaster

Hi David:

This is very helpful. Much appreciated.

Many thanks,

On 2014-05-08, at 3:33 PM, Sinke, David wrote:

Hello

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david.sinke@amec.com
amec.com

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Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
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Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: John Stephenson [mailto:stephenson.892@rogers.com]
Sent: April-26-14 8:13 PM
To: tplanning@hamilton.ca; Sinke, David
Subject: Fwd: Surveying in Ancaster

Mohan / David:

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* Why is the survey being carried out? To confirm ground elevations and topographic features in the corridor between the noise barrier wall and the rear lot line.

* What is the nature of the survey work being carried out? OLS? Topographic? Other? Topographic

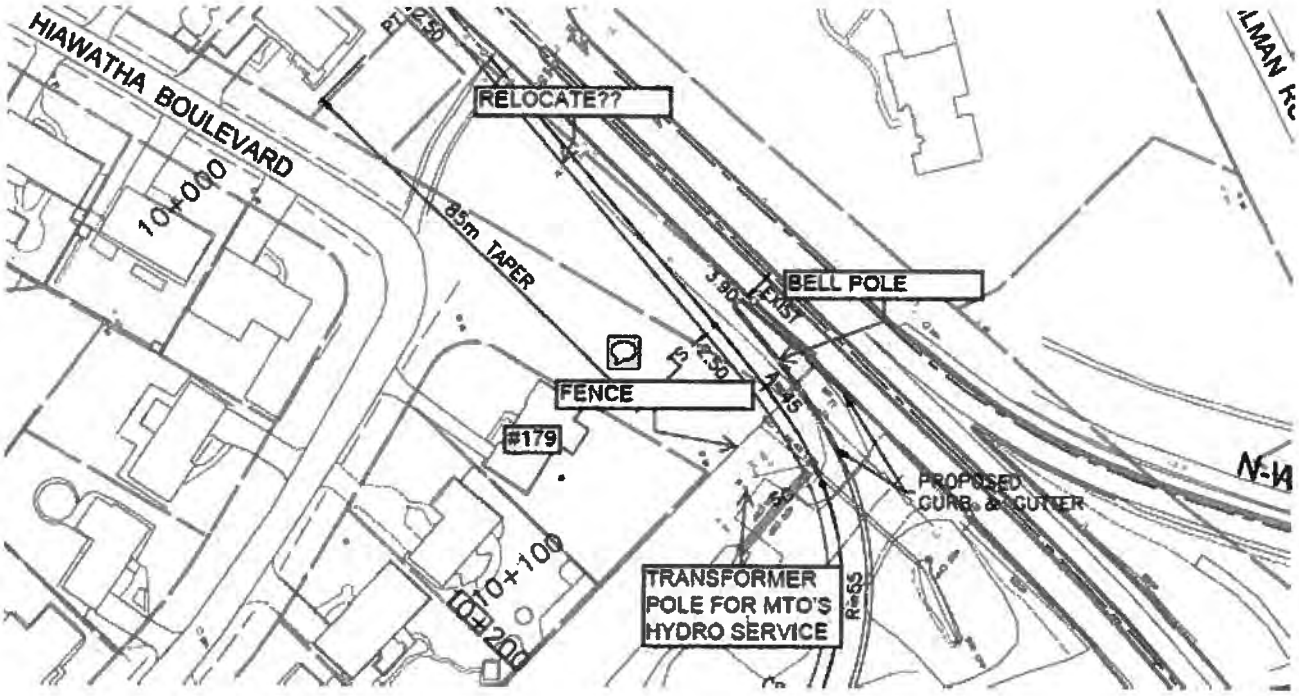
Thanks,

From: D'Arcy.McKinnon@HydroOne.com
Sent: July-09-14 3:07 PM
To: john.nguyen@amec.com
Cc: David.Sinke@amec.com; jim.scale@amec.com; Sonya Kapusin; John.MacDonald2@HydroOne.com; ted.sloat@HydroOne.com; mary.mcfadden@HydroOne.com
Subject: RE: proposed ramp to 403W
Attachments: Hydro One comment - Plan - 2014 03 28.pdf

Hi John,

We usually have to work on these poles by climbing them. If you are putting up a noise barrier, then we would have to access the poles from the Hiawatha Blvd road allowance, beside house #179. Can you remove your fence here so we can have easier access?

One of the hydro poles on your plan is actually a Bell pole. See below, "Bell Pole".
We do have a hydro pole right on the edge of your proposed ramp – labelled "Relocate??" below. Do you need us to prepare an estimate to relocate this pole?



Thank you,

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Thursday, April 10, 2014 11:09 AM
To: MCKINNON D'Arcy; SLOAT Ted; MCFADDEN Mary
Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: RE: proposed ramp to 403W

Darcy,

We are impacting the existing entrance located south on Mohawk, at the beginning of the proposed W-S ramp (Radius=55/90). Most likely the entrance will be relocated, possibly north-west of existing. There is also a potential for a noise barrier wall installation adjacent to the outside shoulder (2.50m) that will separate residency and the ramp. Can you please confirm if hydro one is using this entrance to access their poles located on the back yards on Oneida Blvd, and/or are they using a different access route, possibly coming down East from Hiawatha/ Oneida Blvd (See attachments). If this is the case, can you confirm what type of vehicles are accessing these poles.

Thank you.
John

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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From: D'Arcy.McKinnon@HydroOne.com [mailto:D'Arcy.McKinnon@HydroOne.com]
Sent: April-09-14 8:49 AM
To: Nguyen, John; ted.sloat@HydroOne.com; mary.mcfadden@HydroOne.com
Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: RE: proposed ramp to 403W

Hi John,

It would probably take our real estate lawyers weeks or months to dig up these records from our archives.

What the customer has said below regarding his title/deed makes sense. It would be easier to access our pole lines with trucks from the from the back. It doesn't appear that your plan would interfere with this access. Can you confirm this?

Thank you,

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Tuesday, April 08, 2014 11:11 AM
To: MCKINNON D'Arcy; SLOAT Ted; MCFADDEN Mary

Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: RE: proposed ramp to 403W

Darcy,

Could you please confirm Hydro One access rights/terms of easement agreement for the Hydro Poles located on private property (back yards) on Oneida Drive.
I've bubbled the poles location in red on our conceptual plan for the Mohawk Ramp alignment.

Thanks,

John

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

Be more sustainable - think before you print.

From: Sinke, David
Sent: April-04-14 7:35 AM
To:
Cc: 'Philip, Mohan'
Subject: RE: proposed ramp to 403W

Hello

If you could check your deed that would be helpful. I the meantime we will check back again with Hydro One to confirm their understanding of their access rights to your property.

I will also review the design drawings to confirm the approximate planned offset of the ramp to your fence line, and get back to you with this information.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From:
Sent: April-03-14 10:40 PM
To: Sinke, David
Subject: RE: proposed ramp to 403W

Hi Mr. Sinke,
My understanding was, when I purchased my home, that there was a Hydro 1 access beyond my fence in order for them to service their lines. I will check my title to see. They have been using the area behind my property line to do this for the past. How close to my property linre does the proposed ramp come?

Thanks.

From: David.Sinke@amec.com
To
CC: Mohan.Philip@hamilton.ca; jim.scale@amec.com; Sonya.Kapusin@cima.ca
Date: Thu, 3 Apr 2014 16:21:45 -0400
Subject: RE: proposed ramp to 403W

Hello

We have reviewed the offset of the existing Hydro Line in the rear lots of the homes on Oneida Blvd. The hydro line is typically about 10 feet inside the rear fence line of the homes, but in some cases as close as approximately 2 feet inside the rear fence line. These dimensions are approximately scaled from aerial photography. Any easement that Hydro One has along this line would be limited to the private lands – Hydro One would not have an easement within the public ROW associated with the Highway 403/Linc/Mohawk Road interchange.

We have been corresponding with Hydro One and have received information from them on their plant. We do not anticipate that the hydro line within the fence line will be affected by the proposed ramp construction. However, there may be some impacts to hydro one plant near Mohawk Rd, within City owned lands, which will be investigated further. We do not anticipate this to be a significant issue.

You had provided several more comments/questions for us to consider – these will be responded to at a later date.

Let us know if you have any further questions.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
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Tel 905-335-2353 Fax 905-335-1414
david.sinke@amec.com
amec.com
Be more sustainable - think before you print.

From:
Sent: March-20-14 11:32 AM
To: Transportation Planning
Subject: proposed ramp to 403W

Hi Mr. Phillip,
I believe Hydro 1 has an easement behind the properties on Oneida Blvd, which would be between the proposed ramp and the residential properties. How many feet behind the residential property at 167 Oneida does the Hydro land extend and will the ramp infringe on Hydro's land?
Thanks.

The information contained in this e-mail is intended only for the individual or entity to whom it is addressed.
Its contents (including any attachments) may contain confidential and/or privileged information.
If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents.
If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

Sonya Kapusin

From:
Sent: September-15-14 9:08 PM
To: Sonya Kapusin
Subject: RE: Additional Access to Brantford-bound Hwy 403, Ancaster

Hi Ms. Kapusin,
Thank you for your response. I will review it and get back to you next week, as I would appreciate your insight.

From: Sonya.Kapusin@cima.ca
To:
CC: david.sinke@amec.com; jim.scale@amec.com
Subject: Additional Access to Brantford-bound Hwy 403, Ancaster
Date: Fri, 12 Sep 2014 18:43:43 +0000

Dear

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy with attachments will be mailed to you.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Tel. : 289 288-0287 # 6812

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Sonya Kapusin

From:
Sent: September-22-14 10:54 AM
To: Sonya Kapusin
Subject: RE: Additional Access to Brantford-bound Hwy 403, Ancaster

Hi Ms. Kapusin,
I read, with interest, the reports you sent and have a few questions.

1) How high will the replacement berm be?

2) Will it extend from the current sound barrier to the last house on Oneida?

3) If the berm is not as high as the current sound barrier, could we have a chainlink fence on top of it with the "acoustifence" attached to it? (It is very low cost and would be within the stated budget) http://www.acoustiblok.com/acoustical_fence.php

4) With reference to the sound barrier being constructed for R1, along Mohawk Rd, will it cover the pathway entrance which is currently acting as a sound tunnel?

Thanks for taking the resident's concerns into consideration.

From: Sonya.Kapusin@cima.ca
To:
CC: david.sinke@amec.com; jim.scale@amec.com
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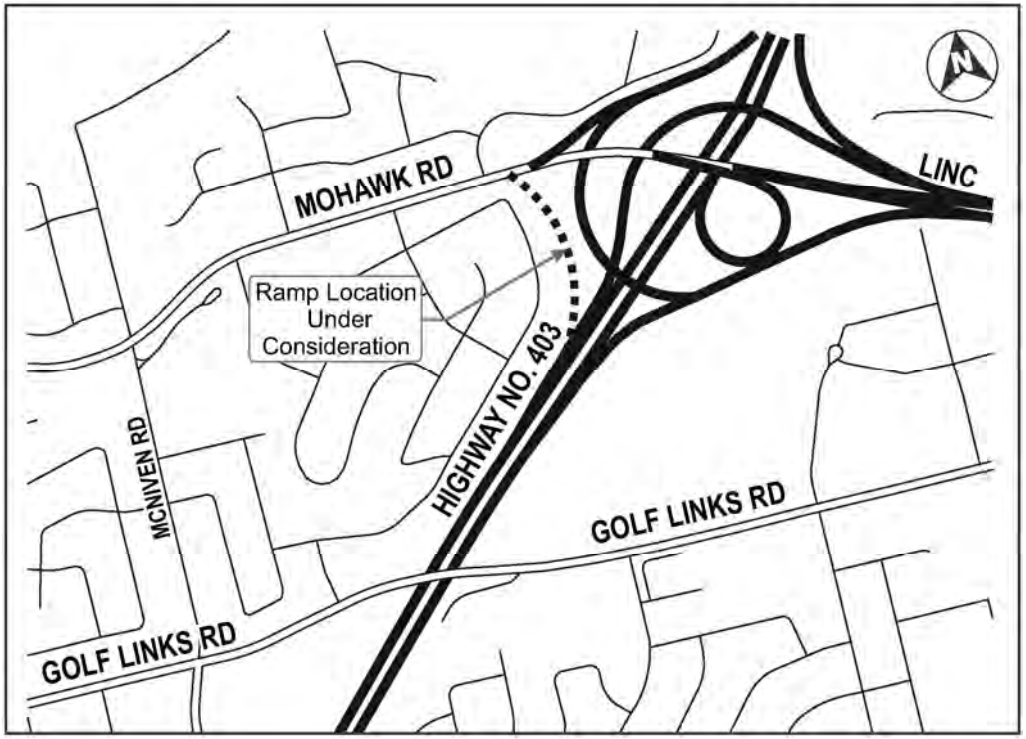


Hamilton

The City of Hamilton

Highway 403 Westbound On-Ramp at Mohawk Road

Class Environmental Assessment (Class EA)

Presentation to the Public Works Committee

September 15, 2014

amec

CIMA+

Purpose, Goals and Objectives

Purpose

- Complete feasibility study and Class EA process for proposed ramp

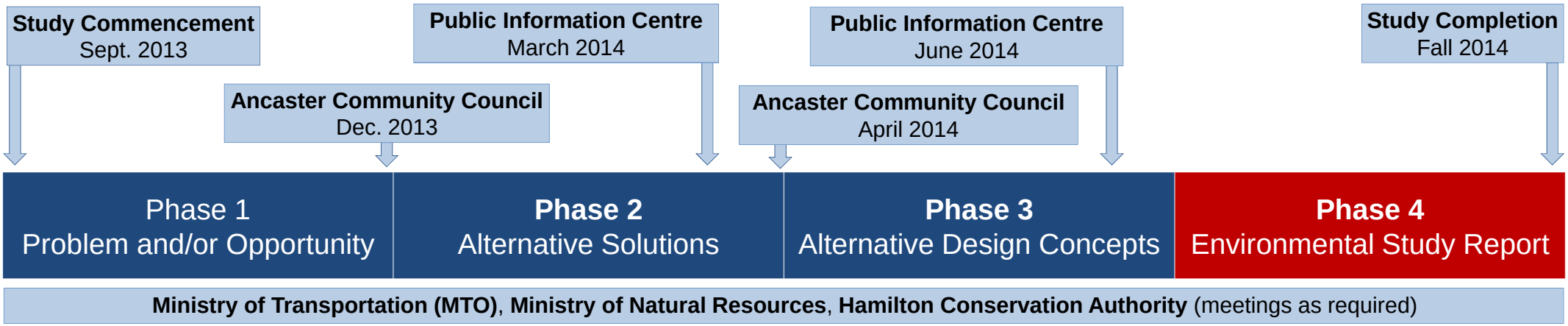
Goals and Objectives

- Confirm need and justification for improvements
- Determine operational and geometric feasibility of proposed ramp
- Assess impact of proposed ramp on Highway 403 operations
- Assess impact of proposed ramp on natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of Municipal Class EA process

Status

- At present, the Study is in **Phase 4** of the Municipal Class EA process

Status of Study



Problem/Opportunity and Preferred Solution

Problem/Opportunity:

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway (Linc) interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access from Ancaster
- Due to increasing traffic demands on Wilson Street in the Ancaster core, residents have requested that the Brantford-bound ramp be constructed
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

Preferred Solution:

- ***Provide direct access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403***
- ***Introduce or enhance programs and facilities that promote use of other modes of transportation, such as transit and active transportation (part of Ancaster Transportation Master Plan (TMP))***

Alternative Design Concepts

- Alternative design concepts for the preferred solution were developed in consultation with MTO:
  - Four (4) design alternatives were assessed for the proposed exit ramp from Mohawk Road
  - Two (2) design alternatives were assessed for the proposed entrance ramp to the Linc-Hwy 403 Brantford-bound ramp

MTO Concerns and Resolutions

Concern

- Previously, MTO identified the need to widen Highway 403 from 4 to 6 lanes
- Currently, MTO does not have plans to widen Highway 403
- As an interim solution, MTO may widen the Linc to Highway 403 Brantford-bound ramp to accommodate 2 lanes

Resolution

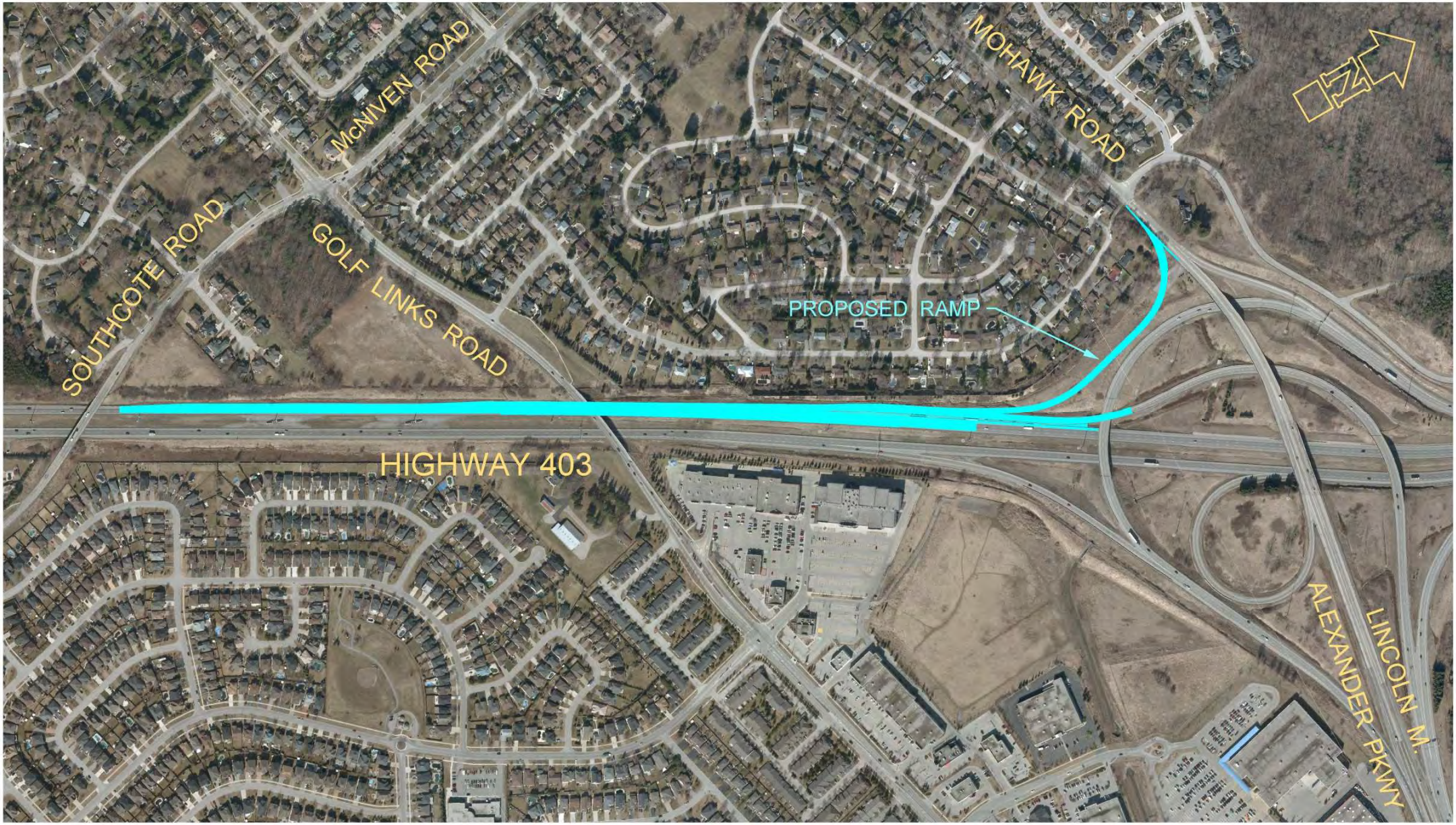
- Concept design for extending the Linc to Highway 403 Brantford-bound ramp to assess feasibility and impacts
- Implementation of the proposed ramp that does not preclude MTO from implementing operational improvements

Recommended Design Concept

Description:

- New deceleration lane on Mohawk Road
- Realignment of existing Linc-Hwy 403 Brantford-bound ramp
- New single lane Mohawk Road exit ramp connecting to realigned Linc-Hwy 403 ramp
- Modified Linc-Hwy 403 acceleration lane on Hwy 403
- Extended Hwy 403 truck climbing lane
- New and modified pavement marking and signing
- Utility relocation and mitigation
- Landscaping
- New/modified berm
- New noise barrier along Mohawk Road
- New and modified highway and roadway illumination
- Stormwater quality and quantity treatment
- Budget estimate for construction is $4.0 Million

Recommended Design Concept



Municipal Road Improvements Recommended in Ancaster TMP

Roadway Segments	
Wilson Street	Widen to 3 lanes (with centre 2-way left turn) where feasible
Rousseaux Street	
Mohawk Road	

Intersection	
Wilson Street / Rousseaux Street / Old Dundas Road	Intersection improvements required (subject to EA process)
Mohawk Road / McNiven Road / Lime Kiln Road	Added 2-way left turn

- **Current EA reconfirms the required set of improvements**
- **Proposed works have no significant impact on level of service**
- **Main benefits of the proposed ramp are relief of approximately 300 vehicles per day along Wilson Street through the Village area, direct access to westbound Highway 403, and improved network connectivity**

Key Issues and Mitigation

Factor	Interested Party	Key Issues and Mitigation
Property	Property Owners	No public property acquisition Slight impact on City property 3 m high noise wall required for 3 houses backing on to Mohawk Road
Traffic	Road Users and Property Owners	Advanced notice of construction through signage and flyers Develop Traffic Management Plan Reduce construction time, when possible
	MTO Local Residents	Verify implementation of the ramp will not preclude MTO from implementing local operational improvements should future six (6) lane widening not be implemented A new/modified berm and landscaping will be provided between the new Brantford-bound ramp and berm to address concerns raised by local residents regarding noise and visual impacts associated with the ramp Height of new/modified berm will be maximized to the extent feasible without impacting existing mature vegetation within the highway right-of-way
	City of Hamilton	Develop plan to manage local traffic during construction
Safety	General Public Residents along Rousseaux Street and Mohawk Road City of Hamilton MTO	As part of future projects, implement recommendations of the Ancaster TMP for improvements to sidewalks, bike lanes and local traffic

Next Steps

- Continue discussions with MTO to proceed to the next stage of the Highway 403 Westbound Ramp Study
- File the Environmental Study Report for public review
- Subject to Council approval for additional funding, undertake risk analysis, design and tender documentation
- Report to Council on the status of the proposed ramp and the recommended financial strategy
- Explore cost sharing options with MTO for the full cost of designing and constructing the proposed ramp

Thank you / Questions

The City of Hamilton

Highway 403 Brantford-bound Access Ramp at Mohawk Road Class Environmental Assessment

Micro Simulation - updated

Oct 03, 2014

Previously

- **Future year scenarios including the Mohawk Road ramp were all shown to be operational satisfactory under the assumption that Highway 403 is widened**
- **Micro-simulation initially suggested that the higher 2031 forecasts without Hwy 403 widening was problematic**
- **Increasing realization that the forecasts were unobtainable without the widening**
- **July 17 MTO meeting capped forecasts under the do-nothing (no-widening scenario) at:**

Section/ Year	2008	2021	2031
WB 403	3,800	4,000	4,000
Linc on-ramp	1,400	1,500	1,500

- **Micro-simulation redone with closer focus (no skewing of results) on the merges – 403/Linc ramp & Linc/Mohawk ramp – constrained to maximum serviceable capacity of VISSIM**
- **Videos were taken of Hwy 403 WB in PM in May; additional videos of Linc ramp taken Sept 24&25 of Linc on-ramp**
- **Observations:**
  - **Hwy 403 WB flow saturated as a result of lane drop (down to 2) – queue lengths vary but can be extensive**
  - **Linc ramp mostly free-flow, slow downs on merge, occasional queues**
  - **Drivers in this area are not aggressive drivers (unlike most of GTA)**

Videos and Simulations

Results

Mohawk Ramp Simulation Analysis Results - 2008 & 2031 PM

Location	Performance Measures	Without Mohawk Ramp		With Mohawk Ramp (200 veh)	With Mohawk Ramp (100 veh)	With Mohawk Ramp (NO veh)
		2008	2031	2031	2031	2031
Highway 403 WB(1)	95%ile Queue(m)	1020	1260	1400	1340	1280
On-ramp from Lincoln (2)	95%ile Queue(m)	0	0	1200	738	190
Highway 403 WB mainline (3)	Average Speed (km/h)	40	35	31	33	34
Current on-ramp from Lincoln (4)	Average Speed (km/h)	46	41	23	33	39
New Mohawk on-ramp (5)	Average Speed (km/h)	N/A	N/A	30	35	N/A

(1) Queue on Highway 403 WB mainline upstream from the end of truck climbing lane

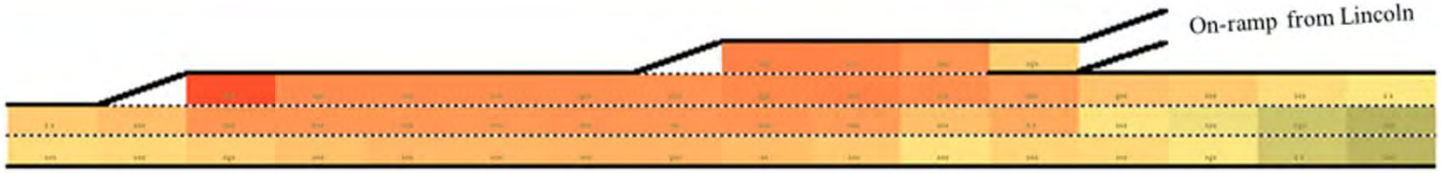
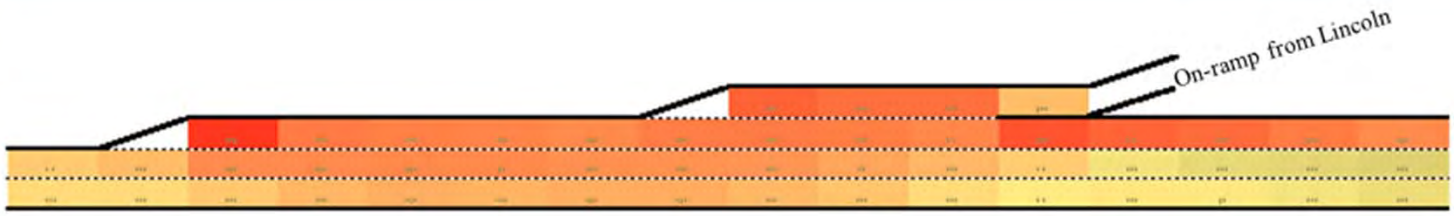
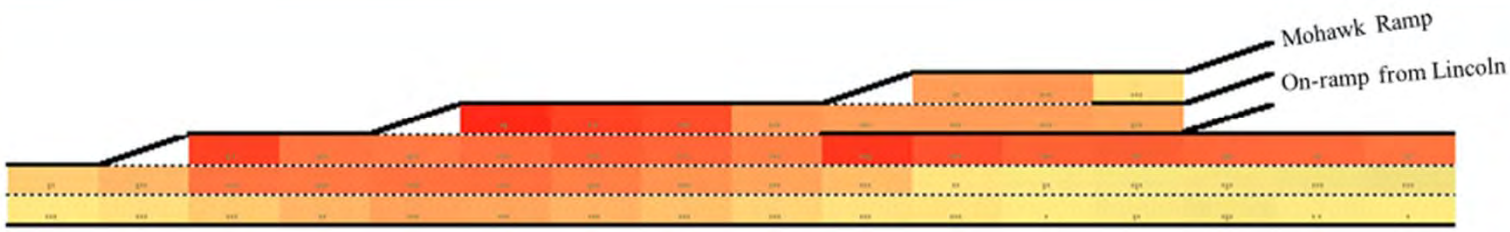
(2) Queue on the Lincoln ramp upstream from the end of merging section with Mohawk ramp

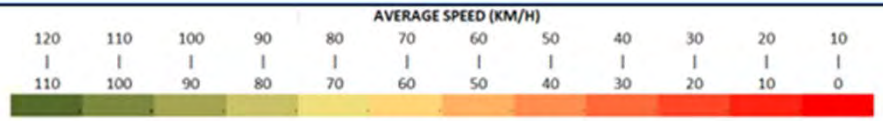
(3) Average speed on Highway 403 WB mainline on the section between Mohawk bridige and the end of truck climbing lane

(4) Average speed on the Lincoln ramp on the section between the beginning of the ramp and the end of merging section with Highway 403 WB mainline

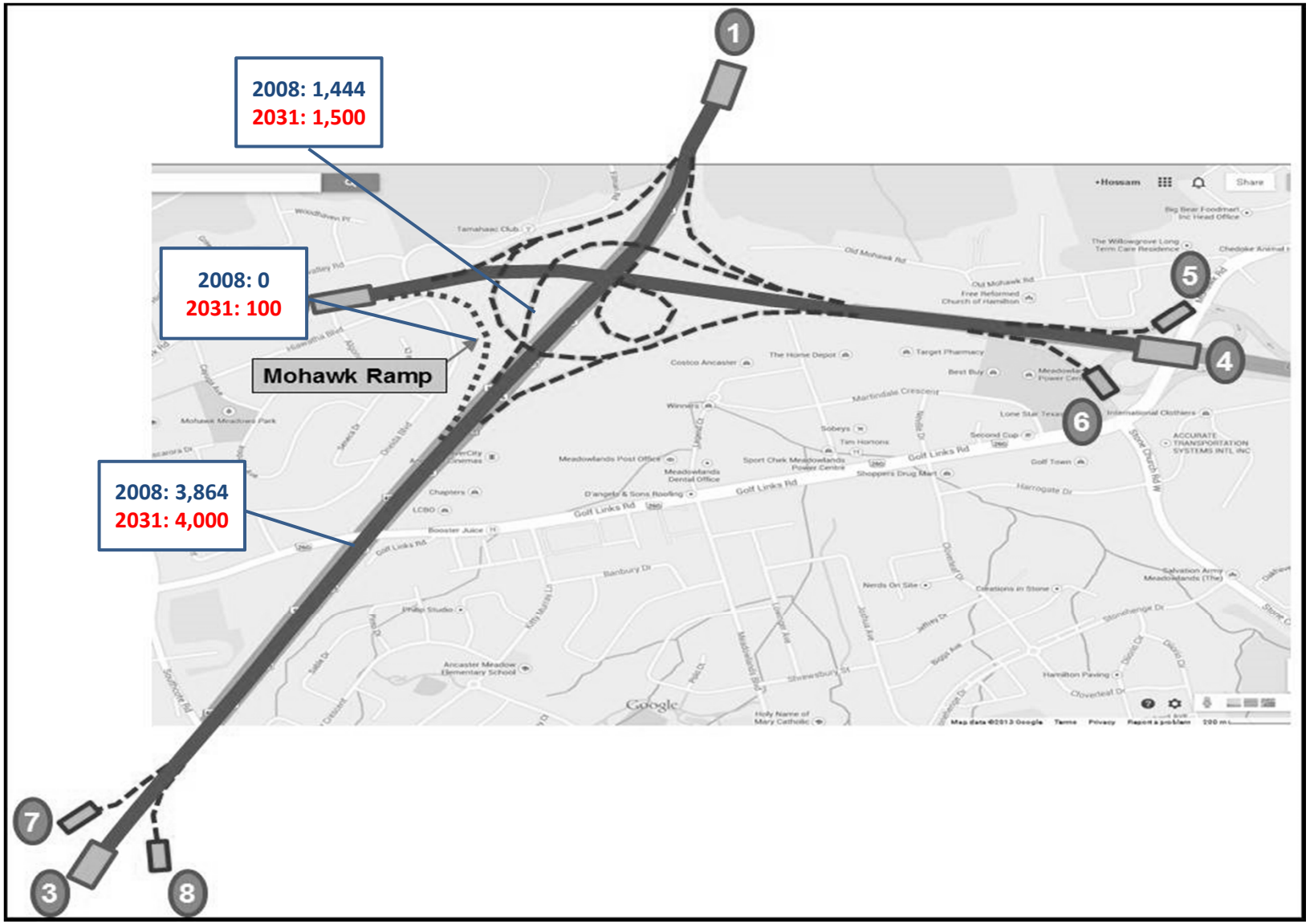
(5) Average speed on the future Mohawk ramp on the section between the beginning of the ramp and the end of merging section with Highway 403 WB mainline

Speed Diagrams

Scenario	Color-Coded Speed Diagram
2008	
2031 Without Mohawk Ramp	
2031 With Mohawk Ramp (100 Veh)	



Microsimulation Model – PM Volumes Input



Discussion

- **Clarifications?**
- **Next steps**

Sonya Kapusin

From: Steinberg, Gregory <gsteinberg@mcmaster.ca>
Sent: October-06-14 4:57 PM
To: Christopher Chahil
Cc: Sonya Kapusin
Subject: RE: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Dear Christopher,
Further to your email and letter I am inquiring about the status of noise attenuation on westbound Hwy403.
Sincerely,

From: Christopher Chahil [mailto:Christopher.Chahil@cima.ca]
Sent: June-06-14 3:42 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6845 / Fax: 289-288-0285

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Appendix B4: Agency Correspondence

[redacted]

From: Sonya Kapusin
Sent: December-19-13 6:09 PM
To: 'mstone@conservationhamilton.ca'
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com); Marcks, Heather (heather.marcks@amec.com); Stephen Keen
Subject: Mohawk Road Ramp Feasibility and EA Study

Importance: High

Dear Michael,

This message is a kind request for a meeting with the Hamilton Conservation Authority to review the City of Hamilton's feasibility and Class EA study for the proposed Hwy 403 westbound access ramp at Mohawk Road in Ancaster. I am working with the City's consultant team on this study and we would appreciate the opportunity of meeting with you in early January to review the existing site conditions and potential requirements of the conservation authority.

If you could forward the dates when you are available, I would be happy to coordinate a meeting date with the project team.

For your information, we plan to contact the Ministry of Natural Resources to join us for this meeting or schedule a separate meeting. We welcome suggestions on who to contact at the Ministry.

Thank you and I look forward to your reply. If you have any questions, please do not hesitate to contact me.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager, Environmental Planning

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6812 / Fax: 289-288-0285
[redacted]

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[redacted]

From: Sonya Kapusin
Sent: December-19-13 6:19 PM
To: 'lorraine.norminton@ontario.ca'
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com); Marcks, Heather (heather.marcks@amec.com); Stephen Keen
Subject: Mohawk Road Ramp Feasibility and EA Study

Importance: High

Dear Lorraine,

This message is a kind request for a meeting with the Ministry of Natural Resources to review the City of Hamilton's feasibility and Class EA study for the proposed Hwy 403 westbound access ramp at Mohawk Road in Ancaster. I am working with the City's consultant team on this study and we would appreciate the opportunity of meeting with you in early January to review the existing site conditions and potential requirements of the Ministry.

If you could forward the dates when you are available, I would be happy to coordinate a meeting date with the project team.

We have also requested a meeting with the Hamilton Conservation Authority and may be able to arrange a joint meeting with the Ministry .

Thank you and I look forward to your reply. If you have any questions, please do not hesitate to contact me.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager, Environmental Planning

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6812 / Fax: 289-288-0285
[redacted]

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[redacted]

From: Norminton, Lorraine (MNR) <lorraine.norminton@ontario.ca>
Sent: January-08-14 10:14 AM
To: Sonya Kapusin
Subject: RE: Mohawk Road Ramp Feasibility and EA Study

Hi Sonya
Sorry for the delay, just getting back into the swing of things.
My availability in the next couple of weeks is:

Jan 13-15 – Anytime
Jan 20 -24 – Anytime

Could you forward me any information you may have so I can review before hand.
Thanks

Lorraine

Lorraine Norminton
District Planner
Ministry of Natural Resources, Guelph District
1 Stone Rd West
Guelph, ON N1G 4Y2
(P) 519-826-4912
(F) 519-826-4929
email: lorraine.norminton@ontario.ca

From: Sonya Kapusin [mailto:Sonya.Kapusin@cima.ca]
Sent: January-08-14 8:51 AM
To: Norminton, Lorraine (MNR)
Subject: RE: Mohawk Road Ramp Feasibility and EA Study
Importance: High

Hello Lorraine,

Have you had a chance to review this meeting request and would you be able to reply this week with your availability?

Thank you,

Sonya Kapusin
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From: Sonya Kapusin
Sent: December 19, 2013 6:19 PM
To: 'lorraine.norminton@ontario.ca'
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com); Marcks, Heather (heather.marcks@amec.com); Stephen Keen
Subject: Mohawk Road Ramp Feasibility and EA Study
Importance: High

Dear Lorraine,

This message is a kind request for a meeting with the Ministry of Natural Resources to review the City of Hamilton's feasibility and Class EA study for the proposed Hwy 403 westbound access ramp at Mohawk Road in Ancaster. I am working with the City's consultant team on this study and we would appreciate the opportunity of meeting with you in early January to review the existing site conditions and potential requirements of the Ministry.

If you could forward the dates when you are available, I would be happy to coordinate a meeting date with the project team.

We have also requested a meeting with the Hamilton Conservation Authority and may be able to arrange a joint meeting with the Ministry .

Thank you and I look forward to your reply. If you have any questions, please do not hesitate to contact me.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager, Environmental Planning

CIMA+
Partners In Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6812 / Fax: 289-288-0285

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Nguyen, John

From: Ann Newman [ann.newman@enbridge.com]
Sent: January-10-14 10:57 AM
To: Nguyen, John
Cc: Eastern Region Crossing
Subject: Enbridge Pipelines INc. at Hwy 403 - Mohawk Road Interchange

John .. as per our telephone conversation, Enbridge Pipelines INc. does not have any facilities that will be impacted by the interchange construction for Mohawk Road and Hwy 403 – Hamilton.

If you require any additional information regarding Enbridge Pipelines Inc. facilities please let me know.
Thank you.

Ann Newman CET SRWA
Supervisor, Right-of-Way Services, Eastern Region

Enbridge Pipelines Inc.
tel: 519-339-0503 : fax: 519-339-0510
1086 Modeland Rd Bldg 1050 1st Floor Sarnia ON N7S 6L2
www.enbridge.com

Integrity.Safety.Respect

Nguyen, John

From: Sinke, David
Sent: January-22-14 3:53 PM
To: Nguyen, John; Scale, Jim
Subject: FW: Highway 403 Westbound Access Ramp Project Class EA

FYI and records.

From: Cyrus.Elmpak-Mackie@HydroOne.com [mailto:Cyrus.Elmpak-Mackie@HydroOne.com]
Sent: January-22-14 3:43 PM
To: tplanning@hamilton.ca; Sinke, David
Cc: ierullo@HydroOne.com; w.d.kloostra@HydroOne.com
Subject: Highway 403 Westbound Access Ramp Project Class EA

In our initial review, we can confirm that there are no Hydro One Transmission Facilities in the subject area.

Please be advised that this is only a preliminary assessment based on current information. No further consultation with Hydro One Networks Inc. is required if no changes are made to the current information.

If you have any further questions or concerns, please feel free to contact me.

Regards,

Cyrus Elmpak-Mackie
Hydro One Networks Inc.
Transmission Asset Management
483 Bay Street, North Tower 15th Floor
Toronto, ON, M5G 2P5
416.345.1265

From: Scale, Jim <jim.scale@amec.com>
Sent: January-22-14 3:58 PM
To: Sonya Kapusin
Subject: FW: Highway 403 Westbound Access Ramp Project Class EA

From: Sinke, David
Sent: January-22-14 3:53 PM
To: Nguyen, John; Scale, Jim
Subject: FW: Highway 403 Westbound Access Ramp Project Class EA

FYI and records.

From: Cyrus.Elmpak-Mackie@HydroOne.com [mailto:Cyrus.Elmpak-Mackie@HydroOne.com]
Sent: January-22-14 3:43 PM
To: tplanning@hamilton.ca; Sinke, David
Cc: ierullo@HydroOne.com; w.d.kloostra@HydroOne.com
Subject: Highway 403 Westbound Access Ramp Project Class EA

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If you have any further questions or concerns, please feel free to contact me.

Regards,

Cyrus Elmpak-Mackie
Hydro One Networks Inc.
Transmission Asset Management
483 Bay Street, North Tower 15th Floor
Toronto, ON, M5G 2P5
416.345.1265

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Hamilton Conservation Authority

Healthy Streams...Healthy Communities!

BY E-MAIL

January 23, 2014 File: CEA-MUN/14-01

Mr. Mohan Philip
City of Hamilton –Public Works
77 James Street North, Suite 400
Hamilton, ON L8R 2K3

Dear Mr. Philip:

Hamilton Conservation Authority Comments
Highway 403 Westbound Access Ramp Project (at Mohawk Road), City of Hamilton

Hamilton Conservation Authority (HCA) staff has reviewed the Preliminary Design Terrestrial Ecosystems and Fish and Fish Habitat Existing Conditions Report prepared by AMEC dated January, 2014. Based on our review of the report and our recent joint meeting regarding the project, we provide the following comments.

Preliminary Design Terrestrial Ecosystems and Fish and Fish Habitat Existing Conditions Report

The breeding bird surveys for this report were conducted less that 10 days apart and were completed late in the breeding bird season. Species that are earlier breeders or difficult to detect later in the season may have been missed. In addition, no surveys appear to have been completed in the southern portion of the study area. Please clarify why the surveys were restricted to the northern part of the study area and why they were completed so late in the season.

Floodplain, Drainage and Stormwater Management

Staff has completed a review of our files with regard to floodplain information for Tiffany Creek in the vicinity of the existing interchange. The highest flood elevation associated with the Regional Storm event is approximately 224.69 metres within the detention pond upstream of the LINC. The top of the berm of the stormwater management facility is 225.0 metres. Based on our elevation contour information, the spillway for any potential flooding over the berm is at the northeast limit of the facility adjacent to the COSTCO building. As the proposed ramp is well west of this location, it is staff opinion that the proposed construction would not result in interruption of the existing floodplain storage and conveyance even if the 1200mm culvert traversing the interchange is clogged.

P.O. Box 81067, 838 Mineral Springs Road, Ancaster, Ontario L9G 4X1 ♦ Phone: 905-525-2181 or 905-648-4427
Office Fax: 905-648-4622 ♦ Shop Fax: 905-525-2214 ♦ E-mail: nature@conservationhamilton.ca ♦ Website: www.conservationhamilton.ca

The proposal to address stormwater management for the proposed ramp access through enhanced swales is satisfactory to our office given the relatively small footprint of the project. However, we do recommend that the existing drainage pattern along the west side of Highway 403 be preserved as part of the detailed design for the ramp.

If you have any further questions, please do not hesitate to contact the undersigned at ext. 131.

Yours truly,

Darren Kenny

Darren Kenny
Watershed Officer

c.c. David Sinke, AMEC (by e-mail)

From: Sinke, David <David.Sinke@amec.com>
Sent: January-24-14 8:51 AM
To: Sonya Kapusin; Rideout, Daryl T; Bishop, Brian
Cc: Scale, Jim
Subject: FW: HCA Comments on Highway 403 Westbound Access Ramp EA
Attachments: cea-mun-14-01_201401230940.pdf

FYI and review.

David

From: Kenny, Darren [mailto:Darren.Kenny@conservationhamilton.ca]
Sent: January-23-14 10:27 AM
To: Philip, Mohan; Sinke, David
Subject: HCA Comments on Highway 403 Westbound Access Ramp EA

Mohan/David,

Further to our meeting on Monday of this week, please find our initial comments on the EA attached.

Darren Kenny, B.Sc., (Hons.)
Watershed Officer
Hamilton Conservation Authority
P.O. Box 81067, 838 Mineral Springs Road
Ancaster, Ontario L9G 4X1
Tel - 905-525-2181, ext. 131
Fax - 905-648-4622
darren.kenny@conservationhamilton.ca
Website - www.conservationhamilton.ca

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Thank you.

From: Scale, Jim <jim.scale@amec.com>
Sent: February-04-14 5:25 PM
To: Sinke, David
Cc: 'Philip, Mohan'; Sonya Kapusin; Nguyen, John
Subject: FW: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon
Attachments: 403-MOHAWK RD RAMP.pdf

From: D'Arcy.McKinnon@HydroOne.com [mailto:D'Arcy.McKinnon@HydroOne.com]
Sent: February-04-14 3:03 PM
To: Nguyen, John
Cc: ted.sloat@HydroOne.com; Zone2Scheduling@HydroOne.com; mary.mcfadden@HydroOne.com
Subject: RE: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon

Hi John,

We have some plant in the vicinity of your proposed ramp. Please see the attached map showing the general location of our lines in the area.
It looks like at least two of our poles may be in conflict (Page 3, transformer #05893), one of which is for MTO's service at the ramp.

Please send the pdf copy of your 'Composite Utility Base Map' to Zone2Scheduling@HydroOne.com

Thank you,

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: MCFADDEN Mary **On Behalf Of** ZONE 2 SCHEDULING
Sent: Monday, February 03, 2014 2:41 PM
To: MCKINNON D'Arcy
Cc: SLOAT Ted; SZYMCZAK Sarah
Subject: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon

Feb 3 ,14 - Issued to D'Arcy WO# 856024-0010

SCHED DATE: Feb 4,14
DUE DATE: Jan 29,14 **Overdue

DESIGN IS **NOT** IN ARC – **Advise if required**
1) Complete Documents as required:

- DHC (Return ASAP if >4 hours are required to complete Design.)
- EWR
- Other Work Request Form. (For Attribute reported)

Please FORWARD your response to Zone 2 Scheduling mailbox.

Mary McFadden
Hydro One Planning - Dundas Ops
888-652-2302 Ext 6016
or 905-627-6016
fax 905-627-6046

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Wednesday, January 15, 2014 9:50 AM
To: terr_ardelli@transcanada.com; chuck_horne_jr@transcanada.com; ron.harten@hamiltonucorp.com; IERULLO Tony; ZONE 2 SCHEDULING; Daniel.roberge@horizonutilities.com; dean.norton@opg.com; amy.freedman@bell.ca; plane@sun-canadian.com; colleen.m.mitchell@esso.com; Janice.Hayes@cogeco.com
Cc: Scale, Jim
Subject: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

To all,

AMEC Environmental & Infrastructure has been retained by the City of Hamilton to undertake the above assignments. The proposed work includes assessment of a new southbound access ramp from Mohawk Road to Highway 403 southbound in the community of Ancastor.

At this time, we would like to know whether there are any existing utility plants under your jurisdiction, within the study area. Please confirm via email, and I will forward you the request letter for mark-ups and a pfd. copy of our Composite Utility Base Map. If preferred, a hard copy can be sent to you by courier instead. If this study falls under the jurisdiction of another representative of your office, please forward this email and advise us at your earliest convenience.

I have attached a map of the study area for your reference.

We will accept mark-ups in hardcopies and CAD (digital) format.

Sincerely,

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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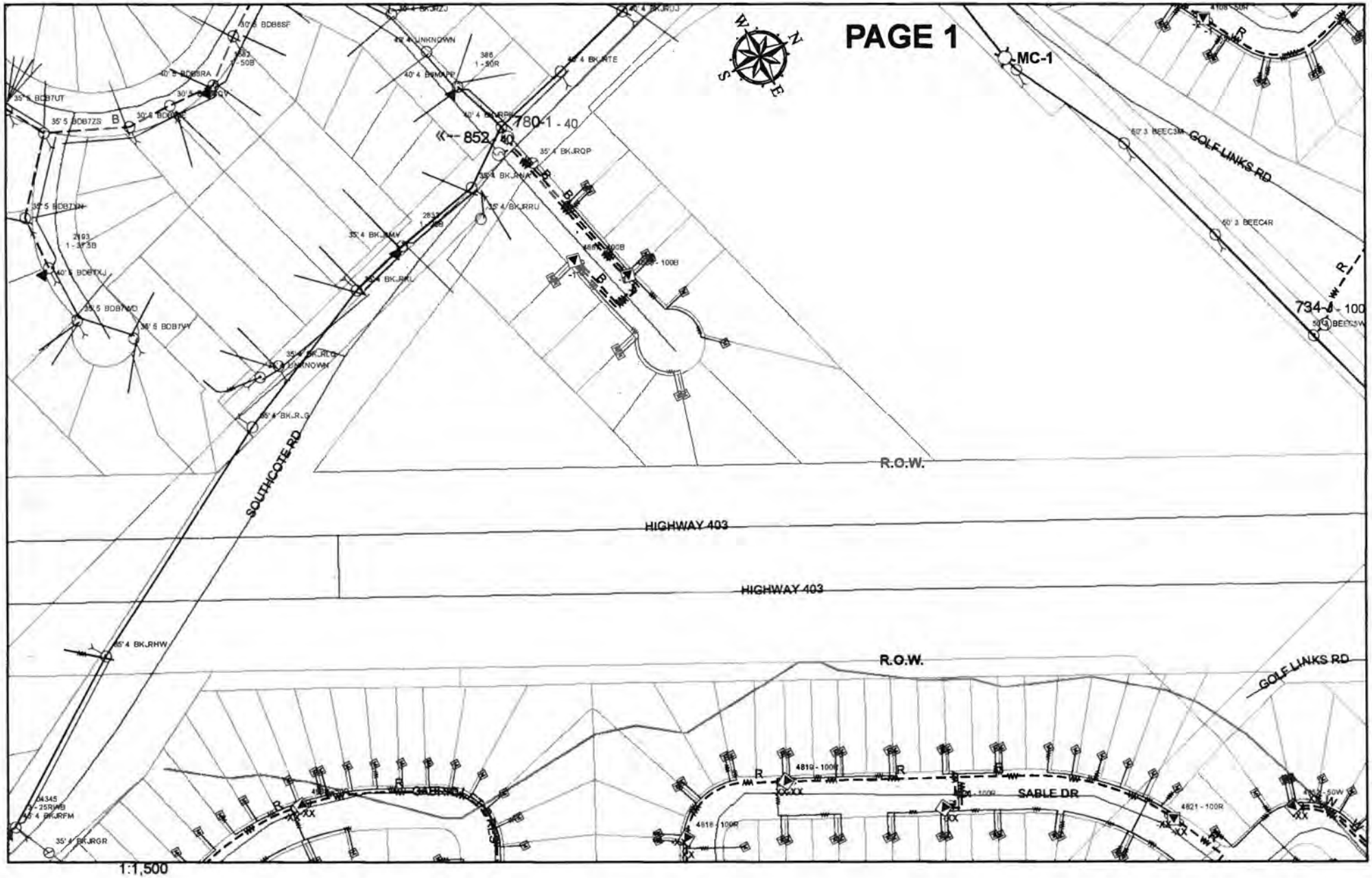
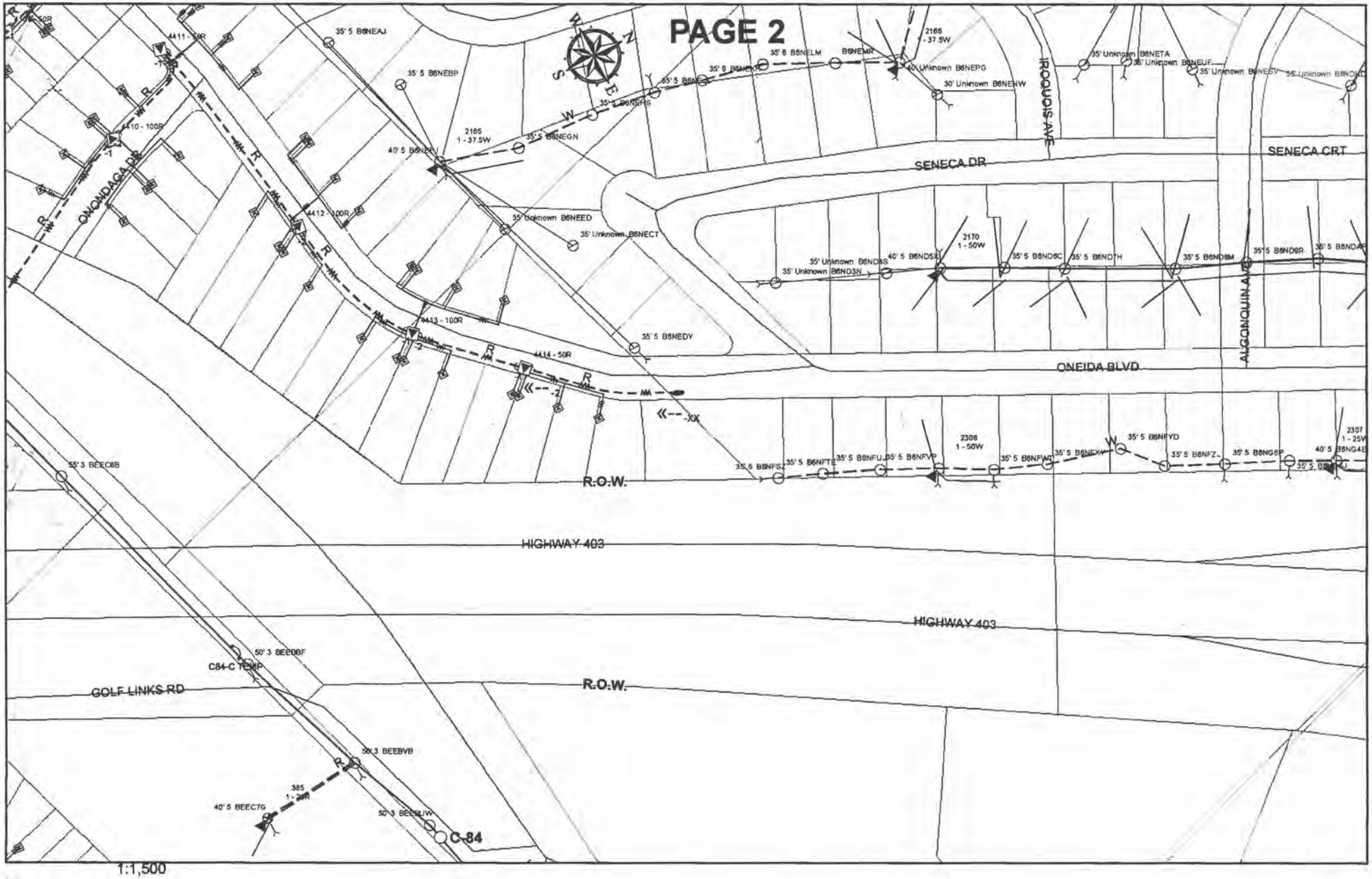
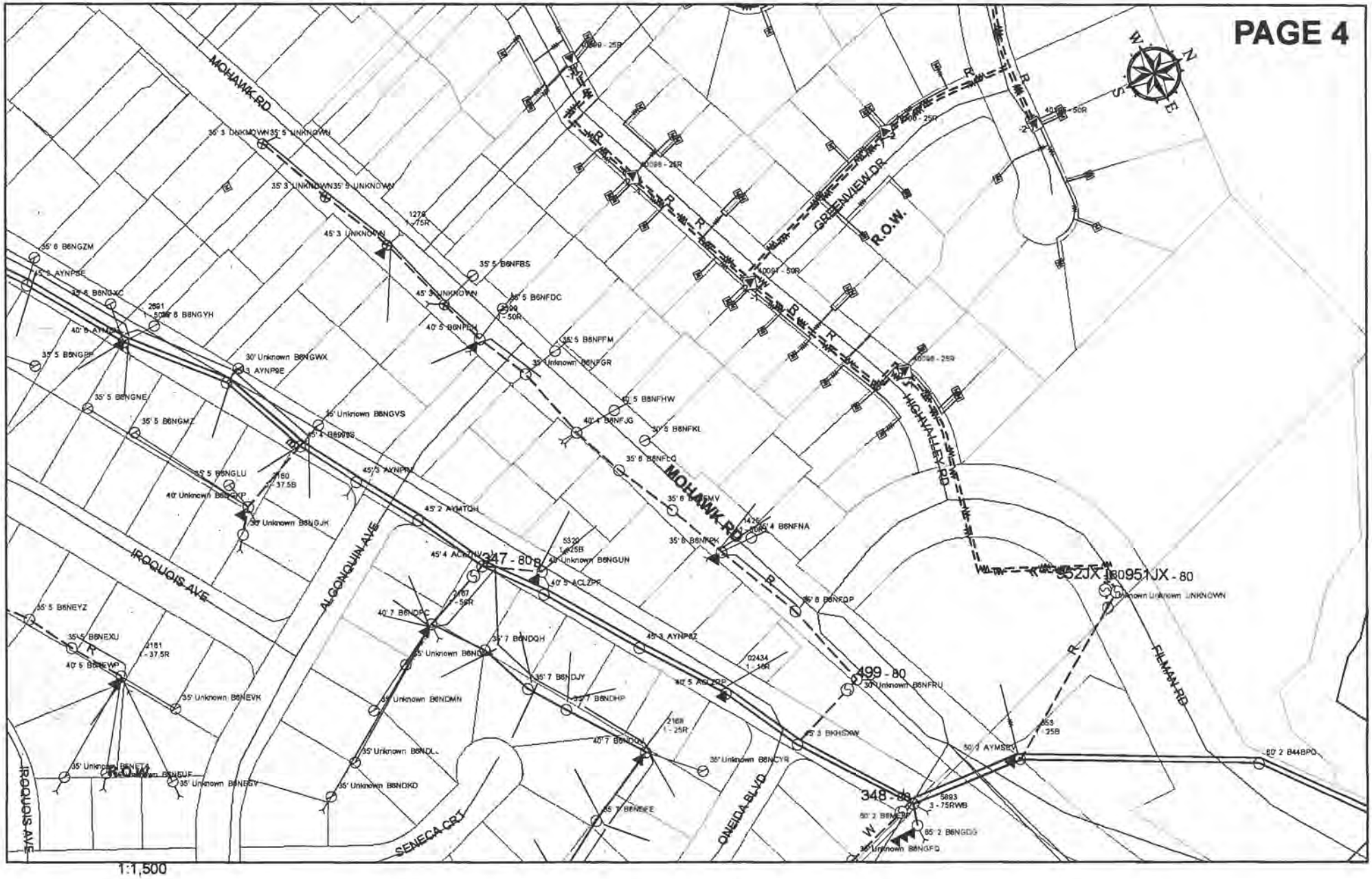

PAGE 1
MC-1
GOLF LINKS RD
SOUTHCOTE RD
R.O.W.
HIGHWAY 403
HIGHWAY 403
R.O.W.
GOLF LINKS RD
SABLE DR
780-1 - 40
852
734-1 - 100
1:1,500


PAGE 2
SENECA DR
SENECA CRT
ONONDAGA DR
IROQUOIS AVE
ALGONQUIN AVE
ONEIDA BLVD
R.O.W.
HIGHWAY 403
HIGHWAY 403
R.O.W.
GOLF LINKS RD
C-84
1:1,500

PAGE 3
SENECA DR
SENECA CRT
ONEIDA BLVD
IROQUOIS AVE
ALGONQUIN AVE
MOHAWK RD
FILMAN RD
LINCOLN M. ALEXANDER PKY
HIGHWAY 403
HIGHWAY 403
R.O.W.
R.O.W.
499 - 80
348 - 89
N
S
E
W

1:1,500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MOHAWK RD
GREENVIEW DR
R.O.W.
HIGHVALLEY RD
IROQUOIS AVE
ALGONQUIN AVE
SENECA CRT
ONEIDA BLVD
FILMAN RD
347 - 80B
499 - 80
348 - 80
1:1,500

Nguyen, John

From: Lisa Gillis [Lisa.Gillis@cogeco.com]
Sent: February-13-14 12:10 PM
To: Nguyen, John
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design
Attachments: legend.pdf

Hi John,
Hopefully the attached helps, the only thing it doesn't really show is the line types for our different cables but cable type shouldn't matter much, it does show the fibre though.
thanks

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From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: February-13-14 11:58 AM
To: Lisa Gillis
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Lisa,

Do you have a legend that comes with the plan.
Can you please indicate what's aerial/buried and fibre/copper.
Or send back one of the roll plan marked up.

Thanks,

John

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

Be more sustainable - think before you print.

From: Lisa Gillis [mailto:Lisa.Gillis@cogeco.com]
Sent: January-17-14 12:15 PM
To: Nguyen, John
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

John,
I can provide you with weather we have aerial/buried or copper/fibre but our system does not allow me to determine depth and exact offset. Typically we are 4.0m off property but that can vary if the city requires us to take a different corridor.

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From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: January-17-14 11:56 AM
To: Lisa Gillis
Cc: Scale, Jim
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Hi Lisa,

I will have (2) rolls couriered out to you today.

Please include within my previous email, the description and location, including cable offsets, depth and size where applicable of the underground and above ground utilities, as well identify if the facility is shared with others.

Thanks,
John

From: Lisa Gillis [mailto:Lisa.Gillis@cogeco.com]
Sent: January-17-14 8:05 AM
To: Nguyen, John
Cc: Scale, Jim
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Hi John,
If you could send me hard copies that would be great. You can send them to me at the below address.

Lisa Gillis
Network System Planner
Hamilton West/Ancaster/Dundas/Waterdown
695 Lawrence Road
Hamilton, ON, L8K 6P1
Tel: 905.548.8012

Mobile: 905.512.9667
Fax: 905.547.5237
lisa.gillis@cogeco.com

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From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: January-16-14 1:55 PM
To: Lisa Gillis
Cc: Scale, Jim
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Lisa,

Attached is a PDF copy of base plan drawings showing the existing road layout. Can you please provide us with mark-ups (CAD or hardcopies) of your existing plant and any future plans for the area. If you require hard copies of the attached plan drawing, please advise me and we will have that couriered to your office. Utility conflicts will be determined upon determination of preferred design alternative.

I will also need your mailing address to courier drawings out.

Thanks,
John

From: Lisa Gillis [mailto:Lisa.Gillis@cogeco.com]
Sent: January-16-14 10:57 AM
To: Nguyen, John
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Hi John,
As you can see on the attached we have our facilities crossing the 403 at Golf Links and Southcote.
thanks

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From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: January-16-14 10:02 AM
To: Lisa Gillis
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Hi Lisa,

Can you please confirm if there are cogeco's utilities within the study area?

Thanks,

John

From: Janice Hayes [mailto:Janice.Hayes@cogeco.com]
Sent: January-15-14 4:14 PM
To: Nguyen, John
Cc: Lisa Gillis
Subject: RE: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

Hello John and Happy New Year. Hope all is well with you and yours.

Lisa Gillis is cced on this email. Lisa looks after that area now and will be happy to assist you with the information you are seeking.

Regards,

Janice

"And though she be but little, she is fierce!" Shakespeare

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From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Wednesday, January 15, 2014 9:50 AM
To: terr_ardelli@transcanada.com; chuck_horne_jr@transcanada.com; ron.harten@hamiltonucorp.com;

ierullo@hydroone.com; Westcentralzonescheduling@HydroOne.com; Daniel.roberge@horizonutilities.com; dean.norton@opg.com; amy.freedman@bell.ca; plane@sun-canadian.com; colleen.m.mitchell@esso.com; Janice Hayes
Cc: Scale, Jim
Subject: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

To all,

AMEC Environmental & Infrastructure has been retained by the City of Hamilton to undertake the above assignments. The proposed work includes assessment of a new southbound access ramp from Mohawk Road to Highway 403 southbound in the community of Ancastor.

At this time, we would like to know whether there are any existing utility plants under your jurisdiction, within the study area. Please confirm via email, and I will forward you the request letter for mark-ups and a pfd. copy of our Composite Utility Base Map. If preferred, a hard copy can be sent to you by courier instead. If this study falls under the jurisdiction of another representative of your office, please forward this email and advise us at your earliest convenience.

I have attached a map of the study area for your reference.

We will accept mark-ups in hardcopies and CAD (digital) format.

Sincerely,

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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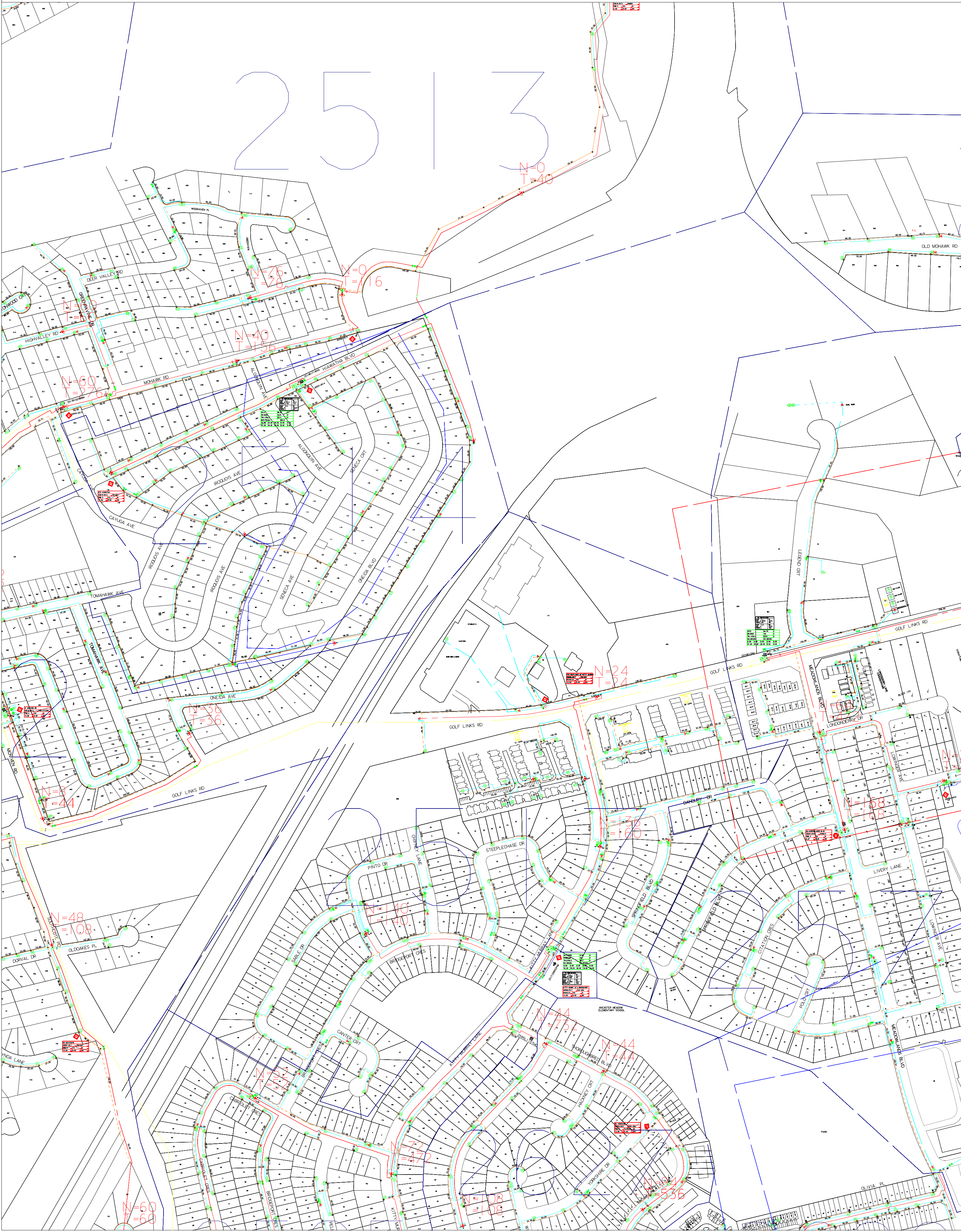
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MOHAWK RD
HIAWATHA BLVD
ALGONQUIN AVE
SENECA CRT
IROQUOIS AVE
CAYUGA AVE
TOMAHAWK AVE
ONEIDA BLVD
SENECA AVE
ONEIDA AVE
GOLF LINKS RD
OLD MOHAWK RD
LEGEND CRT
MEADOWLANDS BLVD
LONDONDERRY DR
DANBURY DR
STEEPLECHASE DR
PINTO DR
SPRINGFIELD BLVD
LIVERY LANE
CITATION CRES
BRIDGEPORT CRES
SABLE DR
CANTER CRT
HACKNEY CRT
YORKSHIRE DR
OLIVIA PL
OLDOAKES PL
DORVAL DR
ANCASTER MEADOW ELEMENTARY SCHOOL
PARK

LEGEND

1000MHz EQUIPMENT

1000MHz DISTRIBUTION AMP PORT DESIGNATIONS	1000MHz TRUNK AMPLIFIER PORT DESIGNATIONS

OPTICAL NAP ENCLOSURE

CONDUIT CAP

HYDRO BOND

GROUND ROD

OPTICAL HUB

RESTORATION COIL

POWER SUPPLY REGULAR

POWER SUPPLY STANDBY

POWER BLOCK

HYDRO TRANSFORMER

HYDRO POLE

TELCO POLE

STREET LIGHT POLE

PEDESTAL

MANHOLE

BURIED DIP

SPLICE

HANDHOLE

FIBER CABLE

DROP CABLE

12.34 (metres)

CONDUIT (SIZE NOTED)

12.34 (metres)

STRAND ROUTE

12.34 (metres)

TRENCH ROUTE

Nguyen, John

From: Nguyen, John
Sent: February-13-14 1:44 PM
To: 'D'Arcy.McKinnon@HydroOne.com'
Subject: RE: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon
Attachments: Figure 3.pdf; Figure 4.pdf

Yes,

We are widening on the south side of Mohawk Rd, please see attached figures.
The drawing that I sent was intended for mark-up request.
We will update our base map with your pdf drawing to show existing hydro lines.
The new ramp design is still in working process, and will be updated to show on the "Utility conflict plan" which we won't be developing any time soon.

John

From: D'Arcy.McKinnon@HydroOne.com [mailto:D'Arcy.McKinnon@HydroOne.com]
Sent: February-13-14 1:03 PM
To: Nguyen, John
Cc: Zone2Scheduling@HydroOne.com
Subject: RE: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon

Hi John,

The pdf that I sent you is the only record I have. We don't have any underground on this section of the 403. The only potential conflict I see is the MTO service (see transformer #5893, page 4). Are you widening Mohawk Rd for the ramp? It looks like the drawing you sent me just shows the existing road. Is this right?

Legend:
Bold line= three phase primary line (high voltage)
Bold dashed line= single phase primary line (high voltage)
Thin line= secondary (low voltage service cable)
\/\/\/ symbol over line= underground cable
Circle= pole
----< symbol= anchor
Triangle – single phase transformer
Three triangles= three phase transformer
Red line= road centre line (approximate)

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Thursday, February 13, 2014 11:04 AM

To: MCKINNON D'Arcy
Cc: ZONE 2 SCHEDULING
Subject: RE: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon

Hello Darcy,

As per your request, attached is a PDF copy of the 'Composite Utility Base Map' drawing showing the existing road layout.
Copies of your design or as-built drawings would be greatly appreciated if available.
If not, a legend to go along with the received PDF drawing would be very helpful.
Is your plant all showing as aerial?

John,

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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From: D'Arcy.McKinnon@HydroOne.com [mailto:D'Arcy.McKinnon@HydroOne.com]
Sent: February-04-14 3:03 PM
To: Nguyen, John
Cc: ted.sloat@HydroOne.com; Zone2Scheduling@HydroOne.com; mary.mcfadden@HydroOne.com
Subject: RE: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon

Hi John,

We have some plant in the vicinity of your proposed ramp. Please see the attached map showing the general location of our lines in the area.
It looks like at least two of our poles may be in conflict (Page 3, transformer #05893), one of which is for MTO's service at the ramp.

Please send the pdf copy of your 'Composite Utility Base Map' to Zone2Scheduling@HydroOne.com

Thank you,

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: MCFADDEN Mary **On Behalf Of** ZONE 2 SCHEDULING
Sent: Monday, February 03, 2014 2:41 PM

To: MCKINNON D'Arcy
Cc: SLOAT Ted; SZYMCZAK Sarah
Subject: SEI - Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design - issued to D'Arcy McKinnon

Feb 3 ,14 - Issued to D'Arcy WO# 856024-0010

SCHED DATE: Feb 4,14
DUE DATE: Jan 29,14 **Overdue

DESIGN IS **NOT** IN ARC **– Advise if required**
1) Complete Documents as required:
- DHC (Return ASAP if >4 hours are required to complete Design.)
- EWR
- Other Work Request Form. (For Attribute reported)

Please FORWARD your response to Zone 2 Scheduling mailbox.

Mary McFadden
Hydro One Planning - Dundas Ops
888-652-2302 Ext 6016
or 905-627-6016
fax 905-627-6046

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Wednesday, January 15, 2014 9:50 AM
To: terr_ardelli@transcanada.com; chuck_horne_jr@transcanada.com; ron.harten@hamiltonucorp.com; IERULLO Tony; ZONE 2 SCHEDULING; Daniel.roberge@horizonutilities.com; dean.norton@opg.com; amy.freedman@bell.ca; plane@sun-canadian.com; colleen.m.mitchell@esso.com; Janice.Hayes@cogeco.com
Cc: Scale, Jim
Subject: Hwy 403 & Mohawk Road Ramp - Feasibility and Environmental Assessment Study and Detail Design

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Sincerely,

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada

Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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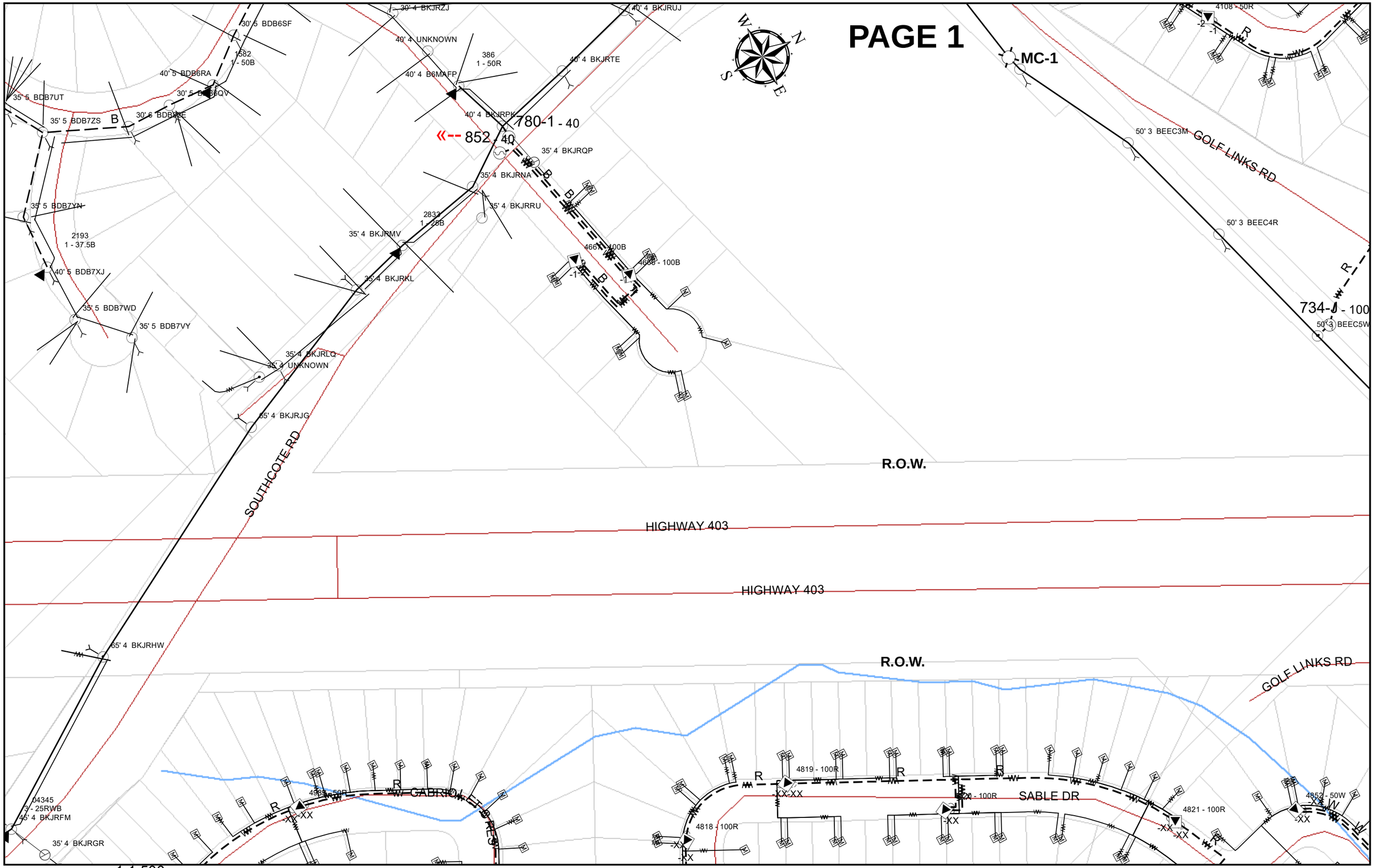
PAGE 1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386
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40' 5 BDB6RA
40' 4 B6MAFP
35' 5 BDB7UT
30' 5 BDB6QV
35' 5 BDB7ZS
B
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780-1 - 40
852 - 40
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2833
1 - 25B
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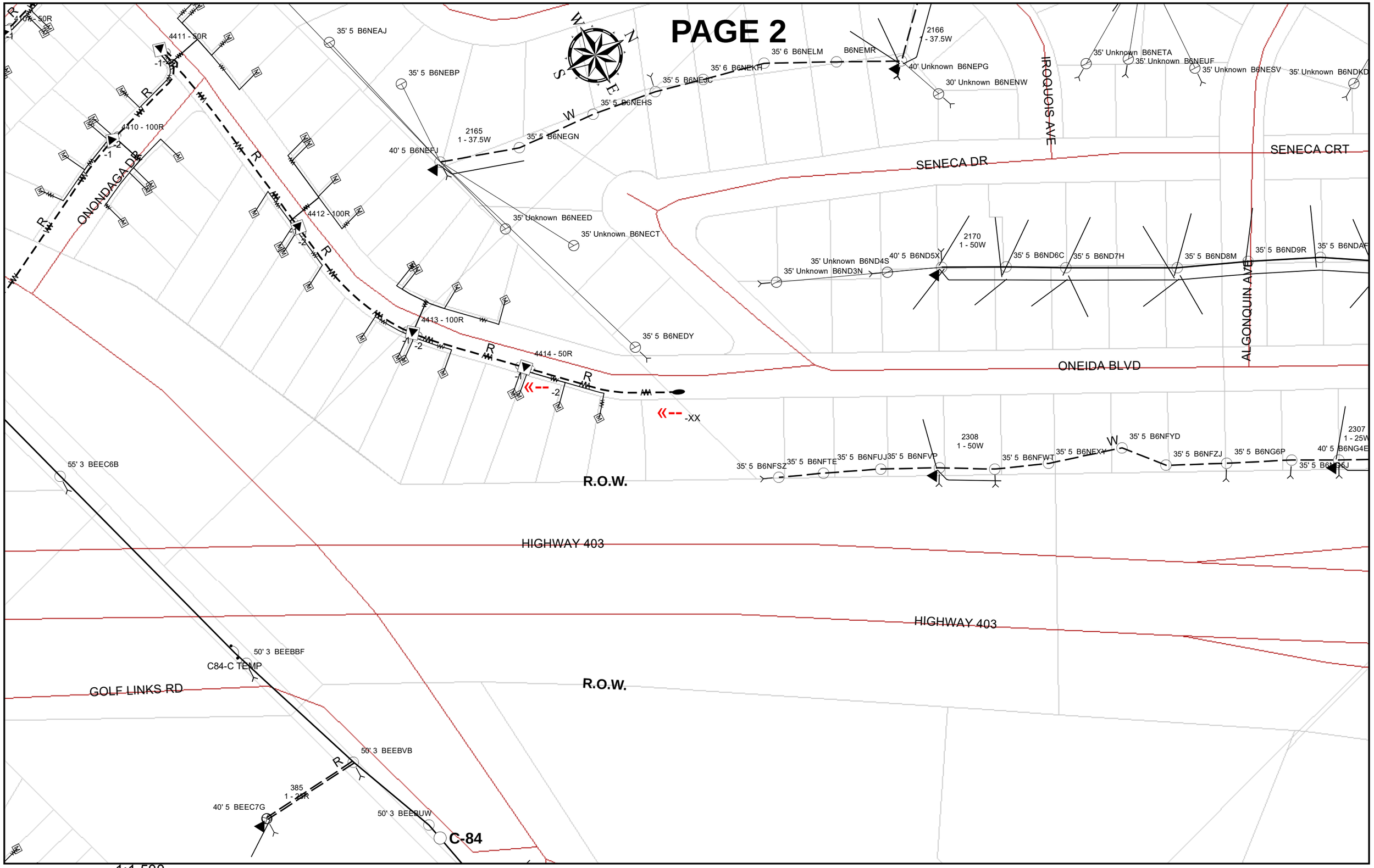
1 - 37.5B
35' 4 BKJRMV
4667 - 100B
4666 - 100B
40' 5 BDB7XJ
35' 4 BKJRKL
35' 5 BDB7WD
35' 5 BDB7VY
35' 4 BKJRLQ
35' 4 UNKNOWN
35' 4 BKJRJG
SOUTHCOTE RD
MC-1
4108 - 50R
50' 3 BEEC3M
GOLF LINKS RD
50' 3 BEEC4R
734-1 - 100
50' 3 BEEC5W
R.O.W.
HIGHWAY 403
HIGHWAY 403
R.O.W.
35' 4 BKJRHW
GOLF LINKS RD
4819 - 100R
4365 - 50R
W GABRIOL
4818 - 100R
SABLE DR
4821 - 100R
4852 - 50W
04345
3 - 25RWB
35' 4 BKJRFM
35' 4 BKJRGR

1:1,500

PAGE 2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40' 5 B6NEFJ
2165
1 - 37.5W
35' 5 B6NEGN
35' 5 B6NEHS
35' 5 B6NEJC
35' 6 B6NEKH
35' 6 B6NELM
B6NEMR
2166
- 37.5W
40' Unknown B6NEPG
30' Unknown B6NENW
35' Unknown B6NEED
35' Unknown B6NECT
35' 5 B6NEDY
IROQUOIS AVE
35' Unknown B6NETA
35' Unknown B6NEUF
35' Unknown B6NESV
35' Unknown B6NDKD
SENECA DR
SENECA CRT
2170
1 - 50W
35' Unknown B6ND4S
35' Unknown B6ND3N
40' 5 B6ND5X
35' 5 B6ND6C
35' 5 B6ND7H
35' 5 B6ND8M
35' 5 B6ND9R
35' 5 B6NDAF
ALGONQUIN AVE
ONEIDA BLVD
-XX
2308
1 - 50W
35' 5 B6NFYD
35' 5 B6NFZJ
35' 5 B6NG6P
2307
1 - 25W
40' 5 B6NG4E
35' 5 B6NFSZ
35' 5 B6NFTE
35' 5 B6NFUJ
35' 5 B6NFVP
35' 5 B6NFWT
35' 5 B6NFXY
R.O.W.
55' 3 BEEC6B
HIGHWAY 403
HIGHWAY 403
50' 3 BEEBBF
C84-C TEMP
GOLF LINKS RD
R.O.W.
50' 3 BEEBVB
385
1 - 25R
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50' 3 BEEBUW
C-84

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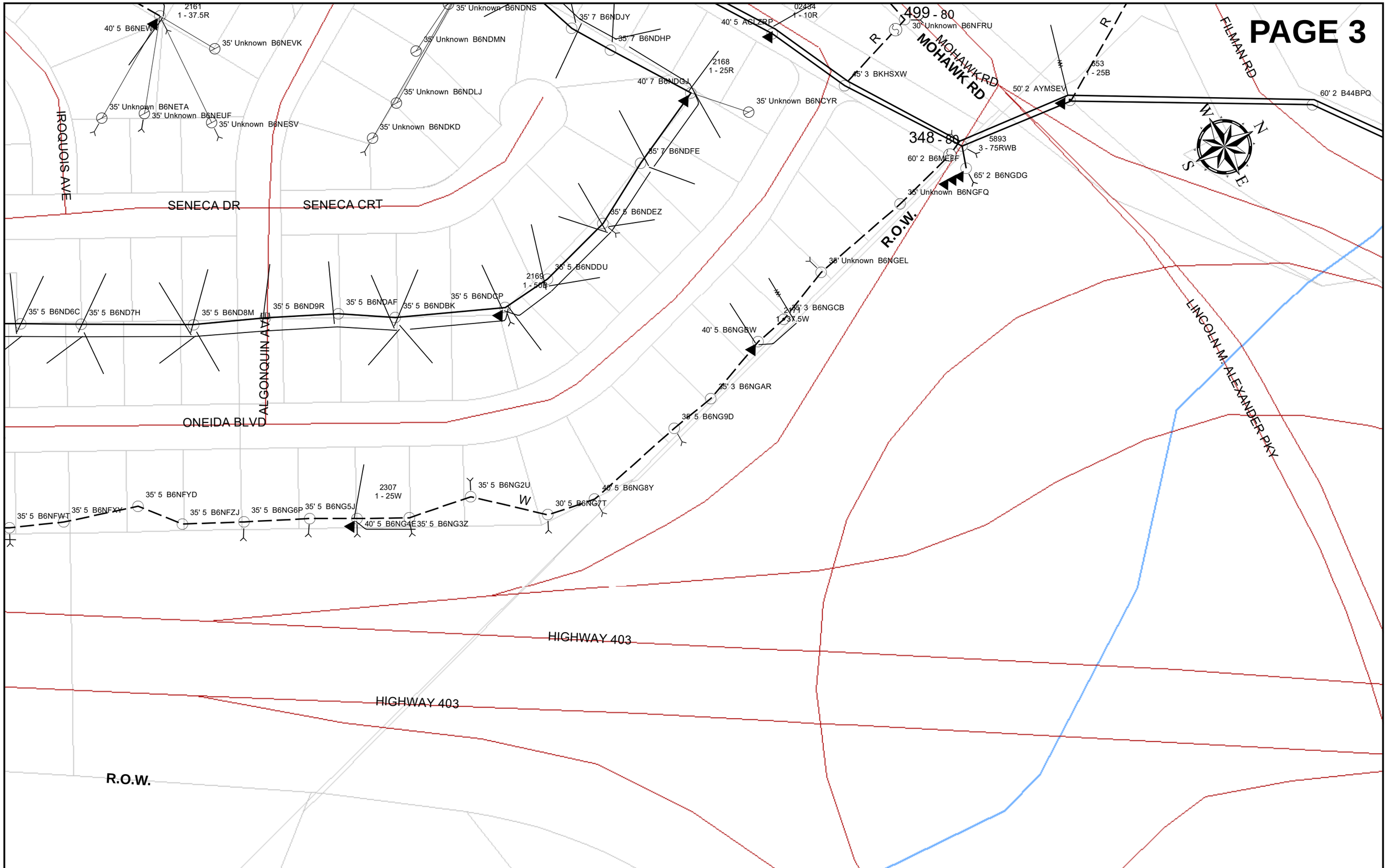
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35' 5 B6ND8M
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35' 5 B6ND6C
IROQUOIS AVE
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SENECA CRT
ALGONQUIN AVE
ONEIDA BLVD
02434
1 - 10R
40' 5 ACLZRP
499 - 80
30' Unknown B6NFRU
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MOHAWK RD
MOHAWK RD
50' 2 AYMSEV
553
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348 - 80
5893
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35' Unknown B6NCYR
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35' 5 B6NFXY
35' 5 B6NFYD
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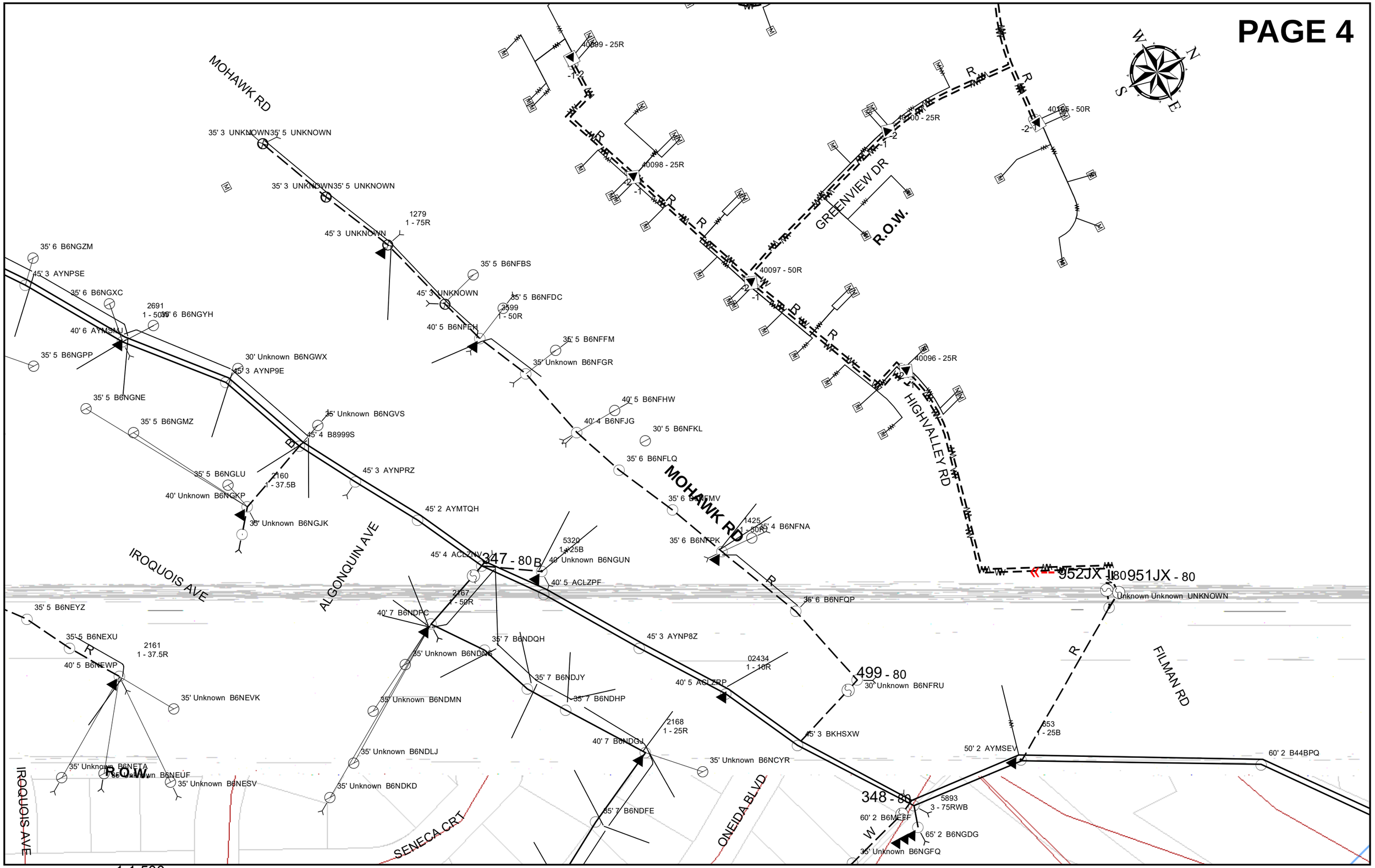
35' 5 B6NG3Z
W
HIGHWAY 403
HIGHWAY 403
R.O.W.
N
S
E
W

1:1,500


MOHAWK RD
35' 3 UNKNOWN35' 5 UNKNOWN
35' 3 UNKNOWN35' 5 UNKNOWN
1279
1 - 75R
45' 3 UNKNOWN
35' 6 B6NGZM
45' 3 AYNPSE
35' 6 B6NGXC
2691
1 - 50R
35' 6 B6NGYH
40' 6 AYMSMJ
35' 5 B6NGPP
30' Unknown B6NGWX
45' 3 AYNP9E
35' 5 B6NGNE
35' 5 B6NGMZ
35' Unknown B6NGVS
45' 4 B8999S
35' 5 B6NGLU
2160
1 - 37.5B
40' Unknown B6NGKP
35' Unknown B6NGJK
45' 3 AYNPRZ
45' 2 AYMTQH
IROQUOIS AVE
ALGONQUIN AVE
45' 4 ACLZNV
347 - 80
5320
1 - 25B
40' Unknown B6NGUN
40' 5 ACLZPF
2167
1 - 50R
40' 7 B6NDPC
35' 5 B6NEYZ
35' 5 B6NEXU
2161
1 - 37.5R
40' 5 B6NEWP
35' Unknown B6NEVK
35' 7 B6NDQH
35' Unknown B6NDNS
35' Unknown B6NDMN
35' 7 B6NDJY
35' 7 B6NDHP
35' Unknown B6NETA
35' Unknown B6NEUF
35' Unknown B6NESV
35' Unknown B6NDLJ
35' Unknown B6NDKD
ROW
IROQUOIS AVE
SENECA CRT
35' 7 B6NDFE
40' 7 B6NDGJ
2168
1 - 25R
35' Unknown B6NCYR
ONEIDA BLVD
35' 5 B6NFBS
45' 3 UNKNOWN
35' 5 B6NFDC
3599
1 - 50R
40' 5 B6NFEH
35' 5 B6NFFM
35' Unknown B6NFGR
40' 5 B6NFHW
40' 4 B6NJFG
30' 5 B6NFKL
35' 6 B6NFLQ
MOHAWK RD
35' 6 B6NFMV
1425
1 - 50R
35' 4 B6NFNA
35' 6 B6NFPK
35' 6 B6NFQP
45' 3 AYNP8Z
02434
1 - 10R
40' 5 ACLZRP
45' 3 BKHSXW
348 - 80
5893
3 - 75RWB
60' 2 B6MERF
65' 2 B6NGDG
35' Unknown B6NGFQ
40099 - 25R
40098 - 25R
40097 - 50R
40096 - 25R
40100 - 25R
40095 - 50R
GREENVIEW DR
R.O.W.
HIGHVALLEY RD
952JX
80951JX - 80
Unknown Unknown UNKNOWN
499 - 80
30' Unknown B6NFRU
FILMAN RD
553
1 - 25B
50' 2 AYMSEV
60' 2 B44BPQ
N
S
E
W

1:1,500

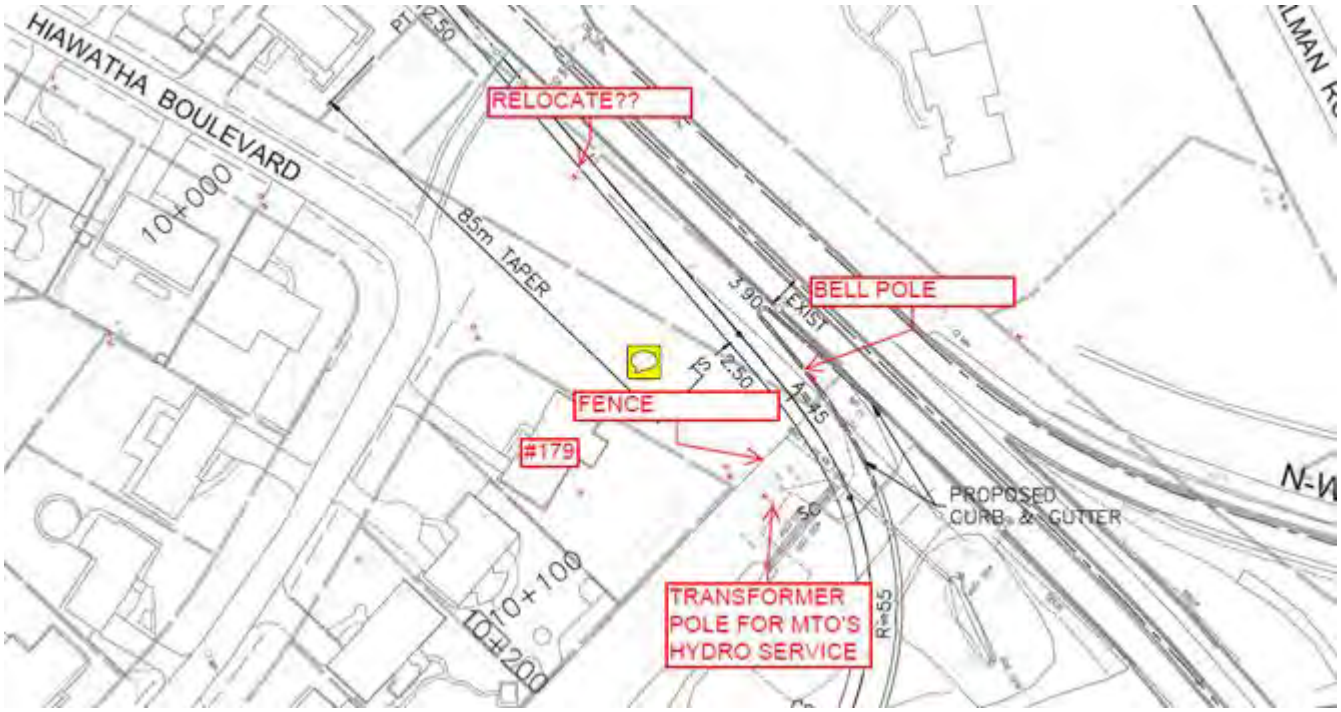
Nguyen, John

From: D'Arcy.McKinnon@HydroOne.com
Sent: July-09-14 3:07 PM
To: Nguyen, John
Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca; John.MacDonald2@HydroOne.com; ted.sloat@HydroOne.com; mary.mcfadden@HydroOne.com
Subject: RE: proposed ramp to 403W
Attachments: Hydro One comment - Plan - 2014 03 28.pdf

Hi John,

We usually have to work on these poles by climbing them. If you are putting up a noise barrier, then we would have to access the poles from the Hiawatha Blvd road allowance, beside house #179. Can you remove your fence here so we can have easier access?

One of the hydro poles on your plan is actually a Bell pole. See below, "Bell Pole".
We do have a hydro pole right on the edge of your proposed ramp – labelled "Relocate??" below. Do you need us to prepare an estimate to relocate this pole?



Thank you,

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Thursday, April 10, 2014 11:09 AM
To: MCKINNON D'Arcy; SLOAT Ted; MCFADDEN Mary
Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: RE: proposed ramp to 403W

Darcy,

We are impacting the existing entrance located south on Mohawk, at the beginning of the proposed W-S ramp (Radius=55/90). Most likely the entrance will be relocated, possibly north-west of existing. There is also a potential for a noise barrier wall installation adjacent to the outside shoulder (2.50m) that will separate residency and the ramp. Can you please confirm if hydro one is using this entrance to access their poles located on the back yards on Oneida Blvd, and/or are they using a different access route, possibly coming down East from Hiawatha/ Oneida Blvd (See attachments). If this is the case, can you confirm what type of vehicles are accessing these poles.

Thank you.
John

John Nguyen, C.Tech
Design Technologist
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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From: D'Arcy.McKinnon@HydroOne.com [mailto:D'Arcy.McKinnon@HydroOne.com]
Sent: April-09-14 8:49 AM
To: Nguyen, John; ted.sloat@HydroOne.com; mary.mcfadden@HydroOne.com
Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: RE: proposed ramp to 403W

Hi John,

It would probably take our real estate lawyers weeks or months to dig up these records from our archives.

What the customer has said below regarding his title/deed makes sense. It would be easier to access our pole lines with trucks from the from the back. It doesn't appear that your plan would interfere with this access. Can you confirm this?

Thank you,

D'Arcy McKinnon
Area Distribution Engineering Technician
Hydro One Networks Inc.
Dundas Operations Centre

Phone: 905-627-6025
email: darcy.mckinnon@hydroone.com

From: Nguyen, John [mailto:john.nguyen@amec.com]
Sent: Tuesday, April 08, 2014 11:11 AM
To: MCKINNON D'Arcy; SLOAT Ted; MCFADDEN Mary

Cc: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: RE: proposed ramp to 403W

Darcy,

Could you please confirm Hydro One access rights/terms of easement agreement for the Hydro Poles located on private property (back yards) on Oneida Drive.
I've bubbled the poles location in red on our conceptual plan for the Mohawk Ramp alignment.

Thanks,

John

John Nguyen, C.Tech
Design Technologist
AMEC
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3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 286, Fax 905-335-1414
john.nguyen@amec.com

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From: Sinke, David
Sent: April-04-14 7:38 AM
To: Scale, Jim; Nguyen, John
Cc: Sonya.Kapusin@cima.ca
Subject: FW: proposed ramp to 403W

See below.

John, can you please contact Hydro One to determine what their access rights are/terms of easement agreement to back yards on Oneida Drive.

In addition, can you please provide me with a pdf showing the offset to the edge of ramp shoulder to the back fence line/property line at 167 Oneida.

Thanks,

David

From: Sinke, David
Sent: April-04-14 7:35 AM
To: 'Ar H'
Cc: 'Philip, Mohan'
Subject: RE: proposed ramp to 403W

Hello Dr. Holek,

If you could check your deed that would be helpful. I the meantime we will check back again with Hydro One to confirm their understanding of their access rights to your property.

I will also review the design drawings to confirm the approximate planned offset of the ramp to your fence line, and get back to you with this information.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From: Ar H [mailto:aholek@outlook.com]
Sent: April-03-14 10:40 PM
To: Sinke, David
Subject: RE: proposed ramp to 403W

Hi Mr. Sinke,
My understanding was, when I purchased my home, that there was a Hydro 1 access beyond my fence in order for them to service their lines. I will check my title to see. They have been using the area behind my property line to do this for the past. How close to my property linre does the proposed ramp come?

Thanks.
ArLene

From: David.Sinke@amec.com
To: aholek@outlook.com
CC: Mohan.Philip@hamilton.ca; jim.scale@amec.com; Sonya.Kapusin@cima.ca
Date: Thu, 3 Apr 2014 16:21:45 -0400
Subject: RE: proposed ramp to 403W

Hello Dr. Holek,

We have reviewed the offset of the existing Hydro Line in the rear lots of the homes on Oneida Blvd. The hydro line is typically about 10 feet inside the rear fence line of the homes, but in some cases as close as approximately 2 feet inside the rear fence line. These dimensions are approximately scaled from aerial photography. Any easement that Hydro One has along this line would be limited to the private lands – Hydro One would not have an easement within the public ROW associated with the Highway 403/Linc/Mohawk Road interchange.

We have been corresponding with Hydro One and have received information from them on their plant. We do not anticipate that the hydro line within the fence line will be affected by the proposed ramp construction. However, there may be some impacts to hydro one plant near Mohawk Rd, within City owned lands, which will be investigated further. We do not anticipate this to be a significant issue.

You had provided several more comments/questions for us to consider – these will be responded to at a later date.

Let us know if you have any further questions.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414
david.sinke@amec.com
amec.com
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From: Ar H [mailto:aholek@outlook.com]
Sent: March-20-14 11:32 AM
To: Transportation Planning
Subject: proposed ramp to 403W

Hi Mr. Phillip,
I believe Hydro 1 has an easement behind the properties on Oneida Blvd, which would be between the proposed ramp and the residential properties. How many feet behind the residential property at 167 Oneida does the Hydro land extend and will the ramp infringe on Hydro's land?
Thanks.
A.R. Holek
167 Oneida Blvd.

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RECEIVER POLE
BELT POLE
BRACE
POLE
TRANSFORMER POLE FOR MTOD HYDRO SERVICE

Sonya Kapusin

From: Sonya Kapusin
Sent: August-19-14 2:27 PM
To: Stone, Mike (Mike.Stone@conservationhamilton.ca); lorraine.norminton@ontario.ca
Cc: 'Philip, Mohan'; David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com); Rideout, Daryl T (Daryl.Rideout@amec.com); Stephen Keen
Subject: B000355_Mohawk Rd Ramp EA_Review

Dear Mike and Lorraine,

The following files are saved to our ftp site for your review. We would appreciate receiving your comments by September 2:

(1) Mohawk Rd IA Summary_as sent to Client.pdf – Natural environment impact assessment for the Hwy 403 Mohawk Road Ramp Class EA
(2) Figure 4.pdf and Figure 5.pdf – Alternative designs and preliminary preferred design for the proposed Brantford-bound Hwy 403 ramp at Mohawk Road
(3) 14-05-29 SWM Design Brief.pdf – Stormwater design brief

As a kind reminder, the information provided is for your internal reference and not for public distribution, to respect any sensitive data that may be included regarding Species at Risk.

Access to file transfer Website for the project 'Mohawk Rd Ramp EA - HCA and MNR':

Access the file transfer site

Access the file transfer site in

Access to the file transfer site will be automatically deactivated after **60 consecutive days** of inactivity. The file transfer site allows you to receive, as well as send files (. is recommended for sending files). Refer to online help for further information. Powered by

If the link doesn't work, please Copy / Paste the following link in your browser:

* This mode lets you send multiple files or directories simultaneously by using ActiveX.

Best regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Sonya Kapusin

From: Sinke, David <David.Sinke@amec.com>
Sent: August-20-14 2:55 PM
To: Bishop, Brian
Cc: Scale, Jim; Sonya Kapusin
Subject: FW: Mohawk Rd ramp drainage report (May 2014) - UPDATED

FYI

From: Odaimi, Vanessa (MTO) [mailto:Vanessa.Odaimi@ontario.ca]
Sent: August-20-14 9:47 AM
To: Sinke, David; 'Philip, Mohan'
Cc: Scale, Jim; Cung, Bill (MTO); Asif, Shahbaz (MTO)
Subject: RE: Mohawk Rd ramp drainage report (May 2014) - UPDATED

David / Philip

My apologies, but there was a typo in my previous email which I have corrected in red font.

Please use this version of the comments:

1. MTO requires quantity control for the proposed works be designed to ensure that post-development flows do not exceed pre-development flows for all return periods (5, 10, 25, 50 and 100 year). A table should be provided in the report that shows post-development flows with SWM compared to pre-development flows for all storm events and rainfall distributions at two culvert locations.
2. The Latest Intensity Duration Frequency (IDF) curves should be used in hydrologic model as the watershed study was completed in 1987 and the IDFs used are outdated. For your reference, the IDF curves are available on the MTO IDF Look Up website: http://www.mto.gov.on.ca/english/engineering/drainage/.
3. The hydrologic model was used to undertake hydrologic calculations using a 24 hour Soil Conservation Society (USA) (SCS) Storm event. MTO typically requires that other rainfall distributions and durations be examined as well, and that crossings/SWM quantity control be designed for the storm that produces the most conservative design. Please provide a reference from a watershed study / hydrologic calculations which would show that a 24 hour SCS Storm event is the most conservative for the design.
4. Please show catchment areas of two culverts on drainage mosaics.
5. Updated report with relocated berm will be reviewed upon availability.
6. MTO will review erosion and sediment control plan upon availability.
7. The final SWM report/brief must be signed and stamped by a P.Eng.

Thank you

Vanessa Odaimi P.Eng., PMP
Project Engineer | Ministry of Transportation
Hwy Engineering | Planning & Design - Hamilton & Niagara
1201 Wilson Ave., Bldg D, 4th floor | Downsview ON M3M 1J8

☎: (416) 235-5531 | 🖷 F: (416) 235-3576
✉ vanessa.odaimi@ontario.ca

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From: Sinke, David [mailto:David.Sinke@amec.com]
Sent: August-20-14 8:38 AM
To: Odaimi, Vanessa (MTO); 'Philip, Mohan'
Cc: Scale, Jim; Cung, Bill (MTO); Asif, Shahbaz (MTO)
Subject: RE: Mohawk Rd ramp drainage report (May 2014)

Vanessa, thank you for your review and comments. I have forwarded these to our drainage engineer to address. We will let you know if we have any questions.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From: Odaimi, Vanessa (MTO) [mailto:Vanessa.Odaimi@ontario.ca]
Sent: August-19-14 4:21 PM
To: 'Philip, Mohan'
Cc: Sinke, David; Scale, Jim; Cung, Bill (MTO); Asif, Shahbaz (MTO)
Subject: FW: Mohawk Rd ramp drainage report (May 2014)

Good afternoon Philip,

MTO reviewed the Storm water Management (SWM) Design Brief (dated May 2014) and have the following comments for your consideration:

1. MTO requires quantity control for the proposed works be designed to ensure that post-development flows do not exceed pre-development flows for all return periods (5, 10, 25, 50 and 100 year). A table should be provided in the report that shows post-development flows with SWM compared to pre-development flows for all storm events and rainfall distributions at two culvert locations.
2. The Latest Intensity Duration Frequency (IDF) curves should be used in hydrologic model as the watershed study was completed in 1987 and the IDFs used are outdated. For your reference, the IDF curves are available on the MTO IDF Look Up website: http://www.mto.gov.on.ca/english/engineering/drainage/.
3. The hydrologic model was used to undertake hydrologic calculations using a 24 hour Soil Conservation Society (USA) Stream Channel System (SCS) Storm event. MTO typically requires that other rainfall distributions and durations be examined as well, and that crossings/SWM quantity control be designed for the storm that produces the most conservative design. Please provide a reference from a

watershed study / hydrologic calculations which would show that a 24 hour SCS Storm event is the most conservative for the design.

4. Please show catchment areas of two culverts on drainage mosaics.
5. Updated report with relocated berm will be reviewed upon availability.
6. MTO will review erosion and sediment control plan upon availability.
7. The final SWM report/brief must be signed and stamped by a P.Eng.

If you have any questions or you wish to discuss further, feel free to contact us.
Thanks

Vanessa Odaimi P.Eng., PMP
Project Engineer | Ministry of Transportation
Hwy Engineering | Planning & Design - Hamilton & Niagara
1201 Wilson Ave., Bldg D, 4th floor | Downsview ON M3M 1J8

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✉ vanessa.odaimi@ontario.ca

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Sonya Kapusin

From: Odaimi, Vanessa (MTO) <Vanessa.Odaimi@ontario.ca>
Sent: September-09-14 9:17 AM
To: Scale, Jim
Cc: Sinke, David; Sonya Kapusin; Philip, Mohan; Cung, Bill (MTO); Blaney, Chris (MTO)
Subject: RE: Hwy 403 Mohawk Rd Ramp - Noise Assessment and Recommendations

Good morning Jim,

We concur with your email below.

On another note, can you please send us a revised noise assessment report to reflect our discussion of August 15/14 (which would also be in line with the minutes of that meeting).

Thanks

Vanessa Odaimi P.Eng., PMP
Project Engineer | Ministry of Transportation
Hwy Engineering | Planning & Design - Hamilton & Niagara
1201 Wilson Ave., Bldg D, 4th floor | Downsview ON M3M 1J8

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From: Scale, Jim [mailto:jim.scale@amec.com]
Sent: September-05-14 11:17 AM
To: Odaimi, Vanessa (MTO)
Cc: Sinke, David; Sonya Kapusin; Philip, Mohan; Cung, Bill (MTO); Blaney, Chris (MTO)
Subject: Hwy 403 Mohawk Rd Ramp - Noise Assessment and Recommendations

Vanessa,

Further to the discussions at the MTO meeting regarding the noise assessment, we are proposing the following as it relates to mitigating the local property owner's concerns regarding noise and visual impacts associated with the ramp construction:

- Implementation of and earth berm to maximize the height while minimizing impacts to existing vegetation as per Option 4 presented previously; and
- Implementation of landscaping on the residence side of the berm to provide visual enhancement of the berm and additional screening of the ramp where infill is required.

Given the noise assessment identifies minimal impact to noise levels and does not warrant the installation of a noise wall, we recommend the implemented treatment focus on visual screening of the proposed ramp and not acoustic mitigation. As such we do not recommend installation of a noise wall. The existing vegetation within the highway right-of-way is relatively dense and will provide significant screening of the proposed ramp. This will be further supplemented by construction of the berm and planting of additional landscaping to provide any necessary infill.

We would like to obtain MTO's concurrence with the above prior to issuing a response letter to the property owner.

Your earliest attention to the above would be greatly appreciated. If you have any questions or require any additional information, please contact me.

Jim Scale, P. Eng.
Associate
Transportation
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 223, Fax 905-335-1414
jim.scale@amec.com
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Sonya Kapusin

From: Odaimi, Vanessa (MTO) <Vanessa.Odaimi@ontario.ca>
Sent: October-09-14 3:07 PM
To: Sinke, David
Cc: Asif, Shahbaz (MTO); Cung, Bill (MTO); Philip, Mohan; Skrypniak, Lorissa; Scale, Jim; Sonya Kapusin; brian.bishop@amec.com
Subject: FW: Mohawk SWM Design Brief - Revised - Comments
Attachments: RE: Mohawk Rd ramp drainage report (May 2014) - UPDATED

Hi David

Thank you for sending us the updated Stormwater Management Report (SWM) dated October 2014.
MTO has the following comments on the revised report:

- Although most of the comments are addressed in the SWM Report, kindly provide us with an itemise response to MTO's comments from August (please see attached).
- Please confirm that MTO's comment #2 (from the attached email) has been addressed in this revised SWM report?
- Once you have the updated detailed design SWM report that you are preparing part of the detailed design phase, MTO will review that report for quantity control, Erosion and Sediment Control Plan, impact of relocated berm and other drainage aspects not addressed at this stage before issuing a permit.

If you have any questions, feel free to contact me
thanks

Vanessa Odaimi P.Eng., PMP
Project Engineer | Ministry of Transportation
Hwy Engineering | Planning & Design - Hamilton & Niagara
1201 Wilson Ave., Bldg D, 4th floor | Downsview ON M3M 1J8

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From: Sinke, David [mailto:David.Sinke@amec.com]
Sent: October-03-14 4:58 PM
To: Odaimi, Vanessa (MTO)
Cc: Cung, Bill (MTO); Philip, Mohan; Skrypniak, Lorissa; Scale, Jim; Bishop, Brian; Sonya Kapusin
Subject: Mohawk SWM Design Brief - Revised

Hello Vanessa, please find attached the SWM Design Brief for Mohawk Road westbound ramp at Highway 403, Hamilton, updated to address your comments.

Our intention is to include this report as an appendix to the Municipal Class EA for this project, to be filed in November.

An updated detailed design SWM report will be prepared as part of the detailed design phase, for permitting purposes.

November 5, 2014
Our File: TP113070-10

Ministry of Transportation
1201 Wilson Avenue
Bldg. D, 4th Floor
Downsview, ON M3M 1J8

ATTENTION: Vanessa Odaimi, P.Eng., P.M.P., Project Engineer

Dear Vanessa:

RE: Stormwater Design Brief
Highway 403 Mohawk Road Ramp Feasibility and Environmental Assessment Study

Further to our submission of the updated "Stormwater Design Brief – Highway 403 Mohawk Road Ramp Feasibility and Environmental Assessment Study" on October 3, 2014, we wish to offer the following itemized response to the MTO email of August 20, 2014:

1. The peak flow summary table in the draft has been updated to reflect the revised IDF information. As noted on Page 7 of the brief, we have not yet determined the final design solution for controlling any peak flow increases. We note that the only increase noted for the 100 year event is for Culvert A, and is 0.2 m^3/s or roughly 5% (similar or smaller percentage increases are expected for the 5 year through 50 year events). At the time of detailed design we will submit a full table for the 5 year through 100 year design storm events, for Existing, Future, and Future with Stormwater Management conditions.

2. The latest IDF information as noted in your email has been used to develop the rainfall for the updated brief, and will also be applied to the detailed design assessment.

3. As noted on Page 4 of the updated brief, we have assessed the 6 hour, 12 hour, and 24 hour Chicago and SCS storm distributions, and can confirm that the 24 hour SCS storm produces the greatest peak flow and volume.

4. Additional figures have been added to the Stormwater Management Brief, in particular Figure 1, which details the drainage areas to the two new ramp culverts, and the context of the ramp study area to the parent watershed and model.

5. Noted – to be submitted at the detailed design stage.

6. Noted – to be submitted at the detailed design stage.

7. Noted. We have signed and stamped the current brief for your records.

AMEC Environment & Infrastructure
A division of AMEC Americas Limited
3215 North Service Road
Burlington, Ontario
Canada L7N 3G2
Tel (905) 335-2353
Fax (905) 335-1414

Sonya Kapusin

From: Sonya Kapusin
Sent: November-21-14 3:18 PM
To: Odaimi, Vanessa (MTO) (Vanessa.Odaimi@ontario.ca)
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: B000355_Mohawk Rd Ramp EA_Hwy 403 Signage

Hi Vanessa,

We received the following verbal comments concerning Highway 403 signage during the Class EA study for the Brantford-bound Highway 403 ramp at Mohawk Road. I am forwarding these comments to you for the Ministry's review and response.

Notes taken during public information centre on June 9, 2014:
"Traffic coming eastbound on Highway 403:
+ Why does it not say there are four interchanges?
+ Signs say business centre follow Wilson Street (not a business centre)"

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Tel. : 289 288-0287 # 6812
Cell. : 905 630-6667
Fax : 289 288-0285

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Ministry of Transportation

Planning and Design Section
Hamilton/Niagara
Central Region - Engineering

4th Floor, Bldg. D
1201 Wilson Avenue
Downsview, ON M3M 1J8
Tel: (416) 235-5531
Fax: (416) 235-3576

Ministère des Transports

Section de planification et de conception
Hamilton/Niagara
Région du Centre – Ingénierie

4e étage, édifice D
1201 avenue Wilson
Downsview, ON M3M 1J8
Tel : (416) 235-5531
Téléc: (416) 235-3576

Ontario

December 12, 2014

Dear Mr. Philip:

The ministry has reviewed Amec's submissions dated September 19 & 23, 2014, for the proposed Highway 403 Mohawk Road ramp geometric design assessment options, as well as CIMA's modelling analyses dated September 26, 2014,. The findings of these submissions were discussed and confirmed at a meeting on October 3, 2014.

The modelling indicates that without the construction of the proposed Mohawk Road ramp, there is no queue on the Linc to Hwy 403 Brantford bound-ramp in year 2031. However, with the construction of the Mohawk Road ramp, a queue length of 738m would be observed on the Linc ramp in the same horizon year 2031 based on a ramp volume of 100 veh/hr. The appearance of the 738m queue on the Linc to Hwy 403 Brantford bound-ramp is a concern to the ministry, whereas this condition would not exist without the proposed Mohawk Road ramp. In a teleconference with the City and its consultants on December 1, 2014, ministry staff indicated that the 738m queue on the Linc ramp, resulting from the currently proposed Mohawk Ramp design, is unacceptable.

Ministry staff are prepared to continue working with the City in reviewing designs for a proposed Mohawk Road ramp that would minimize impacts to the operations of Highway 403 and ramps at the Hwy 403/LINC interchange.

Yours Truly,

Vanessa Odaimi, P.Eng., PMP
Project Engineer
Planning & Design - Hamilton / Niagara
Central Region

Ministry of Transportation

Planning and Design Section
Hamilton/Niagara
Central Region - Engineering

4th Floor, Bldg. D
159 Sir William Hearst Avenue
Downsview, ON M3M 1J8
Tel: (416) 235-5552
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Ministère des Transports

Section de planification et de conception
Hamilton/Niagara
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4e étage, édifice D
159, avenue Sir William Hearst
Downsview, ON M3M 1J8
Tel : (416) 235-5552
Téléc: (416) 235-3576

Ontario

November 4, 2015

Mohan Philip, M. Eng., P. Eng., Project Manager
City of Hamilton
Transportation Management
Corporate Assets & Strategic Planning Division, Public Works
77 James Street North
Hamilton, ON L8R 2K3

Re: Highway 403 Mohawk Road Ramp Feasibility and Environmental Assessment Study

Dear Mr. Philip:

Thank you for discussing this project with the Ministry of Transportation Ontario. This letter is in response to our conference call on October 9, 2015; and to your letter on August 12, 2015.

The traffic simulation study and analysis provided by the City's consultant dated September 2014, indicates an increase in the queues on Highway 403 Westbound truck climbing lane. Furthermore, this study shows extensive queuing on MTO's Lincoln Alexander Pkwy ramp to Highway 403 Westbound as a result of the addition of Mohawk Road ramp.

The queuing is a concern for the Ministry, as any future measures to address this issue and the widening of the Lincoln Alexander Pkwy ramp will require extensive reconstruction of Lincoln Alexander Pkwy interchange. Additional modifications and realignment of the proposed Mohawk Road to Highway 403 ramp may also be required to accommodate the ramp widening.

Although the NGTA study includes recommendations for widening of Highway 403 in Hamilton in the long term, these recommendations are subject to further studies and approval before implementation. MTO currently has no plans for widening of Highway 403 in this area.

At this point, MTO will not consider cost sharing for implementation of a Mohawk Road ramp alternative. However, we are interested in reviewing other design alternatives that would minimize impacts to the operation of Highway 403 and the ramps at the Highway 403/LINC Interchange. MTO will continue working with the City of Hamilton to advance the Mohawk Road ramp project.

Please do not hesitate to contact me if you require further information.

Yours truly,

E. Armanious

Ehab Armanious, P.Eng, PMP
Project Engineer
Planning and Design – Hamilton/Niagara
Central Region

Hamilton

Transportation Management
Corporate Assets & Strategic Planning Division
Public Works Department
77 James Street North, Hamilton, ON L8R 2K3
Phone: 905.546.2424 ext. 2732Fax: 905.546.2039

August 15, 2016

Martin Michalek, P.Eng
Area Manager
Ministry of Transportation
1201 Wilson Avenue
Bldg. D, 4th Floor
Downsview, ON M3M 1J8

SUBJECT: Hwy 403 and Mohawk Road Ramp, Ancaster

The City of Hamilton is following up on the status of this project and MTO's involvement. As you are aware this project started in 2012 at our Council's direction. We have been working with MTO staff since January 2016 on the joint agreement that needs to be entered into in order to construct this ramp and have found the process to be rather frustrating.

In order to receive a copy of the draft agreement for the City's review, staff has had to follow up with MTO on April 20, 2016, May 2, 2016, May 26, 2016 and June 7, 2016 to find out the status of the draft agreement. Staff was advised that the agreement would be ready by June 17, 2016 and has again been recently told that the agreement would not be ready until mid to late July. It is now August and we have not received anything.

Could you please ensure that we do receive this agreement by as promised.

Best Regards,

John Mater, C.E.T.
Acting General Manager
City of Hamilton, Public Works

cc. Fabio Saccon, Ministry of Transportation
Ehab Armanious, Ministry of Transportation
Councillor Lloyd Ferguson, Ward 12 Councillor, City of Hamilton
Al Kirkpatrick, Transportation Management, Public Works Department
Lorissa Skrypniak, Transportation Management, Public Works Department
Mohan Philip, Transportation Management, Public Works Department

Appendix B5: Public Information Centres

[redacted]

From: Sinke, David <David.Sinke@amec.com>
Sent: October-18-13 11:16 AM
To: [redacted]
Cc: tplanning@hamilton.ca; Philip, Mohan; Sonya Kapusin
Subject: RE: Highway 403 Westbound Access Ramp Project

[redacted]

Thank you for your interest in this project. The project is progressing through the initial phases of the study, which includes the traffic analysis and inventories of existing conditions.

Our first PIC is tentatively planned for early 2014.

We will be sure to add your name to our contact list for the PIC, and will notify you by email in advance.

Please feel free to contact me or the project manager at the City, Mohan Philip, if you have any further questions.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: [redacted]
Sent: October-17-13 9:29 AM
To: Sinke, David
Cc: tplanning@hamilton.ca
Subject: Highway 403 Westbound Access Ramp Project

I would like to be added to the mailing list for this project.
Do you have any plan dates for PIC yet?
I would be very interested in knowing.
Thank you
[redacted]

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[redacted]

From: Sinke, David <David.Sinke@amec.com>
Sent: October-18-13 11:32 AM
To: Philip, Mohan
Cc: Sonya Kapusin
Subject: Public Comments re. Notice of Commencement - Mohawk Road Hwy 403 Ramp

Hello Mohan,

To date, we have received three response to the notice of commencement, as follows:

- [redacted] Inquiry received by email October 17. Response provided by email.
- [redacted] Conversation by telephone October 1. Would like to be added to contact list and notified by email [redacted] expressed interest in and concern about potential improvements to Mohawk Road west of the limits of our work. I explained that this was beyond the scope of our assignment. As I had no information on this, he advised me that he would be calling you for further information. [redacted] also expressed concern regarding the merging movement onto Highway 403. I advised him that traffic would successively merge with Lincoln M. Alexander Expressway E-SW traffic, which would then in turn merge with Hwy 403 NE-SW traffic. The merging lanes would be reconfigured and extended to accommodate merging safely and efficiently, to the requirements of the Ministry of Transportation.
- [redacted] Conversation by telephone September 24. Would like to be added to contact list and notified by email [redacted] General inquiry regarding anticipated scope of project. I explained the anticipated scope and Class EA process.

If you have received any comments or correspondence can you please forward to Sonya and copy me, for our records.

Thanks,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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[redacted]

From: Philip, Mohan <Mohan.Philip@hamilton.ca>
Sent: October-25-13 11:36 AM
To: jim.scale@amec.com; Sonya Kapusin; Stephen Keen; david.sinke@amec.com
Subject: FW: Hwy 503 Westbount Ramp - Ancaster

For your review and file
Mohan

From: [redacted]
Sent: October-25-13 11:12 AM
To: Transportation Planning
Subject: Hwy 503 Westbount Ramp - Ancaster

Hi Mohan, yes please add my email address to the project list to be kept up to date on this project. The fact that there was a ramp already there I would think would certainly help justify the necessary reopening of this ramp???!! Why it was ever closed is not clear to me(or anyone else that I talk to) As a long time resident and realtor in Ancaster the level of traffic being forced off the 403 highway and onto Wilson Street/ Rousseaux is making these roads a disaster waiting to happen. The "town" was never meant to handle the capacity that it is being forced to due to in my humble opinion a lack of planning. Also how do we get on the radar for another exit ramp for drivers coming East other than exiting at the Wilson Street ramp?? That also is forcing people ALL down Wilson Street for ALL of Ancaster??? This makes no sense. There needs to be another 403 exit besides that one at Wilson and the "Linc" - which doesn't put drivers where they want to go. What about an exit at Golf Links? Or the other thought I had (while driving it) was the very little used ramp at HWY 6 south???Could another ramp be installed there to get people off the 403 towards Fiddler's?? Anything is better than what we have now - this town is completely gridlocked with traffic and it is very quickly becoming a deciding factor in people purchasing a home in Burlington so they don't have to deal with the whole Ancaster/403 issues. I appreciate the time you have taken to read my email and I look forward to future correspondence and(quick) traffic redirection OUT of the village core.
Best Regards
[redacted]

[redacted]

From: Philip, Mohan [mailto:Mohan.Philip@hamilton.ca]
Sent:
To: Sinke, David; Sonya.Kapusin@cima.ca; Scale, Jim
Subject: FW: 403 West Ramp Study

For your review and response

From:
Sent: February-05-14 12:50 PM
To: Transportation Planning
Subject: 403 West Ramp Study

Dear Mr Philip and team,
While I may not be able to make the open house tonight, I wanted to express my thanks for this study and my support for a westbound entrance ramp at Mohawk. I was sorry to see the old one closed and would find this to be a welcome addition for 403 access to complement the entrances at Garner and Wilson.

On this same point, I am also hopeful that the study may include an exit to Ancaster eastbound from Brantford, perhaps by reversing the eastbound entrance ramp on Fiddler's Green. As it is, there are three eastbound ramps in close proximity at Wilson, Fiddler's Green and Garner. Reversing the Fiddler's ramp would even out the exits and entrances from the Brantford direction.

Thank you for your attention. I would appreciate any response you can provide and do add me to the list of any future updates.

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If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

-----Original Message-----
From: Philip, Mohan [mailto:Mohan.Philip@hamilton.ca]
Sent:
To: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca
Subject: FW: Ramp off Mohawk Rd

For your consideration

-----Original Message-----
From:
Sent: February-05-14 4:30 PM
To: Transportation Planning
Subject: Ramp off Mohawk Rd

Hello,

I'm quite concerned regarding the unnecessary proposed on-ramp to the
403 off of Mohawk Rd. It would go directly behind my property and would no doubt have an impact on my property value/resale ability as well as enjoyment of my back yard. I want to be added to any mailing list that involves this project, so that I do not miss the next pubic meeting.

Thanks

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Melissa Noss

Subject: FW: Highway 403 PIC #1

From:
Sent: February-07-14 9:00 AM
To: Philip, Mohan
Subject: Highway 403 PIC #1

Good Morning Mohan,

I am very pleased to know that you are heading up the work on the 403 Westbound Ramp Project at Mohawk Road.
It tells me the project is in good hands.

I heard from because of the storm the meeting this week was cancelled.
I assume a notice will be published regarding the makeup date.

I am very interested in this project, so if you are able to keep me posted via email...I will do my best to see that you have good attendance at the rescheduled PIC #1.

Thank you for the good work you undertake on behalf of the citizens of this community.

Kindest Regards,

Ministry of Aboriginal Affairs

160 Bloor St. East, 9th Floor
Toronto, ON M7A 2E6
Tel: (416) 326-4740
Fax: (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ministère des Affaires Autochtones

160, rue Bloor Est, 9e étage
Toronto ON M7A 2E6
Tél. : (416) 326-4740
Téléc. : (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ontario

Reference: EA # 2014-15

February 7, 2014

Mohan Philip
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON, L8R 2K3

Re: HWY 403 Westbound Access Ramp Project (At Mohawk Road) Notice of Public Information Centre (PIC#1)

Dear Mr. Philip:

Thank you for informing the Ministry of Aboriginal Affairs (MAA) of your project. Please note that MAA treats all letters, emails, general notices, etc. about a project as a request for information about which Aboriginal communities may have rights or interests in the project area.

As a member of the government review team, the Ministry of Aboriginal Affairs (MAA) identifies First Nation and Métis communities who may have the following interests in the area of your project:

- reserves;
- land claims or claims in litigation against Ontario;
- existing or asserted Aboriginal or treaty rights, such as harvesting rights; or
- an interest in the area of the project.

MAA is not the approval or regulatory authority for your project, and receives very limited information about projects in the early stages of their development. In circumstances where a Crown-approved project may negatively impact a claimed Aboriginal or treaty right, the Crown may have a duty to consult the Aboriginal community advancing the claim. The Crown often delegates procedural aspects of its duty to consult to proponents. Please note that the information in this letter should not be relied on as advice about whether the Crown owes a duty to consult in respect of your project, or what consultation may be appropriate. Should you have any questions about your consultation obligations, please contact the appropriate ministry.

You should be aware that many First Nations either have or assert rights to hunt and fish in their traditional territories; these territories typically include lands and waters outside of their reserves.

In some instances, project work may impact aboriginal archaeological resources. If any Aboriginal archaeological resources could be impacted by your project, you should contact your regulating or approving Ministry to inquire about whether any additional Aboriginal communities should be contacted. Aboriginal communities with an interest in archaeological resources may include communities who are not presently located in the vicinity of the proposed project.

With respect to your project, and based on the brief materials you have provided, we can advise that the project appears to be located in an area where First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation, that could be impacted by your project. Contact information is below:

Six Nations of the Grand River Territory P.O. Box 5000, 1695 Chiefswood Road OHSWÉKEN, Ontario N0A 1M0	Chief Ava Hill (519) 445-2201 (Fax) 445-4208
Haudenosaunee Confederacy Chiefs Council 2634 6th Line Road RR 2 Ohsweken, ON N0A 1M0	Hohahes Leroy Hill Secretary to Haudenosaunee Confederacy Chiefs Council Cell 519 717 7326 jocko@sixnationsns.com
Mississaugas of the New Credit First Nation 2789 Mississauga Rd., R.R. #6 HAGERSVILLE, Ontario N0A 1H0	Chief Bryan LaForme (905) 768-1133 (Fax) 768-1225 bryanlaforme@newcreditfirstnation.com

The information upon which the above comments are based is subject to change. First Nation or Métis communities can make claims at any time, and other developments can occur that could result in additional communities being affected by or interested in your undertaking.

Through Aboriginal Affairs and Northern Development (AANDC), the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. AANDC's Consultation and Accommodation Unit (CAU) established a "single window" to respond to requests for baseline information held by AANDC on established or potential Aboriginal Treaty and rights. To request information from the Ontario Subject Matter Expert send an email to: UCA-CAU@aadnc-aandc.gc.ca

Additional details about your project or changes to it that suggest impacts beyond what you have provided to date may necessitate further consideration of which Aboriginal communities may be affected by or interested in your undertaking. If you think that further consideration may be required, please bring your inquiry to whatever government body oversees the regulatory process for your project. MAA does not wish to be kept informed of the progress of the project; please be sure to remove MAA from the mailing list.

Yours truly,

Heather Levecque
Manager, Consultation Unit
Aboriginal Relations and Ministry Partnerships Division

Sonya Kapusin

From: Philip, Mohan <Mohan.Philip@hamilton.ca>
Sent:
To: david.sinke@amec.com; Sonya Kapusin; jim.scale@amec.com
Subject: FW: Access to 403

For your records

From:
Sent: February-10-14 12:02 PM
To: Skrypniak, Lorissa;
Cc: Philip, Mohan
Subject: Re: Access to 403

Hi Lorissa,

Thank you for your note. Glad the notice did make it into Mountain News – as a resident living near Stone Church and Upper Paradise the issue is relevant to me, but I don't receive the Ancaster News. I would appreciate being included on the project mailing list, thank you.

Best regards

From: Skrypniak, Lorissa
Sent: Monday, February 10, 2014 9:31 AM
To:
Cc: Philip, Mohan
Subject: RE: Access to 403

Thank you for your comments. The notice for the February 5, 2014 Public Information Centre (PIC) –cancelled due to weather, was in the Hamilton Spectator on January 24 and 31 and the Ancaster News on January 23 and 30. The Municipal Class EA requires us to publish notice two consecutive times in the local paper.

The PIC notice for the ramp project was requested to be in the Ancaster News, which it was, we are not sure why it was published in the Mountain News.

The notice for the rescheduled PIC will be put in these same publications 2 weeks prior to the PIC.

We can add Mr. Vickers to the project mailing list if he wishes.

If you have any other questions please let us know. I have copied Mohan Philip the project manager for this project.

Thank you

Lorissa
Lorissa Skrypniak, BA, MCIP, RPP Senior Project Manager
Transportation Planning. Public Works
77 James Street North. Suite 400 Hamilton, Ontario L8R 2K3
ph 905.546.2424 ext. 2732 fax 905.546.4435
e-mail. lorissa.skrypniak@hamilton.ca

From:
Sent: February-09-14 8:40 AM
To:
Cc: Skrypniak, Lorissa;
Subject: RE: Access to 403

Good news

The PIC for Feb 5th was canceled because of the storm.

The new date will be published in the Spec and Hamilton Community (Mountain News) News. By copy of the e-mail to Lorissa please make sure the notice in Hamilton Community News goes in that paper well in advance as there is a delay on delivery.

Thanks.

From
Sent: Saturday, February 08, 2014 11:54 PM
To:
Cc: Transportation Planning; Ferguson, Lloyd
Subject: Fw: Access to 403

A small complaint. You may recall the note below from 2 years ago, in which I expressed frustration that the ramp from Mohawk to 403 westbound was eliminated. This week I noted the City Notice in the Mountain News that restoring the ramp is under consideration and would have attended the PIC about it, if for no other reason than to express strong support for the proposal. However, the PIC was held on February 5 and the notice was in the Mountain news published February 6!

I have copied this to the Project manager and councillor Ferguson to whose ward this pertains.
Cheers

From:
Sent: Saturday, April 14, 2012 11:47 AM
To:
Subject: Access to 403

Dear

I am seething... I was out this morning for some shopping and as is my habit planned a round trip to minimise mileage. I visited my bank and a store in the Meadowlands ending up at the west end and then headed over to McNiven and down to Mohawk to catch the 403 westbound. As I got down to Mohawk I realised that the westbound ramp was eliminated during Lync construction, which was the content of some letters of concern from me back then. Courtesy of the construction in Ancaster, I could not even take the alternative to run out Wilson to get to the 403. To get to 403 west it was necessary for me to exit the Lync at Golflinks, go east on Mohawk and get back on to the Lync and then to 403 westbound. This is ridiculous, short-sighted planning that the city should never have accepted. What makes it worse is the passageway that once was the ramp to 403 west is still there!!!

This is not planning and certainly not competent governance.

Sincerely

PS - Sometime I will revisit the Omni traffic circle and the problems it continues to create!

Melissa Noss

From: Sinke, David <David.Sinke@amec.com>
Sent: Tuesday, February 25, 2014 2:54 PM
To: planning@hamilton.ca
Cc: Philip, Mohan; Scale, Jim; Sonya Kapusin
Subject: RE: Mohawk Road Ramp

Hello

Thank you for your comments and your support of this project. The City of Hamilton has made this project a priority, recognizing its importance to the community of Ancaster.

Our second PIC is tentatively scheduled for mid June. Hopefully you will be available then to review the plans and provide input.

Feel free to contact us should you have any further comments,

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: February-25-14 11:50 AM
To: tplanning@hamilton.ca; Sinke, David
Subject: Mohawk Road Ramp

Hello,

We are pleased to learn that a study is being undertaken regarding westbound access to Highway 403, but unfortunately we will be out of town on March 6th and unable to attend the first Public Information Centre.

We live in a survey known as Mohawk Meadows, bounded by Mohawk Road, McNiven Road, Golf Links Road and Highway 403. When the LINC and 403 interchanges were being designed, we learned that the westbound ramp from Mohawk Road was being eliminated.

At the time, I commuted daily to Brantford – I have since retired – and we also used this ramp anytime we travelled to the west end of Ancaster and areas further west. Our protests about the ramp closure were dismissed at the time ("too many access points too close together").

The resulting situation has proved the earlier decision to be wrong, in our view. The interchange forces east- and west-bound traffic to share (or compete for) lanes and creates several congestion points at merging on- and off-ramps (not all of which will be alleviated by one ramp, of course.)

The popularity of the LINC and the Meadowlands development have made it extremely difficult at times to exit our neighbourhood by any means. Left turns to Mohawk or Golf Links are next to impossible and even right turns can mean long waits. Our options for westbound travel are time-consuming and even dangerous. To get to the westbound 403 we must cross two lanes of fast-moving traffic eastbound from the 403 to the LINC in order to get to Golf Links, then access the westbound LINC from Golf Links Road, then negotiate across two lanes of Hamilton-bound traffic in order to reach the 403 West. The alternative is to somehow make our way through the town of Ancaster so that we can use the Wilson St. westbound ramp.

After the LINC was built, at least half of my daily commute time to Brantford was spent within Ancaster's village limits; once I finally reached the highway, it was clear sailing. Offering another westbound ramp to commuters from west Hamilton, Dundas and Ancaster may not change things on Mohawk Rd/Rousseaux St, but should ease the pressure on Wilson Street and on the LINC/403 interchange. Now if we could only find a better alternative for exiting from the west ...

Thank you for the opportunity to comment; we hope to attend the second Public Information Centre and we look forward to eventual improvements in our area's transportation network.

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COMMENT FORM
(Please print)

Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Thursday, March 6, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

I feel the ramp will cause an increased volume of traffic on Mohawk, which it doesn't need. There should be a traffic light at Green Valley dr. plus a third lane from Green Valley to the 403 There is also no way for pedestrian to travel from cayuga to algonquin on either side. the increased traffic would make life worse

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by March 20, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
Fax: 905-546-2093
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: ___

Affiliation (if applicable): ___

Address: ___

Postal Code: ___ Phone: ___

Fax: ___ Email: ___

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Hamilton

amec

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COMMENT FORM
(Please print)

Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Thursday, March 6, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

Do it please - soonest

Traffic on Wilson St is dreadful and spoils the whole village ambience

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by March 20, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
Fax: 905-546-2093
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: _____

Affiliation (if applicable): _____

Address: _____

Postal Code: _____ Phone: _____

Fax: _____ Email: _____

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Hamilton

amec

CIMA
Partners in excellence

COMMENT FORM
(Please print)

Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Thursday, March 6, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

OFF MOHAWK RD
THE RAMP TO 403 W IS NEEDED.
ORIGINAL RAMP SHOULD NEVER HAVE BEEN REMOVED?

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Comments (Please use the back of this sheet if you need additional space):

I am very concerned about increased noise pollution from the ramp. While I strongly support the building of the ramp it is essential that appropriate noise attenuation be developed between Golf Links + Fiddler's Green to accomodate accelerating truck + car traffic. This is vital due to increased volumes, accelerating traffic and the uphill slope of the Hwy. Importantly there is no noise attenuation along this side of the Hwy 403 + this is the only section through all of Ancaster.

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Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
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Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

Please proceed with Alternative 2: --- by adding a Brantford-bound ramp from Mohawk Road to Highway 403, as quickly as possible.

Please "get on with" getting this ramp constructed, as it has been needed since the ramp was removed.

Since the Mohawk ramp to the 403 was removed -- How does one living between Wilson Street and the 403 Hwy. get to Brantford? Please see other side of this sheet.

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by March 20, 2014:

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Name: _____

Affiliation (if applicable): _____

Address: _____

Postal Code: _____ Phone: _____

Fax: _____ Email: _____

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

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But they would do this at the expense of making Rousseaux/Mohawk Road even less "walkable" for local residents. Currently, there is a paucity of pedestrian sidewalks for residents along this route.

Problem Identification

The AMEC presentation states: "Residents have requested that the Brantford-bound ramp be placed due to increasing traffic demands on Wilson Street in the Ancaster core." However, the report has not indicated who these residents are, where their residences are located, or how many individuals have requested this. Nor is there any indication of how many people along the proposed Rousseaux/Mohawk route will be affected and what their position is regarding the potential change.

Submitted: March 10. 2014

Yes. We wish to be kept informed of this Class EA study.

Please acknowledge receipt of this submission

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If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

Melissa Noss

Subject: FW: 403 ramp project

From: Sinke, David [mailto:David.Sinke@amec.com]
Sent: March-10-14 8:38 AM
To:
Cc: Mohan.Philip@hamilton.ca; tplanning@hamilton.ca
Subject: RE: 403 ramp project

Dear

Thank you for your comments. We will review and consider, and respond formally to you once all comments have been received.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: March-07-14 4:14 PM
To: tplanning@hamilton.ca; Sinke, David
Subject: 403 ramp project

COMMENT FORM

Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Thursday, March 6, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

I feel the City should advertise the alternate routes to Wilson that were outlined in the meeting, allowing access to the 403 to Brantford. North Ancaster has easy access via McNiven to Golflinks and the Link

westbound. Alternately, Southcote to Garner Rd W would allow access to the 403 W. After the public has been educated about these other routes, the traffic study should be repeated to see how many cars are actually using Wilson to access the 403 W.

I think Garner Rd needs to be widened, as much of the traffic on Wilson St.is due to difficulties in accessing Fortino's, Walmart and Canadian Tire. If Garner Rd were improved, much of the Wilson Rd traffic would be diverted. Garner could also be used to access the 403W.

In addition, the current proposed plan would shift traffic onto the already heavily travelled Mohawk/Rousseau section, which has a higher than average accident rate already. It is unacceptable that residents will be expected to dodge this traffic in order to get their mail. Given the speed limit of Mohawk Rd, a pedestrian would not survive the collision. Liability for the accident would be with the City of Hamilton planning department. 500,000 people in Hamilton will now have to travel to get their mail on a daily basis, many on busy roads such as Mohawk which were not designed for pedestrian traffic. I want my tax dollars going toward infrastructure changes to make pedestrian travel safe, not saving a few hundred cars a route that is a few blocks shorter to the 403W.

N.B. I would appreciate a detailed copy of the traffic study and updates on this Class EA study via this email.

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by March 20, 2014:

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Project Manager
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Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name:

Affiliation (if applicable):_____

Address:

Postal Code: _____ Phone: _____

Fax: _____ Email: _____

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes

Melissa Noss

Subject: FW: Re-West Bound Access Ramp Project - Concern

From:
Sent: March-10-14 11:45 AM
To:
Cc: Transportation Planning;
Subject: RE: Re-West Bound Access Ramp Project - Concern

Hello

Thank you for contacting with your concerns. appreciates having the benefit of your views and all comments are brought to his attention.

The 403 is a Provincial Highway, and therefore may I suggest that you share your concerns with Ted McMeekin, who is your Provincial Member of Parliament. His email address is tmcmeekin.mpp@liberal.ola.org

Yours

Caroline Goodenough
Constituency Office Manager to David Sweet M.P.
Ancaster-Dundas-Flamborough-Westdale
#3-59 Kirby Avenue, Greensville,
Ontario, L9H 6P3
Tel: 905-627-9169 Fax: 905-627-3803
David.sweet.c1a@parl.gc.ca

From: David W
Sent: March 7, 2014 8:34 PM
To: tplanning@hamilton.ca;
Subject: Re-West Bound Access Ramp Project - Concern

Hello,

I wish to add my concern to another access ramp being added to the particular junction from Mohawk Road to the 403 West Section as noted in the paper.

As a resident of Ancaster and a commuter to the East end of Hamilton. I am extremely familiar with the 403, Linc & Access ramps from both ends of road way.

As is, it is regrettably congested and bottlenecks from the existing exit from the Linc. Why add another ramp here, when traffic cannot move through here without bottle-necking already?

Unfortunately, the above mentioned both East and West is on an "average" day...when an accident happens, it is a complete traffic nightmare.

The best mess starts at Wentworth and continues to you get past Garner / Hwy 6.

Another merge lane in there is only asking for my traffic issues going forward.

Melissa Noss

Subject: FW: Highway 403 Westbound Access Ramp (at Mohawk Road) EA

From: Zirger, Rosi (MTCS) [mailto:Rosi.Zirger@ontario.ca]
Sent: March-10-14 12:43 PM
To: Sinke, David
Cc: tplanning@hamilton.ca
Subject: Highway 403 Westbound Access Ramp (at Mohawk Road) EA

Project: Highway 403 Westbound Access Ramp (at Mohawk Road) EA
Location: City of Hamilton
MTCS File: 00686

Dear Mr. Sinke

On February 19, 2014 the Ministry of Tourism, Culture and Sport (MTCS) received a Notice of Public Information Centre #1 for the project mentioned above. The Ministry of Tourism, Culture and Sport's (MTCS) interest in this class EA project relates to its mandate of conserving, protecting and preserving Ontario's cultural heritage, including:

- archaeological resources,
- built heritage resources, and
- cultural heritage landscapes.

MTCS would, therefore, be interested in remaining on the circulation list and being informed of the project as it proceeds through the EA process. We would ask that you send future notices to **Rosi Zirger Heritage Planner at the address below.**

Archaeology

Could you tell me whether an archaeological assessment is being undertaken for this project? If so could you please provide me with a PIF number. If an archaeological assessment was completion in connection with some previous development could you provide me with further details.

Thanks you in advance.

Sincerely

Rosi Zirger
Heritage Planner
Ministry of Tourism, Culture & Sport
Culture Division | Programs & Services Branch | Culture Services Unit
401 Bay Street, Suite 1700 Toronto, Ontario M7A 0A7
Tel. 416.314.7159 | Fax 416.314.7175| E-mail: rosi.zirger@ontario.ca

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If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents.
If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

Melissa Noss

From: Philip, Mohan <Mohan.Philip@hamilton.ca>
Sent: Thursday, March 27, 2014 9:41 AM
To:
Cc: david.sinke@amec.com; Sonya Kapusin
Subject: RE: Highway 403 WB Access Ramp at Mohawk

Hi

Nice to hear from you after a long time and thanks for your interest in this project. The link to the project website is www.hamilton.ca/mohawkroadramp.
We will add your email to our circulation list.

Thanks

Mohan Philip, M. Eng., P.Eng.
Project Manager
Transportation Planning & Mobility Programs Transportation Division, Public Works Dept.
City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3

Tel: 905 546 2424 x 3438
Fax: 905 546 2039
Mohan.philip@hamilton.ca

-----Original Message-----
From:
Sent: March-26-14 8:37 PM
To: Transportation Planning; david.sinke@amec.com
Subject: Highway 403 WB Access Ramp at Mohawk

We were unable to attend the recent PIC.

Can you please send us a PDF copy of (or web link to) the PIC Information Package and Comment Sheet?

Also, can you please add the above e-maill address to the e-mail mailing list?

Thanks,

To: Sinke, David
Subject: RE: proposed ramp to 403W

Hi Mr. Sinke,
My understanding was, when I purchased my home, that there was a Hydro 1 access beyond my fence in order for them to service their lines. I will check my title to see. They have been using the area behind my property line to do this for the past. How close to my property linre does the proposed ramp come?

Thanks.

From: David.Sinke@amec.com
To:
CC: Mohan.Philip@hamilton.ca; jim.scale@amec.com; Sonya.Kapusin@cima.ca
Date: Thu, 3 Apr 2014 16:21:45 -0400
Subject: RE: proposed ramp to 403W

Hello

We have reviewed the offset of the existing Hydro Line in the rear lots of the homes on Oneida Blvd. The hydro line is typically about 10 feet inside the rear fence line of the homes, but in some cases as close as approximately 2 feet inside the rear fence line. These dimensions are approximately scaled from aerial photography. Any easement that Hydro One has along this line would be limited to the private lands – Hydro One would not have an easement within the public ROW associated with the Highway 403/Linc/Mohawk Road interchange.

We have been corresponding with Hydro One and have received information from them on their plant. We do not anticipate that the hydro line within the fence line will be affected by the proposed ramp construction. However, there may be some impacts to hydro one plant near Mohawk Rd, within City owned lands, which will be investigated further. We do not anticipate this to be a significant issue.

You had provided several more comments/questions for us to consider – these will be responded to at a later date.

Let us know if you have any further questions.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414
david.sinke@amec.com
amec.com
Be more sustainable - think before you print.

From:
Sent: March-20-14 11:32 AM
To: Transportation Planning
Subject: proposed ramp to 403W

Hi Mr. Phillip,
I believe Hydro 1 has an easement behind the properties on Oneida Blvd, which would be between the

proposed ramp and the residential properties. How many feet behind the residential property at Oneida does the Hydro land extend and will the ramp infringe on Hydro's land?
Thanks.

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Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

The Hamilton Spectator

January 24, 2014

AS.

January 16, 2014

The City of Hamilton has initiated a study in collaboration with the Ministry of Transportation to determine the feasibility of a westbound access ramp to Highway 403 in Ancaster.

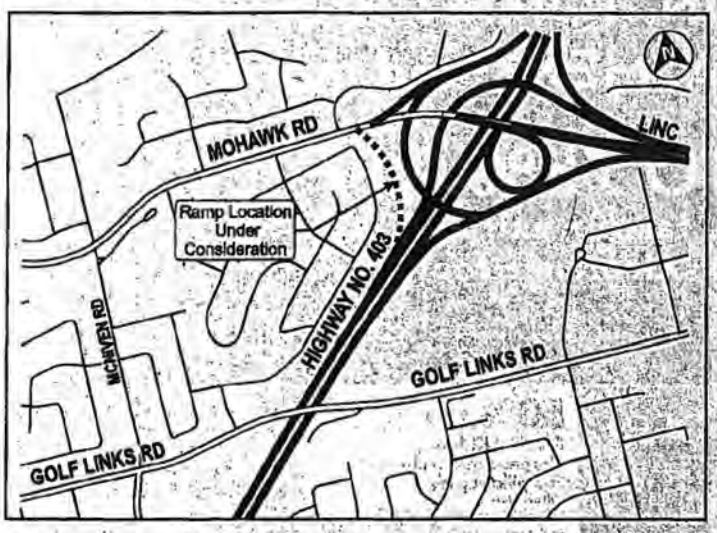
To comply with the *Environmental Assessment Act*, the study will follow the Municipal Engineer's Association Municipal Class Environmental Assessment (October 2000, as amended in 2007 and 2011) including the assessment of alternatives and development of preferred solutions. The study will fulfill Phases 1 to 4 of the Class EA process.

Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road.
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process

The following Public Information Centre (PIC# 1) will be held to obtain public and stakeholder input into the study.

Date:	Wednesday, February 5, 2014
Time:	6:00 – 8:00 p.m. Open house/drop-in format A presentation will take place at 6:45 p.m.
Location:	Ancaster Old Town Hall, 310 Wilson Street E.



There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers.

For more information related to the study, please refer to project website www.hamilton.ca/mohawkroadramp. If you require additional information or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2093 tplanning@hamilton.ca	*David Sinke, B. Eng. Mgt., P. Eng.* Project Manager AMEC Environment & Infrastructure 3215 North Service Road, Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

If you have any accessibility requirements in order to participate in this program or event, please contact Mohan Philip by January 27, 2014. Advance requests are highly encouraged to enable us to meet your needs adequately.

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

The Hamilton Spec
Jan. 31, 2014
A8.

January 16, 2014

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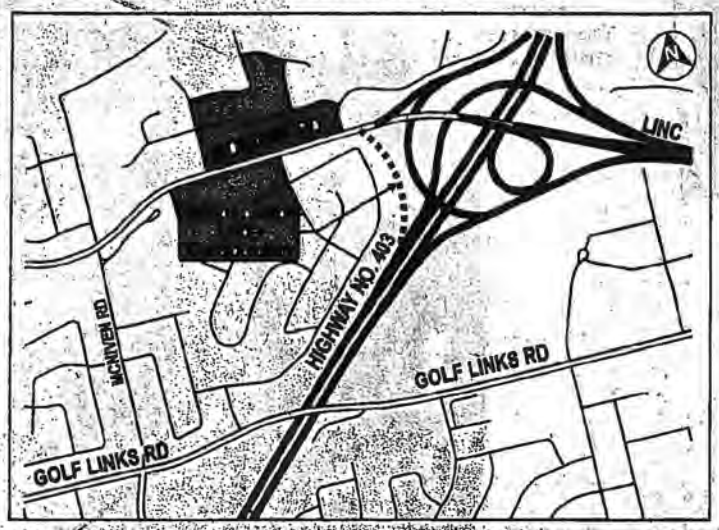

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Tel: 905 546 2424 x.3438 Fax: 905 546 2093 tplanning@hamilton.ca	Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

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Ancaster News
Volume 48. No 8
January 23, 2014
p. 26

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

January 16, 2014

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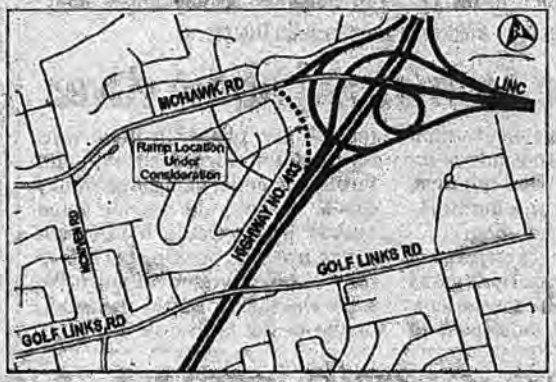

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Ancaster News
Volume 48 No 5
January 30, 2014
page 18.

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

Hamilton

January 16, 2014

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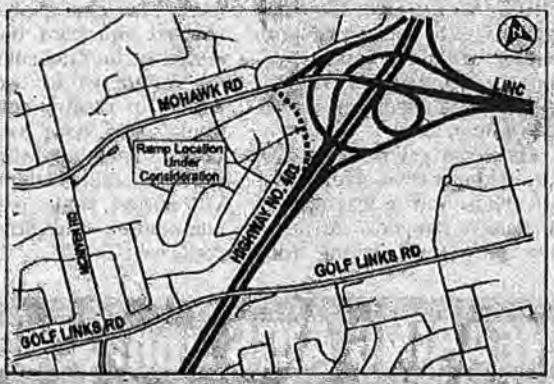

Mohan Philip, M. Eng., P. Eng.
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Ancaster News
Feb. 20, 2014
Volume 48 No. 8
page 34.

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

February 14, 2014

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Time: **6:00 – 8:00 p.m. Open house/drop-in format**
A presentation will take place at 6:45 p.m.
Location: **Ancaster Old Town Hall, 310 Wilson Street E.**

There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers.

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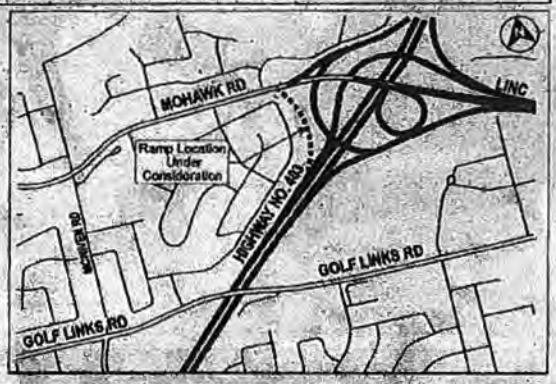

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Mountain News
Feb 20, 2014
Volume 46 No 8.
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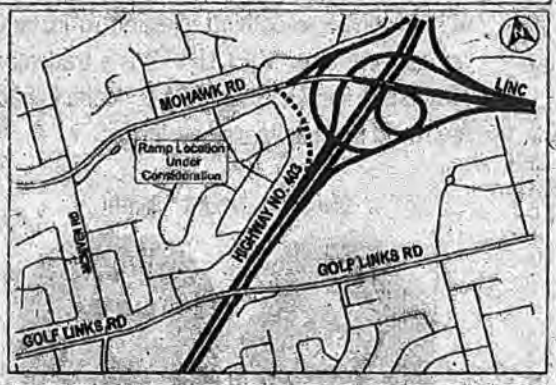

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HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

Hamilton

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February 14, 2014

The Hamilton Spec. Feb 21, 2014 A6.

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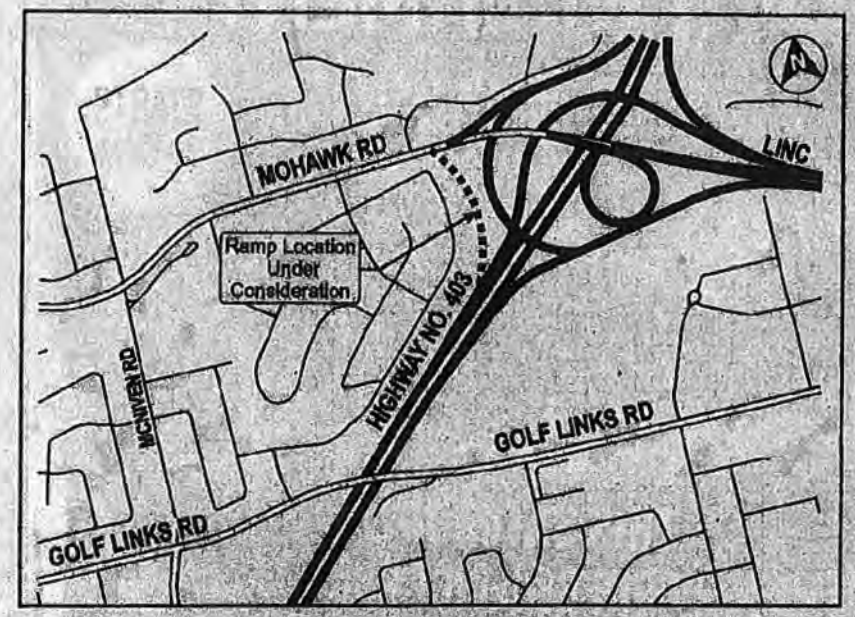

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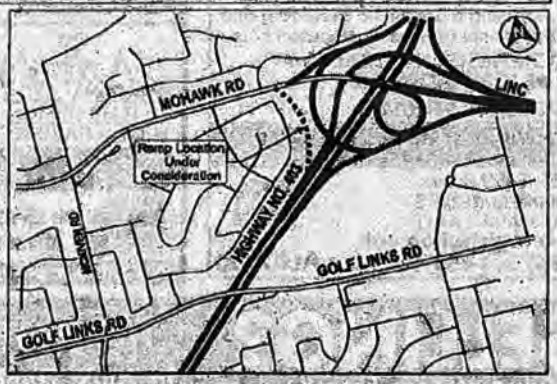

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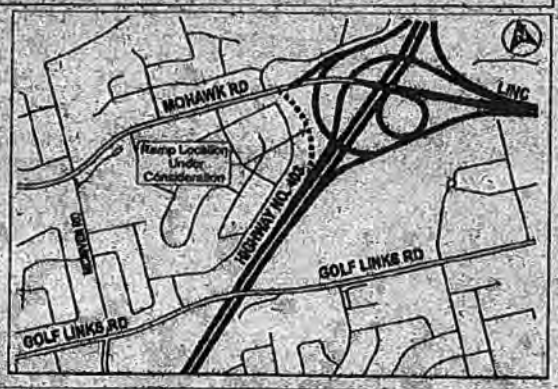

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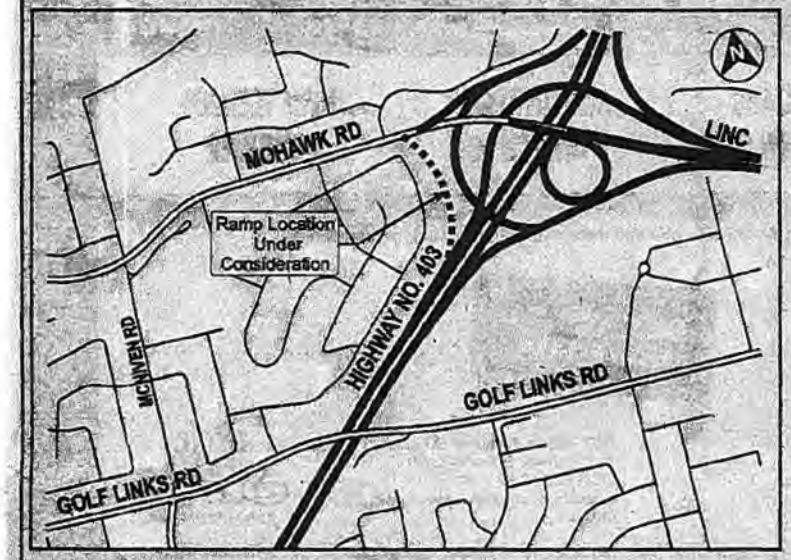

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The Hamilton Spec
Feb. 28, 2014
A6.

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD) NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

January 16, 2014

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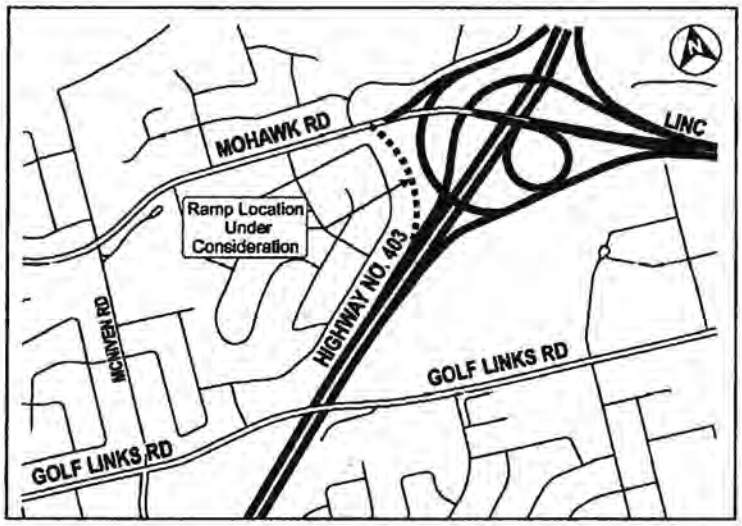
The following Public Information Centre (PIC# 1) will be held to obtain public and stakeholder input into the study.

Date: Wednesday, February 5, 2014
Time: 6:00 – 8:00 p.m. Open house/drop-in format
A presentation will take place at 6:45 p.m.
Location: Ancaster Old Town Hall, 310 Wilson Street E.



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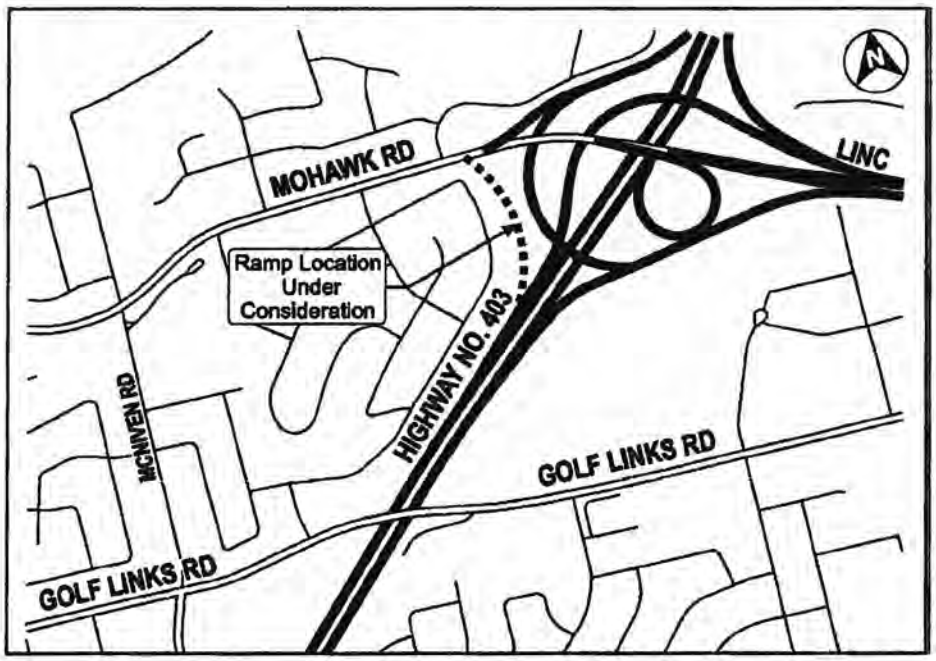

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Manager, Sustainable Initiatives	Public Works
Manager, Landscape Architectural Services	Public Works
Director of Tourism and Culture	Planning and Economic Development
Director, Public Health Services	City of Hamilton
Division Director, Recreation Community & Emergency Services Department	City of Hamilton
Director, Water & Wastewater Engineering	Public Works
Deputy Fire Chief	Hamilton Fire Department
Assistant Deputy Chief	Hamilton Fire Department
Manager of Infrastructure & Source Water Planning	Water & Waste Water Division
Director	Economic Development Division
Cultural Heritage Planner (East)	Planning & Economic Development
Director of Corporate Initiatives	City Managers Office
Manager of Policy and Programs	Public Works
Senior Director, Parking & By-Law Services	Planning & Economic Development
Cultural Heritage Planner (West)	City of Hamilton
Director of Transportation	Public Works
Director, Strategic & Business Planning	Planning & Economic Development
Natural Heritage Planner (East)	Planning & Economic Development
Manager, Transportation Planning	Public Works
Manager, Mobility Programs and Special Projects	Public Works
Director of Planning	Planning & Economic Development
Co-Ordinator Business Improvement Areas	Planning & Economic Development
Director of Water & Wastewater	Public Works
Manager of Forestry & Horticulture	Environmental Services
Director of Environmental Services	Public Works
Director, Strategic Planning	Public Works
Manager, Urban Renewal	Planning & Economic Development
Director of Growth Planning	Planning & Economic Development
Natural Heritage Planner	Planning & Economic Development
Medical Officer of Health	Pubic Health Services
Manager, Community Planning	Planning & Economic Development
Senior Director, Growth Management	Planning & Economic Development
Director of Operations	Public Works
Acting Paramedic Chief,	Hamilton Paramedic Service
Manager, Traffic Operations	Public Works
Director, Financial Planning & Policy	Corporate Services
Conservation Authority	
Manager, Watershed Engineering Services	Conservation Halton
Director, Watershed Planning & Engineering	Hamilton Conservation Authority
Manager, Watershed Planning Services	Hamilton Conservation Authority
Provincial Authorities	
	Ministry of Agriculture and Food
Area Supervisor, Niagara Area Office	Ministry of Natural Resources
E/A Project Co-ordination Section	Ministry of the Environment
Regional Archaeologist, Southwestern Archaeological Field Office	Ministry of Culture
Regional Director - Hamilton/Niagara Regional Office	Ministry of Community and Social Services
	Ministry of Transportation
Manager, Heritage Operations Unit, Heritage & Libraries Branch	Ministry of Culture
Policy Advisor - Consultation Unit	Minstry of Aboriginal Affairs

District Manager, Guelph District Office	Ministry of Natural Resources
Environmental Assessment & Planning Co-ordinator	Ministry of the Environment
District Planner - Guelph District	Ministry of Natural Resources
Information Management Supervisor	Ministry of Natural Resources
Highway Engineering Hamilton	Ministry of Transportation
	Municipal Affairs & Housing
	Ontario Provincial Police, Burlington Detachment
Director, Policy and Relationships Branch	Ministry of Aboriginal Affairs
Manager	Niagara Escarpment Commission
A/Heritage Planner	Ministry of Tourism & Culture
Federal Authorities	
Regional Subject Expert for Ontario, Consultation and Accommodation Unit	Aboriginal Affairs and Northern Development Canada
	Aboriginal Affairs and Northern Development Canada
c/o Canadian Wildlife Services	Environment Canada
EA Section	Environment Canada
E/A Project Co-ordination Section	Ministry of the Environment
Director, Ontario Region	Canadian Environmental Assessment Agency
Integrated Policy & Planning Division	Ministry of Health and Long Term Care
	Ministry of Public Infrastructure
Fish Habitat Biologist - Habitat Management	Dept. of Fisheries & Oceans
Fish Habitat Biologis	Dept. of Fisheries & Oceans
	Natural Heritage Information Centre
Rural Planner	Ministry of Agriculture, Food & Rural Affairs
Environmental Assessment Projects Officer	Environment Canada
Environment Officer- Environment Unit, Ontario Region	Lands and Trusts Services Env. Unit INAC
Claims Analyst, Ontario Team, Specific Claims Branch	Ministry of Indian and Northern Affairs
Navigable Waterways Program	Transport Canada
Environmental Coordinator	Transport Canada
	Canadian Transportation Agency
First Nations	
Director of Lands & Resources	Six Nations of the Grand River
	Patent & Trademark Agents for Huron-Wendat
Secretary Political Sector	Huron-Wendat Nation Council
Lands & Resources	Six Nations Eco-Centre
	Haudenosaunee Resource Centre
	Environment Unit
Program Manager	Hamilton Executive Director for Aboriginal Coalition
Director of Lands, Claims & Member Research	Mississaugas of New Credit First Nation
NGOs	
	Treblay Building
Executive Director	Hamilton Regional Indian Centre
Administrator	The Métis Nation of Ontario
	Council of Ontario Chiefs
Executive Director	De dwa da dehs nye>s Aboriginal Health Centre
	Association of Iroquois and Allied Indians
Executive Director	Native Women's Centre
President	Metis Women's Circle
	Canadian Metis Council
Director of Lands and Resources	Union of Ontario Indians - Nipissing First Nation
Executive Director	Niwasa Aboriginal Early Learning Programs

	Hamilton Region Indian Centre
Acting Director of Environmnetal Stewardship Unit	Assembly of First Nations
Executive Administrator	Hamilton Executive Directors' Aboriginal Coalition
Chair	c/o Program Manager HEDAC
President	Hamilton/Wentworth Métis Council
Neighbourhood Groups/Organizations	
Membership Coordiantor	Federation of Urban Neighbourhoods of Ontario
Chair	Ancaster Community Council
Executive Director	Ancaster BIA
Chair	Bonnington, Buchanan, Mohawk, Southam Neighbourhood Association
Other Related Community Groups	
Trustee Ward 1 and 2, Past Chair	Hamilton Wentworth District School Board
	Environment Hamilton
Organizer	Citizens at City Hall (CATCH)
Chair	Hamilton Community Foundation
Utilities	
Land Analyst, Urban Development	TransCanada Pipelines
Senior Right-of-Way Agent	Enbridge Pipelines Inc.
Mapping Supervisor	Union Gas
General Manager, Hamilton Community Energy	Hamilton Utilities Corporation
	Cogeco Cable Inc.
Senior Network Management Engineer/Officer	Hydro One
Operations Manager	Union Gas
	Sun Canadian Pipeline
Manager, Public Works Design & Construction	CN
Manager - Public Works	Canadian Pacific Railway
	CN Rail - Engineering & Environmental Services
Planner/Designer	Source Cable
Land Agent - Eastern Pipeline Operations	Imperial Oil Products & Chemical Division
Crossings Co-ordinator, Eastern Region	Enbridge Pipelines Inc.
Manager of Capital Projects	Horizon Utilities Corporation
	Union Gas Ltd.
	Bell Canada
	Cogeco Cable Inc
Regional Director - Marketing	Southern Ontaio Railway
	Canadian National Railway
Hospitals	
Chair, Board of Directors	Hamilton Health Sciences
Schools	
Chair	Hamilton-Wentworth District School Board
	Hamilton District Catholic School Baord
	Hamilton District Catholic School Baord
Accommodation & Planning	Hamilton-Wentworth District School Board
	French Public School Board
	French Catholic School Board
Other	
Chief Executive Officer	Hamilton Chamber of Commerce
Manager - Planning & Development	Go Transit
Stakeholder Relations	Go Transit
General Manager - Transportation Policy and Planning	Metrolinx

The City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment

Public Information Centre No. 1

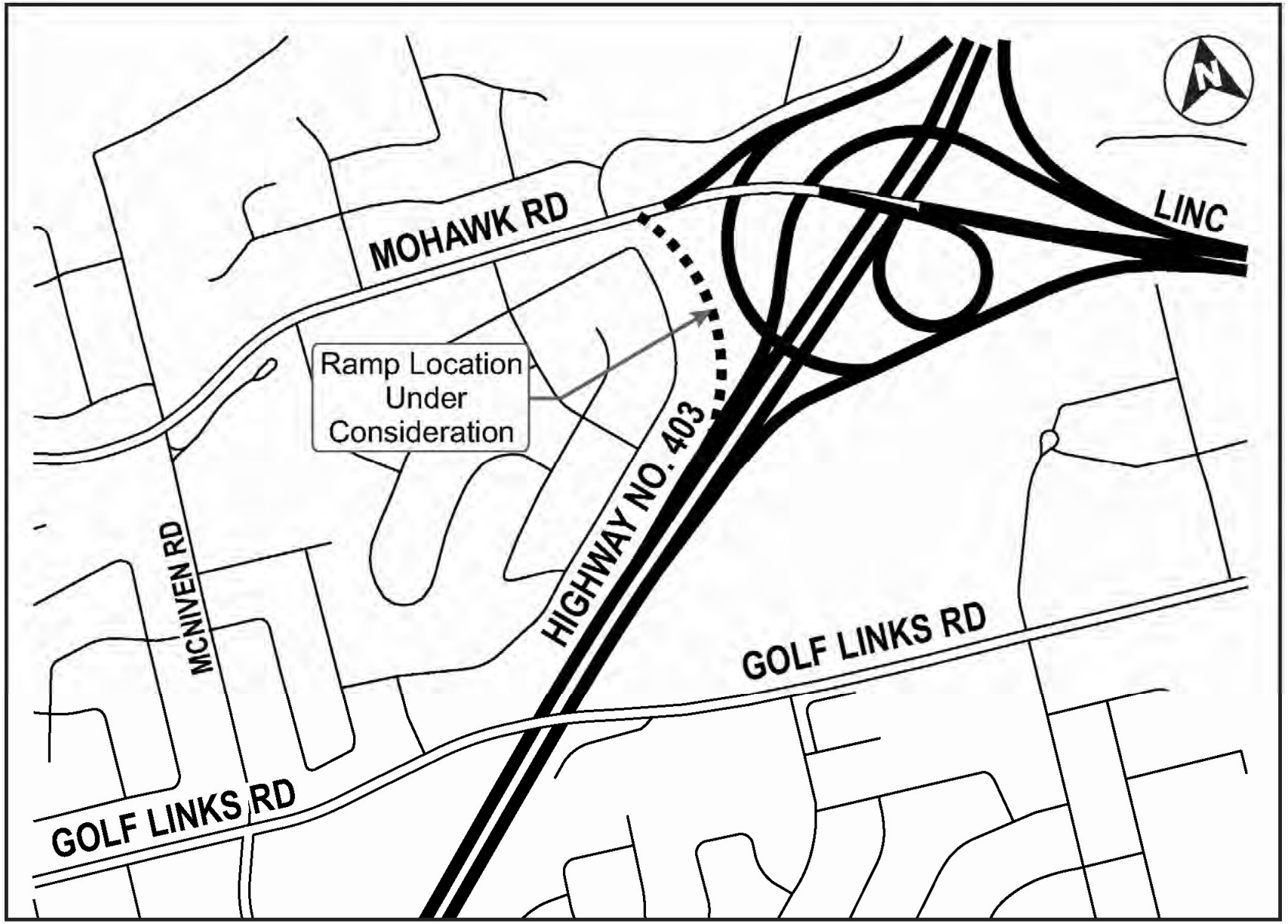
March 6, 2014

Background

The Ancaster Transportation Master Plan (TMP) was completed in 2011. Following that:

- A preliminary technical assessment was completed by the City in conjunction with the Ministry of Transportation (MTO) on the feasibility of where a new Brantford-bound on-ramp could be provided
- A ramp at Golf Links Road was found to have operational concerns and its design would not meet MTO geometric standards
- A new ramp was potentially feasible (subject to detailed study and an Environmental Assessment (EA) study being done) at Mohawk Road
- City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road

Study Area


MOHAWK RD
LINC
Ramp Location
Under
Consideration
HIGHWAY NO. 403
MCNIVEN RD
GOLF LINKS RD
GOLF LINKS RD
N

Purpose, Goals and Objectives

Purpose

- Complete a feasibility study and Class Environmental Assessment process for the proposed ramp

Goals and Objectives

- Confirm the need and justification for improvements
- Determine the operational and geometric feasibility of the proposed ramp
- Assess the impact of the proposed ramp on Highway 403 operations
- Assess the impact of the proposed ramp on the natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of the Municipal Class EA process

Class Environmental Assessment Process

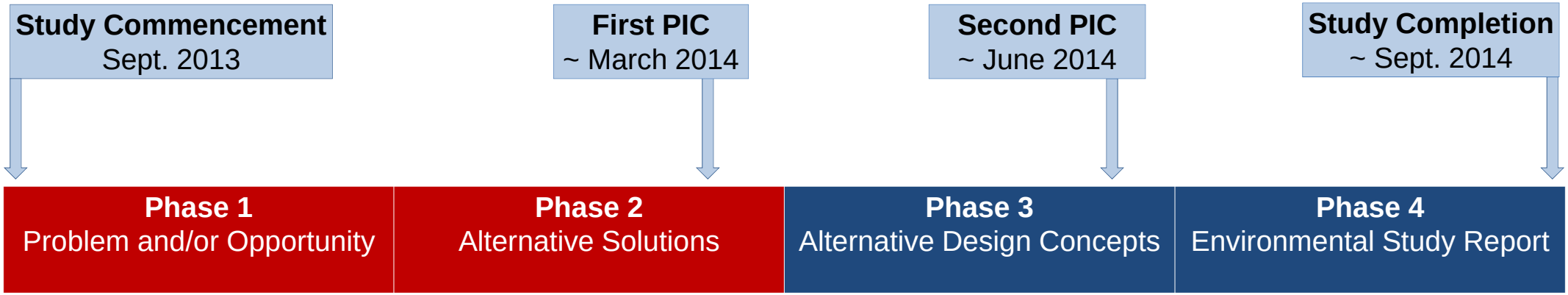
- The Study will follow the **Municipal Engineers Association Municipal Class EA** process (October 2000, as amended in 2007 and 2011)
- This Study has been initiated as a **Schedule C project**, which will fulfill Phases 1 to 4 of the Municipal Class EA process
- At present, the Study is in Phase 2

Phase 1 Problem and/or Opportunity	**Phase 2** Alternative Solutions	**Phase 3** Alternative Design Concepts	**Phase 4** Environmental Study Report

- Study updates will be posted to the project website at **www.hamilton.ca/Mohawkroadramp**

Public Consultation

- Notices regarding this study will be advertised in the newspaper and mailed to interested public and agencies.
- Notice of Study Commencement was advertised in September 2013.
- Notice of PIC No. 1 was advertised in February 2014 for the PIC scheduled on March 6, 2014.
- The Ancaster Community Council (ACC) is acting as the Community Liaison Committee for this project. The first meeting with the ACC was held in December, 2013.
- Two Public Information Centres (PICs) will be held to receive public input on the study. The first PIC is scheduled on March 6, 2014.
- Meetings with agencies such as the MTO and Ministry of Natural Resources will be held to review project impacts.
- The Environmental Study Report will be prepared and filed for public review toward the end of the study.



Existing Conditions

Significant Natural Areas

- Iroquoia Heights Conservation Area
- Niagara Escarpment (included in the Greenbelt)
- Bruce Trail

Terrestrial Environment

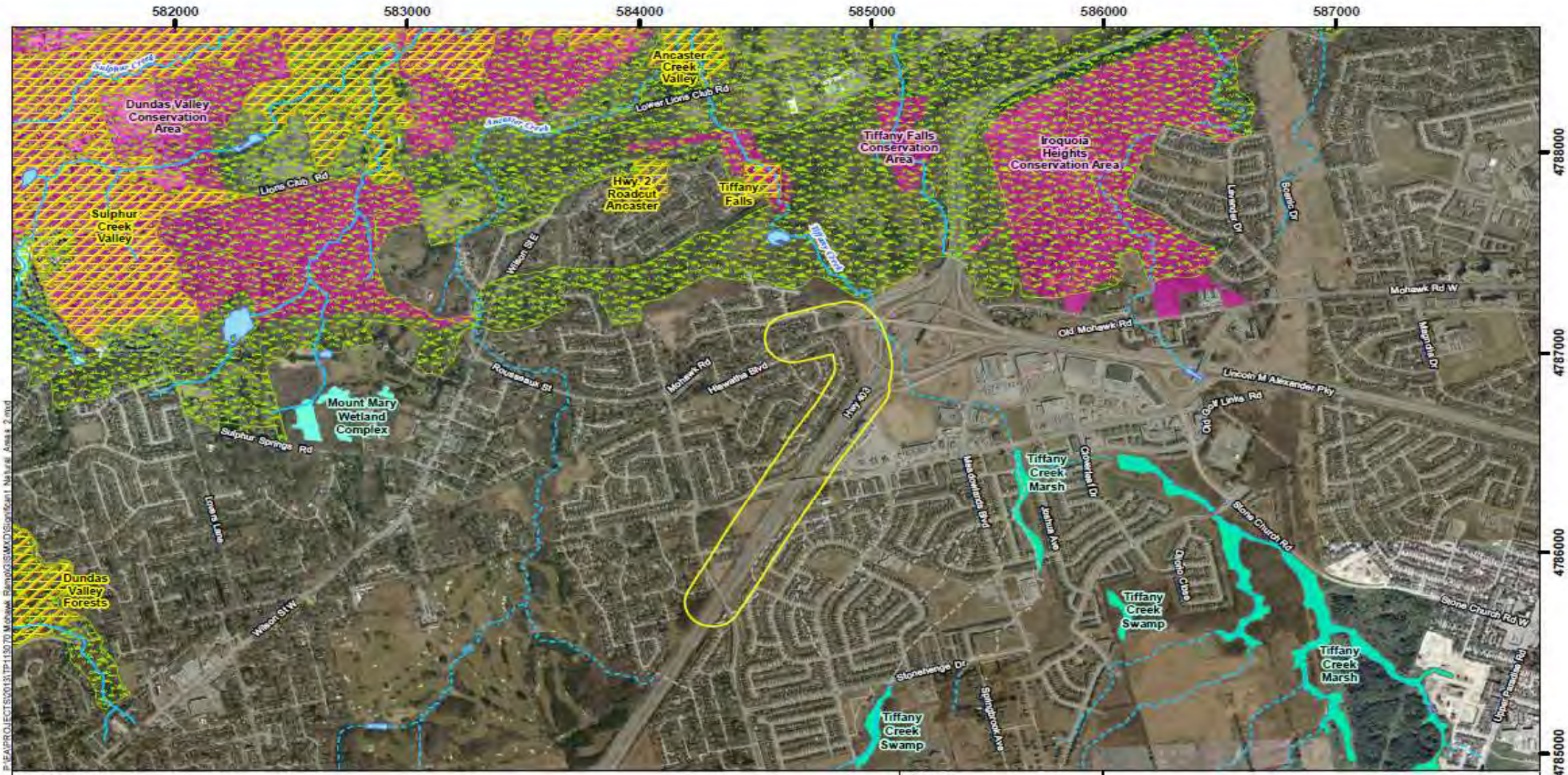
- One provincially rare forested community:
  - Fresh-Moist Black Walnut Lowland Deciduous Forest
- Two Species at Risk under the provincial *Endangered Species Act* were observed:
  - Butternut Tree (endangered)
  - Barn Swallow (threatened)

Fish and Fish Habitat

- Tiffany Creek subwatershed of the Spencer Creek watershed
- Two drainage structures:
  - Culvert under Brantford-bound on-ramp from Lincoln Alexander Parkway (Linc);
  - Inlet approximately 25 m south of Mohawk Road within the west ditch of the Linc
- No direct or indirect fish habitat within 30 m of the project site

Socio-economic Environment

- Urban settlement area



LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- ANSI
- Niagara Escarpment
- Conservation Area

Wetland

- Non-Significant
- Locally Significant
- ProvinciallySignificant

ANSI - Area of Natural and Scientific Interest

0 250 500 1,000 1,500 2,000 2,500 Metres

NOTES:
-Topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

amec

Mohawk Ramp

Significant Natural Areas

PROJECT Nº: TP113070	FIGURE: 5-1
SCALE: 1:25,000	Date: December 2013

Existing Conditions

Mohawk Road

- Two-lane arterial with Toronto-bound access to Highway 403
- Crosses over Highway 403 and connects to the Linc
- 70 km/h posted speed at the highway interchange

Lincoln Alexander Parkway (Linc)

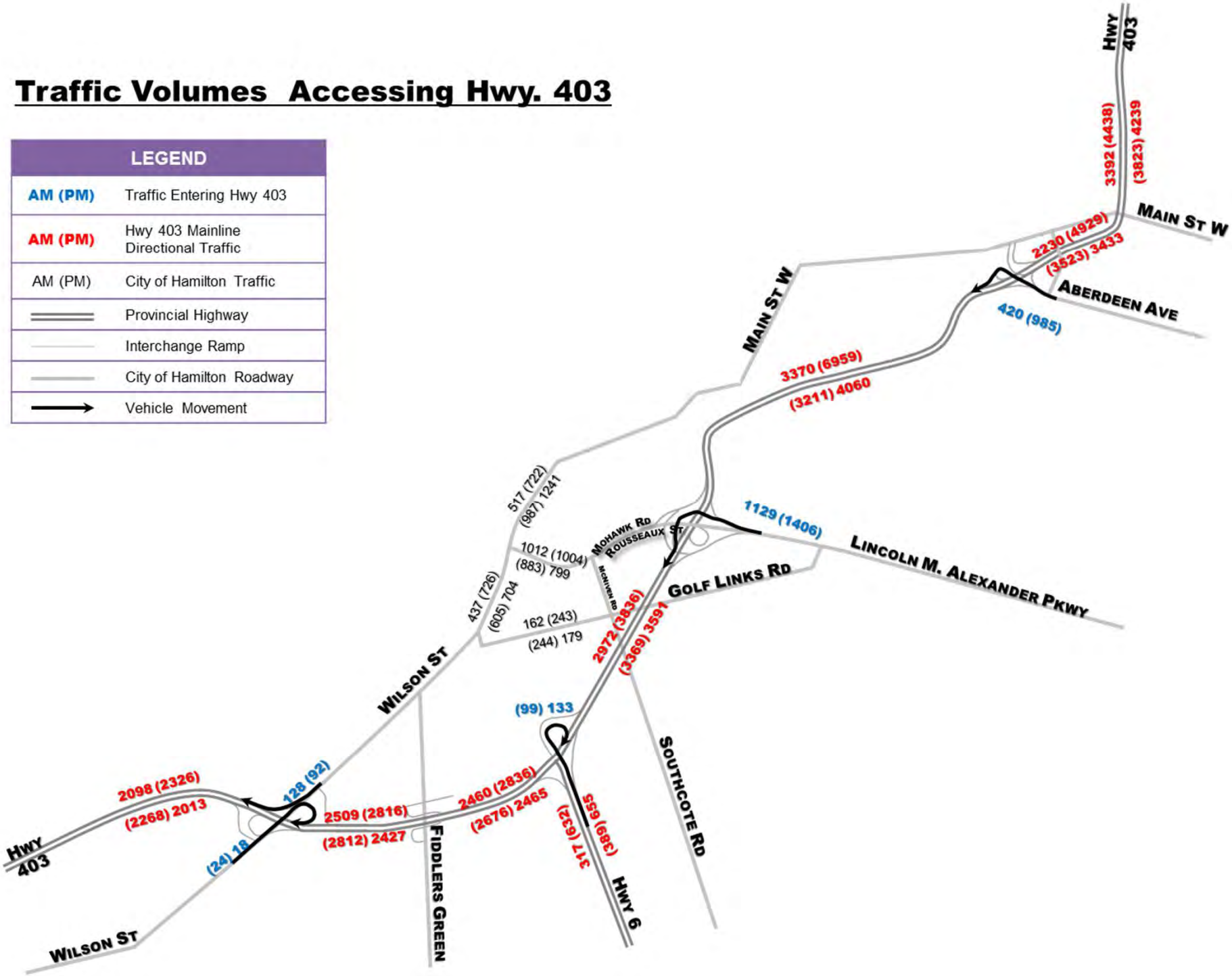
- Four-lane, divided parkway with Toronto-bound and Brantford-bound access to Highway 403
- 90 km/h posted speed

Highway 403

- Five-lane (2 Toronto-bound; 3 Brantford-bound including truck climbing lane), divided highway
- Access to Mohawk Road/The Linc from Brantford-bound Highway 403
- Access to Linc from Toronto-bound Highway 403
- No access to Mohawk Road from Toronto-bound Highway 403
- 100 km/h posted speed

Traffic Volumes Accessing Hwy. 403

LEGEND	
AM (PM)	Traffic Entering Hwy 403
AM (PM)	Hwy 403 Mainline Directional Traffic
AM (PM)	City of Hamilton Traffic
	Provincial Highway
	Interchange Ramp
	City of Hamilton Roadway
→	Vehicle Movement



Traffic Analysis

- Traffic forecasting process has been completed
- Addition of a Mohawk Road on-ramp would remove over 300 vehicles per day out of the Ancaster Village core (Wilson Street)
- Further detailed analysis will be done to ensure no impact on Highway 403 traffic

Problem and/or Opportunity

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access to and from Ancaster
- Residents have requested that the Brantford-bound ramp be placed due to increasing traffic demands on Wilson Street in the Ancaster core
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

Alternative Solutions

Alternative 1: Do Nothing
(i.e., no additional Brantford-bound access to Highway 403)

Alternative 2: Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403

Alternative 3: Improve access to Highway 403 by adding a Brantford-bound ramp from Main Street to Highway 403

Alternative 4: Improve access to Highway 403 by adding a Brantford-bound ramp from Golf Links Road to Highway 403

Alternative 5: Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

Evaluation Criteria

Technical:

- Improved access to Highway 403 without impacting Highway operations
- Improved traffic flow within local road network
- Opportunities for other modes of transportation (e.g., transit)
- Supports local, regional, provincial planning policies
- Meets provincial design standards and criteria
- Drainage Impacts
- Utility Impacts

Natural:

- Impact on watercourses
- Impact on aquatic species/habitat
- Impact on vegetation
- Impact on wildlife species/habitat
- Impact on significant natural areas
- Impact on Species at Risk (SAR)
- Impact on Air Quality

Cultural:

- Impact on archaeological resources
- Impact on cultural heritage resources

Social:

- Impact on existing and/or future land uses
- Noise Impacts
- Lighting Impacts

Economic:

- Property acquisition costs
- Construction costs

Evaluation of Alternative Solutions

Alternatives/ Criteria	Alternative 1: Do Nothing	Alternative 2: Brantford-bound Access at Mohawk Road	Alternative 3: Brantford-bound Access at Main Street	Alternative 4: Brantford-bound Access at Golf Links Road	Alternative 5: Other Modes of Transportation
Technical					
Natural					
Cultural					
Social					
Economic					
Summary	• Does not resolve problem • Carried forward for comparison	• Resolves problem • Carried forward as part of solution	• Partially resolves problem • Not carried forward due to environmental impacts, design and construction issues, and high costs	• Resolves problem • Not carried forward due to heritage impacts, operational issues, design and construction issues, and cost	• Partially resolves problem • Does not add access to Highway 403 • Does not significantly reduce traffic impacts to downtown core • Carried forward as part of solution

Very Poor Poor Neutral Good Very Good

Preliminary Preferred Solution

A combination of the following alternatives is recommended as the preferred solution:

Alternative 2: Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403

Alternative 5: Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

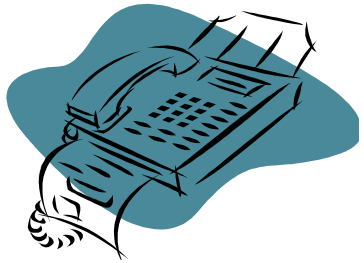
Next Steps

Following this PIC, we will:

- Review your comments
- Meet with the Ancaster Community Council to review PIC results
- Select the preferred solution based on the evaluation of alternatives and consideration of public and agency input
- Identify and evaluate alternative design concepts for the preferred solution
- Plan for the second PIC to obtain public input

Questions and Comments

Submit your comments by March 20, 2014:



Mohan Philip, M.Eng., P.Eng.

Project Manager
City of Hamilton
77 James Street North, Suite 400
Hamilton, Ontario L8R 2K3

Phone: (905) 546-2424 ext. 3438
Fax: (905) 546-2093
Email: tplanning@hamilton.ca

David Sinke, P.Eng.

Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington, Ontario L7N 3G2

Phone: (905) 335-2353
Fax: (905) 335-1414
Email: david.sinke@amec.com

Thank you!

Hamilton

amec

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Partners in excellence

COMMENT FORM
(Please print)

Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Thursday, March 6, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by March 20, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
Fax: 905-546-2093
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: _____

Affiliation (if applicable): _____

Address: _____

Postal Code: _____ Phone: _____

Fax: _____ Email: _____

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Sign In Sheet *(Please print)*
Public Information Centre No. 1 – March 6, 2014
Additional Access to Brantford-bound Highway 403 Class Environmental Assessment

Hamilton amec

Name	Affiliation (if applicable)	Address	Phone	Email

Ancaster News
Volume 48 No. 11
March 13, 2014
page 1

Highway 403 on-ramp still in slow lane

Core of Ancaster being destroyed: resident

By Kevin Werner
News Staff

A proposed new west-bound ramp from Mohawk Road to Highway 403 may help eliminate traffic through downtown Ancaster, but it could create further commuter chaos along Mohawk Road.

"You can't just do the ramp without improving Mohawk," said Mohawk Road resident Hans Lieferink.

But Margaret Hendricks, who lives on Wilson Street, says an off-ramp to the highway will help turn Ancaster's downtown area into a safe community.

"It will make it more walkable," she said. "The core of Ancaster is being destroyed."

About 40 people turned out March 6 at Ancaster's Old Town Hall to examine the preferred solutions to improve the access along Highway 403.

Best way to build

City staff and the consulting group AMEC are examining the best way to build, if necessary, a west-bound ramp from Mohawk Road to Highway 403. This was the first public meeting on the issue, with another public information session scheduled for June.

The preliminary preferred solution to the traffic issues include building a Brantford-bound ramp and boosting alternative modes of transportation including transit.

David Sinke, project manager, for AMEC Environment and Infrastructure, said the on-ramp would end at about Southcote Road. Residents said noise barriers should be installed to protect people living in the area.

See CITY/page 3

page 3

City has spent $500,000 for environmental assessment

Continued from page 1

Sinke said a noise study will be done, and is expected to be ready for the June public meeting.

City staff has stated a preliminary cost of a west-bound on-ramp could be anywhere from $3.6 million to $6.4 million. The city has already spent about $500,000 to conduct an environmental assessment, as well as other studies such as for traffic, design and risk analysis.

Sinke said Hamilton has yet to approve building the on-ramp.

The environmental assessment study is projected to be completed by the fall. A detail design plan will then be crafted that will take the project into 2015. If the city approves the plan, and the project gets funded by the province, then construction could happen in 2016, said Sinke.

"There is no commitment from the city," said Sinke.

While Ancaster residents have favoured building a west-bound ramp to Highway 403 to alleviate the traffic pressure from drivers cutting through along Wilson Street on their way to Brantford, other homeowners feared the project will create problems within their areas.

Lieferink said Mohawk Road is already an unsafe street with no sidewalks from the highway to McNiven Road. He said before a ramp is built, Mohawk needs to be improved to slow down traffic.

"We've had accidents along Mohawk, with cars crashing into lamp posts," he said. "It's a race track. More vehicles, more problems."

Ancaster councillor Lloyd Ferguson, who attended the meeting, wasn't surprised by residents' division over the ramp project.

Some people were excited about a proposed ramp, while others seem cautious about what it could do to area roadways.

"It's was pretty much what I expected," he said. "It's a controversial issue. You have to find the right balance."

While Ferguson sympathizes with residents along Mohawk, there are no plans by the city to widen the roadway.

A Brantford-bound ramp from Mohawk Road to Highway 403 had been in place, but it was removed when the Lincoln Alexander Parkway was constructed, causing an access problem into and out of Ancaster.

Over the last few months Ancaster residents have seen traffic congestion explode onto their streets after a number of accidents on Highway 403 that sent vehicles driving along Wilson Street seeking relief.

But Sinke cautioned the west-bound on-ramp won't alleviate residents' traffic headaches.

"Congestion is significant up the hill to the (Lincoln Alexander Parkway)," said Sinke. "It won resolve traffic patterns currently."

A new on-ramp to Highway 403 is a key objective of the Ancaster Transportation Master Plan, which was approved in April 2011.

Environment and Infrastructure
3215 North Service Road
Burlington, ON L7N 3G2
T. 905.335.2353
F. 905.335.1414

amec.com

3027 Harvester Road, Suite 400
Burlington, ON L7N 3G7
CANADA
T. 289.288.0287
F. 289.288.0285

www.cima.ca

Partners in excellence

Sonya Kapusin

From:
Sent: May-02-14 6:57 PM
To: Sinke, David
Cc: Jim Scale; Mohan Philip; Sonya Kapusin; tplanning@hamilton.ca
Subject: Re: Surveying in Ancaster

Hi David:

The subject property would be Oneida.

Currently, there is a noise wall on the MTO right-of-way behind the property. There is also a hydro right-of-way or easement (also appears to carry Bell and Cogeco). MTO and Hydro have generally done a poor job of maintenance of their right-of-way / easement over the years, but the status quo has been satisfactory.

We'll look forward to the PIC on June 12 (same day as the pending Ontario election).

Regards,

On 2014-05-02, at 8:53 AM, Sinke, David wrote:

, a correction regarding the PIC date. The PIC is scheduled for June 12, not June 18 as noted below.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: Sinke, David
Sent: May-02-14 8:39 AM
To:
Cc: Scale, Jim; Philip, Mohan; Sonya Kapusin; tplanning@hamilton.ca
Subject: RE: Surveying in Ancaster

Hello

We are currently completing our preferred preliminary design, but it will not be available for review until the Public Information Center scheduled for June 18.

If you can provide us with the address of your mother's house, we can provide you with more information on the proximity of the ramp to the rear of her property.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: April-28-14 4:59 PM
To: Sinke, David
Cc: Scale, Jim; Philip, Mohan; Sonya Kapusin; tplanning@hamilton.ca
Subject: Re: Surveying in Ancaster

Hi David:

Many thanks for the response.

We're glad to see work underway toward eventual reinstatement of the on-ramp that was ill-advisedly removed back in 2001.

Given the extents of the topographic survey, are these extents a matter of conservative prudence, or are property acquisitions anticipated? We noticed that the PIC #1 Information package rates the new WB on-ramp alternative as "poor" on the Economic criterion (property acquisition costs, construction costs). Is a preliminary functional plan and profile available? Are preliminary Property Impact Plans available, if applicable?

Many thanks,

On 2014-04-28, at 10:50 AM, Sinke, David wrote:

Hello

JD Barnes was completing survey work along the rear lots of properties on Oneida Blvd (between the rear lot line and the noise barrier wall). This work was being completed as a sub-consultant to AMEC, as part of the Mohawk Westbound Ramp Class EA.

Please see our responses to your enquiries, below. Please do not hesitate to contact us if you have any further questions or any concern with this work.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From:
Sent: April-26-14 8:13 PM
To: tplanning@hamilton.ca; Sinke, David
Subject: Fwd: Surveying in Ancaster

Mohan / David:

Please see below regarding survey work being carried out in the vicinity of Oneida Blvd. and the 403 corridor in Ancaster.

Do you have any knowledge of this work?

Thanks,

Begin forwarded message:

From:
Date: April 25, 2014 6:44:06 PM EDT
To: fhassan@jdbarnes.com
Subject: Surveying in Ancaster

Mr. Hassan:

My mother, who is 83, indicates that J.D. Barnes staff knocked on her door this morning with regard to surveying activity being carried out in the area. She had not received any advance notice that there would be surveying activity on - or in the vicinity of, or requiring access through - her property.

Can you please provide some details regarding J.D. Barnes' work in this location? Specifically,

* For whom is J.D. Barnes working for here? City of Hamilton? MTO? Hydro? Cable? Bell? Other? AMEC Environment and Infrastructure, who has been retained by the City of Hamilton.

* Can we obtain contact information for the proponent's representative? Contact persons are Mohan Philip and David Sinke (AMEC)

* Why is the survey being carried out? To confirm ground elevations and topographic features in the corridor between the noise barrier wall and the rear lot line.

* What is the nature of the survey work being carried out? OLS? Topographic? Other? Topographic

Thanks,

The information contained in this e-mail is intended only for the individual or entity to whom it is addressed.
Its contents (including any attachments) may contain confidential and/or privileged information.
If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents.
If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

Sonya Kapusin

From: Scale, Jim <jim.scale@amec.com>
Sent: May-07-14 1:32 PM
To: Sonya Kapusin
Cc: Sinke, David
Subject: FW: Surveying in Ancaster

From: Sinke, David
Sent: May-07-14 7:15 AM
To:
Cc: Scale, Jim; Philip, Mohan
Subject: RE: Surveying in Ancaster

Hello

We haven't had an opportunity to review in detail. We will do so over the next few days and get back to you later this week or early next. As you know, we have surveyed behind the noise barrier (between the noise barrier and the rear lot lines), so we are able to provide cross sections as you suggest.

FYI, due to the election June 12, the second PIC has now been tentatively re-scheduled to June 9.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: May-07-14 7:04 AM
To: Sinke, David
Subject: Re: Surveying in Ancaster

Hi David:

Have you been able to obtain more information on the proximity of the ramp to the subject property?

Ideally, "existing" and "proposed" cross sections would be the most illustrative.

No doubt AMEC's practice is to produce cross sections which show actual topographic elevations all the way to the residential property line, rather than the bad habit of some consultants who just show a nebulous dashed line from the edge of the roadway to some nebulous property line beyond.

Sonya Kapusin

From: Sinke, David <David.Sinke@amec.com>
Sent: May-30-14 10:06 AM
To:
Cc: tplanning@hamilton.ca; Philip, Mohan; Sonya Kapusin; Scale, Jim
Subject: RE: PIC#1 Comments - Additional Access to Brantford-bound Hwy 403

Hello

Your comments have been reviewed and considered in preparation of our alternatives. We are finalizing our response letters to all respondents, and will be mailing these out to arrive prior to PIC 2.

Thanks for your interest in this project,

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: May-30-14 10:01 AM
To: Sinke, David
Cc: tplanning@hamilton.ca
Subject: Re: PIC#1 Comments - Additional Access to Brantford-bound Hwy 403

I received notice for the second PIC to be held June 9th. I still have not received response to my comments after the first PIC.

The second PIC will include presenting the preferred solution, but I still didn't receive response to my concerns about how the Alternatives were evaluated and Alternative 2 was carried forward. It therefore appears to me that this study is proceeding without my input.

On Tue, Mar 18, 2014 at 4:28 PM, Sinke, David <David.Sinke@amec.com> wrote:

Thank you for your comments. We will respond formally once all comments have been received.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.

Principal, Transportation Engineering

AMEC

Environment & Infrastructure

Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada

Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: March-18-14 11:25 AM
To: tplanning@hamilton.ca; Sinke, David
Subject: PIC#1 Comments - Additional Access to Brantford-bound Hwy 403

Attached is my completed Comment Form on PIC#1.

The information contained in this e-mail is intended only for the individual or entity to whom it is addressed.
Its contents (including any attachments) may contain confidential and/or privileged information.
If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents.
If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. Your comments, dated March 6, 2014, are helpful and have been noted by our project team.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 6, 2014.

As noted in the Public Information Centre (PIC) materials, the increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second PIC elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

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Environmental Planner

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. Your comments, dated March 6, 2014, regarding congestion and walkability on Wilson Street are helpful, and have been noted by our project team.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

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Partners in excellence

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 7, 2014.

Your comments are helpful to our project team and have been noted. In your comments you suggest that alternative access routes should be advertised and the traffic study then redone. It has been our professional observation that motorists, particularly those who regularly travel between destinations, find the shortest duration route over time. At present, the route for many motorists to Hwy 403 westbound is circuitous, adding to the total duration of vehicle travel on municipal roads.

With regards to your suggestion that Garner Road be widened, the project team does not see improvements to Garner Road aiding Wilson Street much at this time. Alternatives to access to Highway 403 were reviewed and found to have issues.

In your comments you also expressed concern that additional traffic on Mohawk/Rousseau will increase the number of collisions. As noted in the Public Information Centre (PIC) materials, the increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads, reducing overall collision risk.

Finally, you note concern regarding pedestrian access for mail and the risk of pedestrian collisions. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class Environmental Assessment (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second PIC elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 6, 2014.

This project is subject to the full Municipal Class EA process which requires the City to identify problems/opportunities, assess alternatives against technical and environmental criteria, and consult with the affected public and agencies.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

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Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 9, 2014.

Comment: During [the past 25 years] the traffic past our house has increased dramatically, mainly because of the opening of the Lincoln Alexander Parkway.

AMEC estimates that traffic going past my home is between 12 and 13 thousand vehicles per day. Accompanying this there has been a tremendous increase in traffic noise, and deposition from car exhausts of yellow dirt on our house and on the interior of our screen-in veranda. This has decreased our quality of life and increased our maintenance costs. The addition of a Brantford-bound ramp to Highway 403 located directly opposite our home will increase these affronts to our quality of life.

Response: With regards to increased traffic volumes, there is only a marginal increase in traffic expected on Mohawk Road and therefore no significant impacts are expected. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads, generating less emissions.

AMEC has completed a noise assessment for this project, detailing the results of traffic noise modeling and recommendations for mitigation. An air quality study has also been completed, comparing existing emission levels with future levels with the proposed ramp in place. These studies will be available for review at the next Public Information Centre (PIC), with qualified staff available to answer questions.

Comment: A small number of Ancaster residents say that they want to keep Wilson Street core like the "village" of the past. They have not come to terms with the fact that Ancaster is no longer a village. The Ancaster population has mushroomed, particularly since the Highway 403 and the Meadowlands complex have been built. Highway 403 absorbed a significant amount of the traffic that used to flow through Wilson Street on Highway 2. The proposed ramp will divert only about 300 vehicles a day from Wilson Street (a miniscule amount compared to the amount that was diverted from Wilson Street when Highway 403 was built).

Response: We have noted your comment for consideration. As noted above, in addition to reducing traffic volumes on Wilson Street, the new ramp will reduce the total length and duration of travel for local traffic accessing Highway 403.

Comment: We haven't seen any cost estimates for the proposed ramp. However it will be a huge expenditure for the sake of diverting 300 cars a day from Wilson Street.

Response: Costing has been completed, and will be presented at the second PIC.

Comment: Some folks say this expenditure is justified by the increased quality of life on Wilson Street. However, they ignore the offsetting cost of the decreased quality of life for residents along Rousseaux and Mohawk Road.

Response: We have noted your comment for consideration.

Comment: The location of a westbound ramp from Mohawk Road to Highway 403 is exactly where deer traditionally cross over Mohawk Road. They have used this route for centuries. Currently there are several deer each year that are killed or seriously injured at this location. One reason is that westbound drivers coming off the existing Highway 403 ramp and off the Linc do not reduce their speed. Also, drivers travelling eastward on Mohawk Road tramp on the accelerator well before they reach the Filman Road intersection. Construction of a Brantford-bound ramp at this location will increase the likelihood of collisions with deer and the possibility of motorists' deaths. This factor was not mentioned in the AMEC "impact on wildlife species/habitat" evaluation.

Response: AMEC is completing an assessment of the natural environment for this project. The issue of deer crossing will be reviewed and results of investigation will be available at PIC 2.

Comment: We have lived in our house long enough to experience both the convenience of the previous Brantford-bound ramp and the current circuitous path east on the Linc to Golf Links Road, left over the bridge and back west on the Linc to the Brantford-bound Highway 403 ramp. The current less-convenient route isn't a big deal. It is a small inconvenience to get to a major throughway, and possibly a lot easier than travelling up Wilson Street business section during rush hour.

Response: We have noted your comment for consideration.

Comment: Most retail businesspeople seek locations with high traffic volumes. Their signage is intended to attract business. Low traffic volume generates low sales. Increased traffic volume, even in rush hours, means greater exposure to signage, reinforcement of a store and its offerings and the possibility of stopping to buy. As a marketing professor, I would recommend increasing Wilson Street traffic to increase merchants' business, not diverting traffic to Mohawk Road, away from the Wilson Street stores.

Response: We have noted your comment for consideration.

Comment: The proposal will shift traffic from the less travelled Wilson Street and create more traffic congestion on the already heavily trafficked Rousseaux/Mohawk Road, disadvantaging both the current Mohawk Road drivers and the Mohawk Road residents.

Response: The shift in traffic is considered to be small and unlikely to have a significant impact on Rousseaux/Mohawk Road.

Comment: Currently there are several traffic-calming islands on Rousseaux/Mohawk Road. Increased traffic will intensify the congestion on Mohawk Road. And what if, to accommodate greater traffic volumes, the islands are removed? Then this will make Mohawk a faster, more dangerous speedway. To my knowledge there is only one traffic-calming device in the Wilson Street Core, where proponents of diversion wish to make the Core more pedestrian-friendlily.

Response: Your comment is noted. We do not anticipate that the marginal increase in traffic on Mohawk would change the warrant for the traffic calming island currently in place.

Comment: Proponents say that reducing Wilson Street traffic by diverting it to the new Brantford-bound ramp will make the Wilson Street Core more "walkable." But they would do this at the expense of making Rousseaux/Mohawk Road even less "walkable" for local residents. Currently, there is a paucity of pedestrian sidewalks for residents along this route.

Response: We have noted your comment. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class Environmental Assessment (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.

Comment: The AMEC presentation states: "Residents have requested that the Brantford-bound ramp be placed due to increasing traffic demands on Wilson Street in the Ancaster core." However, the report has not indicated who these residents are, where their residences are located, or how many individuals have requested this. Nor is there any indication of how many people along the proposed Rousseaux/Mohawk route will be affected and what their position is regarding the potential change.

Response: Responses by stakeholders are confidential in accordance with the *Access to Information* and *Privacy Act*. To date, the majority of respondents to study notices have been supportive.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second PIC elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

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David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

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S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

Ministry of Tourism, Culture and Sport
401 Bay Street, Suite 700
Toronto, Ontario M7A 0A7

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 10, 2014.

We acknowledge your interest in this project with regards to cultural heritage. A Stage 1 Archaeological Assessment has been undertaken for this project, and was provided to the Ministry of Tourism, Culture and Sport upon completion. The PIF number is P354-0024-201.

Upon completion of our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

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Partners in excellence

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 17, 2014.

Comment: In the early days Oneida ended in front of our house and only a stone barricaded access dirt trail ran through a hay field towards Golf Links, which itself was a dead end dirt road. Meadowlands did not exist in any fashion. The surveying and layout for the construction of the Lincoln Alexander Expressway was just beginning. The only traffic seen here was our immediate neighbours and their guests. It was quite quiet and private and prompted our purchase & move here. Since then Oneida has been extended; Onandaga was created, the Meadowlands shopping area and massive subdivision were developed endlessly and the Linc Expressway became what it is today, plus a 3 way stop intersection was created in front of our home.

Response: We have noted your comment for consideration.

Comment: Upon Oneida/Onondaga being opened up we began seeing some "cut through" traffic by non-locals saving time by going along the diagonal shortcut through our residential streets. This cut through volume was (and still is) in both directions. The short cut route being "[Rousseaux]-Algonquin-Oneida-Onondaga-Golf Links" and reverse.

Response: We have noted your comment for consideration. As noted, the internal road network currently provides for connection from Golf Links to Rousseaux in both directions. Our assessment indicates that traffic using this route is primarily generated from within the local area since alternate routing is provided on the arterial road network in close proximity. While the connection from Golf Links/Onondaga to Rousseaux/Algonquin through the neighbourhood is shorter (approximately 1.0 km & 2 min travel time versus 1.5 km & 3 min) the difference is minor and the arterial road network would likely be the preference of through traffic. It is not anticipated that that there will be any change in travel behaviours of "cut through" traffic within the neighbourhood as a result of the proposed new ramp onto Highway 403.

Comment: This alien traffic steadily increased in direct proportion to the still ongoing development of Meadowlands and the areas up along Southcote to Rymal, the former fair grounds, and Golf Links West.

Response: With increased development in the Ancaster area, traffic volumes have increased.

Comment: As the traffic lights in Meadowlands were added the "cut through" traffic volume jumped again in several stages as the lights became more numerous/longer which made the route unattractive to the many just seeking the 403 highway ramp(s) or Linc eastbound. There was a very noticeable decrease in "rush hour" cut through when the "old" Westbound Ramp towards Brantford was closed.

Response: We have noted your comment for consideration.

Comment: I would like to point out at this point that we have repeatedly complained formally in editorials in the Spec and Ancaster News (here's just one: http://www.hamiltonnews.com/news/cars-hurtling-at-breakneck-illegal-speeds-not-good-mix-with-kids-their-wee-wagons/), and have had the police and Lloyd Ferguson to our home to express our dissatisfaction with this steadily worsening situation. Few drivers actually come to a complete stop at the 3 stop signs in front of our house, some slow down a bit and run the stop signs, but - there are significant numbers of drivers who not only run the stop signs – but do it in excess of the speed limits. It is important to note that this unsafe condition due to illegal acts is made worse in that we have no street lights or sidewalks in our area. It is totally dark here at night, many residents jog or take walks (at all hours) here, local children ride their wee bikes in front of our houses or wait for (or get off of) their school buses during peak traffic periods.

Multiple different police officers have been assigned to monitor the situation after our past complaints. Many drivers were ticketed or warned. I did speak to several of these officers – they did agree that the corner(s) had a substantial problem. (I invite your investigations with the local force concerning their visits here.) These visits and ticketing/warnings would, for a short period, slow the traffic and get a few more doing a half-hearted rolling stop, but eventually things would revert to the past conditions when the officers discontinued their surveillance.

Luckily, to-date, there has not been a major collision or pedestrian injury accident at the intersection. I have witnessed several shocking near misses... and a Canada Post Truck run right into my neighbour's house & front hall.

Response: We have noted your comment for consideration.

Comment: If the ramp is re-opened it will, without a doubt, substantially increase traffic here - not only with those drivers commuting to Brantford and beyond, but also due to those shoppers cutting through and using the quicker 403 route to go to the Walmart/Canadian Tire mall complex on Wilson Street (rather than go through Ancaster's core or along the Southcote/Rymal road route).

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403; Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 6, 2014.

Comment: We are hoping you can address our concerns below and forward a copy of the presentation that will be shared this evening.

Response: The Public Information Centre (PIC) information and comment form were posted to the City's website at www.hamilton.ca/mohawkroadramp.

Comment: There are currently numerous accidents at the corner of Green Ravine and Mohawk Road. Will additional traffic not further raise potential for more accidents?

Response: There is only a marginal increase in traffic expected on Mohawk Road and therefore no significant impacts are expected.

Comment: Exiting subdivision near Filman Road is already an issue. Will additional traffic not cause further delays?

Response: As noted in the PIC materials, the volume of additional traffic is relatively minor. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.

Comment: Today I can wait 2-5 minutes to get out of my driveway heading both east and west bound on Mohawk Road, Ancaster. Will this not potentially add more time to an already ridiculous situation?

Response: There is only a marginal increase in traffic expected on Mohawk Road and therefore no significant impacts are expected.

Comment: There is no sidewalk on Mohawk Road from Cayuga to the 403. Does this not put residents at further risk?

Response: We have noted your comment. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified

improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class Environmental Assessment (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.

Comment: When was the study on traffic flow taken? If the numbers are already in the thousands, how does adding a ramp alleviate that issue?

Response: Traffic analysis was completed as part of this Class EA. Adding a ramp provides Ancaster with additional access to Brantford-bound Highway 403. There is only a marginal increase in traffic expected on Mohawk Road.

Comment: On January 27th, residents of Mohawk Road and immediate area received a letter from Canada Post indicating that we were moving to temporary group boxes in our area. I quote "the area on Mohawk Road has become extremely busy with traffic flow, the highway and the Lincoln Alexander Parkway making speed and no sidewalks a factor. Due to safety reasons, we will [be] placing the new boxes in a convenient location; your box will be located at Cayuga/Mohawk Road". This validates the points above and below.

Response: We have noted your comment, however improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class Environmental Assessment (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.

Comment: I commute to/from Toronto every day and by the time I reach the Linc merging onto Mohawk Road, it's already backed up. Will additional traffic not impact it?

Response: Traffic concerns are noted. The new ramp is not expected to add much traffic to Highway 403 and therefore the project team does not see any significant deterioration of traffic congestion. Further, any additional traffic is being added only in the westbound direction.

Comment: Environmental impact. I very much look forward to hearing about those results.

Response: AMEC has completed an assessment of the natural environment for this project. Details regarding environmental impacts and mitigation will be presented at the next PIC.

Comment: When I moved into my home in 2001 the ramp was removed. What has transpired since then to re-evaluate this being put back in and to the cost of...?

Response: The Ancaster Transportation Master Plan recommended a new westbound connection to Highway 403, in 2011. A preliminary technical assessment was completed by the City in conjunction with the Ministry of Transportation on the feasibility of where a new Brantford-bound on-ramp could be provided. A ramp at Golf Links Road was found to have operational concerns and its design would not meet Ministry of Transportation geometric standards. A new ramp was potentially feasible (subject to detailed study and an EA study being done) at Mohawk Road. City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road.

Comment: Ancaster is one of the oldest communities in Ontario and think we can all agree, was not built for the structure we are expecting it to be today.

Comment: I find it very surprising that [the Councillor] isn't expecting too many objections to the project.

Response: These comments have been noted by the project team.

Comment: Why wouldn't the millions being spent on this project be applied to the very poor road conditions we are experiencing around the City of Hamilton?

Comment: Why were/are there numerous studies taking place to determine the feasibility of adding townhomes to the nunnery Mount Mary Immaculate property. It all relates back to traffic.

Comment: Why isn't there a building restriction enforced for this heritage community in conjunction with the height restrictions?

Response: These comments have been noted.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second PIC elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

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Sonya Kapusin, MCIP, RPP
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Partners in excellence

June 5, 2014

Dear

Re: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 18, 2014.

Comment: The evaluation of Alternative Solutions indicates that Alternative 2 resolves [the] problem and is carried forward as part of [the] solution, and Alternative 4 is not carried forward. I do not agree with this.

Alternative 2 does not "resolve problem" because the proposed Mohawk Road ramp is expected to handle 300 vehicles per day, which is a small number compared to overall traffic from Ancaster trying to access Highway 403.

Response: The problem statement identifies a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street. The proposed ramp does provide access to Highway 403, and will marginally reduce traffic on Wilson Street.

Comment: This ramp was removed when Highway 403/Linc interchange was constructed because there is no corresponding return movement (Highway 403 eastbound to Mohawk Road westbound) and because this ramp was in conflict with the new ramp from the Linc.

Response: The Ministry of Transportation does not require the corresponding return movement to be constructed as part of this project.

Comment: The traffic from this proposed ramp will be merging onto Highway 403 in close proximity to the merge from the Linc, which is a congestion point during PM peak times.

Comment: The proposed Mohawk Road ramp and the on-ramp from the Linc have to merge before the Golf Links Road structure. Is there sufficient length to do this?

Response: Extensive micro-modeling has been completed to confirm that there are no negative impacts on Highway 403 traffic as a result of the new ramp. Parallel merging speed change lengths have been conservatively designed to accommodate merging traffic.

Comment: The PIC board 'Problem and/or Opportunity' indicates this proposed ramp will "relieve traffic on Wilson Street", but this traffic decrease on Wilson Street will increase

traffic on Mohawk Road by these 300 vehicles per day, and Mohawk Road already has more traffic than Wilson Street.

Comment: The majority of the traffic using this proposed ramp will be going out of their way to get to this ramp (all traffic must travel eastbound on Mohawk Road to go westbound on Highway 403). This ramp is beneficial to only residents in the adjacent neighbourhoods.

As noted in the Public Information Centre (PIC) materials, the increase in traffic on Mohawk Road is relatively minor. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.

Comment: What does Alternative 4 include? Alternative 4 is listed as "Brantford-bound Access at Golf Links Road". Is this alternative only an access ramp to Highway 403 or does it include a Highway 403 off-ramp to Golf Links Road? What are the estimated traffic volumes? Are Alternative 2 and 4 a true comparison – are these alternatives just comparing access onto Highway 403 or does Alternative 4 include a Highway 403 off-ramp to Golf Links Road?

Response: Alternative 4 would be an access ramp to Brantford-bound Highway 403 with a corresponding eastbound off-ramp, as this would be mandated by the Ministry of Transportation at this location. Traffic volumes accessing Brantford-bound Highway 403 were presented at the PIC:

- From Aberdeen Avenue, 420 during the morning (AM) peak period and 985 during the evening (PM) peak period
- From the Linc, 1,129 in the AM and 1,406 in the PM
- From Highway 6, 133 in the AM and 99 in the PM
- From Wilson Street (south), 18 in the AM and 24 in the PM
- From Wilson Street (north), 128 in the AM and 92 in the PM

Comment: There was indication that a Golf Links Road ramp would be constrained by the Southcote Road structure, but there will be a similar problem with the Mohawk Road ramp with the Golf Links structure.

Response: The Mohawk Road ramp option can be accommodated by the existing Golf Links Road structure.

Comment: For Alternative 4, the evaluation summary indicates heritage impacts – what specifically are the impacts? The Brantford-bound access at Golf Links Road does not impact the heritage building.

Response: Alternative 4, specifically the eastbound off-ramp, would impact an old farmhouse at Golf Links Road, considered by the City to have heritage value.

Comment: A Brantford-bound access at Golf Links Road should be the solution carried forward, since it is the only one that would solve the problem of access. Spending millions of dollars on the Mohawk Road ramp will benefit only a few.

Response: We have noted your comment for consideration.

Comment: The evaluation of Alternative 2 and 4 should be comparable, they should include Brantford-bound access ramps only.

Response: We have noted your comment for consideration.

Comment: It would appear that Alternative 2 [being] carried forward was a foregone conclusion of the evaluation process since PIC Board 'Background' notes that "City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road".

Response: Alternative 2 was not a foregone conclusion. There are many examples of studies where through consultation there are significant changes to the anticipated preferred solution.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second PIC elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

Once the second PIC has been completed and a preferred design concept has been selected, the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 6, 2014.

Your comments have been helpful and have been noted by the project team. The reduction in traffic is marginal, however, motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads. With regards to your concerns about noise and light, the impacts will be addressed during the assessment of preliminary design options in the next phase of the study.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

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Project Manager

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S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. Your comments, dated March 6, 2014, regarding traffic congestion and village ambience are helpful, and have been noted by our project team.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

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Project Manager

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Sonya Kapusin, MCIP, RPP
Environmental Planner

amec

CIMA
Partners in excellence

June 5, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated March 7, 2014.

Comment: A westbound ramp at Mohawk Road would make Highway 403 access more convenient for a lot of people, and I support the proposal for this reason. However, from the information given in your presentation, I do not understand how traffic issues on Wilson Street will be alleviated significantly. A reduction of 300 (or a bit more) vehicles per day, from total daily traffic of nearly 30,000 cars along Wilson Street (the majority of which is eastbound, not westbound, according to slide 10), does not seem high enough to warrant promoting this as a benefit to residents. Even if it is a peak time reduction, the proposed ramp will not reduce the eastbound traffic that clogs up Wilson Street each morning, as people try to get down the hill toward McMaster University.

Response: Your traffic concerns have been noted. The reduction in traffic is marginal, however, motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.

Comment: It seems that whenever there is an accident or other delay on the 403, it creates a traffic surge through Ancaster which overwhelms our road systems. This happens both eastbound and westbound, with huge backlogs down Wilson Street and other main roads like Golf Links and Mohawk/Rousseaux. I would be interested in seeing the accident statistics for the 403 around Ancaster, particularly near the Linc, because it seems like these spillover events have been occurring more frequently in the past 1-2 years (I have lived in Ancaster for 22 years). I would also like to see more analysis on the effect that highway problems have on Ancaster's core traffic. My experience leads to me to believe that this is the biggest cause of traffic problems in Ancaster, but I don't have the statistics to back it up. If core traffic problems are the primary concern we are trying to address, perhaps we should be looking for solutions other than a westbound 403 ramp.

Response: Lane closures on the highway will always cause diversion onto parallel routes – this happens on all highways and it is to be expected that nearby parallel routes will bear the brunt of this diversion. However, severe collisions are not daily experiences and tend to be exceptional situations. The addition of the ramp is unlikely to have any effect on this phenomenon. Hamilton City Council has recently been considering an initiative to sign emergency detour routes.

3027 Harvester Road, Ste 400
Burlington,ON
L7N 3G7
Ph: 289.288.0287
Fax: 289.288.0285

ISO 9001

Comment: I live in Ancaster's west end near the Wilson/Meadowbrook traffic circle and work out of a home office in the east end on Mohawk Road. Each day I drive the full length of Wilson Street to get to work and back. On that route, during the rush hour times (8am and 5-6pm), I rarely encounter traffic problems. While I also have the option of taking Garner Road or the 403 to get across town, I find Wilson Street is faster and more reliable. And, 99% of the time, if Wilson Street has a backlog, it is because there is a problem on the 403 or elsewhere. A westbound ramp at Mohawk could shave a few minutes off my drive home each night, but I've found the highway to be very unpredictable during rush hour, so I would probably continue to take Wilson Street.

Response: We have noted your comment for consideration.

Comment: I don't live on Mohawk, but since I work there every day I see what the residents have to deal with. According to slide 10 of the presentation, Mohawk averages between 800 to 1000 cars per hour, each direction, while Wilson Street averages 437 to 726. I'd like to better understand why the city considers this level of traffic to be acceptable along a narrow residential street with no sidewalks. Vehicles also travel at higher speeds on Mohawk Road because it is straight, with few stops, and it connects right on to the highway. I frequently see vehicles coming off the highway onto Mohawk Road at speeds well beyond the posted limit, because there is nothing slowing them down off the highway. Vehicles going toward the highway from McNiven are accelerating to highway speeds while they are still on Mohawk Road. The police are aware of all this because they frequently set up speed traps in the area.

Pedestrian safety is my biggest concern along Mohawk Road. There is an elementary school nearby, and each morning I drive past parents walking their kids to school along the shoulder of the road. It concerns me as the driver just how close they are and how fast the traffic is whizzing by them. It must be a worse feeling for them. At this time of year with snowbanks piled up on the shoulder, people are walking right in the car lanes, causing passing traffic to cross into the oncoming lane to go around. I would be glad to provide photo and video evidence for you.

As of February, Canada Post no longer delivers mail door-to-door along Mohawk because they decided it is too dangerous for their postal workers. To me, this really highlights the growing safety problem. Further, this change will likely worsen the danger because now all of the residents will be walking along the road to get to their mailbox. The residents here should be allowed to safely retrieve their mail.

Response: Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class Environmental Assessment (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.

Comment: A westbound 403 ramp at Mohawk will not adequately relieve the core traffic problems that many Ancaster residents are concerned about. Further, it will increase traffic flow along Mohawk and exacerbate existing safety concerns in that area. While I do support building the ramp for many of the reasons that were presented (and also because it will shorten my drive home every day), I think that the social and technical issues of this option were underestimated in your initial evaluation and deserve further consideration. I hope that you will carefully re-examine and address these issues going into the next phase of the project. I would be glad to provide further input and will look forward to hearing about your findings at the next public information session.

Response: Our analysis indicates that the benefit to Wilson Street will be moderate; however, in addition, as noted above, motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.

Following our review of public comments, the preferred solution includes adding a Brantford-bound ramp from Mohawk Road to Highway 403. A second Public Information Centre (PIC) elaborating on the design options for the preferred solution has been scheduled for June 9, 2014. A separate notice for the upcoming PIC has been mailed to your attention.

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Yours sincerely,

AMEC

David Sinke

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Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

June 5, 2014

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Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

Christopher Chahil

From: Christopher Chahil
Sent: June-06-14 4:42 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response e03.pdf

Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

CIMA+
Partners in Excellence
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Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6845 / Fax: 289-288-0285

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Christopher Chahil

From: Christopher Chahil
Sent: June-06-14 4:17 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response _e03.pdf

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Christopher Chahil

From: Christopher Chahil
Sent: June-06-14 4:46 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response_ e03.pdf

Dear

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From: Christopher Chahil
Sent: June-06-14 3:29 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response_MTCS_e02.pdf

Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
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From:	Christopher Chahil
Sent:	June-06-14 4:23 PM
To:	
Cc:	Sonya Kapusin
Subject:	Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments:	B000355_PIC1_Response_ 204.pdf

Dear

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Christopher Chahil

From: Christopher Chahil
Sent: June-06-14 3:40 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response J2.pdf

Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
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From:	Christopher Chahil
Sent:	June-06-14 4:14 PM
To:	
Cc:	Sonya Kapusin
Subject:	Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments:	B000355_PIC1_Response_ _e03.pdf

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To:	
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Subject:	Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments:	B000355_PIC1_Response_ ə02.pdf

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Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
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From:	Christopher Chahil
Sent:	June-06-14 3:38 PM
To:	
Cc:	Sonya Kapusin
Subject:	Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments:	B000355_PIC1_Response_ _e03.pdf

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From: Christopher Chahil
Sent: June-06-14 4:22 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response_ e02.pdf

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From: Christopher Chahil
Sent: June-06-14 4:50 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response_ _e03.pdf

Dear

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From: Christopher Chahil
Sent: June-06-14 4:58 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
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From: Christopher Chahil
Sent: June-06-14 4:19 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response_ e03.pdf

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From:	Christopher Chahil
Sent:	June-06-14 3:49 PM
To:	
Cc:	Sonya Kapusin
Subject:	Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments:	B000355_PIC1_Response_ e02.pdf

Dear

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From: Christopher Chahil
Sent: June-06-14 4:39 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response e03.pdf

Dear

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From: Christopher Chahil
Sent: June-06-14 4:20 PM
To:
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Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response ›02.pdf

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Attachments: B000355_PIC1_Response_ e02.pdf

Dear .

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6845 / Fax: 289-288-0285

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Sonya Kapusin

From: Christopher Chahil
Sent: June-06-14 5:19 PM
To: Sonya Kapusin
Subject: FW: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

---

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

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From:
Sent: June-06-14 5:18 PM
To: Christopher Chahil
Subject: RE: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Hi Mr. Chahil,

I guess only time will tell. I don't think motorist will like sitting in a bottleneck and will continue to use Wilson during rush hour.

Have you established yet how close the ramp will come to the nearest homes and how high the sound barrier will need to be, given the trucks will be accelerating on the ramp?

Thanks.

From: Christopher.Chahil@cima.ca
To:
CC: Sonya.Kapusin@cima.ca
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Date: Fri, 6 Jun 2014 20:41:34 +0000

Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

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Sonya Kapusin

From:
Sent: June-07-14 4:22 PM
To: Christopher Chahil
Cc: Sonya Kapusin
Subject: Re: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Thank you for your response, I appreciate - and looking forward to the access...
Sincerely

From: Christopher Chahil
Sent: Friday, June 06, 2014 3:40 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Dear ,

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

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Sonya Kapusin

From: Christopher Chahil
Sent: June-09-14 8:35 AM
To: Sonya Kapusin
Subject: FW: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment
Attachments: B000355_PIC1_Response_ _e04.pdf

Christopher Chahil
Co-Op Student
Traffic Engineering, Transportation

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6845 / Fax: 289-288-0285

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From: |
Sent: June-07-14 7:03 AM
To: Christopher Chahil
Cc:

Subject: RE: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Attachment added.

L

From:
Sent: June-07-14 6:47 AM
To: 'Christopher Chahil'
Cc:

Subject: RE: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Good Morning,

I have noted your comments for consideration.

It would appear by your selected self-serving and scant comments that your mind was made up long before PIC #1 and that the process of review is being done simply to comply with procedure.

This insincerity is perhaps a waste of everyone's time and effort.

I shall look forward to PIC#2

Regards,

From: Christopher Chahil [mailto:Christopher.Chahil@cima.ca]
Sent: June-06-14 4:23 PM
To:
Cc: Sonya Kapusin
Subject: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.
Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

.
Traffic Engineering, Transportation

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Hamilton

amec

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COMMENT FORM
(Please print)

Public Information Centre (PIC #2) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Monday, June 9, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

Strongly in favour - ACC Committee
→ tried to get on to the 403 Brantford from Golf Links this AM
Traffic Jammed going towards Hamilton
→ Other days it is so dangerous coming from Golf Links over 2 lanes to make the 403 towards Brantford as cars are going so fast to go downhill.

We need this!!

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by June 26, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
Fax: 905-546-2039
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: [redacted]

Affiliation (if [redacted]

Address: [redacted]

Postal Cod [redacted]

Fax: [redacted]

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Hamilton

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COMMENT FORM
(Please print)

Public Information Centre (PIC #2) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Monday, June 9, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

PLEASE entertain a calming of traffic @ Oneida + Seneca.

The ramp will happen - please do something to help area residents with the left over traffic problems

[redacted]

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by June 26, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
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tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: [redacted]

Affiliation (if applicable):

Address:

Postal Code

Fax:

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Hamilton

amec

CIMA
Partners in excellence

RECEIVED 17 2014

COMMENT FORM
(Please print)

Public Information Centre (PIC #2) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Monday, June 9, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

→ there are no west bound accesses to #403 from Main St. West to the Duff's corners intersection
→ no west bound access means that persons north of Ancaster Village and adjacent to the 403 in the vicinity of the West side must travel through Ancaster Village to get on the 403 westbound or if they are going to Duff's Corners or the industrial park – we would like to limit THROUGH TRAFFIC in the village – if the roads are filled with through traffic this discourages destination traffic to the village – this access will improve the situation – we would encourage additional accesses such a one for traffic from McMaster + Hamilton Health Sciences to enter onto the 403 for South-bound activity and easier connectivity to the LINK for these vehicles.

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by June 26, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
Fax: 905-546-2039
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: [redacted]

Affiliation (if applicable): [redacted]

Address: [redacted]

Postal Co[redacted]

Fax: [redacted]

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

(Yes) No

With the exception of personal information, all comments will become part of the public record.

This is the ramp for the #6 by pass onto the 403 which does not see the traffic as our area does But yet they have a tall sound Barrier thats over 50 yards from the ramp.
We only have 25 maybe 30 yards.

We should be treated with the same respect

[redacted]

Sonya Kapusin

From: Christopher Chahil
Sent: June-10-14 4:00 PM
To: Sonya Kapusin
Subject: FW: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Christopher Chahil
Co-Op Student
Traffic Engineering, Transportation

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6845 / Fax: 289-288-0285

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From:
Sent: June-10-14 3:58 PM
To: Christopher Chahil
Subject: Re: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Dear Mr. Chahil, Mr. David Sinke AMEC, and Sonya Kapusin, CIMA

Thank you for your response.
I realize that the new westbound on ramp at Mohawk Road is a preferred location (at the top of the escarpment) and I am very supportive of your efforts to see that ramp constructed.
I believe that a new westbound ramp at Main Street (at the bottom of the escarpment) is also a necessity. There are several thousand people who work at McMaster University and in the west end of Hamilton but live in Ancaster, Mount Hope and Hamilton Mountain. All of these people use the only road available to them being Wilson Street running south off of Main.
A new ramp at Main Street which would tie into the existing ramp off of Aberdeen would allow people who work in the west end to access the 403 and by pass Wilson street altogether.
I have asked many times for someone to consider this option and I am told the geometry is unworkable and the railway overpass would have to be removed. I don't believe either of those things to be true. The Ontario Hydro transformer field would not need to be moved, the railway bridge would not need to be demolished. A low speed merger of traffic coming off Main Street and Aberdeen as a ramp to ramp solution would be the mirror image of what is presently happening on the east bound lanes at this same interchange. It has worked successfully for years and will likely remain in place for many more years.

We don't need perfection for this particular ramp...we simply need a real world cost effective solution that will improve mobility up and around the escarpment.

I realize that my suggestions are undoubtedly going to fall on deaf ears as they have in the past and you will toss my suggestion into the trash...I get all of that.

I have written to every level of government official, including Ms Wynne as Premier and as Transportation Minister who I know has personally visited the site. It is unfortunate that officials do not listen to the people who live in the area see the problems...identify a possible solution...but are simply cast aside because it did not come from Queens Park.

The Ministry of Transportation has its own internal hierarchy I am sure. The proposal I am suggesting could likely be constructed for under $2.5Million. Because it is such a small amount there are probably engineers at MOT who would say the project is beneath them...they only work on big stuff.

Well this is big stuff to the people who live here!

Enough said.

Have a very nice day.

Your truly,

Ancaster, Ontario

On 06/06/14, **Christopher Chahil** <Christopher.Chahil@cima.ca> wrote:
Dear

Thank you for your comments in response to the Class Environmental Assessment for additional access to Brantford-bound Highway 403 in Ancaster.

Please see attached letter in response to your comments.

Christopher Chahil for David Sinke, AMEC and Sonya Kapusin, CIMA

Traffic Engineering, Transportation

CIMA+
Partners in Excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA
Tel: 289-288-0287 ext. 6845 / Fax: 289-288-0285

Sonya Kapusin

From: Philip, Mohan <Mohan.Philip@hamilton.ca>
Sent: June-13-14 9:39 AM
To:
Cc: david.sinke@amec.com; jim.scale@amec.com; Sonya Kapusin
Subject: FW: proposed 403 ramp
Attachments: MTO ESR Addendum Feb2000.pdf

Hi

Thanks for attending the PIC and providing your input into the study process. We are reviewing our noise study based on the concerns raised by you at the PIC. We will provide you with a copy of report once completed. As requested, please find attached the MTO noise study report dated November 29, 1999.
Please let me know if you have questions.

Thank you,

Mohan Philip, M. Eng., P.Eng.
Project Manager
Transportation Planning & Mobility Programs
Transportation Division, Public Works Dept.
City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3

Tel: 905 546 2424 x 3438
Fax: 905 546 2039
Mohan.philip@hamilton.ca

From:
Sent: June-11-14 4:06 PM
To: Transportation Planning
Subject: proposed 403 ramp

Hi Mr. Philip

Thank you for taking the time to talk to me on Mon.
I understand the noise report is not currently available for the proposed 403 ramp, but I would appreciate a copy, when it is.
In the meantime, may I have a copy of the noise report which was done for the Lincoln Alexander Parkway system?
Thanks.

Sonya Kapusin

From: Sonya Kapusin
Sent:
To: Melissa Noss
Subject: FW: Mohawk ramp to 403W

Sonya Kapusin
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From: Sinke, David [mailto:David.Sinke@amec.com]
Sent:
To: Salim, Mohammed
Cc: Scale, Jim; Sonya Kapusin
Subject: FW: Mohawk ramp to 403W

David

From: Ar H [mailto:aholek@outlook.com]
Sent: June-16-14 10:01 AM
To: Sinke, David
Subject: RE: Mohawk ramp to 403W

Hi Mr. Sinke,

As per section 4ii of the Ministry of Transportation Environmental Guide for noise, please send the noise contour plots for my area with respect to the effects of the berm that was put in place to mitigate noise from the LINC and the removal with the proposed new 403 Brantford ramp.

Thanks.

From: David.Sinke@amec.com
To:
CC: Mohan.Philip@hamilton.ca
Date: Tue, 18 Mar 2014 16:40:41 -0400
Subject: RE: Mohawk ramp to 403W

Hello

A traffic noise study has not yet been completed for this project. As noted at the first public information center, the study will be undertaken prior to the second public information center, and presented at that time. The study will present calculated noise levels with and without the proposed ramp.

From: Sinke, David <David.Sinke@amec.com>
Sent:
To: Sonya Kapusin
Subject: FW: 403 Brantford bound ramp
Attachments: IMG_20140624_210854.jpg; 403 brantford ramp plan.pdf

FYI

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: [redacted]
Sent: June-26-14 5:31 AM
To: Sinke, David
Subject: 403 Brantford bound ramp

Attn; David
Attached is a sheet about our concerns with the progress of this access
It may not be able to be stopped
But a sound barrier we deserve
Thank-you for your consideration

[redacted]

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From: Philip, Mohan <Mohan.Philip@hamilton.ca>
Sent: June-26-14 9:04 AM
To: david.sinke@amec.com; jim.scale@amec.com; Sonya Kapusin
Cc: [redacted]
Subject: FW: Brantford bound 403
Attachments: 403 brantford ramp plan.pdf; IMG_20140624_210854.jpg

Comment sheets.

From: [redacted]
Sent: June-26-14 5:27 AM
To: Transportation Planning
Subject: Brantford bound 403

Attn;Mohan Phillips

[redacted]
Attached is just some of my thoughts and concerns

Thanks
[redacted]

[redacted]

From: Stephen Keen
Sent: June-26-14 11:52 AM
To: Scale, Jim; Sinke, David; Sonya Kapusin; Mohan Philip (mohan.philip@hamilton.ca)
Subject: RE: Mohawk Road Ramp

Mohan
I spoke to just and he said he was in the middle of writing a letter to us about his concerns about the ramp being a 'waste of money'. He asked about the modelling work and intersection analysis that was done – I gave him an overview. It confirmed his thoughts on the matter. He said he does not have any major issues with the ramp and doesn't care whether it is built or not – but nevertheless, he will put his thoughts to paper.

He said he did not need to be sent any technical documentation.

Steve

From: Scale, Jim [mailto:jim.scale@amec.com]
Sent: June-18-14 9:52 AM
To: Sinke, David; Sonya Kapusin; Stephen Keen
Subject: RE: Mohawk Road Ramp

Our response should clearly indicate that the ramp is not intended as a solution to the Wilson traffic issues, however will provide some relief to the downtown core and not impact the Wilson/ Rousseau operation (i.e. redirection of intersection traffic as opposed to increase in intersection traffic).

If you have any questions or require any additional information, please contact me.

Jim Scale, P. Eng.
Associate
Transportation
AMEC
Environment & Infrastructure
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 x 223, Fax 905-335-1414
jim.scale@amec.com
amec.com

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From: Philip, Mohan [mailto:Mohan.Philip@hamilton.ca]
Sent: June-18-14 9:34 AM
To: Sinke, David; Scale, Jim; Sonya.Kapusin@cima.ca; Stephen.Keen@cima.ca
Subject: FW: Mohawk Road Ramp

Can you please provide a response to this. As you know for the Ancaster TMP, there is the project website www.hamilton.ca/AncasterTMP

Mohan

From: [redacted]
Sent: June-17-14 10:35 AM

To: Transportation Planning
Cc: [redacted]
Subject: Mohawk Road Ramp

[redacted]

I was wondering if there are written reports, working papers or technical assessments available for the work that has been completed to date. I am interested in the traffic analyses that was done. More specifically I was wondering about the demand modelling and intersection analyses for the Rousseau/Mohawk corridor including the intersection at Wilson Street.

I was also wondering if there are diagrams of the alternative ramp configurations for the intersection at Mohawk Road.

Finally, I was wondering if there is a repository of the work completed to date at the Ancaster library.

[redacted]

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From: Sinke, David <David.Sinke@amec.com>
Sent: June-26-14 1:15 PM
To: 'Philip, Mohan'
Cc: Sonya Kapusin; Scale, Jim; Stephen Keen
Subject: FW: Mohawk Road Ramp

FYI

From: Sinke, David
Sent: June-26-14 1:15 PM
To: [redacted]'
Subject: RE: Mohawk Road Ramp

[redacted], good that you could connect with Steve. We will look for your comments.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From: [redacted]
Sent: June-26-14 1:05 PM
To: Sinke, David
Subject: RE: Mohawk Road Ramp

Hi David:

Steve Keen of CIMA called me today on the telephone and I had an opportunity to discuss several aspects of the study. Thank you for making that happen. Further to my discussion with Steve, I am planning to submit several comments with regard to the study.

[redacted]

Original message
From: "Sinke, David"

Received: 25/06/2014 7:50:41 AM
Subject: RE: Mohawk Road Ramp

Hello [redacted]

Thank you for your interest in this project. We are in the process or reviewing comments and requests, and will respond to you shortly re. your previous request for the traffic assessment, and your request to meet to review.

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

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From: [redacted]
Sent: June-24-14 9:02 AM
To: Sinke, David
Subject: FW: Mohawk Road Ramp

Hi David:

I understand that Philip Mohan of Hamilton has requested that you provide a response to the interest I expressed in reviewing the demand modelling and traffic analysis related to the ramp being considered for Mohawk Road at Hwy. 403.

I have no predisposition towards the provision of the ramp. I represent only myself as an Ancaster resident. However, I am interested in the analysis that has been done.

I would be pleased to stop by your office to discuss these matter if we could set up a time.

[redacted]

This is a forwarded message
From: "[redacted]"
To: [redacted]
Subject: FW: Mohawk Road Ramp

Good Morning [redacted]
The consultant on this project will be providing a response to your questions below.
Thanks

[redacted]

From: Philip, Mohan
Sent: June-18-14 3:14 PM
To: [redacted]
Subject: RE: Mohawk Road Ramp

Hi Kathy,
I have asked the consultant to provide a response.
Mohan

From: [redacted]
Sent: June-17-14 12:13 PM
To: Philip, Mohan
Subject: FW: Mohawk Road Ramp

Mohan
I assume you received this email and will be responding.
[redacted]

From: [redacted]
Sent: June-17-14 10:35 AM
To: Transportation Planning
Cc: Bishop, Kathy
Subject: Mohawk Road Ramp

Hi:

I was wondering if there are written reports, working papers or technical assessments available for the work that has been completed to date. I am interested in the traffic analyses that was done. More specifically I was wondering about the demand modelling and intersection analyses for the Rousseau/Mohawk corridor including the intersection at Wilson Street.

I was also wondering if there are diagrams of the alternative ramp configurations for the intersection at Mohawk Road.

Finally, I was wondering if there is a repository of the work completed to date at the Ancaster library.

[redacted]

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From: Sinke, David <David.Sinke@amec.com>
Sent: June-26-14 2:32 PM
To: Sonya Kapusin
Subject: FW: 403 Brantford bound ramp
Attachments: IMG_20140624_210854.jpg; 403 brantford ramp plan.pdf

FYI
(same as forwarded by City)

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: [redacted]
Sent: June-26-14 5:31 AM
To: Sinke, David
Subject: 403 Brantford bound ramp

Attn; David
Attached is a sheet about our concerns with the progress of this access
It may not be able to be stopped
But a sound barrier we deserve
Thank-you for your consideration

[redacted]

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facsimile transmittal

To:	David Sinke AMEC	Fax:	905 335 1414
		Phone:	
From:	Bob Gilchrist	Date:	June 26, 2014
Re:	Comments - Mohawk Rd	Pages:	7 (including cover)
File:		Your File:	

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply

Message:

Please find several comments attached related to the above noted Hamilton Study

[redacted]

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[redacted]

June 26, 2014

Mr. Mohan Philip, M.Eng., P.Eng.
Project Manager
City of Hamilton
77 James Street North, Suite 400
Hamilton, Ontario L8R 2K3 Fax: 905 546 2093

Mr. David Sinke, P.Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington, Ontario L7N 3G2 Fax: 905 335 1414

Dear Sirs:

Re: Study Process / Findings
Additional Access to Brantford-bound
Highway 403
Class Environmental Assessment
(Class EA)

After my request to examine some of the demand information and traffic analysis for the Highway 403 ramp, I went back to re-examine the Information Centre presentations. I now offer the following commentary, if perhaps preliminary in nature. My submission at this time is directed towards a reasonable interpretation the study materials. In beginning this submission, I held no inherent desire to see the ramp constructed or not. However, in recognition of the information available to-date, the conclusions of this submission are both self-apparent and compelling.

Please be advised the commentary is offered from the view of a long-term resident of Ancaster as well as a practicing traffic and transportation engineer since 1978. I had completed the demand modelling for the Parkway in 1978 as an employee of the Region and again for the board hearings in the early 1980's.

Several technical errors were noted in the presentation materials which raised some concern about the demand modelling and traffic analysis of the proposed ramp. Those concerns led to

further consideration of the evaluation process. Much of the problematic areas are contained in the first presentation. The following is noted.

In the first presentation, it is noted that the title of the study indicates that it is an evaluation for additional access to Highway 403 westbound in Ancaster. In this process five options involving three locations are examined. In illustrating the constraints and existing conditions of concern, Slides 7 and 8 illustrate the existing conditions for only the Mohawk Road ramp. It is noted that none of the existing conditions, which reflect potential constraints, are contained within the study area outlined for the ramp. Consequently, it may be concluded that none of the items identified in the existing conditions bear on the proposed Mohawk Road ramp location. This gives rise to questions about how the items of the list influenced the selection process and the other options, if at all. The two slides also raise questions about the existing conditions that were present at the other two sites and the extent of effects at those sites. On this matter, an explanation would be appreciated.

The presentation of only one list of existing conditions and marked photograph for the Mohawk Ramp is suggestive of a predisposition to install the ramp at this location. Presumedly, the study had a similar list of existing conditions and marked aerial photograph for the other two locations which were not presented to the public. It is necessary to present that information to confirm the three sites were examined in an equitable manner.

Slide 10, the diagram showing Traffic Volumes Accessing Hwy. 403 is inaccurate and mislabelled in my opinion, the traffic volumes shown appear to be existing peak hour volumes representing approximately 8 to 9 percent of daily traffic. Not all of the traffic shown in the table is accessing Hwy. 403. In this context, the labelling of the diagram is wrong.

The ramp volumes shown for westbound Hwy. 403 in Ancaster and Hamilton, representing existing traffic are very low and operating at a high level of service with no capacity limitations evident. For example, the arterial to freeway ramps shown in the diagram provide a high quality Level of Service A at 600 vph and a merge flow capacity of approximately 2000 vph. The following table shows the capacity utilization for several of the ramps.

Location	Type	Existing Hourly Traffic am (pm)	Capacity Utilization
Wilson St. W Westbound	Direct	128 (92)	2 percent
Wilson St. W Eastbound	Inner loop	24 (18	1 percent
Hwy. 6	Direct	133 (99)	2 percent
L. A. Pkwy. Westbound	Direct	1129 (1406)	70 percent

While the L.A. Parkway ramp is 70 percent full in the p.m. peak hour, there is no evidence in the diagram that any of that traffic is using streets within the old town of Ancaster, the area served by the Mohawk ES ramp. One can observe that the interchange at the Parkway and Hwy. 403 operates in excess of capacity at the present time. With a capacity of about 2200 vph ± per lane the highway can serve about 4400 vph ± westbound. In adding approximately 1400 vph from the Parkway to the 3800 vph using the Hwy. 403 mainline lanes, congestion in the form of low speeds and delay is readily apparent for a period during the evening peak hours. However, there is no evidence in the traffic for either Mohawk Road or Golf Links Road that the 1400 vph on the Parkway is coming from west Ancaster.

In considering the 128 vph using the westbound ramp in west Ancaster, the illustrated traffic volumes are very low. It is also reasonably probable that, much if not most, of that traffic

originated in Ancaster. Hence, the share of traffic passing through the village core is very small. Select link analysis of that traffic will show the extent to which that traffic is from West Hamilton or Dundas and passing through Ancaster. If a quarter to half of that traffic is diverted to the Mohawk ramp, the demand for service by the new ramp is likely to be insufficient for the justification of a new facility. The traffic demand estimates, a highly important element of the need for the ramp, which are not shown in the study materials, support the lack of justification for the ramp. It would be highly unusual to invest substantial funds in a facility serving such low volumes of traffic in an environment where transportation funds for infrastructure improvements are already scarce.

It is indicated on Slide 11 that the addition of the Mohawk Road on-ramp would remove over 300 vehicles per day from the Village Core. Presumedly, this traffic is southbound on Wilson Street passing through the village core. Traffic from north-west of Hwy. 403 is unlikely to show up in the Village core.

To put this information in context with the preceding information, assuming a peak hour factor of 0.08, the ramp would remove about 24 vehicle trips through the village core in the evening peak hour. With the constraining traffic signals at Sulphur Springs Road serving about 1200 vph southbound, the signal would experience a drop in traffic of about two percent. Realistically, the change in traffic is not likely to have a measurable or significant impact on signal operations at that location. In other words, there is no meaningful impact of installing the ramp.

On the other hand, if that traffic is coming southbound on Wilson Street from Hamilton, it will be required to make a left turn at Rousseau Street for access to Hwy. 403. However, this intersection is currently fully utilized during the p.m. peak hour. While there is a delay for both southbound through and left turn movements, the left turn demand significantly exceeds the available capacity. Drivers currently may require 2 to 4 cycles of the signal to pass through the intersection. Consequently, the addition of traffic to this left turn movement can have quite a dramatic effect on intersection operations. With an additional 24 vph, it may be expected the delay for left turns would increase by approximately one to two cycle lengths. The increase in traffic would also pass through the intersection at McNiven Road, which is also currently fully loaded in the p.m. peak hour.

Consequently, the traffic analyses of the first presentation indicates that traffic congestion for individuals coming to Ancaster during the p.m. peak hour can be expected to increase somewhat as a result of the ramp from Mohawk Road to Hwy. 403.

If there is any doubt about the operational impacts of the traffic diversion from Wilson Street to Mohawk Road, the City may examine (and present) the results of a Synchro type analyses to identify the capacity utilization, queuing and phase timing for each of the traffic signals at the 5 key intersections in Ancaster.

Slide 12 of the presentation indicates the following.

- A ramp at the location of the study was removed when the interchange at that location was modified to accommodate the Parkway;
- Removal of the ramp left a missing link in access to and from Ancaster; and,
- There is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and to relieve traffic on Wilson Street.

In considering the first bullet, it is correct the ramp was removed. However, the decision to remove the ramp was unlikely to have been an arbitrary one and more likely to have been

premised on both the demand and the utility of the connection. As a long-time resident of Ancaster, it is my recollection that the removal of the ramp had little or no effect on traffic in the core area and likely reduced traffic on Mohawk Road.

In considering the second bullet, while the connection was removed, there is no information to indicate that it was ever really needed. In this sense, the original ramp, which was constructed in the heyday of highway construction in Ontario, was installed when utility was less critical in decisions related to spending provincial tax dollars. As the ramp cost is likely to be borne by Hamilton tax dollars, the issue of utility should be much more significant.

In considering the third bullet, traffic volumes in the core area of the village have increased over the years. The increase in traffic has arisen through the growth of residential, retail and commercial opportunities within the town. There is no evidence in the information presented by the Study analysis that through trips have increased or at least increased in a similar way. In this context, it is highly improbable that the traffic congestion more recently experienced in the core area is a result of external through traffic. Indeed, as congestion has increased in the village core, it has likely been at least partly effective in re-routing external traffic through the core area to other routes such as Main Street or Hwy. 52. For this reason, an attempt to re-route that traffic by way of improving accessibility to Hwy. 403 may well be ineffective in moderating traffic in the core area. On the other hand, improved accessibly has been identified for more than 40 years as a means to attract traffic. Improving the convenience of trip making is a key means for generating more travel. Improved travel to Hwy. 403 by way of the ramp and/or through the core area can be expected to generate more trips to both of these destinations.

On slide 15, there is a presentation of the technical assessment of 5 options. The means for evaluating the options was not provided. In this context, there is no indication of what the technical evaluation is evaluating or what the priorities may be. Some possibilities related to the local network operations are identified below.

1. Reduced traffic and/or travel time on Mohawk Road
2. Reduced traffic and/or travel time on Wilson Street
3. Improved level of service or road sections or the five key intersections in Ancaster
4. Improved accessibility to Hwy. 403 from Wilson Street north of Rousseau Street

Each of these items is quantifiable. The magnitude of these factors will indicate whether the effects are meaningful or not. Given the size of the traffic diversion, the effects identified above or in the list of the Evaluation Criteria of the Study are unlikely to be meaningful or significant.

Interestingly, one of the constraints is to improve access to Hwy. 403 without impacting highway operations. Ironically, the greater the effectiveness of the ramp in diverting traffic from Wilson Street, the greater the impact on highway operations. As the Parkway to Hwy. 403 ramp is already congested in the p.m. peak hour, this factor has a negative impact on the evaluation of the Mohawk Road ramp which is not evident in the evaluation.

In considering the opportunities for other modes of transportation, there is no information provided as to how this option may provide a replacement of the three ramps. As the ramp provides access to a rural freeway (i.e., exiting Hamilton/Ancaster), the connection will serve long distance auto oriented trips. The ability of the traffic diversion and ramp to be assumed by other modes (i.e., walking, cycling, and transit) have not been defined. The effects of the ramp on transit including scheduling, route adjustments or expansions, and delays are not discussed. Due to the diversion of traffic, it is reasonable to expect the diversion of traffic to Mohawk Road, which serves more traffic than Wilson Street, will impose greater delays to transit operations in that area than any of the other options.

In considering the evaluation criteria, there is a listing of the sub-order elements of each of the categories identified. There is no indication of the weighting of the effects. However, as all of the evaluation categories have the same size circle indicator, they may be rightly or wrongly taken to have equal weights in the evaluation. As there are no weights identified, each category of evaluation can be taken to have the same weight. Since the Do Nothing Category had a better or equal weighting in three of the five categories, the chart emphatically indicates that the Do Nothing option is the better option. According to the chart, the second best option is that of the Other Modes. Since the analysis shows that the problem itself (i.e., 24 peak hour peak direction vehicle trips through the Village Core) is a very minor to non-existent problem, the equal weighting of the evaluation factors would suggest nothing should be done.

In further considering the evaluation criteria, the chart is illustrative of equal weighting between for example cultural and economic impacts. The economic impact of the ramp is an expenditure for construction exclusive of operating and maintenance costs. However, the economic impact of the Do Nothing option is rated neutral. In effect, the economic impact of the Do Nothing option is a public savings of the entire cost of the project, which is a significant benefit to Hamilton tax payers. As it stands, relative to an expenditure of $3M to $4M for the preferred option, the economic impact assigned to the Do Nothing option is just plain wrong.

In comparing the Economic Impacts to the Cultural impacts an equal weighting implies that an expenditure of the amount indicated to construct the project is about the same as the archeological resources and cultural heritage of the build-options, which are all in the existing right-of-way of the highway lands. These lands were disturbed and regarded when the highway was constructed and again when the Parkway interchange was installed. On this basis it is difficult to imagine what the archeological and cultural heritage impacts may be – especially since there had been a ramp present in the past. It is even more difficult to imagine those archeological and cultural resources that are present in the highway right-of-way are of equal value to the expenditure of $3M to $4M.

As presented, it is apparent that the evaluation process appears subjective in nature: as such, subject to individual biases of the evaluators. Indeed, there is significant bias relevant to at least one source apparent in the evaluation. The table assumes that additional accessibility to Hwy. 403 in Ancaster is required when in fact; there has been no analysis forthcoming to show the need or justification.

In the Second presentation, there are six optional designs presented for evaluation. The designs show some small differences in their basic configuration. Further, one of the evaluation criteria is that the design satisfies the design standard. Comments related to these matters follow.

The controlling curve radius of the first curve evaluated radii of 55 m and 90 m. The largest radius is identified as preferred indicating that it most appropriately satisfies the design standard. In reality, the 55 m radius also satisfies the standards of Ontario. The operational effects of the two standards are worth some commentary. The smaller radius is suitable for travelling from Mohawk Road onto the highway at a design speed of 40 km/h. The larger radius allows travel speeds at 50 km/h. As the preference is for the larger radius, it inherently expresses a preference for higher speeds earlier on the ramp. Due to the spiral design, the larger radius allows acceleration while drivers are on Mohawk Road and before entering the ramp. The study may wish to explore these issues with those representing Ancaster.

The list of ramp configurations is all rural in nature allowing for higher speed movement from Mohawk Road to Hwy. 403. The five design alternatives did not include an urban intersection design alternative such as that consistent with diamond and Parcio B-4 interchange design. This alternative would provide a low-speed right turn for access to the ramp rather than high-speed access as is provided the evaluated configurations. The alternative may be accessed from a standard arterial taper or short right turn lane. The option offers the opportunity for a more compact, less land consumptive design with less environmental and possibly social impacts.

As indicated, the result of the preceding analysis is one in which the addition of the ramp will have no or little meaningful effect on traffic in the village core. The reduction in traffic found in the village core would be diverted to Rousseau Street, also a two lane road which is already serving higher traffic volumes than Wilson Street in the core area. Therefore, one can expect the marginal increase in traffic on Rousseau Street to have a greater detrimental effect than the marginal benefit of a reduction in traffic on Wilson Street. However, realistically, the effects are likely to be insignificant in the operational framework of changes in running time and intersection delay in the core area. Based on the absence of meaningful results forecast for the subject ramp, the City may consider the benefits of assigning the required expenditure to infrastructure improvements somewhere else where there can be a meaningful return on investment.

[redacted]

From: Sonya Kapusin
Sent: July-02-14 11:41 AM
To: Melissa Noss
Subject: FW: PIC#2 in Ancaster

Sonya Kapusin
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From: Sinke, David [mailto:David.Sinke@amec.com]
Sent: June-23-14 7:25 AM
To: Dr. Robert Green
Cc: tplanning@hamilton.ca; Sonya Kapusin; Scale, Jim
Subject: RE: PIC#2 in Ancaster

[redacted]

We currently further reviewing the noise assessment completed for this study. We will be providing you with a formal response to your concerns, by letter.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From: [redacted]
Sent: June-22-14 9:10 PM
To: Sinke, David; tplanning@hamilton.ca
Subject: PIC#2 in Ancaster

Hello,

I attended the last PIC regarding the additional access to Brantford off of Mohawk Rd. I certainly left feeling quite dismayed. It appears to me that there is a complete lack of concern for the welfare of the residents who will be affected by this project the most- the residents living on Oneida Blvd. One of your "engineers" told me that the roadway may be as close as 50 ft from the back of my property, with absolutely no intention of extending the existing sound barrier to provide privacy as well as the definite increase in noise that will be experienced. His basis was the "insignificant" increase in highway noise based on computer modelling, being within the 17 hour average required by the province. That is absolutely ludicrous.There will be no doubt noise

in excess of 65dB during peak times and it is I and the other residents that will have to deal with it on a daily basis, not your "engineers". I also don't relish waving "hi" to everyone who drives on this new access road. If this project goes through, and I have noise or privacy concerns, one of your "engineers" told me I should take it up with city council. That statement is preposterous! Council is completely ineffective, and this request will get bogged down in the usual political red tape. The only time to address this problem is to have it planned from the start.

I request that careful consideration be given to the people who actually live there- I will have to deal with all of the issues associated with this project on a daily basis, all for the sake of a very small number people who will use this roadway.

Sincerely,

[redacted]

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From: Sonya Kapusin
Sent: July-02-14 11:44 AM
To: Melissa Noss
Subject: FW: 403 Brantford ramp

Sonya Kapusin
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From: [redacted]
Sent: June-16-14 9:07 PM
To: Philip, Mohan
Cc: [redacted]
Subject: RE: 403 Brantford ramp

At the meeting, the berm in question, was said to be for no other purpose but to save the cost of taking the dirt away. However, it is clear from the noise assessment done for the LINC that noise mitigation for the area was required and the berm was used in place of a sound barrier. The study group will need to revise their algorithm to ensure that mitigation for both the LINC and the new ramp are covered, before the ramp can be put in. Also, I would appreciate if sound contours be provided as per MOT/MOE regulation.

Thanks for taking this into consideration. I will await the complete report. When, approximately, do you think this might be available?

Subject: RE: 403 Brantford ramp
Date: Mon, 16 Jun 2014 14:41:05 -0400
From: Mohan.Philip@hamilton.ca
To: a[redacted]
CC: Rich.Shebib@hamilton.ca; Alan.Kirkpatrick@hamilton.ca; Lorissa.Skrypniak@hamilton.ca; Brian.McHattie@hamilton.ca; Gary.Moore@hamilton.ca; david.sinke@amec.com; jim.scale@amec.com; Sonya.Kapusin@cima.ca; Lloyd.Ferguson@hamilton.ca

[redacted]

We acknowledge the concerns you raised at the PIC held on June 9, 2014 and refer to our discussion with the experts in transportation noise studies who answered several of your/public questions and concerns. At your request we also forwarded you the MTO's noise study report completed in 2000 for the LINC – Hwy 403 interchange. As agreed, the consultant will further review the noise study undertaken for the ramp project in light of the comments we heard at the PIC. The current noise study is following the MTO/MOE guidelines and will ensure their requirements are met.

We will provide you a detailed response and the study report once the review is completed.

Thank you,

Mohan Philip,
Project Manager
City of Hamilton

From: [redacted]
Sent: June-16-14 11:49 AM
To: Moore, Gary; aholek@outlook.com
Cc: Shebib, Rich; Skrypniak, Lorissa
Subject: Re: 403 Brantford ramp

Thanks Gary.

Brian

Sent from my BlackBerry 10 smartphone.

From: Moore, Gary
Sent: Monday, June 16, 2014 11:17 AM
To: [redacted]
Cc: Shebib, Rich; Skrypniak, Lorissa
Subject: Re: 403 Brantford ramp

[redacted]
There is an Environmental Assessment process currently ongoing to address all of the issues [redacted] has raised. I will forward this correspondence forward to the group responsible and ask them to reply.
Regards
Gary
----------Sent from my Blackberry Wireless Handheld.

From: [redacted]
Sent: Monday, June 16, 2014 10:47 AM Eastern Standard Time
To: [redacted]
Cc: [redacted] Shebib, Rich
Subject: Re: 403 Brantford ramp

Hi [redacted]

Thank you for bringing this to my attention.

Hi [redacted]

[redacted] outlines important concerns. I do not have much expertise on this issue so can I ask you to please assist, esp as this relates to engaging MTO? Can you also pls keep [redacted] and myself in the loop.

Thanks
Brian

Sent from my BlackBerry 10 smartphone.

From: [redacted]
Sent: Monday, June 16, 2014 10:17 AM

[redacted]

[redacted]

I am a Hamiltonian who is concerned about the new plan for the 403 ramp to Brantford. Currently, a 25 foot berm provides: physical, esthetic and sound protection for the homes on Oneida Blvd. backing onto highway 403. The 1996 Environmental Study for the Highway 403 interchange with the LINC required sound mitigation for area 19 (now marked NR02). Rather than installing a sound barrier and trucking the dirt away, the berm was used to satisfy Ministry of Transportation (MoT) requirements. It has provided a low cost option to a sound barrier for years. The new 403 Brantford ramp proposal intends to remove that protection, and not replace it with any barrier between the highway and the homes. The berm's removal will mean the 403 interchange no longer meets the Ministry of Transportation requirements for the interchange. Before the ramp is approved, appropriate noise, pollution and esthetic mitigation needs to be in place.

Traffic noise from a highway averages 85 db, and is higher in areas of acceleration, such as highway access ramps. The current MoE and MoT standard is 65 db at most with no increase of more than 5 db. An algorithm alone is being used to determine these levels, but if variables are missed and the numbers are off, adding a sound barrier post construction will be more expensive than protecting the homes at the time of construction.

Constructing a highway ramp in such close proximity to backyards where children play, is in my opinion, not well thought out. Providing no physical barrier between homes and the highway is negligence. Should a child go after a ball, and onto the highway, the City of Hamilton would be liable, as no attempt was made to provide a physical barrier between the highway and the children. Plexiglas barriers are erected on bridge overpasses to prevent the mentally ill from jumping to their death. Why is the City of Hamilton so loathed to protect its children?

In addition, more traffic will cut through the neighbourhood to access the 403. Traffic lights, with cameras, will be necessary to slow traffic and encourage the use of the main thoroughfares.

If a ramp to the 403E is necessary, efforts should be made to minimize the impact on the residential neighbourhood. Moving the berm back, accomplishes both. Failing to protect the neighbourhood from cars, dirt, noise, headlights and exhaust so some people don't have to drive a few extra blocks, is an extremely expensive proposition, particularly when it will benefit a handful of well-heeled people in Ancaster, and all Hamiltonians have to pay for it. The province is already billions of dollars in debt. Is this really where we need to be spending the limited resources we will be receiving from the province?

Your thoughts on this would be most appreciated.

Thank you.

[redacted]

From: Philip, Mohan <Mohan.Philip@hamilton.ca>
Sent: July-08-14 1:36 PM
To: [redacted]
david.sinke@amec.com; jim.scale@amec.com; Sonya Kapusin
Subject: RE: Hamilton Cycling Committee letter re Rousseaux /Mohawk Rd- 403 ramp EA

[redacted]

Thank you for your input into the study process. The Ancaster Transportation Master Plan Study (Phases 1 & 2) completed in 2011 supported the recommendations of the Cycling Master Plan (Shifting Gears 2009). Please refer to Section 9.4 of the Report posted on project website www.hamilton.ca/AncasterTMP. The improvements recommended for these roads include urbanizing, widening to three lanes, and providing sidewalk and cycling facility. The cross section details of the road will be developed only during the Phase 3 & 4 of Municipal Class EA study process, which has not yet been initiated or scheduled. Public consultation including PICs will be held during the Phase 3 & 4 study process.

Site Visit

The scope of work of the ongoing Mohawk Road Ramp study doesn't include the Rousseaux and Mohawk Road improvement project. However, the ramp study recommendations include promoting active transportation.

Please let me know if you have questions.

Prepared project safety plan

Thanks
Mohan Philip

From: [redacted]
To: [redacted]; Transportation Planning
Cc: [redacted]
Subject: Re: Hamilton Cycling Committee letter re Rousseaux /Mohawk Rd- 403 ramp EA

[redacted]

Mohan: I strongly support this and look forward to your response!

Thanks
[redacted]

[redacted]

From: [redacted] July 6, 2014 3:32 PM
To: tplanning@hamilton.ca
[redacted]

Subject: Hamilton Cycling Committee letter re Rousseaux /Mohawk Rd- 403 ramp EA

Mohan Philip
Project Manager, Transportation Planning and Mobility Programs
Public Works Dept. City of Hamilton

Dear Mr. Philip,

I am writing on behalf of the Hamilton Cycling Committee regarding the attached Public Information Centre sessions held in February and more recently on June 8 for the 403 Westbound Access Ramp at Mohawk Road. We have reviewed the information at **www.hamilton.ca/Mohawkroadramp**.

The Hamilton Cycling committee would like to stress how important it is that cycling infrastructure be incorporated into the proposed project design.

I have attached photos of Rousseaux/Mohawk between McNiven Rd and the merge onto the Linc. As you can see in the photos, the paved shoulder is not adequate to accommodate cyclists as the width throughout is very narrow and in some places non existent.

The Hamilton Cycling Masterplan *Shifting Gears* calls for bicycle lanes on Rousseaux/ Mohawk from Wilson St to Filman Rd. (2) Bicycle lanes would connect to the existing trail network that crosses Mohawk Rd at the signalized intersection of Filman Rd/Hiawatha By/Oneida By and promote safe alternative transportation connection to Wilson St and MicNiven Rd.

Rousseaux/Mohawk is already a heavily used commuter route and we anticipate increased volume from rerouted traffic from Wlson St and the Ancaster core. All designs for this project need to include safe cycling infrastructure on Rousseaux/Mohawk. This would contribute to alternative #5 in the PIC #1presentation to enhance or improve alternative transportation modes. (1)

We look forward to your response.

Sincerely,

[redacted]

==========

(1) http://www.hamilton.ca/NR/rdonlyres/FBDDE0BE-E1DD-436F-967B-B4B2254C347C/0/B000355_PIC1_e05.pdf

(2) pg 93 http://www.hamilton.ca/NR/rdonlyres/95D5B06A-32D2-46E0-839D-E25C3D52E1DF/0/FinalShiftingGears2009May1611lrgprintChp5.pdf

Photos enclosed.

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD) NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 2)

May 20, 2014

The City of Hamilton has initiated a study in collaboration with the Ministry of Transportation to determine the feasibility of a westbound access ramp to Highway 403 in Ancaster.

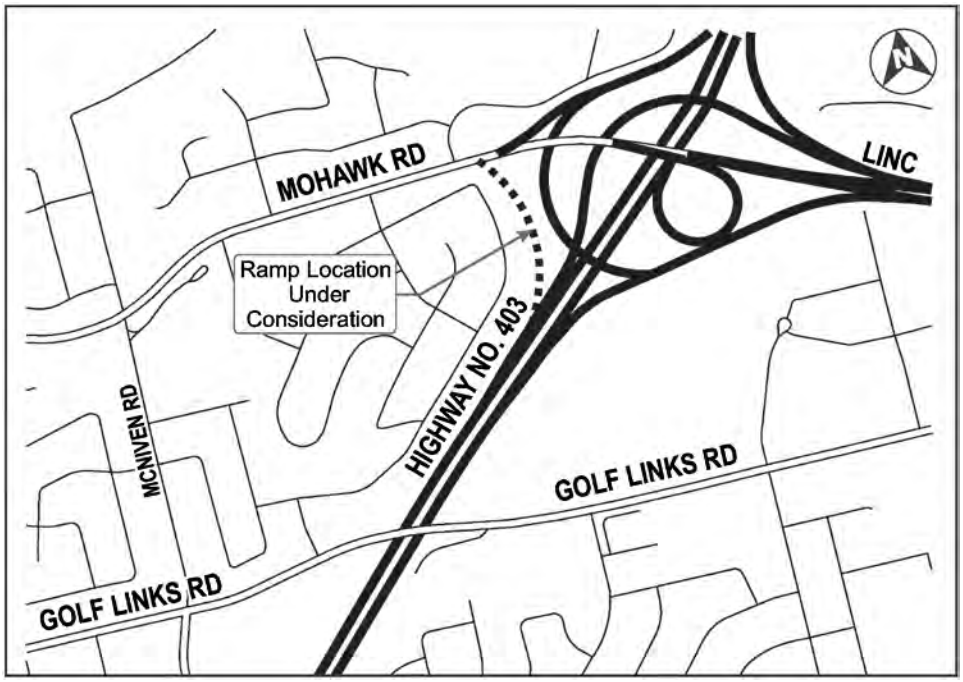
To comply with the *Environmental Assessment Act*, the study will follow the Municipal Engineers Association's Municipal Class Environmental Assessment process (October 2000, as amended in 2007 and 2011)

Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process

The second PIC for this project is scheduled, as follows, to present the study findings, alternate design solutions, preferred solution and to obtain further public and stakeholder input into the study process.

Date: Monday, June 9, 2014
Time: 6:00 – 8:00 p.m. Open house/drop-in format
A presentation will take place at 6:45 p.m.
Location: Ancaster Old Town Hall, 310 Wilson Street E.



There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers.

For more information related to the study, please refer to project website www.hamilton.ca/mohawkroadramp. If you require additional information or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2039 tplanning@hamilton.ca	*David Sinke, B. Eng. Mgt., P. Eng.* Project Manager AMEC Environment & Infrastructure 3215 North Service Road, Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

If you have any accessibility requirements in order to participate in this program or event, please contact Mohan Philip by June 2, 2014. Advance requests are highly encouraged to enable us to meet your needs adequately.

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

The City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment (Class EA)

Public Information Centre No. 2

June 9, 2014

Purpose, Goals and Objectives

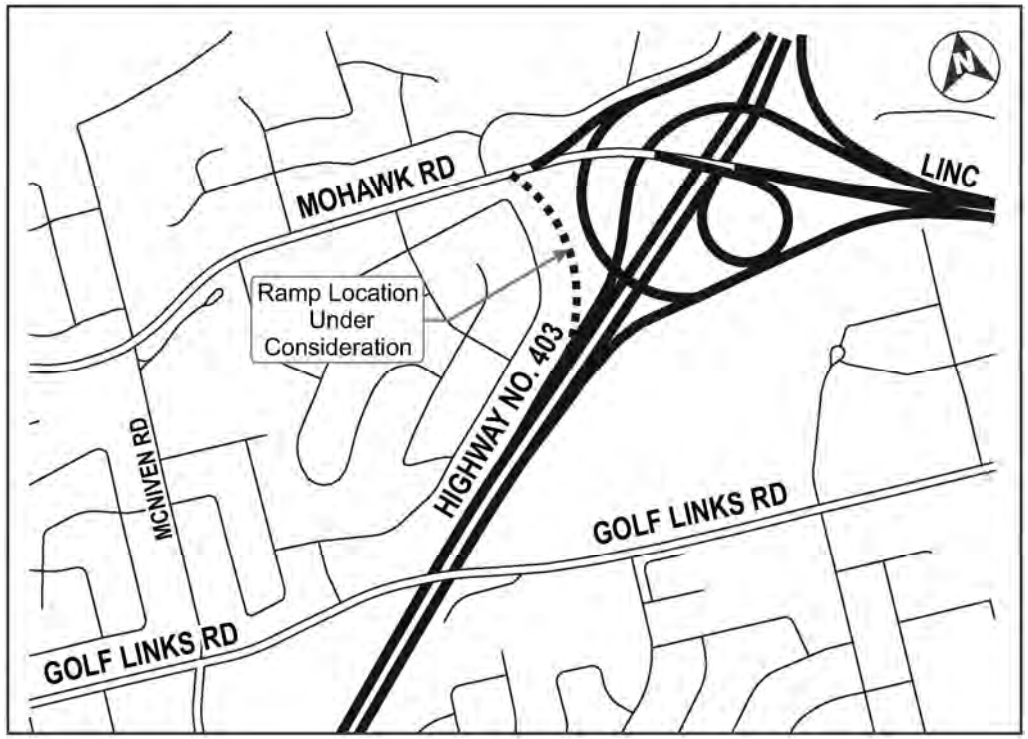
Purpose

- Complete feasibility study and Class EA process for proposed ramp

Goals and Objectives

- Confirm need and justification for improvements
- Determine operational and geometric feasibility of proposed ramp
- Assess impact of proposed ramp on Highway 403 operations
- Assess impact of proposed ramp on natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of Municipal Class EA process

Study Area

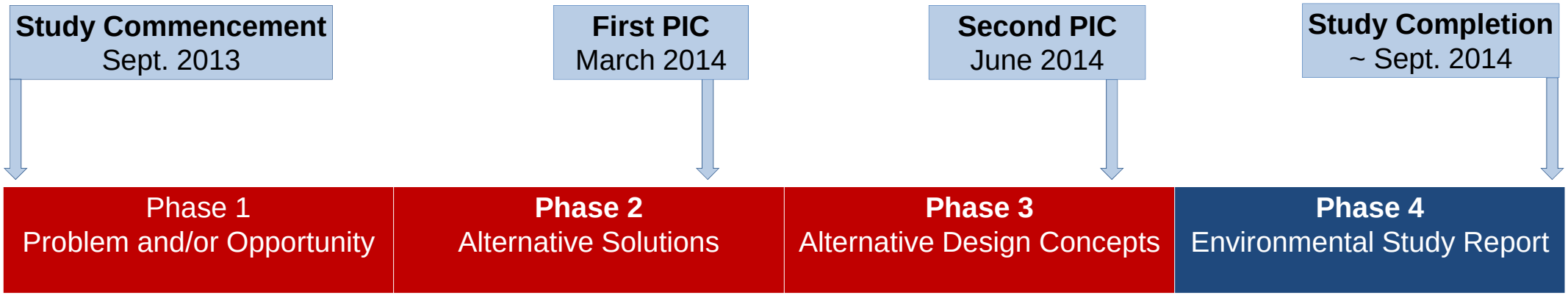


Class EA Process

Planning and Design:

The Study follows Phases 1 to 4 of the **Municipal Engineers Association Municipal Class EA** process for a **Schedule C project** (October 2000, as amended in 2007 and 2011)

- At present, the Study is in Phase 3



Public Consultation

- Notice of Study Commencement in September 2013
- Meetings with Ancaster Community Council in December 2013, in April 2014, and following PIC No. 2
- Meetings with Ministry of Transportation (MTO), Ministry of Natural Resources (MNR), and the Hamilton Conservation Authority (HCA) prior to PICs
- PICs in March and June 2014
- Updates to project website at www.hamilton.ca/Mohawkroadramp
- Report and presentation for Public Works Committee of City Council on September 15, 2014
- Environmental Study Report for public review toward the end of the Study

Summary of Public Comments to Date

Technical

- Traffic volume on Wilson Street, Mohawk Road/Rousseau Street, Local Roads, and Highway 403

Natural

- Natural Environment
- Trail Protection
- Collisions with Deer
- Mitigation for Species at Risk
- Air Quality

Cultural

- Cultural Heritage Impacts at Golf Links Road
- Need for archaeological assessment

Socio-economic

- Safety and Convenience
- Pedestrian Safety along Mohawk Road
- Mail Delivery on Mohawk Road affected by Traffic and No Sidewalks
- Noise, Property and Lighting Impacts
- Decreased Quality of Life on Rousseau Street and Mohawk Road
- Cost-Benefit Analysis
- Increase Wilson Street Traffic to Increase Merchants' Business

Summary of Public Comments to Date

Comments on Alternatives:

- Ramp to Highway 403 Westbound off Mohawk Road is needed; Should not have been removed
- Inadequate room for ramp at Mohawk Road
- Brantford-bound access at Golf Links Road should be the solution carried forward
- Garner Road needs to be widened and could be used to access Highway 403 Westbound
- North Ancaster has easy access via McNiven to Golf Links and the Linc westbound
- Southcote to Garner West would allow access to Highway 403 westbound

Problem/Opportunity and Preferred Solution

Problem and/or Opportunity

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway (Linc) interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access from Ancaster
- Residents have requested that the Brantford-bound ramp be constructed due to increasing traffic demands on Wilson Street in the Ancaster core
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

Preferred Solution:

- ***Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403***
- ***Introduce or enhance programs and facilities that promote use of other modes of transportation, such as transit and active transportation (as part of future projects)***

Evaluation Criteria

Technical:

- Improved access to Highway 403 without impacting Highway operations
- Improved traffic flow within local road network
- Opportunities for other modes of transportation (e.g., transit)
- Supports local, regional, provincial planning policies
- Meets provincial design standards and criteria
- Drainage impacts
- Utility impacts

Natural:

- Impact on watercourses
- Impact on aquatic species/habitat
- Impact on vegetation
- Impact on wildlife species/habitat
- Impact on significant natural areas
- Impact on Species at Risk
- Impact on air quality

Cultural:

- Impact on archaeological resources
- Impact on cultural heritage resources

Social:

- Impact on existing and/or future land uses
- Noise impacts
- Lighting impacts

Economic:

- Property acquisition
- Construction costs

Evaluation of Alternatives for Exit Ramp from Mohawk Road

Factors	Criteria	Alternative 1: Direct Taper (55m ramp radius)	Alternative 2: Parallel Lane (55m ramp radius)	Alternative 3a: Direct Spiral (55m ramp radius)	Alternative 3b: Direct Spiral (90m ramp radius)	Alternative 4a: Modified Spiral (55m ramp radius)	Alternative 4b: Modified Spiral (90m ramp radius)
Technical	Improved access to Highway						
	Improved traffic flow						
	Opportunities for other modes						
	Supports planning policies						
	Meets design standards/criteria						
	Drainage impacts						
	Utility impacts						
Natural	Impact on watercourses						
	Impact on aquatic species/habitat						
	Impact on vegetation						
	Impact on wildlife species/habitat						
	Impact on natural areas						
	Impact on Species at Risk						
	Impact on Air Quality						
Cultural, Social, Economic	Impact on archeological						
	Impact on cultural heritage						
	Impact on land uses						
	Noise impacts						
	Lighting impacts						
	Property acquisition						
	Construction costs						
Summary					Preferred		

Least Preferred		Neutral		Most Preferred

Evaluation of Alternatives for Mohawk Entrance Ramp to Linc-Highway 403 Brantford-bound Ramp

Factors	Criteria	Alternative 1: Direct Taper Design	Alternative 2: Parallel Lane Design
Technical	Improved access to Highway 403		
	Improved traffic flow		
	Opportunities for other modes		
	Supports planning policies		
	Meets design standards & criteria		
	Drainage impacts		
	Utility impacts		
Natural	Impact on watercourses		
	Impact on aquatic species/habitat		
	Impact on vegetation		
	Impact on wildlife species/habitat		
	Impact on significant natural areas		
	Impact on Species at Risk		
	Impact on Air Quality		
Cultural, Social, Economic	Impact on archeological		
	Impact on cultural heritage		
	Impact on land uses		
	Noise impacts		
	Lighting impacts		
	Property acquisition		
	Construction costs		
Summary			Preferred

Least Preferred		Neutral		Most Preferred

Preliminary Preferred Design Concept

Description:

- Direct spiral design for Mohawk Road deceleration lane
- 400 m realignment of existing Linc-Hwy 403 Brantford-bound ramp
- New 400 m single lane exit ramp from Mohawk Road connecting to the realigned Linc-Hwy 403 Brantford-bound ramp
- 500 m acceleration lane for the Linc-Hwy 403 Brantford-bound ramp on Hwy 403
- 150 m extension of existing Hwy 403 Brantford-bound climbing lane to accommodate realigned Linc-Hwy 403 Brantford-bound ramp and associated Hwy 403 speed change lane
- 75 m noise barrier along Mohawk Road
- New and modified illumination
- Stormwater quality treatment
- Preliminary cost estimate for construction is $3.6 Million

See drawings displayed at the PIC

Traffic Impacts and Mitigation

- **Old Dundas / Wilson / Rousseaux**
  - Little net impact on traffic demands (essentially a redistribution of existing demand)
  - Interim improvements recommended in Ancaster Transportation Master Plan (TMP) still valid (more improvement required to address long term issue)

- **Mohawk / McNiven**
  - Little net impact on traffic demand
  - As confirmed in the Ancaster TMP, no improvements required

Air Quality Impacts and Mitigation

- Most vehicles run on gasoline or diesel fuel and emit essentially the same Pollutants: Nitrogen oxides (NOx), Particles, size under 2.5 microns (PM2.5), Particles, size under 10 microns (PM10), Carbon Monoxide (CO), and Sulphur Dioxide (SO2).

- The cumulative ground level concentrations (impact created by the project plus the background air quality) of these emissions were predicted to be below the respective ambient air quality criteria under each traffic scenario: current (year 2008) and future (years 2021 and 2031)

- The predicted levels of concentration of all contaminants under consideration are decreasing from current scenario to future due to use of much cleaner engines

Air Quality Impacts	Mitigation
Air quality during construction	Apply dust control measures (e.g., water spraying, street sweeping)
Air quality following construction	The addition of the proposed Mohawk Road ramp and the future traffic volumes (scenarios 2021 and 2031) on Highway 403 in the area of the Mohawk Road/Linc interchange are not expected to create a significant negative cumulative effect on the local air quality.

Drainage Impacts and Mitigation

- Open area drains via grassed swales and Highway 403 roadside swale into tributary of Tiffany Creek, a subwatershed of Spencer Creek
- Local drainage adjacent to Mohawk Road Culvert consists of swales/culverts/ditch inlet that drains to interchange and ultimately to Tiffany Creek
- Former ramp culvert near Linc-403 on-ramp was removed, and is currently an open ditch

Drainage Impacts	Mitigation
Crossing of roadside swale at East-South ramp	New culvert at crossing (just north of former culvert location)
Impact to local swales adjacent to Mohawk Road	Minor modifications (swales and/or culvert extensions) adjacent to Mohawk Road
Additional impervious surface to watershed	New enhanced grassed swales to mitigate pollutant loading from additional impervious surface

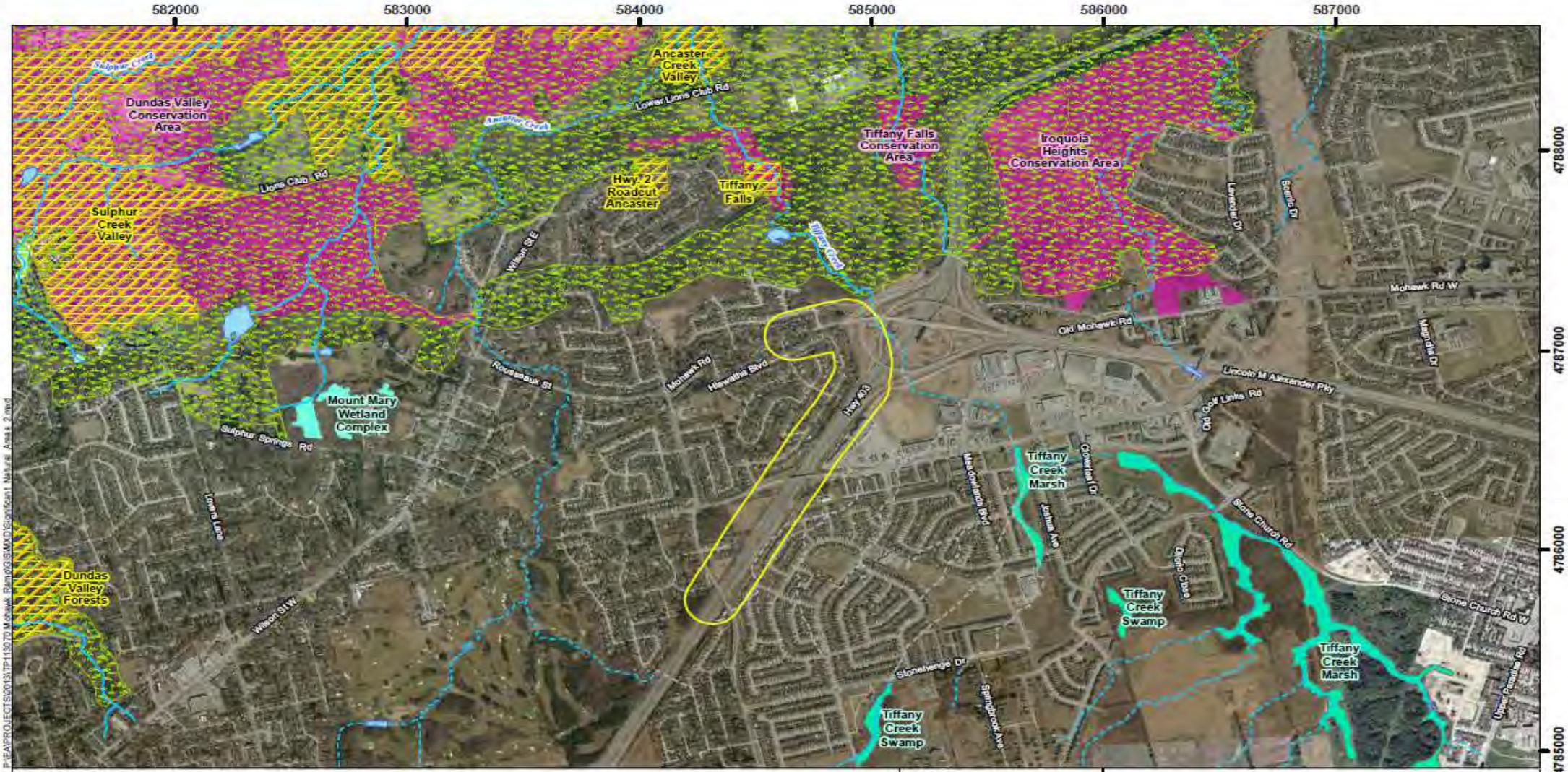
Noise Impacts and Mitigation

- Five noise receptors (NR01 through NR05) representing approximately 26 noise sensitive areas
- Noise modelling of two scenarios: (1) Sound levels without project in 2031 and (2) Sound levels with project in 2031

Noise Impacts and Mitigation

- Mitigation required if increase in sound levels is >5 dB
- Expected increase in traffic noise levels (With Project – Without Project) is 0-1 dBA, a negligible increase
- Mitigation required if absolute sound level predicted at the receptors is >65 dBA
- Traffic noise levels expected to range from 56 dBA to 67 dBA at the modelled receptors

Noise Impacts	Mitigation
Operational noise	• 3 m high noise wall for three houses with backyard facing Mohawk Road
Construction noise	• Equipment maintained and operated with effective muffling devices in good working order • Contractors to comply with applicable requirements of construction contract and local noise by-laws • Initial noise complaint will trigger verification that general noise control measures are in effect • For persistent noise complaints, equipment verified to comply with MOE NPC-115 guidelines • For persistent complaints and subject to field investigation, alternative noise control measures may be required with consideration for technical, administrative and economic feasibility



LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- ANSI (Area of Natural and Scientific Interest)
- Niagara Escarpment
- Conservation Area

Wetland
- Non-Significant
- Locally Significant
- ProvinciallySignificant

Existing Terrestrial and Fisheries Environment:

- 1 provincially rare forested community adjacent to study area:
  - Fresh-Moist Black Walnut Lowland Deciduous Forest
- 2 Species at Risk under *Endangered Species Act* were observed:
  - Butternut Tree (endangered)
  - Barn Swallow (threatened)
- No direct or indirect fish habitat within 30 m of project site

NOTES:
-Topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

0 250 500 1,000 1,500 2,000 2,500 Metres

amec

Mohawk Ramp

Significant Natural Areas

PROJECT N°: TP113070 | FIGURE: 5-1

SCALE: 1:25,000 | Date: December 2013

Terrestrial Impacts and Mitigation

Terrestrial Impacts	Mitigation
Incidental impacts to nesting migratory birds	Vegetation clearing in migratory bird habitat outside active breeding season (May 1 to August 31)
	If clearing or other work in migratory bird habitat is required during nesting season, a nest survey will be conducted by a qualified avian specialist within two days prior to commencement of works to identify and locate active nests of species covered by the *Migratory Birds Convention Act*
Encountering wildlife	Efforts made to avoid injury or harassment to wildlife within project site
Possible disturbance to Species at Risk	Appropriate Ministry of Natural Resources protocol following new MAPS self regulated process for Species at Risk (Butternut and Barn Swallow) will be followed during detailed design
	Butternut trees tagged and surveyed to confirm location relative to proposed grading

Issues and Mitigation

Factor	Interested Party	Commitment
Archaeology	Ministry of Tourism, Culture and Sport	Stage 1 Archaeological Assessment on lands identified as having archaeological potential within the project area
Drainage	Hamilton Conservation Authority	Conformance to Stormwater Management Plan
Property	Property Owners	No public property acquisition Slight impact on City property
Terrestrial	Ministry of Natural Resources	Consultation to ascertain Species at Risk permitting or authorizations in association with Barn Swallow (bird) and Butternut (tree) species and proposed works
Traffic	Road Users and Property Owners	Advanced notice of construction through signage and flyers Develop Traffic Management Plan Reduce construction time, when possible

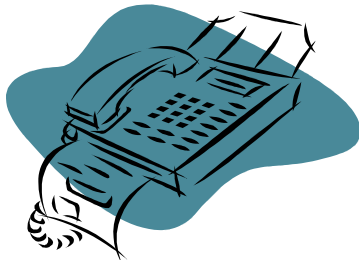
Next Steps

Following this PIC, we will:

- Review your comments
- Update Ancaster Community Council regarding PIC results
- Select preferred design concept based on evaluation of alternatives and consideration of public and agency input
- Prepare report and presentation for Public Works Committee of City Council on September 15, 2014
- Prepare Environmental Study Report for public review in Fall, 2014

Questions and Comments

Submit your comments by June 26, 2014:



Mohan Philip, M.Eng., P.Eng.

Project Manager
City of Hamilton
77 James Street North, Suite 400
Hamilton, Ontario L8R 2K3

Phone: (905) 546-2424 ext. 3438
Fax: (905) 546-2039
Email: tplanning@hamilton.ca

David Sinke, P.Eng.

Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington, Ontario L7N 3G2

Phone: (905) 335-2353
Fax: (905) 335-1414
Email: david.sinke@amec.com

Thank you!

Hamilton

amec

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Partners in excellence

COMMENT FORM
(Please print)

Public Information Centre (PIC #2) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Monday, June 9, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by June 26, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
Fax: 905-546-2039
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
david.sinke@amec.com

Name: _____

Affiliation (if applicable): _____

Address: _____

Postal Code: _____ Phone: _____

Fax: _____ Email: _____

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Sign In Sheet ***(Please print)***
Public Information Centre No. 2 – June 9, 2014
Additional Access to Brantford-bound Highway 403 Class Environmental Assessment

Hamilton amec CIMA Partners in excellence

Name	Affiliation (if applicable)	Address	Phone	Email

Environment and Infrastructure
3215 North Service Road
Burlington, ON L7N 3G2
T. 905.335.2353
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amec.com

3027 Harvester Road, Suite 400
Burlington, ON L7N 3G7
CANADA
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F. 289.288.0285

www.cima.ca

Partners in excellence

August 7, 2014

Mr. Darren Kenny
Watershed Officer
Hamilton Conservation Authority
PO Box 81067
838 Mineral Springs Road
Ancaster, Ontario L9G 4X1

Dear Mr. Kenny,

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated January 23, 2014.

The breeding bird survey was conducted as soon as it was reasonably possible following project start-up in July, 2013. Field investigations were advanced to address seasonal constraints within the project schedule, which required field input to the assessment of alternatives in the off-season and completion of the Class EA in September, 2014. The survey focused on the potential area that would likely be impacted by a proposed ramp access at Mohawk Road. Due to the low quality of the habitat within the study zone, the potential for avian species at risk is very limited.

We understand the Hamilton Conservation Authority is satisfied with the proposal to address stormwater management through enhanced swales. Opportunities to preserve the existing drainage pattern along the west side of Highway 403 will be reviewed during detailed design.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

August 7, 2014

Ms. Heather Levecque
Manager, Consultation Unit
Aboriginal Relations and Ministry Partnerships Division
Ministry of Aboriginal Affairs
160 Bloor Street, 9th Floor
Toronto, Ontario M7A 2E6

Dear Ms. Levecque,

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your letter dated February 7, 2014, regarding the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. In response to your comments, the following First Nations have been notified of this study and invited to participate at public meetings:

- Six Nations of the Grand River
- Haudenosaunee Confederacy
- Mississaugas of New Credit First Nation

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

August 7, 2014

Anjala Puvananathan
Director, Ontario Region
Canadian Environmental Assessment Agency
55 St. Clair Avenue East, Room 907
Toronto, Ontario M4T 1M2

Dear Anjala Puvananathan,

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments dated April 25, 2014.

We understand that the *Canadian Environmental Assessment Act, 2012* applies to projects described in the *Regulations Designating Physical Activities* (the Regulations). Based on our review of the Regulations, we concur that this project does not appear to be described in the Regulations and therefore is not subject to a federal environmental assessment.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

August 7, 2014

[redacted]

Dear [redacted]

Re: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments, dated June 9, 2014.

In summary, your comments request traffic calming at Oneida Boulevard and Seneca Drive. The modelling and assessment completed as part of this project has not identified a change in the neighbourhood that would support the need for traffic calming. However, the City of Hamilton has a program in place for traffic calming. City staff will be advised to consider possible traffic calming for your neighbourhood. Traffic calming can have unintended consequences to accessibility and convenience of local access, therefore, careful consideration is given to the potential negative consequences as well as potential benefits to the neighbourhood when determining the need for traffic calming.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

From: Sonya Kapusin
Sent: August-07-14 3:48 PM
To: [redacted]
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: Additional Access to Brantford-bound Highway 403, Ancaster
Attachments: B000355_PIC2_Response_2_JL_e03.pdf

Dear Ms. Lukas,

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy will be mailed to you.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Tel. : 289 288-0287 # 6812
Fax : 289 288-0285

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August 7, 2014

[redacted]

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. Your comments, dated June 9, 2014 are helpful, and have been noted by our project team.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

Original Signed

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

Original Signed

Sonya Kapusin, MCIP, RPP
Environmental Planner

August 7, 2014

[redacted]

Re: Additional Access to Brantford-bound Highway 403, Class Environmental Assessment

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. Your comments, dated June 9, 2014 are helpful, and have been noted by our project team.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

From: Sonya Kapusin
Sent: August-07-14 4:26 PM
To: [redacted]
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: Additional Access to Brantford-bound Highway 403, Ancaster
Attachments: B000355_PIC2_Response_4_BG_e03.pdf

[redacted]

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy will be mailed to you.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

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Burlington Ontario L7N 3G7
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Tel. : 289 288-0287 # 6812
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August 7, 2014

[redacted]

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments, dated June 17 and June 26, 2014.

In response to your request for information, the Ancaster Transportation Master Plan is available on the City of Hamilton website at www.hamilton.ca/AncasterTMP. Information on this project can be found at www.hamilton.ca/Mohawkroadramp. At the conclusion of this study, an Environmental Study Report (ESR) will be prepared for public review and will be made available at the Ancaster library.

We note that the proposed ramp at Mohawk Road is not intended as a solution to the Wilson Street traffic issues, however it will provide some relief to the downtown core and not impact the Wilson/Rousseau operation (i.e. redirection of intersection traffic as opposed to increase in intersection traffic).

In response to your comments, we note the following:

- Existing conditions for the three subject sites were reviewed and considered in the evaluation of alternatives. A summary of existing conditions will be documented in the ESR.

- There is a slight mislabelling on Slide 10 of the Public Information Centre (PIC) 1 presentation. The diagram should have explained that all the traffic volumes in colour are either highway volumes or ramps to/from the highway. The volumes in black/grey are purely there for context.

- Our detailed analysis shows that there will be little change in congestion for Ancaster residents as a result of the proposed ramp.

- The Ancaster Transportation Master Plan recommended a new westbound connection to Highway 403, in 2011.

- We concur that there is little evidence of growing through traffic. The new ramp is intended to provide more convenient access to Highway 403 without having to travel

along Wilson Street through the village area. Given other ramp choices for non-Ancaster residents, we do not see the ramp attracting through traffic in the future.

- The evaluation of alternatives was simplified for presentation at the PIC. The alternatives were rated as very poor, poor, neutral, good, or very good based on an assessment of their positive and negative impacts against corresponding criteria. Impacts were assessed after considering measures to mitigate negative effects. A more detailed evaluation was completed and will be included in the ESR.

- The MTO has been and will continue to be consulted with respect to impacts on highway operations.

- Opportunities for other modes of transportation are considered to supplement and not replace the subject ramps.

- The proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Hwy 403 and Linc interchange. The increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already traveling in the Ancaster area, but will have a shorter trip to get to the highway and therefore spend less time on municipal roads. Consequently, no appreciable impacts are expected to transit operations.

- The evaluation table on Slide 15 of the PIC 1 presentation is not intended to be formulaic. However, if numerical values are assigned to the pie shaped icons, (i.e. 1 for whole pie, 0.25 for ¼ pie), and equal weighting assumed, Alternative 2 is preferred as noted.

- It is agreed, and reflected in the evaluation table that Alternative 1, do nothing, is preferred (and equivalent to Alternative 5, Alternative modes of transportation) in the economic criteria.

- Weighting of each factor was not explicitly considered. The evaluation summary table was intended to graphically illustrate the evaluation process, and was not intended to be formulaic. The Golf Links alternative had potential significant impacts to a stone farmhouse on the east side of Highway 403.

- Of the three basic exit ramp designs considered (Direct Taper, Parallel Lane and Direct Spiral), the design least disruptive to Mohawk Road was selected. The preferred design involves no modifications of Mohawk Road through the Filman Road intersection. Although the larger radius on the ramp is conducive to higher speeds on the ramp, the Direct Spiral design is generally conducive to lower speeds on Mohawk Road (for a given ramp radius).

- Meetings have been held with the Ancaster Community Council (ACC) to review this project, and a summary of the public comments received in response to the PIC will be forwarded to ACC for their review.

- As noted above, of the three basic exit ramp designs considered (Direct Taper, Parallel Lane and Direct Spiral), the design least disruptive to Mohawk Road was selected. This design is not significantly more space consumptive than an "urban intersection" with a standard taper or short right turn lane as suggested, while allowing through traffic speeds on Mohawk Road to be maintained through the intersection.

The following comments have been noted for consideration:

- *"If there is any doubt about the operational impacts of the traffic diversion from Wilson Street to Mohawk Road, the City may examine (and present) the results of a Synchro type analyses to identify the capacity utilization, queuing and phasing timing for each of the traffic signals at the 5 key intersections in Ancaster."*

- *"Based on the absence of meaningful results forecast for the subject ramp, the City may consider the benefits of assigning the required expenditure to infrastructure improvement somewhere else where there can be a meaningful return on investment."*

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in the ESR for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC	**CIMA**
Original Signed	**Original Signed**
David Sinke, B. Eng. Mgt., P. Eng. Project Manager	Sonya Kapusin, MCIP, RPP Environmental Planner

amec

CIMA
Partners in excellence

August 7, 2014

[redacted]

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments, dated June 17 and June 26, 2014.

In response to your request for information, the Ancaster Transportation Master Plan is available on the City of Hamilton website at www.hamilton.ca/AncasterTMP. Information on this project can be found at www.hamilton.ca/Mohawkroadramp. At the conclusion of this study, an Environmental Study Report (ESR) will be prepared for public review and will be made available at the Ancaster library.

We note that the proposed ramp at Mohawk Road is not intended as a solution to the Wilson Street traffic issues, however it will provide some relief to the downtown core and not impact the Wilson/Rousseau operation (i.e. redirection of intersection traffic as opposed to increase in intersection traffic).

In response to your comments, we note the following:

- Existing conditions for the three subject sites were reviewed and considered in the evaluation of alternatives. A summary of existing conditions will be documented in the ESR.

- There is a slight mislabelling on Slide 10 of the Public Information Centre (PIC) 1 presentation. The diagram should have explained that all the traffic volumes in colour are either highway volumes or ramps to/from the highway. The volumes in black/grey are purely there for context.

- Our detailed analysis shows that there will be little change in congestion for Ancaster residents as a result of the proposed ramp.

- The Ancaster Transportation Master Plan recommended a new westbound connection to Highway 403, in 2011.

- We concur that there is little evidence of growing through traffic. The new ramp is intended to provide more convenient access to Highway 403 without having to travel

along Wilson Street through the village area. Given other ramp choices for non-Ancaster residents, we do not see the ramp attracting through traffic in the future.

- The evaluation of alternatives was simplified for presentation at the PIC. The alternatives were rated as very poor, poor, neutral, good, or very good based on an assessment of their positive and negative impacts against corresponding criteria. Impacts were assessed after considering measures to mitigate negative effects. A more detailed evaluation was completed and will be included in the ESR.

- The MTO has been and will continue to be consulted with respect to impacts on highway operations.

- Opportunities for other modes of transportation are considered to supplement and not replace the subject ramps.

- The proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Hwy 403 and Linc interchange. The increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already traveling in the Ancaster area, but will have a shorter trip to get to the highway and therefore spend less time on municipal roads. Consequently, no appreciable impacts are expected to transit operations.

- The evaluation table on Slide 15 of the PIC 1 presentation is not intended to be formulaic. However, if numerical values are assigned to the pie shaped icons, (i.e. 1 for whole pie, 0.25 for ¼ pie), and equal weighting assumed, Alternative 2 is preferred as noted.

- It is agreed, and reflected in the evaluation table that Alternative 1, do nothing, is preferred (and equivalent to Alternative 5, Alternative modes of transportation) in the economic criteria.

- Weighting of each factor was not explicitly considered. The evaluation summary table was intended to graphically illustrate the evaluation process, and was not intended to be formulaic. The Golf Links alternative had potential significant impacts to a stone farmhouse on the east side of Highway 403.

- Of the three basic exit ramp designs considered (Direct Taper, Parallel Lane and Direct Spiral), the design least disruptive to Mohawk Road was selected. The preferred design involves no modifications of Mohawk Road through the Filman Road intersection. Although the larger radius on the ramp is conducive to higher speeds on the ramp, the Direct Spiral design is generally conducive to lower speeds on Mohawk Road (for a given ramp radius).

- Meetings have been held with the Ancaster Community Council (ACC) to review this project, and a summary of the public comments received in response to the PIC will be forwarded to ACC for their review.

- As noted above, of the three basic exit ramp designs considered (Direct Taper, Parallel Lane and Direct Spiral), the design least disruptive to Mohawk Road was selected. This design is not significantly more space consumptive than an "urban intersection" with a standard taper or short right turn lane as suggested, while allowing through traffic speeds on Mohawk Road to be maintained through the intersection.

The following comments have been noted for consideration:

- *"If there is any doubt about the operational impacts of the traffic diversion from Wilson Street to Mohawk Road, the City may examine (and present) the results of a Synchro type analyses to identify the capacity utilization, queuing and phasing timing for each of the traffic signals at the 5 key intersections in Ancaster."*

- *"Based on the absence of meaningful results forecast for the subject ramp, the City may consider the benefits of assigning the required expenditure to infrastructure improvement somewhere else where there can be a meaningful return on investment."*

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in the ESR for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

From: Sonya Kapusin
Sent: August-07-14 3:50 PM
To: [redacted]
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: Additional Access to Brantford-bound Highway 403, Ancaster
Attachments: B000355_PIC2_Response_5_RW_e03.pdf

[redacted]

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy will be mailed to you.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Tel. : 289 288-0287 # 6812
Fax : 289 288-0285

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August 7, 2014

[redacted]

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. Your comments, dated June 17, 2014 are helpful, and have been noted by our project team.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

Original Signed

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

Original Signed

Sonya Kapusin, MCIP, RPP
Environmental Planner

August 7, 2014

[redacted]

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Yours sincerely,

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David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

From: Sonya Kapusin
Sent: August-07-14 3:52 PM
To: [redacted]
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: Additional Access to Brantford-bound Highway 403, Ancaster
Attachments: B000355_PIC2_Response_6_RG_e03.pdf

[redacted]

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy will be mailed to you.

Regards,

Sonya Kapusin, MCIP, RPP
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Environmental Planning

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August 7, 2014

[redacted]

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your comments, dated June 22, 2014.

Your comments raise concerns regarding noise in excess of 65dBA during peak times and dealing with traffic noise on a daily basis. Your comments note that the only time to address this problem is to have it planned from the start, and that careful consideration should be given to the people who live in the area.

The project team has further reviewed the noise assessment completed for this study for homes on Oneida Boulevard backing onto the new ramp. Normally a change in sound level of less than 3 dB is not perceptible to the human ear. The project noise assessment report notes an increase of 1 dB at the outdoor living area of your property (i.e., backyard), and increase in sound level ranges 0-1 dB at the backyard of the houses along Oneida Boulevard. As a result, no areas require noise mitigation and the berm along Oneida Boulevard will act primarily as a landscaping feature.

The study team is investigating several options for vegetative screening and/or reconstruction of a berm or wall. The preferred approach will be confirmed through further consultation with the Ministry of Transportation and will be detailed in the Environmental Study Report.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC	**CIMA**
Original Signed	**Original Signed**
David Sinke, B. Eng. Mgt., P. Eng. Project Manager	Sonya Kapusin, MCIP, RPP Environmental Planner

amec

CIMA+
Partners in excellence

August 7, 2014

[redacted]

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Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

From: Sonya Kapusin
Sent: August-07-14 3:54 PM
To: [redacted]
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: Additional Access to Brantford-bound Highway 403, Ancaster
Attachments: B000355_PIC2_Response_7_ML_e03.pdf

[redacted]

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy will be mailed to you.

Regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
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3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
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amec

CIMA
Partners in excellence

August 7, 2014

[redacted]

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your letter dated June 26, 2014.

Your comments raise concern for speed, noise, privacy and litter, based on your experience as an area resident since the Linc opened in 1995. Your comments indicate that the removal of the ramp and placement of a tall berm has improved privacy and eliminated nuisances brought on by the old Highway 403 ramp to Brantford.

Your comments also raise concern regarding the amount of traffic currently travelling east on Mohawk Road approaching the Linc. The amount of cars makes it impossible to leave the residential survey, and your comments suggest that putting back the ramp will make all the simple daily needs for families in Mohawk Meadows impossible.

In response to your comments, the proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Highway 403 and Linc interchange. The increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already traveling in the Ancaster area, but will have a shorter trip to get to the highway and therefore spend less time on municipal roads.

Further, your comments refer to the ramp for the #6 bypass onto the 403, which has a tall sound barrier over 50 yards from the ramp, suggesting a sound barrier should be considered at the proposed Mohawk Road ramp. The project team has further reviewed the noise assessment completed for this study. The noise assessment report outlines that a minimum 3 dBA change in sound level is required for it to be perceptible. The modelling indicated no change at the Mohawk Road ramp location. As a result, no areas require noise mitigation and the berm along Oneida Boulevard will act primarily as a landscaping feature.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

Original Signed

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

Original Signed

Sonya Kapusin, MCIP, RPP
Environmental Planner

August 7, 2014

[redacted]

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We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

Sonya Kapusin

From: Sinke, David <David.Sinke@amec.com>
Sent: September-10-14 1:21 PM
To: tplanning@hamilton.ca
Cc: Scale, Jim; Sonya Kapusin; Philip, Mohan
Subject: RE: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Hello

I have forwarded your question to the individual who completed the traffic study. We will respond to your shortly.

Regards,

David Sinke, B. Eng. Mgt., P. Eng.
Principal, Transportation Engineering
AMEC
Environment & Infrastructure
Infrastructure Engineering
3215 North Service Road, Burlington, ON L7N 3G2, Canada
Tel 905-335-2353 Fax 905-335-1414

david.sinke@amec.com
amec.com

Be more sustainable - think before you print.

From:
Sent: September-10-14 12:49 PM
To: tplanning@hamilton.ca; Sinke, David
Subject: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Good afternoon:

Report: http://www.hamilton.ca/NR/rdonlyres/2E12CEEC-558B-4D5E-8A9B-9EF05218CDFB/0/B000355_PIC2_e12.pdf

My questions are in regards to page 12 section titled - Mohawk/McNiven, and the statement "little net impact on traffic demand".

1. What is the definition of little net impact?

2. What modelling was used to project the net impact on traffic on Mohawk road if the westbound ramp is built?

3. Was the previous change in traffic patterns/volumes considered when the ramp was originally closed? To clarify; there was a change in traffic patterns when the ramp was originally closed, was that data used to model what the reversal of that decision will have should the ramp be reopened?

I would like to know answers to these questions this week to allow time to review prior to the presentation to council on September 15, 2014. Thank you.

Regards,

Sonya Kapusin

From: Sonya Kapusin
Sent: September-12-14 3:02 PM
To:
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: RE: Additional Access to Brantford-bound Hwy 403, Ancaster
Attachments: MTO ESR Addendum Feb2000.pdf; MTO Preli Design Report Nov1997.pdf

Please find attached relevant sections of the ESR Addendum and Preliminary Design Report as referenced in our response letter.

Regards,

Sonya Kapusin
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From: Sonya Kapusin
Sent: September-12-14 3:00 PM
To:
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: RE: Additional Access to Brantford-bound Hwy 403, Ancaster

Due to the size of files, I am forwarding the attachments to you in separate emails.

Regards,

Sonya Kapusin
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From: Sonya Kapusin
Sent: September-12-14 2:44 PM
To:
Cc: David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: Additional Access to Brantford-bound Hwy 403, Ancaster

Dear

Please find attached letter in response to your comments regarding the Class Environmental Assessment for additional access to Brantford-bound Highway 403. An original copy with attachments will be mailed to you.

Regards,

---

amec

CIMA
Partners in excellence

September 12, 2014

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your correspondence dated June 11, 2014 and June 16, 2014.

Your comments raised concern regarding the removal of a 25 foot berm that provides physical, esthetic and sound protection for the homes on Oneida Boulevard, backing onto Highway 403. Your comments also suggest the berm was used to satisfy Ministry of Transportation (MTO) noise requirements, and that appropriate noise pollution and esthetic mitigation need to be in place.

The project team has further reviewed the noise study undertaken for the ramp project in light of the comments heard at the Public Information Centre (PIC) held on June 9, 2014. The study report is attached and key findings are summarized below, in response to your comments.

Comments:

- Traffic noise from a highway averages 85 db, and is higher in areas of acceleration, such as highway access ramps. The current Ministry of Environment (MOE) and MTO standard is 65 db at most with no increase of more than 5 db. An algorithm alone is being used to determine these levels, but if variables are missed and the numbers are off, adding a sound barrier post construction will be more expensive than protecting the homes at the time of construction.

Response:

- A road noise prediction model is used instead of measured noise levels given instantaneous or short duration sound levels are inconsistent and only provide a 'snapshot' in time as opposed to an average noise level established over a period of time which is the industry norm. The model has been extensively field tested to verify the validity of the noise prediction model and is an approved model by the MTO. These were all discussed at the PIC.
- Section 2.5 of the report details the results of the analysis and a 0 dB to 1 dB increase in sound levels associated with the future "build" compared to the future "no-build" scenarios for properties on Oneida Boulevard outside the limits of the existing noise barrier.

- A change in sound level less than 3 dB is not perceptible by humans (modelling indicated no change in sound levels is expected at this location).
- Section 2.5 indicates that no properties on Oneida Boulevard require additional noise mitigation as the future "build" sound levels are expected to be less than 65 dBA and the increase in sound levels is less than 5 dB from the future "no build" sound levels. The analysis confirms that your house is not benefiting from any noise reduction associated with the berm adjacent to the Highway 403 Brantford-bound to Lincoln Alexander Parkway ramp that parallels Oneida Boulevard as it is far from the receptor location. This is consistent with the intention of the initial construction of the berm which was to function as an aesthetic enhancement and not noise mitigation, subject to availability of material and no impacts to access and utilities at the time of original construction. As per the attached excerpts from the Preliminary Design Report and Environmental Study Report Addendum for the existing Highway 403 and Lincoln Alexander Parkway Interchange, noise attenuation was not required adjacent to the Highway 403 Brantford-bound to Lincoln Alexander Parkway ramp.

Comments:

- Constructing a highway ramp in such close proximity to backyards where children play, is in my opinion, not well thought out. Providing no physical barrier between homes and the highway is negligence. Should a child go after a ball, and onto the highway, the City of Hamilton would be liable, as no attempt was made to provide a physical barrier between the highway and the children. Plexiglas barriers are erected on bridge overpasses to prevent the mentally ill from jumping to their death. Why is the City of Hamilton so loath to protect its children?

Response:

- The existing right-of-way is fenced off along the back of the properties along Oneida Boulevard and fencing extends along Mohawk Road to the trail. Access to the interchange is limited to the extent feasible without impacting traffic movement and is typical of any interchange within an urban environment.
- The hazard clear zone offset for the ramp is 3m and 4.5m for a linear and curvilinear alignment, respectively, based on the ramp design speed and anticipated traffic volumes. The clear zone is an unobstructed, traversable roadside area designed to enable a driver to stop safely or regain control of a vehicle that has accidentally left the roadway. The proposed offset from the edge of the new ramp lane to any adjacent residential lot (proposed offset is 45.5m to 167 Oneida with a minimum of 13.2m adjacent to 179 Oneida) are well in excess of the minimum requirements. As noted, the proposed ramp will replace the previous ramp that was removed as part of the construction of the Highway 403 and Linc interchange, however the ramp as currently proposed is located *further* from the adjacent residential properties (45.5m vs 30.0m at 167 Oneida).
- The study team has investigated several options to provide screening of the proposed ramp. The preferred approach will be detailed in the Environmental Study Report and includes the following:

- Reconstruction of an earth berm; the height of which will be maximized to the extent feasible without impacting existing mature vegetation within the highway right-of-way; and,
- Additional landscaping will be provided to enhance the visual screening provided by the existing mature vegetation within the highway right-of-way and the proposed earth berm.

- The recommended plan retains the existing mature vegetative cover between the edge of the Highway 403 right-of-way along Oneida Boulevard and the existing/proposed interchange ramps. The existing mature vegetation in combination with the earth berm and landscaping will provide additional buffer between the ramp and the adjacent properties, over and above the existing fencing.

Comments:

- In addition, more traffic will cut through the neighbourhood to access the 403. Traffic lights, with cameras, will be necessary to slow traffic and encourage the use of the main thoroughfares.

Response:

- The proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Highway 403 and Linc interchange. No additional neighbourhood cut-through traffic is anticipated as the ramp is connected with Mohawk Road directly, thereby allowing traffic to access the ramp from the main road system.

Comments:

- If a ramp to the 403E is necessary, efforts should be made to minimize the impact on the residential neighbourhood. Moving the berm back, accomplishes both. Failing to protect the neighbourhood from cars, dirt, noise, headlights and exhaust so some people don't have to drive a few extra blocks, is an extremely expensive proposition, particularly when it will benefit a handful of well-heeled people in Ancaster, and all Hamiltonians have to pay for it. The province is already billions of dollars in debt. Is this really where we need to be spending the limited resources we will be receiving from the province?

Response:

- The study team has investigated several options to provide visual screening of the proposed ramp and the preferred approach consisting of an earth berm and landscaping, as discussed above, will be detailed in the Environmental Study Report.
- The recommended plan retains the existing mature vegetative cover between the edge of the Highway 403 right-of-way along Oneida Boulevard and the existing/proposed interchange ramps to provide visual screening of the proposed ramp and minimize the environmental concerns identified above. This will be further complemented and enhanced by reconstruction of an earth berm and placement of additional landscaping.

- The proximity and orientation of the vehicles travelling along the ramp relative to the properties along Oneida Boulevard will result in minimal light spillage onto adjacent properties, to which the existing mature vegetation and proposed earth berm and additional landscaping will provide sufficient screening. New roadway illumination will be designed to minimize light spillage onto adjacent properties.

Comments:

- At the meeting, the berm in question was said to be for no other purpose but to save the cost of taking the dirt away. However, it is clear from the noise assessment done for the LINC that noise mitigation for the area was required and the berm was used in place of a sound barrier. The study group will need to revise their algorithm to ensure that mitigation for both the LINC and the new ramp are covered, before the ramp can be put in. Also, I would appreciate if sound contours be provided as per MTO/MOE regulation.
- As per section 4ii of the MTO Environmental Guide for noise, please send the noise contour plots for my area with respect to the effects of the berm that was put in place to mitigate noise from the LINC and the removal with the proposed new 403 Brantford ramp.

Response:

- As agreed, the project team has further reviewed the noise study undertaken for the ramp project in light of the comments heard at the PIC. The current noise study (attached) follows and meets current MTO/MOE guidelines. As per the attached excerpts from the Preliminary Design Report and Environmental Study Report Addendum for the existing Highway 403 and Lincoln Alexander Parkway Interchange, noise attenuation was not required adjacent to the Highway 403 Brantford-bound to Lincoln Alexander Parkway ramp and the earth berm was constructed as an aesthetic enhancement and not to provide noise mitigation, subject to availability of material and no impacts to access and utilities at the time of construction.
- Noise contours are included in the updated report.
- The study team has investigated several options to provide visual screening of the proposed ramp and the preferred approach consisting of an earth berm and landscaping, as discussed above, will be detailed in the Environmental Study Report.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner

TRAFFIC NOISE IMPACT ASSESSMENT FOR MOHAWK ROAD RAMP FEASIBILITY AND ENVIRONMENTAL ASSESSMENT STUDY

(Highway 403 Brantford-bound Access Ramp)
Ancaster, Ontario

Submitted to:

The City of Hamilton
71 Main Street West
Hamilton, Ontario
L8P 4Y5

Submitted by:

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited
160 Traders Blvd., Suite 110
Mississauga, Ontario
L4Z 3K7

September 2014

TP113070

amec

CIMA
Partners in excellence

October 24, 2014

Dear

Re: **Additional Access to Brantford-bound Highway 403, Class Environmental Assessment**

Thank you for your comments in response to the Class Environmental Assessment (Class EA) for additional access to Brantford-bound Highway 403 in Ancaster. This letter is in response to your correspondence dated September 22, 2014. Your comments raised questions regarding the proposed replacement berm that is intended to provide physical, esthetic and sound protection for the homes on Oneida Boulevard, backing onto Highway 403.

Comment:

- How high will the replacement berm be?

Response:

- The replacement berm will be approximately 0 - 1.5 metres in height, measured from the closest edge of the travelled way to the top of berm; and 1.0 - 5.0 metres, measured from the low ditch closest to the backyards to the top of berm. The proposed berm limit is currently at the existing trees drip line. Increasing the berm height would impact vegetation.

Comment:

- Will it extend from the current sound barrier to the last house on Oneida?

Response:

- The berm will start where the current sound barrier ends and will continue to the northeast corner of the property at 179 Oneida Boulevard. There will be a small section where there is no berm (see attachment), because there is no room to build the berm between the new entrance ramp and the property at 179 Oneida Boulevard.

Comment:

- If the berm is not as high as the current sound barrier, could we have a chainlink fence on top of it with the "acoustifence" attached to it? (It is very low cost and would be within the stated budget)

Response:

- The exact height of the berm, and any possible need for additional fencing, will be confirmed at the detailed design stage. There will be opportunity for further consultation at that time.

Comment:

- With reference to the sound barrier being constructed for R1, along Mohawk Rd, will it cover the pathway entrance which is currently acting as a sound tunnel?

Response:

- As shown in the noise assessment report, the proposed noise wall on Mohawk Road will not cover the pathway entrance.

Once the project team has reviewed all public comments, a preferred design concept for the proposed ramp will be selected and the project team will document the study process in an Environmental Study Report for public review. Your contact information will remain on the mailing list to receive future notice on the availability of this report.

We trust this letter has addressed your comments. If you have any questions or additional comments, please do not hesitate to contact the undersigned at 905-335-2353 or David.Sinke@amec.com.

Yours sincerely,

AMEC

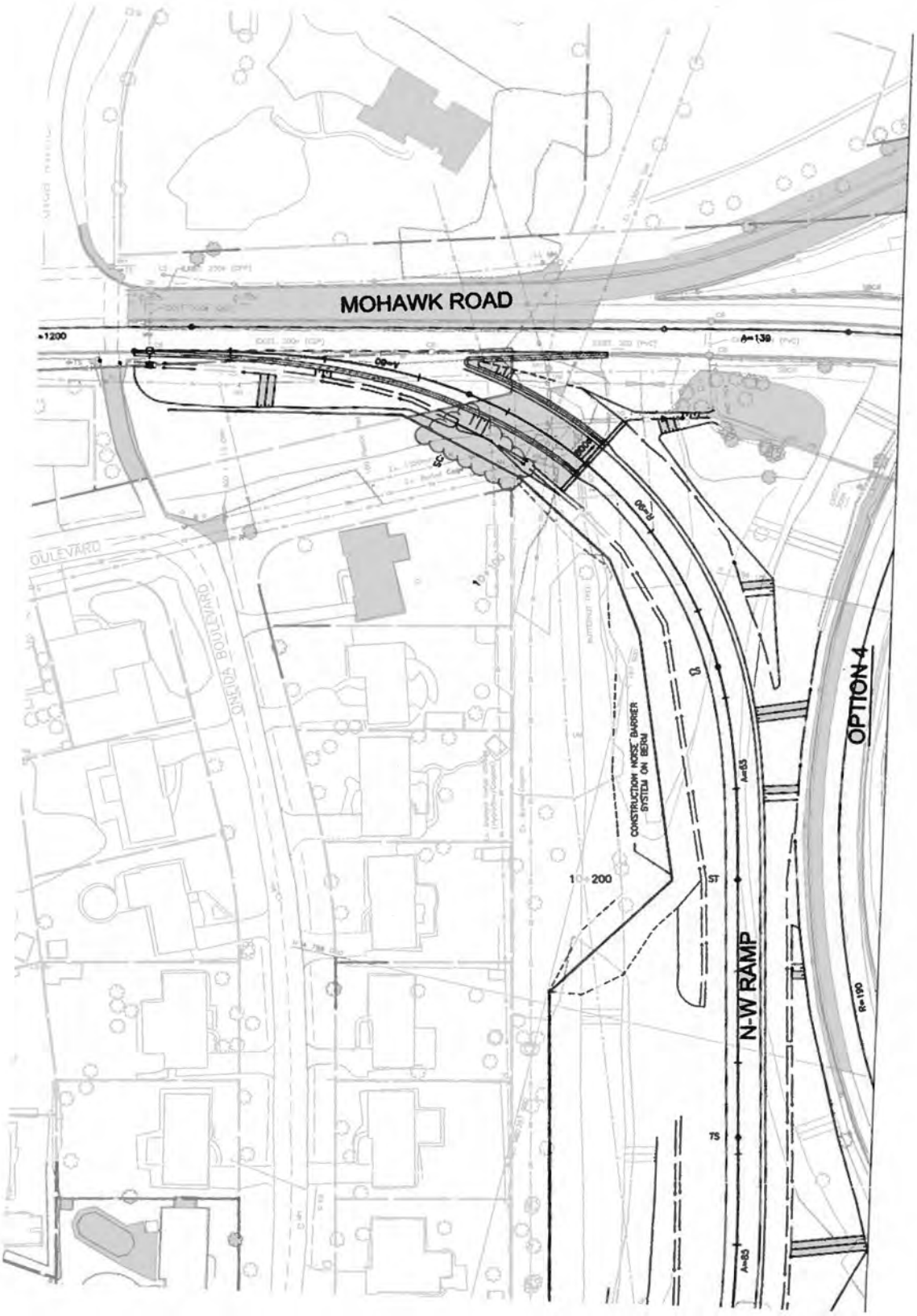
David Sinke

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager

CIMA

S Kapusin

Sonya Kapusin, MCIP, RPP
Environmental Planner


MOHAWK ROAD
CONDA BOULEVARD
CONSTRUCTION NOISE BARRIER SYSTEM ON BERM
N-W RAMP
OPTION 4
SC
ST
TS
A=63
R=100

Sonya Kapusin

From:
Sent: October-24-14 3:06 PM
To: Sonya Kapusin
Cc: Philip, Mohan; Skrypniak, Lorissa; David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: RE: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Hi Sonya:

Thank you for your response. My second question asked about the term "little net impact on traffic demand" for the Mohawk/McNiven section and the reply refers to the Old Dundas / Wilson / Rousseaux section. Is there any additional information specific to the Mohawk/McNiven section? Does the term "little net impact on traffic demand" mean that given the forecasted traffic pattern there is no need to upgrade the intersection? My concern is not that of traffic demand but of the expected change to traffic volumes.

Please kindly provide expected traffic volume changes for Mohawk road between McNiven and the proposed ramp for various day parts.

Kind regards,

From: Sonya Kapusin [mailto:Sonya.Kapusin@cima.ca]
Sent: October-24-14 2:02 PM
To:
Cc: Philip, Mohan; Skrypniak, Lorissa; David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: FW: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Dear

Please find attached letter in response to your comments below.

Best regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Tel. : 289 288-0287 # 6812
Fax : 289 288-0285

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From:
Sent: September-10-14 12:49 PM
To: tplanning@hamilton.ca; Sinke, David
Subject: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Good afternoon:

Report: http://www.hamilton.ca/NR/rdonlyres/2E12CEEC-558B-4D5E-8A9B-9EF05218CDFB/0/B000355_PIC2_e12.pdf

My questions are in regards to page 12 section titled - Mohawk/McNiven, and the statement "little net impact on traffic demand".

1. What is the definition of little net impact?

2. What modelling was used to project the net impact on traffic on Mohawk road if the westbound ramp is built?

3. Was the previous change in traffic patterns/volumes considered when the ramp was originally closed? To clarify; there was a change in traffic patterns when the ramp was originally closed, was that data used to model what the reversal of that decision will have should the ramp be reopened?

I would like to know answers to these questions this week to allow time to review prior to the presentation to council on September 15, 2014. Thank you.

Regards,

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Sonya Kapusin

From:
Sent: November-21-14 4:07 PM
To: Sonya Kapusin
Subject: RE: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Hi Sonya:

Thank you for the information, it answers my question. Are you able to share the calculation and assumptions used to derive the additional 40 vehicles per hour. Have a great weekend.

Kind regards,

From: Sonya Kapusin [Sonya.Kapusin@cima.ca]
Sent: November 21, 2014 3:42 PM
To:
Cc: Philip, Mohan; Skrypniak, Lorissa; David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
Subject: RE: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Dear

This is a clarification of our previous response concerning the Mohawk/McNiven intersection.

The current traffic volume entering this intersection in the morning peak hour and afternoon peak hour is 2200 and 2300 respectively. With development based background growth in traffic, volumes at the intersection in the future are expected to be 2500 and 2600 per hour (AM and PM) respectively. Our analysis carried out for the proposed Mohawk Ramp shows an additional 40 vehicles per hour (AM and PM) would be generated as a result of the ramp (i.e. an additional 1.5 %).

The Ancaster Transportation Master Plan examined Mohawk Road and the McNiven intersection in some detail and recommended the addition of a centre 2-way left turn lane and widening of Mohawk Road to 3 lanes (the report is on the City's website, link below).

http://www.hamilton.ca/NR/rdonlyres/FC43B4F9-1814-42A1-AEFA-37D88A7F7F44/0/AncasterTransportationMasterPlanStudyReport_Final_Jun2011withoutAppendices.pdf

We have reanalyzed the Mohawk/McNiven intersection during this Mohawk Ramp study and have concluded no further improvements are required beyond those already identified.

I trust this answers your question.

Sonya Kapusin on behalf of David Sinke, P.Eng.
Tel: 289-288-0287 x 6812
Fax: 289-288-0285

From:
Sent: October-24-14 3:06 PM
To: Sonya Kapusin
Cc: Philip, Mohan; Skrypniak, Lorissa; David Sinke (david.sinke@amec.com); James Scale (jim.scale@amec.com)
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Subject: FW: Clarification required - Class EA2 Westbound 403 Ramp dated June 9, 2014

Dear

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Best regards,

Sonya Kapusin, MCIP, RPP
Project Manager
Environmental Planning

CIMA+
Partners in excellence
3027 Harvester Road, Suite 400
Burlington Ontario L7N 3G7
CANADA

Tel. : 289 288-0287 # 6812
Fax : 289 288-0285

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Regards,

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Appendix B6: Public Information Centre No. 1 Summary

City of Hamilton

Additional Access to Brantford-bound Highway 403 Class EA

Public Information Centre No. 1

C11-21-13

April 2014

TP113070 / B000355

Additional Access to Brantford-bound Highway 403 Class EA

Public Information Centre No. 1

C11-21-13

April 2014

TP113070 / B000355

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Appendix A: PIC Notice and Materials

1. Introduction

In 2013, the City initiated a study to determine the feasibility of a Brantford-bound access ramp to Highway 403 in Ancaster. At the time of preparing this report, the study was being managed by the City in cooperation with the Ministry of Transportation Ontario (MTO), and was being completed on behalf of the City by a consultant team led by AMEC Environment and Infrastructure (AMEC) and CIMA Canada Inc. (CIMA).

The Study Area is comprised of three potential locations for additional ramp access to Brantford-bound Highway 403:

- Highway 403 interchange with Mohawk Road in Ancaster,
- Highway 403 interchange with Main Street in West Hamilton, and
- Highway 403 and Golf Links Road in Ancaster.

This study for additional access to Brantford-bound Highway 403 was initiated as a Schedule C project under the Municipal Engineers Association *Municipal Class Environmental Assessment* (October 2000, as amended in 2007 and 2011). As part of the Class EA process, a public consultation plan was developed to identify potential stakeholders, possible issues, and methods for consultation, including two Public Information Centres (PICs). The following sections of this report summarize the results of the first PIC held in March, 2014.

2. Public Information Centre (PIC)

The first PIC for this study was initially planned for February 5, 2014 from 6:00 pm to 8:00 pm at the Ancaster Old Town Hall on 310 Wilson Street East. It was cancelled due to inclement weather conditions. A notice announcing the PIC in February was posted to the City's project website (www.hamilton.ca/Mohawkroadramp) on January 16; advertised in the Ancaster News on January 23 and 30 and in the Hamilton Spectator on January 24 and 31; mailed to approximately 200 representatives of relevant agencies, First Nations, and utilities; and mailed to approximately 250 residences along Mohawk Road, Rousseau Street, and Oneida Boulevard. The PIC was also announced using social media (Twitter) on January 30.

The PIC was rescheduled for March 6, 2014, from 6:00 pm to 8:00 pm at the Ancaster Old Town Hall on 310 Wilson Street East. A notice announcing the rescheduled PIC was advertised in the Hamilton Spectator on February 21 and 28; in the Ancaster News on February 20 and 27; and in the Mountain News on February 20 and 27, 2014. The notice was also mailed to approximately 136 representatives of relevant agencies, First Nations, and utilities; and to approximately 250 residences along Mohawk Road, Rousseau Street and Oneida Boulevard.

All PIC notices and a list of agencies circulated are included in **Appendix A**.

PIC attendees had the opportunity to sign-in, review presentation boards, listen to a PowerPoint presentation at 6:45 pm, ask questions, and comment on the study.

The presentations covered the following topics:

Background	Traffic Analysis
Study Area	Problem and/or Opportunity
Purpose, Goals and Objectives	Alternative Solutions
Class Environmental Assessment Process	Evaluation Criteria
Public Consultation	Evaluation of Alternative Solutions
Existing Conditions	Preliminary Preferred Solution
Significant Natural Areas	Next Steps
Traffic Volumes Accessing Highway 403	Questions and Comments

Appendix A includes a copy of the boards/PowerPoint presentation. An electronic copy of the boards/presentation was posted to the City's project website at www.hamilton.ca/Mohawkroadramp.

The sign-in sheet recorded 51 people at the PIC. Most attendees were either residents or students and some were business owners. In addition, nine (9) project team members were present, including five (5) City representatives and four (4) consultants. Ancaster's Ward Councillor and his Assistant were also in attendance.

3. Comments

PIC attendees had the opportunity to share their thoughts on the study by speaking with project team members, raising questions during the PowerPoint presentation, and/or writing down their comments on the forms provided. Forms were either placed into the comment box or mailed to the project managers by March 20, 2014. **Appendix A** includes a sample comment form.

As of April 1, 2014, twenty-nine (29) sets of written comments were received, presumably in response to either the PIC or PIC Notice. Comments were submitted using the comment form, by letter, or by email to the City or project managers.

The project team's responses to verbal and written comments are summarized in **Table 1** and **2,** respectively. Of the 29 sets of written comments:

- 14 were supportive; 2 of the 14 were with concern; 2 of the 14 appeared to be from the same contact indicating 13 respondents were supportive
- 8 were non-supportive; 1 of the 8 suggested a ramp at Golf Links Road; 2 of the 8 appeared to be from the same contact indicating 7 respondents were non-supportive
- 1 was mixed, indicating a preference for no ramp and the best option if one is to be built
- 1 indicated concerns with or without a ramp
- 2 provided information from agencies
- 3 raised questions; 2 of the 3 appeared to be from the same contact who had also submitted a non-supportive comment, indicating 1 respondent raised only questions

TP113070 / B000355

These comments do not include those received from the MTO, Ministry of Natural Resources (MNR) and Hamilton Conservation Authority (HCA) as separate meetings were held with these agencies. Generally:

- MTO is concerned for impacts on Highway 403 operations.
- MNR and HCA are concerned for impacts on Species at Risk and flood plain/drainage/stormwater management.

In addition to the comments, the Ancaster News published an article on the PIC on March 13, 2014 (see **Appendix A**).

Table 1 – Verbal PIC Comments and Project Team Responses

Verbal Comments during PIC on March 6, 2014	Project Team Responses during PIC
Deer crossing on Mohawk Road.	Noted for consideration, any history of collisions with deer would be reviewed.
Potential impact on local roads.	Noted for consideration.
During what period of time were traffic volumes calculated?	Peak morning (AM) and evening (PM) hours.
Golf Links-Linc; 3 ways to get to highway access points.	Golf Links may be used to get to access points depending on where one starts.
Where did you get 300 vehicles? Seems low.	Explanation provided. Comment noted.
Can you justify the large expense for 300 cars?	Cost is considered as part of evaluation of alternatives. Convenience is also a factor.
No benefit except bringing traffic from one street onto another.	There are traffic benefits during certain times of the day.
Takes a long time to get into traffic on Mohawk Road. Problem could be solved by 2 ramps.	Comment noted. 2 solutions could “water down” traffic, splitting traffic and making traffic less efficient.
128 vehicles going through downtown core. Clarify peak versus all day traffic.	Clarified that there are 128 vehicles in the peak hour.
Reduction of vehicles on Wilson by 300 will likely go eastbound on Mohawk Road. Less traffic on Wilson and putting more on Mohawk.	The project team is identifying impacts. Input will be considered. Through the Ancaster Transportation Master Plan, the need for improvements to Mohawk Road has been identified.
No sound barrier past Golf Links. Increasing noise?	A review of noise along the MTO’s Highway 403 corridor is not part of the current study. However, the project team will be completing a noise impact assessment for the proposed Mohawk Road ramp. Sound attenuation may need to be added to mitigate potential noise impacts of the current project.
Will the noise report be available at the next meeting or after PIC 2?	Noise report and specialist will be available at PIC 2 presentation.
Noise on Mohawk Road?	The project team will complete a noise assessment, which will include assessment of traffic noise on Mohawk Road at Highway 403.
Ancaster is the third oldest Town in Ontario. Leave Town walkable. Current traffic driving through does not want to stop. Reinstating something that should not have been taken away.	Noted for consideration.
Impact to intersections?	Volume changes have potential to alter traffic movements at Rousseau/Wilson Intersection. Further analysis will be completed.

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Verbal Comments during PIC on March 6, 2014	Project Team Responses during PIC
During peak hours, traffic will be stuck in gridlock on Highway 403. People will go through Town.	Comment noted.
Highway 6 bypass?	Bypass is included in the traffic model.
More traffic lights on Wilson Street.	Traffic signals are not correct devices for traffic control and are not the safest place for pedestrians.
Where does this project end?	Project limit for this study includes proposed ramp construction for Mohawk Road.
How much tax payers dollars?	Cost estimate will be presented at PIC 2.
How long before built?	No approval in place. Study to be completed in Fall 2014 followed by confirmation by City. Detail Design in 2015. Construction could theoretically be in 2016, though no commitment at this time.
Would the City carry out improvements at Mohawk Road at the same time?	Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
Air quality from car congestion.	Reduction in congestion will aid in reducing poor air quality. An air quality study will be completed.
Cars “zig zagging” is a safety issue.	This issue is not part of the scope for this study.
It is not possible to do ramp before Mohawk Road.	Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
Question regarding budget	Limited budget allocated based on priorities.

Table 2: Written PIC Comments and Project Team Responses

Date	Written Comments	Project Team Responses
February 5 [Supportive]	I wanted to express my thanks for this study and my support for a westbound entrance ramp at Mohawk. I was sorry to see the old one closed and would find this to be a welcome addition for 403 access to complement the entrances at Garner and Wilson.	Noted for consideration.
	On this same point, I am also hopeful that the study may include an exit to Ancaster eastbound from Brantford, perhaps by reversing the eastbound entrance ramp on Fiddler's Green. As it is, there are three eastbound ramps in close proximity at Wilson, Fiddler's Green and Garner. Reversing the Fiddler's ramp would even out the exits and entrances from the Brantford direction.	Comments noted.
	I would appreciate any response you can provide and do add me to the list of any future updates.	Noted for response and mailing list.

Date	Written Comments	Project Team Responses
February 5 [Non-supportive]	I'm quite concerned regarding the unnecessary proposed on-ramp to the 403 off of Mohawk Rd. It would go directly behind my property and would no doubt have an impact on my property value/resale ability as well as enjoyment of my back yard. I want to be added to any mailing list that involves this project, so that I do not miss the next pubic meeting.	At this stage of the Class EA study, the project team is reviewing alternatives to providing additional access to Brantford-bound Highway 403. Potential impacts on existing land use are among the criteria used to evaluate the alternatives. Noted for mailing list.
February 7 [Information]	With respect to your project, and based on the brief materials you have provided, we can advise that the project appears to be located in an area where First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation, that could be impacted by your project.	First Nations will be contacted.
February 7 [Supportive]	I am very pleased to know that you are heading up the work on the 403 Westbound Ramp Project at Mohawk Road. It tells me the project is in good hands. I heard that because of the storm the meeting this week was cancelled. I assume a notice will be published regarding the makeup date. I am very interested in this project, so if you are able to keep me posted via email…I will do my best to see that you have good attendance at the rescheduled PIC #1. Thank you for the good work you undertake on behalf of the citizens of this community.	Noted for consideration. Noted for mailing list.
February 25 [Supportive]	We are pleased to learn that a study is being undertaken regarding westbound access to Highway 403. When the LINC and 403 interchanges were being designed, we learned that the westbound ramp from Mohawk Road was being eliminated. At the time, I commuted daily to Brantford – I have since retired – and we also used this ramp anytime we travelled to the west end of Ancaster and areas further west. Our protests about the ramp closure were dismissed at the time ("too many access points too close together"). The resulting situation has proved the earlier decision to be wrong, in our view. The interchange forces east- and west-bound traffic to share (or compete for) lanes and creates several congestion points at merging on- and off-ramps (not all of which will be alleviated by one ramp, of course.) The popularity of the LINC and the Meadowlands development have made it extremely difficult at times to exit our neighbourhood by any means. Left turns to Mohawk or Golf Links are next to impossible and even right turns can mean long waits. Our options for westbound travel are time-consuming and even dangerous. To get to the westbound 403 we must cross two lanes of fast-moving traffic eastbound from the 403 to the LINC in order to get to Golf Links, then access the westbound LINC from Golf Links Road, then negotiate across two lanes of Hamilton-bound traffic in order to reach the 403 West. The alternative is to somehow make our way through the town of Ancaster so that we can use the Wilson St. westbound ramp. After the LINC was built, at least half of my daily commute time to Brantford was spent within Ancaster's village limits; once I finally reached the highway, it was clear sailing. Offering another westbound ramp to commuters from west Hamilton, Dundas and Ancaster may not change things on Mohawk Rd/Rousseaux St, but should ease the pressure on Wilson Street and on the LINC/403 interchange. Now if we could only find a better alternative for <u>exiting</u> from the west ...	The City has made this project a priority, recognizing its importance to the community of Ancaster. Noted for consideration. Noted for consideration. Noted for consideration. Noted for consideration. Noted for consideration.

TP113070 / B000355

Date	Written Comments	Project Team Responses
March 6 [Non-supportive]	Against the construction of this ramp. The impact on traffic on Wilson Street will be minimal. 300 cars per day does not justify the cost of this project or the diversion of this traffic to an already congested road (Mohawk Road). This on ramp is in my backyard. There is a large berm acting as a sound barrier for the off ramp of the 403 to the Linc. There is inadequate room for the placement of this ramp, placing it against the rear of my property. Noise, light issues will affect me and the residents of this street. The marginal gain of this project is not worth the financial and social cost.	The reduction in traffic is marginal; however, motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads. Potential noise and light impacts will be addressed during the assessment of preliminary design options in the next phase of the study.
March 6 [Supportive]	Please put back the ramp that should never have been removed. The traffic coming and going on Wilson Street is not acceptable. Wilson Street is a rare village core that needs to be restored. Walkability on Wilson Street is very important to this.	Noted for consideration.
March 6 [Supportive]	Once this ramp was removed, accessing the 403 Westbound became problematic. Simply put back what was there in the exact same location. Why the need for so much discussion? The estimate of 300 cars/day is very low. We don't need cars idling at street lights on Wilson Street. This is an unsound environmental state.	This project is subject to the full Municipal Class EA process which requires the City to identify problems/opportunities, assess alternatives against technical and environmental criteria, and consult with the affected public and agencies.
March 6 [Supportive]	Desperately needed.	Noted for consideration.
March 6 [Mixed]	The proposal is admissible. It's commendable that no survey roads will have to be taken out or re-routed. This action is the best option of the 403 westbound access options given. Commend for not pursuing a Golf Links access which would destroy a historically significant Ancaster farmhouse. This was a very thoughtful and community-sensitive decision. Ultimately, I would rather no ramp be built, but if one is to be built…this is the best option. Would not support any development on the north side of Mohawk Road. This area is much more environmentally sensitive. My citizen request is that no development be made to re-route or destroy the trail connection from Filman Road to Hawartha Boulevard. What are the mitigation proposals for the two at-risk species in the study area?	AMEC has completed an assessment of impacts to the natural environment for this project. No significant impacts to existing vegetation, terrestrial habitat or fisheries and aquatic habitat have been identified. Mitigation of minor impacts, including time of year constraints on tree clearing, erosion and sedimentation control, stormwater quality management provisions in the form of enhanced swales, and other standard measures will be implemented. No work will be completed on the north side of Mohawk Road, and the trail connection will not be altered in any way.
March 6 [Non-supportive]	Ramp will cause an increased volume of traffic on Mohawk, which it doesn't need. There should be a traffic light at Green Valley Drive plus a third lane from Green Valley to the 403. There is also no way for pedestrians to travel from Cayuga to Algonquin on either side. The increased traffic would make life worse.	As noted in the PIC materials, the increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already traveling in the Ancaster area, but will have a shorter trip to get to the highway and therefore spend less time on municipal roads.
March 6 [Supportive]	Do it please – soonest. Traffic on Wilson Street is dreadful and spoils the whole village ambience.	Noted for consideration.

Date	Written Comments	Project Team Responses
March 6 [Supportive]	The ramp to 403W off Mohawk Road is needed. Original ramp should never have been removed.	Noted for consideration.
March 6 [Supportive, with concerns]	Very concerned about increased noise pollution from the ramp. While I strongly support the building of the ramp, it is essential that appropriate noise attenuation be developed between Golf Links and [Fiddler's] Green to accommodate accelerating truck and car traffic. This is vital due to increased volumes, accelerating traffic and the uphill slope of the Highway. Importantly, there is no noise attenuation along this side of Highway 403 and this is the only section through all of Ancaster.	AMEC is completing a noise assessment for this project. Results and recommendations will be presented at the next PIC.
March 6 [Non-supportive]	We are hoping you can address our concerns below and forward a copy of the presentation that will be shared this evening.	The PIC information and comment form were posted to the City's project website at www.hamilton.ca/mohawkroadramp.
	1. There are currently numerous accidents at the corner of Green Ravine and Mohawk Rd. Will additional traffic not further raise potential for more accidents?	There is only a marginal increase in traffic expected on Mohawk Road and therefore no significant impacts are expected.
	2. Exiting subdivision near Filman Rd is already an issue - Will additional traffic not cause further delays?	As noted in the PIC materials, the volume of additional traffic is relatively minor. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads
	3. Today I can wait 2-5 minutes to get out of my driveway heading both east and west bound on Mohawk Rd - Ancaster - Will this not potentially add more time to an already ridiculous situation?	There is only a marginal increase in traffic expected on Mohawk Road and therefore no significant impacts are expected.
	4. There is no sidewalk on Mohawk Rd from Cayuga to the 403 - Does this not put residents at further risk?	Noted for consideration. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
	5. When was the study on traffic flow taken? If the numbers are already in the thousands...How does adding a ramp alleviate that issue?	Traffic analysis was completed as part of this Class EA. Adding a ramp provides Ancaster with additional access to Brantford-bound Highway 403. There is only a marginal increase in traffic expected on Mohawk Road.

Date	Written Comments	Project Team Responses
	6. On January 27th, residents of Mohawk Rd and immediate area received a letter from Canada Post indicating that we were moving to temporary group boxes in our area. I quote "the area on Mohawk Road has become extremely busy with traffic flow, the highway and the Lincoln Alexander Parkway making speed and no sidewalks a factor. Due to safety reasons, we will [be] placing the new boxes in a convenient location; your box will be located at Cayuga/Mohawk Rd." etc.....this validates points above and below.	Noted for consideration. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
	7. I commute to/from Toronto every day and by the time I reach the Linc merging onto Mohawk Rd, it's already backed up - Will additional traffic not further impact it?	Traffic concerns are noted. The new ramp is not expected to add much traffic to Highway 403 and therefore the project team does not see any significant deterioration of traffic congestion. Additional traffic is being added only in the westbound direction.
	8. Environmental impact...I very much look forward to hearing about those results.	AMEC has completed an assessment of the natural environment for this project. Details regarding environmental impacts and mitigation will be presented at the next PIC.
	9. When I moved into my home in 2001 the ramp was removed. What has transpired since then to re-evaluate this being put back in and to the cost of ?????	The Ancaster Transportation Master Plan recommended a new westbound connection to Highway 403, in 2011. Following the Ancaster Transportation Master Plan: A preliminary technical assessment was completed by the City in conjunction with the MTO on the feasibility of where a new Brantford-bound on-ramp could be provided A ramp at Golf Links Road was found to have operational concerns and its design would not meet MTO geometric standards A new ramp was potentially feasible (subject to detailed study and an EA study being done) at Mohawk Road City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road
	Ancaster is one of the oldest communities in Ontario and think we can all agree, was not built for the structure we are expecting it to be today.	Noted for consideration.
	I find it very surprising that [the Councillor] isn't expecting too many objections to the project.	Noted for consideration.
	Why wouldn't the millions being spent on this project be applied to the very poor road conditions we are experiencing around the city of Hamilton.	Noted for consideration.
	Why were/are there numerous studies taking place to determine the feasibility of adding townhomes to the nunnery Mount Mary Immaculate property. It all relates back to traffic!!!	Noted for consideration.
	Why isn't there a building restriction enforced for this heritage community in conjunction with the height restrictions?	Noted for consideration.
March 6 [Supportive]	The lack of foresight in not providing a good access to 403 west-bound for the north part of Ancaster was one of several bad decisions in the design of the Linc-403 interchange. I am delighted to hear rectifying this error is under consideration.	Noted for consideration.

Date	Written Comments	Project Team Responses
	Although I live east of the 403, I shop in Ancaster, I have three bikes purchased from Ancaster cycle. To be efficient, I try to make outings multipurpose and for example, I have encountered the situation of visiting Ancaster cycle and then wanting to head out to the Canadian Tire off Wilson beyond 403. Wilson St through Ancaster is rightly designed as a local street not a thoroughfare and the logical route would be 403. Access to the 403 is currently most inefficient.	Noted for consideration.
	The old exit that existed from eastbound Mohawk, before the Linc interchange was built, is the logical entrance to 403, especially as the space remains largely as it was before. I would encourage re-creation of the exit as a 'T' junction (as it was before) allowing traffic from east- or west-bound Mohawk to use it. In this way, when the Linc is clogged back to or past the Mohawk intersection with traffic heading for east-bound 403, which makes it extremely difficult to get to the west-bound 403 from the Linc, the new Mohawk access would be a viable alternative. In the period from 2001 to 2008, I had to travel to work by west-bound 403 and frequently encountered significant difficulties accessing it from the Lync and had to divert up to Rymal, travel west to an entrance to 403.	Noted for consideration.
	I hope it will be possible to add the access.	Noted for consideration.
March 7 [Non-supportive]	I wish to add my concern to another access ramp being added to the particular junction from Mohawk Road to the 403 West Section as noted in the paper. As a resident of Ancaster and a commuter to the East end of Hamilton, I am extremely familiar with the 403, Linc and Access ramps from both ends of road way. As is, it is regrettably congested and bottlenecks from the existing exit from the Linc. Why add another ramp here, when traffic cannot move through here without bottle-necking already? Unfortunately, the above mentioned both East and West is on an "average" day...when an accident happens, it is a complete traffic nightmare. The best mess starts at Wentworth and continues [til] you get past Garner / Hwy 6. Another merge lane in there is only asking for [more] traffic issues going forward.	We have noted your comments with regards to traffic congestion. In comparison to the existing Hwy 403 and Linc traffic volumes, the new ramp traffic volume is relatively low, and therefore the project team does not anticipate any significant deterioration of traffic congestion. The project team is discussing potential impacts with the MTO currently and will be addressing any concerns they might have with highway congestion. Further, the new ramp is being designed in such a way that impacts to existing traffic flow will be minimal.
March 7 [Supportive]	This ramp is one more step in the right direction to restore calm to our heritage village. Thank you for listening to our concerns. Good luck in moving forward.	Noted for consideration.
March 7 [Supportive. with concerns]	**I support the proposed ramp at Mohawk Road, but disagree that it will alleviate traffic problems in Ancaster's core** A westbound ramp at Mohawk would make 403 access more convenient for a lot of people, and I support the proposal for this reason. However, from the information given in your presentation, I do not understand how traffic issues on Wilson Street will be alleviated significantly. A reduction of 300 (or a bit more) vehicles per day, from total daily traffic of nearly 30,000 cars along Wilson Street (the majority of which is eastbound, not westbound, according to slide 10), does not seem high enough to warrant promoting this as a benefit to residents. Even if it is a peak time reduction, the proposed ramp will not reduce the eastbound traffic that clogs up Wilson Street each morning, as people try to get down the hill toward McMaster University.	Traffic concerns are noted. The reduction in traffic is marginal, however, motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.

Date	Written Comments	Project Team Responses
	403 spillover events are causing the most traffic problems	
	It seems that whenever there is an accident or other delay on the 403, it creates a traffic surge through Ancaster which overwhelms our road systems. This happens both eastbound and westbound, with huge backlogs down Wilson Street and other main roads like Golf Links and Mohawk/Rousseaux. I would be interested in seeing the accident statistics for the 403 around Ancaster, particularly near the Linc, because it seems like these spillover events have been occurring more frequently in the past 1-2 years (I have lived in Ancaster for 22 years). I would also like to see more analysis on the effect that highway problems have on Ancaster's core traffic. My experience leads to me to believe that this is the biggest cause of traffic problems in Ancaster, but I don't have the statistics to back it up. If core traffic problems are the primary concern we are trying to address, perhaps we should be looking for solutions other than a westbound 403 ramp.	Lane closures on the highway will always cause diversion onto parallel routes – this happens on all highways and it is to be expected that nearby parallel routes will bear the brunt of this diversion. However, severe collisions are not daily experiences and tend to be exceptional situations. The addition of the ramp is unlikely to have any effect on this phenomenon. Hamilton City Council has recently been considering an initiative to sign emergency detour routes.
	Rush hour traffic on Wilson Street is not bad	
	I live in Ancaster's west end near the Wilson/Meadowbrook traffic circle and work out of a home office in the east end on Mohawk Road. Each day I drive the full length of Wilson Street to get to work and back. On that route, during the rush hour times (8am and 5-6pm), I rarely encounter traffic problems. While I also have the option of taking Garner Rd or the 403 to get across town, I find Wilson Street is faster and more reliable. And, 99% of the time, if Wilson Street has a backlog, it is because there is a problem on the 403 or elsewhere. A westbound ramp at Mohawk could shave a few minutes off my drive home each night, but I've found the highway to be very unpredictable during rush hour, so I would probably continue to take Wilson Street.	Noted for consideration.
	Mohawk Road issues must be addressed before a ramp is built	
	I don't live on Mohawk, but since I work there every day I see what the residents have to deal with. According to slide 10 of the presentation, Mohawk averages between 800 to 1000 cars per hour, each direction, while Wilson Street averages 437 to 726. I'd like to better understand why the city considers this level of traffic to be acceptable along a narrow residential street with no sidewalks. Vehicles also travel at higher speeds on Mohawk because it is straight, with few stops, and it connects right on to the highway. I frequently see vehicles coming off the highway onto Mohawk at speeds well beyond the posted limit, because there is nothing slowing them down off the highway. Vehicles going toward the highway from McNiven are accelerating to highway speeds while they are still on Mohawk. The police are aware of all this because they frequently set up speed traps in the area.	Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
	Pedestrian safety is my biggest concern along Mohawk Road. There is an elementary school nearby, and each morning I drive past parents walking their kids to school along the shoulder of the road. It concerns me as the driver just how close they are and how fast the traffic is whizzing by them. It must be a worse feeling for them. At this time of year with snowbanks piled up on the shoulder, people are walking right in the car lanes, causing passing traffic to cross into the oncoming lane to go around. I would be glad to provide photo and video evidence for you.	Noted for consideration.
	As of February, Canada Post no longer delivers mail door-to-door along Mohawk because they decided it is too dangerous for their postal workers. To me, this really highlights the growing safety problem. Further, this change will likely worsen the danger because now all of the residents will be walking along the road to get to their mailbox. The residents here should be allowed to safely retrieve their mail.	Noted for consideration.

Date	Written Comments	Project Team Responses
	Conclusion A westbound 403 ramp at Mohawk will not adequately relieve the core traffic problems that many Ancaster residents are concerned about. Further, it will increase traffic flow along Mohawk and exacerbate existing safety concerns in that area. While I do support building the ramp for many of the reasons that were presented (and also because it will shorten my drive home every day), I think that the social and technical issues of this option were underestimated in your initial evaluation and deserve further consideration. I hope that you will carefully re-examine and address these issues going into the next phase of the project. I would be glad to provide further input and will look forward to hearing about your findings at the next public information session.	Our analysis indicates that the benefit to Wilson Street will be moderate; however, in addition, as noted above, motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.
March 7 [Non-supportive]	I feel the City should advertise the alternate routes to Wilson that were outlined in the meeting, allowing access to the 403 to Brantford. North Ancaster has easy access via McNiven to Golflinks and the Link westbound. Alternately, Southcote to Garner Rd W would allow access to the 403 W. After the public has been educated about these other routes, the traffic study should be repeated to see how many cars are actually using Wilson to access the 403 W.	It has been our observation that motorists, particularly those who regularly travel between destinations, find the shortest duration route over time. At present, the route for many motorists to Highway 403 westbound is circuitous, adding to the total duration of vehicle travel on municipal roads.
	I think Garner Rd needs to be widened, as much of the traffic on Wilson St. is due to difficulties in accessing Fortino's, Walmart and Canadian Tire. If Garner Rd were improved, much of the Wilson Rd traffic would be diverted. Garner could also be used to access the 403W.	The project team does not see improvements to Garner Road aiding Wilson Street very much at this time. Alternatives for access to Highway 403 were reviewed and found to have issues.
	In addition, the current proposed plan would shift traffic onto the already heavily travelled Mohawk/Rousseau section, which has a higher than average accident rate already. It is unacceptable that residents will be expected to dodge this traffic in order to get their mail. Given the speed limit of Mohawk Rd, a pedestrian would not survive the collision. Liability for the accident would be with the City of Hamilton planning department. 500,000 people in Hamilton will now have to travel to get their mail on a daily basis, many on busy roads such as Mohawk which were not designed for pedestrian traffic. I want my tax dollars going toward infrastructure changes to make pedestrian travel safe, not saving a few hundred cars a route that is a few blocks shorter to the 403W.	The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads, reducing overall collision risk. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
	N.B. I would appreciate a detailed copy of the traffic study and updates on this Class EA study via this email.	Noted for response and mailing list.
February 8 and 10 [Supportive]	A small complaint. You may recall the [note from] 2 years ago, in which I expressed frustration that the ramp from Mohawk to 403 westbound was eliminated. This week I noted the City Notice in the Mountain News that restoring the ramp is under consideration and would have attended the PIC about it, if for no other reason than to express strong support for the proposal. However, the PIC was held on February 5 and the notice was in the Mountain news published February 6!	A notice announcing the initial PIC date in February was advertised in the Ancaster News on January 23 and 30 and in the Hamilton Spectator on January 24 and 31. A notice announcing the rescheduled PIC in March was advertised in the Hamilton Spectator on February 21 and 28; in the Ancaster News on February 20 and 27; and in the Mountain News on February 20 and 27, 2014.
	I have copied this to the Project manager and councillor Ferguson to whose ward this pertains. I would appreciate being included on the project mailing list, thank you.	Noted for mailing list.

Date	Written Comments	Project Team Responses
March 9 [Non-supportive]	**Our Position** During [the past 25 years] the traffic past our house has increased dramatically, mainly because of the opening of the Lincoln Alexander Parkway. AMEC estimates that traffic going past my home is between 12 and 13 thousand vehicles per day. Accompanying this there has been a tremendous increase in traffic noise, and deposition from car exhausts of yellow dirt on our house and on the interior of our screened-in veranda. This has decreased our quality of life and increased our maintenance costs. The addition of a Brantford-bound ramp to Hwy 403 located directly opposite our home will increase these affronts to our quality of life.	AMEC has completed a noise assessment for this project, detailing the results or traffic noise modelling and recommendations for mitigation. An air quality study has also been completed, comparing existing emission levels with future levels with the proposed ramp in place. These studies will be available for review at the next PIC. There is only a marginal increase in traffic expected on Mohawk Road and therefore no significant impacts are expected. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads, generating less emissions.
	Living in the Past A small number of Ancaster residents say that they want to keep Wilson Street core like the “village” of the past. They have not come to terms with the fact that Ancaster is no longer a village. The Ancaster population has mushroomed, particularly since the Highway 403 and the Meadowlands complex have been built. Hwy 403 absorbed a significant amount of the traffic that used to flow through Wilson Street on Hwy 2. The proposed ramp will divert only about 300 vehicles a day from Wilson Street (a miniscule amount compared to the amount that was diverted from Wilson Street when Hwy 403 was built).	Noted for consideration. In addition to reducing traffic volumes on Wilson Street, the new ramp will reduce the total length and duration of travel for local traffic accessing Highway 403.
	Cost/Benefit Analysis We haven’t heard any cost estimates for the proposed ramp. However it will be a huge expenditure for the sake of diverting 300 cars a day from Wilson Street.	Costing has been completed, and will be available at the second PIC.
	Quality of Life Some folks say this expenditure is justified by the increased quality of life on Wilson Street. However, they ignore the offsetting cost of the decreased quality of life for residents along Rousseaux and Mohawk Road.	Noted for consideration.
	Deer Crossing The location of a West-bound ramp from Mohawk Road to Hwy 403 is exactly where Deer traditionally cross over Mohawk Road. They have used this route for centuries. Currently there are several deer each year that are killed or seriously injured at this location. One reason is that West-bound drivers coming off the existing Hwy 403 ramp and off the Linc do not reduce their speed. Also, drivers travelling eastward on Mohawk Road tramp on the accelerator well before they reach the Filman Road intersection. Construction of a Brantford bound ramp at this location will increase the likelihood of collisions with deer and the possibility of motorists’ deaths. This factor was not mentioned in the AMEC “impact on wildlife species/habitat” evaluation.	AMEC is completing an assessment of the natural environment for this project. The issue of deer crossing will be reviewed and results of investigation will be available at PIC 2.

Date	Written Comments	Project Team Responses
	Inconvenience of Current Situation	
	We have lived in our house long enough to experience both the convenience of the previous Brantford-bound ramp and the current circuitous path east on the Linc to Golf Links road, left over the bridge and back West on the Linc to the Brantford-bound 403 ramp. The current less-convenient route isn't a big deal. It is a small inconvenience to get to a major throughway, and possibly a lot easier than travelling up Wilson street business section during rush hour.	Noted for consideration.
	Merchants on Wilson	
	Most retail businesspeople seek locations with high traffic volumes. Their signage is intended to attract business. Low traffic volume generates low sales.	Noted for consideration.
	Increased traffic volume, even in rush hours, means greater exposure to signage, reinforcement of a store and its offerings and the possibility of stopping to buy. As a marketing professor, I would recommend increasing Wilson Street traffic to increase merchants' business, not diverting traffic to Mohawk Road, away from the Wilson Street stores.	
	Increased Congestion on Rousseaux/Mohawk Road	
	The proposal will shift traffic from the less travelled Wilson Street and create more traffic congestion on the already heavily trafficked Rousseaux/Mohawk Road, disadvantaging both the current Mohawk Road drivers and the Mohawk Road residents.	The shift in traffic is considered to be small and unlikely to have a significant impact on Rousseau/Mohawk.
	Traffic Calming Measures	
	Currently there are several traffic-calming islands on Rousseaux/Mohawk Road. Increased traffic will intensify the congestion on Mohawk. And what if, to accommodate greater traffic volumes, the islands are removed? Then this will make Mohawk a faster, more dangerous speedway.	Noted for consideration. We do not anticipate that the marginal increase in traffic on Mohawk would change the warrant for the traffic calming island currently in place.
	To my knowledge there is only one Traffic-Calming device in the Wilson Street Core, where proponents of diversion wish to make the Core more pedestrian-friendly.	
	Shifting the aggravation	
	Proponents say that reducing Wilson Street traffic by diverting it to the new Brantford-bound ramp will make the Wilson Street Core more "walkable." But they would do this at the expense of making Rousseaux/Mohawk Road even less "walkable" for local residents. Currently, there is a paucity of pedestrian sidewalks for residents along this route.	Noted for consideration. Improvements to Mohawk Road are not part of the scope of this study. The Ancaster Transportation Master Plan has identified improvements to Mohawk Road, as part of a future project. Improvements to Mohawk Road will be subject to a separate Class EA (requiring completion of Phases 3 and 4 of the study process). Timing of either the study or construction of these improvements has not yet been determined by Hamilton City Council, and is subject to budget availability.
	Problem Identification	
	The AMEC presentation states: "Residents have requested that the Brantford-bound ramp be placed due to increasing traffic demands on Wilson Street in the Ancaster core." However, the report has not indicated who these residents are, where their residences are located, or how many individuals have requested this. Nor is there any indication of how many people along the proposed Rousseaux/Mohawk route will be affected and what their position is regarding the potential change.	Responses by stakeholders are confidential in accordance with the *Access to Information* and *Privacy Act*. To date, the majority of respondents to study notices have been supportive.
	We wish to be kept informed of this Class EA study.	Noted for mailing list.

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Date	Written Comments	Project Team Responses
March 10 [Information]	On February 19, 2014 the Ministry of Tourism, Culture and Sport (MTCS) received a Notice of Public Information Centre #1 for the project. The MTCS's interest in this Class EA project relates to its mandate of conserving, protecting and preserving Ontario's cultural heritage, including: • archaeological resources, • built heritage resources, and • cultural heritage landscapes. MTCS would, therefore, be interested in remaining on the circulation list and being informed of the project as it proceeds through the EA process. We would ask that you send future notices to [the] Heritage Planner at the address [provided]. **Archaeology** Could you tell me whether an archaeological assessment is being undertaken for this project? If so could you please provide me with a PIF number. If an archaeological assessment was completed in connection with some previous development could you provide me with further details.	We acknowledge your interest in this project with regards to cultural heritage. A Stage 1 Archaeological Assessment has been undertaken for this project, and was provided to the MTCS upon completion. The PIF number is P354-0024-201. Noted for response and mailing list.
March 12 [Questions]	I was wondering what db level is expected post construction of the ramp?	A traffic noise study has not yet been completed for this project. As noted at the first PIC, the study will be undertaken prior to the second PIC, and presented at that time. The study will present calculated noise levels with and without the proposed ramp.
	The Ministry of Transportation tells me that their "Environmental Guide for Noise" requires an acoustic specialist provide the following: + review and identify corridor or route location alternatives to avoid or minimize impacts to existing Noise Sensitive Areas (NSAs) + identify study area/area of investigation + identify NSAs + determine future ambient and future noise levels with undertaking + identify impacts and significance + consider mitigation (preliminary) + provide input into the analysis/evaluation process for the selection of the preferred alternative + document the noise impact assessment in a Noise Report (note: the level of analysis and screening will depend on the complexity of the study and the range of alternatives being considered). In some cases, alternatives will be considered e.g. service facilities	Noted for consideration.

Date	Written Comments	Project Team Responses
	HIGHWAY DESIGN-PRELIMINARY DESIGN for projects entering from the planning phase: + confirm the preliminary recommendations from the planning stage + reflect any significant changes to the horizontal or vertical alignment(s) in the preliminary design phase for projects commencing in the preliminary design phase: + carry out a noise impact assessment following the process described in the planning phase (see above) + review mitigation in greater detail based on the preliminary design of the preferred plan + preliminary assessment of construction noise.	Noted for consideration.
	Has this been done already, and if so, please email a copy of the report?	A copy of the noise assessment report can be provided for review once completed. The project team will forward the standards quoted to the acoustics engineer for his review. They are the standards utilized, however, City of Hamilton specific standards may also apply.
March 17 [Concerns whether or not a ramp is built]	In the early days Oneida ended in front of our house and only a stone barricaded access dirt trail ran through a hay field towards Golf Links, which itself was a dead end dirt road. Meadowlands did not exist in any fashion. The surveying and layout for the construction of the Lincoln Alexander Expressway was just beginning. The only traffic seen here was our immediate neighbours and their guests. It was quite quiet and private and prompted our purchase and move here. Since then Oneida has been extended, Onandaga was created, the Meadowlands shopping area and massive subdivision were developed……. Endlessly…… and the Linc Expressway became what it is today …. plus a 3 way stop intersection was created in front of our home.	Noted for consideration.
	Upon Oneida/Onondaga being opened up we began seeing some “cut through” traffic by non-locals saving time by going along the diagonal shortcut through our residential streets. This cut through volume was (and still is) in both directions. The short cut route being “Rosseaux-Algonquin-Oneida-Onondaga-Golf Links” and reverse.	Noted for consideration. The internal road network currently provides for connection from Golf Links to Rousseau in both directions. Our assessment indicates that traffic using this route is primarily generated from within the local area since alternate routing is provided on the arterial road network in close proximity. While the connection from Golf Links/Onondaga to Rousseaux/Algonquin through the neighbourhood is shorter (approximately 1.0 km and 2 minute travel time versus 1.5 km and 3 minute) the difference is minor and the arterial road network would likely be the preference of through traffic. It is not anticipated that there will be any change in travel behaviours of “cut through” traffic within the neighbourhood as a result of the proposed new ramp onto Highway 403.
	This alien traffic steadily increased in direct proportion to the still ongoing development of Meadowlands and the areas up along Southcote to Rymal, the former fair grounds, and Golf Links West.	With increased development in the Ancaster area, traffic volumes have increased.
	As the traffic lights in Meadowlands were added the “cut through” traffic volume jumped again in several stages as the lights became more numerous/longer which made the route unattractive to the many just seeking the 403 highway ramp(s) or Linc eastbound.	Noted for consideration.
	There was a very noticeable decrease in “rush hour” cut through when the “old” West Bound Ramp towards Brantford was closed.	Noted for consideration.

Date	Written Comments	Project Team Responses
	I would like to point out at this point that we have repeatedly complained formally in editorials in the Spec and Ancaster News (here's just one: http://www.hamiltonnews.com/news/cars-hurtling-at-breakneck-illegal-speeds-not-good-mix-with-kids-their-wee-wagons/), and have had the police and [Councillor] to our home to express our dissatisfaction with this steadily worsening situation. Few drivers actually come to a complete stop at the 3 stop signs in front of our house, some slow down a bit and run the stop signs, but - there are significant numbers of drivers who not only run the stop signs – but do it in excess of the speed limits. It is important to note that this unsafe condition due to illegal acts is made worse in that we have no street lights or sidewalks in our area. It is totally dark here at night, many residents jog or take walks (at all hours) here, local children ride their wee bikes in front of our houses or wait for (or get off of) their school buses during peak traffic periods.	Noted for consideration.
	Multiple different police officers have been assigned to monitor the situation after our past complaints. Many drivers were ticketed or warned. I did speak to several of these officers – they did agree that the corner(s) had a substantial problem. (I invite your investigations with the local force concerning their visits here.) These visits and ticketing/warnings would, for a short period, slow the traffic and get a few more doing a half-hearted rolling stop, but eventually things would revert to the past conditions when the officers discontinued their surveillance.	Noted for consideration.
	Luckily, to-date, there has not been a major collision or pedestrian injury accident at the intersection. I have witnessed several shocking near misses… and a Canada Post Truck run right into my neighbour's house and front hall.	Noted for consideration.
	If the ramp is re-opened it will, without a doubt, substantially increase traffic here - not only with those drivers commuting to Brantford and beyond, but also due to those shoppers cutting through and using the quicker 403 route to go to the Walmart/Canadian Tire mall complex on Wilson Street (rather than go through Ancaster's core or along the Southcote/Rymal road route).	Based on the analysis completed, the increase in local traffic will be marginal. Motorists will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.
	We ask that, whether or not the new ramp comes, that consideration be given to establishing conditions along this short cut route that would strongly discourage (or stop) the non-local resident traffic. i.e. No Left turns at each end at peak hours, lower speed limits, school time zone speed limits with doubled fines, more stop signs, establish new strategic one ways, speed bumps, round-abouts, medians at Algonquin/Rosseaux and Onondaga/Golf Links that would prevent left turns into the subdivision, and other traffic softening methods, traffic lights, on-going police presence with zero tolerance directives…… etc. The ultimate solution would be the closing of Algonquin at Rosseaux – or Onondaga at Golflinks, which would also remove the hazardous turning and lack of lane problems existing at those locations.	Noted for consideration.
	Furthermore we know that reopening the ramp along the proposed layout will increase the noise level at our residence. The existing sound walls did a plausible job when first constructed. However, since then the erection of the Silver City/LCBO/++ set of buildings to heights well above the sound wall created an echoing surface that bounced the noise over the short walls and straight at our homes – the sound level jumped drastically then. During outdoor BBQ's - our visitors wonder how we stand sitting outside with the constant noise. Without new better and bigger sound abatement facilities, the adding of more traffic, and traffic that is both closer and is accelerating along the ramp will take the sound level to an unbearable level at our home.	AMEC is completing a noise assessment for this project. Results and recommendations will be presented at the next PIC.

Date	Written Comments	Project Team Responses
	I would further add that I am dismayed that the Golf Links option has been seen as unfit mostly (as I was told at the information meeting) due to a century home being located ACROSS the highway on non-affected property should a ramp be built, and Ontario highways "preference" of dual ramp installations. Surely a variance or a relaxation of preferences could be granted by Ontario if sought properly with thought, reason, logic, and conviction. A large parcel of land on the north side of the highway is vacant and unused – the ramp could actually begin just past or at the McNiven intersection with Southcote thereby allowing plenty of time for traffic to achieve merging speeds. I submit that this option was abandoned way too early in the game without due proper consideration and creative thought…And definitely not best for we the owners living in the immediate area.	Noted for consideration. Alternatives were reviewed and found to have issues. In addition to the concerns you noted, the Golf Links option would result in an overlap with the Highway 6 New interchange, and would conflict with the Southcote overpass piers, resulting in considerable additional cost and operational issues.
	I shall look forward to reading Hamilton's and AMEC's reports on further studies - as were promised at the March 6th 2014 PIC#1. Please keep me informed.	Noted for mailing list.
March 18 [Supportive]	Please [go] with Alternative 2 by adding a Brantford-bound ramp from Mohawk Road to Highway 403 as quickly as possible. Please "get on with" getting this ramp constructed, as it has been needed since the ramp was removed.	Noted for consideration.
	Since the Mohawk ramp to the 403 was removed, how does one living between Wilson Street and Highway 403 get to Brantford? + One may go to Wilson Street and after negotiating 4 to 8 traffic lights, and street traffic arrive at the western end of Ancaster village and arrive at the ramp to merge with Highway 403 traffic travelling west to Brantford. + One may get to Mohawk Road and Lincoln Alexander Parkway by negotiating one to a maximum of four traffic lights. On entering the Lincoln Alexander Parkway, one must merge right two lanes to go to the traffic light at Golf Links Road. What is the traffic count for the traffic coming from Highway 403 Hamilton and Brantford onto the Lincoln Alexander Parkway? Pretty high to very high? No one makes a left hand turn at the traffic light and uses the exit ramp to enter the Lincoln Alexander Parkway traffic travelling west. To get to the lane for Brantford, one needs to merge left across with two lanes of fast – 90 km/hr traffic, usually a high volume to very high. + Proposed Ramp from Mohawk Road. One may get to this ramp by negotiating one to a maximum of four traffic lights. Travel down the ramp and merge on lane with Highway 403 going to Brantford.	Noted for consideration.
	Collision possibilities are more likely to occur in route #1 above, and be severe in route #2 above, then in #3 above. Proposed Ramp from Mohawk Road to Highway 403 is not just a convenience, it is a safety item, just as much as other parts of [the] Highway 403 interchange ramps are. Before I or someone else has a collision using route #2 as discussed above, please get the Proposed Mohawk to Highway 403 ramp built.	Noted for consideration.
March 18 [Non-supportive, suggesting Golf Links Road as solution]	The evaluation of Alternative Solutions indicates that Alternative 2 resolves [the] problem and is carried forward as part of [the] solution, and Alternative 4 is not carried forward. I do not agree with this. Alternative 2 does not "resolve problem" because the proposed Mohawk Road ramp is expected to handle 300 vehicles per day, which is a small number compared to overall traffic from Ancaster trying to access Highway 403. Other issues with Alternative 2 include:	The problem statement identifies a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street. The proposed ramp does provide access to Highway 403, and will marginally reduce traffic on Wilson Street.

Date	Written Comments	Project Team Responses
	This ramp was removed when Highway 403/Linc interchange was constructed because there is no corresponding return movement (Highway 403 eastbound to Mohawk Road westbound) and because this ramp was in conflict with the new ramp from the Linc.	The MTO does not require the corresponding return movement to be constructed as part of this project.
	The traffic from this proposed ramp will be merging onto Highway 403 in close proximity to the merge from the Linc, which is a congestion point during pm peak times.	Extensive micro-modeling has been completed to confirm that there are no negative impacts to Highway 403 as a result of the new ramp. Parallel merging speed change lengths have been conservatively designed to accommodate merging traffic.
	The proposed Mohawk Road ramp and the on ramp from the Linc have to merge before the Golf Links Road structure – is there sufficient length to do this?	
	The PIC board 'Problem and/or Opportunity' indicates this proposed ramp will "relieve traffic on Wilson Street", but this traffic decrease on Wilson Street will increase traffic on Mohawk Road by these 300 vehicles per day, and Mohawk Road already has more traffic than Wilson Street.	The increase in traffic on Mohawk Road is relatively minor. The increase is essentially locally generated traffic that is already travelling in the Ancaster area, but will have a shorter trip to get to the highway and therefore will spend less time on municipal roads.
	The majority of the traffic using this proposed ramp will be going out of their way to get to this ramp (all traffic must travel eastbound on Mohawk to go westbound on Highway 403). This ramp is beneficial to only residents in the adjacent neighbourhoods.	
	Additional details for the evaluation of Alternative Solutions need to be made public. For example:	Noted for consideration.
	+ What does Alternative 4 include? Alternative 4 is listed as "Brantford-bound Access at Golf Links Road". Is this Alternative only an access ramp to Highway 403 or does it include a Highway 403 off ramp to Golf Links Road? What are the estimated traffic volumes? Are Alternative 2 and 4 a true comparison - are these alternatives just comparing access onto Highway 403 or does Alternative 4 include a Highway 403 off ramp to Golf Links Road?	Alternative 4 would be an access ramp to Brantford-bound Highway 403 with a corresponding eastbound off-ramp, as this would be mandated by MTO at this location. Traffic Volumes accessing Highway 403 were presented at the PIC: - From Aberdeen Avenue, 420 during the AM peak period and 985 during the PM peak period. - From the Linc, 129 in the AM and 1,406 in the PM - From Highway 6, 133 in the AM and 99 in the PM - From Wilson Street (south), 18 in the AM and 24 in the PM - From Wilson Street (north), 128 in the AM and 92 in the PM
	+ There was indication that a Golf Links Road ramp would be constrained by the Southcote Road structure, but there will be a similar problem with the Mohawk Road ramp with the Golf Links Road structure.	The Mohawk ramp option can be accommodated by the existing Golf Links Road structure.
	+ For Alternative 4, the evaluation summary indicates heritage impacts – what specifically are the impacts? The Brantford-bound access at Golf Links Road does not impact the heritage building.	Alternative 4 (specifically the eastbound off-ramp) would impact property of an old farmhouse at Golf Links Road, considered by the City to have heritage value.
	In conclusion, a Brantford-bound Access at Golf Links Road should be the solution carried forward, since it is the only one that would solve the problem of access. Spending millions of dollars on the Mohawk Road ramp will benefit only a few.	Noted for consideration.
	The evaluation of Alternative 2 and 4 should be comparable – they should include Brantford-bound access ramps only.	Noted for consideration.
	It would appear that Alternative 2 carried forward was a foregone conclusion of the evaluation process since PIC Board "Background" notes that "City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road".	Alternative 2 was not a foregone conclusion. There are many examples of studies where through consultation there are significant changes to the anticipated preferred solution.

Date	Written Comments	Project Team Responses
March 20 [Questions]	Hydro 1 has an easement behind the properties on Oneida Blvd, which would be between the proposed ramp and the residential properties. How many feet behind the residential property does the Hydro land extend and will the ramp infringe on Hydro's land?	We have reviewed the offset of the existing Hydro Line in the rear lots of the homes on Oneida Blvd. The hydro line is typically about 10 feet inside the rear fence line of the homes, but in some cases as close as approximately 2 feet inside the rear fence line. These dimensions are approximately scaled from aerial photography. Any easement that Hydro One has along this line would be limited to the private lands – Hydro One would not have an easement within the public ROW associated with the Highway 403/Linc/Mohawk Road interchange. We have been corresponding with Hydro One and have received information from them on their plant. We do not anticipate that the hydro line within the fence line will be affected by the proposed ramp construction. However, there may be some impacts to hydro one plant near Mohawk Rd, within City owned lands, which will be investigated further. We do not anticipate this to be a significant issue.
March 26 [Questions]	Can you please send us a PDF copy of (or web link to) the PIC Information Package and Comment Sheet? Also, can you please add the above e-mail address to the e-mail mailing list?	The link to the project website is www.hamilton.ca/mohawkroadramp. Noted for mailing list.

4. Next Steps

Based on the project team's review of the comments submitted, the City will either select or refine the preferred solution. The project team will continue with the next phase of the Class EA process if or once the preferred solution has been confirmed as a Schedule C project. During the next phase, the public will have an opportunity to review alternative designs for the preferred solution.

Appendix A: PIC Notice and Materials

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

The Hamilton Spectator

January 24, 2014

AS.

January 16, 2014

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Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

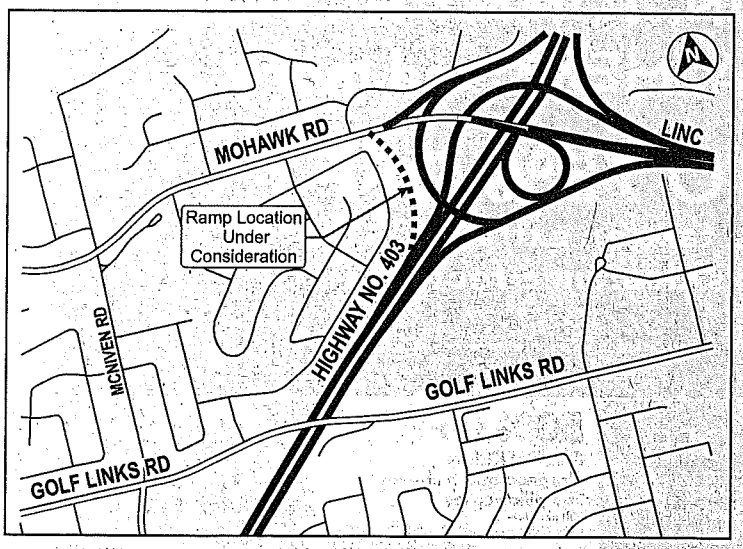
- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road.
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process

The following Public Information Centre (PIC# 1) will be held to obtain public and stakeholder input into the study.

Date: Wednesday, February 5, 2014

Time: 6:00 – 8:00 p.m. Open house/drop-in format
A presentation will take place at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.



There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers.

For more information related to the study, please refer to project website www.hamilton.ca/mohawkroadramp. If you require additional information or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2093 tplanning@hamilton.ca	*David Sinke, B. Eng. Mgt., P. Eng.* Project Manager AMEC Environment & Infrastructure 3215 North Service Road, Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

If you have any accessibility requirements in order to participate in this program or event, please contact Mohan Philip by January 27, 2014. Advance requests are highly encouraged to enable us to meet your needs adequately.

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Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

The Hamilton Spec

Jan. 31, 2014

A8.

January 16, 2014

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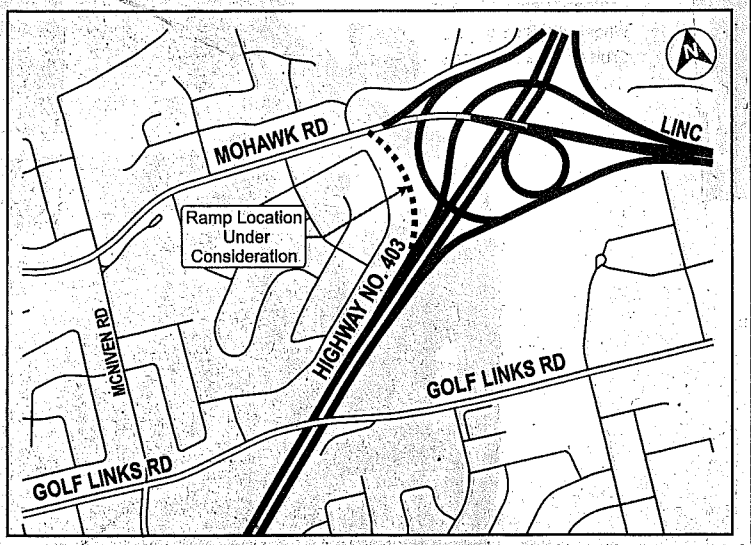

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Ancaster News
Volume 48. No 8
January 23, 2014
p. 26

Hamilton

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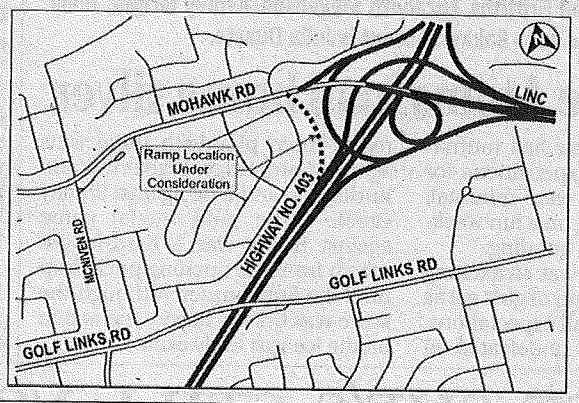

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Ancaster News
Volume 48 No 5
January 30, 2014
page 18.

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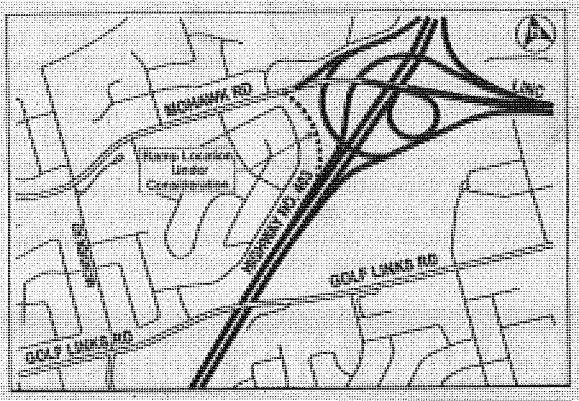

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Ancaster News
Feb. 20, 2014
Volume 48 No. 8
Page 34.

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

Hamilton

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February 14, 2014

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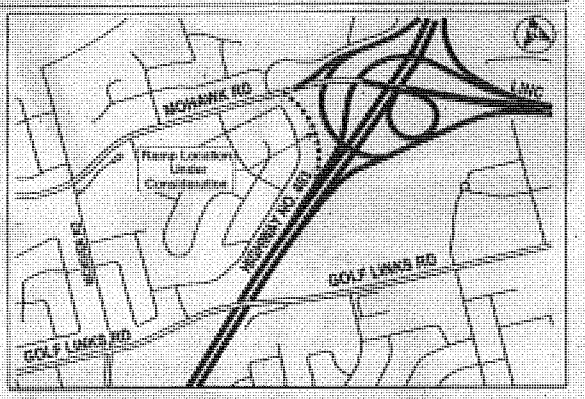

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Mountain News
Feb 20, 2014
Volume 46 No 8.
Page 26.

Hamilton

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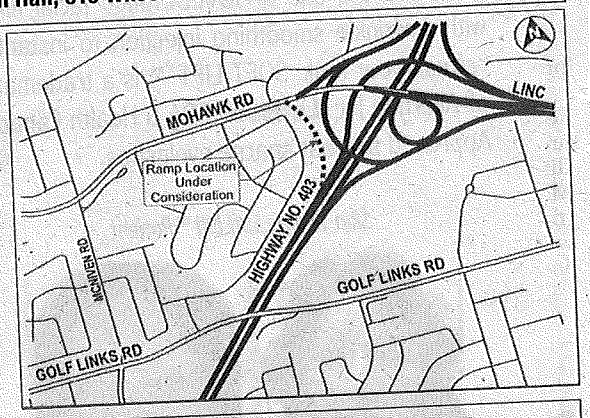

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HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

Hamilton

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

February 14, 2014

The Hamilton Spec. Feb 21, 2014 A6.

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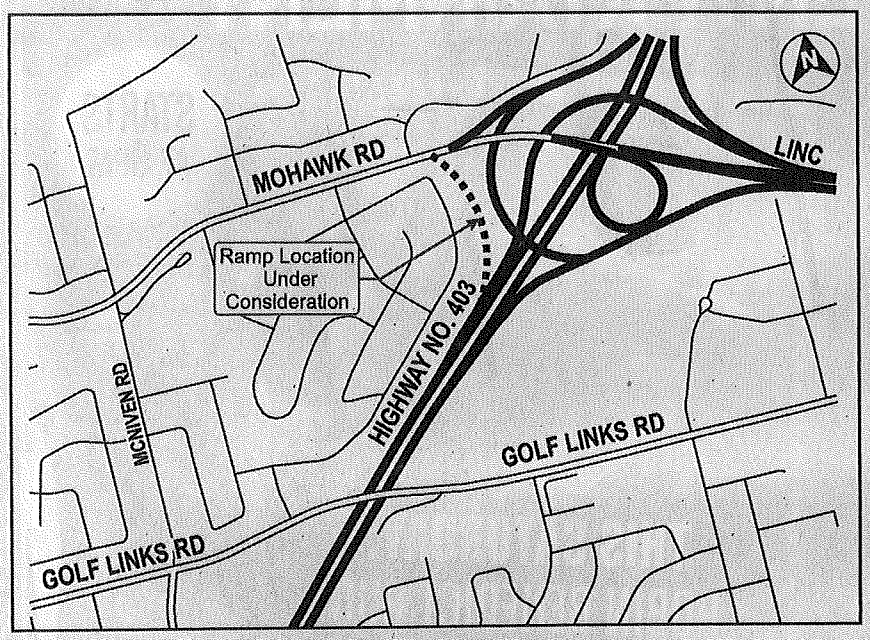

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For more information related to the study, please refer to project website www.hamilton.ca/mohawkroadramp. If you require additional information or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2093 tplanning@hamilton.ca	**David Sinke, B. Eng. Mgt., P. Eng** Project Manager AMEC Environment & Infrastructure 3215 North Service Road Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

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HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)

NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

Hamilton

February 14, 2014

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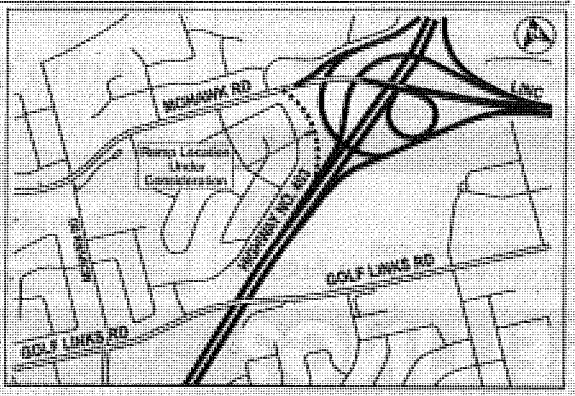

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Mountain News
Volume 46 No. 9
Feb. 27, 2014
page 25.

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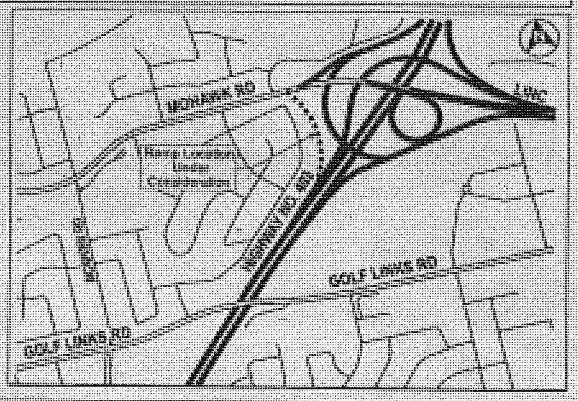

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Ancaster News
Volume 48. No 9.
Feb. 27, 2014
page 35

Hamilton

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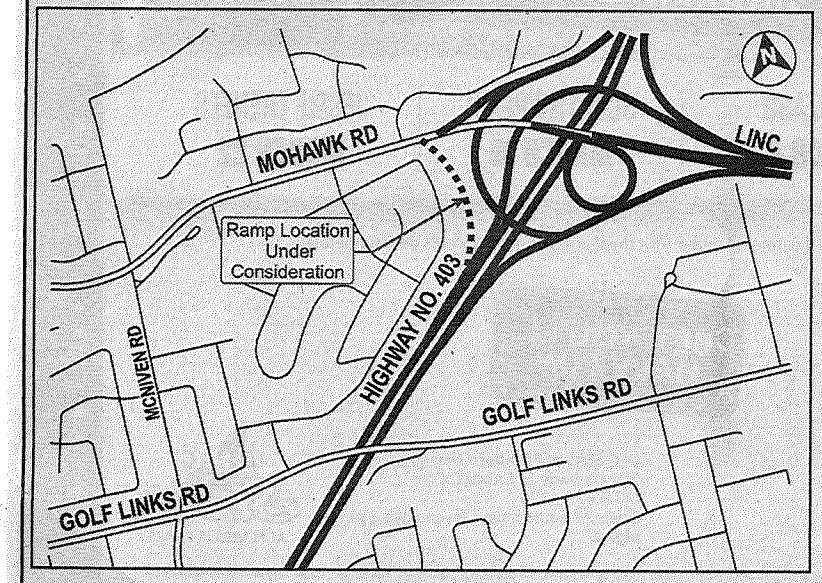

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The Hamilton Spec
Feb. 28, 2014
A6.

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD) NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 1)

January 16, 2014

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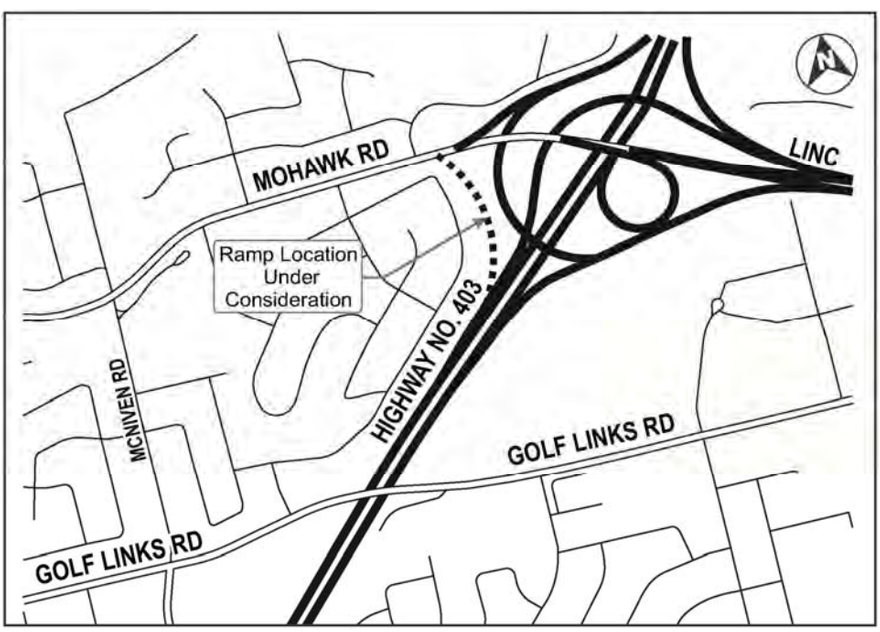
The following Public Information Centre (PIC# 1) will be held to obtain public and stakeholder input into the study.

Date: Wednesday, February 5, 2014
Time: 6:00 – 8:00 p.m. Open house/drop-in format
A presentation will take place at 6:45 p.m.
Location: Ancaster Old Town Hall, 310 Wilson Street E.



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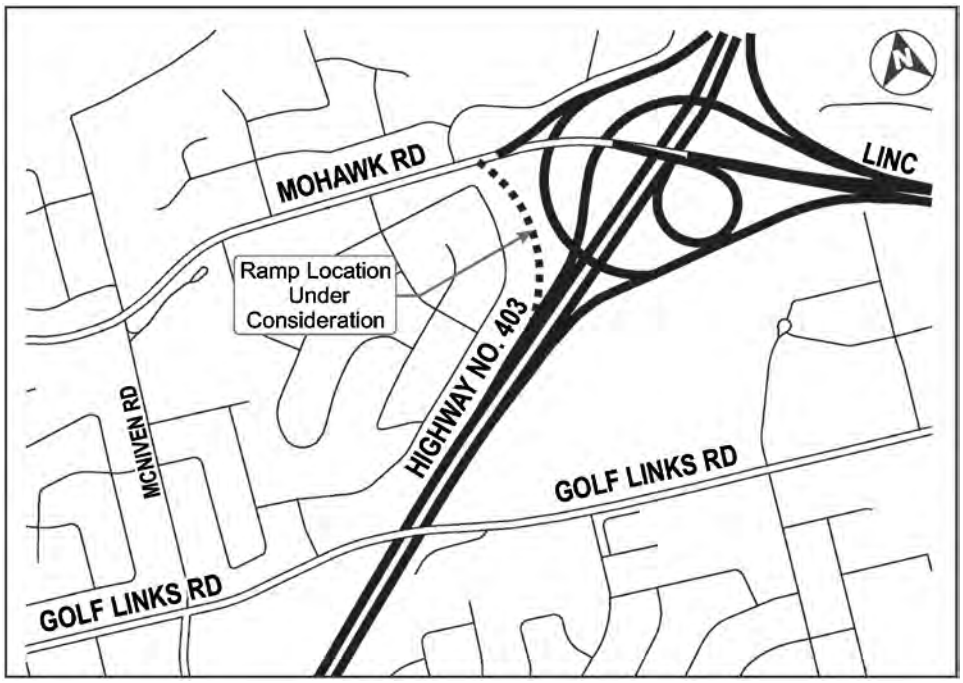

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Job Title	*Organization*
City of Hamilton	
Manager, Sustainable Initiatives	Public Works
Manager, Landscape Architectural Services	Public Works
Director of Tourism and Culture	Planning and Economic Development
Director, Public Health Services	City of Hamilton
Division Director, Recreation Community & Emergency Services Department	City of Hamilton
Director, Water & Wastewater Engineering	Public Works
Deputy Fire Chief	Hamilton Fire Department
Assistant Deputy Chief	Hamilton Fire Department
Manager of Infrastructure & Source Water Planning	Water & Waste Water Division
Director	Economic Development Division
Cultural Heritage Planner (East)	Planning & Economic Development
Director of Corporate Initiatives	City Managers Office
Manager of Policy and Programs	Public Works
Senior Director, Parking & By-Law Services	Planning & Economic Development
Cultural Heritage Planner (West)	City of Hamilton
Director of Transportation	Public Works
Director, Strategic & Business Planning	Planning & Economic Development
Natural Heritage Planner (East)	Planning & Economic Development
Manager, Transportation Planning	Public Works
Manager, Mobility Programs and Special Projects	Public Works
Director of Planning	Planning & Economic Development
Co-Ordinator Business Improvement Areas	Planning & Economic Development
Director of Water & Wastewater	Public Works
Manager of Forestry & Horticulture	Environmental Services
Director of Environmental Services	Public Works
Director, Strategic Planning	Public Works
Manager, Urban Renewal	Planning & Economic Development
Director of Growth Planning	Planning & Economic Development
Natural Heritage Planner	Planning & Economic Development
Medical Officer of Health	Pubic Health Services
Manager, Community Planning	Planning & Economic Development
Senior Director, Growth Management	Planning & Economic Development
Director of Operations	Public Works
Acting Paramedic Chief,	Hamilton Paramedic Service
Manager, Traffic Operations	Public Works
Director, Financial Planning & Policy	Corporate Services
Conservation Authority	
Manager, Watershed Engineering Services	Conservation Halton
Director, Watershed Planning & Engineering	Hamilton Conservation Authority
Manager, Watershed Planning Services	Hamilton Conservation Authority
Provincial Authorities	
	Ministry of Agriculture and Food
Area Supervisor, Niagara Area Office	Ministry of Natural Resources
E/A Project Co-ordination Section	Ministry of the Environment
Regional Archaeologist, Southwestern Archaeological Field Office	Ministry of Culture
Regional Director - Hamilton/Niagara Regional Office	Ministry of Community and Social Services
	Ministry of Transportation
Manager, Heritage Operations Unit, Heritage & Libraries Branch	Ministry of Culture
Policy Advisor - Consultation Unit	Minstry of Aboriginal Affairs

District Manager, Guelph District Office	Ministry of Natural Resources
Environmental Assessment & Planning Co-ordinator	Ministry of the Environment
District Planner - Guelph District	Ministry of Natural Resources
Information Management Supervisor	Ministry of Natural Resources
Highway Engineering Hamilton	Ministry of Transportation
	Municipal Affairs & Housing
	Ontario Provincial Police, Burlington Detachment
Director, Policy and Relationships Branch	Ministry of Aboriginal Affairs
Manager	Niagara Escarpment Commission
A/Heritage Planner	Ministry of Tourism & Culture
Federal Authorities	
Regional Subject Expert for Ontario, Consultation and Accommodation Unit	Aboriginal Affairs and Northern Development Canada
	Aboriginal Affairs and Northern Development Canada
c/o Canadian Wildlife Services	Environment Canada
EA Section	Environment Canada
E/A Project Co-ordination Section	Ministry of the Environment
Director, Ontario Region	Canadian Environmental Assessment Agency
Integrated Policy & Planning Division	Ministry of Health and Long Term Care
	Ministry of Public Infrastructure
Fish Habitat Biologist - Habitat Management	Dept. of Fisheries & Oceans
Fish Habitat Biologis	Dept. of Fisheries & Oceans
	Natural Heritage Information Centre
Rural Planner	Ministry of Agriculture, Food & Rural Affairs
Environmental Assessment Projects Officer	Environment Canada
Environment Officer- Environment Unit, Ontario Region	Lands and Trusts Services Env. Unit INAC
Claims Analyst, Ontario Team, Specific Claims Branch	Ministry of Indian and Northern Affairs
Navigable Waterways Program	Transport Canada
Environmental Coordinator	Transport Canada
	Canadian Transportation Agency
First Nations	
Director of Lands & Resources	Six Nations of the Grand River
	Patent & Trademark Agents for Huron-Wendat
Secretary Political Sector	Huron-Wendat Nation Council
Lands & Resources	Six Nations Eco-Centre
	Haudenosaunee Resource Centre
	Environment Unit
Program Manager	Hamilton Executive Director for Aboriginal Coalition
Director of Lands, Claims & Member Research	Mississaugas of New Credit First Nation
NGOs	
	Treblay Building
Executive Director	Hamilton Regional Indian Centre
Administrator	The Métis Nation of Ontario
	Council of Ontario Chiefs
Executive Director	De dwa da dehs nye>s Aboriginal Health Centre
	Association of Iroquois and Allied Indians
Executive Director	Native Women's Centre
President	Metis Women's Circle
	Canadian Metis Council
Director of Lands and Resources	Union of Ontario Indians - Nipissing First Nation
Executive Director	Niwasa Aboriginal Early Learning Programs

	Hamilton Region Indian Centre
Acting Director of Environmnetal Stewardship Unit	Assembly of First Nations
Executive Administrator	Hamilton Executive Directors' Aboriginal Coalition
Chair	c/o Program Manager HEDAC
President	Hamilton/Wentworth Métis Council
Neighbourhood Groups/Organizations	
Membership Coordiantor	Federation of Urban Neighbourhoods of Ontario
Chair	Ancaster Community Council
Executive Director	Ancaster BIA
Chair	Bonnington, Buchanan, Mohawk, Southam Neighbourhood Association
Other Related Community Groups	
Trustee Ward 1 and 2, Past Chair	Hamilton Wentworth District School Board
	Environment Hamilton
Organizer	Citizens at City Hall (CATCH)
Chair	Hamilton Community Foundation
Utilities	
Land Analyst, Urban Development	TransCanada Pipelines
Senior Right-of-Way Agent	Enbridge Pipelines Inc.
Mapping Supervisor	Union Gas
General Manager, Hamilton Community Energy	Hamilton Utilities Corporation
	Cogeco Cable Inc.
Senior Network Management Engineer/Officer	Hydro One
Operations Manager	Union Gas
	Sun Canadian Pipeline
Manager, Public Works Design & Construction	CN
Manager - Public Works	Canadian Pacific Railway
	CN Rail - Engineering & Environmental Services
Planner/Designer	Source Cable
Land Agent - Eastern Pipeline Operations	Imperial Oil Products & Chemical Division
Crossings Co-ordinator, Eastern Region	Enbridge Pipelines Inc.
Manager of Capital Projects	Horizon Utilities Corporation
	Union Gas Ltd.
	Bell Canada
	Cogeco Cable Inc
Regional Director - Marketing	Southern Ontaio Railway
	Canadian National Railway
Hospitals	
Chair, Board of Directors	Hamilton Health Sciences
Schools	
Chair	Hamilton-Wentworth District School Board
	Hamilton District Catholic School Baord
	Hamilton District Catholic School Baord
Accommodation & Planning	Hamilton-Wentworth District School Board
	French Public School Board
	French Catholic School Board
Other	
Chief Executive Officer	Hamilton Chamber of Commerce
Manager - Planning & Development	Go Transit
Stakeholder Relations	Go Transit
General Manager - Transportation Policy and Planning	Metrolinx

The City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment

Public Information Centre No. 1

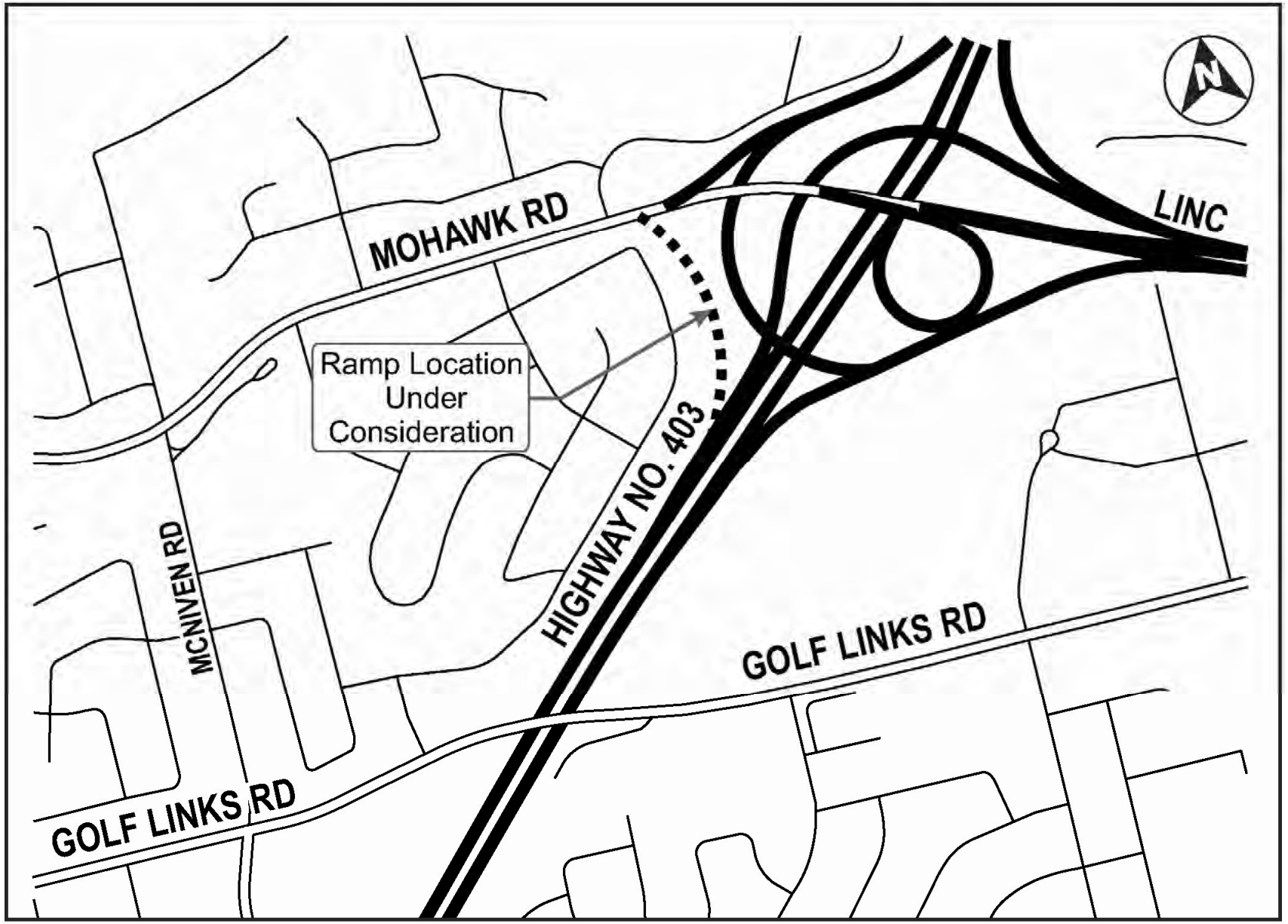
March 6, 2014

Background

The Ancaster Transportation Master Plan (TMP) was completed in 2011. Following that:

- A preliminary technical assessment was completed by the City in conjunction with the Ministry of Transportation (MTO) on the feasibility of where a new Brantford-bound on-ramp could be provided
- A ramp at Golf Links Road was found to have operational concerns and its design would not meet MTO geometric standards
- A new ramp was potentially feasible (subject to detailed study and an Environmental Assessment (EA) study being done) at Mohawk Road
- City Council directed staff to study a new Brantford-bound access ramp from Mohawk Road

Study Area


MOHAWK RD
LINC
Ramp Location
Under
Consideration
HIGHWAY NO. 403
MCNIVEN RD
GOLF LINKS RD
GOLF LINKS RD
N

Purpose, Goals and Objectives

Purpose

- Complete a feasibility study and Class Environmental Assessment process for the proposed ramp

Goals and Objectives

- Confirm the need and justification for improvements
- Determine the operational and geometric feasibility of the proposed ramp
- Assess the impact of the proposed ramp on Highway 403 operations
- Assess the impact of the proposed ramp on the natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of the Municipal Class EA process

Class Environmental Assessment Process

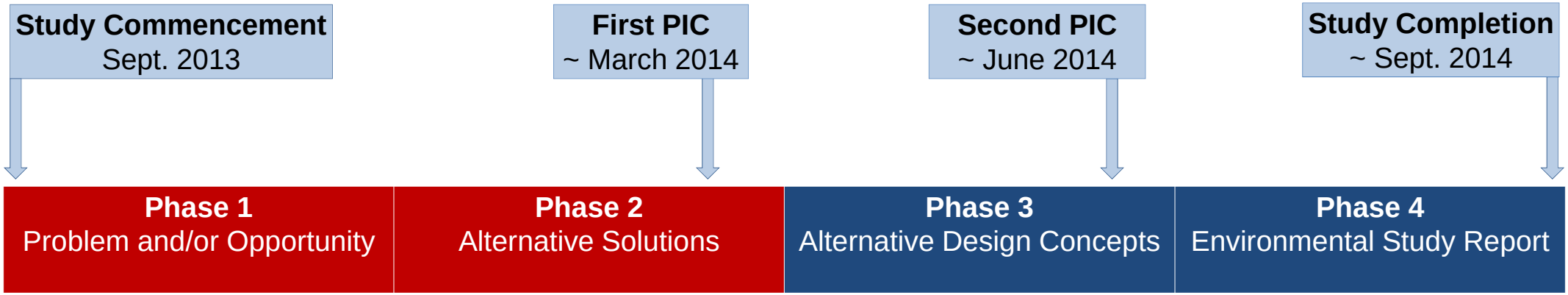
- The Study will follow the **Municipal Engineers Association Municipal Class EA** process (October 2000, as amended in 2007 and 2011)
- This Study has been initiated as a **Schedule C project**, which will fulfill Phases 1 to 4 of the Municipal Class EA process
- At present, the Study is in Phase 2

Phase 1 Problem and/or Opportunity	**Phase 2** Alternative Solutions	**Phase 3** Alternative Design Concepts	**Phase 4** Environmental Study Report

- Study updates will be posted to the project website at **www.hamilton.ca/Mohawkroadramp**

Public Consultation

- Notices regarding this study will be advertised in the newspaper and mailed to interested public and agencies.
- Notice of Study Commencement was advertised in September 2013.
- Notice of PIC No. 1 was advertised in February 2014 for the PIC scheduled on March 6, 2014.
- The Ancaster Community Council (ACC) is acting as the Community Liaison Committee for this project. The first meeting with the ACC was held in December, 2013.
- Two Public Information Centres (PICs) will be held to receive public input on the study. The first PIC is scheduled on March 6, 2014.
- Meetings with agencies such as the MTO and Ministry of Natural Resources will be held to review project impacts.
- The Environmental Study Report will be prepared and filed for public review toward the end of the study.



Existing Conditions

Significant Natural Areas

- Iroquoia Heights Conservation Area
- Niagara Escarpment (included in the Greenbelt)
- Bruce Trail

Terrestrial Environment

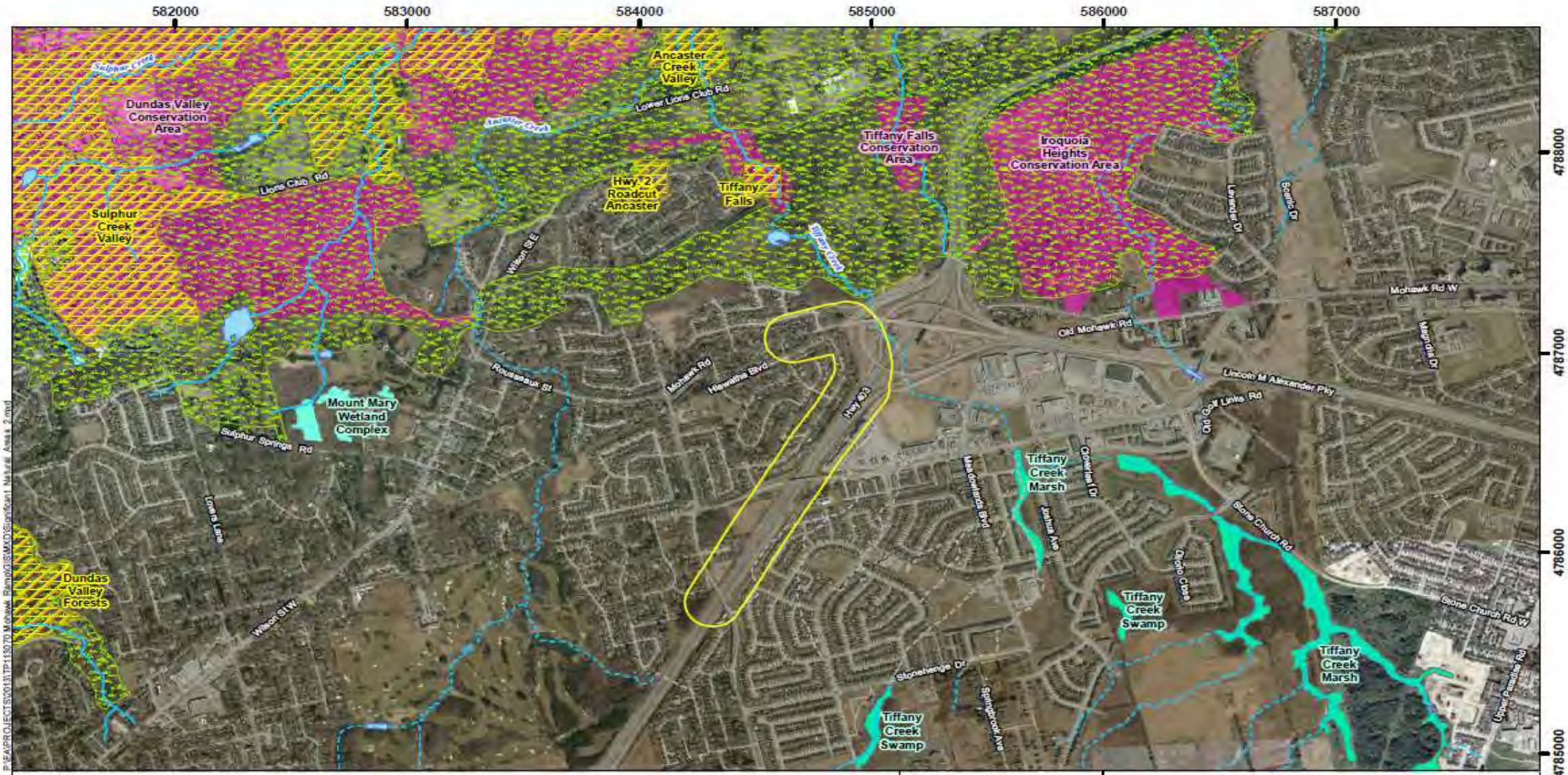
- One provincially rare forested community:
  - Fresh-Moist Black Walnut Lowland Deciduous Forest
- Two Species at Risk under the provincial *Endangered Species Act* were observed:
  - Butternut Tree (endangered)
  - Barn Swallow (threatened)

Fish and Fish Habitat

- Tiffany Creek subwatershed of the Spencer Creek watershed
- Two drainage structures:
  - Culvert under Brantford-bound on-ramp from Lincoln Alexander Parkway (Linc);
  - Inlet approximately 25 m south of Mohawk Road within the west ditch of the Linc
- No direct or indirect fish habitat within 30 m of the project site

Socio-economic Environment

- Urban settlement area



LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- ANSI
- Niagara Escarpment
- Conservation Area

Wetland

- Non-Significant
- Locally Significant
- ProvinciallySignificant

ANSI - Area of Natural and Scientific Interest

0 250 500 1,000 1,500 2,000 2,500 Metres

NOTES:
-Topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

amec

Mohawk Ramp

Significant Natural Areas

PROJECT Nº: TP113070	FIGURE: 5-1
SCALE: 1:25,000	Date: December 2013

Existing Conditions

Mohawk Road

- Two-lane arterial with Toronto-bound access to Highway 403
- Crosses over Highway 403 and connects to the Linc
- 70 km/h posted speed at the highway interchange

Lincoln Alexander Parkway (Linc)

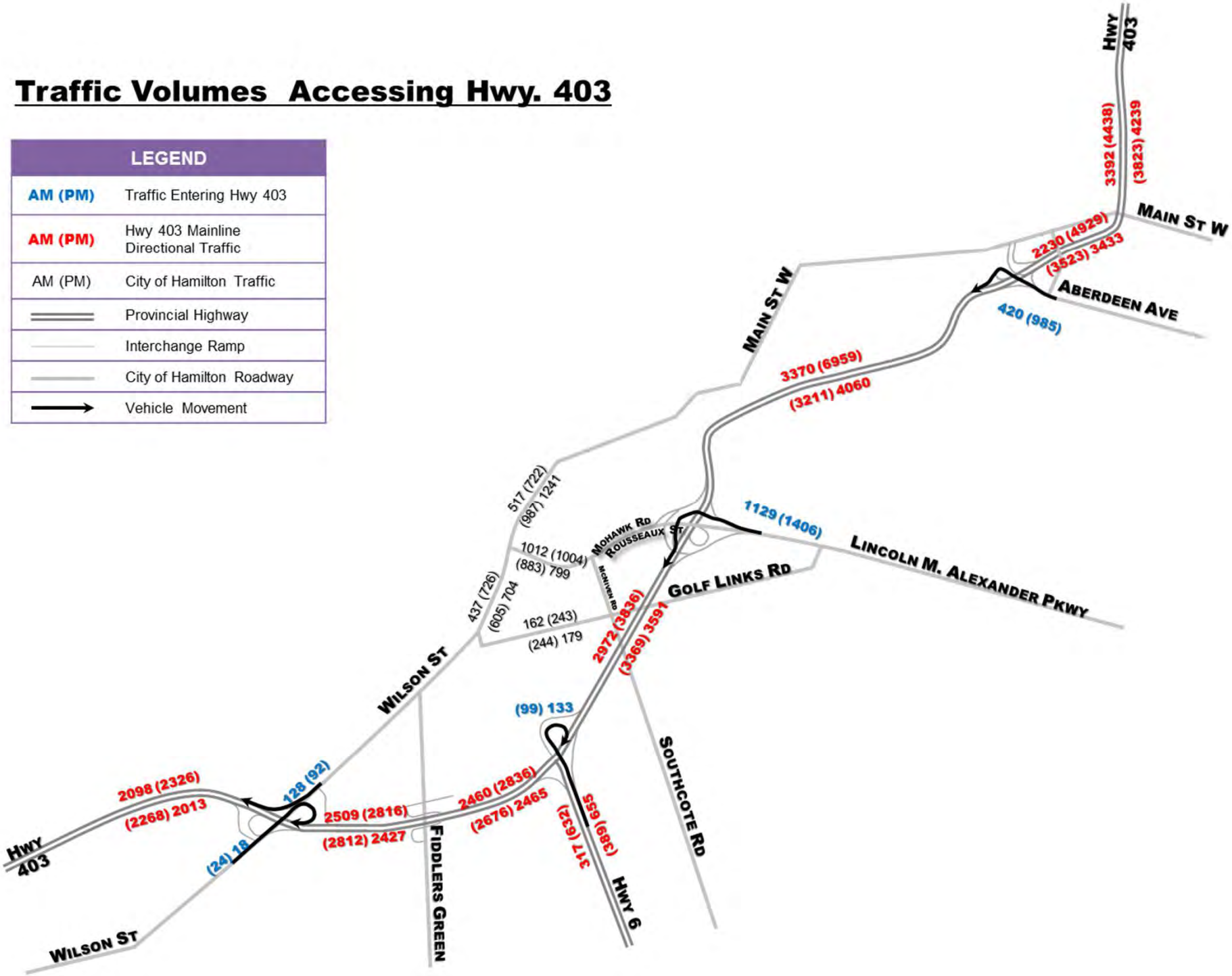
- Four-lane, divided parkway with Toronto-bound and Brantford-bound access to Highway 403
- 90 km/h posted speed

Highway 403

- Five-lane (2 Toronto-bound; 3 Brantford-bound including truck climbing lane), divided highway
- Access to Mohawk Road/The Linc from Brantford-bound Highway 403
- Access to Linc from Toronto-bound Highway 403
- No access to Mohawk Road from Toronto-bound Highway 403
- 100 km/h posted speed

Traffic Volumes Accessing Hwy. 403

LEGEND	
AM (PM)	Traffic Entering Hwy 403
AM (PM)	Hwy 403 Mainline Directional Traffic
AM (PM)	City of Hamilton Traffic
	Provincial Highway
	Interchange Ramp
	City of Hamilton Roadway
→	Vehicle Movement



Traffic Analysis

- Traffic forecasting process has been completed
- Addition of a Mohawk Road on-ramp would remove over 300 vehicles per day out of the Ancaster Village core (Wilson Street)
- Further detailed analysis will be done to ensure no impact on Highway 403 traffic

Problem and/or Opportunity

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access to and from Ancaster
- Residents have requested that the Brantford-bound ramp be placed due to increasing traffic demands on Wilson Street in the Ancaster core
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

Alternative Solutions

Alternative 1: Do Nothing
(i.e., no additional Brantford-bound access to Highway 403)

Alternative 2: Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403

Alternative 3: Improve access to Highway 403 by adding a Brantford-bound ramp from Main Street to Highway 403

Alternative 4: Improve access to Highway 403 by adding a Brantford-bound ramp from Golf Links Road to Highway 403

Alternative 5: Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

Evaluation Criteria

Technical:

- Improved access to Highway 403 without impacting Highway operations
- Improved traffic flow within local road network
- Opportunities for other modes of transportation (e.g., transit)
- Supports local, regional, provincial planning policies
- Meets provincial design standards and criteria
- Drainage Impacts
- Utility Impacts

Natural:

- Impact on watercourses
- Impact on aquatic species/habitat
- Impact on vegetation
- Impact on wildlife species/habitat
- Impact on significant natural areas
- Impact on Species at Risk (SAR)
- Impact on Air Quality

Cultural:

- Impact on archaeological resources
- Impact on cultural heritage resources

Social:

- Impact on existing and/or future land uses
- Noise Impacts
- Lighting Impacts

Economic:

- Property acquisition costs
- Construction costs

Evaluation of Alternative Solutions

Alternatives/ Criteria	Alternative 1: Do Nothing	Alternative 2: Brantford-bound Access at Mohawk Road	Alternative 3: Brantford-bound Access at Main Street	Alternative 4: Brantford-bound Access at Golf Links Road	Alternative 5: Other Modes of Transportation
Technical					
Natural					
Cultural					
Social					
Economic					
Summary	• Does not resolve problem • Carried forward for comparison	• Resolves problem • Carried forward as part of solution	• Partially resolves problem • Not carried forward due to environmental impacts, design and construction issues, and high costs	• Resolves problem • Not carried forward due to heritage impacts, operational issues, design and construction issues, and cost	• Partially resolves problem • Does not add access to Highway 403 • Does not significantly reduce traffic impacts to downtown core • Carried forward as part of solution

Very Poor Poor Neutral Good Very Good

Preliminary Preferred Solution

A combination of the following alternatives is recommended as the preferred solution:

Alternative 2: Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403

Alternative 5: Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation

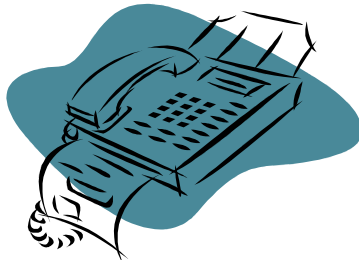
Next Steps

Following this PIC, we will:

- Review your comments
- Meet with the Ancaster Community Council to review PIC results
- Select the preferred solution based on the evaluation of alternatives and consideration of public and agency input
- Identify and evaluate alternative design concepts for the preferred solution
- Plan for the second PIC to obtain public input

Questions and Comments

Submit your comments by March 20, 2014:



Mohan Philip, M.Eng., P.Eng.

Project Manager
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David Sinke, P.Eng.

Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington, Ontario L7N 3G2

Phone: (905) 335-2353
Fax: (905) 335-1414
Email: david.sinke@amec.com

Thank you!

COMMENT FORM
(Please print)

Public Information Centre (PIC #1) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Thursday, March 6, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by March 20, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
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Fax: 905-546-2093
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Project Manager
AMEC Environment & Infrastructure
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Burlington ON L7N 3G2
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Fax: 905-335-1414
david.sinke@amec.com

Name: _____

Affiliation (if applicable):_____

Address: _____

Postal Code: _____ Phone: _____

Fax: _____ Email: _____

Do you wish to be kept informed of this Class EA study? (Circle yes or no)

Yes No

With the exception of personal information, all comments will become part of the public record.

Sign In Sheet *(Please print)*

Public Information Centre No. 1 – March 6, 2014

Additional Access to Brantford-bound Highway 403 Class Environmental Assessment

Name	Affiliation (if applicable)	Address	Phone	Email

Ancaster News
Volume 48 No. 11
March 13, 2014
page 1

Highway 403 on-ramp still in slow lane

Core of Ancaster being destroyed: resident

By Kevin Werner
News Staff

A proposed new west-bound ramp from Mohawk Road to Highway 403 may help eliminate traffic through downtown Ancaster, but it could create further commuter chaos along Mohawk Road.

"You can't just do the ramp without improving Mohawk," said Mohawk Road resident Hans Lieferink.

But Margaret Hendricks, who lives on Wilson Street, says an off-ramp to the highway will help turn Ancaster's downtown area into a safe community.

"It will make it more walkable," she said. "The core of Ancaster is being destroyed."

About 40 people turned out March 6 at Ancaster's Old Town Hall to examine the preferred solutions to improve the access along Highway 403.

Best way to build

City staff and the consulting group AMEC are examining the best way to build, if necessary, a west-bound ramp from Mohawk Road to Highway 403. This was the first public meeting on the issue, with another public information session scheduled for June.

The preliminary preferred solution to the traffic issues include building a Brantford-bound ramp and boosting alternative modes of transportation including transit.

David Sinke, project manager, for AMEC Environment and Infrastructure, said the on-ramp would end at about Southcote Road. Residents said noise barriers should be installed to protect people living in the area.

See CITY/page 3

Page 3

City has spent $500,000 for environmental assessment

Continued from page 1

Sinke said a noise study will be done, and is expected to be ready for the June public meeting.

City staff has stated a preliminary cost of a west-bound on-ramp could be anywhere from $3.6 million to $6.4 million. The city has already spent about $500,000 to conduct an environmental assessment, as well as other studies such as for traffic, design and risk analysis.

Sinke said Hamilton has yet to approve building the on-ramp.

The environmental assessment study is projected to be completed by the fall. A detail design plan will then be crafted that will take the project into 2015. If the city approves the plan, and the project gets funded by the province, then construction could happen in 2016, said Sinke.

"There is no commitment from the city," said Sinke.

While Ancaster residents have favoured building a west-bound ramp to Highway 403 to alleviate the traffic pressure from drivers cutting through along Wilson Street on their way to Brantford, other homeowners feared the project will create problems within their areas.

Lieferink said Mohawk Road is already an unsafe street with no sidewalks from the highway to McNiven Road. He said before a ramp is built, Mohawk needs to be improved to slow down traffic.

"We've had accidents along Mohawk, with cars crashing into lamp posts," he said. "It's a race track. More vehicles, more problems."

Ancaster councillor Lloyd Ferguson, who attended the meeting, wasn't surprised by residents' division over the ramp project.

Some people were excited about a proposed ramp, while others seem cautious about what it could do to area roadways.

"It's was pretty much what I expected," he said. "It's a controversial issue. You have to find the right balance."

While Ferguson sympathizes with residents along Mohawk, there are no plans by the city to widen the roadway.

A Brantford-bound ramp from Mohawk Road to Highway 403 had been in place, but it was removed when the Lincoln Alexander Parkway was constructed, causing an access problem into and out of Ancaster.

Over the last few months Ancaster residents have seen traffic congestion explode onto their streets after a number of accidents on Highway 403 that sent vehicles driving along Wilson Street seeking relief.

But Sinke cautioned the west-bound on-ramp won't alleviate residents' traffic headaches.

"Congestion is significant up the hill to the (Lincoln Alexander Parkway)," said Sinke. "It won resolve traffic patterns currently."

A new on-ramp to Highway 403 is a key objective of the Ancaster Transportation Master Plan, which was approved in April 2011.

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Partners in excellence

Appendix B7: Public Information Centre No. 2 Summary

City of Hamilton

Additional Access to Brantford-bound Highway 403 Class EA

Public Information Centre No. 2

C11-21-13

DRAFT

July 2014

TP113070 / B000355

City of Hamilton

Additional Access to Brantford-bound Highway 403 Class EA

Public Information Centre No. 2

C11-21-13

DRAFT

July 2014

TP113070 / B000355

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3. Comments 2

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List of Appendices

Appendix A: PIC Notice and Materials

1. Introduction

In 2013, the City initiated a study to determine the feasibility of a Brantford-bound access ramp to Highway 403 in Ancaster. At the time of preparing this report, the study was being managed by the City in cooperation with the Ministry of Transportation Ontario (MTO), and was being completed on behalf of the City by a consultant team led by AMEC Environment and Infrastructure (AMEC) and CIMA Canada Inc. (CIMA).

This study for additional access to Brantford-bound Highway 403 was initiated as a Schedule C project under the Municipal Engineers Association *Municipal Class Environmental Assessment* (October 2000, as amended in 2007 and 2011). As part of the Class EA process, a public consultation plan, including two Public Information Centres (PICs), was developed to identify potential stakeholders, possible issues, and methods for consultation.

The first PIC for this study was held in March, 2014 to obtain public input on the problem/opportunity and evaluation of alternative solutions. Based on the project team's review of comments submitted, the City selected the preferred solution:

- Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403, and
- Introduce or enhance programs and facilities that promote the use of other modes of transportation, such as transit and active transportation (as part of future projects).

The preferred solution was confirmed as a Schedule C project and a second PIC was planned for public review of alternative designs for the preferred solution. The following sections of this report summarize the results of the second PIC held in June, 2014.

2. Public Information Centre (PIC)

The second PIC for this study was planned for June 9, 2014, from 6:00 pm to 8:00 pm at the Ancaster Old Town Hall on 310 Wilson Street East. A notice announcing the PIC was advertised in the Hamilton Spectator on May 30 and June 6; in the Ancaster News on May 29 and June 5; and in the Mountain News on May 29 and June 5, 2014. The notice was also mailed to approximately 138 representatives of relevant agencies, First Nations, and utilities; and to approximately 250 residences along Mohawk Road, Rousseau Street and Oneida Boulevard.

All PIC notices and a list of agencies circulated are included in **Appendix A**.

PIC attendees had the opportunity to sign-in, review presentation boards, listen to and view a PowerPoint presentation at 6:45 pm, ask questions, and comment on the study.

The presentations covered the following topics:

- Purpose, Goals and Objectives
- Class Environmental Assessment Process
- Public Consultation
- Traffic Impacts and Mitigation
- Air Quality Impacts and Mitigation
- Drainage Impacts and Mitigation

- Summary of Public Comments to Date
- Problem/Opportunity and Preferred Solution
- Evaluation Criteria
- Evaluation of Alternatives for Exit Ramp from Mohawk Road
- Evaluation of Alternatives for Mohawk Entrance Ramp to Linc-Highway 403 Brantford-bound Ramp
- Preliminary Preferred Design Concept
- Noise Impacts and Mitigation
- Significant Natural Areas
- Terrestrial Impacts and Mitigation
- Issues and Mitigation
- Next Steps
- Questions and Comments

Appendix A includes a copy of the boards/PowerPoint presentation. An electronic copy of the boards/presentation was posted to the City's project website at www.hamilton.ca/Mohawkroadramp.

The sign-in sheet recorded 23 people at the PIC. Most attendees were residents. In addition, 11 project team members were present, including five (5) City representatives and six (6) consultants. Ancaster's Ward Councillor was also in attendance.

3. Comments

PIC attendees had the opportunity to share their thoughts on the study by speaking with project team members, raising questions during the PowerPoint presentation, and/or writing down their comments on the forms provided. Forms were either placed into the comment box or mailed to the project managers by June 26, 2014. **Appendix A** includes a sample comment form.

As of July 6, 2014, nine (9) sets of written comments were received, presumably in response to either the PIC or PIC Notice. Comments were submitted using the comment form, by email, or by facsimile to the City and Consultant project managers and City Councillor.

The project team's responses to verbal and written comments are summarized in **Table 1** and **2,** respectively. Of the 9 sets of written comments:

- 2 were supportive
- 4 were non-supportive
- 1 was mixed
- 1 raised questions
- 1 suggested cycling infrastructure

These comments do not include those received from the MTO, as separate meetings were held with the Ministry. Generally, MTO is concerned about identification of and mitigation of potential impacts on Highway 403 operations.

TP113070 / B000355

Table 1 – Verbal PIC Comments and Project Team Responses

Verbal Comments during PIC on June 9, 2014	Project Team Responses during PIC
Traffic calming on Oneida: + Like to be acknowledged + Address concerns for child safety + Measure to slow down traffic + City to take heed that there is a problem	+ Modelling and assessment has not identified a change in traffic the neighbourhood, due to the proposal + Need to understand negative consequences of traffic calming as well as benefits to neighbourhood + Municipality has a program in place for traffic calming
Some motorists drive through subdivision to turn right onto property on Mohawk Road: + What will prevent people from thinking they are on Highway 403? + Was there a study on how many accidents are on Mohawk Road? + When do they plan on doing something on Mohawk and Rousseaux?	+ Benefits of project include significant decrease in distance and duration of travel. The potential for increased neighbourhood "cut-through" traffic has been considered and is estimated to be negligible. Mitigation measures including traffic monitoring could be implemented to assess and address any identified issues post-construction + The existing design of Mohawk Road will not be altered as part of the proposed ramp construction + Collision information from Mohawk Road was reviewed as part of the traffic engineering study + Timing for improvements to Mohawk/Rousseaux has not been set and is based on Council decision; No decision has been made to date
Mohawk Meadows: + Oneida intersection is dangerous + There is potential for some of the cut through traffic to be decreased + Was there a measure of traffic within neighbourhoods that are trying to find different ways to get out?	+ Collision information from Mohawk Road was reviewed as part of the traffic engineering study + The potential for increased neighbourhood "cut-through" traffic has been considered and is estimated to be negligible. Mitigation measures including traffic monitoring could be implemented to assess and address any identified issues post-construction

Verbal Comments during PIC on June 9, 2014	Project Team Responses during PIC
Get traffic in and out, and on and off Highway, and avoid neighbourhoods	+ The proposed ramp will provide more direct access to Highway 403 from Mohawk Road, potentially reducing circuitous traffic that is accessing the highway by travelling through Ancaster town centre and via other routes.
Resident has difficult time to get out onto Rousseaux: + Need method of slowing cars down + Need to consider turning lanes and/or traffic calming along Rousseaux/Mohawk	+ Enforcement of traffic speeds by Hamilton Police is an option to address traffic speed on Rousseaux. Police are willing to respond on a complaint basis + Timing for improvements to Rousseaux has not been set and is based on Council decision; No decision has been made to date
There is a sound barrier between houses backing on to highway and Hwy 403: + An earth berm is protecting homes from highway noise	+ Based on modelling, there will not be a significant change in noise, due to the proximity of the new ramp and the partial removal of the berm; however, the Project Team will take a closer look + The earth berm was placed to dispose of excess material, and was not part of noise attenuation specifically designed to mitigate noise from the interchange
What is the timeline?	+ Filing Class EA study in September + Some work to be completed before detailed design + Detail design could begin in Fall 2014, for a 8-12 month process + 2016 is possible for construction of the ramp, subject to council approval and funding availability
How much would Council approve per vehicle to pay for this project?	+ The merits of proposal are not being evaluated based on cost per vehicle + Councillor indicated the province is interested in supporting this project and will be approached to pay for half of the cost

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Verbal Comments during PIC on June 9, 2014	Project Team Responses during PIC
Effect of people accelerating at high speeds	+ Email Councillor to advise where speeding is a chronic problem and in need of enforcement
Do you have the funds?	+ Budget must be approved by Council + The first opportunity on a decision will be in September
Consider the whole picture: + Do traffic calming and the ramp at the same time	+ Projects are necessarily considered and implemented individually. The AMTP recommends improvement to Mohawk/Rousseaux
What makes this solution preferred over Golf Links Road?	+ For Golf Links, due to closer proximity with Highway 6, there would be an issue with weaving of on and off movements + MTO insists on eastbound and westbound ramp, which marginally impacts a stone house + Widening of Highway 403 under the Southcote structure may require reconstruction of the structure due to lack of clearance
Traffic coming eastbound on Highway 403: + Why does it not say there are four interchanges? + Signs say business centre follow Wilson Street (not a business centre)	+ Signing on Highway 403 is an MTO issue + The project team will forward the comment to MTO and think about the merits

Table 2: Written PIC Comments and Project Team Responses

Date (2014)	Written Comments	Preliminary Project Team Responses
June 9 [Mixed]	Please entertain calming of traffic at Oneida and Seneca. The ramp will happen – please do something to help area residents with the left over traffic problems.	+ Modelling and assessment has not identified a change in the neighbourhood + Need to understand negative consequences of traffic calming as well as benefits to neighbourhood + Municipality has a program in place for traffic calming
June 9 [Supportive]	Strongly in favour – ACC Committee Tried to get onto the 403 Brantford from Golf Links this AM. Traffic jammed going towards Hamilton. Other days it is so dangerous coming from Golf Links over 2 lanes to make the 403 towards Brantford as cars are going so fast to go downhill. We need this!!	+ Comment noted. + Comment noted. + Comment noted. + Comment noted.
June 11 June 16 [Non-supportive]	Thank you for taking the time to talk to me on Mon. I understand the noise report is not currently available for the proposed 403 ramp, but I would appreciate a copy, when it is. In the meantime, may I have a copy of the noise report which was done for the Lincoln Alexander Parkway system?	+ Thanks for attending the PIC and providing your input into the study process. We are reviewing our noise study based on the concerns raised by you at the PIC. We will provide you with a copy of the report once completed. As requested, please find attached the MTO noise study report dated November 29, 1999. Please let me know if you have questions.

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Date (2014)	Written Comments	Preliminary Project Team Responses
	I am a Hamiltonian who is concerned about the new plan for the 403 ramp to Brantford. Currently, a 25 foot berm provides: physical, esthetic and sound protection for the homes on Oneida Blvd. backing onto highway 403. The 1996 Environmental Study for the Highway 403 interchange with the LINC required sound mitigation for area 19 (now marked NR02). Rather than installing a sound barrier and trucking the dirt away, the berm was used to satisfy Ministry of Transportation (MoT) requirements. It has provided a low cost option to a sound barrier for years. The new 403 Brantford ramp proposal intends to remove that protection, and not replace it with any barrier between the highway and the homes. The berm's removal will mean the 403 interchange no longer meets the Ministry of Transportation requirements for the interchange. Before the ramp is approved, appropriate noise, pollution and esthetic mitigation needs to be in place.	+ We acknowledge the concerns you raised at the PIC held on June 9, 2014 and refer to our discussion with the experts in transportation noise studies who answered several of your/public questions and concerns. At your request we also forwarded [to] you the MTO's noise study report completed in 2000 for the LINC – Hwy 403 interchange. As agreed, the consultant will further review the noise study undertaken for the ramp project in light of the comments we heard at the PIC. The current noise study is following the MTO/MOE guidelines and will ensure their requirements are met.

Date (2014)	Written Comments	Preliminary Project Team Responses
		+ We will provide you a detailed response and the study report once the review is completed: • Section 2.2 discusses the rational for using a highway noise prediction model rather than measured noise levels given instantaneous or short duration sound levels that exceed permitted levels as opposed to an average noise level over a fixed time and the influence of extraneous noise sources on measured readings (i.e. cannot be isolated from the traffic noise). It also makes reference to the fact that the models have been extensively field tested to verify the validity of the noise prediction model. These were all discussed at the PIC. • Section 3.5 outlines the fact that a minimum 3 dBA change in sound level is required for it to be perceptible (modelling indicated no change at this location). • Section 3.5 indicates that no areas require noise mitigation and that the berm along Oneida will act primarily as a landscaping feature.

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Date (2014)	Written Comments	Preliminary Project Team Responses
	Traffic noise from a highway averages 85 db, and is higher in areas of acceleration, such as highway access ramps. The current MoE and MoT standard is 65 db at most with no increase of more than 5 db. An algorithm alone is being used to determine these levels, but if variables are missed and the numbers are off, adding a sound barrier post construction will be more expensive than protecting the homes at the time of construction.	+ As agreed, the consultant will further review the noise study undertaken for the ramp project in light of the comments we heard at the PIC. The current noise study is following the MTO/MOE guidelines and will ensure their requirements are met. We will provide you a detailed response and the study report once the review is completed: • Section 2.2 discusses the rational for using a highway noise prediction model rather than measured noise levels given instantaneous or short duration sound levels that exceed permitted levels as opposed to an average noise level over a fixed time and the influence of extraneous noise sources on measured readings (i.e. cannot be isolated from the traffic noise). It also makes reference to the fact that the models have been extensively field tested to verify the validity of the noise prediction model. These were all discussed at the PIC. • Section 3.5 outlines the fact that a minimum 3 dBA change in sound level is required for it to be perceptible (modelling indicated no change at this location). • Section 3.5 indicates that no areas require noise mitigation and that the berm along Oneida will act primarily as a landscaping feature.

Date (2014)	Written Comments	Preliminary Project Team Responses
	Constructing a highway ramp in such close proximity to backyards where children play, is in my opinion, not well thought out. Providing no physical barrier between homes and the highway is negligence. Should a child go after a ball, and onto the highway, the City of Hamilton would be liable, as no attempt was made to provide a physical barrier between the highway and the children. Plexiglas barriers are erected on bridge overpasses to prevent the mentally ill from jumping to their death. Why is the City of Hamilton so loath to protect its children?	+ The existing right-of-way is fenced off along the back of the properties along Oneida Blvd and extends along Mohawk Road to the trail. Access is limited to the extent feasible without impacting traffic movement and is typical of any interchange within an urban environment. + The hazard clear zone offset for the ramp is 3m and 4.5m for a linear and curvilinear alignment respectively based on the ramp design speed and anticipated volumes, and is less than the minimum offset from the edge of ramp lane to any adjacent residential lot (proposed offset is 45.5m to 167 Oneida with a minimum of 13.2m adjacent to 179 Oneida). The clear zone is an unobstructed, traversable roadside area designed to enable a driver to stop safely or regain control of a vehicle that has accidentally left the roadway.
	In addition, more traffic will cut through the neighbourhood to access the 403. Traffic lights, with cameras, will be necessary to slow traffic and encourage the use of the main thoroughfares.	+ The proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Hwy 403 and Linc interchange, however is located further from the adjacent residential properties (45.5m vs 30.0m at 167 Oneida). + No additional neighbourhood cut-through traffic is anticipated as the ramp is connected with Mohawk Road directly thereby allowing traffic to access the ramp from the main road system.

Date (2014)	Written Comments	Preliminary Project Team Responses
	If a ramp to the 403E is necessary, efforts should be made to minimize the impact on the residential neighbourhood. Moving the berm back, accomplishes both. Failing to protect the neighbourhood from cars, dirt, noise, headlights and exhaust so some people don't have to drive a few extra blocks, is an extremely expensive proposition, particularly when it will benefit a handful of well-heeled people in Ancaster, and all Hamiltonians have to pay for it. The province is already billions of dollars in debt. Is this really where we need to be spending the limited resources we will be receiving from the province?	+ Vegetative screening of the ramp can be reviewed and implemented as part of the detail design.
	Your thoughts on this would be most appreciated.	+ Comment noted and addressed above.
	At the meeting, the berm in question, was said to be for no other purpose but to save the cost of taking the dirt away. However, it is clear from the noise assessment done for the LINC that noise mitigation for the area was required and the berm was used in place of a sound barrier. The study group will need to revise their algorithm to ensure that mitigation for both the LINC and the new ramp are covered, before the ramp can be put in. Also, I would appreciate if sound contours be provided as per MOT/MOE regulation.	+ As agreed, the consultant will further review the noise study undertaken for the ramp project in light of the comments we heard at the PIC. The current noise study is following the MTO/MOE guidelines and will ensure their requirements are met.
	Thanks for taking this into consideration. I will await the complete report. When, approximately, do you think this might be available?	+ We will provide you a detailed response once the review is completed.

Date (2014)	Written Comments	Preliminary Project Team Responses
	As per section 4ii of the Ministry of Transportation Environmental Guide for noise, please send the noise contour plots for my area with respect to the effects of the berm that was put in place to mitigate noise from the LINC and the removal with the proposed new 403 Brantford ramp.	+ As agreed, the consultant will further review the noise study undertaken for the ramp project in light of the comments we heard at the PIC. The current noise study is following the MTO/MOE guidelines and will ensure their requirements are met. We will provide you a detailed response once the review is completed.
June 17 [Question]	I was wondering if there are written reports, working papers or technical assessments available for the work that has been completed to date. I am interested in the traffic analysis that was done. More specifically I was wondering about the demand modelling and intersection analyses for the Rousseau/Mohawk corridor including the intersection at Wilson Street. I was also wondering if there are diagrams of the alternative ramp configurations for the intersection at Mohawk Road. Finally, I was wondering if there is a repository of the work completed to date at the Ancaster library.	+ The Ancaster Transportation Master Plan is available on the project website at www.hamilton.ca/AncasterTMP. + The ramp is not intended as a solution to the Wilson traffic issues, however will provide some relief to the downtown core and not impact the Wilson/Rousseau operation (i.e. redirection of intersection traffic as opposed to increase in intersection traffic). + At the conclusion of this study, an Environmental Study Report will be prepared for public review and can be made available at the Ancaster library.
June 17	There are no westbound accesses to #403 from Main St. West to the Duff's Corners intersection.	+ Comment noted.

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Date (2014)	Written Comments	Preliminary Project Team Responses
[Supportive]	No westbound access means that persons north of Ancaster Village and adjacent to the 403 in the vicinity of the West side must travel through Ancaster Village to get on the 403 westbound or if they are going to Duff's Corners or the industrial park – we would like to limit THROUGH TRAFFIC in the village – this access will improve the situation – we would encourage additional accesses such a one for traffic from McMaster and Hamilton Health Sciences to enter onto the 403 for south-bound activity and easier connectivity to the [Linc] for those vehicles	+ Comment noted.

Date (2014)	Written Comments	Preliminary Project Team Responses
June 22 [Non-supportive]	I attended the last PIC regarding the additional access to Brantford off of Mohawk Rd. I certainly left feeling quite dismayed. It appears to me that there is a complete lack of concern for the welfare of the residents who will be affected by this project the most- the residents living on Oneida Blvd. One of your "engineers" told me that the roadway may be as close as 50 ft from the back of my property, with absolutely no intention of extending the existing sound barrier to provide privacy as well as the definite increase in noise that will be experienced. His basis was the "insignificant" increase in highway noise based on computer modelling, being within the 17 hour average required by the province. That is absolutely ludicrous. There will be no doubt noise in excess of 65dB during peak times and it is I and the other residents that will have to deal with it on a daily basis, not your "engineers". I also don't relish waving "hi" to everyone who drives on this new access road. If this project goes through, and I have noise or privacy concerns, one of your "engineers" told me I should take it up with city council. That statement is preposterous! Council is completely ineffective, and this request will get bogged down in the usual political red tape. The only time to address this problem is to have it planned from the start. I request that careful consideration be given to the people who actually live there- I will have to deal with all of the issues associated with this project on a daily basis, all for the sake of a very small number people who will use this roadway.	+ We [are] currently further reviewing the noise assessment completed for this study. We will be providing you with a formal response to your concerns, by letter: • Section 2.2 discusses the rational for using a highway noise prediction model rather than measured noise levels given instantaneous or short duration sound levels that exceed permitted levels as opposed to an average noise level over a fixed time and the influence of extraneous noise sources on measured readings (i.e. cannot be isolated from the traffic noise). It also makes reference to the fact that the models have been extensively field tested to verify the validity of the noise prediction model. These were all discussed at the PIC. • Section 3.5 outlines the fact that a minimum 3 dBA change in sound level is required for it to be perceptible (modelling indicated no change at this location). • Section 3.5 indicates that no areas require noise mitigation and that the berm along Oneida will act primarily as a landscaping feature. + Comment noted.

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Date (2014)	Written Comments	Preliminary Project Team Responses
June 26 [Non-supportive]	We have lived here for over 20 years. When the link opened in 1995 the amount of traffic for the old ramp was ridiculous. One after another car would be accelerating from zero to 60 mph constantly, very noisy, cars stopping to do whatever, looking into our backyard, man urinating towards our house, people throwing garbage into the ditch. We would have to leave the windows closed due to the noise and not be able to spend time in the backyard with family and friends. We considered selling the house and moving due to the increase in traffic from our backyard. But you removed the ramp and built a tall berm and now we could stay because as noisy as it is my family can enjoy the backyard and not have to tolerate what the old 403 ramp to Brantford brings.	+ Comment noted.
	My other concern is the amount of traffic right now on Mohawk Road east approaching the Link. The amount of cars make it impossible to any access points to leave the survey and we already struggle with this on a daily basis not to mention that access on to Golf Links can take up to 10 minutes when it's the evening and weekend. You can't access these between 9 and 2 when most of us are at work. Try it at 3:30 to 6:00 pm and 7:00 and 9:30 am during the week and Saturday and Sunday all day long. And now you want to put it back and make all the simple daily needs for families in Mohawk Meadows impossible.	+ The proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Hwy 403 and Linc interchange. The increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already traveling in the Ancaster area, but will have a shorter trip to get to the highway and therefore spend less time on municipal roads.

Date (2014)	Written Comments	Preliminary Project Team Responses
	[Photo provided]. These would be the 3 access points that my family needs to leave for normal daily activities which are over congested already. By putting the ramp back we will all be trapped, wasting gas, idling, adding stress to our daily lives with noise, headlights and congestion. [Photo provided]. This is the ramp for the #6 bypass onto the 403 which does not see the traffic as our area does but yet they have a tall sound barrier that's over 50 yards from the ramp. We only have 25 maybe 30 yards. We should be treated with the same respect.	+ Comment noted and addressed above. + The consultant will further review the noise study undertaken for the ramp project in light of the comments received in response to the PIC. The current noise study is following the MTO/MOE guidelines and will ensure their requirements are met.
June 26 [Non-supportive]	In the first presentation, it is noted that the title of the study indicates that it is an evaluation for additional access to Highway 403 westbound in Ancaster. In this process five options involving three locations are examined. In illustrating the constraints and existing conditions of concern, Slides 7 and 8 illustrate the existing conditions for only the Mohawk Road ramp. It is noted that none of the existing conditions, which reflect potential constraints, are contained within the study area outlined for the ramp. Consequently, it may be concluded that none of the items identified in the existing conditions bear on the proposed Mohawk Road ramp locations. This gives rise to questions about how the items of the list influenced the selection process and the other options, if at all. The two slides also raise questions about the existing conditions that were present at the other two sites and the extent of effects at those sites.	+ Existing conditions for the three subject sites were reviewed and considered in the evaluation of alternatives. A summary of existing conditions will be documented in the Environmental Study Report.

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Date (2014)	Written Comments	Preliminary Project Team Responses
	The presentation of only one list of existing conditions and marked photograph for the Mohawk Ramp is suggestive of a predisposition to install the ramp at this location. Presumably, the study had a similar list of existing conditions and marked aerial photograph for the other two locations which were not presented to the public. It is necessary to present that information to confirm the three sites were examined in an equitable manner.	+ Existing conditions for the three subject sites were reviewed and considered in the evaluation of alternatives. A summary of existing conditions will be documented in the Environmental Study Report.
	Slide 10, the diagram showing Traffic Volumes Accessing Hwy 403 is inaccurate and mislabelled in my opinion, the traffic volumes shown appear to be existing peak hour volumes representing approximately 8 to 9 percent of daily traffic. Not all of the traffic shown in the table is accessing Hwy 403. In this context the labelling of the diagram is wrong.	+ There is a slight mislabelling. The diagram should have explained that all the traffic volumes in colour are either highway volumes or ramps to/from the highway. The volumes in black/grey are purely there for context.
	The traffic analysis of the first presentation indicates that traffic congestion for individuals coming out of Ancaster during the p.m. peak hour can be expected to increase somewhat as a result of the ramp from Mohawk Road to Hwy 403.	+ Our detailed analysis shows that there will be little change in congestion for Ancaster residents as a result of the proposed ramp.
	If there is any doubt about the operational impacts of the traffic diversion from Wilson Street to Mohawk Road, the City may examine (and present) the results of a Synchro type analyses to identify the capacity utilization, queuing and phasing timing for each of the traffic signals at the 5 key intersections in Ancaster.	+ Comments noted for consideration.

Date (2014)	Written Comments	Preliminary Project Team Responses
	The decision to remove the ramp was unlikely to have been an arbitrary one and more likely to have been premised on both the demand and the utility of the connection. As a long-time resident of Ancaster, it is my recollection that the removal of the ramp had little or no effect on traffic in the core area and likely reduced traffic on Mohawk Road…While the connection was removed, there is no information to indicate that it was ever really needed.	+ The Ancaster Transportation Master Plan recommended a new westbound connection to Highway 403, in 2011.
	Traffic volumes in the core area of the village have increased over the years. The increase in traffic has arisen through the growth of residential, retail and commercial opportunities within the town. There is no evidence in the information presented by the Study analysis that through trips have increased or at least increased in a similar way…improved travel to Hwy 403 by way of the ramp and/or through the core area can be expected to generate more trips to both of these destinations.	+ We concur that there is little evidence of growing through traffic. The new ramp is intended to provide more convenient access to Highway 403 without having to travel along Wilson Street through the village area. Given other ramp choices for non-Ancaster residents, we do not see the ramp attracting through traffic in the future.
	On slide 15, there is a presentation of the technical assessment of 5 options. The means for evaluating the options was not provided. In this context, there is no indication of what the technical evaluation is evaluating or what the priorities may be.	+ The evaluation of alternatives was simplified for presentation at the PIC. The alternatives were rated as very poor, poor, neutral, good, or very good based on an assessment of their positive and negative impacts against corresponding criteria. Impacts were assessed after considering measures to mitigate negative effects. A more detailed evaluation was completed and will be included in the Environmental Study Report.

Date (2014)	Written Comments	Preliminary Project Team Responses
	One of the constraints is to improve access to Hwy 403 without impacting highway operations. Ironically, the greater the effectiveness of the ramp in diverting traffic from Wilson Street, the greater the impact on highway operations. As the Parkway to Hwy 403 ramp is already congested in the p.m. peak hour, this factor has a negative impact on the evaluation of the Mohawk Road ramp which is not evident in the evaluation.	+ The MTO has been and will continue to be consulted with respect to impacts on highway operations.
	In considering the opportunities for other modes of transportation, there is no information provided as to how this option may provide a replacement of the three ramps…The effects of the ramp on transit including scheduling, route adjustments or expansions, and delays are not discussed. Due to the diversion of traffic, it is reasonable to expect the diversion of traffic to Mohawk Road, which serves more traffic than Wilson Street, will impose greater delays to transit operations in that area than any of the other options.	+ Opportunities for other modes of transportation are considered to supplement and not replace the subject ramps. + The proposed ramp will attract volumes similar to that of the previous ramp that was removed as part of the construction of the Hwy 403 and Linc interchange. The increase in traffic is relatively minor. The increase is essentially locally generated traffic that is already traveling in the Ancaster area, but will have a shorter trip to get to the highway and therefore spend less time on municipal roads. Consequently, no appreciable impacts are expected to transit operations.
	In considering the evaluation criteria…There is no indication of the weighting of the effects…each category of evaluation can be taken to have the same weight. Since the Do Nothing Category had a better or equal weighting in three of the five categories, the chart emphatically indicates that the Do Nothing option is the better option.	+ The evaluation table on Slide 15 of the PIC 1 presentation is not intended to be formulaic. However, if numerical values are assigned to the pie shaped icons, (i.e. 1 for whole pie, 0.25 for ¼ pie), and equal weighting assumed, Alternative 2 is preferred as noted.

Date (2014)	Written Comments	Preliminary Project Team Responses
	The economic impact of the Do Nothing option is a public savings of the entire cost of the project, which is a significant benefit to Hamilton tax payers. In comparing the Economic impacts to the Cultural impacts an equal weighting implies that an expenditure of the amount indicated to construct the project is about the same as the archaeological resources and cultural heritage of the build-options, which are all in the existing right-of-way of the highway lands. It is apparent that the evaluation process appears subjective in nature; as such, subject to individual biases of the evaluators. There is significant bias related to at least one source apparent in the evaluation. The table assumes that additional accessibility to Hwy 403 in Ancaster is required when in fact; there has been no analysis forthcoming to show the need or justification.	+ It is agreed, and reflected in the evaluation table that Alternative 1, do nothing, is preferred (and equivalent to Alternative 5, Alternative modes of transportation) in the economic criteria. + Weighting of each factor was not explicitly considered. The evaluation summary table was intended to graphically illustrate the evaluation process, and was not intended to be formulaic. The Golf Links alternative had potential significant impacts to a stone farmhouse on the east side of Highway 403. + The Ancaster Transportation Master Plan recommended a new westbound connection to Highway 403, in 2011.

Date (2014)	Written Comments	Preliminary Project Team Responses
	As the preference is for the larger radius, it inherently expresses a preference for higher speeds earlier on the ramp. Due to the spiral design, the larger radius allows acceleration while drivers are on Mohawk Road and before entering the ramp. The study may wish to explore these issues with those representing Ancaster.	+ Of the three basic exit ramp designs considered (Direct Taper, Parallel Lane and Direct Spiral), the design least disruptive to Mohawk Road was selected. The preferred design involves no modifications of Mohawk Road through the Filman Road intersection. Although the larger radius on the ramp is conducive to higher speeds on the ramp, the Direct Spiral design is generally conducive to lower speeds on Mohawk Road (for a given ramp radius). + Meetings have been held with the Ancaster Community Council (ACC) to review this project, and a summary of the public comments received in response to the PIC will be forwarded to ACC for their review.
	The five design alternatives did not include an urban intersection design alternative such as that consistent with diamond and Parcio B-4 interchange design. This alternative would provide a low-speed right turn for access to the ramp rather than high-speed access as is provided in the evaluated configurations. The alternative may be accessed from a standard arterial taper or short right turn lane. The option offers the opportunity for a more compact, less land consumptive design with less environmental and possibly social impacts.	+ As noted above, of the three basic exit ramp designs considered (Direct Taper, Parallel Lane and Direct Spiral), the design least disruptive to Mohawk Road was selected. This design is not significantly more space consumptive than an “urban intersection” with a standard taper or short right turn lane as suggested, while allowing through traffic speeds on Mohawk Road to be maintained through the intersection.

Date (2014)	Written Comments	Preliminary Project Team Responses
	The addition of the ramp will have no or little meaningful effect on traffic in the village core…one can expect the marginal increase in traffic on Rousseau Street to have a greater detrimental effect than the marginal benefit of a reduction in traffic on Wilson Street. However, realistically, the effects are likely to be insignificant in the operation framework of changes in running time and intersection delay in the core area. Based on the absence of meaningful results forecast for the subject ramp, the City may consider the benefits of assigning the required expenditure to infrastructure improvement somewhere else where there can be a meaningful return on investment.	+ Comment noted for consideration.

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Date (2014)	Written Comments	Preliminary Project Team Responses
July 6 [Support for cycling infrastructure]	Would like to stress how important it is that cycling infrastructure be incorporated into the proposed project design. The paved shoulder [on Rousseaux/Mohawk between McNiven Rd and the merge onto the Linc] is not adequate to accommodate cyclists as the width throughout is very narrow and in some places non-existent. The Hamilton Cycling Masterplan *Shifting Gears* calls for bicycle lanes on Rousseaux/Mohawk from Wilson St to Filman Rd. Bicycle lanes would connect to the existing trail network that crosses Mohawk Rd at the signalized intersection of Filman Rd/Hiawatha By/Oneida By and promote safe alternative transportation connection to Wilson St and MicNiven Rd. Rousseaux/Mohawk is already a heavily used commuter route and we anticipate increased volume from rerouted traffic from Wlson St and the Ancaster core. All designs for this project need to include safe cycling infrastructure on Rousseaux/Mohawk. This would contribute to alternative #5 in the PIC #1 presentation to enhance or improve alternative transportation modes.	+ Thank you for your input into the study process. The Ancaster Transportation Master Plan Study (Phases 1 & 2) completed in 2011 supported the recommendations of the Cycling Master Plan (Shifting Gears 2009). Please refer to Section 9.4 of the Report posted on project website www.hamilton.ca/AncasterTMP. The improvements recommended for these roads include urbanizing, widening to three lanes, and providing sidewalk and cycling facility. The cross section details of the road will be developed only during the Phase 3 & 4 of Municipal Class EA study process, which has not yet been initiated or scheduled. Public consultation including PICs will be held during the Phase 3 & 4 study process. + The scope of work of the ongoing Mohawk Road Ramp study doesn't include the Rousseaux and Mohawk Road improvement project. However, the ramp study recommendations include promoting active transportation.

4. Next Steps

Based on the project team's review of the comments submitted, the City will either select or refine the preferred design concept. As part of their review, the project team will revise the noise study, as necessary, to address the comments of residents.

Once the preferred design has been selected, the project team will continue with the next phase of the Class EA process (documentation). During the next phase, the public will have an opportunity to review the Environmental Study Report.

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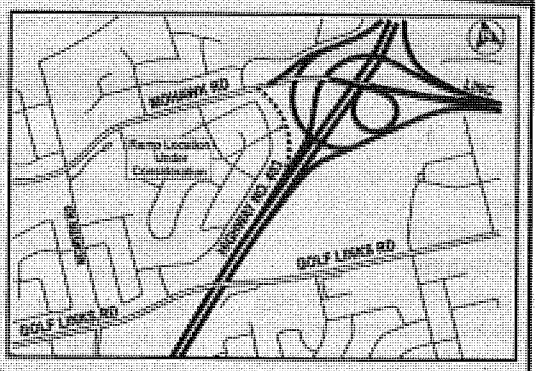
Appendix A: PIC Notice and Materials

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD) NOTICE OF PUBLIC INFORMATION CENTRE #2



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To comply with the Environmental Assessment Act, the study will follow the Municipal Engineers Association's Municipal Class Environmental Assessment process (October 2000, as amended in 2007 and 2011)

Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road.
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process

The second PIC for this project is scheduled, as follows, to present the study findings, alternate design solutions, preferred solution and to obtain further public and stakeholder input into the study process.

Date:	**Monday, June 9, 2014**
Time:	**6:00 – 8:00 p.m. Open house/drop-in format** **A presentation will take place at 6:45 p.m.**
Location:	**Ancaster Old Town Hall, 310 Wilson Street E.**

There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers.

For more information related to the study, please refer to project website www.hamilton.ca/mohawkroadramp. If you require additional information or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2039 tplanning@hamilton.ca	*David Sinke, B. Eng. Mgt., P. Eng.* Project Manager AMEC Environment & Infrastructure 3215 North Service Road, Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

If you have any accessibility requirements in order to participate in this program or event, please contact Mohan Philip by **June 2, 2014.** Advance requests are highly encouraged to enable us to meet your needs adequately.

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This notice issued May 20, 2014

MOUNTAIN NEWS

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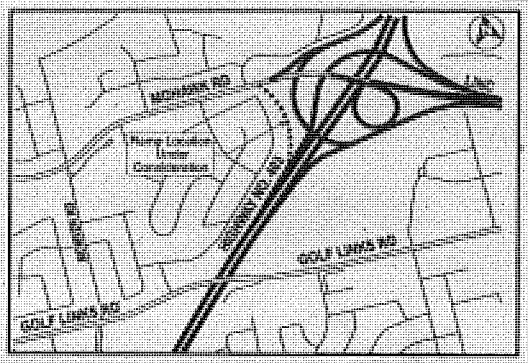
MAY 29. 2014

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD) NOTICE OF PUBLIC INFORMATION CENTRE #2

Hamilton



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This notice issued May 20, 2014

ANCASTER NEWS

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MAY 29. 2014

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Hamilton at your Service

905-546-CITY (2489)
519 AREA RESIDENTS CALL 519-647-2577
CAMPBELLVILLE RESIDENTS CALL 905-634-2971

需要中文咨询，请打如下电话 • Pour des informations en français, s'il vous plait composez le 905.546.2489 • Per informazioni in Italiano per favore chiama 905.546.2489 • Para Informações em português, por favor ligue 905.546.2489 • Po Informacje z jezyku polskim, prosze dzwonic 905.546.2489

NOTICES

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)
NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 2)

May 20, 2014

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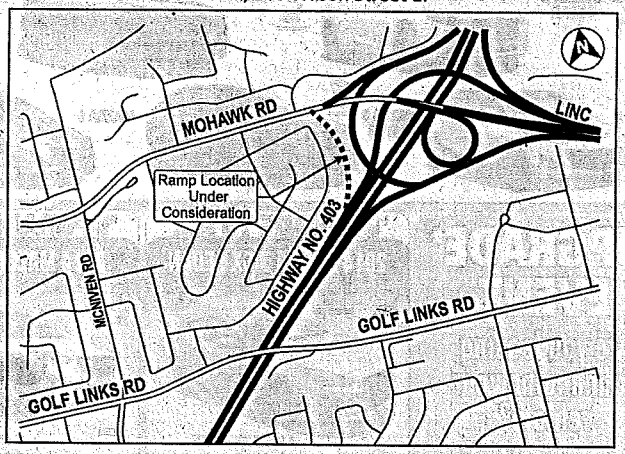

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MAY 30
2014

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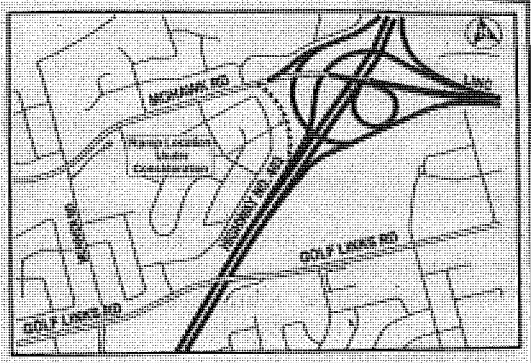

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ANCASTER NEWS

JUNE 5, 2014

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Hamilton

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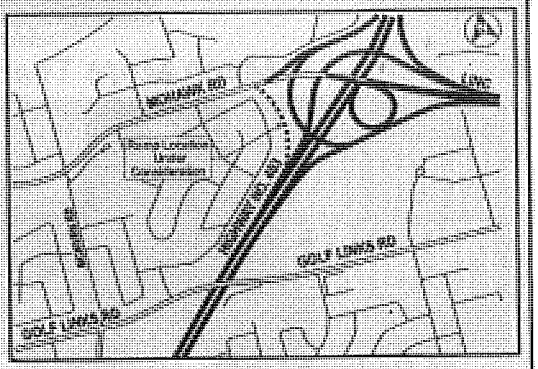

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If you have any accessibility requirements in order to participate in this program or event, please contact Mohan Philip by **June 2, 2014.** Advance requests are highly encouraged to enable us to meet your needs adequately.

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This notice issued May 29, 2014

MOUNTAIN NEWS
JUNE 5. 2014
Pg 30.

Hamilton at your Service

905-546-CITY (2489)
519 AREA RESIDENTS CALL 519-647-2577
CAMPBELLVILLE RESIDENTS CALL 905-634-2971

需要中文咨询，请打如下电话 • Pour des informations en français, s'il vous plaît composez le 905.546.2489 • Per informazioni in Italiano per favore chiama 905.546.2489 • Para informações em português, por favor ligue 905.546.2489 • Po informacje z jezyku polskim, prosze dzwonic 905.546.2489

NOTICES

Hamilton

HIGHWAY 403 WESTBOUND ACCESS RAMP PROJECT (AT MOHAWK ROAD)
NOTICE OF PUBLIC INFORMATION CENTRE (PIC# 2)

May 20, 2014

The City of Hamilton has initiated a study in collaboration with the Ministry of Transportation to determine the feasibility of a westbound access ramp to Highway 403 in Ancaster.

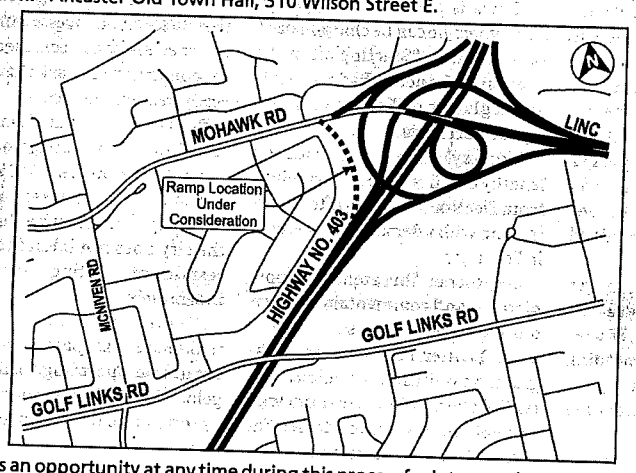
To comply with the *Environmental Assessment Act*, the study will follow the Municipal Engineers Association's Municipal Class Environmental Assessment process (October 2000, as amended in 2007 and 2011)

Specific goals and objectives of the Highway 403 westbound access ramp feasibility and EA study are to:

- Determine the operational and geometric feasibility of a westbound access ramp to Highway 403 from Mohawk Road.
- Assess the limitations and impact of the proposed ramp on the Highway 403 operations and future plans
- Complete Phases 1 to 4 of the Municipal Class EA process

The second PIC for this project is scheduled, as follows, to present the study findings, alternate design solutions, preferred solution and to obtain further public and stakeholder input into the study process.

Date: Monday, June 9, 2014
Time: 6:00 – 8:00 p.m. Open house/drop-in format
A presentation will take place at 6:45 p.m.
Location: Ancaster Old Town Hall, 310 Wilson Street E.



There is an opportunity at any time during this process for interested persons to provide input into the study and bring concerns to the attention of the Project Managers.

For more information related to the study, please refer to project website www.hamilton.ca/mohawkroadramp. If you require additional information or wish to be added to the project mailing list, please contact:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905 546 2424 x 3438
Fax: 905 546 2039
tplanning@hamilton.ca

David Sinke, B. Eng. Mgt., P. Eng.
Project Manager
AMEC Environment & Infrastructure
3215 North Service Road,
Burlington ON L7N 3G2
Tel: 905-335-2353
Fax: 905-335-1414
David.sinke@amec.com

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JUNE 6. 2014

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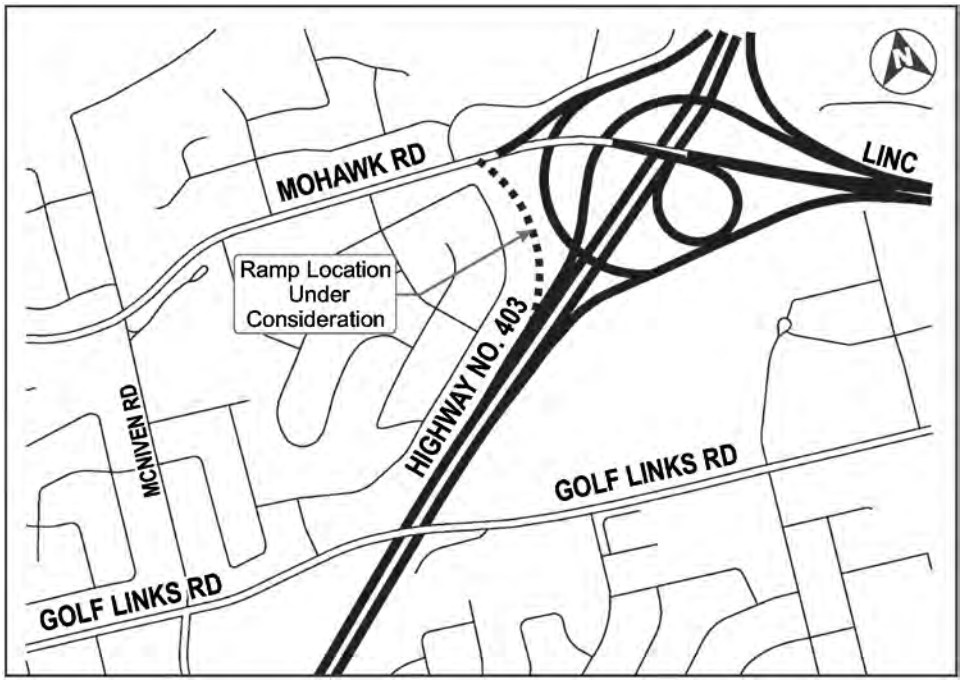

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Mohan Philip, M. Eng., P. Eng. Project Manager Transportation Planning and Mobility Programs Public Works Dept., City of Hamilton 77 James Street North, Suite 400 Hamilton, ON L8R 2K3 Tel: 905 546 2424 x 3438 Fax: 905 546 2039 tplanning@hamilton.ca	*David Sinke, B. Eng. Mgt., P. Eng.* Project Manager AMEC Environment & Infrastructure 3215 North Service Road, Burlington ON L7N 3G2 Tel: 905-335-2353 Fax: 905-335-1414 David.sinke@amec.com

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Job Title	*Organization*
City of Hamilton	
Manager, Sustainable Initiatives	Public Works
Manager, Landscape Architectural Services	Public Works
Director of Tourism and Culture	Planning and Economic Development
Director, Public Health Services	City of Hamilton
Division Director, Recreation Community & Emergency Services Department	City of Hamilton
Director, Water & Wastewater Engineering	Public Works
Deputy Fire Chief	Hamilton Fire Department
Assistant Deputy Chief	Hamilton Fire Department
Manager of Infrastructure & Source Water Planning	Water & Waste Water Division
Director	Economic Development Division
Cultural Heritage Planner (East)	Planning & Economic Development
Director of Corporate Initiatives	City Managers Office
Manager of Policy and Programs	Public Works
Senior Director, Parking & By-Law Services	Planning & Economic Development
Cultural Heritage Planner (West)	City of Hamilton
Director of Transportation	Public Works
Director, Strategic & Business Planning	Planning & Economic Development
Natural Heritage Planner (East)	Planning & Economic Development
Manager, Transportation Planning	Public Works
Manager, Mobility Programs and Special Projects	Public Works
Director of Planning	Planning & Economic Development
Co-Ordinator Business Improvement Areas	Planning & Economic Development
Director of Water & Wastewater	Public Works
Manager of Forestry & Horticulture	Environmental Services
Director of Environmental Services	Public Works
Director, Strategic Planning	Public Works
Manager, Urban Renewal	Planning & Economic Development
Director of Growth Planning	Planning & Economic Development
Natural Heritage Planner	Planning & Economic Development
Medical Officer of Health	Pubic Health Services
Manager, Community Planning	Planning & Economic Development
Senior Director, Growth Management	Planning & Economic Development
Director of Operations	Public Works
Acting Paramedic Chief,	Hamilton Paramedic Service
Manager, Traffic Operations	Public Works
Director, Financial Planning & Policy	Corporate Services
Conservation Authority	
Manager, Watershed Engineering Services	Conservation Halton
Director, Watershed Planning & Engineering	Hamilton Conservation Authority
Manager, Watershed Planning Services	Hamilton Conservation Authority
Provincial Authorities	
	Ministry of Agriculture and Food
Area Supervisor, Niagara Area Office	Ministry of Natural Resources
E/A Project Co-ordination Section	Ministry of the Environment
Regional Archaeologist, Southwestern Archaeological Field Office	Ministry of Culture
Regional Director - Hamilton/Niagara Regional Office	Ministry of Community and Social Services
	Ministry of Transportation
Manager, Heritage Operations Unit, Heritage & Libraries Branch	Ministry of Culture
Policy Advisor - Consultation Unit	Minstry of Aboriginal Affairs

District Manager, Guelph District Office	Ministry of Natural Resources
Environmental Assessment & Planning Co-ordinator	Ministry of the Environment
District Planner - Guelph District	Ministry of Natural Resources
Information Management Supervisor	Ministry of Natural Resources
Highway Engineering Hamilton	Ministry of Transportation
	Municipal Affairs & Housing
	Ontario Provincial Police, Burlington Detachment
Director, Policy and Relationships Branch	Ministry of Aboriginal Affairs
Manager	Niagara Escarpment Commission
A/Heritage Planner	Ministry of Tourism & Culture
Federal Authorities	
Regional Subject Expert for Ontario, Consultation and Accommodation Unit	Aboriginal Affairs and Northern Development Canada
	Aboriginal Affairs and Northern Development Canada
c/o Canadian Wildlife Services	Environment Canada
EA Section	Environment Canada
E/A Project Co-ordination Section	Ministry of the Environment
Director, Ontario Region	Canadian Environmental Assessment Agency
Integrated Policy & Planning Division	Ministry of Health and Long Term Care
	Ministry of Public Infrastructure
Fish Habitat Biologist - Habitat Management	Dept. of Fisheries & Oceans
Fish Habitat Biologis	Dept. of Fisheries & Oceans
	Natural Heritage Information Centre
Rural Planner	Ministry of Agriculture, Food & Rural Affairs
Environmental Assessment Projects Officer	Environment Canada
Environment Officer- Environment Unit, Ontario Region	Lands and Trusts Services Env. Unit INAC
Claims Analyst, Ontario Team, Specific Claims Branch	Ministry of Indian and Northern Affairs
Navigable Waterways Program	Transport Canada
Environmental Coordinator	Transport Canada
	Canadian Transportation Agency
First Nations	
Director of Lands & Resources	Six Nations of the Grand River
	Patent & Trademark Agents for Huron-Wendat
Secretary Political Sector	Huron-Wendat Nation Council
Lands & Resources	Six Nations Eco-Centre
	Haudenosaunee Resource Centre
	Environment Unit
Program Manager	Hamilton Executive Director for Aboriginal Coalition
Director of Lands, Claims & Member Research	Mississaugas of New Credit First Nation
NGOs	
	Treblay Building
Executive Director	Hamilton Regional Indian Centre
Administrator	The Métis Nation of Ontario
	Council of Ontario Chiefs
Executive Director	De dwa da dehs nye>s Aboriginal Health Centre
	Association of Iroquois and Allied Indians
Executive Director	Native Women's Centre
President	Metis Women's Circle
	Canadian Metis Council
Director of Lands and Resources	Union of Ontario Indians - Nipissing First Nation
Executive Director	Niwasa Aboriginal Early Learning Programs

	Hamilton Region Indian Centre
Acting Director of Environmnetal Stewardship Unit	Assembly of First Nations
Executive Administrator	Hamilton Executive Directors' Aboriginal Coalition
Chair	c/o Program Manager HEDAC
President	Hamilton/Wentworth Métis Council
Neighbourhood Groups/Organizations	
Membership Coordiantor	Federation of Urban Neighbourhoods of Ontario
Chair	Ancaster Community Council
Executive Director	Ancaster BIA
Chair	Bonnington, Buchanan, Mohawk, Southam Neighbourhood Association
Other Related Community Groups	
Trustee Ward 1 and 2, Past Chair	Hamilton Wentworth District School Board
	Environment Hamilton
Organizer	Citizens at City Hall (CATCH)
Chair	Hamilton Community Foundation
Utilities	
Land Analyst, Urban Development	TransCanada Pipelines
Senior Right-of-Way Agent	Enbridge Pipelines Inc.
Mapping Supervisor	Union Gas
General Manager, Hamilton Community Energy	Hamilton Utilities Corporation
	Cogeco Cable Inc.
Senior Network Management Engineer/Officer	Hydro One
Operations Manager	Union Gas
	Sun Canadian Pipeline
Manager, Public Works Design & Construction	CN
Manager - Public Works	Canadian Pacific Railway
	CN Rail - Engineering & Environmental Services
Planner/Designer	Source Cable
Land Agent - Eastern Pipeline Operations	Imperial Oil Products & Chemical Division
Crossings Co-ordinator, Eastern Region	Enbridge Pipelines Inc.
Manager of Capital Projects	Horizon Utilities Corporation
	Union Gas Ltd.
	Bell Canada
	Cogeco Cable Inc
Regional Director - Marketing	Southern Ontaio Railway
	Canadian National Railway
Hospitals	
Chair, Board of Directors	Hamilton Health Sciences
Schools	
Chair	Hamilton-Wentworth District School Board
	Hamilton District Catholic School Baord
	Hamilton District Catholic School Baord
Accommodation & Planning	Hamilton-Wentworth District School Board
	French Public School Board
	French Catholic School Board
Other	
Chief Executive Officer	Hamilton Chamber of Commerce
Manager - Planning & Development	Go Transit
Stakeholder Relations	Go Transit
General Manager - Transportation Policy and Planning	Metrolinx

The City of Hamilton

Additional Access to Brantford-bound Highway 403

Class Environmental Assessment (Class EA)

Public Information Centre No. 2

June 9, 2014

Purpose, Goals and Objectives

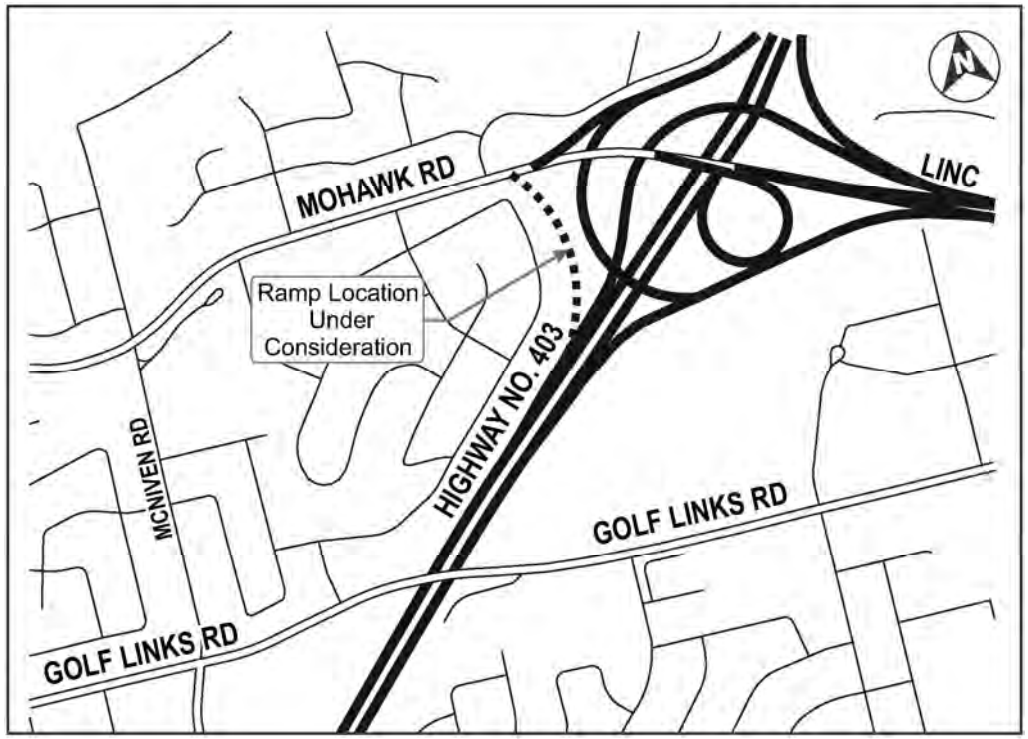
Purpose

- Complete feasibility study and Class EA process for proposed ramp

Goals and Objectives

- Confirm need and justification for improvements
- Determine operational and geometric feasibility of proposed ramp
- Assess impact of proposed ramp on Highway 403 operations
- Assess impact of proposed ramp on natural and socio-economic environment, and provide for mitigation of impacts
- Complete Phases 1 to 4 of Municipal Class EA process

Study Area

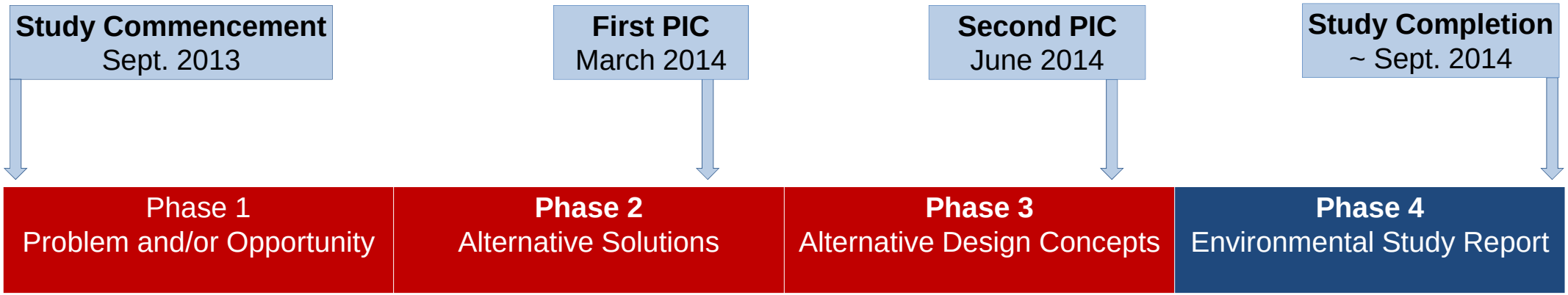


Class EA Process

Planning and Design:

The Study follows Phases 1 to 4 of the **Municipal Engineers Association Municipal Class EA** process for a **Schedule C project** (October 2000, as amended in 2007 and 2011)

- At present, the Study is in Phase 3



Public Consultation

- Notice of Study Commencement in September 2013
- Meetings with Ancaster Community Council in December 2013, in April 2014, and following PIC No. 2
- Meetings with Ministry of Transportation (MTO), Ministry of Natural Resources (MNR), and the Hamilton Conservation Authority (HCA) prior to PICs
- PICs in March and June 2014
- Updates to project website at www.hamilton.ca/Mohawkroadramp
- Report and presentation for Public Works Committee of City Council on September 15, 2014
- Environmental Study Report for public review toward the end of the Study

Summary of Public Comments to Date

Technical

- Traffic volume on Wilson Street, Mohawk Road/Rousseau Street, Local Roads, and Highway 403

Natural

- Natural Environment
- Trail Protection
- Collisions with Deer
- Mitigation for Species at Risk
- Air Quality

Cultural

- Cultural Heritage Impacts at Golf Links Road
- Need for archaeological assessment

Socio-economic

- Safety and Convenience
- Pedestrian Safety along Mohawk Road
- Mail Delivery on Mohawk Road affected by Traffic and No Sidewalks
- Noise, Property and Lighting Impacts
- Decreased Quality of Life on Rousseau Street and Mohawk Road
- Cost-Benefit Analysis
- Increase Wilson Street Traffic to Increase Merchants' Business

Summary of Public Comments to Date

Comments on Alternatives:

- Ramp to Highway 403 Westbound off Mohawk Road is needed; Should not have been removed
- Inadequate room for ramp at Mohawk Road
- Brantford-bound access at Golf Links Road should be the solution carried forward
- Garner Road needs to be widened and could be used to access Highway 403 Westbound
- North Ancaster has easy access via McNiven to Golf Links and the Linc westbound
- Southcote to Garner West would allow access to Highway 403 westbound

Problem/Opportunity and Preferred Solution

Problem and/or Opportunity

- A Brantford-bound ramp from Mohawk Road to Highway 403 was removed when the Highway 403/Lincoln Alexander Parkway (Linc) interchange was constructed
- Removal of the Brantford-bound ramp has left a missing link in access from Ancaster
- Residents have requested that the Brantford-bound ramp be constructed due to increasing traffic demands on Wilson Street in the Ancaster core
- Therefore, there is a need to provide an additional Brantford-bound ramp to improve access to Highway 403 and relieve traffic on Wilson Street

Preferred Solution:

- ***Improve access to Highway 403 by adding a Brantford-bound ramp from Mohawk Road to Highway 403***
- ***Introduce or enhance programs and facilities that promote use of other modes of transportation, such as transit and active transportation (as part of future projects)***

Evaluation Criteria

Technical:

- Improved access to Highway 403 without impacting Highway operations
- Improved traffic flow within local road network
- Opportunities for other modes of transportation (e.g., transit)
- Supports local, regional, provincial planning policies
- Meets provincial design standards and criteria
- Drainage impacts
- Utility impacts

Natural:

- Impact on watercourses
- Impact on aquatic species/habitat
- Impact on vegetation
- Impact on wildlife species/habitat
- Impact on significant natural areas
- Impact on Species at Risk
- Impact on air quality

Cultural:

- Impact on archaeological resources
- Impact on cultural heritage resources

Social:

- Impact on existing and/or future land uses
- Noise impacts
- Lighting impacts

Economic:

- Property acquisition
- Construction costs

Evaluation of Alternatives for Exit Ramp from Mohawk Road

Factors	Criteria	Alternative 1: Direct Taper (55m ramp radius)	Alternative 2: Parallel Lane (55m ramp radius)	Alternative 3a: Direct Spiral (55m ramp radius)	Alternative 3b: Direct Spiral (90m ramp radius)	Alternative 4a: Modified Spiral (55m ramp radius)	Alternative 4b: Modified Spiral (90m ramp radius)
Technical	Improved access to Highway						
	Improved traffic flow						
	Opportunities for other modes						
	Supports planning policies						
	Meets design standards/criteria						
	Drainage impacts						
	Utility impacts						
Natural	Impact on watercourses						
	Impact on aquatic species/habitat						
	Impact on vegetation						
	Impact on wildlife species/habitat						
	Impact on natural areas						
	Impact on Species at Risk						
	Impact on Air Quality						
Cultural, Social, Economic	Impact on archeological						
	Impact on cultural heritage						
	Impact on land uses						
	Noise impacts						
	Lighting impacts						
	Property acquisition						
	Construction costs						
Summary					Preferred		

Least Preferred		Neutral		Most Preferred

Evaluation of Alternatives for Mohawk Entrance Ramp to Linc-Highway 403 Brantford-bound Ramp

Factors	Criteria	Alternative 1: Direct Taper Design	Alternative 2: Parallel Lane Design
Technical	Improved access to Highway 403		
	Improved traffic flow		
	Opportunities for other modes		
	Supports planning policies		
	Meets design standards & criteria		
	Drainage impacts		
	Utility impacts		
Natural	Impact on watercourses		
	Impact on aquatic species/habitat		
	Impact on vegetation		
	Impact on wildlife species/habitat		
	Impact on significant natural areas		
	Impact on Species at Risk		
	Impact on Air Quality		
Cultural, Social, Economic	Impact on archeological		
	Impact on cultural heritage		
	Impact on land uses		
	Noise impacts		
	Lighting impacts		
	Property acquisition		
	Construction costs		
Summary			Preferred

Least Preferred		Neutral		Most Preferred

Preliminary Preferred Design Concept

Description:

- Direct spiral design for Mohawk Road deceleration lane
- 400 m realignment of existing Linc-Hwy 403 Brantford-bound ramp
- New 400 m single lane exit ramp from Mohawk Road connecting to the realigned Linc-Hwy 403 Brantford-bound ramp
- 500 m acceleration lane for the Linc-Hwy 403 Brantford-bound ramp on Hwy 403
- 150 m extension of existing Hwy 403 Brantford-bound climbing lane to accommodate realigned Linc-Hwy 403 Brantford-bound ramp and associated Hwy 403 speed change lane
- 75 m noise barrier along Mohawk Road
- New and modified illumination
- Stormwater quality treatment
- Preliminary cost estimate for construction is $3.6 Million

See drawings displayed at the PIC

Traffic Impacts and Mitigation

- **Old Dundas / Wilson / Rousseaux**
  - Little net impact on traffic demands (essentially a redistribution of existing demand)
  - Interim improvements recommended in Ancaster Transportation Master Plan (TMP) still valid (more improvement required to address long term issue)

- **Mohawk / McNiven**
  - Little net impact on traffic demand
  - As confirmed in the Ancaster TMP, no improvements required

Air Quality Impacts and Mitigation

- Most vehicles run on gasoline or diesel fuel and emit essentially the same Pollutants: Nitrogen oxides (NOx), Particles, size under 2.5 microns (PM2.5), Particles, size under 10 microns (PM10), Carbon Monoxide (CO), and Sulphur Dioxide (SO2).

- The cumulative ground level concentrations (impact created by the project plus the background air quality) of these emissions were predicted to be below the respective ambient air quality criteria under each traffic scenario: current (year 2008) and future (years 2021 and 2031)

- The predicted levels of concentration of all contaminants under consideration are decreasing from current scenario to future due to use of much cleaner engines

Air Quality Impacts	Mitigation
Air quality during construction	Apply dust control measures (e.g., water spraying, street sweeping)
Air quality following construction	The addition of the proposed Mohawk Road ramp and the future traffic volumes (scenarios 2021 and 2031) on Highway 403 in the area of the Mohawk Road/Linc interchange are not expected to create a significant negative cumulative effect on the local air quality.

Drainage Impacts and Mitigation

- Open area drains via grassed swales and Highway 403 roadside swale into tributary of Tiffany Creek, a subwatershed of Spencer Creek
- Local drainage adjacent to Mohawk Road Culvert consists of swales/culverts/ditch inlet that drains to interchange and ultimately to Tiffany Creek
- Former ramp culvert near Linc-403 on-ramp was removed, and is currently an open ditch

Drainage Impacts	Mitigation
Crossing of roadside swale at East-South ramp	New culvert at crossing (just north of former culvert location)
Impact to local swales adjacent to Mohawk Road	Minor modifications (swales and/or culvert extensions) adjacent to Mohawk Road
Additional impervious surface to watershed	New enhanced grassed swales to mitigate pollutant loading from additional impervious surface

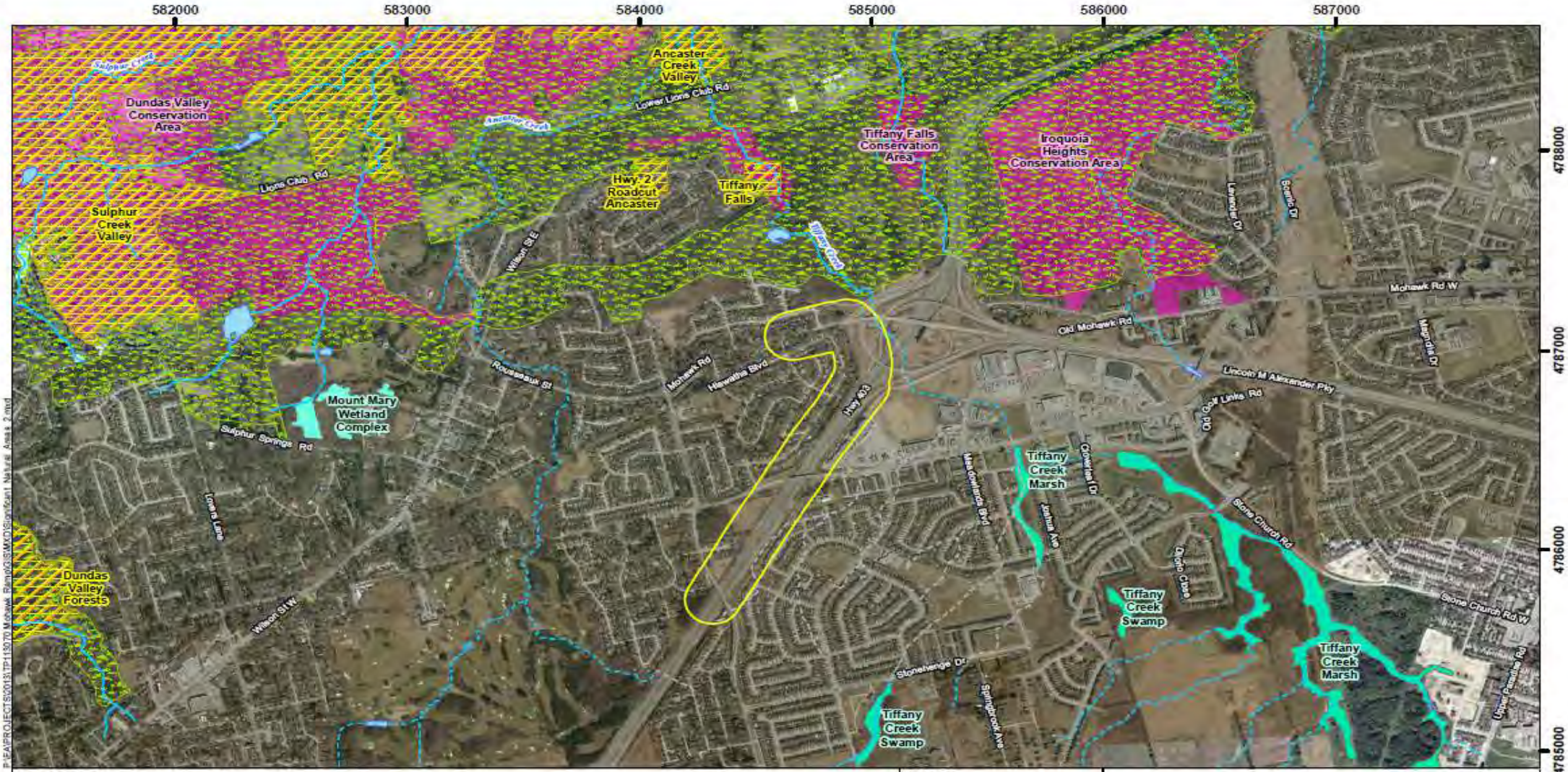
Noise Impacts and Mitigation

- Five noise receptors (NR01 through NR05) representing approximately 26 noise sensitive areas
- Noise modelling of two scenarios: (1) Sound levels without project in 2031 and (2) Sound levels with project in 2031

Noise Impacts and Mitigation

- Mitigation required if increase in sound levels is >5 dB
- Expected increase in traffic noise levels (With Project – Without Project) is 0-1 dBA, a negligible increase
- Mitigation required if absolute sound level predicted at the receptors is >65 dBA
- Traffic noise levels expected to range from 56 dBA to 67 dBA at the modelled receptors

Noise Impacts	Mitigation
Operational noise	• 3 m high noise wall for three houses with backyard facing Mohawk Road
Construction noise	• Equipment maintained and operated with effective muffling devices in good working order • Contractors to comply with applicable requirements of construction contract and local noise by-laws • Initial noise complaint will trigger verification that general noise control measures are in effect • For persistent noise complaints, equipment verified to comply with MOE NPC-115 guidelines • For persistent complaints and subject to field investigation, alternative noise control measures may be required with consideration for technical, administrative and economic feasibility



LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- ANSI (Area of Natural and Scientific Interest)
- Niagara Escarpment
- Conservation Area

Wetland
- Non-Significant
- Locally Significant
- ProvinciallySignificant

Existing Terrestrial and Fisheries Environment:

- 1 provincially rare forested community adjacent to study area:
  - Fresh-Moist Black Walnut Lowland Deciduous Forest
- 2 Species at Risk under *Endangered Species Act* were observed:
  - Butternut Tree (endangered)
  - Barn Swallow (threatened)
- No direct or indirect fish habitat within 30 m of project site

NOTES:
-Topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

0 250 500 1,000 1,500 2,000 2,500 Metres

amec

Mohawk Ramp

Significant Natural Areas

PROJECT N°: TP113070 | FIGURE: 5-1

SCALE: 1:25,000 | Date: December 2013

Terrestrial Impacts and Mitigation

Terrestrial Impacts	Mitigation
Incidental impacts to nesting migratory birds	Vegetation clearing in migratory bird habitat outside active breeding season (May 1 to August 31)
	If clearing or other work in migratory bird habitat is required during nesting season, a nest survey will be conducted by a qualified avian specialist within two days prior to commencement of works to identify and locate active nests of species covered by the *Migratory Birds Convention Act*
Encountering wildlife	Efforts made to avoid injury or harassment to wildlife within project site
Possible disturbance to Species at Risk	Appropriate Ministry of Natural Resources protocol following new MAPS self regulated process for Species at Risk (Butternut and Barn Swallow) will be followed during detailed design
	Butternut trees tagged and surveyed to confirm location relative to proposed grading

Issues and Mitigation

Factor	Interested Party	Commitment
Archaeology	Ministry of Tourism, Culture and Sport	Stage 1 Archaeological Assessment on lands identified as having archaeological potential within the project area
Drainage	Hamilton Conservation Authority	Conformance to Stormwater Management Plan
Property	Property Owners	No public property acquisition Slight impact on City property
Terrestrial	Ministry of Natural Resources	Consultation to ascertain Species at Risk permitting or authorizations in association with Barn Swallow (bird) and Butternut (tree) species and proposed works
Traffic	Road Users and Property Owners	Advanced notice of construction through signage and flyers Develop Traffic Management Plan Reduce construction time, when possible

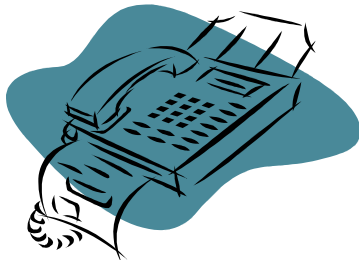
Next Steps

Following this PIC, we will:

- Review your comments
- Update Ancaster Community Council regarding PIC results
- Select preferred design concept based on evaluation of alternatives and consideration of public and agency input
- Prepare report and presentation for Public Works Committee of City Council on September 15, 2014
- Prepare Environmental Study Report for public review in Fall, 2014

Questions and Comments

Submit your comments by June 26, 2014:



Mohan Philip, M.Eng., P.Eng.

Project Manager
City of Hamilton
77 James Street North, Suite 400
Hamilton, Ontario L8R 2K3

Phone: (905) 546-2424 ext. 3438
Fax: (905) 546-2039
Email: tplanning@hamilton.ca

David Sinke, P.Eng.

Project Manager
AMEC Environment & Infrastructure
3215 North Service Road
Burlington, Ontario L7N 3G2

Phone: (905) 335-2353
Fax: (905) 335-1414
Email: david.sinke@amec.com

Thank you!

COMMENT FORM
(Please print)

Public Information Centre (PIC #2) - Additional Access to Brantford-bound Highway 403
Class Environmental Assessment Study
City of Hamilton

Date: Monday, June 9, 2014

Time: 6:00 p.m. – 8:00 p.m. Open house/drop-in format - Presentation at 6:45 p.m.

Location: Ancaster Old Town Hall, 310 Wilson Street E.

Comments (Please use the back of this sheet if you need additional space):

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We look forward to receiving your comments. You may drop-off your comment form in the comment box provided at the PIC, or return your form to one of the following Project Managers by June 26, 2014:

Mohan Philip, M. Eng., P. Eng.
Project Manager
Transportation Planning and Mobility Programs
Public Works Dept., City of Hamilton
77 James Street North, Suite 400
Hamilton, ON L8R 2K3
Tel: 905-546-2424 x 3438
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Appendix C: Macro-Modelling and Mico-Modelling Technical Memorandum

City of Hamilton

Macro Modelling Report for Mohawk Road Ramp Feasibility and Environmental Assessment Study

C-11-21-13 | B000355

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City of Hamilton

Macro Modelling Report for Mohawk Road Ramp Feasibility and Environmental Assessment Study

C-11-21-13 | B000355

January 29, 2014

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1. Introduction

This report documents the modeling process followed in developing forecasts for the Mohawk Ramp Class EA planning study. The work was completed using the EMME 4 software and followed these four main steps:

1. Model Review and initial corrections
2. Localised calibration of the base year model,
3. Refinement of future year model; and
4. Forecasting and assessment.

1.1 Model Background

Macros together with base and future year road networks and origin-destination (O-D) trip matrices for the AM peak hour were obtained from the City in EMME format and input to CIMA's EMME 4 modelling system. The model obtained from the City of Hamilton was that developed for the recent ROPA 9 Transportation Master Plan (TMP) update (2012); which itself, was a refinement of the EMME model developed earlier for the City's LRT planning exercise in 2011. In the ROPA 9 TMP project, much of the model in the Stoney Creek area had been either corrected or refined as the original model had focused more on the downtown area associated with planning for the proposed LRT. It should be noted that the model used does not include the LRT line. The development history (taken from the *Hamilton LRT EMME Model Validation Report, March 2011*) of the model indicates that the basis of the model is the 2006 Transportation Tomorrow Survey trip distribution data while the land use (existing and forecast) inputs were provided by the City from their Growth Related Integrated Development Strategy (GRIDS). The calibration base year for the model is 2008 and future year networks and matrices were obtained for 2021 and 2031.

The extent of the City's model is shown figuratively in Figure 1 which indicates the model to explicitly cover Hamilton, Niagara Region and Halton Region with adjacent areas being represented by a course zone and network system and eternal zones.

Figure 1– Extent of City's EMME Model

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The network and zonal refinements undertaken for the ROPA 9 TMP study is shown in Table 1 below:

Table 1: Network Modifications Undertaken for ROPA 9 Transportation Master Plan Update (2012)

Network Modification	Network Year
Add missing second eastbound lane to Red Hill Valley Pkwy west of Stone Church	All
Add Second Road West	All
Add two additional centroids between Second Road and Upper Centennial and redistribute land use All	All
Add Whitedeer Road	All
Code collectors at 650-700 capacity and 2 lanes	All
Code Highland and Upper Mount Albion at 50 km/h (not 60) All	All
Code local roads at consistent 500 capacity and 2 lanes (multiple changes, many were 4 lanes) All	All
Code Mud St lane capacity at consistent 1000 (without fluctuations from 700 to 1800 in existing coding) All	All
Code Upper Centennial lane capacity at 1200 All	All
Extend Glover Rd to Dickenson and Twenty Road to Glover All	All
Move wrongly located centroid from east of Upper Centennial to west of Fletcher (zone 2615) and connect it to Trinity Church and Fletcher All	All
Reconfigure centroid connectors to approximate local roads	All
Reduce Gatestone to 40 km/h in school zone	All
Remove direct centroid connector to Mud Street from zone 2658	All
Remove direct centroid connectors to Rymal from zones to south	All
Add centroid between First Road and Upper Centennial	Future
Add centroid for Trinity West development and redistribute land use Future	Future
Add collector road between Fletcher and Upper Centennial south of Rymal	Future
Add extension of Second Road West south of Rymal to collector	Future
Add Trinity West Collector	Future
Add two additional centroids south of Rymal and redistribute land use	Future
Close Upper Mount Albion south of Trinity West Collector	Future
Code Rymal at 60 km/h through study area	Future
Reduce 8 lane components of Dartnall Road, Rymal Road and Upper Centennial to 4 lanes	Future

In addition, the following revisions were made to future year land use:

- Multiply demand to zone 2648 (North Glanbrook Industrial Park) by 5 (2021) and by 6 (2031) to approximate actual forecast demand based on growth plans;
- Disaggregate demand allocated to model zones to additional zones south of Rymal, west of the Karst lands and north of Highland/west of Upper Centennial, for new developments in the ROPA, Trinity West and Felker developments, respectively.

The changes listed above made to the ROPA 9 model in the adjacent Stoney Creek area was a useful starting point for this project. The next task in the model development for this project was to make similar refinements in the Ancaster area.

2. Model Review and Initial Corrections

The base year (2008) zone system and network contained in the City's model were reviewed for the Ancaster and adjacent area.

2.1 Zone changes

The zone system was reviewed and the following zonal changes made to the base year model:

a. Zone 2642 was loaded incorrectly onto Mohawk Road rather than Golf Links Road. This zone was then moved to the correct location and the zone connectors updated.
b. In order to obtain some sensitivity in the Ancaster area around the assignment of trips, the existing 4 zones were disaggregated into 8 zones. Given that the development in the Ancaster area is low density and general single story development, the proportion of trips for the new zones was estimated on the basis of residential area in each new zone. The following lists the zonal disaggregation carried out for the O-D matrix:
    i. Zone 2641 divided into 2641 (50%) and 4004 (50%)
    ii. Zone 2625 divided into 2625 (30%) and 4001 (70%)
    iii. Zone 2624 divided into 2624 (60%) and 4002 (40%)
    iv. Zone 2623 divided into 2623 (80%) and 4003 (20%)
c. Connectors were appropriately modified to accommodate these newly disaggregated zones.

Figure 1 illustrates the base year network before these changes were made and Figure 2 illustrates the base year network after zonal amendments.

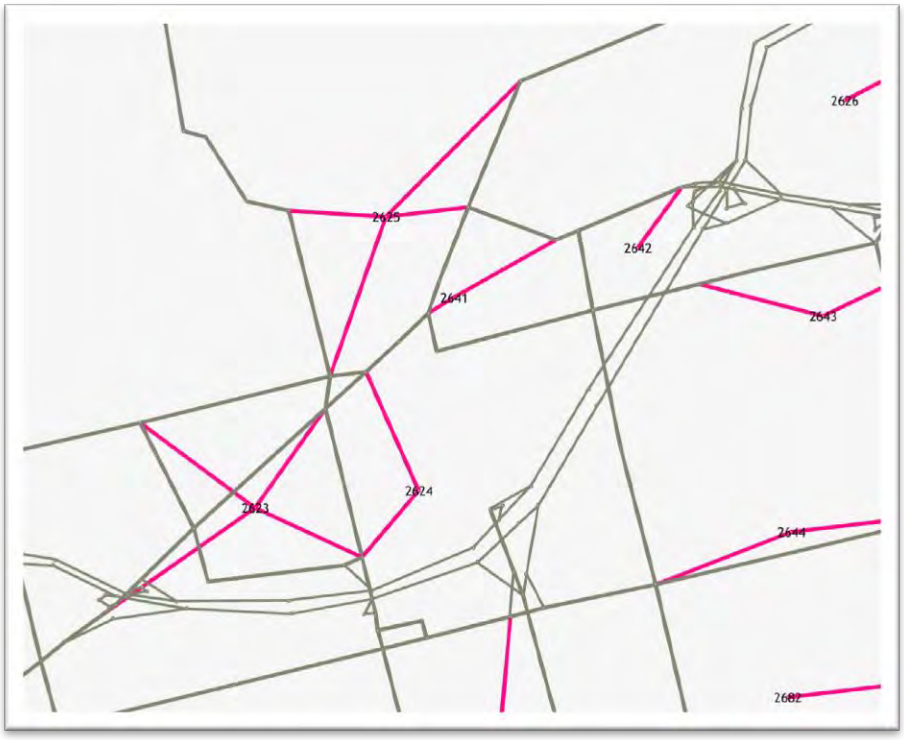

Figure 2: Base year network before changes

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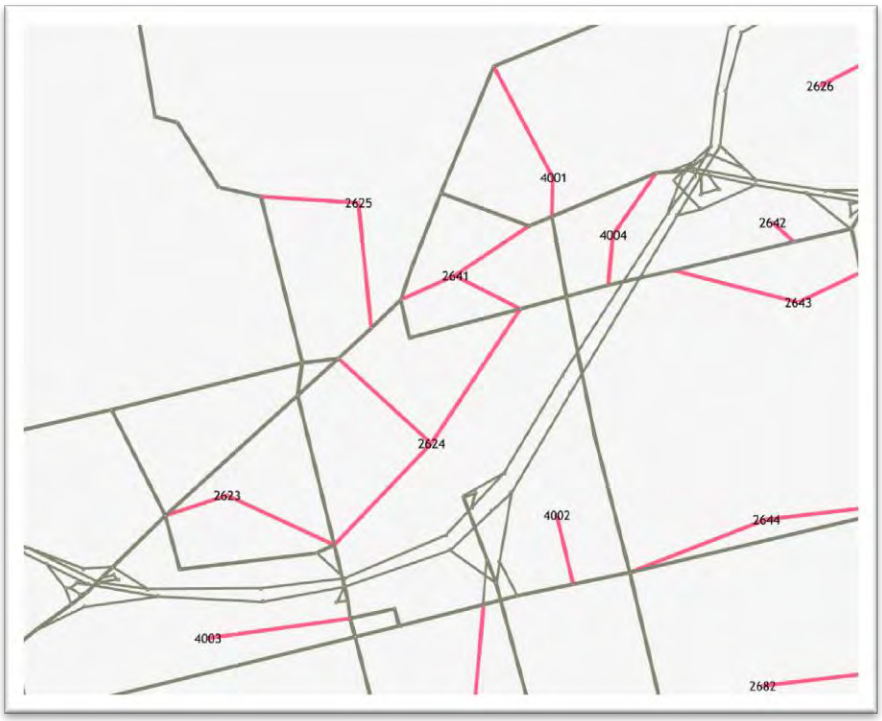

Figure 3: Base Year Network after Zonal Amendments

2.2 Network modifications

A review of the network files for a wide area around Ancaster was undertaken in order to ensure the model reflects the current road network accurately. The following issues were identified and changes made:

2.2.1 Link Corrections

Links were checked for accuracy around link length, number of lanes, and speeds. The following links shown in Table 2 were found to have errors and were corrected accordingly:

Table 2: Link Errors Found and Corrected

FROM	To	Link	at Intersection	Length (km)	Before		After	
					Lanes	Speed	Lanes	Speed
70212	71129	Lincoln Pkwy.	E of on-ramp from 403	0.38	2	100	3	90
70217	70939	Main	S of Osler	0.79	2	50	1	-
70354	70167	Upper James	S of Claremont Access	0.21	3	70	2	50
70357	70358	Upper James	S of Mohawk	0.87	2	40	-	50

FROM	To	Link	at Intersection	Length	Before		After	
70358	70357	Upper James	S of Mohawk	0.87	2	40	-	50
70361	70362	Upper James	S of Linc	0.36	2	40	-	50
70362	70361	Upper James	S of Linc	0.36	2	40	-	50
70389	71074	Garth	N of Fennell	0.1	2	50	1	-
70584	70872	Governors	W of Ogilvie	1.49	1	80	2	50
70593	70592	HWY 403	N of Mohawk Rd.	0.45	2	100	3	-
70599	70824	Golf Links	E of HWY 403	0.38	1	60	2	50
70617	70618	Jerseyville	W of Fiddlers	1.45	1	80	-	50
70618	70617	Jerseyville	W of Fiddlers	1.45	1	80	-	50
70618	70631	Lovers Lane	S of Sulphur Springs	1.26	1	80	-	50
70620	70853	Wilson	W of Fiddlers	1.32	1	80	-	50
70622	70623	Wilson	E of Halson	0.26	2	50	1	-
70623	70622	Wilson	E of Halson	0.26	2	50	1	-
70623	70628	Wilson	W of Rousseaux	0.58	2	50	1	-
70626	70666	Rouseaux	E of McNiven	0.83	2	50	1	-
70628	70623	Wilson	W of Rousseaux	0.58	2	50	1	-
70628	70629	Wilson	N of Rousseaux	1.01	1	50	1	60
70629	70628	Wilson	N of Rousseaux	1.01	2	50	1	60
70629	70936	Wilson	N of Rousseaux	1.66	1	60	-	70
70630	70936	Wilson	N of Rousseaux	0.52	1	50	-	60
70631	70618	Lovers Lane	S of Sulphur Springs	1.26	1	80	-	50
70631	70632	Sulphur Springs	S of Governors	0.32	1	80	-	50
70632	70631	Sulphur Springs	S of Governors	0.32	1	80	-	50
70632	70633	Sulphur Springs	S of Governors	0.56	1	80	-	40
70633	70632	Sulphur Springs	S of Governors	0.56	1	80	-	40

FROM	To	Link	at Intersection	Length	Before		After	
70633	70634	Sulphur Springs	S of Governors	0.17	1	80	-	40
70634	70633	Sulphur Springs	S of Governors	0.17	1	80	-	40
70634	70635	Sulphur Springs	S of Governors	0.94	1	80	-	40
70635	70634	Sulphur Springs	S of Governors	0.94	1	80	-	40
70666	70626	Rouseaux	E of McNiven	0.83	2	50	1	-
70815	70903	HWY 403	S of Mohawk Rd.	1.43	2	100	3	-
70824	70599	Golf Links	E of HWY 403	0.38	1	60	2	50
70853	70620	Wilson	W of Fiddlers	1.32	1	80	-	50
70853	70905	Wilson	W of Meadowbrook	0.55	1	80	2	50
70872	70584	Governors	W of Ogilvie	1.49	1	80	-	50
70905	70853	Wilson	W of Meadowbrook	0.55	1	80	2	50
70936	70629	Wilson	N of Rousseaux	1.66	1	60	-	70
70936	70630	Wilson	N of Rousseaux	0.52	1	50	-	60
70939	70217	Main	S of Osler	0.79	2	50	1	-
70939	70630	Main	W of Whitney	0.59	2	50	1	-
71074	70390	Garth	N of Fennell	0.12	2	50	1	-
71136	71135	Lincoln Pkwy.	E of off-ramp to 403	0.52	2	100	3	90

Note: '–' means no change was applied to that particular value

2.2.2 Interchange Correction

The coding of the Mohawk Road/Lincoln Alexander Parkway (Linc) interchange was corrected in the network so that it reflected its actual configuration including the length of ramps to improve the chances of trips being assigned correctly. Figure 3 illustrated the Mohawk/Linc Interchange before correction and Figure 4 shows corrected version.

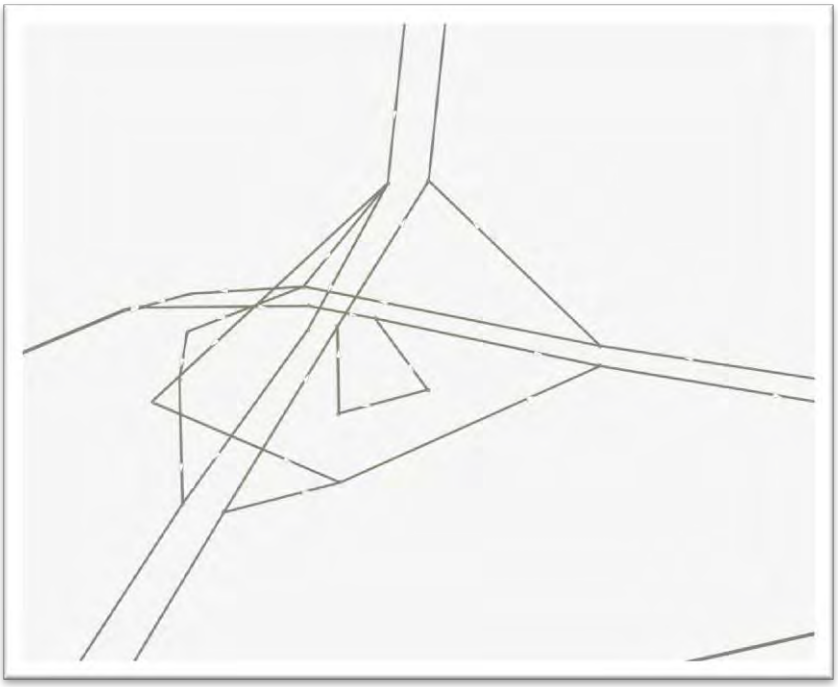

Figure 4: Mohawk/Linc Interchange before correction

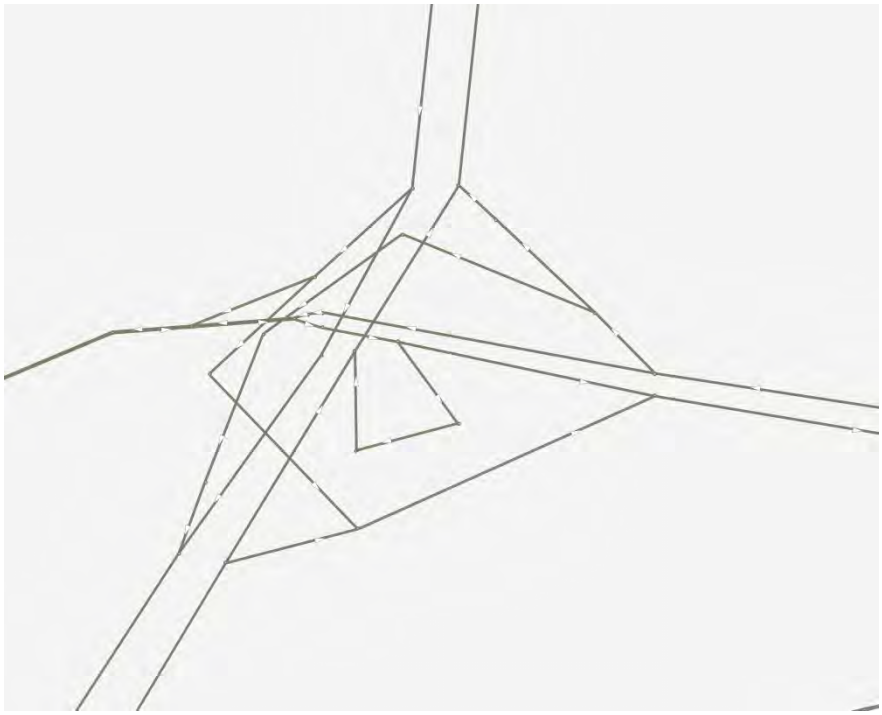

Figure 5: Mohawk/Linc Interchange after correction

2.2.3 Capacity Correction

In the base year network, the capacity of Mohawk Rd was set at 700 veh/hr/lane. However, the observed volume on some sections of this link is more than 1000 vehicles in the AM peak hour. This volume reduces the effective speed of the link during assignment to 12 km/hr (free flow speed is 50 km/hr). Therefore, the capacity of Mohawk Rd was increased to 1000 veh/hr/lane to better reflect actual conditions. Other volumes and capacities in the study area were more realistically represented and no further corrections were made.

2.2.4 Transit Coding

Transit vehicles are assigned to the network based on the coded bus routes. As we added links (by splitting links) to the network, the transit coding had to be modified for these new links.

2.3 Signalized intersections

Signalized intersections are not modeled in the network. A quick check of initial assignments found there to be an unreasonable shortest path for some OD pairs in the model for the Ancester area, particularly with respect to Wilson Street. Therefore, the following signals were included in the model. An intersection delay penalty of 30 seconds was assumed for all turning movements at the following two intersections:

i. Wilson St East at Rousseaux Street.
ii. Wilson St East at Fiddlers Green Road.

3. Base Year Calibration

3.1 Initial Results

Once the basic corrections and adjustments to the base year model were completed, initial assignment runs were undertaken and compared with traffic counts obtained for the study area from the City and the Ministry of Transportation Ontario (MTO). Morning peak hour counts taken as near to 2008 were utilized where possible. In examining study area counts for various years between 2007 and 2013, it was clear there is no firm trend in volumes over this time, rather there is a variability that is not easily explained by the economy or population and employment growth. Therefore, no growth factor corrections were made for the different years of data collection, rather the data was selected based on it being reasonably consistent with other counts up or down stream. As the EMME model excludes truck traffic, a truck correction factor of 5% for arterials and 10% for highways was used to factor down the traffic counts.

AM peak hour traffic counts representing the 2008 base year were used for 75 directional links in the study area. Figure 5 indicates the location of the traffic counts in the study area. The focus of the counts used was on traffic travelling in the westbound (towards Brantford) direction as this is the traffic that is of most interest in the consideration of a new westbound ramp onto Highway 403. In addition, traffic volumes at the periphery of the study area and along Wilson Street and Highway 403 were also used.

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Figure 6: Locations of traffic counts used in the calibration process

The initial model assignment results for the base year were compared with the actual counts. Figure 6Figure 7 and Figure 7 illustrate the assignment differences both color coded and by numeric value.

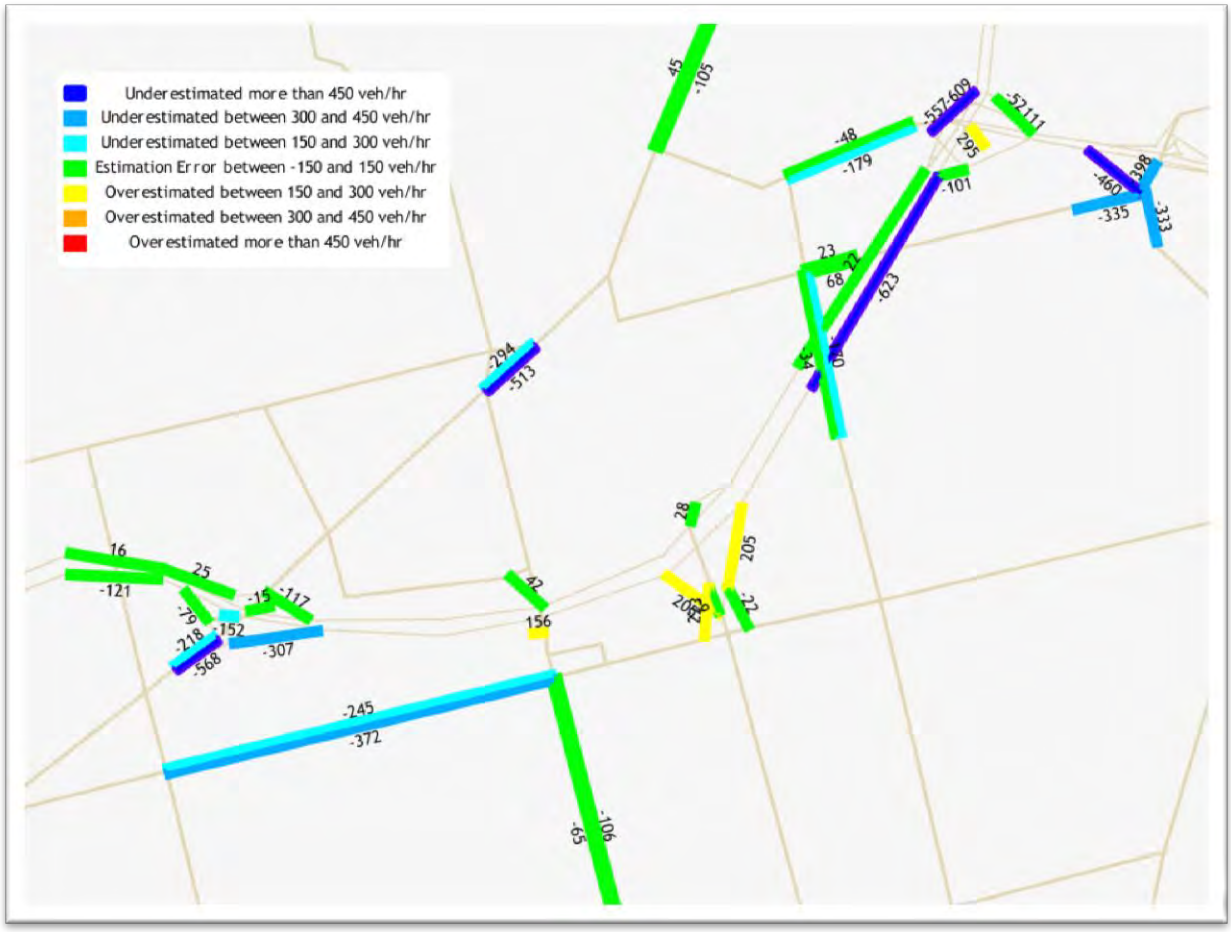

Figure 7: Initial comparison of base year assigned volumes with traffic counts (part 1)

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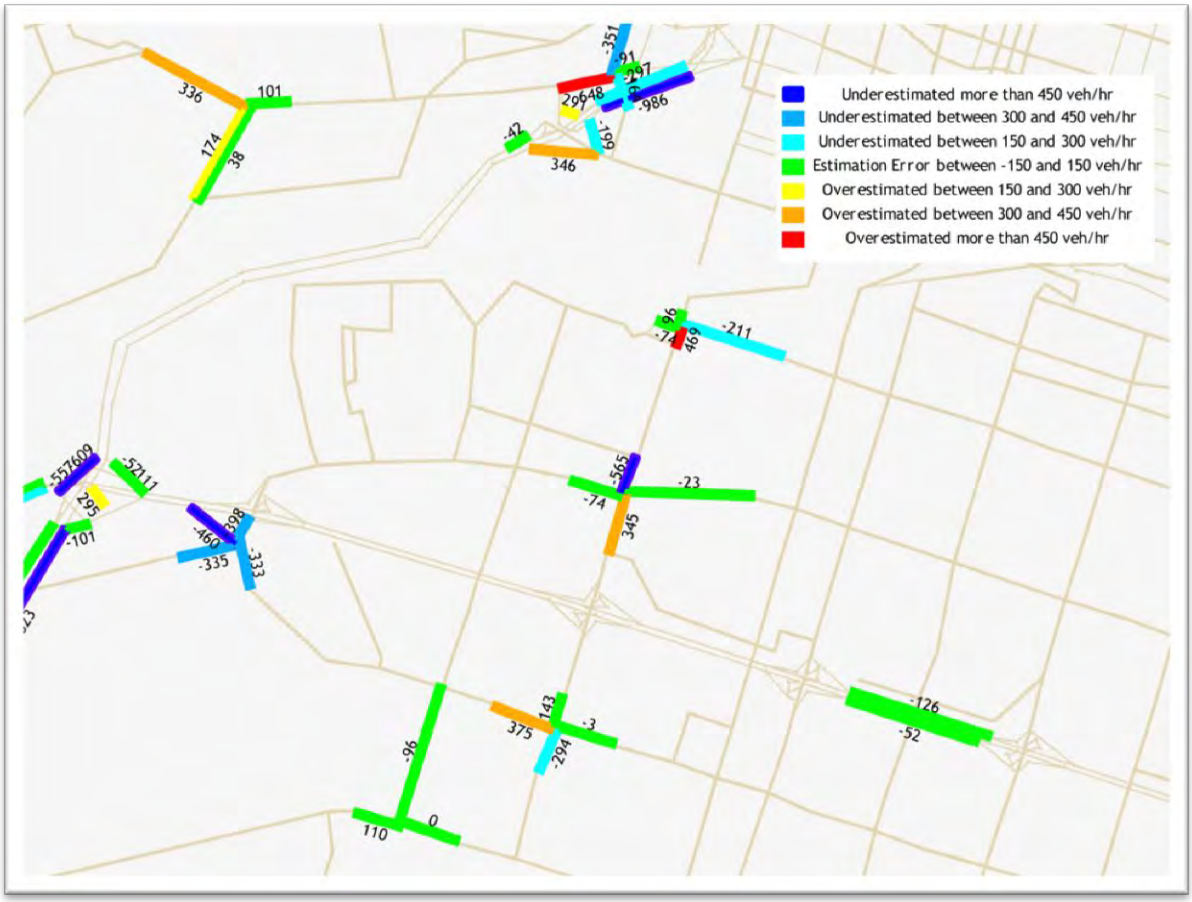

Figure 8: Initial comparison of base year assigned volumes with traffic counts (part 2)

This assigned/actual volume comparison is also shown graphically in Figure 8 with a comparison stratified by link volume. The comparison shows an R^2 value of 0.84 which is reasonably good.

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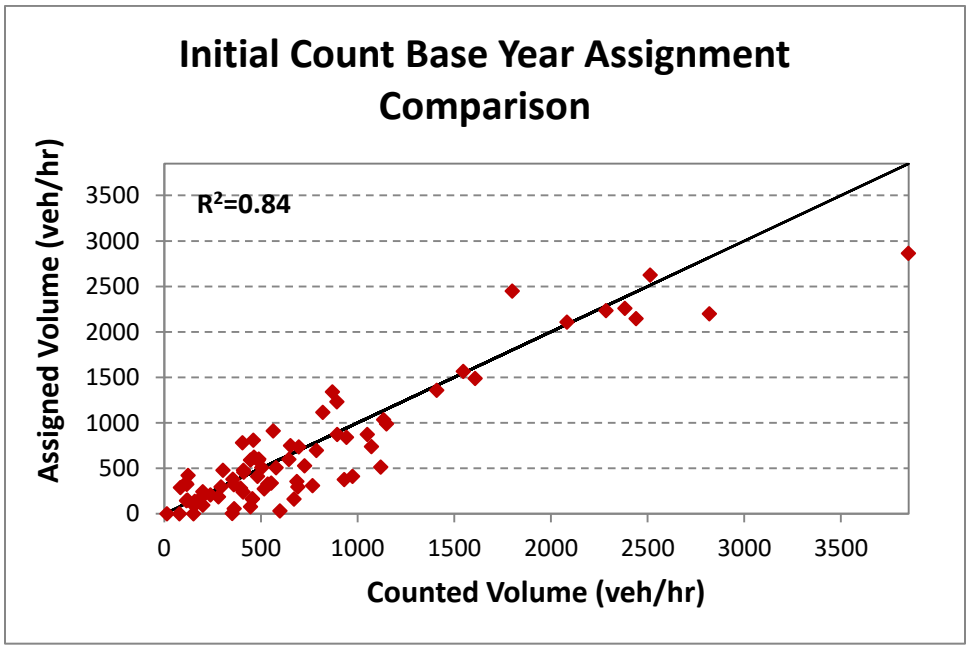

Figure 9: Comparison graph of assigned and observed volumes

3.2 Adjusted Base Year Model

Generally speaking, the initial calibration is reasonable and would be acceptable if the project were of a more strategic nature. However, this project requires a finer level of analysis both for the purpose of forecasting individual ramp volumes as well as subsequently providing input to a micro-modelling exercise. Therefore a matrix adjustment process was used in which the base year O-D matrix was adjusted to better match the individual traffic counts in the immediate study area.

A standard routine in EMME 4, the Spiess Gradient method, was used to adjust the O-D matrix. The results of this exercise are presented in the next two sub-sections.

Figure 9 and Figure 10 illustrate the comparison between assigned and observed volumes on the network (colour coded plus the numerical difference) using the Spiess adjusted O-D matrix.

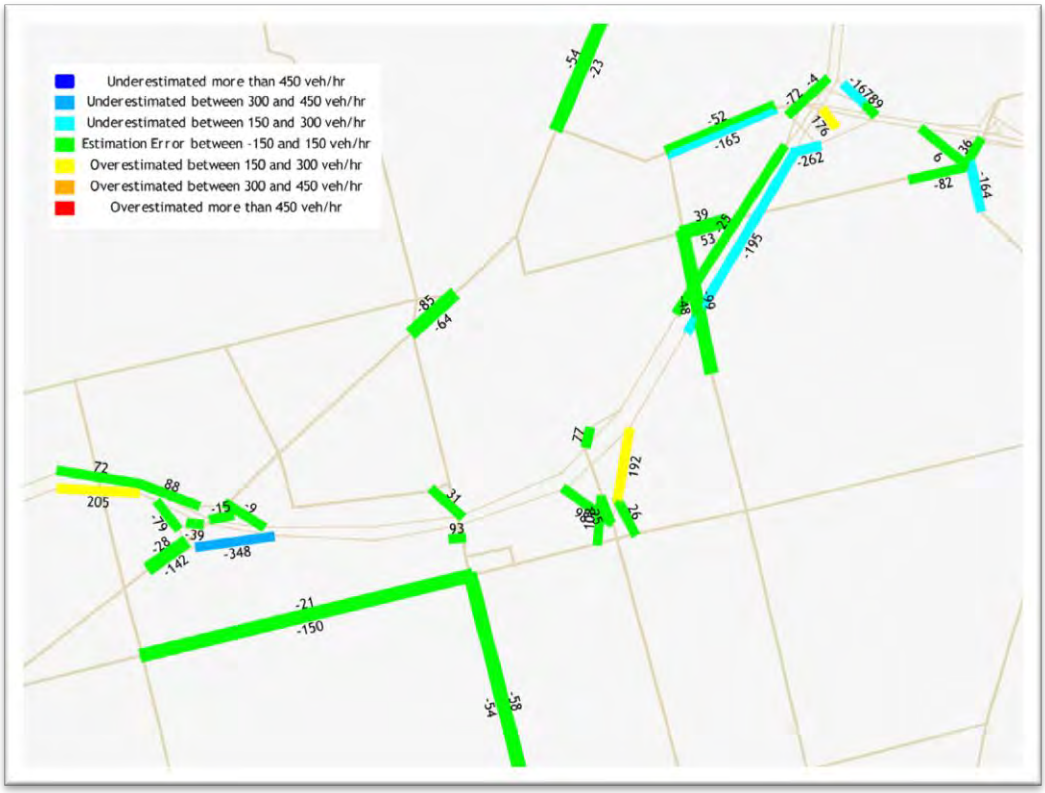

Figure 10: Comparison of adjusted base year assigned volumes with traffic counts (part 1)

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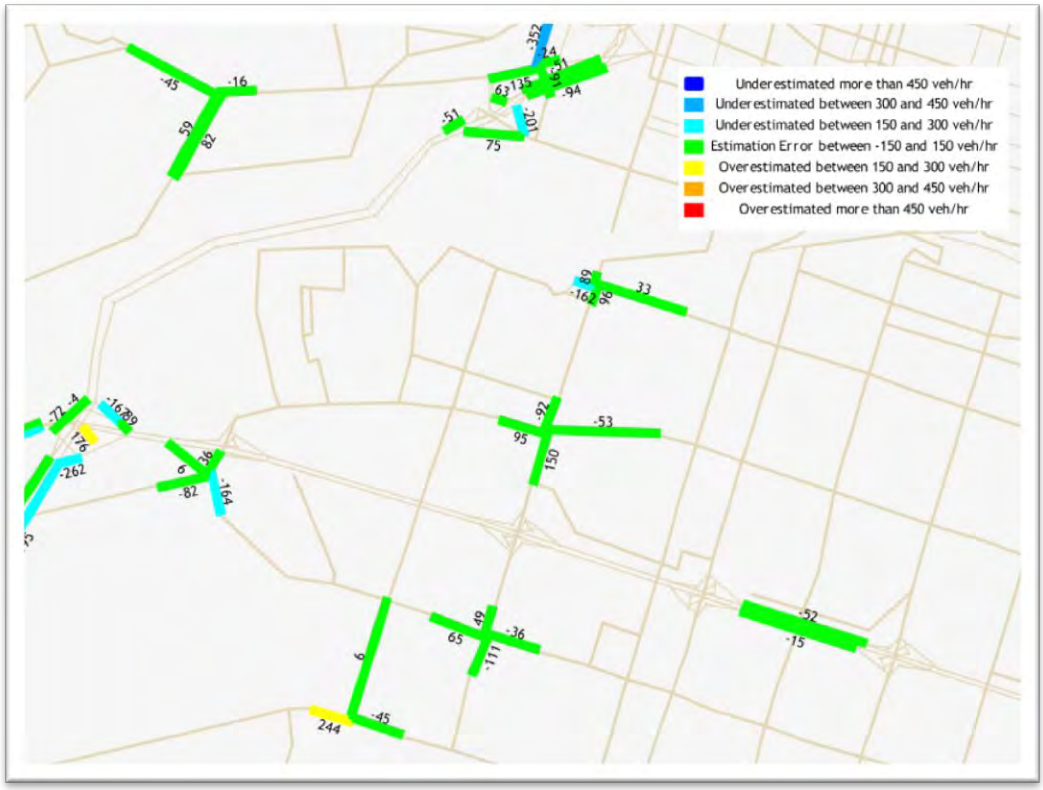

Figure 11: Comparison of adjusted base year assigned volumes with traffic counts (part 2)

Similarly Figure 11 shows the same assignment /-traffic count comparison in a graphical format. The R^2 value of 0.97, is much improved from the 0.84 value in the initial matrix.

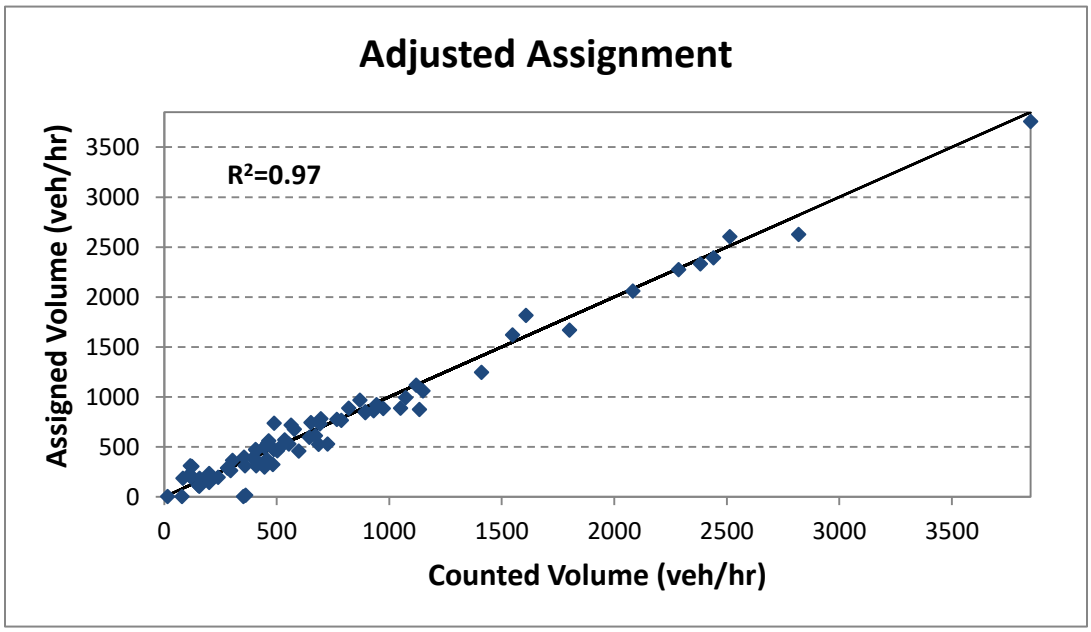

Figure 12: Adjusted assignment

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This indicates a remarkably good calibration between observed and assigned traffic volumes for the study area. This degree of fit was achieved after a number of iterations of examining which counts to include in the exercise. Including too many counts made it difficult for the model to calibrate all the competing demands contained within the matrix.

While, the calibration looks good based on a comparison of volumes alone, it is also important to know how much O-D adjustment took place. Wholesale adjustments to the O-D matrices could suggest that there is not a good relationship between the initial O-D data and the traffic volumes in the study area. A comparison of the O-D matrix pre and post-Spiess adjustment was made and is shown graphically for trips in Figure 12 and by trip adjustment factor in Figure 13.

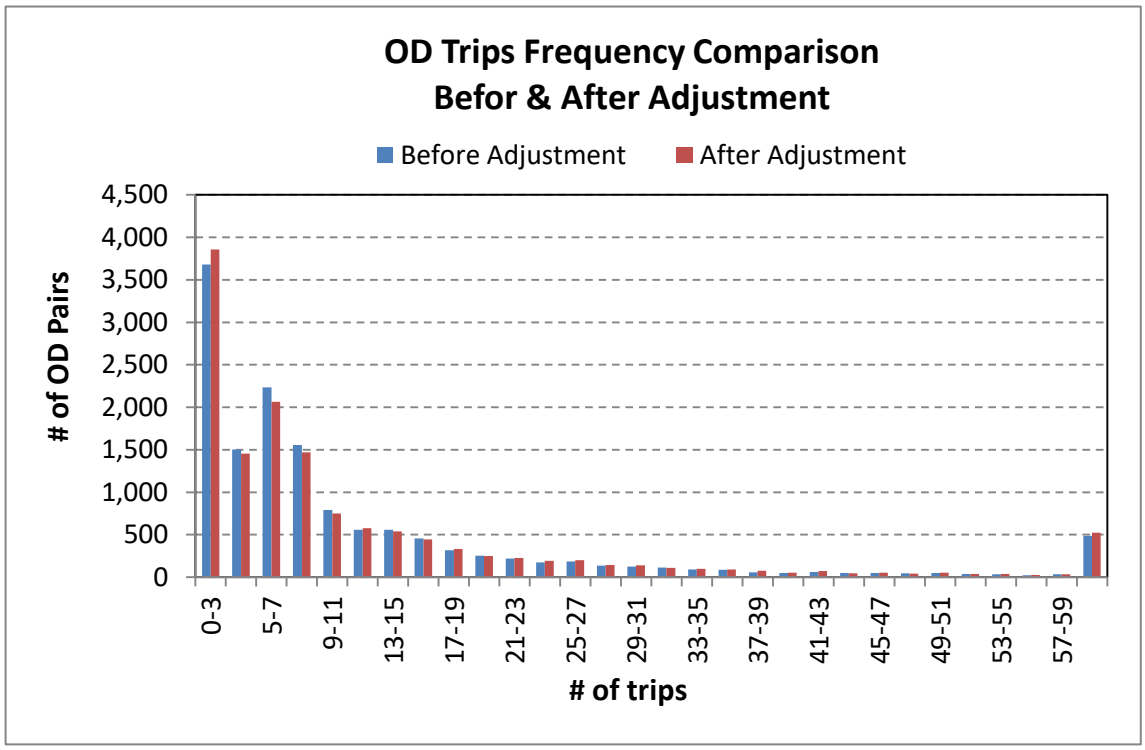

Figure 13: Trip adjustment comparison of adjusted and non-adjusted O-D matrix

The graphic in Figure 12 illustrates that most O-D adjustments were for cells having less than 10 trips in them. Figure 13 illustrates that individual O-D adjustments were minor with about 98% of cells within the matrix having no adjustment at all. While Figure 14 indicates that of the cells that were changed few received large adjustments.

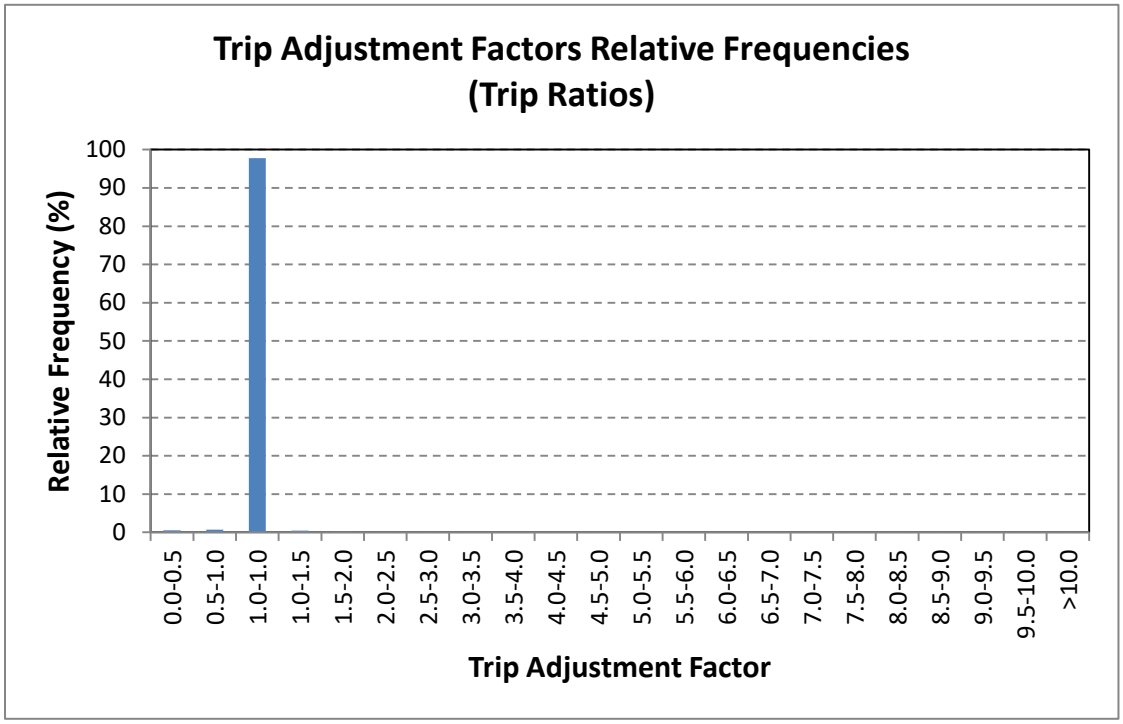

Figure 14: Histogram of the trip adjustment ratios (adjusted # trips/non-adjusted # trips) for all cells

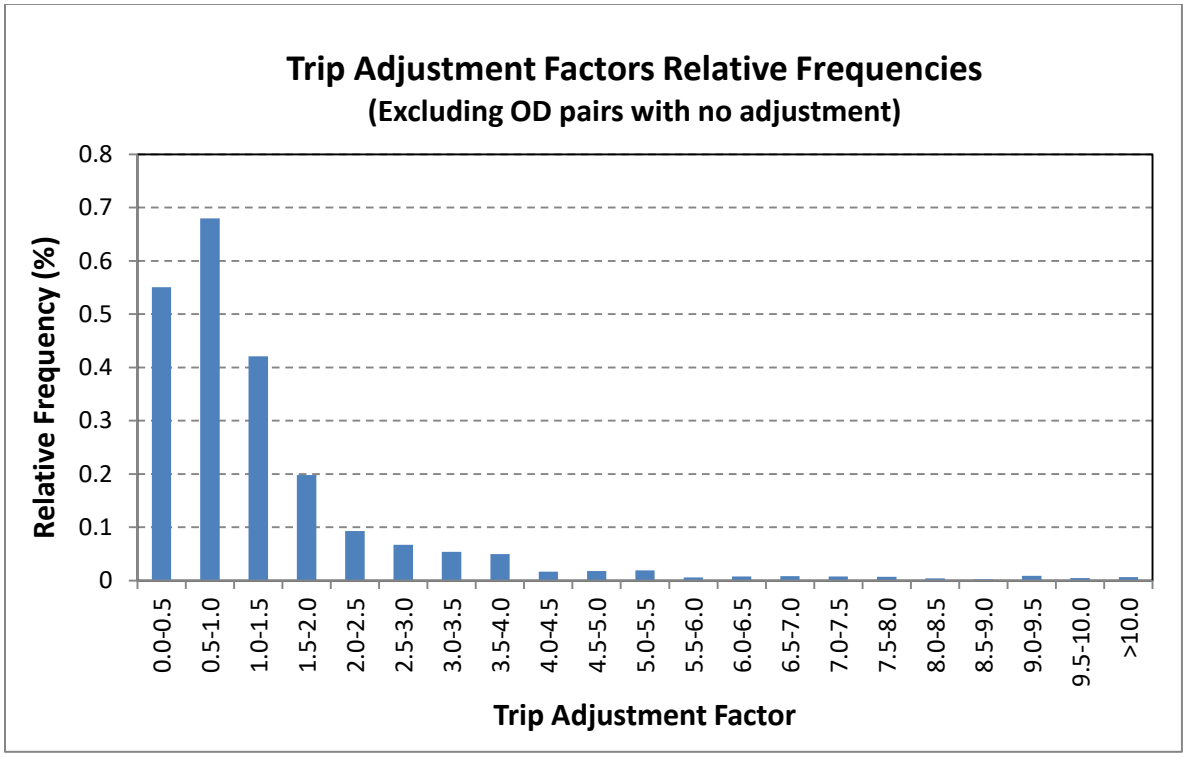

Figure 15: Histogram of the trip adjustment ratios (adjusted # trips/non-adjusted # trips) for adjusted cells only

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Another useful calibration comparison is that showing a comparison of trip lengths before and after adjustment. Figure 16 below illustrates this comparison. Again, adjustments made to the matrix were not excessive when considering O-D trip length.

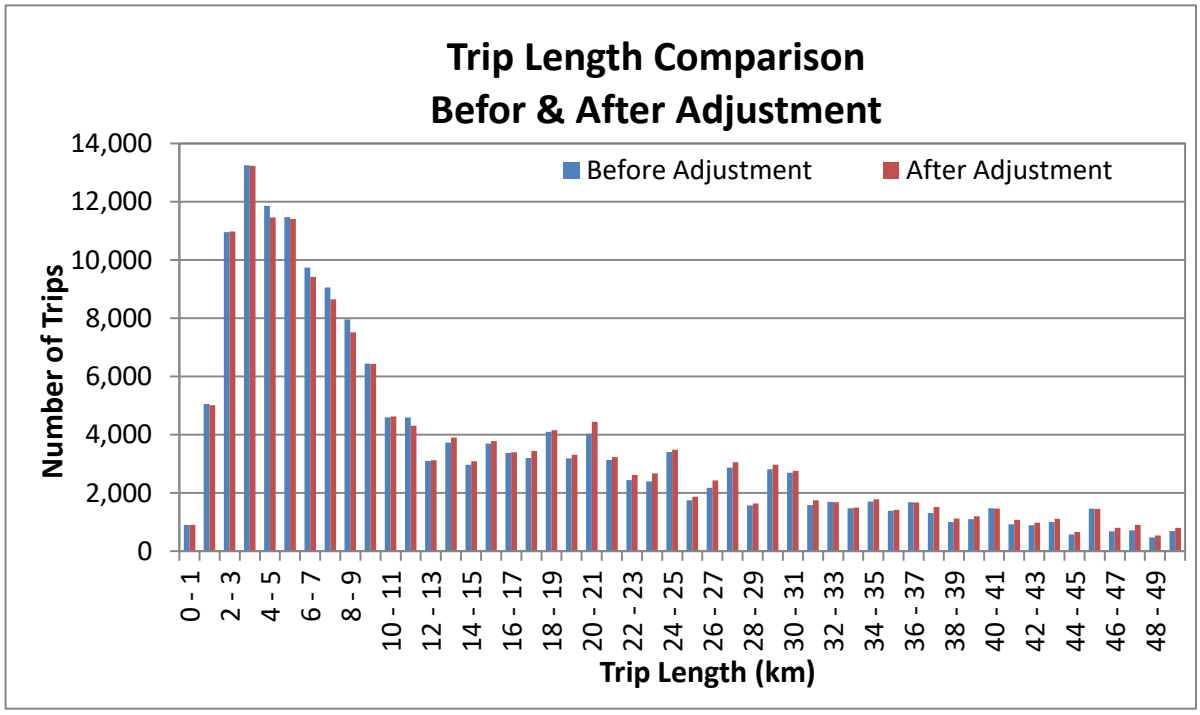

Figure 16: Trip length comparison of adjusted and non-adjusted O-D matrix

It can therefore be concluded that the Spiess adjustment did not change the individual cells in the matrix to any great extent; and therefore, it can be concluded that the improved calibration is a good starting point for continuing with the forecasting exercise.

3.2.1 Wilson Street Ramp

The Wilson Street westbound (towards Brantford) on-ramp is arguably the most important link in the calibration process as any new westbound on-ramp at either Mohawk Road or Golf Links would likely reduce travel on the Wilson Street ramp. In fact given that the next upstream ramp is at Aberdeen Road, all of Ancaster drivers that do head out west towards Brantford will likely use the Wilson Street ramp today.

While the calibration for the study area is very good, the base year assignment to this westbound on-ramp at Wilson Street is 204 compared to a count of 116 (a difference of 88 vehicles) Therefore, it can be concluded that the base year model is over-estimating demand towards the west at this time and the forecasts for the Mohawk Road or Golf Links Road westbound ramps will likely be similarly over-estimated.

4. Future Year Model

4.1 Land Use Inputs

Land use forecasts used as to develop the 2021 and 2031 O-D matrices are detailed in Section 4 of the *Hamilton LRT EMME Model Validation Report, March 2011.* A summary of the key data for this project is summarised in Table 3 and Table 4 below:

Table 3: Population Forecasts

Area	2008 Population	2021 Population	2031 Population	% change (2008 to 2031)
Ancaster	35,342	42,815	42,898	121%
Rest of Hamilton	486,209	551,867	616,850	127%
Rest of GTAH	8,080,526	9,609,823	10,786,205	133%
TOTAL	8,602,077	10,204,505	11,445,953	133%

Overall population growth for the region is shown to be 33% or 1.2% compounded per annum.

Table 4: Employment Forecasts

Area	2008 Employment	2021 Employment	2031 Employment	% change (2008 to 2031)
Ancaster	8,809	10,328	11,138	126%
Rest of Hamilton	216,392	257,792	289,834	134%
Rest of GTAH	4,085,620	4,740,387	5,244,054	128%
TOTAL	4,310,821	5,008,507	5,545,026	129%

Overall employment growth for the region is shown to be 29% or 1.1% compounded per annum.

Trips to and from external zones toward Brantford were calculated to have been compounded by 0.7% per annum over the two time horizons.

4.2 Modifications

Modifications made to the base year networks noted in Section 2.2.1 above, were similarly applied to the future year (2021 and 2031) networks and the trip matrices were disaggregated in the same manner. In addition, some inconsistencies were detected in the future year networks. The following corrections were made:

a) Parts of Wilson St E, McNiven Road and Highway 52 were coded as having 8 lanes, while in reality each will remain as a 2+ lane road;
b) Similarly, the coding of the Highway 6 interchange with Highway 403 was also corrected so that it better matched the actual configuration including ramp lengths.

Certain planned improvements were also added to the 2031 network; this included:

- Addition of 1 general purpose lane in each direction on Highway 403 between King Street/Main Street and Jerseyville Road; and
- A small increase in capacity was allocated to Mohawk Road/Rousseau to allow for its planned widening to 3 lanes.

In addition, as the base year trip matrix had been adjusted in order to better reflect the traffic counts, the same adjustment had to be made to the future year matrices. The trip adjustment values were obtained by subtracting the initial base year matrix from the adjusted base year matrix. This difference matrix was then applied to the future year matrices. The formula used for these matrix corrections is shown in the following:

$$\Delta_{ij} = \max(\tau_{ij}^{(base)} - t_{ij}^{(base)}, 0)$$

$$\tau_{ij}^{(s)} = t_{ij}^{(s)} + \Delta_{ij}$$

Where $t_{ij}^{(base)}$ is the number of trips for zone i to zone j in the base scenario, and $\tau_{ij}^{(base)}$ is the adjusted number of trips for zone i to zone j in the base scenario. The adjusted number of trips for any scenario (s) can be computed using trip adjustment value (Δ_{ij}).

4.3 Scenario Development

Once the adjustments had been made to the future year networks, zone system and O-D matrices, several future ramp alternatives were developed for both the Mohawk Road and the Golf Links Road interchanges. The configuration of the additional Brantford-(west)bound on-ramp to the Mohawk Road interchange and the additional ramps to and from the west at the Golf Links Road interchange were obtained from previous work carried out for the City. Figure 17 and Figure 18 below show conceptual drawings extracted from these reports for the two scenarios.

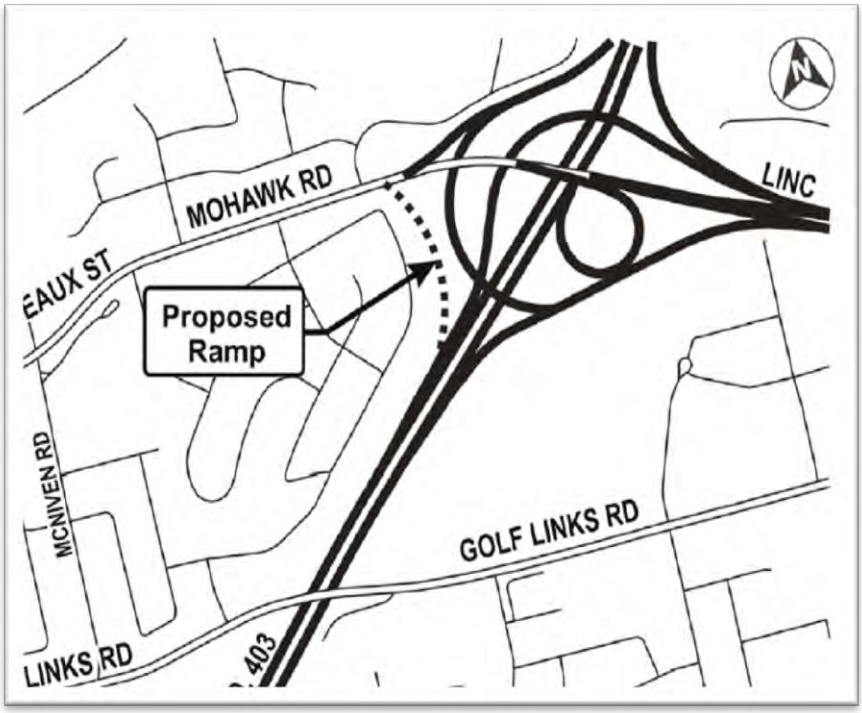

Figure 17: Mohawk Road Westbound On-Ramp Concept Drawing (taken from City's request for proposal C11-21-13)

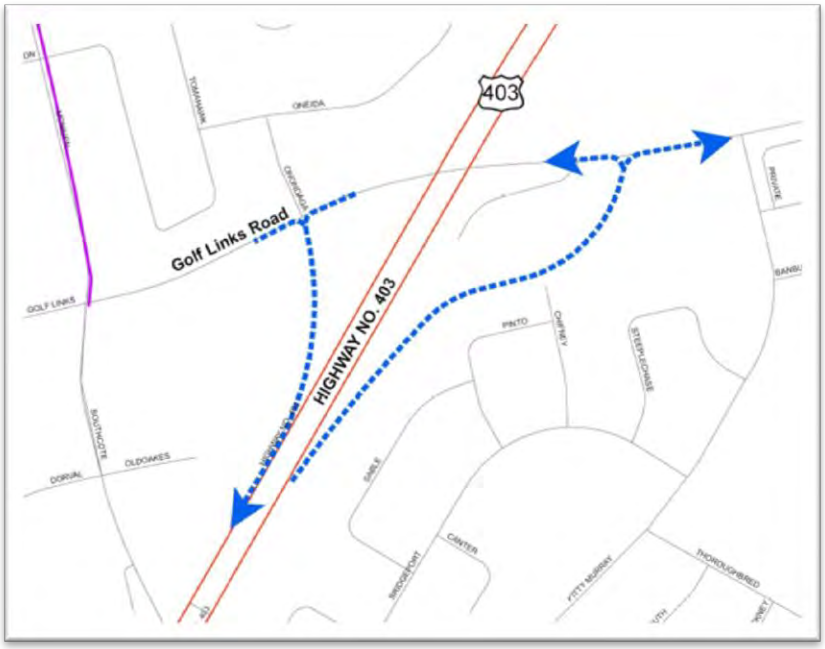

Figure 18: Golf Links Road Ramps to/from the west Concept Drawing (taken from Ancaster TMP Report, 2011)

Table 5 shows the traffic assignment runs completed using the adjusted matrices and networks as described previously.

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Table 5: Traffic Assignments Completed using the Adjusted Matrices and Networks

	TRIP YEAR		
SCENARIO	Base Year (2008)	Future Year (2021)	Future Year(2031)
Do-Nothing	X	X	X
Mohawk Ramp (westbound)	X	X	X
Golf Links Road (ramps to and from the west (Brantford))	X	X	X

Assignment results for the immediate study area are illustrated for each of these scenarios in Appendix A.

4.4 General Observations

When comparing the base year and future year assignments, it was noticed that the volumes on a number of links in the study area reduced in the future years. This led to further investigations on why this was happening.

Overall, the 2031 and 2021 matrices grow at a rate of approximately 1% per year from the 2008 base, including the critical external zone (#504) representing the main destination (Brantford) to the west of Ancaster. Therefore, it would be assumed that trips throughout the area would be expected to grow.

Initially, it was discovered that certain zones (zone # 501 and 503) on the periphery (mainly the important west side) of the study area had zero trips in the future years, therefore showing a decline in demand (see Figure 19Figure 14 for the location of these zones). Upon checking for the reasons for this, it was found that in one of the EMME modal split macros (for future years), there was a typo that replaced the attraction of these zones with a zero. This error was subsequently corrected.

Figure 19: Zone and network map indicating external zones to the west of Ancaster

Second, in examining trip production differences between 2008 and 2031 for zones in the study area, the increase was not great and some zones also show a decrease in trips. This difference in trip productions is illustrated in Figure 15.

Figure 20: Difference in trip productions in and near study area (2031 minus 2008)

Regardless of the initial macro correction made, the results still indicated a reduction in demand on some key links in the study area in the future years. Further investigations took place as to why this was happening. These investigations revealed that the main external zone (504) to the west which represents Highway 403 to Brantford has a growth in trips of about 700 trips between 2008 and 2031. If the distribution of trips remains the same, then it would be expected that the assigned trip volumes would increase on the new westbound ramps at either Mohawk Road or Golf Links Road over time. However, the assignments show the reverse to be happening, i.e. declining volumes. The only logical explanation is that the attraction of trips elsewhere in the network (e.g. Hamilton downtown or other GTA) increase disproportionally and therefore absorbs a greater amount of the trip making from the Ancaster area. A quick investigation of this theory proved this to be correct. Therefore, it is with this facet of increased attraction elsewhere that the results presented in the following sections have to be viewed.

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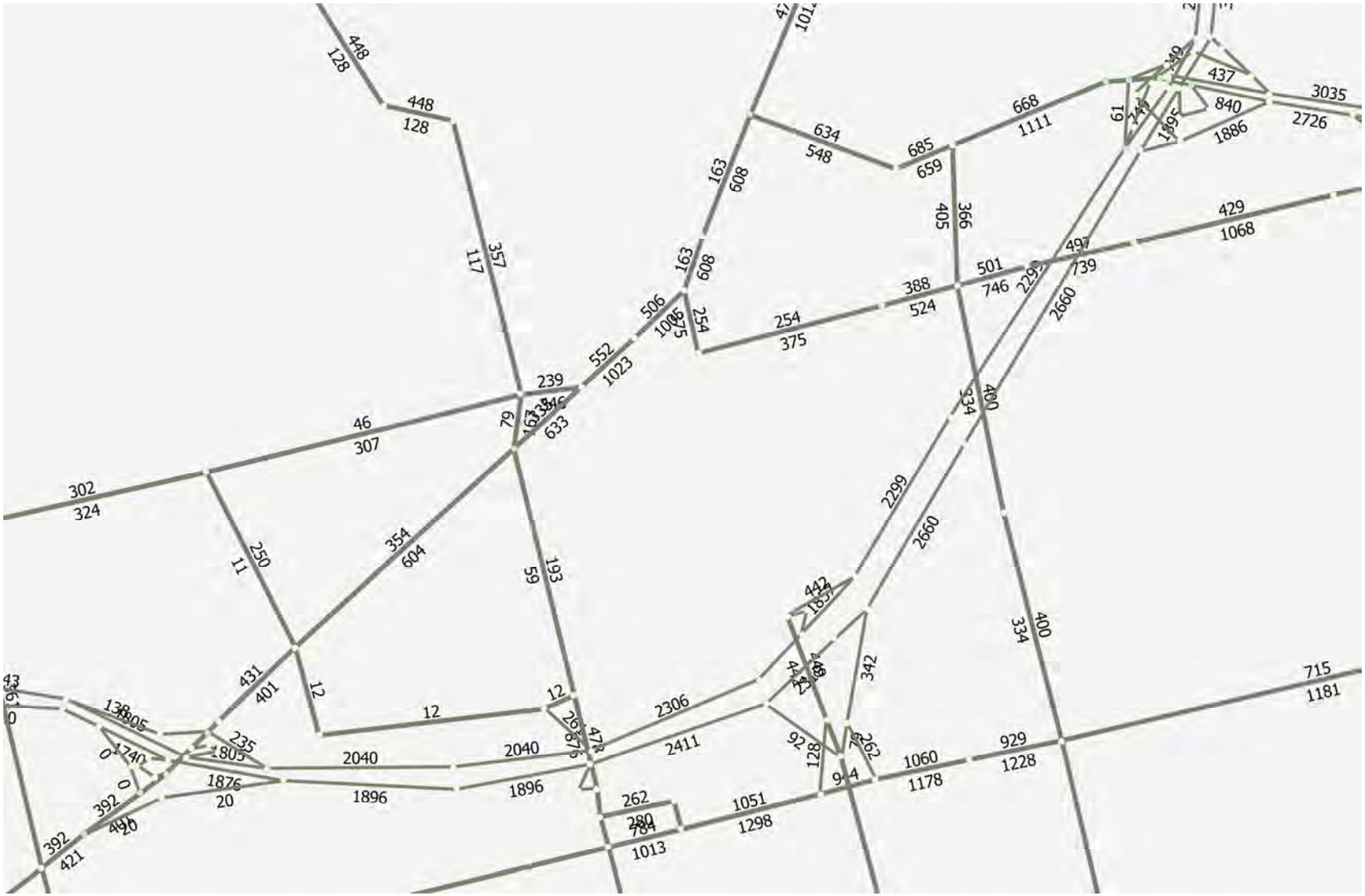
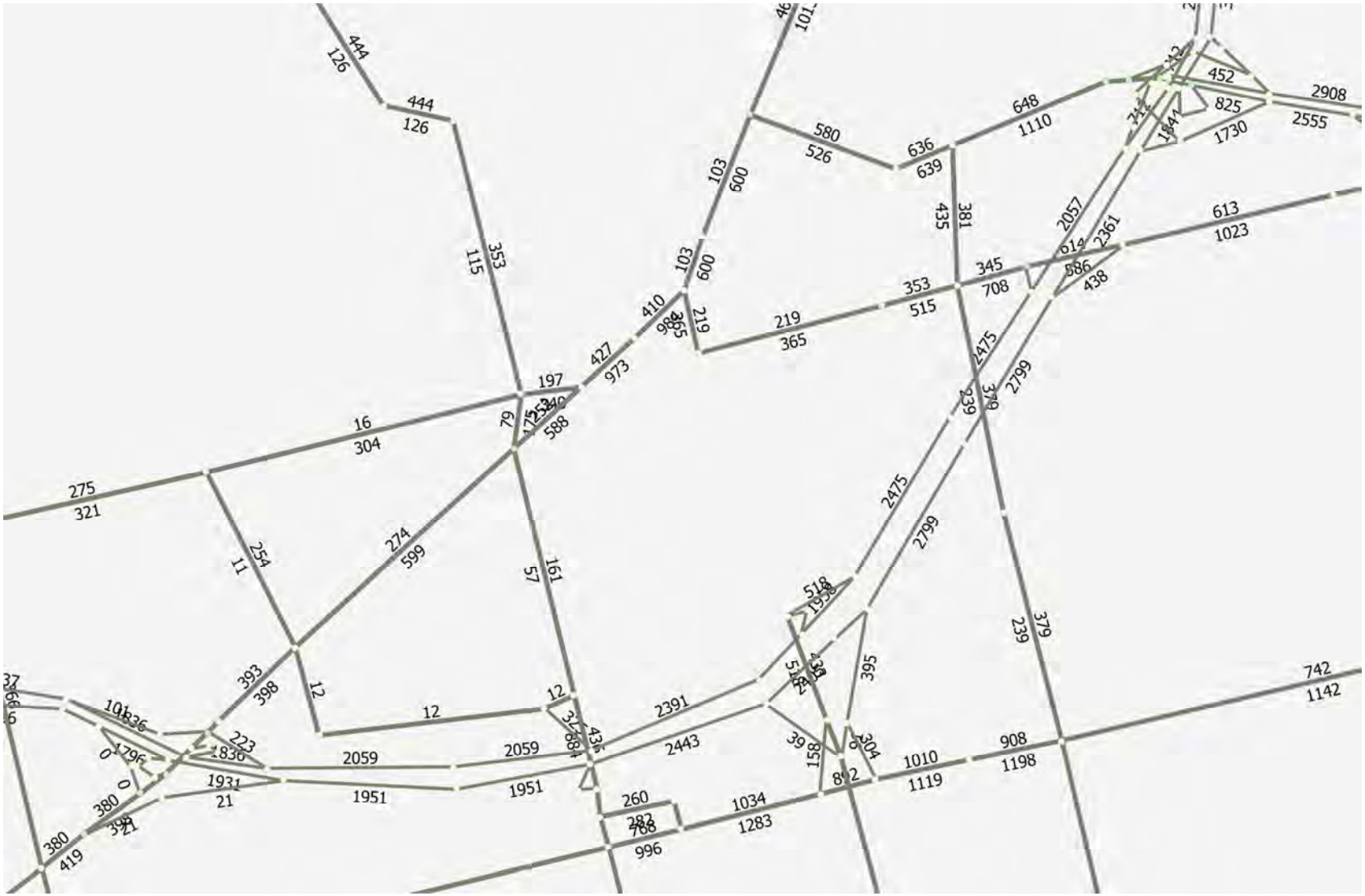


Mohawk Road On-Ramp Scenario (2031 assignment)



Golf Links Ramps to/from the west scenario (2031 assignment)

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1. Introduction

This technical addendum documents the revised microsimulation analysis of the Mohawk Ramp to Westbound Highway 403 during the afternoon (PM) peak period. The previous report presented the analysis results for both AM and PM peak period. Based on the discussion with MTO staff, the methodology to estimate traffic volumes during the PM peak within the study area is revised. The following sections present the new results.

1.1 Study Area

The study area used for the development of the, VISSIM model includes Highway 403 mainline segment and bounded upstream with the Mohawk Ramp and downstream just before the interchange with Highway 6 as shown in Figure 1.

The Mohawk Ramp was modelled based on the proposed design drawing prepared by AMEC for the City of Hamilton. The details of the lane configurations (i.e. parallel links and taper lengths) at the merging section of the Mohawk Ramp and Highway 403 mainline are show in Figure 2.

It is important to note that the analysis conducted below is based on the parallel and taper design for the Mohawk ramp merge into the Hwy 403 WB on-ramp from Lincoln Pkwy. It should be noted that the new design for Mohawk ramp would shift the merging section with HWY 403 WB mainline about 300m closer to the lane drop section on HWY 403, compared to the existing merging section of the on-ramp from Lincoln and HWY 403 WB mainline.

Figure 1: Study Area and Model Boundaries

Figure 2: Detailed Geometry of the New Mohawk Ramp *(source: AMEC drawing dated April 28, 2014)*

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1.2 Input Data and Period of Analysis

In order to evaluate the effect of the new ramp on Highway 403 operations, we considered several simulation scenarios based on future traffic demands as follows:

- 2008, 2021 and 2031 traffic volumes, existing configuration of Highway 403 ramps and lanes (Do-nothing);
- 2021 and 2031 traffic volumes, new on ramp from Mohawk Road to westbound Highway 403;
- 2031 traffic volumes, considering a new GPL lane and the new on ramp from Mohawk Road to westbound Highway 403;
- 2031 traffic volumes, considering a new HOV lane and the new on ramp from Mohawk Road to westbound Highway 403; and

Currently, adding an HOV lane is not included in the future network expansion plans published by the MTO. It is being assessed in this analysis to verify that the proposed undertaking will not preclude it from being implemented should future expansion recommendation changes.

1.2.1 Traffic Volumes

Based on the results of the EMME macro modelling and using the available 2008/2009 traffic counts, and in consultation with MTO; CIMA estimated the distribution of traffic during PM peak period. Figure 3 shows the input demand along different segments within the study area during the PM peak period for the analysis periods described above. A comparison between the estimated PM demand for the previous and current reports is presented Table 1.

The following observations can be made by analyzing the volumes generated at the gateways of the model:

- The PM peak volumes estimated in the previous report were significantly lower; specially on HWY 403 WB off-ramp to Mohawk Rd./Lincoln Pkwy; HWY 403 WB on-ramp from Lincoln Pkwy and HWY 403 WB mainline; and
- No considerable change in the volume on the new Mohawk ramp; and
- Significant increase in the updated HWY 403 EB mainline and the HWY 403 EB off ramp to Lincoln Pkwy volumes during the PM peak compared to previous estimations.

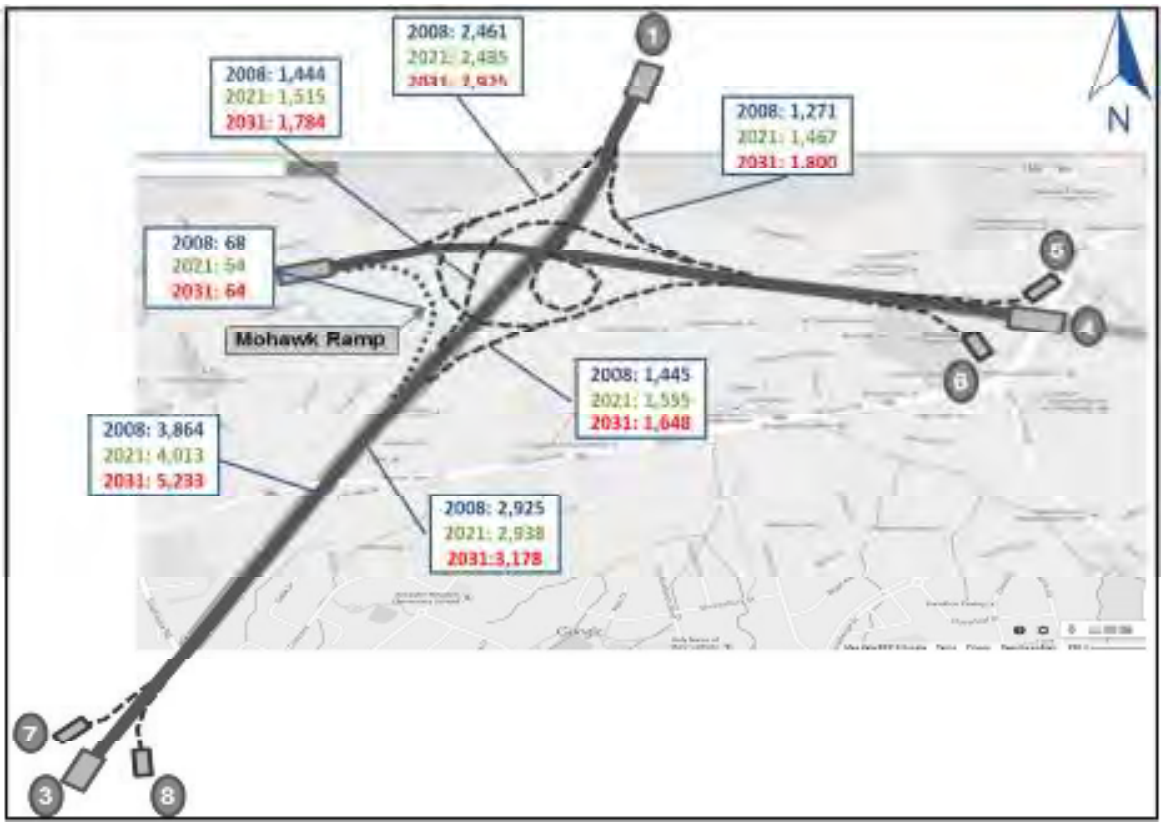

Figure 3: Updated PM Peak Volumes along Major Corridors within the Study Area

Table 1: Comparison between the Previous and Updated PM Peak Volumes

Segments	Previous PM Volumes			Updated PM Volumes		
	2008	2021	2031	2008	2021	2031
Hwy 403 WB off-ramp to Mohawk Rd/Lincoln Pkwy	1,643	1,667	2,107	**2,461**	**2,485**	**2,925**
New Hwy 403 WB on-ramp from Mohawk Rd	62	58	58	**68**	**64**	**64**
Hwy 403 EB off-ramp to Lincoln Pkwy	1,142	1,252	1,345	**1,445**	**1,555**	**1,648**
Hwy 403 WB on-ramp from Lincoln Pkwy	10,50	1,115	1,382	**1,444**	**1,515**	**1,784**
Hwy 403 EB on-ramp from Lincoln Pkwy	1,200	1,396	1,729	**1,271**	**1,467**	**1,800**
Hwy 403 WB mainline, West of Lincoln IC	3,710	3,848	5,060	**3,864**	**4,013**	**5,233**
Hwy 403 EB mainline, West of Lincoln IC	1,845	1,858	2,098	**2,925**	**2,938**	**3,178**
Mohawk Rd EB, East of Hwy 403 WB on-ramp	905	989	1005	**534**	**618**	**634**
Lincoln Pkwy WB, west of Hwy 403 EB on-ramp	209	366	232	**434**	**592**	**457**

1.2.2 Traffic Volumes on HOV Lanes

The potential demand on HOV lanes for the 2031 future scenario was estimated based on the previous methodology. CIMA conducted a field visit on Tuesday February 04, 2014 between 7:30 and 8:00 am. During this period, the vehicle occupancy of around 364 vehicles on Highway 403 WB off and on ramps at Wilson St interchange was recorded. The results of this field visit showed that 8% of vehicles on Hwy 403 WB off-ramp had occupancy of 2 or more persons. Moreover, 5% of vehicles that accessed Highway 403 WB from Wilson St had 2 or more occupants. Therefore, 8% of vehicles on Highway 403 WB and 5% of vehicles accessing Highway 403 WB within the study area were assumed to use the HOV lane in the 2031 year.

1.3 Simulation Model Analysis and Results

Due to the stochastic nature of the simulation model and for proper comparative analyses, 10 simulation runs were completed for all the scenarios. The final results, averaged over the multiple runs, are documented in this report.

In order to evaluate the impact of the new ramp from Mohawk Road, the following measures were reported and analysed:

- Average delay;
- Average queue and maximum queue lengths on the merging section of the new Mohawk ramp with current Highway 403 WB on-ramp from Lincoln Pkwy; and
- Average delay and speed of vehicles on three routes (as presented in Figure 4):
  I. Highway 403 WB mainline, from exit 64 (Lincoln Parkway) until exit 61(Highway 6 south);
  II. Current Highway 403 WB on-ramp from Lincoln Alexander Parkway, after the Highway 403 EB on-ramp until the end of merging section with Highway 403 WB mainline; and
  III. The new Highway 403 WB on-ramp from Mohawk Road.

Figure 4: Selected Routes for Performance Evaluation

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1.3.1 PM Peak Analysis

Table 2 summarizes the performance measures reported for each scenario for the PM peak period. The following observations summarize our findings based on the simulation modelling results and watching the simulation running:

- Overall, the operations of the new Mohawk ramp, HWY 403 WB on-ramp from Lincoln Pkwy, and HWY 403 WB mainline were found acceptable based on the reported speed values for years 2008 and 2021;
- The Mohawk ramp did not affect the movement of vehicles on the existing HWY 403 WB on-ramp from Lincoln Pkwy and mainline merging section during the 2008 and 2021 PM peak periods;
- The simulation results showed that the merging maneuver of vehicles from the new Mohawk ramp into the Hwy 403 WB on-ramp from Lincoln Pkwy during 2008 and 2021 PM peak can be performed without any queuing;
- Adding the Mohawk ramp to the 2031 do-nothing scenario did result in noticeable deterioration of average speed and delay of vehicles travelling on HWY 403 WB mainlines and the existing HWY 403 WB on-ramp from Lincoln Pkwy. This is due to increase in vehicular turbulence within the weaving section on HWY 403 WB, between the lane drop point and merging section with the new link from Mohawk/Lincoln ramps. The addition of Mohawk ramp and related parallel links and tapers, shifts the merging section of the WB on-ramp from Mohawk/Lincoln downstream and much closer to the lane drop location on HWY 403 (about 300m compared to the existing geometric condition). The increase in volume on HWY 403 WB mainline and the on-ramp from Lincoln Pkwy in 2031 compared to 2021, in addition to this geometric change, is expected to heavily affect the weaving behaviour of vehicles on this section of HWY 403. Consequently, significant reduce in speed due to lane changings would cause long queue lengths along this section of the study area and is expected to reach upstream to the merging section of the WB on-ramp from Mohawk/Lincoln Pkwy;
- Confirmed by the observations in the previous report, in 2031 the HOV lane scenario resulted in congestion downstream of the Mohawk ramp merging section due to the following reasons:
  - Increase in the WB mainline traffic volume from 2021 to 2031 by around 30%;
  - A drop in the number of lanes along HWY 403 WB downstream the Mohawk ramp (from 3 lanes to 2 lanes); and
  - Only 8% of traffic is assumed to use the HOV lane – a significant modal shift towards high occupancy vehicles usage would have to happen.
- The operations of HWY 403 WB mainline under the 2031 scenarios with Mohawk ramp and addition of GPL to HWY 403 WB are found acceptable with an average reported speed of 93 kph. In 2031, the GPL scenario outperformed the HOV scenario by around

80% reduction in overall average delay and more than 90% reduction in average delay along HWY 403 WB mainline (from 112 sec to 6 sec).

Table 2: Analysis Results for the PM Peak Period

Location	Performance Measures	Without Mohawk Ramp					With Mohawk Ramp/Link				
		2008	2021	2031			2008	2021	2031		
		Do-Nothing	Do-Nothing	Do-Nothing	GPL	HOV	Do-Nothing	Do-Nothing	Do-Nothing	GPL	HOV
Overall Network Performance	Average Speed (kph)	96	96	66	88	67	96	96	60	93	62
	Average Delay (sec/veh)	22	23	166	14	142	22	23	223	13	98
	Average Stop Delay (sec/veh)	–	–	7	0.5	5	–	–	15	0.3	13
Mohawk ramp merging Section with on-ramp from Lincoln Pkwy	Average Delay (sec)	N/A	N/A	N/A	N/A	N/A	1.8	1.6	25	2	73
	Average Queue(m)	N/A	N/A	N/A	N/A	N/A	–	–	61	–	127
	Maximum Queue(m)	N/A	N/A	N/A	N/A	N/A	–	–	>500	–	>500
Route i: Highway 403 WB mainline	Average Delay (sec)	10	10	101	10	109	10	10	257	6	117
	Average Speed (km/h)	101	101	65	101	63	101	101	38	103	63
Route i: Highway 403 WB HOV lane Traffic	Average Delay (sec)	N/A	N/A	N/A	N/A	14	N/A	N/A	N/A	N/A	11
	Average Speed (km/h)	N/A	N/A	N/A	N/A	98	N/A	N/A	N/A	N/A	100
Route ii: Current Highway 403 E-W ramp from Lincoln	Average Delay (sec)	5	4.7	32	7	34	5	5	109	7	339
	Average Speed (km/h)	73	73	55	71	33	72	72	32	71	14
Route iii: New Mohawk Ramp	Average Delay (sec)	N/A	N/A	N/A	N/A	N/A	1	0.5	60	1	170
	Average Speed (km/h)	N/A	N/A	N/A	N/A	N/A	77	77	36	77	19

Figures 5 and 6 show lane-by-lane analysis conducted on the average speed on Highway 403 WB mainlines and the WB on-ramp from Mohawk/Lincoln Pkwy for 2031 Do-nothing and GPL scenarios.

Figure 5: Lane-by-Lane Average Speed Diagram – Do-Nothing Scenarios – 2031 PM Peak Period

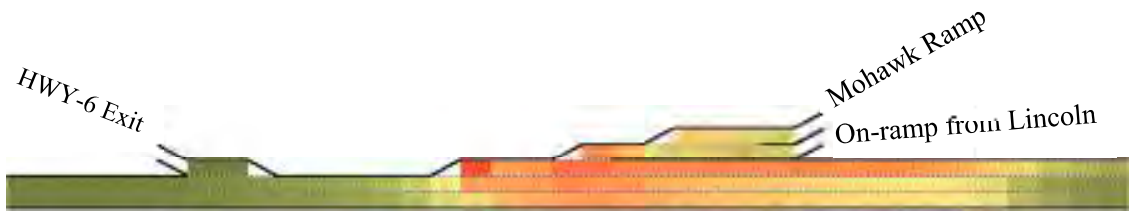
Scenario	Color-Coded Speed Diagram	Observations/Comments
2031 Without Mohawk Ramp – Do nothing		Supported by the analysis results, low average speed (around 55 kph and 40 kph in 2031 scenario without and with Mohawk ramp respectively) were observed at merging of on-ramp from Mohawk/Lincoln Pkwy with HWY 403. The average speed at the lane drop location downstream HWY 403 is shown to drop to around 40 kph in 2031 scenario without Mohawk ramp vs. 20 kph in 2031 scenario with Mohawk ramp.
2031 With Mohawk Ramp – Do nothing		

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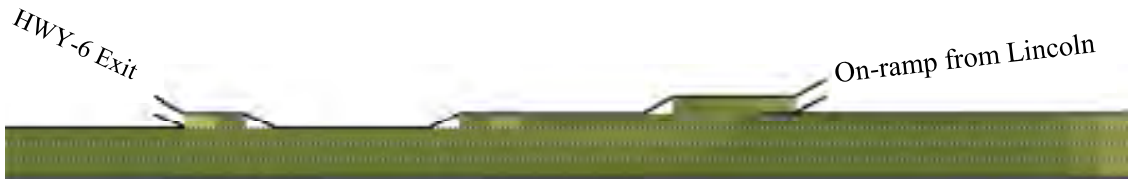
Figure 6: Lane-by-Lane Average Speed Diagram – GPL Scenarios – 2031 PM Peak Period

Scenario	Color-Coded Speed Diagram	Observations/Comments
2031 Without Mohawk Ramp – GPL		It can be seen that in general Highway 403 WB mainlines and WB on-ramp from Lincoln / Mohawk perform well under 2031 GPL scenarios with and without the new Mohawk Ramp.
2031 With Mohawk Ramp – GPL		

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Please note that with or without the proposed Mohawk Road ramp, the operational performance of Highway 403 with HOV lane was shown to be unacceptable. The HOV lane scenarios are somewhat academic as no one is actually proposing to develop an HOV lane for this section of highway; for this reason, lane by lane average speed diagrams were not produced for the HOV scenarios. With or without the proposed Mohawk Road ramp the results clearly show the GPL scenario is the preferred option for this section of highway. Ironically, with the Mohawk Road ramp added, there is a marginal improvement in operational performance on the highway for the GPL scenario.

2. Concluding Remarks

This technical addendum re-evaluated the effect of the new Mohawk ramp on the operations of Highway 403 WB during the PM by conducting new estimation of the PM peak volumes and using a microsimulation analysis. The analysis was conducted for the PM peak period for years: 2008, 2021 and 2031. The 2031 scenarios considered an additional GPL or HOV lane on Highway 403 WB direction.

The results show that the new Mohawk ramp is not expected to have any major effect on the operations of Highway 403 WB mainline during the 2008 and 2021 PM peak periods. The operations of Highway 403 mainline, Mohawk ramp and the WB on-ramp from Lincoln Pkwy. Are expected to be acceptable during 2008 and 2021 PM peak.

In 2031, the increase in WB mainline and on-ramp from Lincoln Pkwy traffic volumes, by about 30% and 18% respectively, is expected to significantly increase the average delay along HWY 403 WB mainline and the on-ramp from Lincoln Pkwy. The results of Do-nothing scenarios revealed that the implementation of the Mohawk ramp would deteriorate the performance of highway 403 WB mainline and the WB on-ramp from Lincoln Pkwy. This is due to extensive vehicle weaving behaviour between the new Mohawk/Lincoln on-ramp link merging section with HWY 403 mainline and the lane drop location on HWY 403. The new Mohawk ramp design would require the merging section with HWY 403 WB mainline to be shifted downstream, 300m closer to the lane drop location (compared to the existing geometric configuration). Vehicles travelling on the WB on-ramp from Mohawk/Lincoln would have much less distance to merge onto HWY 403 WB before reaching the lane drop location, where another merging maneuver should be performed.

The addition of a GPL in 2031 did address the congestion build up and is expected to significantly reduce the delay of vehicles on HWY 403 mainline and the WB on-ramp from Mohawk/Lincoln Pkwy. The vehicles on the new Mohawk ramp are expected to merge onto the existing WB on-ramp without any queuing during PM peak periods, considering the additional GPL lane scenario in 2031.

In 2031, the implementation of a HOV lane will not address the future capacity requirements on the Highway 403 mainline and WB on-ramp from Lincoln during the PM peak period as a result of only 8% (vehicle occupancy >1) of the total traffic being able to use the HOV lane leaving the other 92% of the traffic to use the other 2 lanes, despite the 8% HOV demand likely being too high.

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1. Microsimulation Modelling

This report documents the microsimulation modelling of the Mohawk Ramp to Westbound Highway 403 using VISSIM. The microsimulation modelling involved the following five steps:

1- Identification of Study Area

2- Model Building

3- Input Data and Period Analysis

4- Model Calibration and Validation

5- Simulation Model Results and Analysis

6- Conflict Analysis Results

In a microscopic simulation model, each vehicle is moved through the network of transportation facilities on a split-second basis according to the physical characteristics of the vehicle (length, maximum acceleration rate, etc.), the fundamental rules of motion (e.g. acceleration and deceleration profiles), and rules of driver behaviour (car following rules, lane changing rules, route choice rules, etc.). The VISSIM (**V**erkehr **I**n **S**tädten – **SIM**ulationsmodell)[1] microscopic modelling therefore will enable capturing the dynamic interaction between individual vehicles in a detailed replica of the ramp geometry, merging points, and weaving sections throughout the study area.

1.1 Identification of Study Area

The study area used for the development of the, VISSIM model includes Highway 403 mainline segment and bounded upstream with the Mohawk Ramp and downstream just before the interchange with Highway 6 as shown in Figure 1.

The Mohawk Ramp was modelled based on the design drawing (Alternative 1) - prepared by IBI Group for the City. The details of the lane configurations, taper length, and the merging sections of the Mohawk Ramp into the Hwy 403 WB ramp are show in Figure 2.

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[1] PTV America. *http://vision-traffic.ptvgroup.com/en-us/products/ptv-vissim/*

Figure 1: Study Area and Model Boundaries

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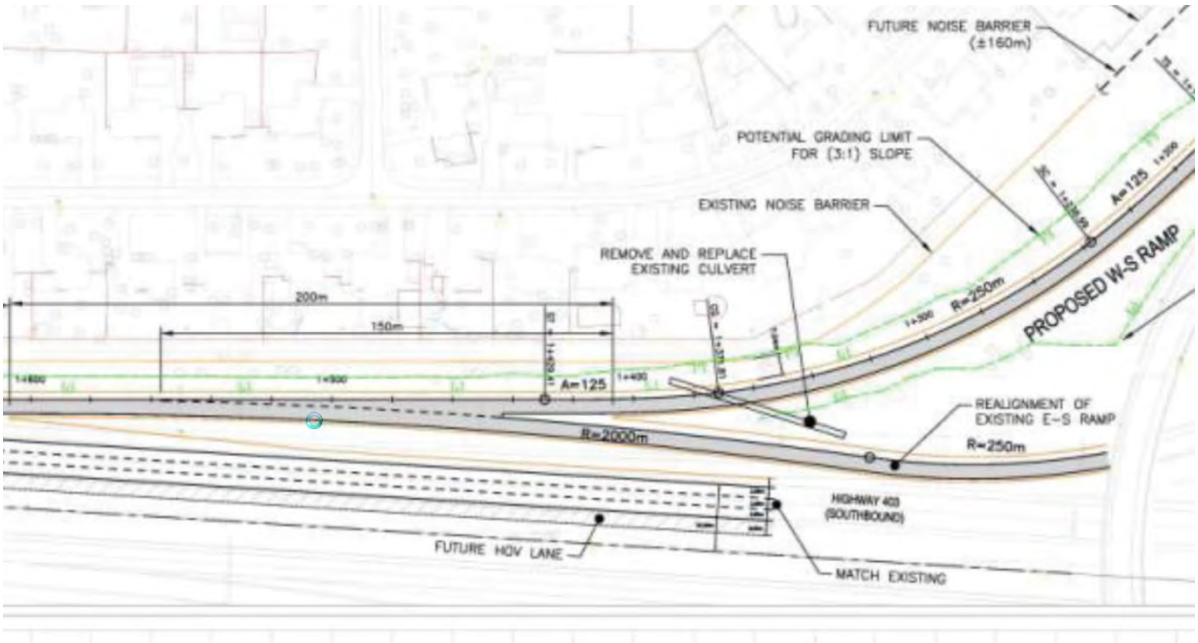

Figure 2: Detailed Geometry of the New Mohawk Ramp *(source: Alternative-1, IBI Group)*

1.2 Model Building

The development of a microsimulation model includes several typical steps, namely the determination of modelling scope, collection of input data, coding of the network, calibration and validation of the simulation model. The development of a microsimulation network can be summarized into the following list of tasks:

1- Import map and/or image-based data such as aerial photographs. These were used as a reference for network coding, so that the dimensions of the microsimulation network correspond to reality.

2- Define roadway types or categories, which have some common set of characteristics such as number of lanes, design speed, lane width, etc.

3- Define vehicle composition and characteristics. Factors such as vehicle length, width, acceleration/deceleration rates, and maximum or desired speeds were specified.

4- Build up the network by coding roadway segments (straight or curved links) with reference to the background geographic data as defined in Step 1. Refine the roadway geometry (including ramp merge points) to assure realistic vehicular merging and diverging movements.

5- Define priority rules and speed limit reductions zones, for example at merging and diverging sections.

6- Define vehicle generator areas and vehicle routes for releasing and routing vehicular demand.

7- Define HOV lane, HOV vehicle classes and related routes

In order to assign traffic into the simulation model, two steps were conducted: 1) define the traffic analysis zones (TAZ); 2) define an Origin-Destination (OD) matrix. The TAZ are defined at the boundaries of the model and at the origin/destination of any trip, as shown in Figure 3.

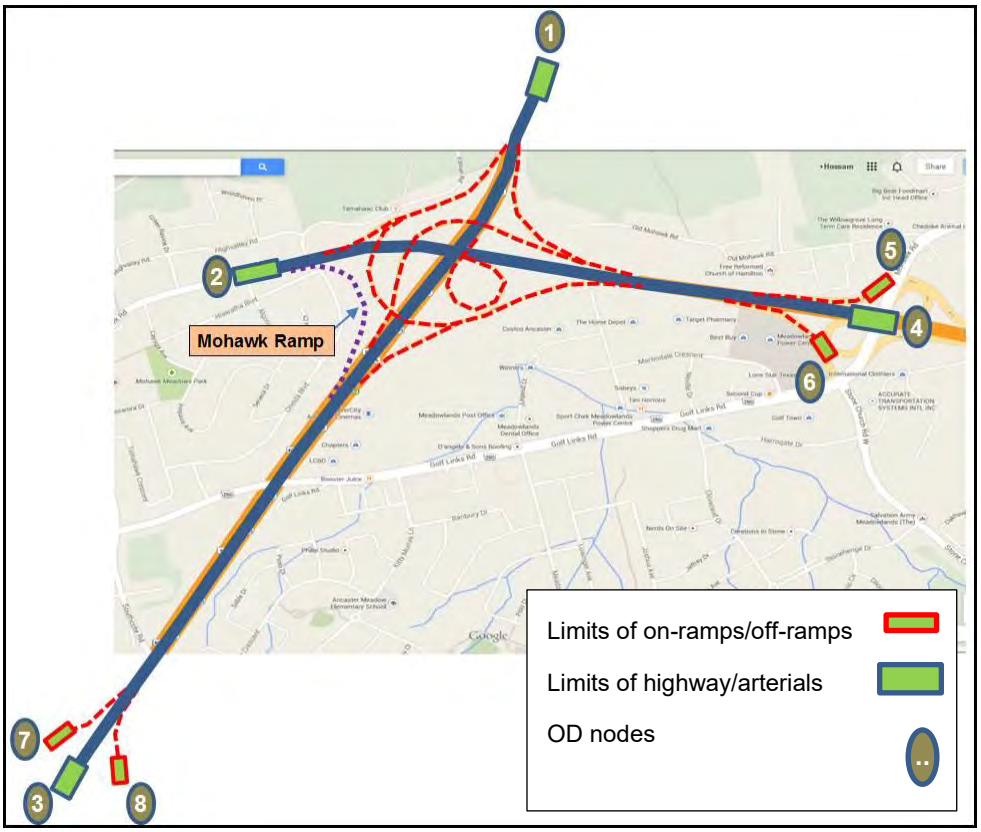

Figure 3: Traffic Analysis Zones

1.3 Input Data and Period of Analysis

1.3.1 Horizon Years

The development of the VISSIM simulation model required detailed data on the roadway geometry attributes (number of lanes, diverging and converging points), traffic related parameters (speed limits, headway, gap acceptance), traffic demand data (OD matrix and traffic counts), and traffic compositing (% cars, % trucks).

The OD matrix for each analysis period was derived from the results of the EMME (Equilibre Multimodal Multimodal Equilibrium)[2] model developed by CIMA for the study area. Since the EMME output did not include truck demand, an approximation for the equivalent additional number of passenger cars is required. Therefore, a review of available turning movement and roadway counts

[2] INRO. *http://www.inro.ca/en/products/emme/index.php*

was conducted to understand the traffic composition within the study area. This review resulted in accounting for an additional 10% trucks on Highway 403 and 5% on the arterials/ramps in the microsimulation analysis.

Based on the results of the EMME macro modelling, and in consultation with MTO; CIMA considered the following period of analysis: base year (2008) and horizon years (2021 and 2031). In order to evaluate the effect of the new ramp on Highway 403 operations, we considered several simulation scenarios based on current and future traffic demands as follows:

- 2008, 2021 and 2031 traffic volumes, existing configuration of Highway 403 ramps and lanes;
- 2008, 2021 traffic volumes, new on ramp from Mohawk Road to westbound Highway 403;
- 2031 traffic volumes, considering a new GPL lane and the new on ramp from Mohawk Road to westbound Highway 403;
- 2031 traffic volumes, considering a new HOV lane and the new on ramp from Mohawk Road to westbound Highway 403; and
- As the forecast demand for the new Mohawk Road on-ramp was not particularly high, a nominal higher demand scenario was developed with 200 vehicles on the new on ramp from Mohawk for 2031 traffic condition during AM and PM peak periods

Currently, adding an HOV lane is not included in the future network expansion plans published by the MTO. It is being assessed in this analysis to verify that the proposed undertaking will not preclude it from being implemented should future expansion recommendation changes.

1.3.2 Traffic Volumes

Table 1 presents the input demand, including trucks, at the beginning of different segments along the study area during the AM and PM peak periods for the analysis periods described above. The PM peak demand was not forecasted as part of the EMME modelling phase; as a result the ratio of PM to AM volumes on the downstream E-W on-ramp from Wilson St. was calculated as a reference. This ratio was used to estimate the demand on Mohawk ramp during the PM peak period.

The following observations can be made by analyzing the volumes generated at the gateways of the model:

- Generally speaking the PM peak volumes seem to be higher than the morning peak volumes;
- As expected the highest volume during the AM peak was found along “Hwy 403 EB mainline”. Similarly the highest volume during the PM peak was found along “Hwy 403 WB mainline”; and
- A significant increase in HWY 403 E-W off ramp to Mohawk Road in the PM peak compared to the AM peak.

Table 1: Input AM and PM Peak Volumes

Segment (Volumes were generated at the beginning of each segment)	AM Volumes			PM Volumes		
	2008	2021	2031	2008	2021	2031
Hwy 403 E-W off-ramp to Mohawk Rd	271	291	306	1,006	1,119	1,346
New Hwy 403 W-W on-ramp from Mohawk Rd	86	80	80	62	58	58
Hwy 403 W-E off-ramp to Lincoln Pkwy	912	861	1,025	1,142	1,252	1,345
Hwy 403 E-W on-ramp from Lincoln Pkwy	1,351	1,404	1,640	1,050	1,115	1,382
Hwy 403 E-E on-ramp from Lincoln Pkwy	1,236	1,134	1,378	1,200	1,396	1,729
Hwy 403 WB mainline	726	827	1,039	2,598	2,675	3,627
Hwy 403 EB mainline	1,831	1,892	3,035	703	607	753
Mohawk Rd EB	617	872	751	721	837	922
Lincoln Pkwy WB	436	464	452	209	366	232

1.3.3 Traffic Volumes on HOV Lanes

In order to estimate the potential demand on HOV lanes for the 2031 future scenario, CIMA conducted a field visit on Tuesday February 04, 2014 between 7:30 and 8:00 am. During this period, the vehicle occupancy of around 364 vehicles on Highway 403 WB off and on ramps at Wilson St interchange was recorded. The results of this field visit showed that 8% of vehicles on Hwy 403 WB off-ramp had occupancy of 2 or more persons. Moreover, 5% of vehicles that accessed Highway 403 WB from Wilson St had 2 or more occupants. Therefore, 8% of vehicles on Highway 403 WB and 5% of vehicles accessing Highway 403 WB within the study area were assumed to use the HOV lane in the 2031 year. These numbers were used to adjust vehicle routing in the simulation models. It should be noted that subsequent to completion of the HOV simulation, we were informed by MTO staff that a 3% HOV usage would be more indicative of current HOV usage. However, as this report concludes that with an 8% HOV usage, the HOV lane scenario for 2031 does not work well; a 3% assumption would simply reinforce the same conclusion. It should also be noted that current MTO planning documents are recommending a future additional GPL, not HOV lane for this section of highway making the HOV simulation an academic exercise only.

1.4 Model Calibration and Validation

After coding the network and assigning the OD matrix into the simulation model, the importance of the calibration process cannot be overstated; it serves as an additional check of the validity of the simulation model and ensures that the model parameters reflect local traffic conditions. We used an iterative process to adjust the simulation parameters so that the simulation model outputs match observations within a tolerable range of discrepancy. Outputs used in the calibration process were at the disaggregated level such as detailed vehicle's trajectories and at the aggregate level such as the

traffic counts and average trip travel times. Calibration of the VISSIM model was done for the existing condition and base year (2008).

In VISSIM a speed distribution profile is defined for vehicles. This includes minimum and maximum speeds and intermediate points that are typically defined according to the cumulative percentage of vehicles to travel at that speed and form an s-shaped distribution. In this model, the default speed distribution for 100 km/h median was used which has 120 km/h as its maximum possible

1.4.1 Traffic Volume Calibration

Traffic volume calibration involves measuring averaged volumes generated in the model against the calculated demand from EMME. The Geoffrey E. Havers (GEH) statistic formula is used for this comparison and described here after. The GEH Statistic is an empirical formula similar to chi-squared test that is used in traffic modelling to compare two sets of traffic volumes. GEH is widely used as an acceptance criterion for travel demand forecasting and model calibration.

$$GEH = \sqrt{\frac{2(M-C)^2}{M+C}}$$

Where, M is the hourly traffic volume from the model and C is the hourly demand from traffic count. For calibrating traffic models in the "baseline" scenario, according to the FHWA guidelines for micro-simulation modelling[3], a GEH of less than 4.0 is considered a good match between the modelled and observed hourly volumes. For the purpose of this project volumes of seven movements within the network were considered for calibration. The calculated GEH for all movements, including total network volume were less than 1. The low GEH value was expected as there are no routing options within the study area; and as a result the traffic volumes entered into the model were assigned to the freeway and ramps segments. The main reason for performing this check is to ensure that the total traffic volume is released to the model and therefore confirming no blockage at the boundaries of the model.

1.4.2 Speed Calibration

The modelled average speed of vehicles along Highway 403 mainline was compared against speed data from the MTO travel time study conducted in 2012. Figure 4 shows this comparison along Highway 403 Westbound within the study area for the 2008 AM and PM peak periods (note as volumes for 2008 and 2012 were similar, the 2012 travel time was considered an appropriate comparison with the 2008 model base year). The maximum difference between observed and provided data from MTO is in the range of 6 Km/h (6%) to 9 Km/h (9%) during the AM and PM peaks, respectively. Considering that the base case micro-simulation analysis was conducted for 2008 traffic data, it was expected to see slightly higher speed during the simulation compared to MTO speed data for 2012.

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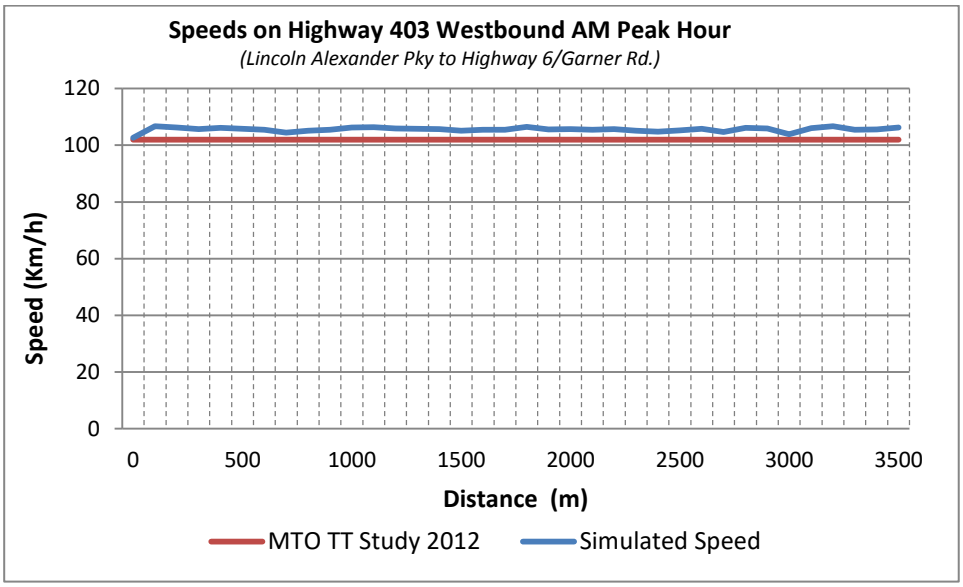
[3] Calibration of Microsimulation Models (*http://ops.fhwa.dot.gov/trafficanalysistools/tat_vol3/sect5.htm*)



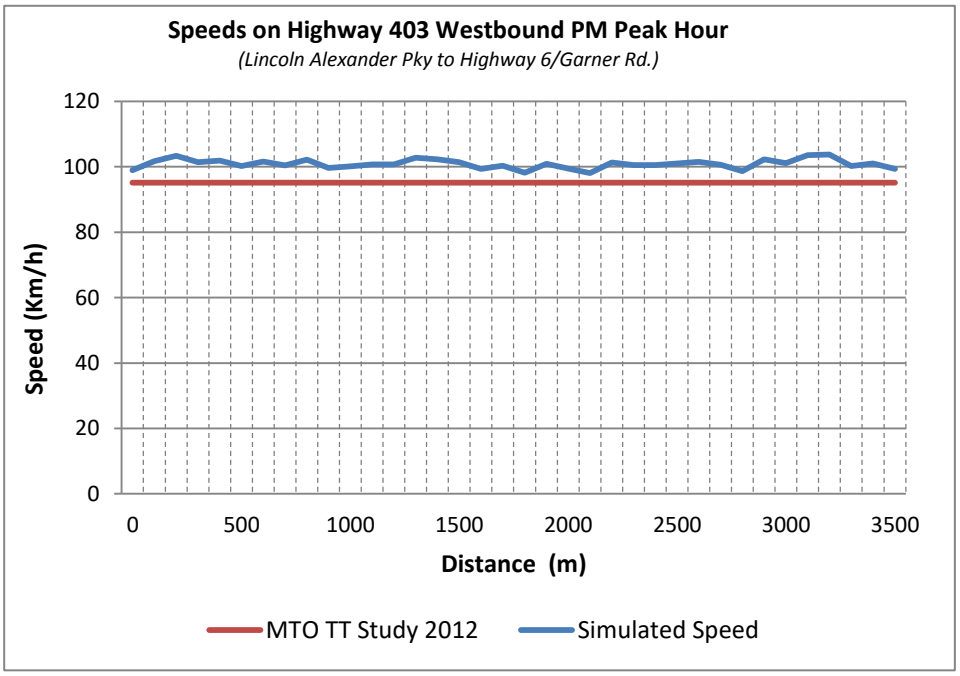
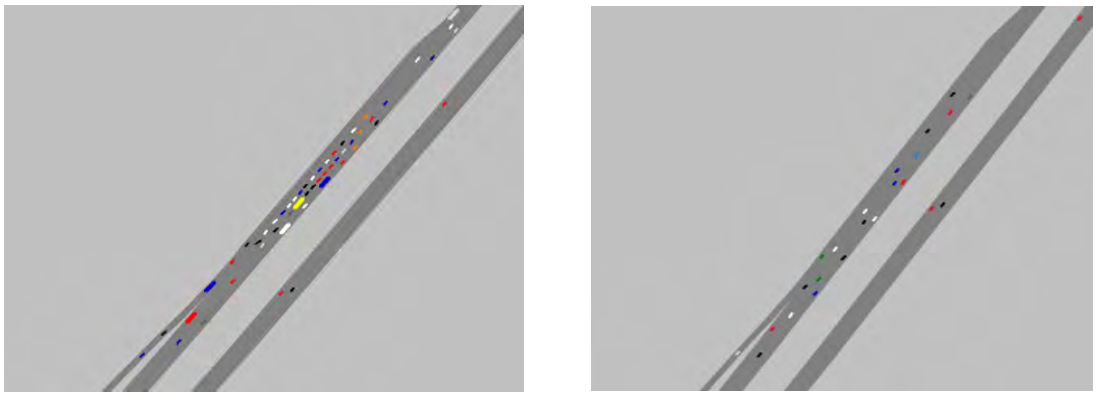


Figure 4: Speed Diagram for the AM and PM Peak Periods

Please note the slightly lower speeds (than the simulation) found in the MTO 2012 TTS study in the above figure. In order to check whether the TTS data was realistic, we undertook a limited travel time survey in April 2014. While a comparison of traffic volumes was not possible, the survey found the current speeds on this stretch of highway were in fact closer to the modelled speeds which led us to believe that the 2012 TTS survey may be the result of a limited sample or exceptional results.

1.4.3 Visual Calibration

The visual observation of the model was completed under different simulation scenarios to ensure that the model overall is operating as expected and that the driving behaviours (weaving, merging, lane changing, accessing HOV lane, etc.) are reasonable. For example, in the 2031 PM peak scenario several vehicles were observed travelling along Highway 403 SB towards the Highway 6 exit causing unrealistic congestion due to last minute lane changes. In order to eliminate this unrealistic behaviour, a new vehicle class was defined for this group of vehicles and necessary adjustments to lane closure parameter of the links and related routing decisions were made. Figure 5 illustrates the observed behaviour of vehicles before and after calibration.



Vehicle behaviour at diverging section before calibration

Vehicle behaviour at diverging section after calibration

Figure 5: Observed Behaviour of Vehicles Before (left) and After (right) calibration

1.4.4 Validation

After the model is calibrated it is essential to validate the base case model. In this step, six major routes within the study area were identified and a probe vehicle was used to measure travel time along these routes. A field visit was conducted on Tuesday February 04, 2014 between 8:30 and 11:45 am. For each route, three measurements were reported and the average of these values was used in the validation process.

The FHWA microsimulation modeling guidelines requires the absolute difference between simulated and measured travel times to be less than 15% for at least 85% of the cases. The average travel time over 10 replications - each with different random seeds - for one-hour VISSIM simulations was used as the base case modelled travel time. Table 2 presents the comparison between observed and estimated travel times for select routes and as shown in 100% of the cases the difference in travel time is less than 15%.

Table 2: Observed vs. Simulated Travel Times

Route	From	To	Observed Travel Time (sec)	Simulated Travel Time (sec)	% Diff
Highway 403 EB mainline	exit 64 (Lincoln Parkway)	Exit 61 (Hwy 6 south)	111.7	122.7	9%
Mohawk Rd/Lincoln Alexander Parkway EB	Intersection of Mohawk Rd and Filman Rd	Mohawk Rd off-ramp	85.4	83.7	2%
Highway 403 W-E off-ramp	Hwy 403 exit	Mohawk Rd off-ramp	88.1	79.7	11%
Highway 403 EB mainline and Lincoln Parkway Exit	Hwy 6 interchange	Intersection of Golf Links Rd/Stone Church Rd	151.7	134.7	13%
Lincoln Alexander Parkway WB off-ramp to Hwy 403 WB	Mohawk Rd/Golf Link Rd exit	End of merging section with Hwy 403	101.5	106.3	5%

1.5 Simulation Model Results and Analysis

Due to the stochastic nature of the simulation model and the underlying simulation processes, each microsimulation run can be regarded as a random experiment, i.e. a random day in real life. Therefore the output from a single run of a given scenario is one instance of the random experiment. Some runs could represent typical days of traffic on the real network; but other runs could represent extreme days with lighter or heaver traffic conditions. Therefore, for proper comparative analyses, 10 simulation runs were completed for all the scenarios. The final results, averaged over the multiple runs, are documented in this report.

In order to evaluate the impact of the new ramp from Mohawk Road, the following measures were reported and analysed:

- Average delay,
- Average queue and maximum queue lengths on merging sections (with current Highway 403 E-W ramp from Lincoln Parkway and merging with Highway 403 WB mainline), and
- Average delay and speed of vehicles on three routes (as presented in Figure 6):
  - I. Highway 403 WB mainline, from exit 64 (Lincoln Parkway) until exit 61(Highway 6 south);
  - II. Current Highway 403 E-W ramp on Lincoln Alexander Parkway, from Highway 403 EB exit until the end of merging section with Highway 403 WB mainline; and
  - III. The new Highway 403 W-W ramp from Mohawk Road

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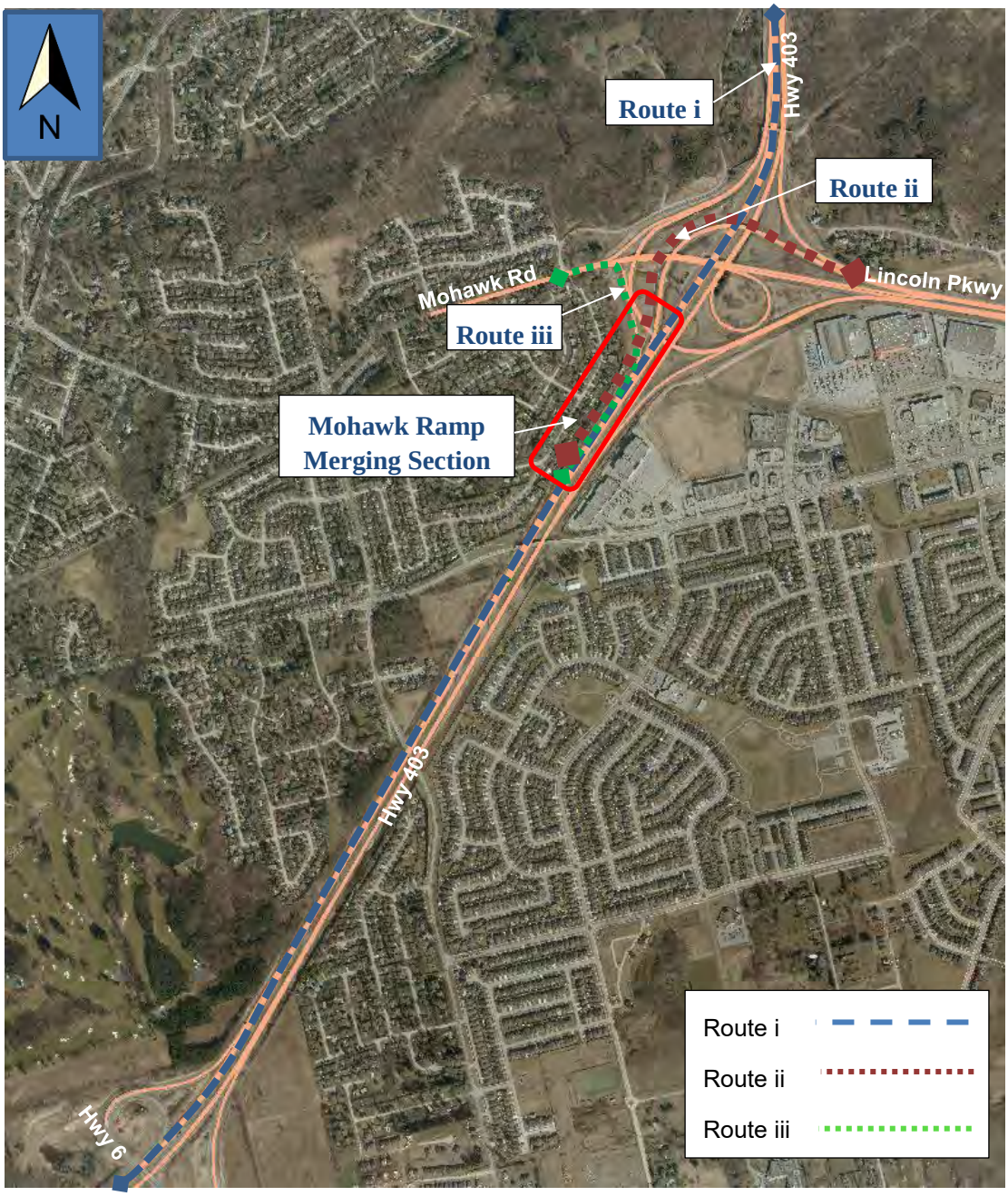

Figure 6: Selected Routes for Performance Evaluation

As described earlier, the time periods considered for the analysis were the AM and PM peak for years 2008, 2021, and 2031. It is important to note that the following additional scenarios were considered in year 2031:

- Addition of a General Purpose Lane (GPL) along Highway 403 WB mainline;
- Addition of a High Occupancy Vehicle Lane (HOV) along Highway 403 WB mainline; and

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- A nominal 200 vehicles were assigned to the proposed on-ramp to account for a potential high demand scenario on the new on ramp from Mohawk for 2031 traffic condition during the AM and PM peak periods.

It is important to note that the analysis conducted below is based on a direct taper design for the Mohawk ramp merge into the Hwy 403 WB ramp. Since the simulation was complete a superior parallel design is being pursued which means the simulation of the direct taper scenario representing a worst case scenario. The parallel lane option will perform better than the direct taper option, although no concerns were found with the direct taper option.

1.5.1 AM Peak Period

Table 3 summarizes the performance measures reported for each scenario for the AM peak period. The following observations summarize our findings based on the simulation modelling results and watching the simulation running:

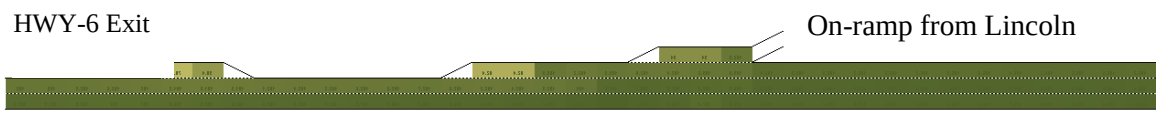
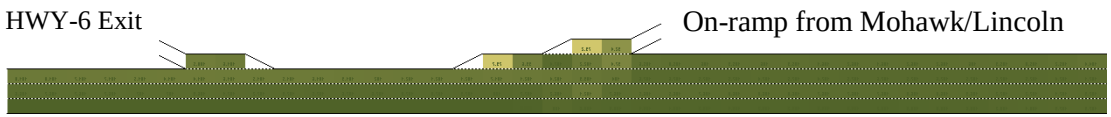
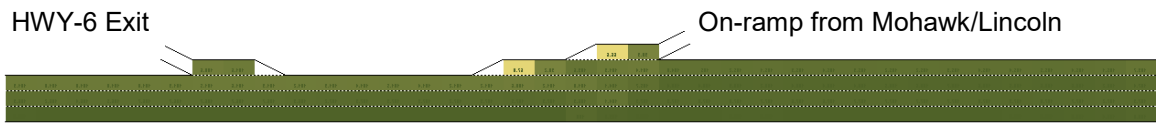
- Overall, the operations of the new Mohawk ramp, HWY 403 E-W ramp, and HWY 403 were found acceptable based on the reported speed values for years 2008 and 2021;
- The Mohawk ramp did not affect the movement of vehicles on the existing HWY 403 E-W ramp and mainline merging section during the AM and PM peak periods;
- The Mohawk ramp volume in 2008 (86 vehicles) and in 2021 (80 vehicles) did result in minimal and acceptable average delay of around 2 sec/veh for vehicles travelling on the existing HWY 403 E-W on-ramp from Lincoln Pkwy. As expected the delay on the ramp increases with the increase in traffic volumes in 2031, but still to an acceptable delay of a range or 3-4 sec/ veh;
- In 2031, the GPL scenario outperformed the HOV scenario by around 10% reduction in average delay;
- The operations of HWY 403 WB mainline are found acceptable with an average reported speed of 105 kph; and
- For the scenario where 200 vehicles were added to the ramp in 2031, the average delay of vehicles travelling on Mohawk ramp and merging into existing E-W ramp did increase compared to 2031 forecasted ramp volumes (8 sec/veh vs. 3 sec/veh.); however the average reported speed on the ramps is still found to be acceptable at 69 kph. This is confirmed by the 95% queue length that is reported to be zero and by watching the simulation model. As expected the 2031 HOV scenario with the additional 200 vehicles forms the worst scenario reporting the highest overall network delay and Mohawk ramp delay.
- The simulation results showed that the merging maneuver of vehicles from the new Mohawk ramp into the Hwy 403 E-W on-ramp from Lincoln Pkwy during AM peak can be performed without any queuing.

Table 3: Analysis Results for the AM Peak Period

Location	Performance Measures	Without Mohawk Ramp				With Mohawk Ramp					
				2031				2031		2031	
		2008	2021	GPL	HOV	2008	2021	GPL	HOV	GPL + 200 veh on Mohawk ramp	HOV + 200 veh on Mohawk ramp
Overall Network Performance	Average Speed (kph)	90.1	89.2	88.5	89	89.6	88.9	88.2	87.6	88.4	87
	Average Delay (sec/veh)	4.9	5	10	10	5	5.1	9.8	10.7	10.1	12.6
	Average Stop Delay (sec/veh)	--	--	0.3	0.2	--	--	0.2	0.14	0.3	0.3
Mohawk ramp merging Section	Average Delay (sec)	0.8	0.9	1.1	1	1.4	1.4	1.8	2	3.4	4
	Average Queue(m)	--	--	--	--	--	--	--	--	--	--
	Maximum Queue(m)	--	--	--	--	--	--	--	--	--	--
Route i: Highway 403 WB mainline	Average Delay (sec)	2.5	2.9	1.5	3.4	2.6	2.9	1.5	2.9	1.6	6.6
	Average Speed (km/h)	105.5	105.2	106	105.2	105	105	106.3	105.3	106.3	103
Route i: Highway 403 WB HOV lane Traffic	Average Delay (sec)	--	--	--	0.7	--	--	--	0.4	--	0.6
	Average Speed (km/h)	--	--	--	106.2	--	--	--	106.4	--	106.4
Route ii: Current Highway 403 E-W ramp	Average Delay (sec)	3	3.3	4.5	4.6	2.1	3.6	5.1	6.1	7.6	9.3
	Average Speed (km/h)	74.4	74.1	73.1	63	74.1	70.9	69.6	71.7	69	68.7
Route iii: New Mohawk Ramp	Average Delay (sec)	N/A	N/A	N/A	N/A	2.1	2.4	3.1	2.7	8.1	8.2
	Average Speed (km/h)	N/A	N/A	N/A	N/A	74.1	73.7	72.8	75.9	69	68.6

Figure 7 shows lane-by-lane analysis conducted on the average speed on Highway 403 WB mainlines. Additionally, to illustrate the spatio-temporal distribution of speed, speed contours based on 1-min simulated speed data were analyzed and plotted in Figure 8. The speed contour diagrams show that in general Highway 403 mainlines perform well under different scenarios.

Figure 7: Lane-by-Lane Average Speed Diagram on Highway 403 WB – AM Peak Period

Scenario	Color-Coded Speed Diagram	Observations/Comments
2008 Without Mohawk Ramp		It can be seen that during AM peak period, there is a slight decrease in speed (around 73 kph in 2031 GPL scenario vs. 66 kph in 2031 GPL + 200 vehicle scenario) at the end of merging section of the on-ramp from Lincoln Pkwy and the lane drop location along HWY 403. This is attributed to a few vehicles that could not find a proper gap to merge along the acceleration lane. However, in general Highway 403 mainlines perform well under different scenarios.
2031 With GPL		
2031 With GPL + 200 Vehicles on Mohawk Ramp		

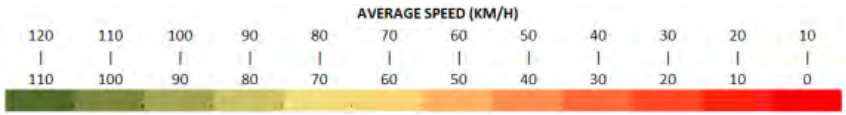


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Figure 8: Speed Contour Diagrams for Highway 403 WB – AM Peak Period

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1.5.2 PM Peak Period

Table 4 summarizes the performance measures reported for each scenario for the PM peak period. The following observations summarize our findings based on the simulation modelling results and watching the simulation running:

- Overall, the operations of Mohawk ramp, HWY 403 E-W ramp, and HWY 403 mainline were all within reasonable reported speed during the 2008 and 2021 horizon years. In 2031 the HOV lane results in congestion on the 2 other GPL lanes because of the assumed 8% HOV usage occupying one lane with the remaining 92% of the demand occupying the remaining 2 lanes. If the MTO suggested assumption of 3% HOV usage had been used, this would have resulted in a worse simulation because of 97% of demand then occupying only 2 two lanes – the 2031 forecast demand clearly justifies an additional GPL rather than HOV lane;
- The simulation results showed that the merging maneuver of vehicles from the new Mohawk ramp into the Hwy 403 E-W on-ramp from Lincoln Pkwy during PM peak can be performed without any queuing during 2008, 2021 and 2031 with GPL scenarios.
- In 2031 the HOV lane scenario resulted in congestion downstream of the Mohawk ramp merging section due to the following reasons:
    - Increase in the WB mainline traffic volume from 2021 to 2031 by around 35%;
    - A drop in the number of lanes along HWY 403 WB downstream the Mohawk ramp (from 3 lanes to 2 lanes); and
    - Only 8% of traffic is assumed to use the HOV lane – a significant modal shift towards high occupancy vehicles usage would have to happen.
- The operation of HWY 403 WB mainline was found acceptable with an average reported speed of 100 kph during 2008 and 2021 horizon years. In 2031, with the addition of a GPL the average speed along HWY 403 WB mainline was found to be as high as 102 kph;
- The addition of a GPL in 2031 did address the congestion build up and is expected to significantly reduce the delay of vehicles on HWY 403 mainline and the E-W on-ramp;
- The overall network performance also shows that by adding an HOV lane instead of a GPL, the average speed of vehicles would reduce significantly during the PM peak period, and as a result, the average delay of vehicles will greatly increase. This is due to the congestion build up downstream the Mohawk ramp;
- Long queues were observed along HWY 403 WB mainline, the E-W on-ramp from Lincoln Parkway and the new Mohawk ramp during 2031 PM peak period in the HOV lane scenario;
- In 2031 with the HOV lane, it is interesting to observe that the average delay along HWY 403 WB in the case with the Mohawk ramp is lower than the scenario without the ramp (84 sec/vehicle vs 72 sec/vehicle). It is thought this result is attributed to the queue build up downstream of the merging sections of the Mohawk in 2031 and the lack of space for vehicle to merge; this likely results in a “metering” effect and therefore the relative improvement along HWY 403 WB mainline; and

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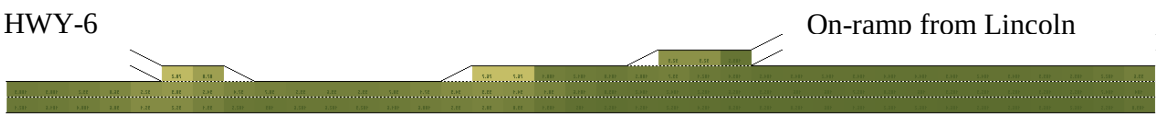
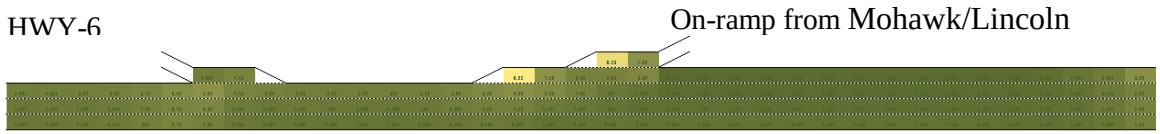
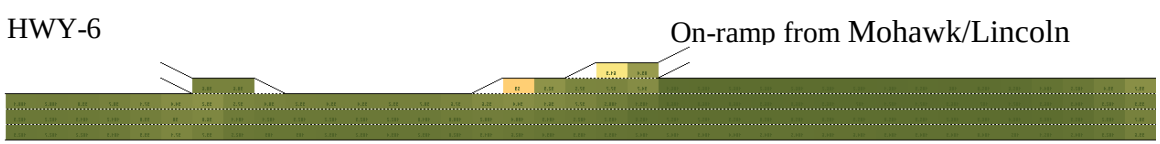
- The Mohawk ramp will introduce an additional average delay of 1-2 sec/veh in the PM peak period and therefore would not affect greatly the movement of vehicles on current HWY 403 E-S ramp and mainline merging section.

Table 4: Analysis Results for the PM Peak Period

Location	Performance Measures	Without Mohawk Ramp				With Mohawk Ramp					
				2031				2031		2031	
		2008	2021	GPL	HOV	2008	2021	GPL	HOV	GPL + 200 veh on Mohawk ramp	HOV + 200 veh on Mohawk ramp
Overall Network Performance	Average Speed (kph)	90.1	88.9	91.5	74.4	89.2	89.1	89.9	70.5	90	64.8
	Average Delay (sec/veh)	6.6	7.7	8.5	46.1	7.5	8.2	9.8	50.3	9	66.5
	Average Stop Delay (sec/veh)	0.1	0.1	0.2	7.5	0.1	0.2	0.2	11.4	0.2	16
Mohawk ramp merging Section	Average Delay (sec)	0.7	0.8	0.9	25.7	1.2	1.2	1.1	41.6	1.5	49
	Average Queue(m)	--	--	--	14.6	--	--	--	31.4	--	70
	Maximum Queue(m)	--	--	--	505	--	--	--	510	--	510
Route i: Highway 403 WB mainline	Average Delay (sec)	9.7	11.5	7.1	84.2	11.7	13	8	72.3	8.8	72
	Average Speed (km/h)	101.2	100.2	103	72.6	100	99.8	102.4	74.2	101.9	74
Route i: Highway 403 WB HOV lane Traffic	Average Delay (sec)	--	--	--	19.1	--	--	--	8	--	8
	Average Speed (km/h)	--	--	--	96.5	--	--	--	102	--	102
Route ii: Current Highway 403 E-W ramp	Average Delay (sec)	2.6	3.2	4.1	21.6	2.9	3.1	3.7	137	4.9	245
	Average Speed (km/h)	74.9	74.4	73.7	49	71.7	71.4	70.9	27.3	69.1	18
Route iii: New Mohawk Ramp	Average Delay (sec)	N/A	N/A	N/A	N/A	1.5	1.6	2	92.5	2.6	152
	Average Speed (km/h)	N/A	N/A	N/A	N/A	74.9	74.9	74.4	28.5	69.6	20

Figure 9 shows lane-by-lane analysis conducted on the average speed on Highway 403 WB mainlines. Additionally, to illustrate the spatio-temporal distribution of speed, speed contours based on 1-min simulated speed data were analyzed and plotted in Figure 10. Both lane by lane analysis and speed contour diagrams show lower average speed at the merging section from Lincoln Pkwy with HWY 403 and at the lane drop location downstream HWY 403.

Figure 9: Lane-by-lane Average Speed Diagram on Highway 403 WB – PM Peak Period.

Scenario	Color-coded Speed Diagram	Observations/Comments
2008 Without Mohawk Ramp		Supported by the analysis results, low average speed (around 66 kph in 2031 GPL scenario vs. 62 kph in 2031 GPL + 200 vehicle scenario) were observed at merging of on-ramp from Lincoln Pkwy with HWY 403, and the lane drop location downstream HWY 403 (around 60 kph in 2031 GPL scenario vs. 53 kph in 2031 GPL + 200 vehicle scenario).
2031 With GPL		
2031 With GPL + 200 Vehicles on Mohawk Ramp		

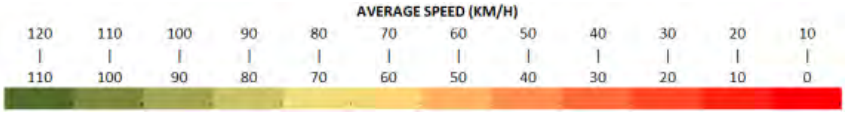


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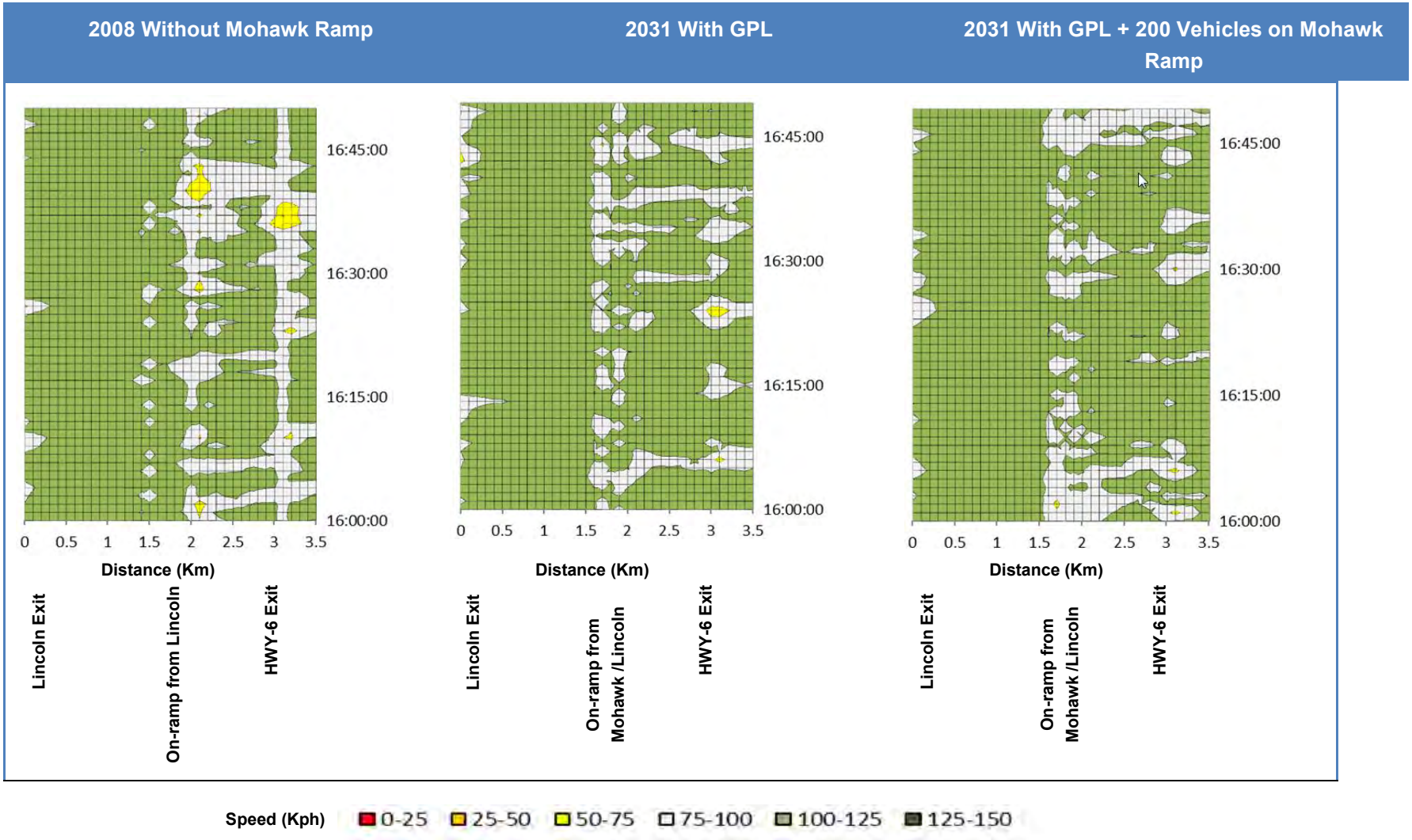
Figure 10: Speed Contour Diagrams for Highway 403 WB – PM Peak Period



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Please note that with or without the proposed Mohawk Road ramp, the operational performance of Highway 403 with HOV lane was shown to be unacceptable. The HOV lane scenarios are somewhat academic as no one is actually proposing to develop an HOV lane for this section of highway; for this reason, lane by lane average speed diagrams were not produced for the HOV scenarios. With or without the proposed Mohawk Road ramp the results clearly show the GPL scenario is the preferred option for this section of highway. Ironically, with the Mohawk Road ramp added, there is a marginal improvement in operational performance on the highway for the HOV scenario.

2. Conflict Analysis Results

Safety prediction models are used to estimate the expected number of collisions per year for a given traffic facility, based on traffic volume, geometric layout, and traffic control features. However, it demands collecting several years of historical collision data and it is unlikely that the traffic conditions will remain static during the whole data collection period. Therefore, surrogate safety measure (measures other than actual crash frequency) can be used to assess the *potential* safety of traffic facilities before they are actually built or without waiting for a statistically significant number of crashes to actually occur.

In this project, we conducted the safety assessment based on Surrogate Safety Assessment Model (SSAM)[4] developed by the Federal Highway Administration and its integration capabilities with VISSIM. SSAM is a technique that combines microsimulation and conflict analysis, which analyzes the frequency and character of narrowly averted vehicle-to-vehicle collisions in traffic, to assess the safety of traffic facilities. CIMA implemented the SSAM methodology to highlight the potential number of conflicts on the subject ramps and mainlines of the study area. It is important to note that these *potential* conflicts are solely based on the simulated vehicle trajectories; and therefore should not be used to predict actual collisions; rather they should be used to assess the relativeness of one scenario versus the other. The conflict events were classified by maneuver type (path-crossing, rear-end, and lane-change events).

For the purpose of the safety assessment, we used the output trajectory files (i.e., TRJ files) from VISSIM for each scenario as input data into the SSAM. We computed the corresponding surrogate safety measures (time to collision, post-encroachment time) on Highway 403 mainline and the merging ramps. The results of the analysis performed in the previous section showed that the 2031 demand is the critical scenario compared to 2008 and 2021. Therefore, the SSAM analysis is focused on 2031 demand during AM and PM, considering the additional GPL lane scenario. In order to analyze the most critical case, both the AM and PM peak periods considered for SSAM analysis assumes 200 vehicles will use the new Mohawk ramp.

The potential conflicts on the merging section of the Mohawk ramp with current E-W ramp from Lincoln Pkwy for different scenarios are shown in Table 5. For each scenario, the most critical result

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[4] Surrogate Safety Assessment Model and Validation. Report No. FHWA-HRT-08-051. Federal Highway Administration (FHWA): Washington, D.C., 2008.

out of 10 simulation runs is presented. To spatially represent the conflicts, Figure 11 is produced by plotting the conflicts on the VISSIM model snapshot.

Table 5: Potential Number of Conflicts on the Mohawk Ramp Merging Section with E-W Ramp

Scenario	Conflict Type			
	Crossing	Rear End	Lane Change	Total
2031 AM Peak (200 vehicles on Mohawk ramp) + GPL	-	3	-	3
2031 PM Peak (200 vehicles on Mohawk ramp) + GPL	-	-	3	3

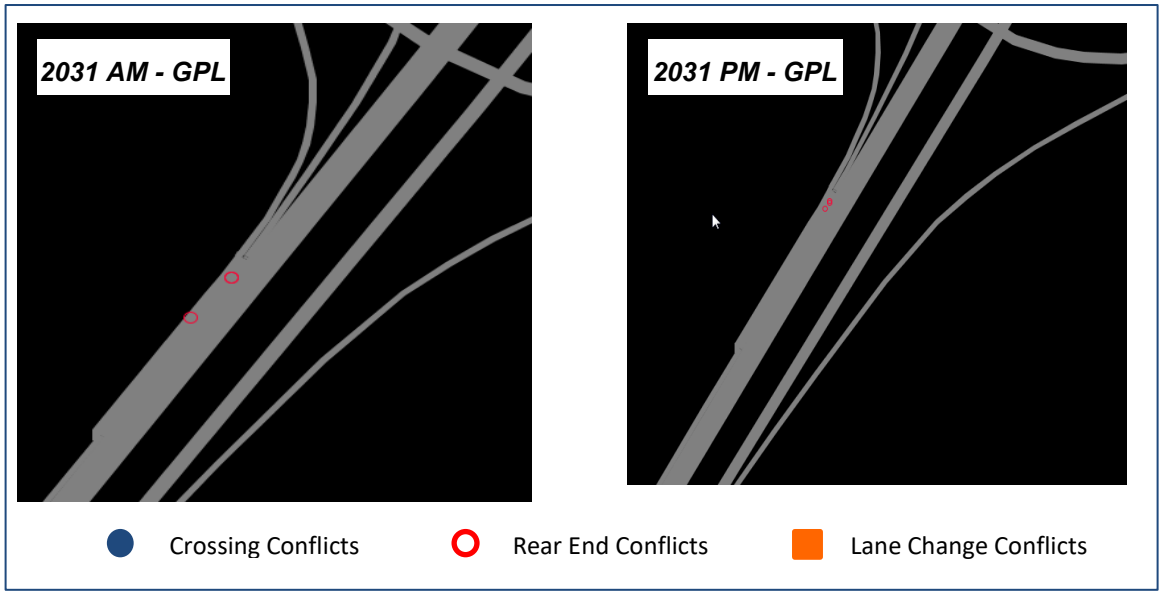

Figure 11: Spatial Representation of Crossing, Rear End, and Lane Change Conflicts on the Merging Section for Different Scenarios

As shown in Table 5, the number of conflicts on the merging section of the Mohawk ramp with current E-W ramp from Lincoln Pkwy in AM and PM peak periods is 3 for GPL scenarios, which is about %0.2 of total number of vehicles travelling on this section.

The potential conflicts on the merging section of the E-W ramp from Lincoln Pkwy and Highway 403 WB mainlines is shown in Table 6. For each scenario, the most critical result out of 10 simulation runs is presented. To spatially represent the conflicts, Figure 12 is produced by plotting the conflicts on the VISSIM model snapshot.

Table 6: Potential Number of Conflicts on the Merging Section of the E-W Ramp and Highway 403 WB Mainline

Scenario	Conflict Type			
	Crossing	Rear End	Lane Change	Total
2031 AM Peak (200 vehicles on Mohawk ramp) + GPL	-	-	1	1
2031 PM Peak (200 vehicles on Mohawk ramp) + GPL	-	1	5	6

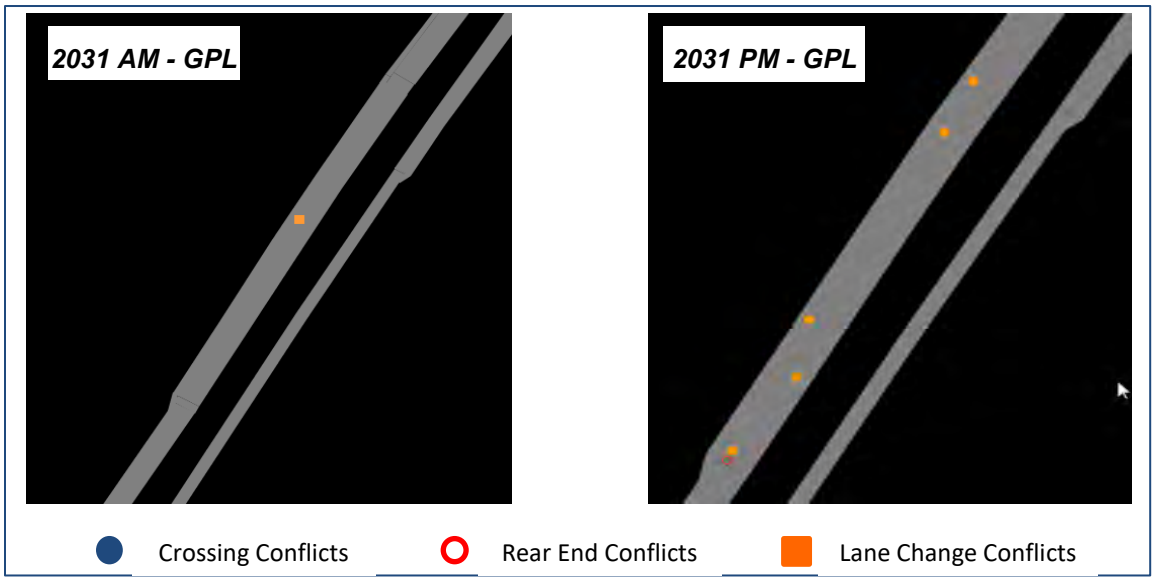

Figure 12: Spatial Representation of Crossing, Rear End, and Lane Change Conflicts on the E-W Ramp and Highway 403 Mainlines for Different Scenarios

As shown in Table 6, the *potential* number of conflicts on the merging section of the E-W ramp from Lincoln Pkwy and Highway 403 WB mainlines in the AM and PM peak in GPL scenario is about %0.1 and %0.2, respectively, of total number of vehicles travelling on this section.

The reported number of conflicts during 2031 scenarios without the new Mohawk ramp is presented in Table 7. The *potential* number of conflicts on the merging section of the E-W ramp from Lincoln Pkwy and Highway 403 WB mainlines in the PM peak in the GPL scenario is about %0.2 of total number of vehicles travelling on this section. No potential conflicts were observed during the AM peak period. The potential conflicts are represented spatially on the maps shown in Figure 13 for PM scenarios.

Please note that the collision analysis results are not presented for the HOV scenarios given their undesirable operational performance. As a result of the simulated turbulent flow a very high collision potential was suggested in the initial results; however, it is thought the unreasonableness of the congestion resulted in the conflict analysis algorithms being stretched beyond their feasible range and the results were not to be trusted.

Table 7: Potential Number of Conflicts on the Merging Section of the E-W Ramp and Highway 403 WB Mainline (2031 without Mohawk Ramp)

Scenario	Conflict Type			
	Crossing	Rear End	Lane Change	Total
2031 AM Peak (Without Mohawk ramp) + GPL	-	-	-	-
2031 PM Peak (Without Mohawk ramp) + GPL	-	3	1	4

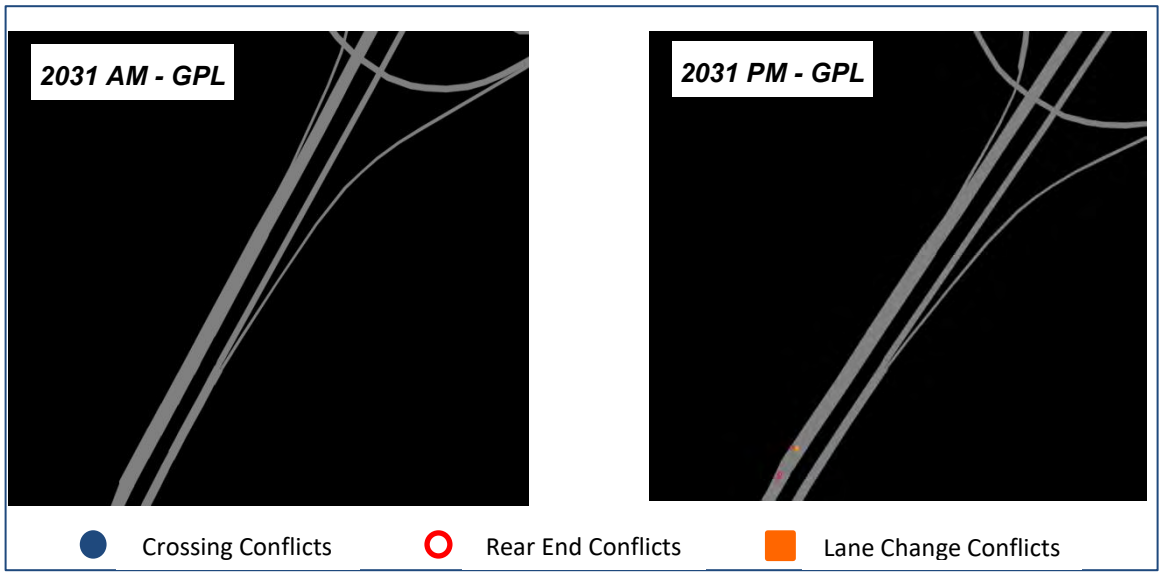

Figure 13: Spatial Representation of Crossing, Rear End, and Lane Change Conflicts on the E-W Ramp and Highway 403 Mainlines (2031 without Mohawk Ramp)

3. Concluding Remarks

In order to evaluate the effect of the new Mohawk ramp on the operations of Highway 403 WB, a microsimulation analysis was performed. The analysis was conducted for the AM and PM peak periods for years: 2008, 2021 and 2031. The 2031 scenarios considered an additional GPL or HOV lane on Highway 403 WB direction.

The results show that the new Mohawk ramp is not expected to have any major effect on the operations of Highway 403 WB mainline during AM peak period. The operations of Highway 403 mainline, Mohawk ramp and E-W on-ramp are expected to be acceptable during 2008 and 2021 PM peak. The vehicles on the new Mohawk ramp are expected to merge onto the existing E-W ramp without any queuing during AM and PM peak periods, considering the additional GPL lane scenario in 2031.

In 2031, the implementation of a HOV lane will not address the future capacity requirements on the Highway 403 mainline and E-W ramp during the PM peak period as a result of only 8% (vehicle occupancy >1) of the total traffic being able to use the HOV lane leaving the other 92% of the traffic to use the other 2 lanes, despite the 8% HOV demand likely being too high. A significant shift from single occupancy vehicle usage to HOV use would have to take place for an additional HOV lane to

be beneficial. In the HOV scenario, queuing is shown on the on-ramp from Mohawk/Linc however, this is due to congestion on the GPL lanes on Highway 403 itself with the proposed ramp having no adverse effect on the mainline. It is noted that current MTO planning recommendations contained in the *Niagara to GTA Corridor Planning and Environmental Assessment Study*, is for Highway 403 to have an additional GPL lane between King Street/Main Street and Jerseyville.

The safety effect of the new ramp was assessed by using the Surrogate Safety Assessment Model (SSAM). The results showed that very minimal number of conflicts (rear-end and lane change) is expected for the merging section of the new Mohawk ramp, current E-W ramp from Lincoln Pkwy, and Highway 403 WB mainline for the scenarios with an additional GPL on Highway 403.

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Appendix D: Terrestrial Ecosystems and Fish and Fish Habitat Existing Conditions Report

MEMORANDUM

To		Project no.	TP113070
From	Daryl Rideout, AMEC	cc	
Tel	905-568-2929		
Fax	905-568-1686		
Date	July 16, 2014		

Subject **Preliminary Design: Aquatic and Terrestrial Impact Assessment for the Proposed Westbound Ramp to Highway 403 from Mohawk Road, City of Hamilton (Ancaster), Ontario.**

BACKGROUND

The City of Hamilton is proposing the construction of a westbound ramp to Highway 403 from Mohawk Road within the community of Ancaster. The Ancaster Transportation Master Plan has identified the need for additional westbound access to Highway 403 due to the amount of traffic on Wilson Street in the core area.

AMEC Environment & Infrastructure, a Division of AMEC Americas Limited (AMEC) has been retained to undertake a Schedule "C" Municipal Class Environmental Assessment (Class EA) study for the proposed westbound ramp to Highway 403 from Mohawk Road. This Aquatic and Terrestrial Impact Assessment memorandum has been prepared in support of the Class EA to determine potential positive and negative environmental impacts and provide mitigation measures that eliminate or minimize these impacts. The impact assessment was based on existing conditions derived from AMEC's *Preliminary Design: Proposed Westbound Ramp to Highway 403 from Mohawk Road, City of Hamilton (Ancaster), Ontario – Terrestrial Ecosystem and Fish and Fish Habitat Existing Conditions Report* dated January 2014 and evaluated using the preliminary design footprint.

The study area encompasses approximately 1.5 kilometres (km) of new onramp roadway and adjacent lands extending 120 metres (m) beyond the proposed site. The majority of the terrestrial study area is comprised of cultural land uses and developed lands. The site is located within the Tiffany Creek subwatershed, of the Spencer Creek watershed, and is governed by the Hamilton Conservation Authority. Background aquatic data and field recognisance identified fish habitat beyond 30 m of the proposed ramp location. Tiffany Creek, the adjacent watercourse located at the eastern limit of the project study area, provides direct fish habitat, however, this watercourse will not be affected by project works. Drainage ditches within the proposed disturbance area do not drain directly into the adjacent watercourse.

For more details relating to aquatic and terrestrial existing conditions for this project, including potential presence for Species at Risk and Ministry of Natural Resources (MNR) correspondence records, please refer to AMEC's *Preliminary Design: Proposed Westbound Ramp to Highway 403 from Mohawk Road, City of Hamilton (Ancaster), Ontario – Terrestrial*

Ecosystem and Fish and Fish Habitat Existing Conditions Report dated January 2014 (or a more recent release, if available).

AQUATIC IMPACTS

Impacts to Fish and Fish Habitat

The project study area is located within the Tiffany Creek subwatershed of the Spencer Creek watershed and is governed by the Hamilton Conservation Authority (HCA). The project area is part of the Ancaster east catchment basin and does not include direct or indirect fish habitat.

TERRESTRIAL IMPACTS

Wetlands

There are no provincially significant or unevaluated wetlands located within the project study area.

Vegetation Impacts

An assessment of the Preliminary Design indicates that the footprint of the proposed westbound ramp to Highway 403 from Mohawk Road will primarily impact land that is anthropogenically disturbed and dominated by herbaceous species, such as grasses, with few trees and shrubs. Table 1 below summarizes the types of vegetation that will be impacted based on the Ecological Land Classification (ELC) groups described under Lee et. al. (1998). The location of the impact zones are shown in Figure 2 and identified by polygon number in the Identification of Impact Areas table included with Figure 2.

Table 1: Summary of Terrestrial Impact Areas

Vegetation Type	Area (m^2)	Area (ha)
Dry-Moist Old field Meadow Type	16,805.7	1.681
Transportation and Utilities	7,985.5	0.799
Mixed Plantation	1,495.7	0.150
Residential	297.5	0.030
Deciduous Plantation	265.4	0.027
Green Lands	65.1	0.007
Total	**26,915**	**2.692**

The primary impact to woody vegetation will occur at the northern limit of the impact area where a number of trees in a Mixed Plantation ELC type will be removed (Figure 2A). Field investigations of this site, have confirmed that Species at Risk will not be harmed as part of the proposed works. Overall the project will result in impacts to an area of approximately 26,915 m^2 or 2.7 ha.

Terrestrial Wildlife Impacts

The study area includes cultural land uses and developed lands where common wildlife species were observed. These lands do not provide any specialized habitat and no wildlife Species at Risk were reported and have a low probability of occurrence. Within the study area the common species identified are considered urban-tolerant and are known to inhabit and nest in trees and

buildings in urban areas. Although these areas will be impacted, employment of best management practices and mitigation measures detailed below will ensure that the overall impacts to the terrestrial habitat will be minimal.

Species at Risk and Provincially Rare Species

Based on background information derived from secondary sources and field investigations, project works have the potential to impact two Species at Risk. These include one bird species (Barn Swallow, *Hirundo rustica*) and one plant species (Butternut, *Juglans cinerea*).

Additional Species at Risk and provincially rare species reported within the 10 km^2 grid encompassing the project study area and those which have a reported range including the project study area are reported in AMEC's *Preliminary Design: Proposed Westbound Ramp to Highway 403 from Mohawk Road, City of Hamilton (Ancaster), Ontario – Terrestrial Ecosystem and Fish and Fish Habitat Existing Conditions Report* dated January 2014 (or a more recent release, if available). Based on the last observed date, habitat requirements and habitat available within the project study area, these additional Species at Risk have low or no probability of occurring at the site. As such, these species or their habitat are not expected to be impacted by project works.

A Barn Swallow was observed at one breeding bird point count station, however, there were no Barn Swallow nests reported within the project study area (refer to the Existing Conditions Report for this project (AMEC 2013) for details). At the Detailed Design phase avian nesting investigations should be conducted within 2 days prior to the commencement of work to confirm the absence/presence of nests. If Barn Swallow nests, or nests of any Species at Risk, are reported on the site, the MNR should be contacted.

Four Butternut were identified within the project study area, however, through DNA testing, three were determined hybrid and one was confirmed 'true' Butternut (Figure 2A). Based on the Preliminary Design this individual will not be impacted by project works.

MITIGATION

As there are no watercourses / fish habitat within the study area mitigation measure are primarily related to terrestrial concerns. The following general mitigation measures are expected to be implemented to protect and minimize impacts to vegetation and terrestrial wildlife species.

- Use Standard Erosion and Sediment Control (ESC) to contain / isolate the construction zone during and following vegetation clearing and to manage site drainage to prevent erosion and sedimentation from reaching the waterbody. Erosion and Sediment Control measures will be installed and maintained to meet Ontario Provincial Standards and Specifications and as detailed by the *Erosion & Sediment Control Guideline for Urban Construction* (2006). Erosion and Sediment Control measures will be maintained until all areas are stabilized.
- Consider construction staging such that spills and leaks into the watercourse will be avoided or minimized.
- All construction debris and litter will be removed regularly.

- Minimize the disturbance or removal of riparian vegetation.
- Promptly stabilize and vegetate all disturbed areas of the work site, and/or treat the area with appropriate erosion protection materials.

Vegetation

Mitigation measures to avoid and limit impacts to vegetation are covered in the general mitigation measures above. Butternut is provincially-designated as Endangered. As such, it is protected under the provincial Species at Risk legislation. Although the confirmed 'true' Butternut tree will not be directly impacted by project works, exclusion fencing should be installed at the dripline to ensure it is sufficiently isolated from project activities.

Terrestrial Wildlife

The *Migratory Birds Convention Act* (*MBCA* 1994) makes it unlawful to pursue, hunt, take, capture, kill or sell birds listed therein ("migratory birds"). Compliance with the *MBCA* regulations and guidelines for vegetation clearing or demolition, as recommended by Environment Canada, will be considered during the project's construction phase. In order to minimize the potential for incidental take of any nesting migratory birds, clearing of vegetation and any proposed work activities in migratory bird habitat must be undertaken outside of the active breeding season (mid-May to August 1 for Southern Ontario). In the event that clearing (or other work) is required during the nesting season, a nest survey must be conducted by a qualified avian biologist within 2 days prior to commencement of the works to identify and locate active nests of species covered by the *MBCA*.

Barn Swallow (observed during field investigations) is provincially-designated as Threatened. As such, it is protected under the provincial Species at Risk legislation, which prohibits destroying critical or essential habitat for Threatened and Endangered Species at Risk. In order to avoid adverse affects to Barn Swallow and their habitat, mitigation measures should be applied where feasible including adhering to breeding bird season restrictions.

CONCLUSIONS

The study area is characterized by a high level of disturbance and fragmentation. The majority of the study area includes developed lands in the form of existing roadways and residential areas, with green lands and meadows in the remaining areas. There is no direct or indirect fish habitat within the proposed impacted area.

One avian (Barn Swallow) and one plant (Butternut) Species at Risk were observed within the study area. Barn Swallow is listed provincially as Threatened and Butternut is listed provincially as Endangered. As such, both species are protected under the *Endangered Species Act*. Based on the Preliminary Design footprint the single Butternut tree is located outside of the project impact area, and Barn Swallow were exhibited flying and no nests were observed. Ongoing consultation with MNR will be required during the Detail Design phase to confirm the presence/absence of any additional Species at Risk. Additionally, wildlife Species at Risk can move into an area at any given time and future inspections may be necessary.

The cumulative impacts as a result of the proposed works will result in the removal of common vegetation species and temporary impacts to wildlife.

REFERENCES

AMEC. 2013. Preliminary Design: Proposed Westbound Ramp to Highway 403 from Mohawk Road City of Hamilton (Ancaster), Ontario Lincoln, Ontario – Terrestrial Ecosystem and Fish and Fish Habitat Existing Conditions Report.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles. M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02. 225 pp.

CLOSURE

This Aquatic and Terrestrial Impact Assessment for the proposed westbound ramp to Highway 403 from Mohawk Road, City of Hamilton (Ancaster), Ontario has been prepared by AMEC in support of the Class EA. If you have any comments or concerns related to this document please contact the undersigned.

Prepared by:

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AMEC Environment & Infrastructure
Environmental Technician

Reviewed by:

Daryl Rideout, B.Sc.
AMEC Environment & Infrastructure
Environmental Biologist

Attachments: Figure 1 – Project Location and Site Map
Figure 2 – Impact Assessment (Identification of Impact Areas and Map A through E)

Attachment 1

Figure 1
Project Location and Site Map

Attachment 2

Figure2
Impact Assessment
(Identification of Impact Areas and Map A through E)

Proposed Westbound Ramp to Highway 403 from Mohawk Road, City of Hamilton (Ancaster), Ontario

Identification of Impact Areas as shown in Figure 2A through 2E

ID	Vegetation Type	Area (m^2)	Area (ha)
1	Mixed Plantation	1495.7	0.150
2	Deciduous Plantation	11.0	0.001
3	Dry-Moist Old Field Meadow Type	16806.0	1.681
4	Deciduous Plantation	99.2	0.010
5	Deciduous Plantation	111.8	0.011
6	Deciduous Plantation	15.3	0.002
7	Deciduous Plantation	3.8	0.000
8	Deciduous Plantation	24.2	0.002
9	Residential	297.5	0.030
10	Green Lands	4.7	0.000
11	Green Lands	60.5	0.006
12	Transportation and Utilities	7985.5	0.799
	Total	**26,915.3**	**2.692**

PRELIMINARY DESIGN

PROPOSED WESTBOUND RAMP TO HIGHWAY 403 FROM MOHAWK ROAD CITY OF HAMILTON (ANCASTER), ONTARIO

TERRESTRIAL ECOSYSTEMS AND FISH AND FISH HABITAT EXISTING CONDITIONS REPORT

Submitted to:

City of Hamilton
Transportation Division
Public Works Department
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January 2014
TP113070

EXECUTIVE SUMMARY

The City of Hamilton is proposing the construction of a westbound ramp to Highway 403 from Mohawk Road within the community of Ancaster. The Ancaster Transportation Master Plan (ATMP) has identified the need for additional westbound access to Highway 403 due to the amount of traffic on Wilson Street in the core area.

This Terrestrial Ecosystem and Fish and Fish Habitat Existing Conditions report will facilitate the preparation of an Environmental Study Report (ESR) for the project and aid in the completion of the Schedule 'C' Municipal Class Environmental Assessment (EA) Process. Based on the background information derived from secondary source information and field investigations, potential environmental effects from the project works have been identified. Enhancement and compensation measures were developed to mitigate these effects and monitoring plans have been developed to determine effectiveness.

The terrestrial study area encompasses the proposed site for the westbound ramp to Highway 403 from Mohawk Road, which includes approximately 1.5 km of new road and adjacent lands extending 120 metres (m) beyond the proposed site. The site is located within the Tiffany Creek subwatershed, of the Spencer Creek watershed, and is governed by the Hamilton Conservation Authority. The majority of the terrestrial study area is comprised of cultural land uses and developed lands. This report provides a summary of existing conditions from both secondary source information and field investigations which were conducted within the study area in June and July of 2013.

Field investigations included the observation for potential fish habitat in the area. Background aquatic data and field recognisance identified fish habitat beyond 30 m of the proposed ramp location. Drainage ditches at the site did not drain directly into adjacent watercourses. At the eastern limit of the project study area there is one watercourse, Tiffany Creek, which provides direct fish habitat, however, this watercourse will not be affected by project works.

Probabilities of occurrence of Species at Risk and Provincially Rare species within the study area are provided based on known habitat preferences of each species and the distribution of these habitat types within the study area. Two Species at Risk were identified during field investigations: Barn Swallow and Butternut.

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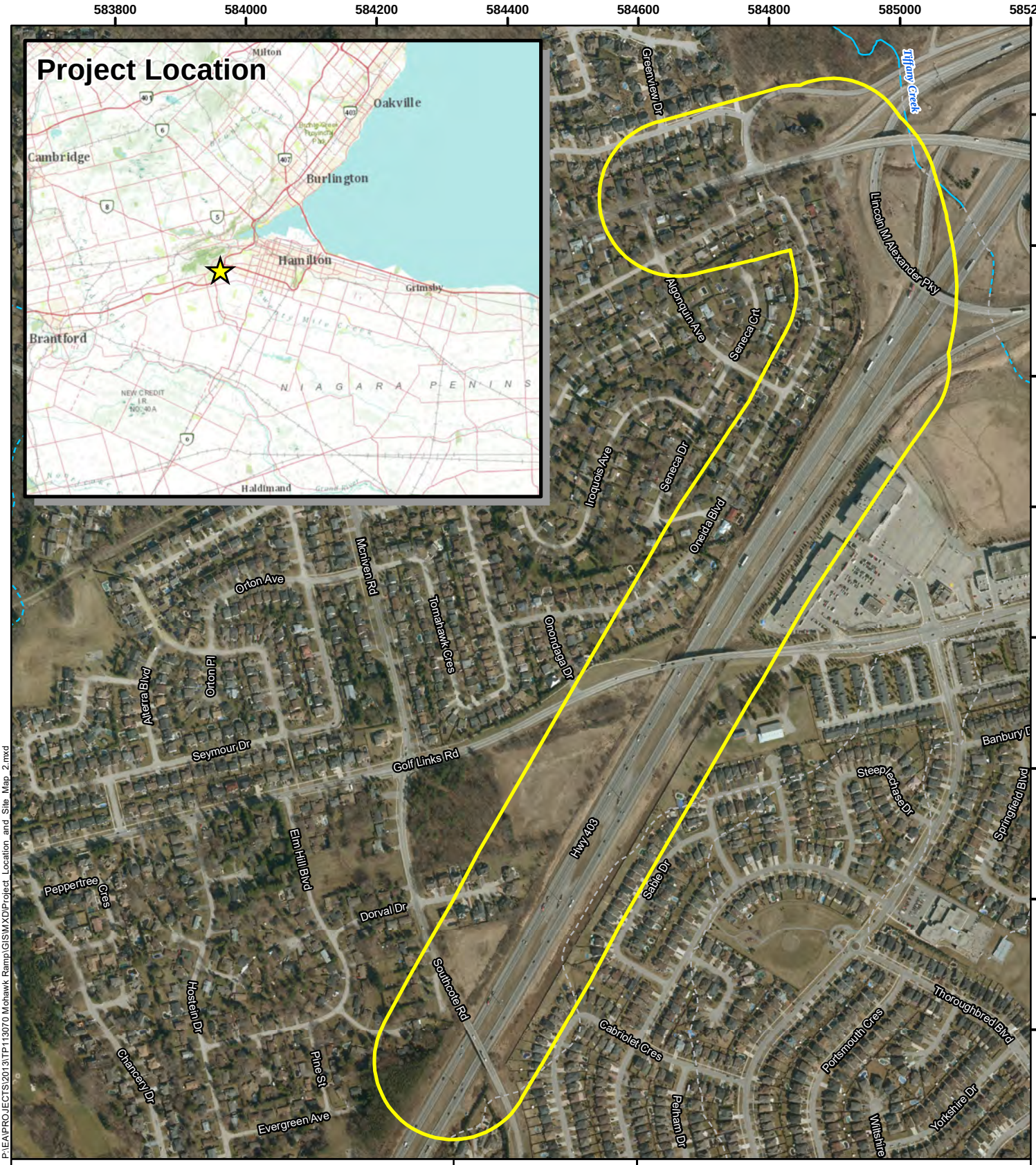
1.0 INTRODUCTION

The City of Hamilton is proposing the construction of a westbound ramp to Highway 403 from Mohawk Road within the community of Ancaster (Figure 1-1). The Ancaster Transportation Master Plan (ATMP) has identified the need for additional westbound access to Highway 403 due to the amount of traffic on Wilson Street, in the core area.

AMEC Environment & Infrastructure, a Division of AMEC Americas Limited (AMEC) has been retained to undertake a Municipal Class Environmental Assessment (EA) for the proposed site of the Mohawk Road Ramp. This Terrestrial Ecosystem and Fish and Fish Habitat Existing Conditions report will facilitate the preparation of an Environmental Study Report (ESR) for the project and aid in the completion of the Municipal Class EA Process.

This report provides a summary of existing conditions from both secondary source information and field investigations conducted in 2013. Through consideration of the data from these sources, potential environmental effects from the proposed works can be identified, reasonable alternatives can be assessed, and a technically preferred alternative developed. Field investigations were conducted in July of 2013 within the project study area for the Mohawk Road Ramp and included a 120 m zone around the proposed project work areas. Data from secondary source information and field investigations identified only roadside drainage ditches within 30 m of proposed ramp location. At the eastern limit of the study area, there is one watercourse, Tiffany Creek, which provides direct fish habitat but will not be affected by project works and, therefore, will not be addressed in further detail within this report.



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LEGEND

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse

NOTES:
- Watercourse data extracted from Natural Resources Canada (CanVec)
- Other topographic data extracted from Land Information Ontario (LIO)

amec

Mohawk Ramp

Project Location and Site Map

Datum & Projection: NAD 1983 UTM Zone 17N

N W E S

0 50 100 200 300 400 500 Metres

PROJECT N°: TP113070

FIGURE: 1-1

SCALE: 1:8,000

Date: December 2013

2.0 METHODOLOGY

The terrestrial study area includes the project site and the adjacent lands extending 120 m. The aquatic study area typically includes a reach 50 m upstream and 200 m downstream of any watercourse crossing the project area as well as any reach of watercourse which falls within 30 m of the project. Secondary source and field survey data were used to map vegetation communities and fish habitat, and to compile inventories of plant and wildlife species.

2.1 Secondary Source Review

Searches of secondary sources and databases were conducted to report species of plants and wildlife in the study area and ascertain whether any Areas of Natural or Scientific Interest (ANSI), Environmentally Sensitive Areas (ESA), Provincially Significant Wetlands (PSW) or Species at Risk (SAR) are located within, or close to, the project area. Sources reviewed include:

- Atlas of the Mammals of Ontario (AMO) (Dobbyn 1994);
- Bat Conservation International, Inc. (BCI 2013);
- Correspondence with the Ministry of Natural Resources (MNR Guelph district; Appendix A);
- Resources produced by the Hamilton Conservation Authority (HCA);
- ESRI World Imagery;
- Natural Heritage Information Centre (NHIC) 2010 database (MNR 2013a);
- Ontario Odonata Atlas (OOA) (MNR 2005);
- Ontario's Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2013);
- Species at Risk in Ontario Lists (MNR 2013b);
- Species at Risk Public Registry (EC 2013); and
- The Second Atlas (2001-2005) of the Breeding Birds of Ontario (ABBO; Cadman et al. 2007).

The ABBO utilizes a 10 km^2 grid system whereby selection of a specific square will generate a list of species potentially present within the area. In this case, the study area is located within the 17NH88 square (Cadman et al. 2007). For the NHIC database, the applicable 1 km^2 search blocks 17NH88_45, 17NH88_46, 17NH88_47, 17NH88_56, and 17NH88_57 encompassing the study area were referenced for potential presence of SAR and environmentally significant areas (MNR 2013a). Species lists of mammals, herpetofauna and odonata were generated from range maps focusing on records within the appropriate Niagara region (Dobbyn 1994; MNR 2005; BCI 2013; Ontario Nature 2013).

2.2 Field Surveys

To augment the secondary source review, AMEC staff conducted terrestrial field surveys in June and July of 2013. Data collected, in addition to photo records (Appendix B) is divided into the following sub-sections.

2.2.1 Vegetation Communities

Site investigations included identifying and mapping Ecological Land Classifications (ELC; Lee et al. 1998) for accessible vegetation units within the terrestrial study area. Polygons not adequately described under Lee et al. (1998), such as residential and commercial lands, were assigned ELC codes according to a revised ELC Community Table (Lee et al. Unpublished). Boundaries of each distinct vegetation unit were delineated on maps and a list of all plant species observed was compiled (Appendix C).

2.2.2 Wildlife

Wildlife inventories were based on visual (direct sightings, prints or scat) and auditory surveys and were compiled with species records from secondary source data (Appendix D). Visual searches included assessing key wildlife habitat attributes such as vernal pooling, dens, burrows and tree cavities.

Breeding bird surveys were completed on June 30 and July 7, 2013 between 7:00 am and 9:00 am at six point count locations (Appendix E). All bird surveys were conducted in good weather with warm temperatures, good visibility and little or no wind. Each point count survey consisted of a ten minute survey period, recording all observed or vocally identified birds. Species were identified by an AMEC biologist skilled in identifying birds via their unique vocalizations and visual observations.

Surveys for mammal, reptile and insect species were conducted concurrently with vegetation and other wildlife surveys within the study area. Due to the absence of suitable aquatic habitat, auditory amphibian surveys were not conducted for this project.

2.2.3 Aquatic Features

An aquatic investigation of the project site was conducted on July 26, 2013 and confirmed that there is no direct or indirect fish habitat within 30 m of the project site.

3.0 RESULTS

3.1 Fish and Fish Habitat Existing Conditions

The project study area is located within the Tiffany Creek subwatershed of the Spencer Creek watershed and is governed by the Hamilton Conservation Authority (HCA). The Tiffany Creek subwatershed is 9.3 km^2 in area and is comprised of four catchment basins (HCA 2008). The project area is part of the Ancaster east catchment basin and does not include direct or indirect fish habitat.

Two drainage structures were identified at the project study area during the preliminary aquatic field investigation. A 1.2 m round corrugated steel pipe culvert under the 403 WB on-ramp from the Lincoln M. Alexander Parkway, at the overpass of the Highway 403 westbound exit to the Lincoln M. Alexander Parkway (Appendix B; Photos 1 and 2). At the time of the field investigation, the culvert contained a small amount of pooled water and there was no observable flow. The ditches at this location collect runoff from the project site and contained small amounts of pooled water at the time of investigation. A second drainage structure, a drop inlet with a visible north facing pipe, was located approximately 25 m south of Mohawk Road within the west ditch of the Lincoln M. Alexander Parkway (Appendix B; Photo 3 and 4). The west ditch, lined with riprap, was dry at the time of the investigation. A survey of the east side of the Lincoln M. Alexander Parkway did not find a corresponding outlet and although vegetation in the area suggests moist habitat, the area adjacent to the roadway was dry at the time of investigation.

3.2 Terrestrial Existing Conditions

3.2.1 Vegetation Communities

The study area falls within the Lake Erie-Lake Ontario Ecoregion 7E (also known as the Carolinian region). This ecoregion is home to over 90% of Ontario's population and consequently has one of the highest proportions of development in Ontario. Since European settlement, the landscape across southern Ontario has dramatically changed. Most of the original woodlands have been removed for agriculture and wood products. Today, very little forested land remains with only 7% of forest cover remaining in urban areas such as Brampton and Mississauga (CVC 2011). The Hamilton Conservation Authority recently reported approximately 19% forest cover within their jurisdiction, the majority of which exists in the western and central regions, and gave a forest cover ranking of 'fair' in their 2013 Watershed Report Card (HCA 2013a). Forest cover within the project study area was ranked as 'poor' with 'good' forest cover to the immediate north and west of the interchange (HCA 2013a). To varying degrees, non-native and invasive species have been introduced to the project area and some species have invaded vegetative communities aggressively. Invasive species such as Garlic Mustard (*Alliaria petiolata*) and European Buckthorn (*Rhamnus cathartica*) have become well established in the project area.

A significant portion of the land within the study area includes cultural land uses and developed lands which do not fall under any specific code under the current ELC classification system. Polygons not adequately described under Lee et al. (1998) were assigned ELC codes according to a revised ELC Community Table (Lee et al. Unpublished). These communities include constructed green lands (CGL), transportation and utilities such as right-of-ways, medians, roadsides (CVI), commercial lands (CVC) and residential lands (CVR).

In total, twelve vegetation communities were classified within the study area (Table 3-1; Figure 3-1). A compiled list of plant species observed during field investigations is presented in Appendix C. One SAR, Butternut (*Juglans cinerea*), was observed within the study area (see Section 4.1). Photographs illustrating existing conditions are provided in Appendix B.

Table 3-1: Ecological Land Classification

Habitat Type	Code	ELC Classification	Area (ha)	Percentage of Study Area (%)
Cultural	CGL	Green Lands	1.4	4
	CUM1	Mineral Cultural Meadow	2.6	6
	CUM1-1	Dry-Moist Old Field Meadow Type	2.3	6
	CUP1	Deciduous Plantation	0.8	2
	CUP2	Mixed Plantation	0.3	1
	CUP3	Coniferous Plantation	0.5	1
	CUW1	Mineral Cultural Woodland	0.4	1
	CUT1	Mineral Cultural Thicket	0.8	2
	CVC	Commercial and Institutional	1.4	3
	CVI	Transportation and Utilities	11.3	28
	CVR	Residential	18.3	46
Forest	FOD7-4	Fresh-Moist Black Walnut Lowland Deciduous Forest	0.2	0.5

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LEGEND

Ecological Land Classification

- CGL
- CUM1
- CUM1-1
- CUP1
- CUP2
- CUP3
- CUT1
- CUW1
- CVC
- CVI
- CVR
- FOD7-4

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse

NOTES:
- Other topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

0 25 50 100 150 200 Metres

N W E S

amec

Mohawk Ramp

Ecological Land Classification (ELC)

PROJECT N°: TP113070

FIGURE: 3-1a

SCALE: 1:4,000

Date: December 2013

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LEGEND

Ecological Land Classification

- CGL
- CUM1
- CUM1-1
- CUP1
- CUP2
- CUP3
- CUT1
- CUW1
- CVC
- CVI
- CVR
- FOD7-4

- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse

NOTES:
- Other topographic data extracted from Land Information Ontario (LIO)

Datum & Projection: NAD 1983 UTM Zone 17N

0 25 50 100 150 200 Metres

N W E S

amec

Mohawk Ramp

Ecological Land Classification (ELC)

PROJECT N°: TP113070

FIGURE: 3-1b

SCALE: 1:4,000

Date: December 2013

3.2.1.1 Cultural Meadow

Cultural meadows result from, or are maintained by, cultural or anthropogenic based disturbances and are characterized by tree and shrub cover ≤ 25%. Roadside areas commonly have similarities to old field meadow communities and abandoned fields left to re-vegetate are often identified as cultural meadow habitats. These communities are characterized by old field meadow grass and forb species with occasional trees and shrubs. Exotic species are common in cultural meadow areas.

The roadside community to the southwest of the highway interchange was identified as a Dry-Moist Old Field Meadow (CUM1-1; Figure 3-1a). As an open meadow community, grasses and forb species dominated the site, creating greater than 60% ground cover. Other abundant species included Awnless Brome (*Bromus inermis*), Tall Goldenrod (*Solidago altissima*), Common St. John's Wort (*Hypericum perforatum*), Teasel (*Dipsacus fullonum*) and Crown-vetch (*Securigera varia*) comprising the ground layer.

The Mineral Cultural Meadow (CUM1) identified on the west side of Highway 403, south of Golf Links Road (Figure 3-1b), was dominated by Reed Canary Grass and Fescue (*Festuca* sp.). Fescue species are widely cultivated for livestock and for lawns as many fescue species are easily established on bare ground, outcompeting other species of plants and persisting over time. Similarly, Reed Canary Grass is a persistent species that can become aggressive in some habitats. Some cultivars of Reed Canary Grass are bred for agricultural use and grown for forage crops. English Plantain (*Plantago lancelota*), Curled Dock (*Rumex crispus*), Tall Goldenrod, Bull Thistle (*Cirsium vulgare*), Orchard Grass (*Dactylis glomerata*) and Calico Aster (*Symphyotrichum lateriflorum*) were present in the ground layer in lesser numbers at this CUM1 ecosite.

As an open meadow community, the CUM1 ecosite identified just north of Southcote Road, west of Highway 403 (Figure 3-1b), was dominated by grasses and forb species, creating greater than 60% ground cover. Yellow Toadflax (*Linaria vulgaris*), also known as Butter-and-Eggs, was abundant throughout the ecosite. Yellow Toadflax is widely distributed throughout Ontario and is considered an invasive weed.

3.2.1.2 Cultural Plantation

Two cultural plantation communities (CUP1 and CUP2) were identified south of Mohawk Road, west of the Lincoln M. Alexander Parkway, between Oneida Boulevard and the Lincoln M. Alexander Parkway east-bound on-ramp (Figure 3-1a). The middle-aged plantations were comprised predominantly of trees 10 cm to 24 cm in diameter with no standing snags or downed woody debris present.

A Deciduous Plantation (CUP1) community was identified in a strip of land adjacent to residential properties located on Oneida Boulevard (Figure 3-1a). The plantation was Maple (*Acer* sp.) dominated with Silver Maple (*Acer saccharinum*) and Sugar Maple (*Acer saccharum*

ssp. saccharum) in the canopy and sub-canopy, with Black Walnut (*Juglans nigra*) as a sub-canopy associate. Together these species created minimal (0% to 10%) cover. Staghorn Sumac (*Rhus typhina*) was dominant in the understory, together with abundant White Willow (*Salix alba*), Gray Dogwood (*Cornus racemosa*) and Siberian Elm (*Ulmus pumila*), the understory created greater than 60% cover. Non-native species such as European Buckthorn, Garlic Mustard and Teasel were abundant and widespread through the ecosite.

A smaller cultural plantation ecosite was identified at the north end of the CUP1 ecosite, boarded to the north by Mohawk Road (Figure 3-1a). This plantation was identified as a Mixed Plantation (CUP2) with Red Pine (*Pinus resinosa*) as the dominant species in the canopy. Along with Red Pine, the sub-canopy was comprised of Norway Maple (abundant), Siberian Elm (occasional), White Pine (*Pinus strobus*; rare) and Manitoba Maple (*Acer negundo*; rare). As with the CUP1 ecosite, non-native species were abundant throughout the CUP2 ecosite and Garlic Mustard was dominant in the ground layer. Well-marked trails were observed.

A plantation (CUP3) was identified at the south end of the study area, west of Highway 403 and south of Southcote Road (Figure 3-1b). This plantation was identified as a coniferous plantation with White Pine and White Spruce (*Picea glauca*) as the dominant species in the canopy. The sub-canopy was comprised of non-native tree species including Norway Maple and Scots Pine (*Pinus sylvestris*). As with the other plantation sites in the study area, Garlic Mustard was observed to be abundant in the ground layer.

3.2.1.3 Cultural Thicket

Cultural thickets result from, or are maintained by, cultural or anthropogenic based disturbances and are characterized by tree cover ≤ 25% and shrub cover ≥ 25%. As with other cultural ecosites, non-native species are typically common in cultural thicket areas. A middle aged cultural thicket (CUT1) was identified on the west side of Highway 403, along the south side of Golf Links Road (Figure 3-1b). Occasional Red Oak (*Quercus borealis*) trees with European Buckthorn and Sweet Cherry (*Prunus avium*) created minimal canopy and sub-canopy cover (≤ 25%). Gray Dogwood was abundant along with European Buckthorn and Staghorn Sumac in the understory, while Reed Canary Grass (*Phalaris arundinacea*) and Tall Goldenrod occupied the ground layer. Standing snags were rare in the CUT1 ecosite, however fallen woody debris was abundant.

3.2.1.4 Forest

One forested community was identified within the study area, northwest of Filman Road and was identified as a mature Fresh-Moist Black Walnut Lowland Deciduous Forest (FOD7-4; Figure 3-1a). The forested area is relatively large, extending further north and west of Filman Road, beyond Wilson Street East. Black Walnut dominated the canopy and sub-canopy with occasional Norway Maple (*Acer platanoides*) trees, together creating 25% to 60% cover. Black Raspberry (*Rubus occidentalis*) and Riverbank Grape (*Vitis riparia*) were abundant in the understory while White Avens (*Geum canadense*) and Reed Canary Grass occupied the ground

layer. Both the understory and ground layers were sparse creating minimal (10% to 25%) cover. No standing snags or downed woody debris were noted within the forest. Disturbance in the form of well-marked trails were observed in the FOD7-4 community. Fresh-Moist Black Walnut Lowland Deciduous Forest communities are provincially rare, listed as S2S3 (imperilled to vulnerable) by the NHIC.

3.2.2 Wildlife

3.2.2.1 Birds

The records review indicated that 115 species of birds have been recorded within the vicinity of the study area (Cadman et al. 2007, MNR 2013). The majority of these species are considered common; nine are listed as species of conservation concern (see Section 4.2). It is important to note that the exact locations of species occurrences are not available from the NHIC or the ABBO as they utilize a grid system whereby selection of a specific square will generate a list of species potentially present within the area. Consequently, it is not certain that these species or their habitat are present within the more focused study area.

Of the 115 species, 23 were identified during AMEC field investigations (Table 3-2). All species observed in the field are considered common with the exception of Barn Swallow (*Hirundo rustica*). Barn Swallow is provincially listed as Threatened (see Section 4.2). Common species such as American Goldfinch (*Carduelis tristis*), American Robin (*Turdus migratorius*) and European Starling (*Sturnus vulgaris*) were observed throughout the study area with a significant number of European Starling individuals observed at one time at Station B. Species rarely observed throughout the study area included: Barn Swallow, Downy Woodpecker (*Picoides pubescens*), Northern Mockingbird (*Mimus polyglottos*), Indigo Bunting (*Passerina cyanea*), Hairy Woodpecker (*Picoides villosus*) Savannah Sparrow (*Passerculus sandwichensis*) and White-breasted Nuthatch (*Sitta carolinensis*).

Table 3-2: List of Observed Bird Species

Common Name	*Latin Name*	Breeding Bird Point Count Station					
		A	B	C	D	E	F
American Crow	*Corvus brachyrhynchos*	X	X	X		X	X
American Goldfinch	*Carduelis tristis*	X	X	X	X	X	X
American Robin	*Turdus migratorius*	X	X	X	X	X	X
Barn Swallow	*Hirundo rustica*						X
Black-capped Chickadee	*Poecile atricapilla*				X		
Blue Jay	*Cyanocitta cristata*	X			X		
Brown-headed Cowbird	*Molothrus ater*	X					
Chipping Sparrow	*Spizella passerine*	X	X		X		
Common Grackle	*Quiscalus quiscula*	X	X		X	X	
Downy Woodpecker	*Picoides pubescens*	X					
European Starling	*Sturnus vulgaris*	X	X	X	X	X	X
Grey Catbird	*Dumetella carolinensis*		X	X		X	
Hairy Woodpecker	*Picoides villosus*				X		

Common Name	*Latin Name*	Breeding Bird Point Count Station					
		A	B	C	D	E	F
House Sparrow	*Passer domesticus*	X		X	X		X
Indigo Bunting	*Passerina cyanea*			X			
Mourning Dove	*Zenaida macroura*	X		X		X	X
Northern Cardinal	*Cardinalis cardinalis*	X		X	X		
Northern Mockingbird	*Mimus polyglottos*						X
Red-winged Blackbird	*Agelaius phoeniceus*		X	X		X	X
Ring-billed Gull	*Larus delawarensis*	X	X		X	X	X
Savannah Sparrow	*Passerculus sandwichensis*						X
Song Sparrow	*Melospiza melodia*		X		X	X	X
White-breasted Nuthatch	*Sitta carolinensis*	X					

3.2.2.2 Mammals

In total, 31 mammal species were recorded to occur within the region encompassing the study area (BCI 2013, Dobbyn 1994, MNR 2013). The majority of the mammal species are ranked G5/S5 (very common, secure), G5/S4 (common to very common), or G5/SNA (very common, not suitable for conservation activities). Four of the 31 species are listed as species of conservation concern, all of which are bat species (see Section 4.3). Four mammal species were identified during field investigations, including Red Squirrel (*Tamiasciurus hudsonicus*), Grey Squirrel (*Sciurus carolinensis*), Eastern Cottontail (*Sylvilagus floridanus*) and Eastern Chipmunk (*Tamias striatus*). All species recorded during the field investigations are common and are tolerant of human presence.

3.2.2.3 Amphibians and Reptiles

A review of NHIC records and ORAA range maps indicated 13 species of reptiles and 15 species of amphibians have been observed within the greater region (Oldham and Weller 2000; Ontario Nature 2013). With the exception of Jefferson Salamander (*Ambystoma jeffersonianum*) and Jefferson/Blue-spotted Salamander Complex (*Ambystoma jeffersonianum x laterale*), all of the amphibian species are ranked as G5/S5 (very common, secure) or G5/S4 (common to very common). Of the 13 reptile species, 6 are listed as species of conservation concern (see Section 4.4). No amphibian or reptile species were documented during field surveys; however, species of amphibians and reptiles are small and often difficult to detect without specific targeted surveys.

3.2.2.4 Insects (Dragonflies, Damselflies, Butterflies and Moths)

A review of the OOA range maps indicated 33 species of dragonflies/damselflies have been reported within the greater region (MNR 2002). The majority of the species recorded are ranked G5/S5 (very common, demonstrably secure) or G5/S4 (common to very common); however, 2 of the 33 species are of conservation concern (see Section 4.5). During field investigations three species were reported: Cabbage White (*Pieris rapae*), Eastern Tailed Blue (*Cupido comyntas*) and European Skipper (*Thymelicus lineola*). Milkweed (*Asclepias*) was also observed during

field investigations, which is an important food source for Monarch caterpillars (COSEWIC 2010d). The Monarch is provincially ranked as Special Concern and although neither Monarch caterpillars nor butterflies were observed during field investigations, there is a moderate probability of this species inhabiting the area for part of their life stage.

4.0 SPECIES AT RISK AND PROVINCIALLY RARE SPECIES

In Ontario, SAR are plant or animal species whose individuals or populations are considered Extirpated, Endangered, Threatened, or Special Concern, as determined by the provincial Committee on the Status of Species at Risk in Ontario (COSSARO) and the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC). SAR and their critical habitat are regulated by the provincial Endangered Species Act, 2007 (ESA) and the federal Species at Risk Act, 2003 (SARA).

In Ontario, if a species is listed under the ESA as Extirpated, Endangered or Threatened, Section 9 of the Act prohibits killing, harming, harassing, capturing, taking, possessing, collecting, buying, selling, leasing, trading or offering to buy, sell, lease or trade a member of the species. Similarly, if a species is listed under the ESA as Endangered or Threatened, Section 10 of the Act prohibits damaging or destroying the habitat of the species. This prohibition also applies to an Extirpated species if the species habitat is prescribed by the regulations. If no habitat regulation is in force with respect to a species, "habitat" is defined to mean an area on which the species depends, directly or indirectly, to carry on its life processes. Species listed as Special Concern are not afforded protection under Section 9 and 10 of the ESA.

Provincially rare species are those with a provincial rank of S1, S2 or S3 and considered provincially vulnerable to provincially imperilled. Provincially rare species tracked by the NHIC are not protected under SARA or ESA, but were included as they are considered rare by the province and should be taken into consideration for planning purposes.

4.1 Plants

Through the review of the NHIC database, eight provincially rare plant species have been reported as occurring within 1 km of the project area (MNR 2013a; Table 4-1). With the exception of Butternut, previous field investigations and the historical occurrence records suggest that the probability of occurrence of these plant species within the project area will be low to none. Virginia Mallow (*Sida hermaphrodita*), while last recorded to the NHIC in 2008, is unlikely to occur within the project study area. The Virginia Mallow element occurrence was located on the east side of Highway 403, south of Lincoln M Alexander Parkway. In Ontario, this species is only found in Halimand County and Niagara Region in moist riparian habitats that are flooded in most years, as well as disturbed areas along roadsides and railroad banks (MNR 2013b). The probability of Virginia Mallow occurring within the project study area is low as riparian habitat is absent from the project area and site disturbance such as maintained manicured lands are common.

Table 4-1: Rare Plant Species Historically Recorded to Occur Within the Project Area

Common Name	Latin Name	Last Observed Date	Provincial Rank (ESA)*	NHIC Provincial Rank (S-Rank)**
American Chestnut	*Castanea dentate*	1976	Endangered	S2
Scarlet Beebalm	*Monarda didyma*	1950	---	S3
Prostrate Tick-trefoil	*Desmodium rotundifolium*	1989	---	S2
Butternut	*Juglans cinerea*	1951	Endangered	S3?
Schreber's Aster	*Eurybia schreberi*	1994	---	S2S3
Cluster-stemmed Nailwort	*Paronychia fastig*	1994	---	S1
Virginia Lungwort	*Mertensia virginica*	1995	---	S3
Virginia Mallow	*Sida hermaphrodita*	2008	Endangered	S1

* Ranking under Ontario's *Endangered Species Act*

**S1 = Critically imperilled; S2 = Imperilled; S3 = Vulnerable; SX = Presumed extirpated; SH = Possibly extirpated; S#? = rank uncertain

Butternut has been identified within the Iroquoia Heights Conservation Area, with the most recent record being in 2001 (HCA 2013). Additionally, during AMEC 2013 field investigations, a Butternut tree was observed within a treed strip between Oneida Boulevard and Lincoln Alexander Parkway (Figure 4-1). The Butternut tree was confirmed to be a "true" Butternut through the Butternut Assessment Guidelines for the purpose of the ESA, 2007. According to Appendix 2 of the Guideline, if the sum of the scores is 3 or less, the tree is likely to be a true Butternut and not a hybrid. The individual tree showed the following Butternut traits, and received a total score of 0:

- Signs of canker at base of the tree;
- Large terminal leaflets;
- Pith colour of twig very dark, chocolate brown;
- Terminal bud elongated and slender, conical and tan coloured; and,
- Top edge of most leaf scars straight or slightly arched.

A second Butternut tree was identified by AMEC within a cultural community located on the west side of Highway 403, along the south side of Golf Links Road (Figure 4-1). The tree was large (greater than 28 cm in diameter at breast height), with no reachable branches or twigs to sample for Butternut characteristics. Although branches were unavailable for further examination of Butternut traits such as pith colouring and shape of terminal buds and bud scars, the tree had typical Butternut bark and a large basal canker characteristically found on Butternut trees. The tree is likely not a hybrid, although this cannot be stated with absolute certainty without further examination.

The degree of cankering would place both Butternut trees in the 'retainable' category, indicating that the trees fall within a class that is healthy. Butternut trees that are non-retainable are in the advanced stages of disease as a result of Butternut canker.

4.2 Birds

Through the records review and field investigations it was revealed that a total of 115 species of birds have been recorded within the vicinity of the study area. The majority of these species are considered common; nine species are listed as SAR (Barn Owl, *Tylo alba*; Barn Swallow, *Hirundo rustica*; Bobolink, *Dolichonyx oryzivorus*; Chimney Swift, *Chaetura pelagic*; Eastern Meadowlark, *Sturnella magna;* Golden-winged Warbler, *Vermivora chrysoptera*; Hooded Warbler, *Wilsonia citrina*; Louisiana Waterthrush, *Seiurus motacilla*; Yellow-breasted Chat, *Icteria virens*. Probability of occurrence of these ten species and their rankings are outlined in Table 4-2.

One bird SAR was observed during field investigations (Barn Swallow). The Barn Swallow was observed at one breeding bird point count station located at the east side of Highway 403 near the north corner of the SilverCity theatre parking lot (Figure 4-1).

4.3 Mammals

A background review of species range maps revealed that four mammal SAR / provincially rare species have potential to occur within the project area. Two bat species, Little Brown Myotis (*Myotis lucifugus*; also known as Little Brown Bat) and Northern Myotis (*Myotis septentrionalis*; also known as Northern Long-eared Bat) were added to the SARO list on January 24, 2013 as Endangered species as a result of significant population declines thought to be the result of White-nose Syndrome (WNS). WNS is caused by a fungal pathogen that is responsible for population declines of a variety of bat species across North America and is expected to continue to spread throughout Canada (COSEWIC 2012). As such, two other bat species are listed as provincially vulnerable (S2, S3) and while not currently listed as SAR, it is anticipated that other bat species which occur in Ontario may be uplisted in the future as WNS continues to spread and impact populations. Probability of occurrence of the bat species mentioned above is outlined in Table 4-2.

4.4 Amphibians and Reptiles

A review of NHIC records and ORAA range maps indicated 15 species of amphibians and 13 species of reptiles have been observed within the greater region (Appendix D). With the exception of Jefferson Salamander (*Ambystoma jeffersonianum*) and Jefferson/Blue-spotted Salamander Complex (*Ambystoma jeffersonianum x laterale*), all of the amphibian species are ranked as common. Jefferson Salamanders (*Ambystoma jeffersonianum)* often breed with the closely related Blue-spotted Salamanders (*Ambystoma laterale)*, producing Jefferson x Blue-spotted hybrid salamanders. The Jefferson x Blue-spotted Salamander hybrid is not listed as a SAR; however, it is provincially ranked as Imperilled (S-rank S2) because of its rarity. These

species (both Jefferson Salamander and Jefferson x Blue-spotted hybrid salamanders) have previously been observed within 1 km of the study area and within the broader area of Niagara Region. According to the Niagara Region Natural Areas Inventory Reptile and Amphibian Study, there are no confirmed records of Jefferson Salamander in the project area however, the Jefferson x Blue-spotted Salamander hybrid was confirmed in Niagara Falls in 2008 and three likely individuals of the complex were identified in St. Catharines, Thorold and south Niagara Falls (Yagi et al. 2009). Historic sites include the Twenty Mile Creek Watershed and West Lincoln (Yagi et al. 2009). Probability of occurrence of these species is outlined in Table 4-2.

Six of the 13 previously recorded reptile species are SAR. Probability of occurrence of these six SAR is outlined in Table 4-2.

4.5 Insects (Dragonflies, Damselflies, Butterflies and Moths)

A review of OOA range maps indicated two provincially rare species of dragonfly (Clamp-tipped Emerald, *Somatochlora tenebrosa*; and Unicorn Clubtail, *Arigomphus villosipes*) have been observed within the Niagara region (Appendix D). Both species are ranked as provincially imperilled/vulnerable (S2S3). Probability of occurrence of these provincially rare species is outlined in Table 4-2.

Table 4-2: Probability of Occurrence of Potential Wildlife SAR and Provincially Rare Species Within the Study Area

Common Name (*Latin Name*)	Provincial Rank (S-Rank)	Provincial Designation (ESA)[2]	Federal Designation (SARA)[1]	Probability of Occurrence within the Terrestrial Study Area	Observed During 2013 Field Studies
Birds					
Barn Owl (*Tylo alba*)	S1	Endangered	Endangered	**Low / None -** Barn Owls require landscapes that provide adequate foraging habitat (old fields, rough pasture, hay fields, grassy marshes) and suitable sites for nesting (tree cavities, chimneys, silos, water towers, over passes) (COSEWIC 2010a). The eastern population is very small and found sporadically in southwestern Ontario (mostly within 50 km of the lower Great Lakes (COSEWIC 2010a). Suitable habitat is not available in the terrestrial study area.	**No**
Barn Swallow (*Hirundo rustica)*	S4B	Threatened	----	**High -** This species has shifted largely to nesting in and on artificial structures, including garages, houses, bridges and road culverts. Barn swallows prefer various open habitats for foraging including grassy fields, pastures, agricultural crops, and cleared right-of-way areas (COSEWIC 2011a). Probability of occurrence is high as this species has previously been recorded within vicinity of the study and preferred habitat is available in the form of open habitats, bridges (ramps) and buildings. This species was recorded in the Iroquoia Heights conservation Area in 1990 (HCA 2013).	**Yes**
Bobolink (*Dolichonyx oryzivorus)*	S4B	Threatened	----	**Low -** This species has adapted to nesting in forage crops (hay and pasture). This species also occurs in various grassland habitats such as wet prairie, graminoid peatlands, abandoned fields dominated by tall grasses, and remnants of uncultivated virgin prairie (COSEWIC 2010b). This species was recorded to the NHIC as occurring within 1 km of the project study area in 2003 (to the north and to the east of the Highway 403-Lincoln M Alexander Parkway interchange). Probability of occurrence is low as suitable grassland habitat is lacking within the project study area.	**No**
Chimney Swift (*Chaetura pelagic)*	S4B,S4N	Threatened	Threatened	**Moderate -** Due to the land clearing associated with colonization, hollow trees became increasingly rare which led Chimney Swifts to move into house chimneys. Today, this species is mainly associated with areas where the birds can find chimneys to use as nesting and resting sites, however, it is likely that a small portion of the population continues to use hollow trees. Probability of this species occurring in the terrestrial study area is moderate as Chimney Swift has previously been recorded within the vicinity of the terrestrial study area and there is presence of residential properties and buildings with chimneys.	**No**

Common Name (*Latin Name*)	Provincial Rank (S-Rank)	Provincial Designation (ESA)[2]	Federal Designation (SARA)[1]	Probability of Occurrence within the Terrestrial Study Area	Observed During 2013 Field Studies
Eastern Meadowlark (*Sturnella magna)*	S4B	Threatened	----	**Low -** As a ground nesting grassland specialist, the Eastern Meadowlark inhabits grassland habitats, native prairies and savannahs, as well as non-native pastures, hayfields, weedy meadows, herbaceous fencerows and airfields (COSEWIC 2011b). This species prefers larger tracts of open grasslands over smaller fragments, with the minimum areas required estimated at 5 ha (COSEWIC 2011b). This species was most recently recorded to the NHIC in 2001 and 2003 as occurring south of the Highway 403-Lincoln M Alexander Parkway interchange. Probability of this species occurring within the study area is low due to the lack of larger tracts of open grassland within the study area.	**No**
Golden-winged Warbler (*Vermivora chrysoptera*)	S4B	Special Concern	Threatened	**Low -** Golden-winged Warblers are early successional scrub specialists that tend to nest in areas that contain patches of herbs, low shrubs and scattered trees (i.e. hydro rows, field edges, recently logged areas; COSEWIC 2006). This species is also found in wooded swamps and alder bogs (Huges 2001). Probability of this species occurring within the study area is low due to the lack of available habitat in the study area.	**No**
Hooded Warbler (*Wilsonia citrine*)	S3B	----	Threatened	**Low -** In Canada, this species is reported to breed only in southwestern Ontario. In Ontario, the Hooded Warbler breeds mainly in the Carolinian zone, in the interiors of large upland tracts of mature deciduous and mixed forest, and in ravines, typically found in shrubby clearings in the woodlands (Huges 2006, ROM 2013). This species has previously been recorded within the vicinity of the study area however probability of this species occurring within the study area is low due to the lack of available habitat in the study area. One forested community was identified within the study area; the area was a relatively large mature deciduous forest extending outside the study area, north and west of Filman Road, beyond Wilson Street E.	**No**
Louisiana Waterthrush (*Seiurus motacill)*	S3B	Special Concern	Special Concern	**Low -** This species is found in deep forested ravines with flowing streams (Huges 2001, ROM 2013). In Ontario, it is estimated that about 300 pairs live along the Niagara escarpment and in woodlands along Lake Erie (ROM 2013). Probability of this species occurring within the study area is low due to the lack of available habitat in the study area. Last recorded occurrence to NHIC in the project area was in 1989.	**No**

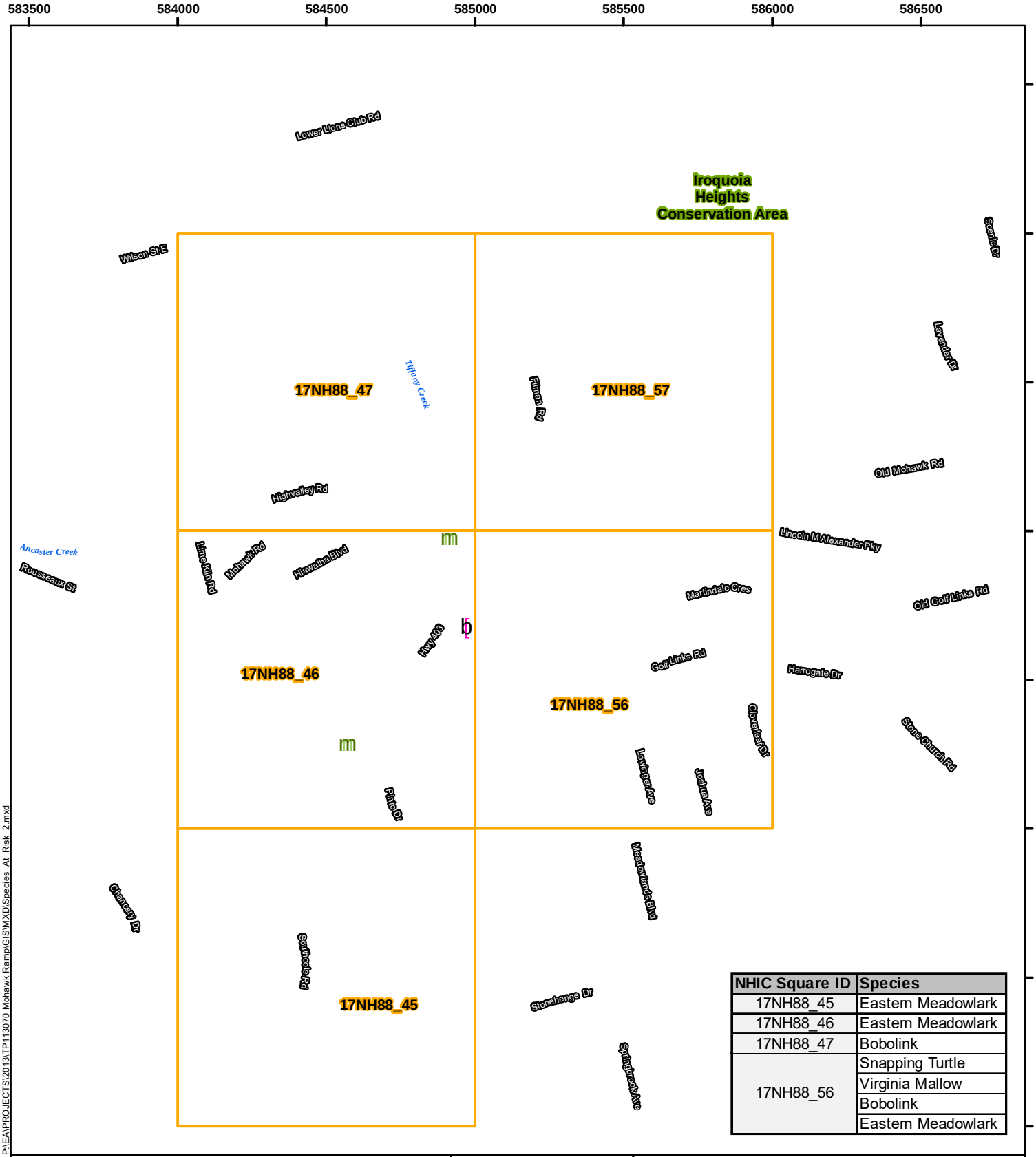
Common Name (*Latin Name*)	Provincial Rank (S-Rank)	Provincial Designation (ESA)[2]	Federal Designation (SARA)[1]	Probability of Occurrence within the Terrestrial Study Area	Observed During 2013 Field Studies
Yellow-breasted Chat (*Icteria virens*)	S2B	Endangered	Special Concern	**Low/None -** This species occurs in southwestern Ontario where it is concentrated in point Pelee National Park and Pelee Island (ROM 2013). Typical habitat includes successional habitats where clearings have become overgrown with scrub and thickets (thickets, briars, and tangled vegetation) (Huges 2001, ROM 2013). Probability of this species occurring within the study area is low to none due to the current species range and lack of available habitat in the study area. This species was identified within the Iroquoia Heights Conservation Area in 1984 (HCA 2013).	**No**
Mammals					
Eastern Small-footed Myotis (*Myotis leibii*)	S2S3	----	----	**Low -** While some are found in caves/mines of eastern North America, they generally roost on the ground under rocks, in crevices and occasionally in buildings and under tree bark (BCI 2013). Caves and mines are wintering habitat. Probability of this species within the project area is low due to lack of available habitat.	**No**
Little Brown Myotis (*Myotis lucifugus*)	S4	Endangered	----	**Low -** Widespread in southern Ontario. This species often utilizes attics, buildings and barns for summer colonies and hibernate in caves or abandoned mines (MNR 2013a). Little Brown Myotis is also noted to use natural roosts such as cavity trees in mature forests. This species was identified within the Iroquoia Heights Conservation Area in 1980 (HCA 2013). Probability of this species within the project area is low due to lack of available habitat.	**No**
Northern Myotis (*Myotis septentrionalis*)	S3	Endangered	----	**Low -** Found throughout forested areas in southern Ontario, in dense forest stands where this species forages on insects and roosts in tree cavities (BCI 2013, MNR 2013a). Hibernation occurs in caves and underground mines. Probability of this species within the project area is low due to lack of available habitat.	**No**
Tri-colored Bat (*Pipistrellus subflavus*)	S3?	----	----	**Low -** This species uncommon in buildings or deep woods; preferring edge habitats near areas of mixed agricultural use (BCI 2013). Hibernation sites are deep within caved or mines. Probability of this species within the project area is low due to lack of available habitat.	**No**

Reptiles					
Blanding's Turtle (*Emydoidea blandingii*)	S3	Threatened	Threatened	**Low/None -** Blanding's Turtles inhabit shallow lakes, ponds and wetlands with clean water and mucky bottoms (Ontario Nature 2013), showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. Overwintering occurs in the soft bottoms of water bodies. Probability of this species occurring within the study area is low to none as preferred habitat is not available in the study area.	**No**
Eastern Musk Turtle (*Sternotherus odoratus*)	S3	Threatened	Threatened	**Low/None -** This species is found in scattered localities across south-central Ontario and requires shallow water with little or no current, and soft earth to bury into when they hibernate. Nesting habitat is variable, but it must be close to the water and exposed to direct sunlight (COSEWIC 2002). Probability of this species occurring within the study area is low to none as preferred habitat is not available in the study area.	**No**
Milksnake (*Lampropeltis triangulum*)	S3	Special Concern	Special Concern	**Low -** This species is best known to occur in rural areas but is found in a variety of habitats, including prairies, pastures, rocky hillsides and forests. Important habitat features are proximity to water, and locations for basking and egg laying. This species was last recorded to the NHIC within 1 km of the project area in 1990. Suitable habitat is available but very limited.	**No**
Snapping Turtle (*Chelydra serpentine*)	S3	Special Concern	Special Concern	**Low/None -** Preferred aquatic habitat is characterized by soft, muddy bottoms, slow-moving shallow water and dense vegetation. Overwintering occurs in deep mud under continuously flowing water or in marsh areas. Probability of this species occurring within the study area is low to none as aquatic habitat is very limited in the study area. This species was identified within the Iroquoia Heights Conservation Area in 1989 (HCA 2013).	**No**
Northern Map Turtle (*Graptemys geographica*)	S3	Special Concern	Special Concern	**Low/None -** The Northern Map Turtle inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day. Overwintering occurs in permanent pools. Probability of this species occurring within the study area is low to none as preferred habitat is not available in the study area.	**No**
Spiny Softshell (*Apalone spinifera*)	S3	Threatened	Threatened	**Low/None -** Spiny Softshells are primarily aquatic, never far from water, and generally found in rivers with soft bottoms, aquatic vegetation and sandbars or mudflats but also occasionally in lakes (Ontario Nature 2013). These turtles require gravelly or sandy areas for nesting and deep water for hibernating (Ontario Nature 2013). Probability of this species occurring within the study area is low to none as preferred habitat is not available in the study area.	**No**

Amphibians					
Jefferson Salamander (*Ambystoma jeffersonianum*)	S2	Endangered	Threatened	**Low/None -** Ontario populations are small, isolated pockets, within three main areas of southern Ontario (Ontario Nature 2013, COSEWIC 2010c). This species is found within deciduous or mixed upland forests containing suitable breeding ponds and rocks, logs or mammal burrows (COSEWIC 2010c). Probability of this species occurring within the study area is low to none as preferred habitat is not available in the study area.	**No**
Blue-spotted/Jefferson Salamander (*Ambystoma laterale x jeffersonianum*)	S2	----	----	**Low/None -** Fewer than 20 sites in Ontario are known to have the presence of hybrid Jefferson Salamanders where the Jefferson genome dominates (MNR 2013a). These salamanders are typically found on the forest floor of woodland habitats and breed in permanent swamps or temporary ponds or marshes (Ontario Nature 2013). Probability of this species occurring within the study area is low to none as preferred habitat is not available in the study area.	**No**
Insects (Dragonflies, Damselflies, Butterflies and Moths)					
Clamp-tipped Emerald (*Somatochlora tenebrosa*)	S2S3	----	----	**Low/None -** The life cycle of odonates requires both aquatic and terrestrial habitats. Therefore these species are vulnerable to alterations of habitat on both land and in the water. The aquatic habitat required for the early life stages of this species is not available within the terrestrial study area.	**No**
Monarch (*Danaus plexippus*)	S2NS4B	Special Concern	Special Concern	**Moderate -** The Monarch has been recorded from all ten provinces and in the Northwest Territories. Monarchs primarily exist wherever milkweeds (*Asclepias sp.*), the sole food of the caterpillars, and wildflowers (such as goldenrod and asters) grow (COSEWIC 2010d). As milkweed plants were recorded within the terrestrial study area there is a moderate probability that the Monarch caterpillar and/or butterfly can be found there. This species was recently (in 2012) identified in the nearby Iroquoia Heights Conservation Area (HCA 2013).	**No**
Unicorn Clubtail (*Arigomphus villosipes*)	S2S3	----	----	**Low/None -** The life cycle of odonates requires both aquatic and terrestrial habitats; therefore, these species are vulnerable to alterations of habitat on both land and in the water. The aquatic habitat required for the early life stages of this species is not available within the terrestrial study area.	**No**

[1] *Species at Risk Act, 2003* (*SARA*); [2] *Endangered Species Act, 2007* (*ESA*)

Provincial Rank: S2 Imperilled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native, not suitable target for conservation activities; S#B Breeding; S#N Non-breeding



NHIC Square ID	Species
17NH88_45	Eastern Meadowlark
17NH88_46	Eastern Meadowlark
17NH88_47	Bobolink
17NH88_56	Snapping Turtle
	Virginia Mallow
	Bobolink
	Eastern Meadowlark

P:\EA\PROJECTS\2013\TP113070 Mohawk Ramp\GIS\MXD\Species At Risk 2.mxd

LEGEND

- 120 m Study Area
- NHIC 1 km Squares
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody

Species At Risk

- Barn Swallow (AMEC)
- Butternut (AMEC)
- Butternut (HCA)

NOTES:
- Topographic data extracted from Land Information Ontario (LIO)
- Species at Risk imformation exrtacted from field work, NHIC, and Hamilton Conservation
- Due to the large scale of the range maps examined during the secondary source review, only those species confirmed by recent NHIC database records or field investigations are illustrated

Datum & Projection: NAD 1983 UTM Zone 17N

0 100 200 400 600 800 1,000 Metres

2

Mohawk Ramp

Species at Risk and Provincially Rare Species

PROJECT N°: TP113070

FIGURE: 4-1

SCALE: 1:17,500

Date: December 2013

6.0 CONCLUSIONS AND RECOMMENDATIONS

The majority of lands surrounding the proposed Mohawk Road ramp have been created by human disturbance and are classified as cultural. Semi-naturalized or areas that are re-colonizing after disturbance are also considered to be cultural and these communities often contain a relatively high proportion of non-native plant species. Project activities may result in disturbance in the form of exhaust emissions, dust, and vegetation removal. The level of disturbance, however, would be comparable to current levels. General construction mitigation measures should be employed to minimize impacts.

The most notable area within the project area is the forested community northwest of Filman Road. This was identified as a mature Fresh-Moist Black Walnut Lowland Deciduous Forest that extends further north and west of Filman Road, beyond Wilson Street East. Fresh-Moist Black Walnut Lowland Deciduous Forest communities are provincially rare, listed as S2S3 (imperilled to vulnerable). This forest is also located within the Niagara Escapement and consequently also within the Greenbelt Plan. The preliminary design of the Mohawk Ramp indicates that this forest will not be impacted by the proposed works. If however alterations in design indicate that works are proposed closer to the Fresh-Moist Black Walnut Lowland Deciduous forest, the forest should be delineated and marked in the field and disturbance should be minimized or avoided during construction. Additionally, during AMEC 2013 field investigations, two Butternut trees were identified: one within a treed strip between Oneida Boulevard and Lincoln Alexander Parkway and one within a cultural community located on the west side of Highway 403, along the south side of Golf Links Road. Butternut is provincially listed as Endangered under the ESA and as such consultation with the MNR must be undertaken to ascertain any SAR permitting or authorizations required in association with the trees and the proposed project works.

In terms of wildlife, the Migratory Birds Convention Act (MBCA) makes it unlawful to pursue, hunt, take, capture, kill or sell birds listed therein ("migratory birds”). Compliance with the MBCA regulations and guidelines for vegetation clearing or demolition, as recommended by Environment Canada, needs to be considered during the ramp construction and operation phases. In order to minimize the potential for incidental take of any nesting migratory birds, clearing of vegetation and any proposed work activities in migratory bird habitat must be undertaken outside of the active breeding season (May 1 to August 31 for Southern Ontario). If clearing (or other work) in migratory bird habitat is required during the nesting season, a nest survey should be conducted by a qualified avian specialist immediately (i.e. within two days) prior to commencement of the works to identify and locate active nests of species covered by the MBCA.

In order to avoid adverse affects to the Barn Swallow and its habitat, mitigation measures for the Barn Swallow must be applied, including adhering to breeding bird season restrictions whenever feasible. This species was observed flying overhead during field investigations and has become closely associated with human settlements as it will nest in and on artificial structures, including bridges and road culverts; however, at the time of investigation in 2013, no Barn Swallow nests

were observed within the culverts or bridges in the project area. Consultation with the local district MNR office should be undertaken to ascertain any project specific SAR permitting/authorization requirements.

Review of OHSA range maps and the NHIC database revealed records of Common Snapping Turtle within one km of the study area, as well as occurring within the broader Niagara region. Preferred aquatic habitat is very limited within the study area, however individuals may be observed. Efforts should be made to avoid injury or harassment of any encountered individuals.

7.0 REFERENCES

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8.0 CLOSURE

Written by: Heather Marcks, B.Sc. MFC
Ecologist
AMEC Environment & Infrastructure

Signature: Heather Marcks

Reviewed by: Matt Evans, Ph.D
Senior Biologist
AMEC Environment & Infrastructure

Signature: Matt Evans

APPENDIX A
CORRESPONDENCE

Hellinga, Erin

From: Norminton, Lorraine (MNR) [lorraine.norminton@ontario.ca]
Sent: October-28-13 11:22 AM
To: Hellinga, Erin
Subject: RE: AMEC SAR findings for Mohawk Road Ramp and MNR Information Request

HI Erin
By way of a quick response, MNR has no concerns with the subject area in regards to Natural Heritage Features or Species at Risk.
Lorraine

Lorraine Norminton
District Planner
Ministry of Natural Resources, Guelph District
1 Stone Rd West
Guelph, ON N1G 4Y2
(P) 519-826-4912
(F) 519-826-4929
email: lorraine.norminton@ontario.ca

From: Hellinga, Erin [mailto:erin.hellinga@amec.com]
Sent: October 21, 2013 3:09 PM
To: Norminton, Lorraine (MNR)
Cc: Rideout, Daryl T; Marcks, Heather
Subject: AMEC SAR findings for Mohawk Road Ramp and MNR Information Request

Hi Lorraine,

I would like to follow-up on the Species at Risk and Natural Heritage information request originally submitted to MNR August 1, 2013 and the more recent submission (including AMEC Species at Risk findings) on September 10, 2013. If you could please forward this email, with the attached information request, to the appropriate MNR personnel as a reminder it would be greatly appreciated.

Thank you,

Erin Hellinga, B.Sc.
Environmental Technician
AMEC Environment & Infrastructure
160 Traders Blvd. E., Suite 110,
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Fax + 905-568-1686
erin.hellinga@amec.com

From: Hellinga, Erin
Sent: September-10-13 2:06 PM
To: 'Norminton, Lorraine (MNR)'
Cc: Rideout, Daryl T; Sinke, David; 'Sonya Kapusin'
Subject: AMEC SAR findings for Mohawk Road Ramp and MNR Information Request

Lorraine,

Please find attached AMEC's Species at Risk finding for the Mohawk Road Ramp project (in the City of Ancaster) with the associated MNR information request for Species at Risk and Natural Heritage information originally submitted August 1, 2013 also included.

Please forward to the appropriate MNR personnel.

Thank you,

Erin Hellinga, B.Sc.
Environmental Technician
AMEC Environment & Infrastructure
160 Traders Blvd. E., Suite 110,
Mississauga, ON L4Z 3K7
Tel + 905-568-2929 x 4163
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erin.hellinga@amec.com

From: Hellinga, Erin
Sent: August-01-13 10:01 AM
To: 'Norminton, Lorraine (MNR)'
Cc: Rideout, Daryl T; Marcks, Heather
Subject: Information Request for Mohawk Road Ramp project

Lorraine,

Please find attached one information request for Species at Risk and Natural Heritage information for the proposed Mohawk Road Ramp to Highway 403 in the City of Ancaster.

Erin Hellinga, B.Sc.
Environmental Technician
AMEC Environment & Infrastructure
160 Traders Blvd. E., Suite 110,
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Its contents (including any attachments) may contain confidential and/or privileged information.
If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents.
If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

August 1, 2013
Project No. TP113070

Ministry of Natural Resources
Guelph District
Ontario Government Bldg.
1 Stone Rd. W.
Guelph, Ontario
N1G 4Y2

To Whom It May Concern:

Re: Request for SAR and Natural Heritage Information - Municipal Class Environmental Assessment Study for the Proposed Construction of a Westbound Ramp to Highway 403 from Mohawk Road, Ancaster, Ontario.

The City of Hamilton and the Ontario Ministry of Transportation are proposing the construction of a westbound ramp to Highway 403 from Mohawk Road within the City of Ancaster (Figure 1). The Ancaster Transportation Master Plan has identified the need for additional westbound access to Highway 403 due to the amount of traffic on Wilson Street, in the core area.

AMEC Environment & Infrastructure, a Division of AMEC Americas Limited (AMEC) has been retained to undertake work on behalf of the City of Hamilton on the above noted project to address both terrestrial and aquatic natural science issues. A field investigation confirmed that there are no drainage features providing fish habitat (direct or indirect) located within 30 m of the proposed ramp location.

Based on preliminary investigations through an MNR Natural Heritage Information Database search, there are no natural heritage features or recent (within 10 years) records of terrestrial or aquatic Species at Risk (SAR) identified within the vicinity of the project area. However, other resources including the Breeding Bird Atlas, the Atlas of the Mammals of Ontario, and the Ontario Reptile & Amphibian Atlas indicate that terrestrial SAR have previously been identified in the greater region. It is notable however, that the habitat required to support many of these species are not likely present in the right-of-way where project works will occur. Confirmation of any SAR encountered or identified during the AMEC field investigations or general habitat surveys will be conveyed to the MNR.

AMEC would like to take this opportunity to inquire if MNR holds any information with respect to natural heritage features, or the location of potential SAR within the study area described above.

We would be pleased to know if you have any issues relating to the proposed development of this site which you would like to draw to our attention. If you have any questions, please contact me at your convenience. Thank you for your time and assistance with this matter.

Kind Regards,

AMEC Environment & Infrastructure,
a Division of AMEC Americas Limited

Erin Hellinga, B.Sc.
Environmental Technician
Tel: 905-568-2929
Email: erin.hellinga@amec.com

Attachment: Figure 1: Project Location and Site Map

c.c. Daryl Rideout, AMEC
Heather Marcks, AMEC

P:\EA\PROJECTS\2013\TP113070 Mohawk Ramp\GIS\MXD\Mohawk_Study_Area_for_MNR.mxd

LEGEND

- Approximate Study Area
- Waterbody
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse

NOTES:
- Watercourse data extracted from Natural Resources Canada (CanVec)
- Other topographic data extracted from Land Information Ontario (LIO)
- background inage extracted from ESRI World Imagery

amec

Mohawk Ramp

Study Area

Datum & Projection: NAD 1983 UTM Zone 17N

N W E S

0 25 50 100 150 Metres

PROJECT N°: TP113070

FIGURE: 1

SCALE: 1:3,000

Date: July, 2013

APPENDIX B
PHOTOGRAPHS

Photo 1 - Interior of the corrugated steel pipe culvert located at the southeast edge of the project site.

Photo 2 - Culvert inlet at the southeast edge of the project site.

Photo 3 - Drop inlet in the west ditch of Lincoln M. Alexander Parkway, approximately 25m south of Mohawk Road.

Photo 4 - Interior of the drop inlet in west ditch of Lincoln M. Alexander Parkway, approximately 25m south of Mohawk Road. The pipe visible at the bottom directs flow north toward Mohawk Road.

Photo 5 - Butternut tree located within treed strip between Oneida Boulevard and the Lincoln M. Alexander Parkway

Photo 6 - Fresh-Moist Black Walnut Lowland Deciduous Forest (FOD 7-4) located north of Filman Road. View to west.

Photo 7 - View to northwest. Trees located in a residential area between Filman Road and Mohawk Road.

Photo 8 - View to west along Mohawk Road. Mixed Plantation on right side of photo.

Photo 9 - View to south. Deciduous Plantation between Oneida Boulevard and the Lincoln M. Alexander Parkway.

Photo 10 - Dry-Moist Old Field Meadow Type (CUM 1-1). View to south.

Photo 11 - Highway median between the on-ramp to the southbound Lincoln M. Alexander Parkway and on-ramp to the westbound Highway 403.

Photo 12 - North corner of a commercial area with SilverCity Theatre. View to north.

Photo 13 - Parkland. View to east of a dog-walking park east of the SilverCity Theatre.

APPENDIX C
COMPILED PLANT SPECIES LIST

APPENDIX C
COMPILED PLANT LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Vegetation					
American Basswood	*Tilia americana*	G5	S5		
American Elm	*Ulmus americana*	G5?	S5		
American Stinging Nettle	*Urtica dioica ssp. gracilis*	G5T5?	SNA		
Ash species	*Fraxinus* sp.	---	---		
Awnless Brome	*Bromus inermis*	GNR	SNA		
Birds-foot Trefoil	*Lotus corniculatus*	GNR	SNA		
Black Locust	*Robinia pseudo-acacia*	G5	SNA		
Black Raspberry	*Rubus occidentalis*	G5	S5		
Black Walnut	*Juglans nigra*	G5	S4		
Black-eyed Susan	*Rudbeckia hirta*	G5	S5		
Blue Spruce	*Picea pungens*	G5	SNA		
Broadleaf Enchanter's Nightshade	*Circaea canadensis*	G5	S5		
Bull Thistle	*Cirsium vulgare*	GNR	SNA		
Butternut	*Juglans cinerea*	G4	S3?	Endangered	Endangered
Canada Thistle	*Cirsium arvense*	GNR	SNA		
Carolina Poplar	*Populus x canadensis*	GNR	SNA		
Catnip	*Nepeta cataria*	GNR	SNA		
Common Apple	*Malus pumila*	G5	SNA		
Common Burdock	*Arctium minus*	GNRTNR	SNA		
Common Crown-vetch	*Coronilla varia*	GNR	SNA		
Common Milkweed	*Asclepias syriaca*	G5	S5		
Common Reed	*Phragmites australis*	GNR	SNR		
Common St.John's-wort	*Hypericum perforatum*	GNR	SNA		
Common Viper's-bugloss	*Echium vulgare*	GNA	SNA		
Eastern White Pine	*Pinus strobus*	G5	S5		
European Buckthorn	*Rhamnus cathartica*	GNR	SNA		
European Gromwell	*Lithospermum officinale*	GNR	SNA		
Fuller's Teasel	*Dipsacus fullonum ssp. sylvestris*	GNR	SNA		
Garlic Mustard	*Alliaria petiolata*	GNR	SNA		
Grass species	Grass sp.	---	----		
Gray Dogwood	*Cornus racemosa*	G5	S5		
Hawthorn species	*Crataegus* sp.	----	---		
Linden species	*Tilia* sp.	----	----		
Manitoba Maple	*Acer negundo*	G5	S5		
Multiflora Rose	*Rosa multiflora*	GNR	SNA		
Narrow-leaved Cattail	*Typha angustifolia*	G5	SNA		
Norway Maple	*Acer platanoides*	GNR	SNA		
Peach-leaved Willow	*Salix amygdaloides*	G5	S5		
Red Pine	*Pinus resinosa*	G5	S5		
Reed Canary Grass	*Phalaris arundinacea*	G5	S5		
Riverbank Grape	*Vitis riparia*	G5	S5		
Scots Pine	*Pinus sylvestris*	GNR	SNA		

APPENDIX C
COMPILED PLANT LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Vegetation					
Siberian Elm	*Ulmus pumila*	GNR	SNA		
Silver Maple	*Acer saccharinum*	G5	S5		
Staghorn Sumac	*Rhus typhina*	G5	S5		
Sugar Maple	*Acer saccharum ssp. saccharum*	G5T5	S5		
Tall Goldenrod	*Solidago altissima var. altissima*	G5T5	S5		
Thicket Creeper	*Parthenocissus vitacea*	G5	S5		
White Ash	*Fraxinus americana*	G5	S5		
White Avens	*Geum canadense*	G5	S5		
White Heath Aster	*Symphyotrichum ericoides var. ericoides*	G5T5	S5		
White Moth Mullein	*Verbascum blattaria*	GNR	SNA		
White Sweet Clover	*Melilotus alba*				
White Willow	*Salix alba*	G5TNR	SU		
Wild Red Raspberry	*Rubus sachalinensis var. sachalinensis*	G5T5	S5		

[1] Species identified within the study area during AMEC 2013 field investigations

[§] NHIC record

**SARA* = Species at Risk Act
***ESA* = Endangered Species at Risk Act

Global Rank: G1 Extremely Rare; G2 Very Rare; G3 Rare to Uncommon; G4 Common; G5 Very common; GNR Unranked
Provincial Rank: S1 Critically Imperilled; S2 Imperilled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native; not suitable target for conservation nactivities; S#B Breeding; S#N Non-Breeding

APPENDIX D
COMPILED WILDLIFE SPECIES LIST

APPENDIX D
COMPILED WILDLIFE LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Birds (*Aves*)[2]					
Alder Flycatcher	*Empidonax alnorum*	G5	S5B		
American Crow	*Corvus brachyrhynchos*	G5	S5B		
American Goldfinch	*Carduelis tristis*	G5	S5B		
American Redstart	*Setophaga ruticilla*	G5	S5B		
American Robin	*Turdus migratorius*	G5	S5B		
American Woodcock	*Scolopax minor*	G5	S4B		
Baltimore Oriole	*Icterus galbula*	G5	S4B		
Bank Swallow	*Riparia riparia*	G5	S4B		
Barn Owl	*Tylo alba*	G5	S1	Endangered	Endangered
Barn Swallow	*Hirundo rustica*	G5	S4B		Threatened
Belted Kingfisher	*Megaceryle alcyon*	G5	S4B		
Black/Yellow-billed Cuckoo	*Coccyzus erythropthalmus*	G5	S5B		
Black-and-white Warbler	*Mniotilta varia*	G5	S5B		
Black-billed Cuckoo	*Coccyzus erythropthalmus*	G5	S5B		
Black-capped Chickadee	*Poecile atricapillus*	G5	S5		
Black-throated Blue Warbler	*Dendroica caerulescens*	G5	S5B		
Black-throated Green Warbler	*Dendroica virens*	G5	S5B		
Blue Jay	*Cyanocitta cristata*	G5	S5		
Blue-gray Gnatcatcher	*Polioptila caerulea*	G5	S4B		
Blue-winged Warbler	*Vermivora pinus*	G5	S4B		
Bobolink[§]	*Dolichonyx oryzivorus*	G5	S4B		Threatened
Brewster's Warbler	Hybrid species	---	---		
Broad-winged Hawk	*Buteo platypterus*				
Brown Creeper	*Certhia americana*	G5	S5B		
Brown Thrasher	*Toxostoma rufum*	G5	S4B		
Brown-headed Cowbird	*Molothrus ater*	G5	S4B		
Canada Goose	*Branta canadensis*	G5	S5		
Carolina Wren	*Thryothorus ludovicianus*	G5	S4		
Cedar Waxwing	*Bombycilla cedrorum*	G5	S5B		
Chestnut-sided Warbler	*Dendroica pensylvanica*	G5	S5B		
Chimney Swift	*Chaetura pelagica*	G5	S4B,S4N	Threatened	Threatened
Chipping Sparrow	*Spizella passerine*	G5	S5B		
Clay-colored Sparrow	*Spizella pallid*	G5	S4B		
Common Grackle	*Quiscalus quiscula*	G5	S5B		
Common Yellowthroat	*Geothlypis trichas*	G5	S5B		
Cooper's Hawk	*Accipiter cooperii*	G5	S4		
Downy Woodpecker	*Picoides pubescens*	G5	S5		
Eastern Bluebird	*Sialia sialis*	G5	S5B		
Eastern Kingbird	*Tyrannus tyrannus*	G5	S4B		
Eastern Meadowlark[§]	*Sturnella magna*	G5	S4B		Threatened
Eastern Phoebe	*Sayomis phoebe*	G5	S5B		
Eastern Screech-Owl	*Megascops asio*	G5	S4		
Eastern Towhee	*Pipilo erythrophthalmus*	G5	S4B		
Eastern Wood-Pewee	*Contopus virens*	G5	S4B		

APPENDIX D
COMPILED WILDLIFE LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Birds (*Aves*)[2]					
European Starling	*Sturnus vulgaris*	G5	SNA		
Field Sparrow	*Spizella pusilla*	G5	S4B		
Golden-winged Warbler	*Vermivora chrysoptera*	G4	S4B	Threatened	Special Concern
Grasshopper Sparrow	*Ammodramus savannarum*				
Gray Catbird	*Dumetella carolinensis*	G5	S4B		
Great Crested Flycatcher	*Myiarchus crinitus*	G5	S4B		
Great Horned Owl	*Bubo virginianus*	G5	S4		
Green Heron	*Butorides virescens*	G5	S4B		
Hairy Woodpecker	*Picoides villosus*	G5	S5		
Hooded Warbler	*Wilsonia citrina*	G5	S3B	Threatened	
Horned Lark	*Eremophila alpestris*	G5			
House Finch	*Carpodacus mexicanus*	G5	SNA		
House Sparrow	*Passer domesticus*	G5	SNA		
House Wren	*Troglodytes aedon*	G5	S5B		
Indigo Bunting	*Passerina cyanea*	G5	S4B		
Killdeer	*Charadrius vociferous*	G5	S5B,S5N		
Lawrence's Warbler	Hybrid species	---	---		
Least Flycatcher	*Empidonax minimus*	G5	S4B		
Louisiana Waterthrush	*Seiurus motacilla*	G5	S3B	Special Concern	Special Concern
Magnolia Warbler	*Dendroica magnolia*	G5	S5B		
Mallard	*Anas platyrhynchos*	G5	S5		
Marsh Wren	*Cistothorus palustris*	G5	S4B		
Mourning Dove	*Zenaida macroura*	G5	S5		
Mourning Warbler	*Oporornis Philadelphia*	G5	S4B		
Mute Swan	*Cygnus olor*	G5	SNA		
Northern Cardinal	*Cardinalis cardinalis*	G5	S5		
Northern Flicker	*Colaptes auratus*	G5	S4B		
Northern Harrier	*Circus cyaneus*	G5	S4B		
Northern Mockingbird	*Mimus polyglottos*	G5	S4		
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	G5	S4B		
Orchard Oriole	*Icterus spurious*	G5	S4B		
Ovenbird	*Seiurus aurocapilla*	G5	S4B		
Pileated Woodpecker	*Dryocopus pileatus*	G5	S5		
Pine Warbler	*Dendroica pinus*	G5	S5B		
Red-bellied Woodpecker	*Melanerpes carolinus*	G5	S4		
Red-breasted Nuthatch	*Sitta Canadensis*	G5	S5		
Red-eyed Vireo	*Vireo olivaceus*	G5	S5B		
Red-tailed Hawk	*Buteo jamaicensis*	G5	S5		
Red-winged Blackbird	*Agelaius phoeniceus*	G5	S4		
Ring-billed Gull	*Larus delawarensis*				
Ring-necked Pheasant	*Phasianus colchicus*	G5	SNA		
Rock Pigeon	*Columba livia*	G5	SNA		

APPENDIX D
COMPILED WILDLIFE LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Birds (*Aves*)[2]					
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	G5	S4B		
Ruby-throated Hummingbird	*Archilochus colubris*	G5	S5B		
Ruffed Grouse	*Bonasa umbellus*	G5	S4		
Savannah Sparrow	*Passerculus sandwichensis*	G5	S4B		
Scarlet Tanager	*Piranga olivacea*	G5	S4B		
Sedge Wren	*Cistothorus platensis*	G5	S4B		
Sharp-shinned Hawk	*Accipiter striatus*	G5			
Song Sparrow	*Melospiza melodia*	G5	S5B		
Sora	*Porzana carolina*	G5	S4B		
Spotted Sandpiper	*Actitis macularius*	G5	S5		
Swamp Sparrow	*Melospiza georgiana*	G5	S5B		
Tree Swallow	*Tachycineta bicolor*	G5	S4B		
Tufted Titmouse	*Baeolophus bicolor*	G5	S4		
Turkey Vulture	*Cathartes aura*	G5	S5B		
Upland Sandpiper	*Bartramia longicauda*	G5	S4B		
Veery	*Catharus fuscescens*	G5	S4B		
Vesper Sparrow	*Pooecetes gramineus*	G5	S4B		
Virginia Rail	*Rallus limicola*	G5	S5B		
Warbling Vireo	*Vireo gilvus*	G5	S5B		
White-breasted Nuthatch	*Sitta carolinensis*	G5	S5		
White-throated Sparrow	*Zonotrichia albicollis*	G5	S5B		
Willow Flycatcher	*Empidonax traillii*	G5			
Winter Wren	*Troglodytes troglodytes*	G5	S5B		
Wood Duck	*Aix sponsa*	G5	S5		
Wood Thrush	*Hylocichla mustelina*	G5	S4B		
Yellow Warbler	*Dendroica petechia*	G5	S5B		
Yellow-billed Cuckoo	*Coccyzus americanus*	G5			
Yellow-breasted Chat	*Icteria virens*	G5	S2B	Special Concern	Endangered
Yellow-throated Vireo	*Vireo flavifrons*	G5	S4B		

[1] Shaded species are those identified during AMEC 2013 field investigations
[2]Species recorded in Second (2001-2005) Atlas of the Breeding Birds of Ontario, survey square 17NH88 (Cadman et al. 2007)

§ NHIC record

**SARA* = Species at Risk Act
***ESA* = Endangered Species at Risk Act

Global Rank: G1 Extremely Rare; G2 Very Rare; G3 Rare to Uncommon; G4 Common; G5 Very common; GNR Unranked
Provincial Rank: S1 Critically Imperilled; S2 Imperilled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native; not suitable target for conservation activities; S#B Breeding; S#N Non-Breeding

APPENDIX D
COMPILED WILDLIFE LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Mamamls (*Mammalia*)[3]					
Beaver	*Castor canadensis*	G5	S5		
Big Brown Bat	*Eptesicus fuscus*	G5	S5		
Common Shrew	*Sorex cinereus*	G5	S5		
Coyote	*Canis latrans*	G5	S5		
Deer Mouse	*Peromyscus maniculatus*	G5	S5		
Eastern Chipmunk	*Tamias striatus*	G5	S5		
Eastern Cottontail	*Sylvilagus floridanus*	G5	S5		
Eastern Red Bat	*Lasiurus borealis*	G5	S4		
Eastern Small-footed Myotis	*Myotis leibii*	G3	S2S3		
European Hare	*Lepus europaeus*	G5	SNA		
Gray Squirrel	*Sciurus carolinensis*	G5	S5		
Hoary Bat	*Lasiurus cinereus*	G5			
Little Brown Myotis	*Myotis lucifugus*	G5	S4		Endangered
Long-tailed Weasel	*Mustela frenata*	G5	S4		
Meadow Jumping Mouse	*Zapus hudsonius*	G5			
Meadow Vole	*Microtus pennsulvanicus*	G5			
Mink	*Mustela vison*	G5	S4		
Muskrat	*Ondatra zibethicus*	G5	S5		
Northern Myotis	*Myotis septentrionalis*	G4	S3		Endangered
Northern Short-tailed Shrew	*Blarina brevicauda*	G5	S5		
Raccoon	*Procyon lotor*	G5	S5		
Red Fox	*Vulpes vulpes*	G5	S5		
Red Squirrel	*Tamiasciurus hudsonicus*	G5			
Silver-haired Bat	*Lasionycteris noctivagans*	G5	S4		
Star-nosed Mole	*Condylura cristata*	G5	S5		
Striped Skunk	*Mephitis mephitis*	G5	S5		
Tri-colored Bat	*Pipistrellus subflavus*	G3	S3?		
Virginia Opossum	*Didelphis virginiana*	G5	S4		
White-footed Mouse	*Peromyscus leucopus*	G5	S5		
White-tailed Deer	*Odocoileus virginianus*	G5	S5		
Woodchuck	*Marmota monax*	G5	S5		
Woodland Vole	*Microtus pinetorum*	G5	S3?	Special Concern	Special Concern

[1] Shaded species are those identified during AMEC 2013 field investigations
[3]Species recorded in Atlas of Mammals of Ontario (Dobbyn 1994); Bat Conservation International range maps (BCI 2013)

[§] NHIC record

**SARA* = Species at Risk Act
***ESA* = Endangered Species at Risk Act

Global Rank: G1 Extremely Rare; G2 Very Rare; G3 Rare to Uncommon; G4 Common; G5 Very common; GNR Unranked
Provincial Rank: S1 Critically Imperilled; S2 Imperilled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native; not suitable target for conservation activities; S#B Breeding; S#N Non-Breeding

APPENDIX D
COMPILED WILDLIFE LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Amphibians (*Amphibia*)[4]					
American Bullfrog	*Lithobates catesbeianus*	G5	S4		
American Toad	*Anaxyrus americanus*	G5	S5		
Blue-spotted Salamander	*Ambystoma lateralie*	G5	S4		
Eastern Newt	*Notophthalmus viridescens viridescens*	G5T5	S5		
Eastern Red-backed Salamander	*Plethodon cinereus*	G5	S5		
Gray Treefrog	*Hyla versicolor*	G5	S5		
Green Frog	*Lithobates clamitans*	G5	S5		
Jefferson Salamander	*Ambystoma jeffersonianum*	G4	S2	Threatened	Endangered
Jefferson/Blue-spotted Salamander Complex	*Ambystoma jeffersonianum x laterale*	GNA	S2		
Northern Leopard Frog	*Lithobates pipiens*	G5	S5		
Pickerel Frog	*Lithobates palustris*	G5	S4		
Spotted Salamander	*Ambystoma masculatum*	G5	S4		
Spring Peeper	*Pseudacris crucifer*	G5	S5		
Western Chorus Frog (Carolinian Population)	*Pseudacris triseriata*	G5TNR	S4		
Wood Frog	*Lithobates sylvaticus*	G5	S5		
Reptiles (*Reptilia*)[4]					
Blanding's Turtle	*Emydoidea blandingii*	G4	S3	Threatened	Threatened
Dekay's Brownsnake	*Storeria dekayi*	G5	S5		
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	G5T5	S4?		
Eastern Musk Turtle	*Sternotherus odoratus*	G5	S3	Threatened	Threatened
Midland Painted Turtle	*Chrysemys picta marginata*	G5T5	S5		
Milksnake[§]	*Lampropeltis triangulum*	G5	S3	Special Concern	Special Concern
Northern Map Turtle	*Graptemys geographica*	G5	S3	Special Concern	Special Concern
Northern Ring-necked Snake	*Diadophis punctatus*	G5	S4		
Northern Watersnake	*Nerodia sipedon sipedon*	G5T5	S5		
Red-bellied Snake	*Storeria occipitomaculata*	G5T5	S5		
Smooth Greensnake	*Opheodrys vernalis*	G5	S4		
Snapping Turtle[§]	*Chelydra serpentina*	G5	S3	Special Concern	Special Concern
Spiny Softshell	*Apalone spinifera*	G5	S3	Threatened	Threatened

[1] Shaded species are those identified during AMEC 2013 field investigations
[4] Species recorded in Ontario's Reptile and Amphibian Atlas range maps (Ontario Nature 2013)

[§] NHIC record

**SARA* = Species at Risk Act
***ESA* = Endangered Species at Risk Act

Global Rank: G1 Extremely Rare; G2 Very Rare; G3 Rare to Uncommon; G4 Common; G5 Very common; GNR Unranked
Provincial Rank: S1 Critically Imperilled; S2 Imperilled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SX Presumed Extirpated; SNA Not Applicable/Provincially non-native; not suitable target for conservation activities; S#B Breeding; S#N Non-Breeding

APPENDIX D
COMPILED WILDLIFE LIST[1]

Common Name	Latin Name	Global Rank	Provincial Rank	Federal Designation (SARA)	Provincial Designation (ESA)
Butterflies, Dragonflies and Damselflies (*Insecta*)[5]					
Band-winged Meadowhawk	*Sympetrum semicinctum*	G5	S4		
Black Saddlebags	*Tramea lacerata*	G5	S4		
Blue Dasher	*Pachydiplax longipennis*	G5	S5		
Brush-tipped Emerald	*Somatochlora walshii*	G5	S4		
Cabbage White	*Pieris rapae*	G5	SNA		
Calico Pennant	*Celithemis elisa*	G5	S5		
Clamp-tipped Emerald	*Somatochlora tenebrosa*	G5	S2S3		
Common Baskettail	*Epitheca cynosura*	G5	S5		
Common Green Darner	*Anax junius*	G5	S5		
Common Whitetail	*Plathemis lydia*	G5	S5		
Dot-tailed Whiteface	*Leucorrhinia intacta*	G5	S5		
Easatern Pondhawk	*Erythemis simplicicollis*	G5	S5		
Eastern Amberwing	*Perithemis tenera*	G5	S4		
Eastern Forktail	*Ischnura verticalis*	G5	S5		
Eastern Tailed Blue	*Cupido comyntas*	G5	S5		
Ebony Jewelwing	*Calopteryx maculata*	G5	S5		
Emerald Spreadwing	*Lestes dryas*	G5	S5		
European Skipper	*Thymelicus lineola*	G5	SNA		
Familiar Bluet	*Enallagma civile*	G5	S5		
Four-spotted Skimmer	*Libellula quadrimaculata*	G5	S5		
Fragile Forktail	*Ischnura posita*	G5	S4		
Marsh Bluet	*Enallagma ebrium*	G5	S5		
Powdered Dancer	*Argia moesta*	G5	S5		
Ruby Meadowhawk	*Sympetrum rubicundulum*	G5	S5		
Slender Spreadwing	*Lestes rectangularis*	G5	S5		
Spot-winged Glider	*Pantala hymenaea*	G5	S4		
Stream Bluet	*Enallagma exsulans*	G5	S5		
Tule Bluet	*Enallagma carunculatum*	G5	S5		
Twelve-spotted Skimmer	*Libellula pulchella*	G5	S5		
Unicorn Clubtail	*Arigomphus villosipes*	G5	S2S3		
Wandering Glider	*Pantala flavescens*	G5	S4		
White-faced Meadowhawk	*Sympetrum obstrusum*	G5	S5		
Widow Skimmer	*Libellula luctuosa*	G5	S5		

[1] Shaded species are those identified during AMEC 2013 field investigations
[5] Ontario Odonata Atlas range maps (MNR 2005)

[§] NHIC record

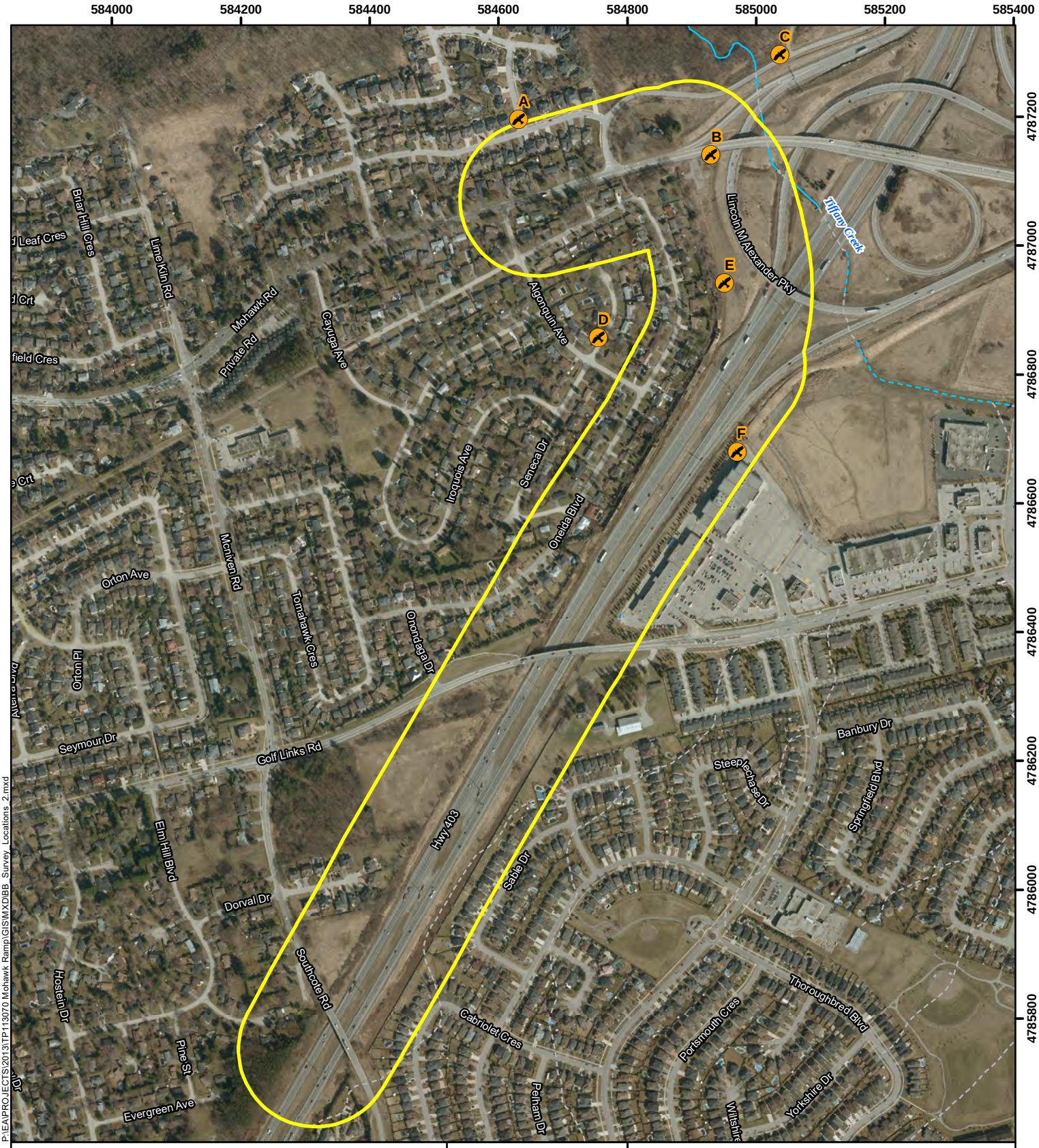
**SARA* = Species at Risk Act
***ESA* = Endangered Species at Risk Act

Global Rank: G1 Extremely Rare; G2 Very Rare; G3 Rare to Uncommon; G4 Common; G5 Very common; GNR Unranked
Provincial Rank: S1 Critically Imperilled; S2 Imperilled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SX Presumed Extirpated; SNA Not Applicable/Provincially non-native; not suitable target for conservation activities; S#B Breeding; S#N Non-Breeding

APPENDIX E
BREEDING BIRD POINT COUNT SURVEY

APPENDIX E
BREEDING BIRD POINT COUNT SURVEY

Breeding Bird Point Count Station	Easting	Northing	Survey Date (2013)	Survey Start Time (AM)
A	584631	4787196	June 30	7:16
			July 3	7:10
B	584930	4787141	June 30	7:48
			July 3	8:15
C	585037	4787296	June 30	7:30
			July 3	7:23
D	584755	4786857	June 30	8:31
			July 3	7:37
E	584951	4786942	June 30	8:55
			July 3	8:38
F	584970	4786680	June 30	8:58
			July 3	7:53



P:\EA\PROJECTS\2013\TP113070 Mohawk Ramp\GIS\MXD\BB_Survey_Locations_2.mxd

LEGEND

- Breeding Bird Point Count Survey Station
- 120 m Study Area
- Buried Watercourse
- Intermittent Watercourse
- Permanent Watercourse

NOTES:
- Watercourse data extracted from Natural Resources Canada (CanVec)
- Other topographic data extracted from Land Information Ontario (LIO)

amec

Mohawk Ramp

Breeding Bird Point Count Survey Station Locations

Datum & Projection: NAD 1983 UTM Zone 17N

0 50 100 200 300 400 500 Metres

N W E S

PROJECT N°: TP113070

FIGURE: E-1

SCALE: 1:8,000

Date: December 2013

APPENDIX F
ELC DATA SHEETS

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK RD	POLYGON: 2
	SURVEYOR(S): WDM	DATE: JULY 7, 2013	UTME: 584818
	START:	END	UTMZ: 17	UTMN: 4787270

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☑ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☑ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☑ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☑ FOREST ☐ PLANTATION
SITE			**COVER**		
☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			☐ OPEN ☐ SHRUB ☑ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	3	BLACK WALNUT >> NOR. MAPLE
2	SUB-CANOPY	2	4	BLACK WALNUT >> NOR MAPLE
3	UNDERSTOREY	3	2	BLACK RASPBERRY > WILD GRAPE
4	GRD. LAYER	4	2	WHITE AVENS > REED CANARY

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:							BA:
SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	O	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	✓	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITYCLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE:		CODE:
VEGETATION TYPE: FRESH-MOIST BLACK WALNUT LOWLAND DECIDUOUS FOREST		CODE: FOD7-4
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

ELC MANAGEMENT INTERPRETATIONS	SITE: MOHAWK ROAD
	POLYGON: 2
	DATE: JULY 7, 2013
	SURVEYOR(S): WDM

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	0
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	1
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	1
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	0
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	2
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	1
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST

SITE:
POLYGON: 2
DATE:
SURVEYOR(S):

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

BLK WALNUT	D	D			
NOR MAPLE	O	O			
BLACK LOCUST	R				
WHITE ASH		R			
BASSWOOD	R	R			
AMER. ELM			R		
APPLE		R			
SCOTS PINE		R			
WHITE WILLOW		R			
BLACK RASPBERRY			A		
HAWTHORN		R			
GRAY DOGWOOD			O		
WILD GRAPE			A		

WHITE AVENS				O	
REED CANARY GRASS				O	

ELC WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):
BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK ROAD		POLYGON: 9	
	SURVEYOR(S): WDM	DATE: JULY 7, 2013	UTME: 584868	
	START:	END	UTMZ: 17	UTMN: 4787100

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☑ MINERAL SOIL	☐ RIVERINE	☑ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☑ TABLELAND		☐ LICHEN	☐ SWAMP
SITE		☐ ROLL. UPLAND	**COVER**	☐ BRYOPHYTE	☐ FEN
☐ OPEN WATER		☐ CLIFF	☐ OPEN	☐ DECIDUOUS	☐ BOG
☐ SHALLOW WATER		☐ TALUS	☐ SHRUB	☐ CONIFEROUS	☐ BARREN
☑ SURFICIAL DEP.		☐ CREVICE / CAVE	☑ TREED	☑ MIXED	☐ MEADOW
☐ BEDROCK		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☑ WOODLAND
		☐ BLUFF			☐ FOREST
					☑ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	RED PINE
2	SUB-CANOPY	2	2	NORWAY MAPLE > SIBERIAN ELM > RED PINE
3	UNDERSTOREY	3	3	SIBERIAN ELM > THICK CREEPER > BLK. RASPBERRY
4	GRD. LAYER	4	4	GARLIC MUSTARD > WHITE AVENS

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT<10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR < 10% 2= 10 < CVR < 25% 3= 25 < CVR < 60% 4= CVR > 60%

STAND COMPOSITION:								BA:
SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24		25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:		PIONEER		YOUNG	✓	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE:	MIXED PLANTATION	CODE: CUP2
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

ELC MANAGEMENT DISTURBANCES	SITE: MOHAWK ROAD			
	POLYGON: 9			
	DATE: JULY 7, 2013			
	SURVEYOR(S): WDM			

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	0
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	1
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	9
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	9
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	2
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	4
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK ROAD
POLYGON:	9
DATE:	JULY 7, 2013
SURVEYOR(S):	WDm

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SIBERIAN ELM		O	O		
NORWAY MAPLE		A	O		
RED PINE	R	O			
WHITE PINE		R			
LINDEN SP.		·	R		
MAN MAPLE		R			
THICK. CREEPER			A		
BLACK RASPBERRY			O		

GARLIC MUSTARD				D	
WHITE AVENS				O	
ENCHANT NIGHTSHADE				R	
EU. GROMWELL				O	
[redacted]					

ELC WILDLIFE		
SITE:	MOHAWK ROAD	
POLYGON:	9	
DATE:	JULY 7, 2013	
SURVEYOR(S):	WDm	
START TIME:	END TIME:	

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK ROAD	POLYGON: 12	
	SURVEYOR(S): WDm	DATE: JULY 7, 2013	UTME: 584918
	START:	END:	UTMZ: 17	UTMN: 4787030

POLYGON DESCRIPTION:

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☑ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☑ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☑ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☑ PLANTATION
SITE			**CANOPY**		
☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			☐ OPEN ☐ SHRUB ☑ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	1	SILVER MAPLE > SUGAR MAPLE
2	SUB-CANOPY	2	1	BLACK WALNUT > SUGAR MAPLE
3	UNDERSTOREY	3	4	STAG. SUMAC > WHITE WILLOW > SIBER. ELM
4	GRD. LAYER	4	3	WHITE AVENS > GARLIC MUSTARD

HT CODES: 1 = 25 m 2 = 10<HT<25 m 3 = 2<HT<10 m 4 = 1<HT<2 m 5 = 0.5<HT<1 m 6 = 0.2<HT<0.5 m 7 = HT<0.2 m

CVR CODES: 0= NONE 1= 0% < CVR < 10% 2= 10 < CVR < 25% 3= 25 < CVR < 60% 4= CVR > 60%

STAND COMPOSITION:		BA:

SIZE CLASS ANALYSIS:	N < 10	R 10 - 24	N 25 - 50	N > 50
STANDING SNAGS:	N < 10	N 10 - 24	N 25 - 50	N > 50
DEADFALL / LOGS:	N < 10	N 10 - 24	N 25 - 50	N > 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:	PIONEER	YOUNG	✓ MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE:	DECIDUOUS PLANTATION	CODE: CUP1
VEGETATION TYPE:		CODE:
INCLUSION	CATTAIL MINERAL MARSH	CODE: MAS2-1
COMPLEX		CODE:

Notes:

SITE:	MOHAWK ROAD
POLYGON:	12
DATE:	JULY 7, 2013
SURVEYOR(S):	WDm

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	0
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	1
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	4
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	9
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	0
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	6
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & pudding)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK ROAD
POLYGON:	12
DATE:	JULY 7, 2013
SURVEYOR(S):	WDM

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

STAG SUMAC			D		
BLK WALNUT		O			
SILVER MAPLE	R	O			
SUGAR MAPLE	R	R			
MANITOBA MAPLE		R			
WHITE WILLOW			A		
PEACH LV WILLOW			R		
BLUE SPRUCE		R			
BUTTERNUT		R			
SIBERIAN ELM			O		
WILD GRAPE			A		
EU. BUCKTHORN			R		
THICK. CREEPER			O		
MULTIF. ROSE			R		

TALL GOLDENROD				O	
TEASEL				O	
WHITE ALYSSUM				O	
GARLIC MUSTARD				O	
GRAY DOGWOOD			A		
BLACK RASPBERRY			O		
RED RASPBERRY			A		

ELC WILDLIFE			
SITE:	MOHAWK ROAD		
POLYGON:	12		
DATE:	JULY 7, 2013		
SURVEYOR(S):	WDM		
START TIME:	END TIME:		

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK ROAD		POLYGON: 13	
	SURVEYOR(S): WDM	DATE: JULY 7, 2013	UTME: 584918	
	START:	END 17	UTMZ: 13	UTMN 4787030

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☑ TABLELAND ☐ ROLL UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☑ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☑ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☑ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☑ OPEN ☐ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			—
2	SUB-CANOPY			—
3	UNDERSTOREY			—
4	GRD. LAYER	4	4	GRASS > AWNL BROME > TALL GOLD.ROD > TEASEL

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:							BA:
SIZE CLASS ANALYSIS:	N	< 10	N	10 - 24	W	25 - 50	N > 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N > 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N > 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:	✓ PIONEER	YOUNG	MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE:		CODE:
VEGETATION TYPE: DRY-MOIST OLD FIELD MEADOW TYPE		CODE: CUM1-1
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

SITE:	MOHAWK ROAD
POLYGON:	13
DATE:	JULY 7, 2013
SURVEYOR(S):	WDM

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	0
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	9
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	9
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	0
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	0
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	9
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	9
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK ROAD
POLYGON:	13
DATE:	JULY 7, 2013
SURVEYOR(S):	WOM

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.
✓					

SPECIES CODE	LAYER 1	2	3	4	COLL.
AWNL. BROME				A	
TALL GOLDENROD				A	
COM. MILKWEED				O	
COM S. JOHN WORT				A	
CAN. THISTLE				O	
BULL THISTLE				R	
BLUEWEED				O	
MOTH MULLEIN				R	
TRASEL				A	
CATMP				R	
CROWN-VETCH				A	
GRASS SP.				D	
HEATH ASTER				R	
REED CANARY GRASS				R	
WHITE SWEET CLOVER				R	

ELC WILDLIFE			
SITE:	MOHAWK ROAD		
POLYGON:	13		
DATE:	JULY 7, 2013		
SURVEYOR(S):	WOM		
START TIME:	END TIME:		
TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
	CABBAGE WT			2
	E. TAILED BLUE			1

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT
SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY
A = ANXIETY BEHAVIOUR
D = DISPLAY
N = NEST BUILDING
P = PAIR
V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION
NE = EGGS
AE = NEST ENTRY
NU = USED NEST
NY = YOUNG
FY = FLEDGED YOUNG
FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED
DP = DISTINCTIVE PARTS
TK = TRACKS
SI = OTHER SIGNS (specify)
VO = VOCALIZATION
HO = HOUSE/DEN
FE = FEEDING EVIDENCE
CA = CARCASS
FY = EGGS OR YOUNG
SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK RD		POLYGON: 24	
	SURVEYOR(S): WDM	DATE: DEC 11, 2013	UTME: 17	
	START:	END	UTMZ: 584550	UTMN: 4786300

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☑ MINERAL SOIL	☐ RIVERINE	☑ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☑ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☑ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☑ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
☑ SURFICIAL DEP.	☑ TREED
☐ BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	1	RED OAK
2	SUB-CANOPY	2	2	EU. BUCKTHORN > SWEET CHERRY
3	UNDERSTOREY	4	3	GRAY DOGWOOD > & BUCKTHORN > SUMAC
4	GRD. LAYER	4	3	REED CANARY GRASS > TALL GOLDENROD

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:							BA:
SIZE CLASS ANALYSIS:	O	< 10	O	10 - 24	N	25 - 50	N > 50
STANDING SNAGS:	N	< 10	R	10 - 24	N	25 - 50	N > 50
DEADFALL / LOGS:	O	< 10	A	10 - 24	A	25 - 50	N > 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:		PIONEER		YOUNG	✓	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITYCLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE: MINERAL CULTURAL THICKET		CODE: CUT
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

ELC MANAGEMENT / DISTURBANCE	SITE: MOHAWK RD			
	POLYGON: 24			
	DATE: DEC 11, 2013			
	SURVEYOR(S): WDM			

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	2
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	2
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	6
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	0
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	1
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	4
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	4
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	4
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK RD
POLYGON:	24
DATE:	DEC 11, 2013
SURVEYOR(S):	

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COLL.	SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COLL.
RED OAK	O	R									
BLACK CHERRY		R									
EU. BUCKTHORN		D	A								
WILD GRAPE			R								
CATNIP				O							
TALL GOLDENROD				O							
GARLIC MUSTARD				R							
GRAY DOGWOOD			A								
WILD CUCUMBER				R							
TEASEL				R							
HAWTHORN		R									
HIGHBUSH CRANB.			R								
NORWAY SPRUCE		R									
MULTIFLORA ROSE			R								
MANITOBA MAPLE			R								
INDIAN HEMP				O							
STAG SUMAC			O								

ELC WILDLIFE	
SITE:	MOHAWK RD
POLYGON:	24
DATE:	DEC 11, 2013
SURVEYOR(S):	WDM
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	BCCH			1					
B	MODO			5					
B	NOCA			3					

FAUNAL TYPE CODES (TY):

B = BIRD, M = MAMMAL, H = HERPETOFAUNA, L = LEPIDOPTERA, F = FISH, O = OTHER

WDM	DATE: DEC 11 2013	UTME: 17	
END	UTMZ: 584475	UTMN: 4786200	

TOPOGRAPHIC	HISTORY	PLANT FORM	COMMUNITY

POLYGON:	25
DATE:	DEC 11, 2013
SURVEYOR(S):	WDM

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SURVEYOR(S):
	START:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK RD
POLYGON:	25
DATE:	DEC 11, 2013
SURVEYOR(S):	WDM

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

REED CANARY GRASS				A	
FESCUE				D	
TWITCH GRASS				O	
BULL THISTLE				O	
MADDER				O	
ORCHARD GRASS				O	
CALICO ASTER				O	
GRASS LV. GOLDENROD				R	
TALL GOLDENROD				O	
ST JOHN'S WORT				R	
CURLED DOCK				O	
ENG. PLATAIN				O	
CANADA GOLDENROD				R	
ARROW LV. ASTER				R	

Page ..... of .....

ELC WILDLIFE	
SITE:	MOHAWK RD
POLYGON:	25
DATE:	DEC 11, 2013
SURVEYOR(S):	WDM
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK RD	POLYGON: 26	
	SURVEYOR(S): WDM	DATE: DEC 11, 2013	UTME: 17
	START:	END	UTMZ: 584400 / UTMN: 4786075

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☑ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☑ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☑ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☑ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☑ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	2	RED OAK > BLACK CHERRY
2	SUB-CANOPY	2	2	WHITE SPRUCE > RED OAK BLACK CHERRY
3	UNDERSTOREY	3	2	GRAY DOGWOOD > BLACK CHERRY > EU. BUCKTHORN
4	GRD. LAYER	4	4	GARLIC MUSTARD > ENCHANTER'S NIGHTSHADE > W. CUCUMBER

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT<10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:							BA:
SIZE CLASS ANALYSIS:	O	< 10	O	10 - 24	A	25 - 50	O > 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N > 50
DEADFALL / LOGS:	N	< 10	O	10 - 24	N	25 - 50	N > 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITYCLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE: MINERAL CULTURAL WOODLAND ECOSITE		CODE: CUW1
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

ELC MANAGEMENT DISTURBANCE

SITE: MOHAWK RD	
POLYGON: 26	
DATE: DEC 11, 2013	
SURVEYOR(S): WDM	

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	2
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	2
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	1
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	4
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	2
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	2
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	4
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK RD
POLYGON:	26
DATE:	DEC 11, 2013
SURVEYOR(S):	WDM

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

RED OAK	R	O			
GRAY DOGWOOD			A		
BLACK CHERRY	R	O	O		
MAN. MAPLE		R			
HIGH BUSH CRANB.			R		
NORWAY SPRUCE		R			
WHITE SPRUCE		O			
WILD CUCUMBER				O	
A. BLACKBERRY			R		
GARLIC MUSTARD				O	
SUGAR MAPLE	R				
BLACK RASPBERRY			R		
ENCHANT NTSHADE				O	
SILVER MAPLE	R				
EU BUCKTHORN			O		
TART. HONEYSUCKLE			R		
WHITE PINE		R			
YELL BIRCH	R				
WILD GRAPE			R		

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ELC WILDLIFE			
SITE:	MOHAWK RD		
POLYGON:	26		
DATE:	DEC 11, 2013		
SURVEYOR(S):	WDM		
START TIME:		END TIME:	

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK RD	POLYGON: 28
	SURVEYOR(S): WDM	DATE: DEC 11, 2013	UTME: 17
	START:	END	UTMZ: 584325	UTMN: 4785900

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☑ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☑ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☑ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☑ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE			**COVER**		
☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			☑ OPEN ☐ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER	4	4	GRASS SP. > Y. TOADFLAX > MADDER

HT CODES: 1 = >25 m 2 = 10<HT<25 m 3 = 2<HT<10 m 4 = 1<HT<2 m 5 = 0.5<HT<1 m 6 = 0.2<HT<0.5 m 7 = HT<0.2 m

SHOW HT

ELC MANAGEMENT DISTURBANCE	SITE: MOHAWK RD
	POLYGON: 28
	DATE: DEC 11, 2013
	SURVEYOR(S): WDM

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	0
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	9
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	4
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	0
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	0
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	0
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

SIS:

	DEPTH TO MOTTLES / GLEY	g =	G=
	DEPTH OF ORGANICS:		(cm)
US / VARIABLE	DEPTH TO BEDROCK:		(cm)

CLASSIFICATION:

LASS:	CODE:

SOIL ANALYS

TEXTURE:

MOISTURE:

HOMOGENEOU

COMMUNITY

COMMUNITY C

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: MOHAWK RD	POLYGON: 30	
	SURVEYOR(S): WDM	DATE: DEC 11, 2013	UTME: 17
	START:	END	UTMZ: 584256 UTMN: 4885700

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE ☐ RIVERINE	☐ NATURAL	☐ PLANKTON ☐ SUBMERGED	☐ LAKE ☐ POND

ELC MANAGEMENT RECOMMENDATIONS	SITE: MOHAWK RD			
	POLYGON: 30			
	DATE: DEC 11, 2013			
	SURVEYOR(S): WDM			
DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
[illegible]	[illegible]	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	

1	CANOPY	1	3	WHITE PINE > WHITE SPRUCE > SCOTS PINE
2	SUB-CANOPY	2	3	BLACK LOCUST > NOR. MAPLE > SCOTS PINE
3	UNDERSTOREY	3	2	STAGHORN SUMAC > GRAY DOGWOOD > BLACK LOCUST
4	GRD. LAYER	4	3	GARLIC MUSTARD

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT<10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR < 10% 2= 10 < CVR < 25% 3= 25 < CVR < 60% 4= CVR > 60%

STAND COMPOSITION:								BA:
SIZE CLASS ANALYSIS:	O	< 10	O	10 - 24	A	25 - 50	O	> 50
STANDING SNAGS:	N	< 10	O	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	✓	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITYCLASSIFICATION:

COMMUNITY CLASS:		CODE:
COMMUNITY SERIES:		CODE:
ECOSITE: CONIFEROUS PLANTATION		CODE: CUP3
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	1
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR ROADS	0
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	2
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	4
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER ACTIVITY	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC PLANT SPECIES LIST	
SITE:	MOHAWK RD
POLYGON:	30
DATE:	DEC 11, 2013
SURVEYOR(S):	WDM

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

WT. PINE	A				
WT. SPRUCE	A				
MAN MAPLE		R			
BLACK LOCUST		A	O		
STAG SUMAC			O		
GRAY DOGWOOD			O		
T. HONEYSUCKLE			R		
W-GRAPE			O		
NOR MAPLE		O			
SCOTS PINE	R	O			
GARLIC MUSTARD				A	
BLACK CHERRY	R				

Page ..... of .....

ELC WILDLIFE			
SITE:	MOHAWK RD		
POLYGON:	30		
DATE:	DEC 11, 2013		
SURVEYOR(S):	WDM		
START TIME:	END TIME:		
TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

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Appendix E: Stage 1 Archaeological Assessment

ORIGINAL REPORT:
STAGE 1 ARCHAEOLOGICAL ASSESSMENT:
MOHAWK ROAD RAMP
CITY OF HAMILTON, ONTARIO

Submitted to:
Mohan Philip, M.Eng., P.Eng.
Project Manager: Transportation Planning & Mobility Programs
Transportation Division: Public Works Department
City of Hamilton
77 James Street North, Suite 400
Hamilton Ontario, L8R 2K3
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AND

THE ONTARIO MINISTRY OF TOURISM, CULTURE AND SPORT

Submitted by:
AMEC Environment and Infrastructure,
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Archaeological Consulting License # P354 (Seguin)
P.I.F. # P354-0024-2014
AMEC Project # TB145002
12 May, 2014

EXECUTIVE SUMMARY

AMEC Environment & Infrastructure, a division of AMEC Americas Limited (AMEC), was retained by the City of Hamilton (the CLIENT) on 7th February, 2014 to conduct a Stage 1 archaeological assessment of the project area for a proposed ramp exiting from Highway 403 westbound onto Mohawk Road. The project area is located on Part Lots 48, 49 and 50, Concession II, and Part Lots 47, 48 and 49, Concession III, in the Township of Ancaster, City of Hamilton. The purpose of this study is to assist the City of Hamilton (on behalf of the Ministry of Transportation) to determine the operational feasibility of the proposed westbound ramp and to complete the Municipal Class Environmental Assessment process.

The Stage 1 background study was conducted under an Ontario Professional Licence to Conduct Archaeological Fieldwork (P354) held by Mr. Jason Seguin, Staff Archaeologist at AMEC. The project information was acknowledged by the Ministry of Tourism, Culture, and Sport (MTCS) on 12 February 2014 with the approval of PIF number P354-0024-2014. The background research was conducted under the co-direction of Mr. Jason Seguin and Ms. Cara Howell (R180). A property inspection was conducted on 4th April and 1st of May, 2014 by Mr. Jason Seguin and Ms. Cara Howell, entirely from public lands. The weather conditions on the 4th of April were partly overcast and cool with periods of light rain and, on the 1st of May the weather conditions were partly overcast and cool. The weather conditions did not impede the inspection in any way.

The project area ostensibly has archaeological potential due to three factors: 1) the rich settlement and transportation history of the immediate area (Mohawk Road); 2) the presence of 40 registered archaeological sites within a 1-km radius of the project area; and, 3) a tributary of Tiffany Creek is present within the project area.

The Stage 1 property inspection indicates that: 24% or 3.21 ha is excessively sloped (i.e. >20°); 59% or 7.9 ha has had recent disturbance (i.e. recent construction, highway and roads) ; 7.9% or 1.06 ha has had archaeological potential removed due to previous grading; 5.4% or 0.72 ha is low and wet; and, 3.9% or 0.52 ha has archaeological potential.

In light of these results, the following recommendation is made:

1. Prior to development-related disturbance, a Stage 2 archaeological assessment should be conducted by means of shovel test pit survey in accordance with Section 2.1.2 in the *Standards and Guidelines for Consultant Archaeologists* (2011) on the lands noted as having archaeological potential in Appendix A: Figure 5a (approximately 0.52 hectares).

2. The balance of the project area does not require additional archaeological assessment (Appendix A: Figures 5a-d).

The above recommendations are subject to the Ministry of Tourism, Culture and Sport approval, and it is an offence to alter any of the project area without Ministry of Tourism, Culture, and Sport concurrence.

No grading or other activity that may result in the destruction or disturbance to the project area is permitted until notice of Ministry of Tourism, Culture, and Sport approval has been received.

PROJECT PERSONNEL

Project Director:	Jason Seguin, M.A. (P354)
Project Manager:	Jason Seguin, M.A.
Site Inspection:	Cara Howell, B.A. (R180) Jason Seguin, M.A.
Report Preparation:	Jason Seguin, M.A.
Graphics:	Robin Latour, M.Phil.
Report Reviewer:	Shaun Austin, Ph.D. (P141)

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1.0 PROJECT CONTEXT

1.1 Development Context

AMEC Environment & Infrastructure, a division of AMEC Americas Limited (AMEC), was retained by the City of Hamilton (the CLIENT) on 7th February, 2014 to conduct a Stage 1 archaeological assessment of the project area for a proposed ramp exiting from Highway 403 westbound onto Mohawk Road. The project area is located on Part Lots 48, 49 and 50, Concession II, and Part Lots 47, 48 and 49, Concession III, in the Township of Ancaster, City of Hamilton. The purpose of this study is to assist the City of Hamilton (on behalf of the Ministry of Transportation) to determine the operational feasibility of the proposed westbound ramp and to complete the Municipal Class Environmental Assessment process.

The Stage 1 background study was conducted under an Ontario Professional Licence to Conduct Archaeological Fieldwork (P354) held by Mr. Jason Seguin, Staff Archaeologist at AMEC. The project information was acknowledged by the Ministry of Tourism, Culture, and Sport (MTCS) on 12 February 2014 with the approval of PIF number P354-0024-2014. The background research was conducted under the co-direction of Mr. Jason Seguin and Ms. Cara Howell (R180). A property inspection was conducted on 4th April and 1st of May, 2014 by Mr. Jason Seguin and Ms. Cara Howell, entirely from public lands. The weather conditions on the 4th of April were partly overcast and cool with periods of light rain and, on the 1st of May the weather conditions were partly overcast and cool. The weather conditions did not impede the inspection in any way.

All aspects of the Stage 1 assessment were conducted in accordance with the MTCS's *Standards and Guidelines for Consultant Archaeologists* (2011). This report presents the results of the Stage 1 background study and site inspection, and makes pertinent recommendations.

1.1.1 Scope of Work

A Stage 1 archaeological assessment is a systematic qualitative process executed in order to assess the archaeological potential of a property based on its historical use and its potential for early Euro-Canadian (early settler) and pre-contact Aboriginal occupation. The objectives of a Stage 1 background study are: 1) to provide information about the property's geography, history, previous archaeological fieldwork and current land condition; 2) to evaluate in detail the property's archaeological potential which will support recommendations for Stage 2 property assessment for all or parts of the property if warranted; and, 3) to recommend appropriate strategies for Stage 2 property assessment if warranted.

The Stage 1 background study was conducted in accordance with the *Standards and Guidelines for Consultant Archaeologists, 2011,* set out by the MTCS, and with the Ontario Heritage Act, R.S.O. 1990, c.0.18.

The scope of work consisted of the following tasks:

- Contact the MTCS to determine if recorded archaeological sites exist in the vicinity (1-km radius) of the property, through a search of the Ontario Archaeological Sites Database maintained by that Ministry;
- Contact the MTCS to determine if previous archaeological field work has been conducted within a radius of 50 m around the project area;
- A desktop review of the project area's physical setting to determine its potential for both historic and pre-contact human occupation, including its topography, hydrology, soils, vegetation, and proximity to important resources and historic transportation routes;
- A visual assessment of the project area in order to gather first-hand and current evidence of the property's physical setting, and to aid in delineating areas where archaeological potential may have been impacted or removed by previous land-use practices;
- Mapping, photographing and other relevant graphics;
- A review of the potential for historic occupation as documented in historical atlases and other archival sources; and
- Preparing a report of findings with recommendations regarding the need for further archaeological work if deemed necessary.

1.1.2 Physical Setting

The project area is located within the Haldimand Clay Plain physiographic region of southern Ontario (Chapman and Putnam 1984:156), which covers the Niagara Peninsula up to the edge of the Niagara Escarpment (Chapman and Putnam 1984: 190-196). The Haldimand Clay Plain was formed as part of glacial Lake Warren and is comprised of a wide variety of soil types. The region covers approximately 3,496.48 square kilometres and is comprised of a series of parallel belts (Chapman and Putnam 1984:156, 190).

1.2 Historical Context

The project area is located on Part Lots 48, 49 and 50, Concession II, and Part Lots 47, 48 and 49, Concession III, in the Township of Ancaster, City of Hamilton. Prior to Hamilton's existence, Ancaster was considered one of the most thriving towns in Western Canada. It was originally "situated upon the side and summit of Burlington Heights, upon the first road constructed by [the] Government from the town of Niagara to the extreme western settlements" (Page 1875: viii).

In the summer of 1790, Jean Baptiste Rousseaux and James Wilson (two immigrants from Lower Canada), reached the foot of Burlington Heights and soon after settled in Ancaster. Shortly after settling in Ancaster they agreed to build a corn-mill on the banks of the Grand River near Brantford, for the Indians. Once completed Rousseaux returned to Ancaster. In 1797, Thomas Hamill (10 years of age), came with his father from Grimsby and settled close to the main road, between Ancaster and Hamilton. At this time (late 1700's), there were several clearings in Ancaster; however, the majority of the area was considered to be 'in a very wild and unsettled state" (Page 1875: viii). Hamilton was not in existence; Toronto consisted of only a few "shanties' and London was wilderness. The Aboriginal peoples at this time still traveled in large numbers throughout the county camping where they pleased (Page, 1875: viii).

By 1812, Ancaster had become a thriving village, the same year that the War of 1812 broke out. A company of men from Ancaster, led by Captain Samuel Halt, as well as a Barton company, under the command of Captain James Durand, took an active role in the War of 1812. These troops were taken to the camp at Queenston Heights, remaining there until the end of September.

The evening of October 13th, 1812, Canadian troops including those from Ancaster, heard the approaching American troops and sent a signal to the British to evacuate their barracks and relocate. The troops from Ancaster and Barton formed a company under Captain John Chisholm, who in turn composed part of a small brigade under the orders of Captain Williams, of the H.M. 49th Regiment. The company remained covered behind a stone wall until morning, when they engaged in the battle that followed (Page, 1875: viii). Many of these same men were also actively involved in the battle of Lundy's Lane.

Of interest, during the war several spies and traitors who had been captured where relocated to Ancaster and confined to a flower-mill. Afterwards these prisoners were tried, found guilty and executed on the grounds of what is today Dundurn Castle (Page, 1875: viii).

After the war, Ancaster saw an influx of immigrants who made homes for themselves in the wilderness. Eventually, many of the forested areas were cleared away and farm-houses “sprang up over the land” (Page, 1875: viii).

Between 1830 and 1840 Ancaster was almost completely destroyed by fires, which caused great deal hardship for its inhabitants. On the 31st, January 1850 the Municipal Council of the United Counties of Wentworth and Halton conferred corporate powers on the inhabitants of the village of Ancaster. On the second Monday in January, householders of Ancaster assembled at the Inn of George Rousseaux and three Police Trustees were elected.

Some of the early industries in Ancaster included: the “world renowned” Ancaster Knitting Factory (eventually burned under suspicious circumstances); an hosiery mill; a machine factory, a factory which constructed farm cultivators; a flour mill; a woolen factory; and, several cheese factories. There was also in use at that time a mineral spring, the water from which was bottled and sold in Hamilton.

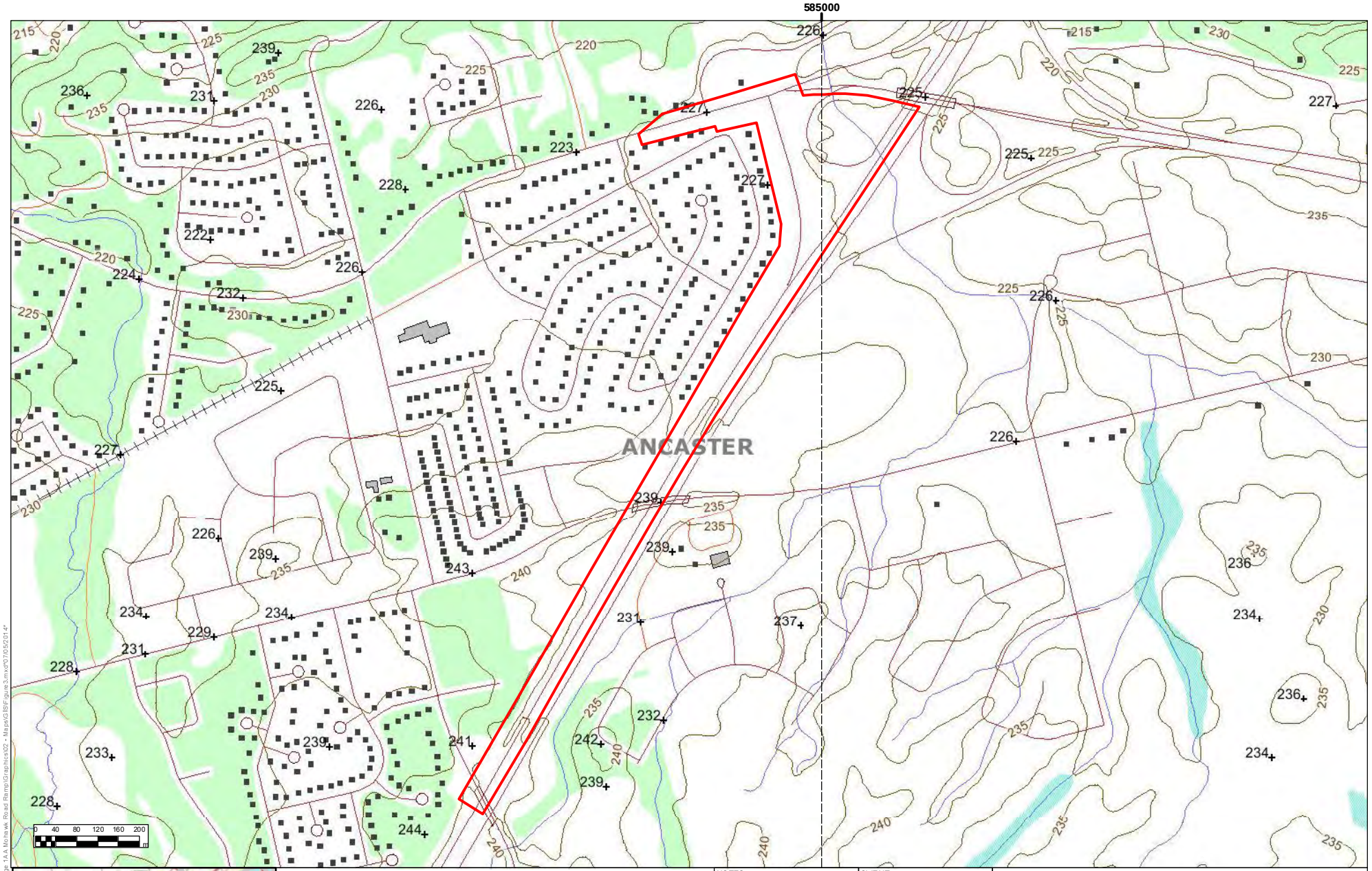
Churches at that time included the English Episcopal Church of Ancaster and the Presbyterian Church, located on the outskirts of the village.

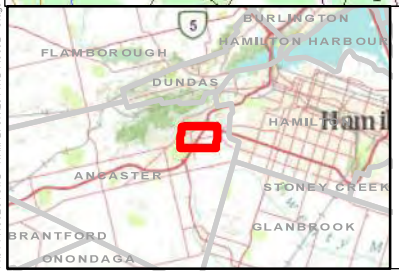
The First Municipal Council Township of Ancaster was held on the 21st of January, 1850. The following table (Table 1) is a list of the early officers of the Township of Ancaster (Page, 1875: ix).

Table 1: Early Officers of The Township of Ancaster

Date:	Member Name and Position:
1850	John Heslop, Councilor, elected Reeve; Moses H. Howell, Councilor, elected Deputy Reeve; James Calder, Councilor; George B. Rousseaux, Councilor; Phillip Rymal, Councilor: Moses H. Howell, First Deputy Reeve (1850)
1850, 1851 - 1858	John Heslop, First Reeve (1850, 1851-1858); James Calder, Second Deputy Reeve (1851-1583); Jacob Binkley, Third Deputy Reeve (1854-1858); Matthew Crooks, First Clerk (1850-1855)
1859	Wm. Sexton, Second Reeve; A. Egleston, Fourth Deputy Reeve (1859)
1860 - 1866	James Calder, Third Reeve (1860-1865); Henry Binkley, Fifth Deputy Reeve (1860-1862); A. Egleston, Sixth Deputy Reeve (1863-1866)
1867 - 1875	Wm. Sexton, Seventh Deputy Reeve (1867-1868); John Heslop, Eighth Deputy Reeve (1869-1871); Johathan Kelly, Ninth Deputy Reeve (1872-1874); J.A. Smith, Tenth Deputy Reeve (1875); Wm. A. Cooley, Second Clerk (1856-1872); John Heslop, Third Clerk (1873-1875). * From 1856 – 1875 the Offices of Treasure included: James Chep, First Treasurer; M.D. Tisdale, Second Treasurer; Wm. A. Cooley, Third Treasurer; and john Heslop, Fourth Treasurer.

Hamilton was first laid out in 1813 by George Hamilton, who was a long-serving member of Parliament for the District of Gore. Although numerous persons of that time would have liked to have seen Hamilton named Burlington, the majority decided that it should be named after the man who "…appeared to take the greatest interest in it" (Page, 1875: xv). Geo





LEGEND

Project Area

NOTES:

LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No.TB145002 DATED March 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: www.geographynetwork.ca

CLIENT: CITY OF HAMILTON

Drawn By: RL	Checked By: JS
Revision: A	Projection: UTM Zone 17N
SCALE: 1:10,000	

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Mohawk Road Ramp, Hamilton, ON

Topographic Map showing the Location of the Project Area

PROJECT N°: TB145002

DATE: May, 2014

FIGURE: 3

AMEC Environment & Infrastructure
505 Woodward Ave., Hamilton, Ontario, L8H 6N6
tel: 905-312-0700 www.amec.com

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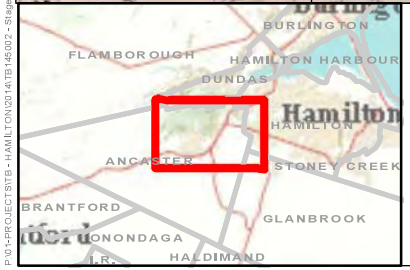

LEGEND

Approximate Location of Project Area

NOTES:

LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No.TB145002 DATED March 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: Illustrated Historic Atlas of the County of Wentworth, Page & Smith 1875

CLIENT:

CITY OF HAMILTON

Drawn By: RL	Checked By: JS
Revision: A	Projection: UTM Zone 17N
SCALE: 1:40,000	

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Mohawk Road Ramp, Hamilton, ON

1875 Historical Atlas of the County of Wentworth - Ancaster

PROJECT N°:	TB145002	**FIGURE:** 4
DATE:	April, 2014	

AMEC Environment & Infrastructure
505 Woodward Ave., Hamilton, Ontario, L8H 6N6
tel: 905-312-0700 www.amec.com

P:\G:\-PROJECTS\TB - HAMILTON\2014\TB145002 - Stage 1 AA Mohawk Road Ramp\Graphics\02 - Maps\GIS\Figure4.mxd*03/04/2014*

LEGEND

- Study area
- Area of low archaeological potential due to creek, low and wet
- Area of archaeological potential/ removed due to construction disturbance, trailer and storage
- Area of low archaeological potential due to slope (>20 degrees)
- Area of archaeological potential, intensive testing is required
- # Photograpgh location, number and direction
- Archaeological potential removed due to grading (see figure 7)

NOTES:
LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. TB145002 DATED April 8, 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: ESRI basemapping

CLIENT:	CITY OF HAMILTON
Drawn By:	CH
Checked By:	SA
Revision N °:	A
Scale:	1: 2,500

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Mohawk Road Ramp, Ancaster, ON.

Stage 1 Results Showing Photograph Locations, Numbers and Direction

PROJECT N °: TB145002

DATE: 08 May 2014

FIGURE: **5a**

AMEC Environment and Infrastructure

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tel: 905-312-0700 www.amec.com

LEGEND

- Study area
- Area of archaeological potential/ removed due to construction disturbance, trailer and storage
- Area of low archaeological potential due to slope (>20 degrees)
- # Photograpgh location, number and direction

NOTES:
LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. TB145002 DATED April 8, 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: ESRI basemapping

CLIENT:	CITY OF HAMILTON
Drawn By:	CH
Checked By:	SA
Revision N °:	A
Scale:	1: 2,500

STAGE 1 ARCHAEOLOGICAL ASSESSMENT
Mohawk Road Ramp, Ancaster, ON.

Stage 1 Results Showing Photograph Locations, Numbers and Direction

PROJECT N °: TB145002
DATE: 08 May 2014

FIGURE: **5b**

AMEC Environment and Infrastructure
505 Woodward Ave., Hamilton, ON L8H 6N6
tel: 905-312-0700 www.amec.com

LEGEND

- Study area
- Area of archaeological potential/ removed due to construction disturbance, trailer and storage
- Area of low archaeological potential due to slope (>20 degrees)
- # Photograpgh location, number and direction

NOTES:
LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. TB145002 DATED April 8, 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: ESRI basemapping

CLIENT:	CITY OF HAMILTON
Drawn By:	CH
Checked By:	SA
Revision N °:	A
Scale:	1: 2,500

N W E S

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Mohawk Road Ramp, Ancaster, ON.

Stage 1 Results Showing Photograph Locations, Numbers and Direction

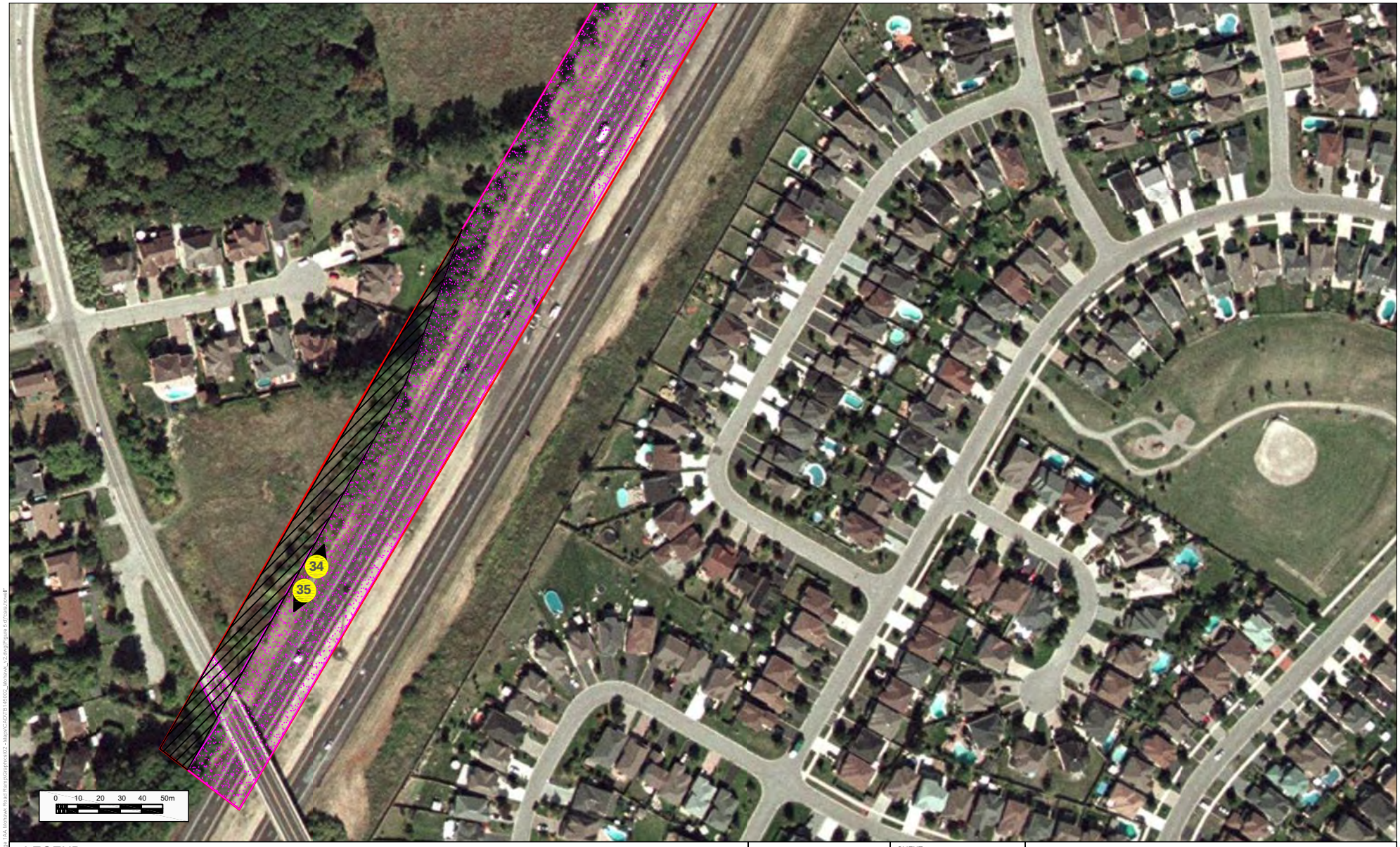
PROJECT N °: TB145002

DATE: 08 May 2014

FIGURE: **5c**

AMEC Environment and Infrastructure
505 Woodward Ave., Hamilton, ON L8H 6N6
tel: 905-312-0700 www.amec.com

amec



LEGEND

- Study area
- Area of archaeological potential/ removed due to construction disturbance, trailer and storage
- Area of low archaeological potential due to slope (>20 degrees)
- # Photograpgh location, number and direction

NOTES:
LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. TB145002 DATED April 8, 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: ESRI basemapping

CLIENT: CITY OF HAMILTON

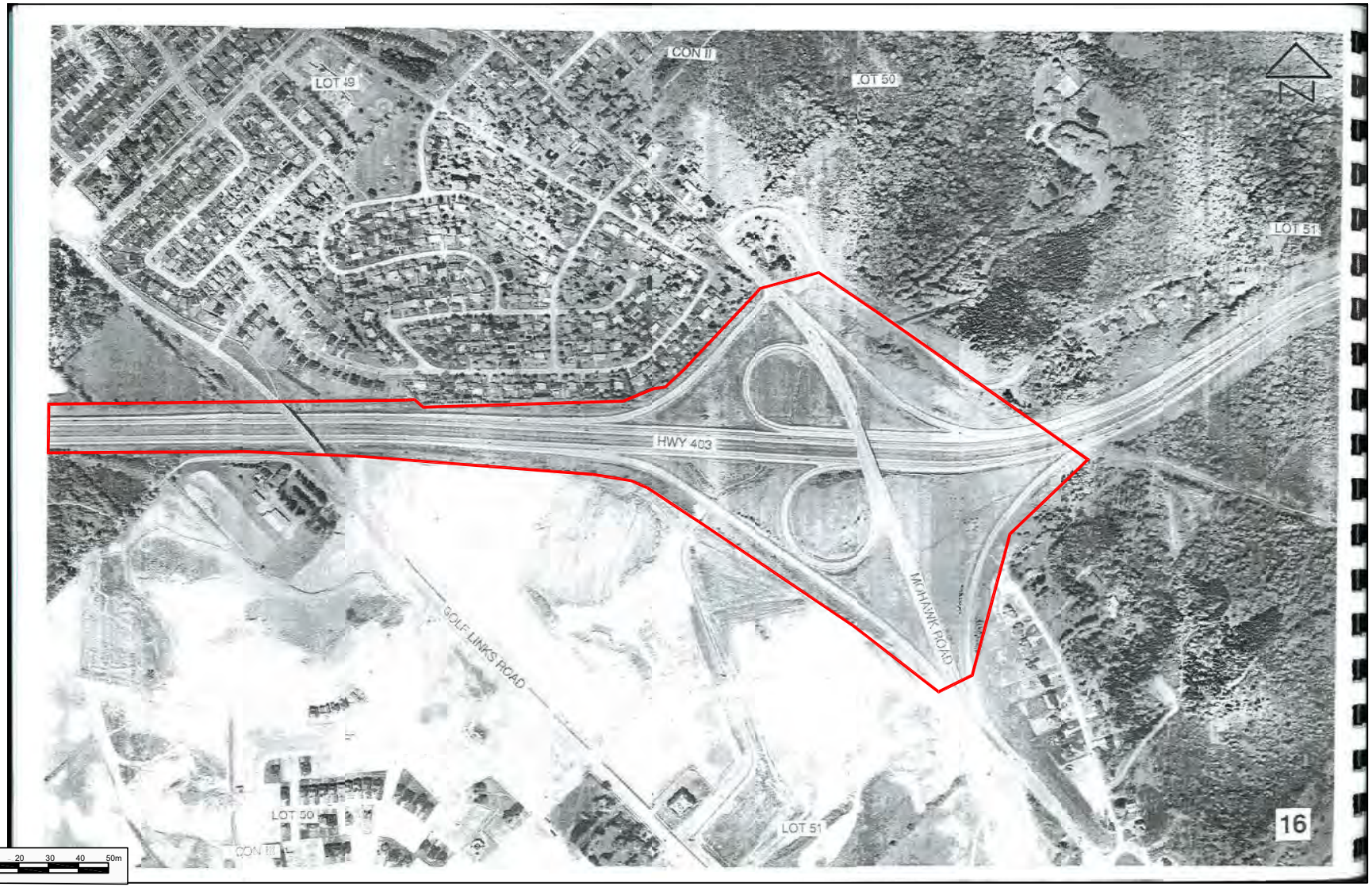
STAGE 1 ARCHAEOLOGICAL ASSESSMENT
Mohawk Road Ramp, Ancaster, ON.

Stage 1 Results Showing Photograph Locations, Numbers and Direction

Drawn By:	CH
Checked By:	SA
Revision N °:	A
Scale:	1: 2,500
PROJECT N °:	TB145002
DATE:	08 May 2014
FIGURE:	5d

N W E S

AMEC Environment and Infrastructure
505 Woodward Ave., Hamilton, ON L8H 6N6
tel: 905-312-0700 www.amec.com



LEGEND

Previously graded area

NOTES:
LOCATION OF FEATURES IS APPROXIMATE

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. TB145002 DATED April 8, 2014.

Conditions encountered in the field may be different from the interpreted information presented on this figure.

SOURCE: City of Hamilton

CLIENT:	CITY OF HAMILTON
Drawn By:	CH
Checked By:	SA
Revision N°:	A
Scale:	1: 2,000

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Mohawk Road Ramp, Ancaster, ON.

Previously Graded Areas

PROJECT N°: TB145002

DATE: 08 May 2014

FIGURE: 6

AMEC Environment and Infrastructure

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APPENDIX B

PHOTOGRAPHS

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	1

Description
Facing south.Excessive slope: low archaeological potential.

PHOTOGRAPH	2

Description
Facing southeast. Excessive slope and culvert: low archaeological potential.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	3

Description

Facing south. Excessive slope in the foreground: area of low archaeological potential; low and flat in the background: area of archaeological potential.

PHOTOGRAPH	4

Description

Facing northwest. Excessive slope, creek/culvert: area of low archaeological potential.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	5

Description
Facing upwards and east at excessively sloped area: low archaeological potential.

PHOTOGRAPH	6

Description
Facing northwest along creek and culvert: area of low archaeological potential.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	7

Description

Facing southest along creek and culvert: area of low archaeological potential.

PHOTOGRAPH	8

Description

Facing northwest at trailers, equipment and storage area. Previously disturbed compact gravel parking area. Slope to the east. Low archaeological potential.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	9

Description

Facing southeast at area of low archaeological potential, potential removed do to previous grading (see Appendix A: Figure 6)..

PHOTOGRAPH	10

Description

Facing south along disturbed parking area: low archaeological potential.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	11

Description
Facing north along disturbed parking area: low archaeological potential.

PHOTOGRAPH	12

Description
Facing east along recent gravel disturbance, excessive slope and low and wet due to culvert. Area of low archaeological potential.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	13

Description

Facing northeast at area of low archaeological potential due to excessive slope.

PHOTOGRAPH	14

Description

Facing north at area of low archaeological potential due to excessive slope.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	15

Description
Facing northwest at area of archaeological potential, limited intensive testing required.

PHOTOGRAPH	16

Description
Facing southwest at area of archaeological potential, limited intensive testing required.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	17

Description
Facing northeast at area of archaeological potential, limited intensive testing required.

PHOTOGRAPH	18

Description
Facing northeast at area of archaeological potential, limited intensive testing required.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	19

Description

Facing southwest at area of archaeological potential, intensive testing required.

PHOTOGRAPH	20

Description

Facing northeast at area of low archaeological potential due to slope.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	21

Description

Facing northwest at area of low archaeological potential due to slope.

PHOTOGRAPH	22

Description

Facing southwest at area of archaeological potential, intensive testing required.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	23

Description

Facing east at area of low archaeological potential due to slope, culvert and previous grading (see Appendix A: Figure 6).

PHOTOGRAPH	24

Description

Facing southeast at area of low archaeological potential due to slope, culvert and previous grading (see Appendix A: Figure 6).

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

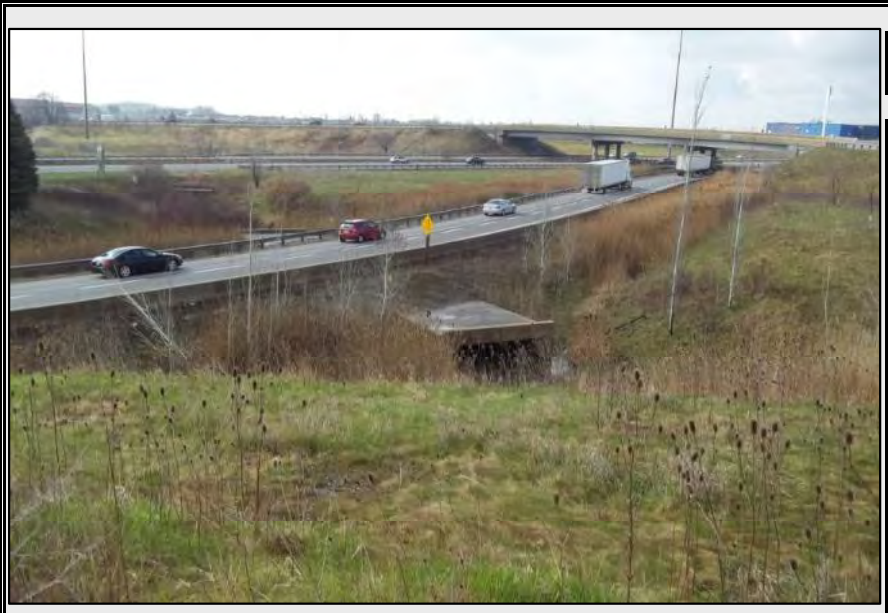
PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	25

Description

Facing southeast at area of low archaeological potential due to slope, culvert and previous grading (see Appendix A: Figure 6).



PHOTOGRAPH	26

Description

Facing southeast at area of low archaeological potential due to slope, culvert and previous grading (see Appendix A: Figure 6).

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	27

Description

Facing northeast at area of low archaeological potential due to slope, culvert and previous grading (see Appendix A: Figure 6).

PHOTOGRAPH	28

Description

Facing northwest, archaeological potential has been removed due to previous grading (see Appendix A: Figure 6).

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	29

Description

Facing southwest at area of low archaeological potential due to slope, culvert and previous grading (see Appendix A: Figure 6).

PHOTOGRAPH	30

Description

Facing northeast, archaeological potential has been removed due to previous grading (see Appendix A: Figure 6).

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	31

Description

Facing southwest, archaeological potential has been removed due to previous grading (see Appendix A: Figure 6).

PHOTOGRAPH	32

Description

Facing northeast at area of low archaeological potential due to slope and culvert.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	33

Description

Facing southwest at area of low archaeological potential due to slope and culvert.

PHOTOGRAPH	34

Description

Facing northeast at area of low archaeological potential due to slope and culvert.

APPENDIX B - PHOTOGRAPHIC RECORD

PROJECT NO. TB145002

PROJECT Stage 1 Archaeological Assessment: Mohawk Road Ramp

LOCATION Ancaster, Ontario

PHOTOGRAPH	35

Description
Facing southwest at area of low archaeological potential due to slope, culvert and previous grading.

APPENDIX C

QUALIFICATIONS OF THE ASSESSORS

ASSESSOR QUALIFICATIONS

Shaun Austin, Ph.D., Associate Archaeologist – Dr. Austin is the Leader of AMEC's cultural heritage resources group and is based in the AMEC Hamilton Office. He has been working in Canadian archaeology and heritage since 1976 and as an archaeological and heritage consultant in Ontario since 1987. He is a dedicated cultural heritage consultant with repeated success guiding projects through to completion to the satisfaction of the development proponent, the cultural heritage community and all other stakeholder groups. His areas of interest and expertise include pre-contact Aboriginal lithics and ceramics. Dr. Austin holds a **Professional Archaeology License** (**P141**) issued by the Ontario Ministry of Tourism, Culture and Sport, is MTO RAQs certified in Archaeology/Heritage and is a member of the Ontario Association of Professional Archaeologists.

Jason Seguin, M.A., Staff Archaeologist – Mr. Seguin is an archaeologist / anthropologist since 2004. Mr. Seguin has conducted stage 1 to 4 archaeological assessments including background searches, field surveys, archaeological excavations, analysis of cultural artifacts, laboratory work and reporting. Mr. Seguin is involved in project management and supervision as well as being an archaeological laboratory director. Mr. Seguin has developed research and communication skills through editing field reports, teaching university level students in both lecture and seminar environments, as well as preparing and presenting presentations at academic conferences. Mr. Seguin's education and work experience have provided him with an extensive knowledge base, consisting of theoretical and practical experience in cultural resource management in Canada and Central America, as well as curatorial, archival and museum management experience. Mr. Seguin holds a Master's Degree in Anthropology from Trent University, and a Post-Graduate Certificate in Museum Management and Curatorship from Sir Sandford Fleming College. Mr. Seguin holds a **Professional Archaeology License (License P354)** issued by the Ontario Ministry of Tourism and Culture.

Cara Howell B.A., Staff Archaeologist – Ms. Howell has been working in consulting archaeology since 1999. During this time she has acquired a full range of archaeological skills, from background research to Stage 4 excavation. She has developed a comprehensive understanding of all aspects of material culture and has a specialized interest in historic Euro-Canadian artifacts. As Laboratory Director for AMEC's Archaeology Group, she was instrumental in creating and implementing cataloguing systems for all types of recovered artifacts. Mr. Howell also serves as lead liaison with First Nations communities. She holds a B.A. in Physical Anthropology and a B.A. in

Classical Archaeology from McMaster University, and an **Applied Research License (R180)** issued by the Ontario Ministry of Tourism, Culture and Sport.

Robin Latour, M.Phil. (Medieval Archaeology), Staff Archaeologist / GIS Specialist – Robin has been working as a professional archaeologist and GIS specialist since 2004. She has expertise in GIS, digital mapping and illustration, and archaeological survey. Her work has ranged from field recording and landscape survey to GIS management and spatial analysis. She has contributed to wind and solar farm tenders and projects, energy assessments, heritage management and historic landscape survey, on-site survey, management and interpretation of site data, design and implementation of all types of GIS, staff training and the production of digital maps and figures for reports. She is an Associate member of the Institute for Field Archaeologists and a Licentiate member of the Association of Archaeological Illustrators and Surveyors.

APPENDIX D

LIMITATIONS

LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
   (a) The Standard Terms and Conditions which form a part of our Professional Services Contract;
   (b) The Scope of Services;
   (c) Time and Budgetary limitations as described in our Contract; and,
   (d) The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the Study Area. Our conclusions cannot and are not extended to include those portions of the Study Area which were not reasonably available, in AMEC's opinion, for direct observation.
4. The potential for archaeological resources, and any actual archaeological resources encountered, at the Study Area were assessed, within the limitations set out above, having due regard for applicable heritage regulations as of the date of the inspection.
5. Services including a background study and site visits were performed. AMEC's work, including archival studies and a site visit were conducted in a professional manner and in accordance with the Ministry of Tourism and Culture's guidelines. It is possible that unforeseen and undiscovered archaeological resources may be present at the Study Area.
6. The utilization of AMEC's services during the implementation of any further archaeological work recommended will allow AMEC to observe compliance with the conclusions and recommendations contained in the report. AMEC's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
7. This report is for the sole use of the parties to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or in part, or any reliance thereon, or decisions made based on any information of conclusions in the report, is the sole responsibility of such third party. AMEC accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
8. This report is not to be given over to any third-party other than a governmental entity, for any purpose whatsoever without the written permission of AMEC, which shall not be unreasonably withheld.

Appendix F: Air Quality Assessment Report

MOHAWK ROAD RAMP FEASIBILITY AND ENVIRONMENTAL ASSESSMENT STUDY
HIGHWAY 403 BRANTFORD-BOUND ACCESS RAMP AT MOHAWK ROAD
AIR QUALITY ASSESSMENT REPORT

Prepared by:

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May 2014

TP113070

EXECUTIVE SUMMARY

The City of Hamilton retained AMEC Environment & Infrastructure, a division of AMEC Americas Limited (AMEC) to undertake an air quality assessment for the proposed construction of a new westbound ramp to Hwy 403 from Mohawk Rd in Ancaster, Ontario.

This air quality assessment has been based on preliminary design information, and traffic predictions up to year 2031. The total expected traffic in the 2031 horizon year is estimated as the sum of the foregoing Regional background traffic growth and the traffic related to the various developments within the study area.

This study contributes to the overall Municipal Class Environmental Assessment.

The purposes of this report are to:

- Provide estimates of the air emissions resulting from vehicular traffic;
- Predict the resulting air quality effects on ambient air, with consideration of existing background air quality; and
- Provide a qualitative discussion of the significance of potential effects and a quantitative comparison of the future air quality effects (2021, 2031) to the existing scenario.

Modeling for the site was done using the CALRoads US EPA model, modelling package of Lakes Environmental Consultants Inc., version 6.2.6. CALRoads View is a dynamic and intuitive user friendly interface for the three air dispersion modelling codes: CALINE4, CAL3QHC and CAL3QHCR. The modelling used the five-year meteorological data set for London as recommended by the MOE. Concentrations of Sulphur dioxide (SO_2), Nitrogen Oxides (NOx), Carbon Monoxide (CO) Inhalable particulate (PM_{10}) and Respirable particulate ($PM_{2.5}$) were modelled for all three mentioned above scenarios and included predicted concentration levels at the closest sensitive receptors. The emissions rates were developed based on MOBILE 6.2C US EPA software. The traffic data was provided by CIMA+.

The off-site effects were predicted using the CAL3QHCR dispersion model, using the Tier I approach.

CAL3QHCR is considered to be the most appropriate model to predict pollutant concentrations from motor vehicles at roadway intersections. It can process up to one year of meteorological data and vehicular emissions, traffic volume, and signalization (ETS) data in one run using the basic algorithms from CAL3QHC.

The meteorological hourly surface data from a met station at London (ON) Airport used for the modelling was obtained from the Ministry of the Environment (MOE) for the five years 1992-1996.

In accordance with the MOE requirements the CALRoads modelling for any project located in the West Central Region (Hamilton, Niagara, Guelph) has to be done based on London airport meteorological data. The meteorological data incorporated into the model includes wind speed, wind direction, stability category, air temperature, rural mixing height, and urban mixing height. The CAL3HQCR modelling was done for each year of meteorological data separately.

The modelling was performed for the target pollutants (PM_{10}, $PM_{2.5}$, NOx, CO, and SO_2). Note, that the model runs for NOx do not take into account any atmospheric reactions or chemical transformations.

The findings of the air quality study were as follows:

- It was noted that passenger vehicles comprise the majority of the traffic. For Mohawk Rd/Lincoln Alexander Parkway - the average fleet profile consists of 95% passenger cars and 5% heavy duty diesel vehicles (HDDV) and for Hwy 403 - the average fleet profile consists of 90% passenger cars and 10% heavy duty diesel vehicles (HDDV);

- The potential effect associated with air emissions for 2021 and 2031 is a decrease in the airborne concentrations of the key pollutants NOx, $PM_{2.5}$, PM_{10}, CO, and SO_2, in the vicinity of the project in comparison with 2008 scenario. Year 2008 is used as an existing conditions scenario without the westbound ramp to Hwy 403 from Mohawk Rd;

- The incremental (project) effects for NOx, $PM_{2.5}$, PM_{10}, CO, and SO_2 were predicted to be below the respective ambient air quality criteria;

- Highest effects are located proximate to intersections, most significantly Mohawk Rd and Filman Rd;

- Mobile 6.2C considers the gradual fleet replacement as the higher polluting vehicles are removed from service;

- The predicted effects for NOx were highest for the year 2008 scenario. Significant reduction of NOx emissions even for the increased traffic volumes for year 2031 scenario were achieved as older vehicles were removed from service. Although the emission factors for the other target pollutants ($PM_{2.5}$, PM_{10}, CO, SO_2) also decreased over time, the reductions were not as significant as for NOx and the increased traffic volumes resulted in higher impacts on air quality in 2021 and 2031, but still being in compliance limits;

- The cumulative effects of the roadway $PM_{2.5}$, PM_{10}, CO, and SO_2 emissions within the study area and the background concentrations were below the respective ambient air quality criteria for all averaging times under each scenario; and

- For the existing 2008 scenario (without westbound ramp to Hwy 403 from Mohawk Rd) the cumulative effect of the roadway NOx emissions within the study area and the background concentrations were found to be higher than the respective ambient air quality criteria for the 1-hr and 24-hour averaging periods.

Based on the modelling results, the addition of the proposed Mohawk Rd ramp and the future traffic volumes (scenarios 2021 and 2031) on Hwy 403 in the area of the Mohawk Rd/Lincoln Alexander Parkway interchange are not expected to create a significant negative cumulative effect on the local air quality.

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1.0 INTRODUCTION

AMEC Environment & Infrastructure was retained to complete an air quality study for the proposed construction of a new westbound ramp to Hwy 403 from Mohawk Rd in Ancaster, Ontario.

This study contributes to the overall Municipal Class Environmental Assessment.

The purposes of this report are to:

- Provide estimates of the air emissions resulting from vehicular traffic;
- predict the resulting air quality effects on ambient air, with consideration of existing background air quality; and
- provide a qualitative discussion of the significance of potential effects and a quantitative comparison of the future air quality effects (2021 and 2031) to the existing scenario.

The assessment addresses the potential for the site to have an effect on the air quality, discusses the likelihood of such air quality effects occurring, and the significance of any effects predicted.

1.1 Key Components of Study

The key components of the study include:

1. Development of a baseline scenario considering the current air quality;
2. Development of an emission scenarios for the 2021and 2031 levels of service on Hwy 403 in the vicinity of the Mohawk Rd/Lincoln Alexander Parkway interchange;
3. Provide a qualitative and quantitative analysis of the effects on air quality; the quantitative analysis will include the use of modeling to predict off-site air concentrations that result from site activities; and
4. Provide a qualitative discussion of the significance of air quality effects.

1.2 Definition of Study Area

The study area is comprised of Hwy 403 in the vicinity of the Mohawk Rd/Lincoln Alexander Parkway interchange.

The study area is presented in Figure 1.1 (Appendix A).

2.0 IDENTIFICATION OF POTENTIAL AIR QUALITY EFFECTS

There is the potential for vehicular emissions to increase the ambient air concentrations of certain pollutants in the local study area.

The air quality effects of the airborne pollutants may be classified as health effects, environmental effects, or nuisance effects. The health and environmental effects are of significance in the ambient air in general. Nuisance effects are not generally expected to result in health or environmental effects and are considered at locations where people reside or frequent; such locations are deemed 'sensitive receptors' for the purposes of air quality studies. In Ontario, the Environmental Protection Act prohibits release of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect, and encompasses potential health, environmental, and nuisance effects.

Nitrogen oxides, carbon monoxide, sulphur dioxide, and fine particulate matter have standards in Ontario that were set based upon health or environmental effects of exposure to these pollutants.

2.1 Particulate Matter

Particulate Matter, or more practically fugitive dust in the context of outdoor activities, is assessed and regulated in four forms:

- Total suspended particulate (TSP) which usually considers the particle size range of up to 44 micrometres (µm) in aerodynamic diameter, and includes the smaller particle size fractions PM_{10} and $PM_{2.5}$. The larger particles are more likely to settle quickly and proximate to the source; it is the particles that are less than 44 micrometres in diameter that are generally considered as TSP. Ambient TSP standards have become a surrogate for visibility effects, and the assessment of TSP effects is related to potential nuisance effects, and not health effects.

  The coarser particulate matter in road dusts has a standard based upon the nuisance effects that may result from site emissions. The potential exists for road dust generated to lead to reduced air quality, impaired visibility, and deposition in the surrounding area. The proximity of the site to residences increases the likelihood that, if unmitigated, dust may become a nuisance to residents in the community.

- Inhalable particulate (PM_{10}) which has a particle size range up to 10 µm in aerodynamic diameter. PM_{10} includes the smaller particles referred to as $PM_{2.5}$. In addition to the nuisance effects, there are possible health effects that may be attributed to $PM_{10,}$

- Respirable particulate ($PM_{2.5}$) with a particle size range up to 2.5 µm in aerodynamic diameter. $PM_{2.5}$ is considered to be the most important particle size range from a respiratory public health perspective.

- Settleable particulate, or dustfall, that falls to the ground due to gravity and may be visible on surfaces. The dust fall is comprised of the coarser fraction of TSP that is prone to settling within close proximity to the source rather than being transported any significant distances from the site. According to the U.S. EPA's emission factor document (AP-42 Section 13.2, 1995), for a typical wind speed of 4.4 m/s, particles larger than 100 µm typically settle out within 6 to 9 m of the source.

Fugitive road dust was not quantified and modeled, as the site roads are paved.

2.1.1 Nitrogen Oxides

Nitrogen oxides (NO_x) are a mixture of compounds of oxygen and nitrogen, including nitric oxide (NO), nitrous oxide (N_20), nitrogen dioxide (NO_2), and others. These compounds are formed during fuel combustion, and are emitted from vehicles, boilers, and diesel generators. Nitrogen oxides may contribute to the formation of smog, or may affect human health at higher concentrations.

NO_x from vehicle tailpipes were estimated and included in the modeling.

2.1.2 Carbon Monoxide

Carbon monoxide (CO) is a colourless, odourless, tasteless gas, which is produced primarily through the combustion of fossil fuels as a result of incomplete combustion. Over 75% of the CO produced in Ontario is from the transportation sector and 25% is due to the combined effect of power generation, buildings, heating and industrial operations. Exposures at 100 ppm or greater can be dangerous to human health, and larger exposures can lead to significant toxicity of the central nervous system and heart.

The Ontario Regulation 419/05 CO standard is for the ½ hour averaging time; AAQC exist for the 1 hour and 8 hour averaging times. The standards and AAQC for CO are all based upon potential health effects, and are presented in Table 3.1.

2.1.3 Sulphur Dioxide

Sulphur oxides (SO_x) comprise sulphur dioxide (SO_2), sulphur trioxide (SO_3) and solid sulphate forms. Sulphur dioxide is a non-flammable, non-explosive colourless gas. In connection with fuel burning, where the majority is in the form of SO_2, SO_x is normally expressed in terms of the equivalent mass concentration of SO_2 and sometimes as total sulphur. Sulphur oxide has an

odour threshold limit of 0.47 to 3.0 ppm, and has pungent irritating odour above 3 ppm. SO_x compounds are significant contributors to acid rain and also precursors to the formation of secondary fine particulate matter.

SO_2 is irritating to the eyes and respiratory system above 5 ppm (exposure for 10 minutes), in the form of higher airway resistance. The effects of SO_2 on human health with respect to the short-term (acute) respiratory effects have been extensively studied. No clear evidence of long term or chronic effects is apparent.

Air quality standards for SO_2 have been set for the 1-hour and 24-hour averaging times, with equivalent AAQCs, as shown in Table 3.1. In addition, Ontario has an annual AAQC of 55 µg/m^3 for SO_2. The standards and AAQC are based upon potential health effects of SO_2, as well as potential effects on vegetation.

2.1.4 Greenhouse Gases

Greenhouse Gas (GHG) emissions, such as methane and carbon dioxide, are a potential contributor to long-term, global climate change effects. However, the offsite effects are not modelled because the ambient air quality criteria are intended to provide limits on short-term effects, with the longest averaging time being an annual average.

2.1.5 Other Pollutants

This study is intended to cover the substances that may be released to the atmosphere in quantities significant enough to affect the air quality. There may be a number of other pollutants released from the site as a result of the activities carried out, such as VOCs in tailpipe emissions or trace metals in the particulate matter; these other pollutants have not been considered in the modelling assessment due to the minor quantities, and the low potential for off-site effects.

3.0 PROJECT SETTING

3.1 Regulatory Framework and Assessment Criteria

The relevant air quality criteria for Ontario are listed in Table 3.1. This table lists the contaminants, the relevant averaging period for each standard and the standard as a numerical value (where appropriate).

Table 3.1: Air Quality Criteria Used for Study

Contaminant	Averaging Time	Ontario Ambient Air Quality Criteria
NO_2	1 hr	400 µg/m^3 (0.2 ppm)
	24 hr	200 µg/m^3 (0.1 ppm)
SO_2	1 hr	690 µg/m^3 (0.25 ppm)
	24 hr	275 µg/m^3 (0.10 ppm)
	Annual	55 µg/m^3 (0.02 ppm)
CO	0.5 hr	-
	1 hr	36,200 µg/m^3 (30 ppm)
	8 hr	15,700 µg/m^3 (13ppm)
PM_{10} (<10µm)	24-hour	50 µg/m^3 (Interim)
$PM_{2.5}$ (<2.5 µm)	24-hour	30 µg/m^3 (based upon CWS)

TSP is the oldest and least used parameter for determining particulate related environmental effects. Ambient TSP standards have become a surrogate for visibility effects; the effects are not health related. The criteria of 50 µg/m^3 as a 24 hour average for PM_{10} is an interim ambient air quality criteria provided as a guide for decision making[1]. For $PM_{2.5}$, the Ontario AAQC is equivalent to the Canada-Wide Standard (CWS), at 30 µg/m^3, noting that the CWS is for the 98th percentile not the peak or maximum concentration. This level has been set for the protection of health and to reduce environmental risk. As a guide for decision making near

[1] Ontario's Ambient Air Quality Criteria, Standards Development Branch Ontario Ministry Of The Environment, April 2012

individual sources, the contribution of primary $PM_{2.5}$ from a single facility to ambient levels of $PM_{2.5}$ should be no more than 25 µg/m^3 as a 24 hour average[2].

3.2 Background Conditions

Background concentrations for pollutants were obtained from MOE air quality monitoring stations. Data were available for the following nearby stations:

Station Name (ID)	Location	Approximate Distance to Study Area	Pollutants Monitored
Hamilton West (29118)	Main Street West/Hwy403	4.5	O_3, $PM_{2.5}$, NO_2
Hamilton Mountain (29114)	Vickers Road/E 16 Street	7.3	O_3, $PM_{2.5}$, NO_2, NOx, SO_2
Hamilton Downtown (29000)	Elgin Street/Kelly Street	7.8	O_3, $PM_{2.5}$, NO_2, NOx, SO_2, CO, TRS

Published data were available from the MOE's annual air quality reports for 2009 - 2011. Data for 2012 and 2013 were obtained from the MOE's air pollutant search engine. Preference was given to the stations and pollutants as indicated in bold in the above table. Since Hamilton Mountain and Hamilton Downtown have similar separation distances to the study area, the maximum value from either station was used for NOx and SO_2. The 90th percentile values from all data available from the three stations are presented in the following table:

Table 3.2: Background Concentrations

Parameter	Background Concentration (90th Percentile)					
	2009	2010	2011	2012	2013	Average
$PM_{2.5}$	13 µg/m^3	16 µg/m^3	16 µg/m^3	16 µg/m^3	19 µg/m^3	16 µg/m^3
CO	0.39 ppm	0.42 ppm	0.40 ppm	0.40 ppm	0.41 ppm	0.4 ppm
SO_2	8 ppb	8 ppb	16 ppb	15 ppb	17 ppb	12.8 ppb
NO_2	26 ppb	24 ppb	26 ppb	28 ppb	25 ppb	25.8 ppb
NOx	40 ppb	41 ppb	41 ppb	34 ppb	34 ppb	38 ppb

3.3 Regional Climate and Meteorology

Air quality is affected by both the emission sources that release pollutants into the air, and by the climate, or atmospheric conditions, such as wind speed, wind direction, and temperature. The climate in the Hamilton area consists of fairly cold and windy winters and typically hot, humid summers.

[2] IBID

The term climate normal is the arithmetic average of a meteorological parameter during a 30-year period.

3.3.1 Wind Speed and Direction

The wind rose depicted in Figure 3.1 (Appendix A) for the London meteorological data set details the distribution of wind directions and wind speeds for the year 1996 meteorological record. A wind rose depicts the predominant wind patterns for a site by graphically illustrating the distribution of wind speed and wind direction. The wind rose is comprised of two parts: the frequency of winds from specified direction around the rose, and the distribution of wind speed indicated by the colours on each bar that represent wind speed ranges. Winds from the west directions were the most common. The average wind speed for the year 1996 was 3.80 m/s (13.68 km/h).

3.3.2 Temperature

Two climate normal datasets were available for the Hamilton area, the stations for which were approximately the same distance from the study area. Therefore, data from both stations (Hamilton A and Hamilton RBG) are presented.

The temperature in the Hamilton area fluctuates significantly with the seasons (ref. Figure 1 and Figure 2). The climate normal annual average temperature reported for Hamilton A and Hamilton RBG respectively was 7.9°C and 8.6°C; the January daily average was -5.5°C and 4.7°C; and the July average was 18.3°C and 22°C. The daily maximum and minimum temperatures are also demonstrative of the large fluctuations in temperature typical of this climate zone. In July, the daily average temperatures ranged from approximately 15°C to 27°C. In January, the range was approximately -1°C to -9°C.

Figure 1: Hamilton A – Daily Temperatures

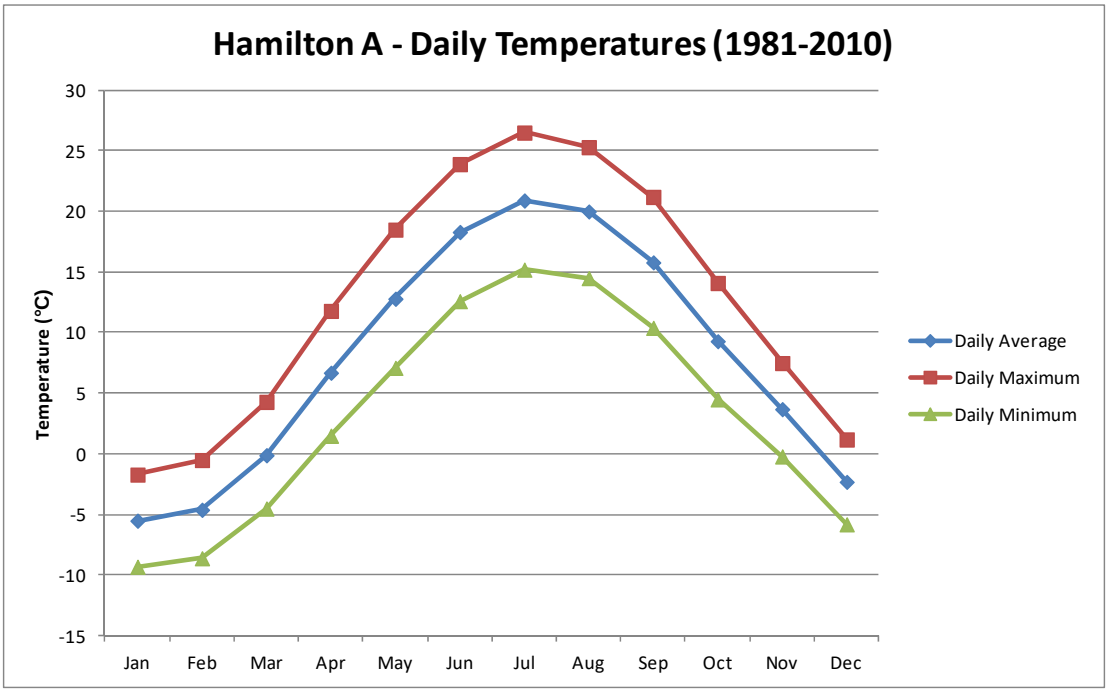
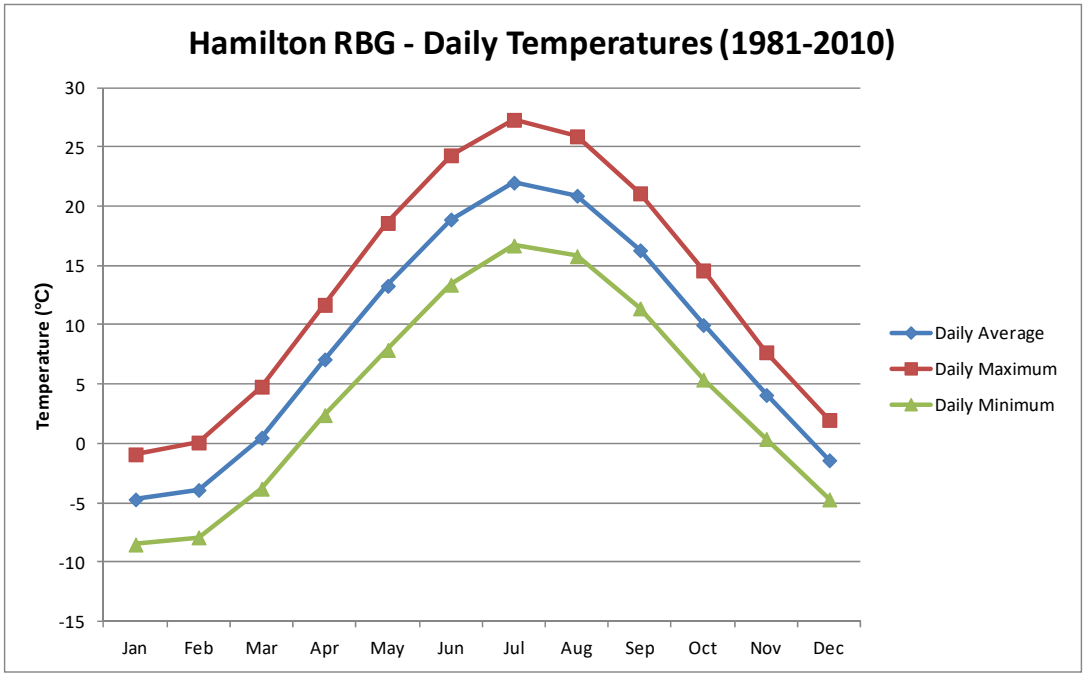


Figure 2: Hamilton RBG – Daily Temperatures



3.3.3 Precipitation

Mean annual precipitation for the Project site is estimated at 930 mm and 897 mm for Hamilton A and Hamilton RBG respectively (ref. Figure 3 and Figure 4), with the greatest precipitation contribution occurring as rainfall during the spring and summer.

Figure 3: Hamilton A – Monthly Precipitation

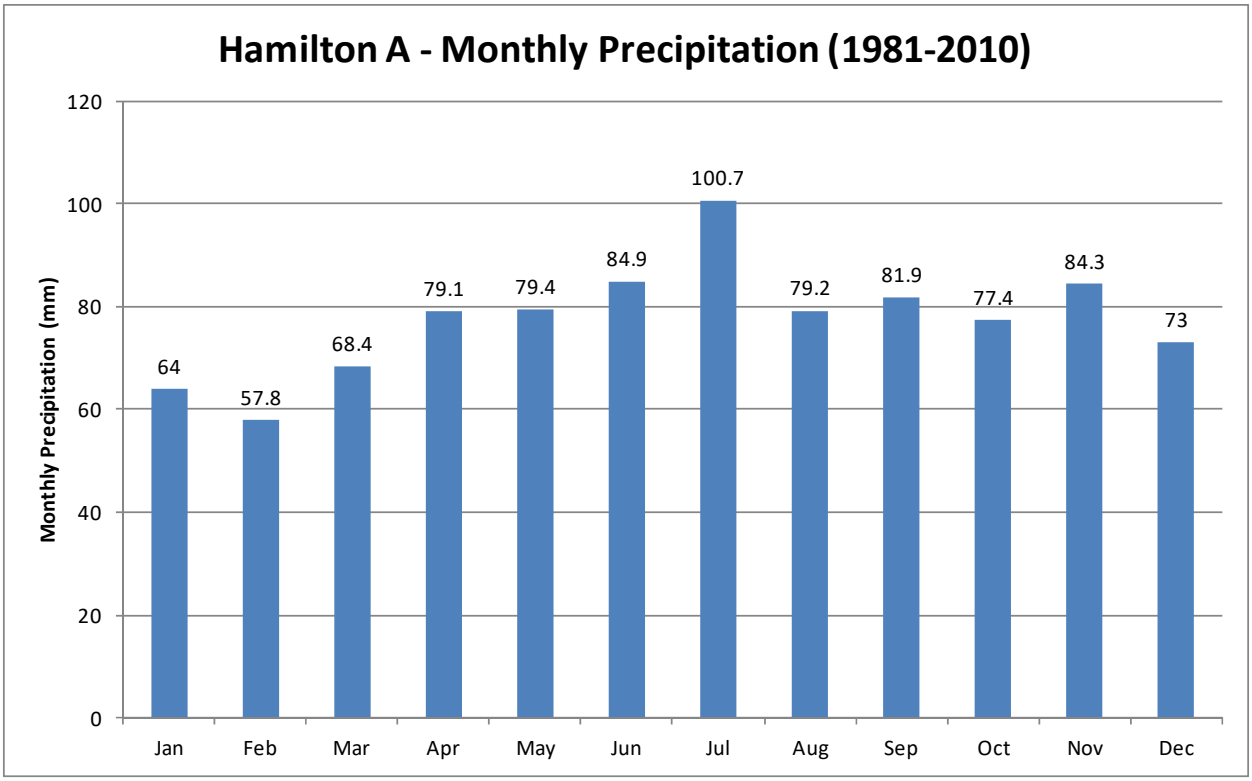
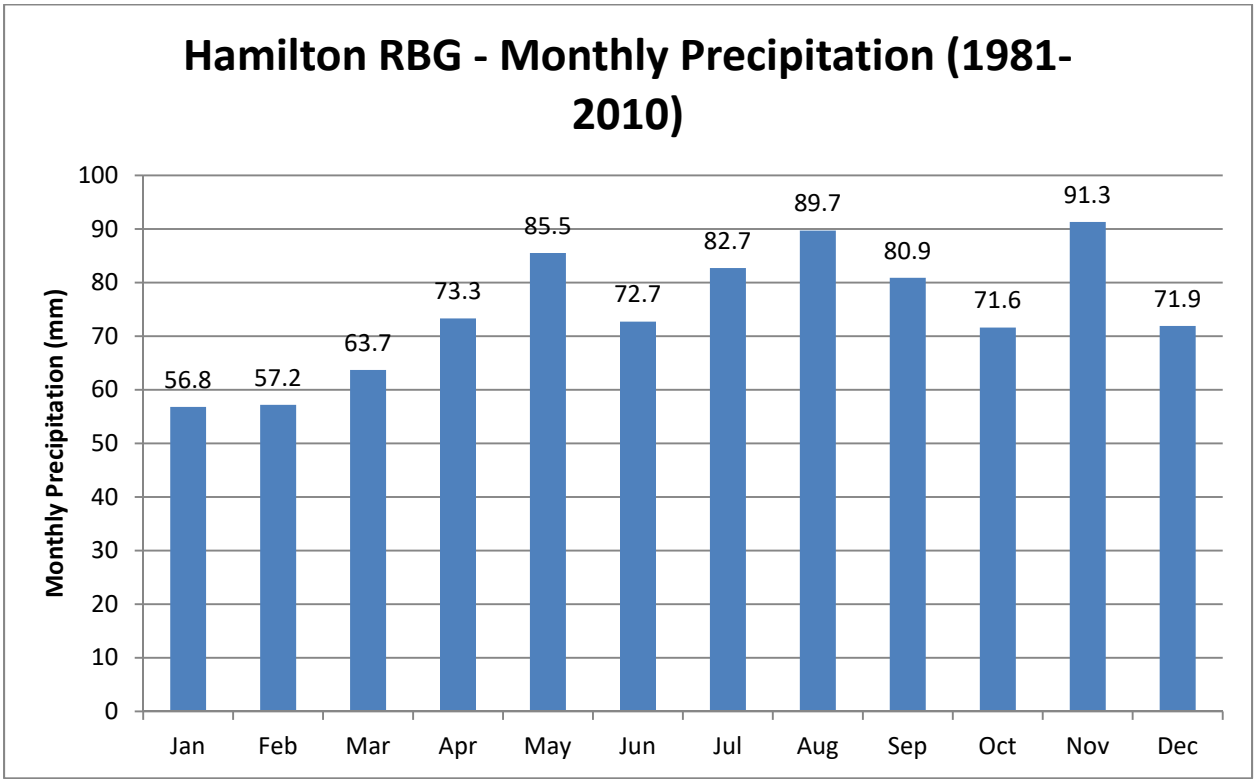


Figure 4: Hamilton RBG – Monthly Precipitation



3.4 Surrounding Land Uses

The existing land uses in the study area are a mix of office/business, park, industrial, agricultural as well as residential type land uses, with some pockets of commercial.

4.0 IDENTIFICATION OF FLEET PROFILES AND EMISSION RATE ESTIMATION

Identification of fleet profiles and emission rate estimation were done based on the following software, traffic study and US EPA guideline:

- Mobile 6.2C, Canadian version, estimates g/mile emissions for passenger cars and HDDV.
- Mobile 6.2C considers the gradual fleet replacement as the higher polluting vehicles are removed from service.
- Fleet profile averaged from CIMA+ study, predominantly passenger vehicles.

4.1 Description of Scenarios

Three scenarios were considered as part of the air quality assessment:

1. Existing Conditions (2008) without the construction of westbound ramp to Hwy 403 from Mohawk Rd;
2. Future Conditions (2021) with the construction of westbound ramp to Hwy 403 from Mohawk Rd; and
3. Future conditions (2031) with the construction of westbound ramp to Hwy 403 from Mohawk Rd.

Existing conditions are as follows:

Mohawk Road

- Two-lane arterial with Toronto-bound access to Highway 403;
- Crosses over Highway 403 and connects to the Lincoln Alexander Parkway; and
- 70 km/h posted speed at the highway interchange.

Lincoln Alexander Parkway (Linc)

- Four-lane, divided parkway with Toronto-bound and Brantford-bound access to Highway 403; and
- 90 km/h posted speed.

Highway 403

- Five-lane (2 Toronto-bound; 3 Brantford-bound including truck climbing lane), divided highway;
- Access to Mohawk Road/The Linc from Brantford-bound Highway 403;
- Access to Linc from Toronto-bound Highway 403;
- No access to Mohawk Road from Toronto-bound Highway 403; and
- 100 km/h posted speed.

The traffic profile, or the distribution of vehicles by passenger car and truck, was provided by CIMA+; the distribution was assumed to be applicable to the future years considered in the assessment (2021 and 2031).

Emission scenarios and emission rates estimate are presented in Appendix B.

4.2 Emission Rate Estimation

The tailpipe emissions, and particulate emissions from brake and tire wear, for passenger vehicles and heavy-duty diesel vehicles were estimated using the Mobile 6.2C database. The Mobile 6.2C database is the Canadian version of the US EPA Mobile Source Emission Factor Model. This model provides estimates of emissions for current and future years, with consideration for gradual fleet replacement as the higher polluting vehicles are removed from service.

The emissions calculations and a summary of the raw traffic data is provided in Appendix B and Appendix C respectively.

5.0 DISPERSION MODELLING

The off-site effects were predicted using the CAL3QHCR dispersion model, using the Tier I approach.

CALINE-3 is designed to predict air pollutant concentrations near highways and arterial streets due to emissions from motor vehicles operating under free flow conditions. However, it does not permit the direct estimation of the contribution of emissions from idling vehicles. CAL3QHC enhances CALINE-3 by incorporating methods for estimating queue lengths and the contribution of emissions from idling vehicles, to allow for total air pollution concentrations from both moving and idling vehicles. CAL3QHCR further enhances the model by incorporating local meteorological data rather than the default wind speed and wind directions used by CAL3QHC.

The meteorological hourly surface data from a met station at London (ON) Airport used for the modelling was obtained from the Ministry of the Environment (MOE) for the five years 1992-1996. In accordance with the MOE requirements the CALRoads modelling for any project

located in the West Central Region (Hamilton, Niagara, Guelph) has to be done based on London airport meteorological data. The meteorological data incorporated into the model includes wind speed, wind direction, stability category, air temperature, rural mixing height, and urban mixing height. The CAL3HQCR modelling was done for each year of meteorological data separately.

Twenty six (26) sensitive receptors were selected for the modelling based on site analysis.

The model was run for the target pollutants (PM_{10}, $PM_{2.5}$, NOx, CO, and SO_2). Note that the model runs for NOx do not take into account any atmospheric reactions or transformations. The CALRoads Version 6.2.6 model is designed to model the effects of particulate matter or carbon monoxide; NOx and SO_2 were modeled as “pollutant type - inert gases” with appropriate molecular weight as recommended by Lakes Environmental technical support.

For this study, the highest predicted concentration is reported in Table 6.1 and portrayed in the sample isopleths (Figures 6.1 to 6.3, Appendix A).

6.0 ASSESSMENT FINDINGS / RESULTS

Modelling Results are presented in Table 6.1

Table 6.1: Results of Dispersion Modelling

			Scenario											
			Existing (without westbound ramp to Hwy 403 from Mohawk Rd)				2021 (with westbound ramp to Hwy 403 from Mohawk Rd)				2031 (with westbound ramp to Hwy 403 from Mohawk Rd)			
			Max Concentration	Ambient Air Quality Criteria	Percentage of Criteria	Location of Max	Max Concentration	Ambient Air Quality Criteria	Percentage of Criteria	Location of Max	Max Concentration	Ambient Air Quality Criteria	Percentage of Criteria	Location of Max
$PM_{2.5}$	24hr	µg/m^3	2.38	30.00	7.94%	Residential North of Hwy 403	1.35	30.00	4.51%	Mohawk Rd + Filman Rd	1.48	30.00	4.94%	Residential North of Hwy 403
	Annual	µg/m^3	0.55			Residential North of Hwy 403	0.34			Mohawk Rd + Filman Rd	0.36			Residential North of Hwy 403
PM_{10}	24hr	µg/m^3	3.58	50.00	7.17%	Residential North of Hwy 403	2.77	50.00	5.53%	Mohawk Rd + Filman Rd	3.15	50.00	6.31%	Residential North of Hwy 403
	Annual	µg/m^3	0.84			Residential North of Hwy 403	0.70			Mohawk Rd + Filman Rd	0.76			Residential North of Hwy 403
NOx	1 hr	ppm	0.20	0.20	100.00%	Residential North of Hwy 403	0.052	0.20	26.00%	Mohawk Rd + Filman Rd	0.045	0.20	22.95%	Residential North of Hwy 403
	8 hr	ppm	0.13			Residential North of Hwy 403	0.03			Mohawk Rd + Filman Rd	0.030			Residential North of Hwy 403
	24hr	ppm	0.10	0.10	95.58%	Residential North of Hwy 403	0.02	0.10	22.06%	Mohawk Rd + Filman Rd	0.02	0.10	22.06%	Residential North of Hwy 403
SO_2	1 hr	ppm	0.001	0.25	0.40%	Mohawk Rd + Oneida Blvd.	0.0007	0.25	0.28%	Mohawk Rd + Filman Rd	0.0008	0.25	0.32%	Mohawk Rd + Filman Rd
	24hr	ppm	0.0004	0.10	0.40%	Mohawk Rd + Oneida Blvd.	0.00028	0.10	0.28%	Mohawk Rd + Filman Rd	0.0003	0.10	0.32%	Mohawk Rd + Filman Rd
CO	1 hr	ppm	2.61	30.00	8.70%	Mohawk Rd + Filman Rd	1.99	30.00	6.63%	Mohawk Rd + Filman Rd	2.22	30.00	7.39%	Mohawk Rd + Filman Rd
	8 hr	ppm	1.67	13.00	12.85%	Mohawk Rd + Filman Rd	1.28	13.00	9.85%	Mohawk Rd + Filman Rd	1.43	13.00	11.00%	Mohawk Rd + Filman Rd

Table 6.2: Combined Effect of Modelled Effects and Background Air Concentrations

			Scenario																	
			Existing (without westbound ramp to Hwy 403 from Mohawk Rd)						2021 (with westbound ramp to Hwy 403 from Mohawk Rd)						2031 (with westbound ramp to Hwy 403 from Mohawk Rd)					
			Max Concentration	Background Concentration	Cumulative = project + Background	Ambient Air Quality Criteria	Percentage of Criteria	Location of Max	Max Concentration	Background Concentration	Cumulative = project + Background	Ambient Air Quality Criteria	Percentage of Criteria	Location of Max	Max Concentration	Background Concentration	Cumulative = project + Background	Ambient Air Quality Criteria	Percentage of Criteria	Location of Max
$PM_{2.5}$	24hr	µg/m^3	2.38	16µg/m^3	18.38	30.00	61.27%	Residential North of Hwy 403	1.35	16µg/m^3	17.35	30.00	57.84%	Mohawk Rd + Filman Rd	1.48	16µg/m^3	17.48	30.00	58.27%	Residential North of Hwy 403
	Annual	µg/m^3	0.55					Residential North of Hwy 403	0.34					Mohawk Rd + Filman Rd	0.36					Residential North of Hwy 403
PM_{10}	24hr	µg/m^3	3.58	32µg/m^3	35.58	50.00	71.17%	Residential North of Hwy 403	2.77	32µg/m^3	34.77	50.00	69.53%	Mohawk Rd + Filman Rd	3.15	32µg/m^3	35.15	50.00	70.31%	Residential North of Hwy 403
	Annual	µg/m^3	0.84					Residential North of Hwy 403	0.70					Mohawk Rd + Filman Rd	0.76					Residential North of Hwy 403
NOx	1 hr	ppm	0.20	38ppb	0.24	0.20	119.00%	Residential North of Hwy 403	0.052	38ppb	0.09	0.20	45.00%	Mohawk Rd + Filman Rd	0.045	38ppb	0.08	0.20	41.95%	Residential North of Hwy 403
	8 hr	ppm	0.13					Residential North of Hwy 403	0.03					Mohawk Rd + Filman Rd	0.03					Residential North of Hwy 403
	24 hr	ppm	0.10	38ppb	0.13	0.10	133.58%	Residential North of Hwy 403	0.02	38ppb	0.06	0.10	60.06%	Mohawk Rd + Filman Rd	0.02	38ppb	0.06	0.10	60.06%	Residential North of Hwy 403
SO_2	1 hr	ppm	0.001	12.8ppb	0.01	0.25	5.52%	Mohawk Rd + Oneida Blvd.	0.0007	12.8ppb	0.01	0.25	5.40%	Mohawk Rd + Filman Rd	0.0008	12.8ppb	0.01	0.25	5.44%	Mohawk Rd + Filman Rd
	24 hr	ppm	0.0004	12.8ppb	0.01	0.10	13.20%	Mohawk Rd + Oneida Blvd.	0.00028	12.8ppb	0.01	0.10	13.08%	Mohawk Rd + Filman Rd	0.0003	12.8ppb	0.01	0.10	13.12%	Mohawk Rd + Filman Rd
CO	1 hr	ppm	2.61	0.4ppm	3.01	30.00	10.04%	Mohawk Rd + Filman Rd	1.99	0.4ppm	2.39	30.00	7.97%	Mohawk Rd + Filman Rd	2.22	0.4ppm	2.62	30.00	8.72%	Mohawk Rd + Filman Rd
	8 hr	ppm	1.67	0.4ppm	2.07	13.00	15.92%	Mohawk Rd + Filman Rd	1.28	0.4ppm	1.68	13.00	12.92%	Mohawk Rd + Filman Rd	1.43	0.4ppm	1.83	13.00	14.08%	Mohawk Rd + Filman Rd

The findings of the air quality study were as follow:

- It was noted that passenger vehicles comprise the majority of the traffic. For Mohawk Rd/Lincoln Alexander Parkway - the average fleet profile consists of 95% passenger cars and 5% heavy duty diesel vehicles (HDDV) and for Hwy 403 - the average fleet profile consists of 90% passenger cars and 10% heavy duty diesel vehicles (HDDV);

- The potential effect associated with air emissions for 2021 and 2031 is a decrease in the airborne concentrations of the key pollutants NOx, $PM_{2.5}$, PM_{10}, CO, and SO_2, in the vicinity of the project in comparison with 2008 scenario. Year 2008 is used as an existing conditions scenario without the westbound ramp to Hwy 403 from Mohawk Rd;

- The incremental (project) effects for NOx, $PM_{2.5}$, PM_{10}, CO, and SO_2 were predicted to be below the respective ambient air quality criteria;

- Highest effects are located proximate to intersections, most significantly Mohawk Rd and Filman Rd;

- Mobile 6.2C considers the gradual fleet replacement as the higher polluting vehicles are removed from service;

- The predicted effects for NOx were highest for the year 2008 scenario. Significant reduction of NOx emissions even for the increased traffic volumes for year 2031 scenario were achieved as older vehicles were removed from service. Although the emission factors for the other target pollutants ($PM_{2.5}$, PM_{10}, CO, SO_2) also decreased over time, the reductions were not as significant as for NOx and the increased traffic volumes resulted in higher impacts on air quality in 2021 and 2031, but still being in compliance limits;

- The cumulative effects of the roadway $PM_{2.5}$, PM_{10}, CO, and SO_2 emissions within the study area and the background concentrations were below the respective ambient air quality criteria for all averaging times under each scenario; and

- For the existing 2008 scenario (without westbound ramp to Hwy 403 from Mohawk Rd) the cumulative effect of the roadway NOx emissions within the study area and the background concentrations were found to be higher than the respective ambient air quality criteria for the 1-hr and 24-hour averaging periods.

Based on the modelling results, the addition of proposed Mohawk Rd ramp and the future traffic volumes (scenarios 2021 and 2031) on Hwy 403 in the area of the Mohawk Rd/Lincoln Alexander Parkway interchange are not expected to create a significant negative cumulative effect on the local air quality.

6.1 Predicted Effect Levels

The isopleths plots (Figures 6.1 to 6.3, Appendix A) for NOx illustrate how the areas are localized and where the maximum predicted concentrations lie, and that all concentrations are below the regulatory criteria.

The predicted concentrations presented in Table 6.1 are conservative, as they represent the highest hour or day over the year of meteorological data used for the modelling.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Preliminary results from the analysis indicate that all target pollutants were lower than the applicable criteria.

Based upon these findings, the addition of proposed Mohawk Rd ramp and the future traffic volumes (scenarios 2021 and 2031) on Hwy 403 in the area of the Mohawk Rd/Lincoln Alexander Parkway interchange are not expected to create a significant negative cumulative effect on the local air quality.

8.0 REFERENCES

Macro Modelling Report for Mohawk Road Ramp Feasibility and Environmental Assessment Study by CIMA+ (dated January 29, 2014)

US EPA (2003) User's Guide to MOBILE6.1 and MOBILE6.2 Mobile Source Emission Factor Model, EPA420-R-03-010

APPENDIX A

FIGURES

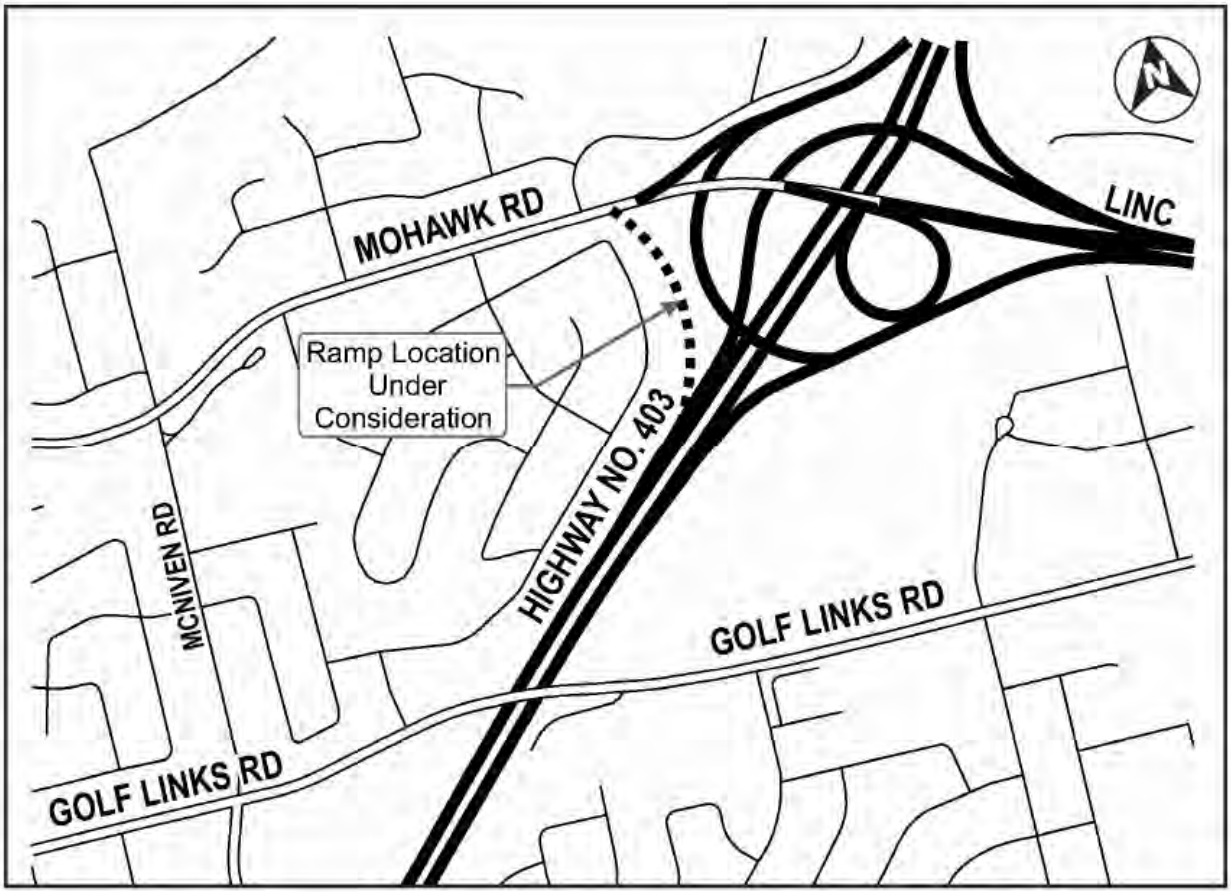


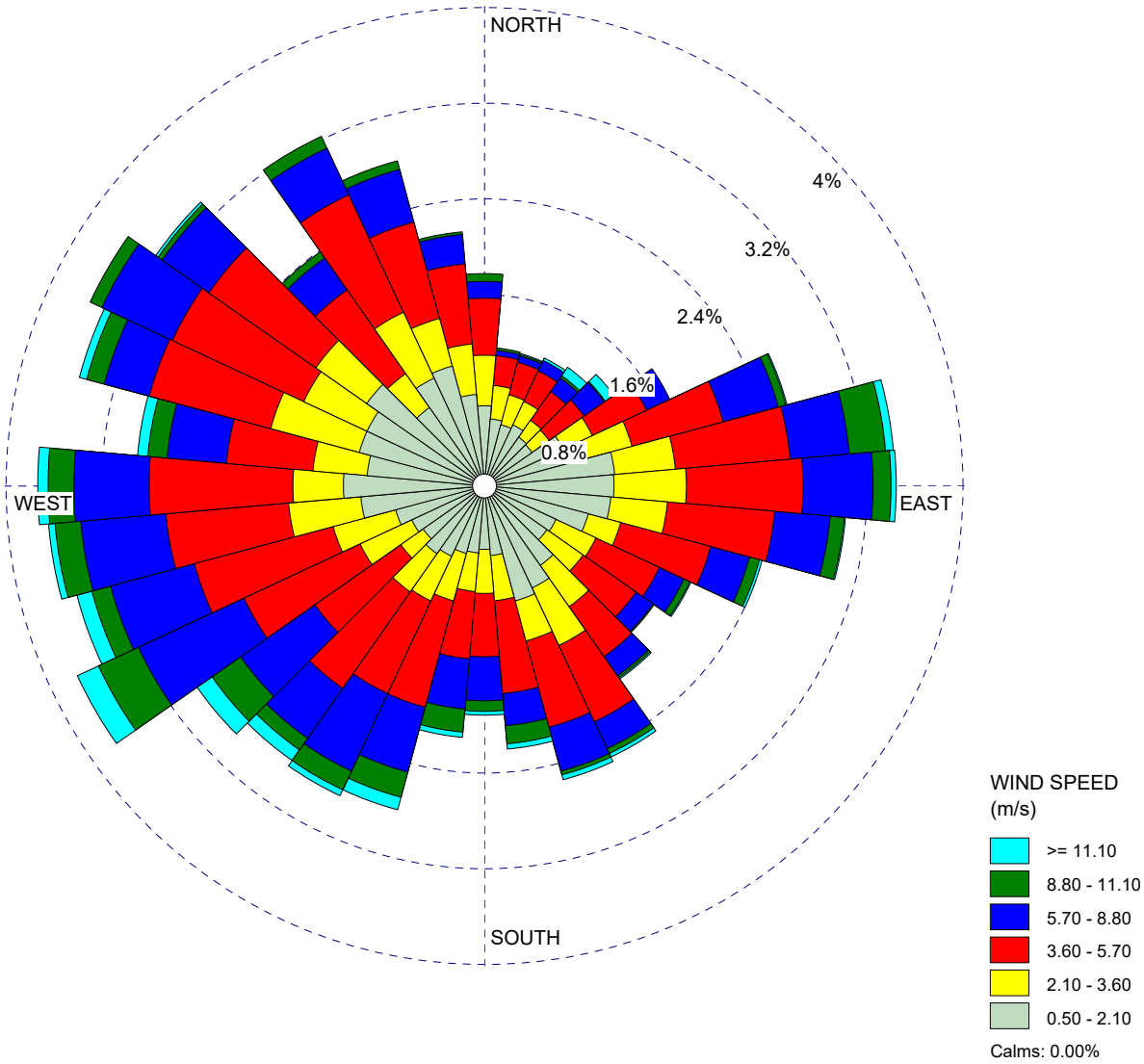
Figure 1.1: Study Area

WIND ROSE PLOT:

Station #61444 - LONDON, ON

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/1996 - 00:00 **End Date: 12/31/1996 - 23:00**	MODELER: **AI**	
	CALM WINDS: **0.00%**	TOTAL COUNT: **8441 hrs.**	
	AVG. WIND SPEED: **3.80 m/s**	DATE: **5/15/2014**	PROJECT NO.: **TP113070**

WRPLOT View - Lakes Environmental Software

NOx Emissions

Existing Road and Traffic Condition (Year 2008)

Modelling Results:

Max. Concentration (1-hr average) = 0.20 ppm

Figure 6.1

NOx Emissions

Road and Traffic Condition based on Year 2021

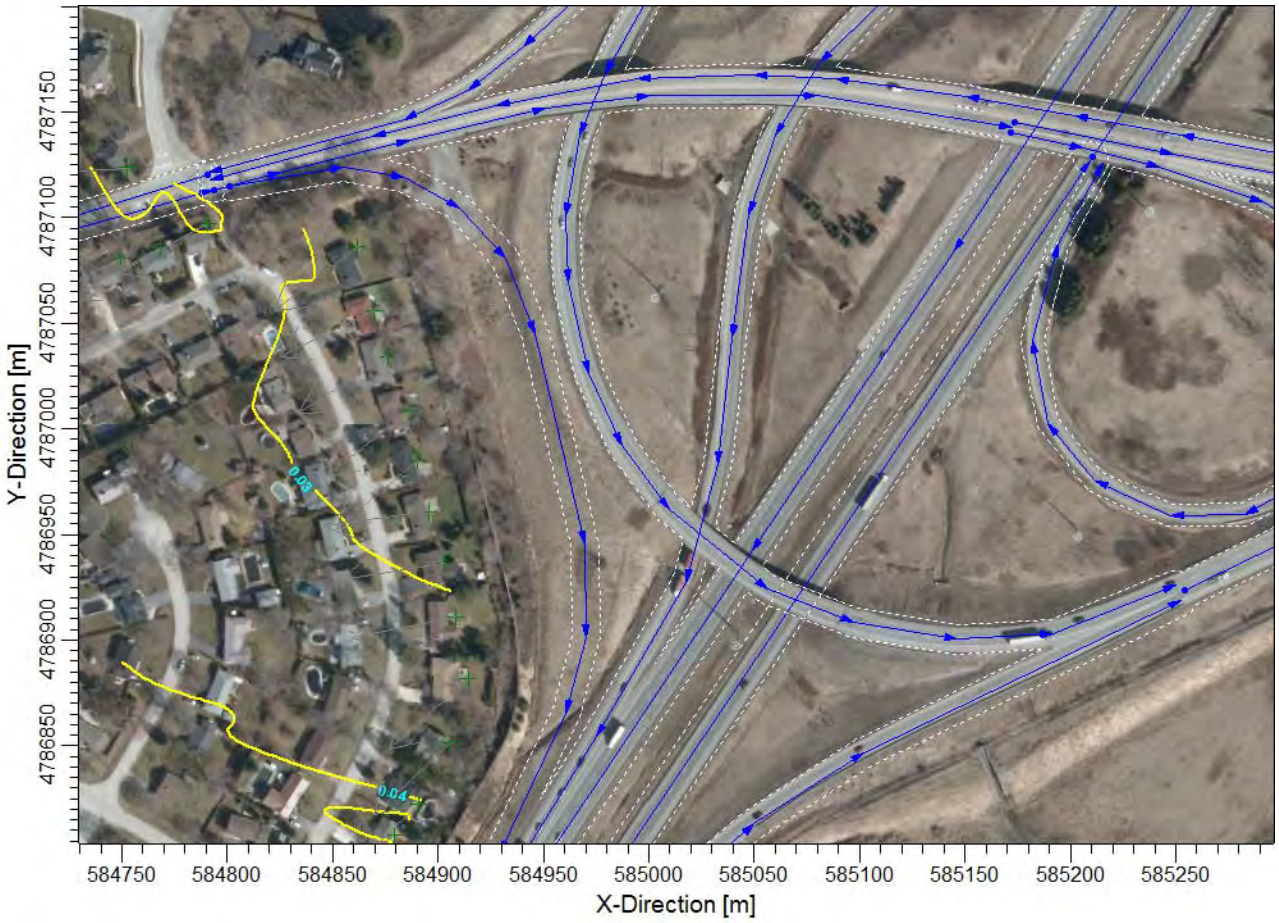
Modelling Results:

Max. Concentration (1-hr average) = 0.052ppm

Figure 6.2

NOx Emissions

Road and Traffic Condition based on Year 2031



Modelling Results:

Max. Concentration (1-hr average) = 0.0459 ppm

Figure 6.3

APPENDIX B

EMISSION CALCULATIONS

Mobile 6.2C Emission Factors

Emission Factors - 2008

ID	Description	Direction	Speed (km/h)	Speed (mph)	% Cars - AM/PM Peak	$PM_{2.5}$			PM_{10}			NOx			SO_2			CO		
						Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)
L1EW	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB 403 and WB 403)	74	46	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.778	6.535	1.066	0.006	0.013	0.0061	14.960	1.797	14.302
L1E	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB403)	74	46	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.778	6.535	1.066	0.006	0.013	0.0061	14.960	1.797	14.302
L1W	Lincoln M. Alexander Pkwy East of Hwy 403	North (to WB403)	74	46	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.778	6.535	1.066	0.006	0.013	0.0061	14.960	1.797	14.302
L1N	Lincoln M. Alexander Pkwy East of Hwy 403	North (NB Mohawk)	90	56	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.697	10.082	1.166	0.006	0.013	0.0061	12.140	1.605	11.613
L2R1	Lincoln M. Alexander Pkwy East of Hwy 403	South (ramp to SB Lincoln M. Alexander Pkwy)	74	46	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.778	6.535	1.354	0.006	0.013	0.0065	14.960	1.797	13.644
H403E1	Hwy 403 Eastbound	East (through traffic up to LINC)	100	62	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.725	14.498	2.102	0.006	0.013	0.0065	13.050	1.935	11.939
H403E2	Hwy 403 Eastbound	East (through traffic)	100	62	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.725	14.498	2.102	0.006	0.013	0.0065	13.050	1.935	11.939
H403L	Hwy 403 Eastbound	SB LINC	74	46	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.778	6.535	1.354	0.006	0.013	0.0065	14.960	1.797	13.644
H403W	Hwy 403 Westbound	West (through traffic)	100	62	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.725	14.498	2.102	0.006	0.013	0.0065	13.050	1.935	11.939
H403LM	Hwy 403 Westbound	West (to SB LINC and NB Mohawk)	74	46	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.778	6.535	1.354	0.006	0.013	0.0065	14.960	1.797	13.644
H403M	Hwy 403 Westbound	West (to NB Mohawk)	74	46	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.778	6.535	1.354	0.006	0.013	0.0065	14.960	1.797	13.644
H403SL	Hwy 403 Westbound	West (to SB LINC)	74	46	90%	0.011	0.216	0.032	0.025	0.260	0.048	0.778	6.535	1.354	0.006	0.013	0.0065	14.960	1.797	13.644
M1E403L	Mohawk Rd West of Hwy 403	South (to EB403 and SB LINC)	70	43	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.666	7.724	1.019	0.006	0.013	0.0061	11.060	1.560	10.585
M1E403	Mohawk Rd West of Hwy 403	South (to EB403)	70	43	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.666	7.724	1.019	0.006	0.013	0.0061	11.060	1.560	10.585
M1SBL	Mohawk Rd West of Hwy 403	South (to SB LINC)	70	43	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.666	7.724	1.019	0.006	0.013	0.0061	11.060	1.560	10.585
M2N	Mohawk Rd West of Hwy 403	North	70	43	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.666	7.724	1.019	0.006	0.013	0.0061	11.060	1.560	10.585
M2S	Mohawk Rd West of Hwy 403	South	70	43	95%	0.011	0.216	0.022	0.025	0.260	0.037	0.666	7.724	1.019	0.006	0.013	0.0061	11.060	1.560	10.585

Emission Factors - 2021

ID	Description	Direction	Speed (km/h)	Speed (mph)	% Cars - AM/PM Peak	$PM_{2.5}$			PM_{10}			NOx			SO_2			CO		
						Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)
L1EW	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB 403 and WB 403)	74	46	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.270	1.163	0.315	0.006	0.013	0.0061	9.320	0.329	8.870
L1E	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB403)	74	46	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.270	1.163	0.315	0.006	0.013	0.0061	9.320	0.329	8.870
L1W	Lincoln M. Alexander Pkwy East of Hwy 403	North (to WB403)	74	46	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.270	1.163	0.315	0.006	0.013	0.0061	9.320	0.329	8.870
L1N	Lincoln M. Alexander Pkwy East of Hwy 403	North (NB Mohawk)	90	56	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.245	1.750	0.320	0.006	0.013	0.0061	8.120	0.294	7.729
L2R1	Lincoln M. Alexander Pkwy East of Hwy 403	South (ramp to SB Lincoln M. Alexander Pkwy)	74	46	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.270	1.163	0.359	0.006	0.013	0.0064	9.320	0.329	8.421
H403E1	Hwy 403 Eastbound	East (through traffic up to LINC)	100	62	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.254	2.470	0.476	0.006	0.013	0.0064	8.670	0.354	7.838
H403E2	Hwy 403 Eastbound	East (through traffic)	100	62	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.254	2.470	0.476	0.006	0.013	0.0064	8.670	0.354	7.838
H403L	Hwy 403 Eastbound	SB LINC	74	46	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.270	1.163	0.359	0.006	0.013	0.0064	9.320	0.329	8.421
H403W	Hwy 403 Westbound	West (through traffic)	100	62	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.254	2.470	0.476	0.006	0.013	0.0064	8.670	0.354	7.838
H403LM	Hwy 403 Westbound	West (to SB LINC and NB Mohawk)	74	46	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.270	1.163	0.359	0.006	0.013	0.0064	9.320	0.329	8.421
H403M	Hwy 403 Westbound	West (to NB Mohawk)	74	46	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.270	1.163	0.359	0.006	0.013	0.0064	9.320	0.329	8.421
H403SL	Hwy 403 Westbound	West (to SB LINC)	74	46	90%	0.0112	0.046	0.015	0.0247	0.075	0.030	0.270	1.163	0.359	0.006	0.013	0.0064	9.320	0.329	8.421
M1E403L	Mohawk Rd West of Hwy 403	South (to EB403 and SB LINC)	70	43	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.233	1.330	0.288	0.006	0.013	0.0061	7.420	0.286	7.063
M1E403	Mohawk Rd West of Hwy 403	South (to EB403)	70	43	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.233	1.330	0.288	0.006	0.013	0.0061	7.420	0.286	7.063
M1SBL	Mohawk Rd West of Hwy 403	South (to SB LINC)	70	43	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.233	1.330	0.288	0.006	0.013	0.0061	7.420	0.286	7.063
M2N	Mohawk Rd West of Hwy 403	North	70	43	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.233	1.330	0.288	0.006	0.013	0.0061	7.420	0.286	7.063
M2S	Mohawk Rd West of Hwy 403	South	70	43	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.233	1.330	0.288	0.006	0.013	0.0061	7.420	0.286	7.063
M403W	Mohawk Rd West of Hwy 403	West (new ramp to 403W)	70	43	95%	0.0112	0.046	0.013	0.0247	0.075	0.027	0.233	1.330	0.288	0.006	0.013	0.0061	7.420	0.286	7.063

Emission Factors - 2031

ID	Description	Direction	Speed (km/h)	Speed (mph)	% Cars - AM/PM Peak	$PM_{2.5}$			PM_{10}			NOx			SO_2			CO		
						Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)	Emission Factor - Car (g/veh-mile)	Emission Factor - Truck (g/veh-mile)	Effective Emission Factor AM/PM (g/veh-mile)
L1EW	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB 403 and WB 403)	74	46	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2420	0.4560	0.2527	0.0057	0.0131	0.0061	9.0800	0.1670	8.634
L1E	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB403)	74	46	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2420	0.4560	0.2527	0.0057	0.0131	0.0061	9.0800	0.1670	8.634
L1W	Lincoln M. Alexander Pkwy East of Hwy 403	North (to WB403)	74	46	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2420	0.4560	0.2527	0.0057	0.0131	0.0061	9.0800	0.1670	8.634
L1N	Lincoln M. Alexander Pkwy East of Hwy 403	North (NB Mohawk)	90	56	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2170	0.6510	0.2387	0.0057	0.0131	0.0061	7.9300	0.1490	7.541
L2R1	Lincoln M. Alexander Pkwy East of Hwy 403	South (ramp to SB Lincoln M. Alexander Pkwy)	74	46	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2420	0.4560	0.2634	0.0057	0.0131	0.0064	9.0800	0.1670	8.189
H403E1	Hwy 403 Eastbound	East (through traffic up to LINC)	100	62	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2260	0.8730	0.2907	0.0057	0.0131	0.0064	8.4600	0.1800	7.632
H403E2	Hwy 403 Eastbound	East (through traffic)	100	62	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2260	0.8730	0.2907	0.0057	0.0131	0.0064	8.4600	0.1800	7.632
H403L	Hwy 403 Eastbound	SB LINC	74	46	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2420	0.4560	0.2634	0.0057	0.0131	0.0064	9.0800	0.1670	8.189
H403W	Hwy 403 Westbound	West (through traffic)	100	62	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2260	0.8730	0.2907	0.0057	0.0131	0.0064	8.4600	0.1800	7.632
H403LM	Hwy 403 Westbound	West (to SB LINC and NB Mohawk)	74	46	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2420	0.4560	0.2634	0.0057	0.0131	0.0064	9.0800	0.1670	8.189
H403M	Hwy 403 Westbound	West (to NB Mohawk)	74	46	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2420	0.4560	0.2634	0.0057	0.0131	0.0064	9.0800	0.1670	8.189
H403SL	Hwy 403 Westbound	West (to SB LINC)	74	46	90%	0.0112	0.0336	0.0134	0.0247	0.0620	0.0284	0.2420	0.4560	0.2634	0.0057	0.0131	0.0064	9.0800	0.1670	8.189
M1E403L	Mohawk Rd West of Hwy 403	South (to EB403 and SB LINC)	70	43	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2070	0.4870	0.2210	0.0057	0.0131	0.0061	7.2400	0.1450	6.885
M1E403	Mohawk Rd West of Hwy 403	South (to EB403)	70	43	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2070	0.4870	0.2210	0.0057	0.0131	0.0061	7.2400	0.1450	6.885
M1SBL	Mohawk Rd West of Hwy 403	South (to SB LINC)	70	43	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2070	0.4870	0.2210	0.0057	0.0131	0.0061	7.2400	0.1450	6.885
M2N	Mohawk Rd West of Hwy 403	North	70	43	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2070	0.4870	0.2210	0.0057	0.0131	0.0061	7.2400	0.1450	6.885
M2S	Mohawk Rd West of Hwy 403	South	70	43	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2070	0.4870	0.2210	0.0057	0.0131	0.0061	7.2400	0.1450	6.885
M403W	Mohawk Rd West of Hwy 403	West (new ramp to 403W)	70	43	95%	0.0112	0.0336	0.0123	0.0247	0.0620	0.0266	0.2070	0.4870	0.2210	0.0057	0.0131	0.0061	7.2400	0.1450	6.885

APPENDIX C

DISPERSION MODELLING INPUT DATA AND ASSUMPTIONS APPENDIX A

Raw Traffic Data - Existing (2008)

ID	Description	Direction	Link Type	Length (m)	Mixing Zone Width (m)	AM Peak	PM Peak
						Cars/Trucks	Cars/Trucks
L1EW	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB 403 and WB 403)	At-Grade	164.37	21	2594	2251
L1E	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB403)	At-Grade	545.52	13.5	1237	1205
L1W	Lincoln M. Alexander Pkwy East of Hwy 403	North (to WB403)	At-Grade/Bridge	1195.91	13.5	1357	1047
L1N	Lincoln M. Alexander Pkwy East of Hwy 403	North (NB Mohawk)	At-Grade/Bridge	1010.62	10.5	388	201
L2R1	Lincoln M. Alexander Pkwy East of Hwy 403	South (ramp to SB Lincoln M. Alexander Pkwy)	At-Grade	560.73	17	1812	1790
H403E1	Hwy 403 Eastbound	East (through traffic up to LINC)	At-Grade	612.99	18	1712	1024
H403E2	Hwy 403 Eastbound	East (through traffic)	At-Grade	418	18	2011	1191
H403L	Hwy 403 Eastbound	SB LINC	At-Grade	493.24	14.5	913	1137
H403W	Hwy 403 Westbound	West (through traffic)	At-Grade	1027.86	17	2058	2756
H403LM	Hwy 403 Westbound	West (to SB LINC and NB Mohawk)	At-Grade	359.8	16.5	1168	1634
H403M	Hwy 403 Westbound	West (to NB Mohawk)	At-Grade	348.82	11.5	269	982
H403SL	Hwy 403 Westbound	West (to SB LINC)	At-Grade/Bridge	647.56	14	899	653
M1E403L	Mohawk Rd West of Hwy 403	South (to EB403 and SB LINC)	At-Grade/Bridge	385.18	11.5	921	876
M1E403	Mohawk Rd West of Hwy 403	South (to EB403)	At-Grade	563.2	10.5	300	167
M1SBL	Mohawk Rd West of Hwy 403	South (to SB LINC)	At-Grade/Bridge	626.16	10	621	709
M2N	Mohawk Rd West of Hwy 403	North	At-Grade	121.65	12	594	930
M2S	Mohawk Rd West of Hwy 403	South	At-Grade	121.65	12	886	624

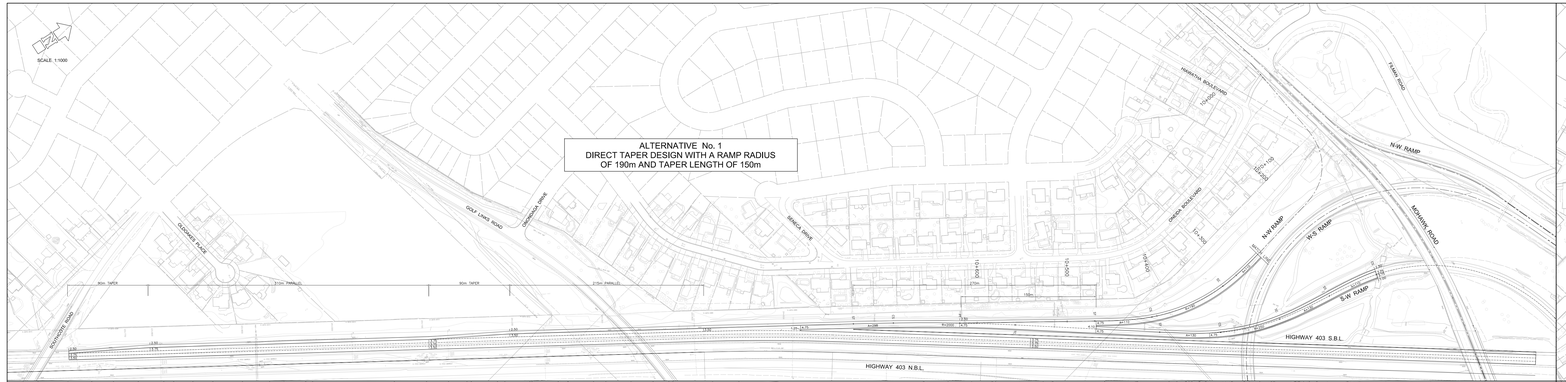
Raw Traffic Data - 2021

ID	Description	Direction	Link Type	Length (m)	Mixing Zone Width (m)	AM Peak	PM Peak
						Cars/Trucks	Cars/Trucks
L1EW	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB 403 and WB 403)	At-Grade	164.37	21	2538	2511
L1E	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB403)	At-Grade	545.52	13.5	1134	1396
L1W	Lincoln M. Alexander Pkwy East of Hwy 403	North (to WB403)	At-Grade/Bridge	1195.91	13.5	1404	1115
L1N	Lincoln M. Alexander Pkwy East of Hwy 403	North (NB Mohawk)	At-Grade/Bridge	1010.62	10.5	464	366
L2R1	Lincoln M. Alexander Pkwy East of Hwy 403	South (ramp to SB Lincoln M. Alexander Pkwy)	At-Grade	560.73	17	1929	1800
H403E1	Hwy 403 Eastbound	East (through traffic up to LINC)	At-Grade	612.99	18	1774	1127
H403E2	Hwy 403 Eastbound	East (through traffic)	At-Grade	418	18	2135	1279
H403L	Hwy 403 Eastbound	SB LINC	At-Grade	493.24	14.5	861	1252
H403W	Hwy 403 Westbound	West (through traffic)	At-Grade	1027.86	17	2265	2767
H403LM	Hwy 403 Westbound	West (to SB LINC and NB Mohawk)	At-Grade	359.8	16.5	1360	1667
H403M	Hwy 403 Westbound	West (to NB Mohawk)	At-Grade	348.82	11.5	291	1119
H403SL	Hwy 403 Westbound	West (to SB LINC)	At-Grade/Bridge	647.56	14	1069	548
M1E403L	Mohawk Rd West of Hwy 403	South (to EB403 and SB LINC)	At-Grade/Bridge	385.18	11.5	1232	989
M1E403	Mohawk Rd West of Hwy 403	South (to EB403)	At-Grade	563.2	10.5	360	152
M1SBL	Mohawk Rd West of Hwy 403	South (to SB LINC)	At-Grade/Bridge	626.16	10	872	837
M2N	Mohawk Rd West of Hwy 403	North	At-Grade	121.65	12	687	1279
M2S	Mohawk Rd West of Hwy 403	South	At-Grade	121.65	12	1218	721
M403W	Mohawk Rd West of Hwy 403	West (new ramp to 403W)	At-Grade	625.56	13.25	80	58

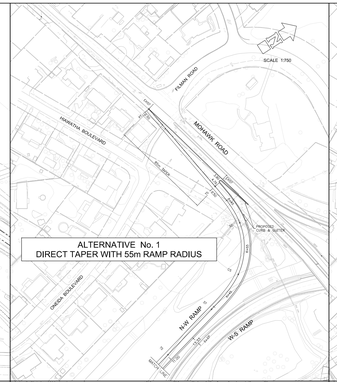
Raw Traffic Data - 2031

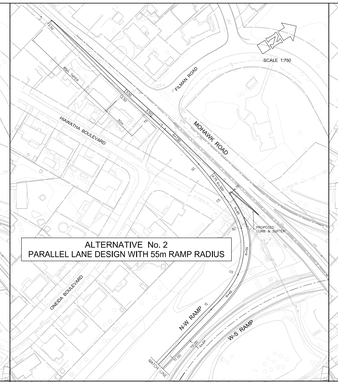
ID	Description	Direction	Link Type	Length (m)	Mixing Zone Width (m)	AM Peak	PM Peak
						Cars/Trucks	Cars/Trucks
L1EW	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB 403 and WB 403)	At-Grade	164.37	21	3018	3111
L1E	Lincoln M. Alexander Pkwy East of Hwy 403	North (to EB403)	At-Grade	545.52	13.5	1378	1729
L1W	Lincoln M. Alexander Pkwy East of Hwy 403	North (to WB403)	At-Grade/Bridge	1195.91	13.5	1640	1382
L1N	Lincoln M. Alexander Pkwy East of Hwy 403	North (NB Mohawk)	At-Grade/Bridge	1010.62	10.5	452	232
L2R1	Lincoln M. Alexander Pkwy East of Hwy 403	South (ramp to SB Lincoln M. Alexander Pkwy)	At-Grade	560.73	17	2056	2106
H403E1	Hwy 403 Eastbound	East (through traffic up to LINC)	At-Grade	612.99	18	2871	1486
H403E2	Hwy 403 Eastbound	East (through traffic)	At-Grade	418	18	3392	1569
H403L	Hwy 403 Eastbound	SB LINC	At-Grade	493.24	14.5	1025	1345
H403W	Hwy 403 Westbound	West (through traffic)	At-Grade	1027.86	17	2696	4091
H403LM	Hwy 403 Westbound	West (to SB LINC and NB Mohawk)	At-Grade	359.8	16.5	1323	2107
H403M	Hwy 403 Westbound	West (to NB Mohawk)	At-Grade	348.82	11.5	306	1346
H403SL	Hwy 403 Westbound	West (to SB LINC)	At-Grade/Bridge	647.56	14	1031	761
M1E403L	Mohawk Rd West of Hwy 403	South (to EB403 and SB LINC)	At-Grade/Bridge	385.18	11.5	1271	1005
M1E403	Mohawk Rd West of Hwy 403	South (to EB403)	At-Grade	563.2	10.5	521	83
M1SBL	Mohawk Rd West of Hwy 403	South (to SB LINC)	At-Grade/Bridge	626.16	10	751	922
M2N	Mohawk Rd West of Hwy 403	North	At-Grade	121.65	12	686	1305
M2S	Mohawk Rd West of Hwy 403	South	At-Grade	121.65	12	1243	720
M403W	Mohawk Rd West of Hwy 403	West (new ramp to 403W)	At-Grade	625.56	13.25	80	58

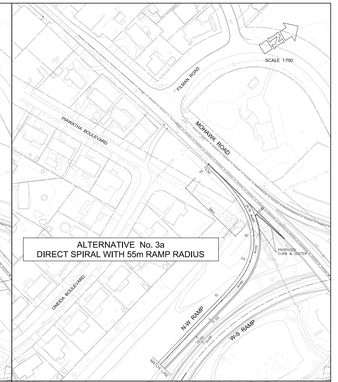
Appendix G: Alternative Design Concepts

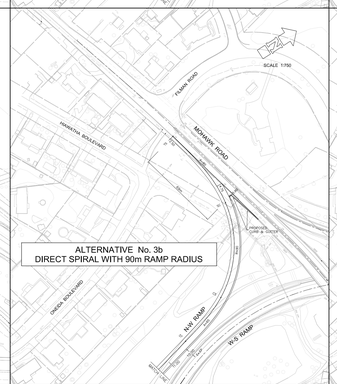


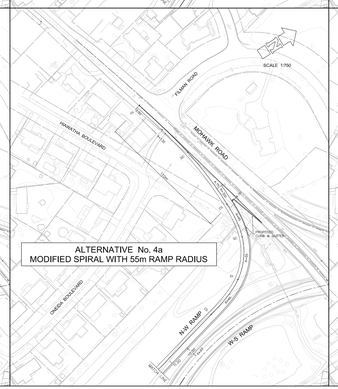
ENTRANCE RAMP TO LINC-HIGHWAY 403 BRANTFORD-BOUND RAMP OPTIONS

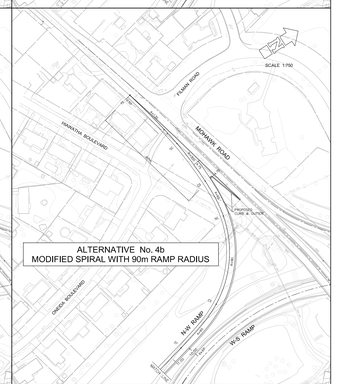








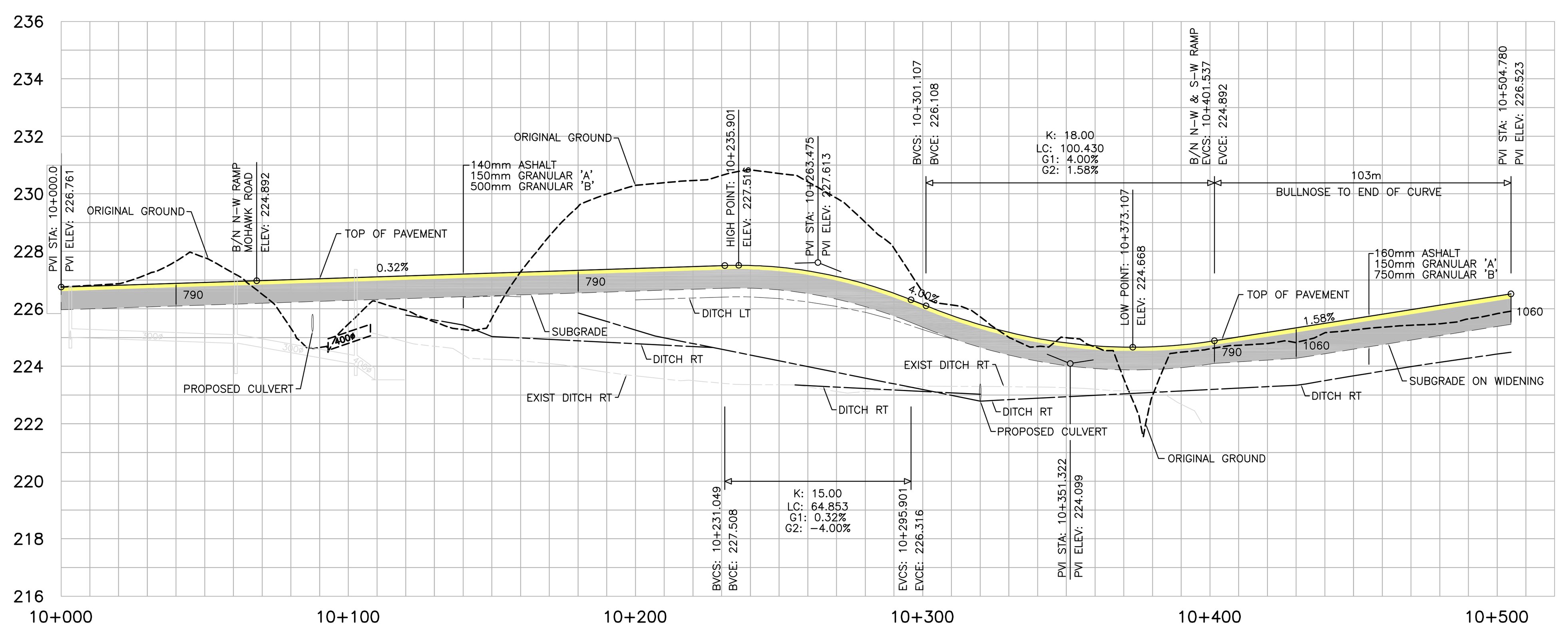




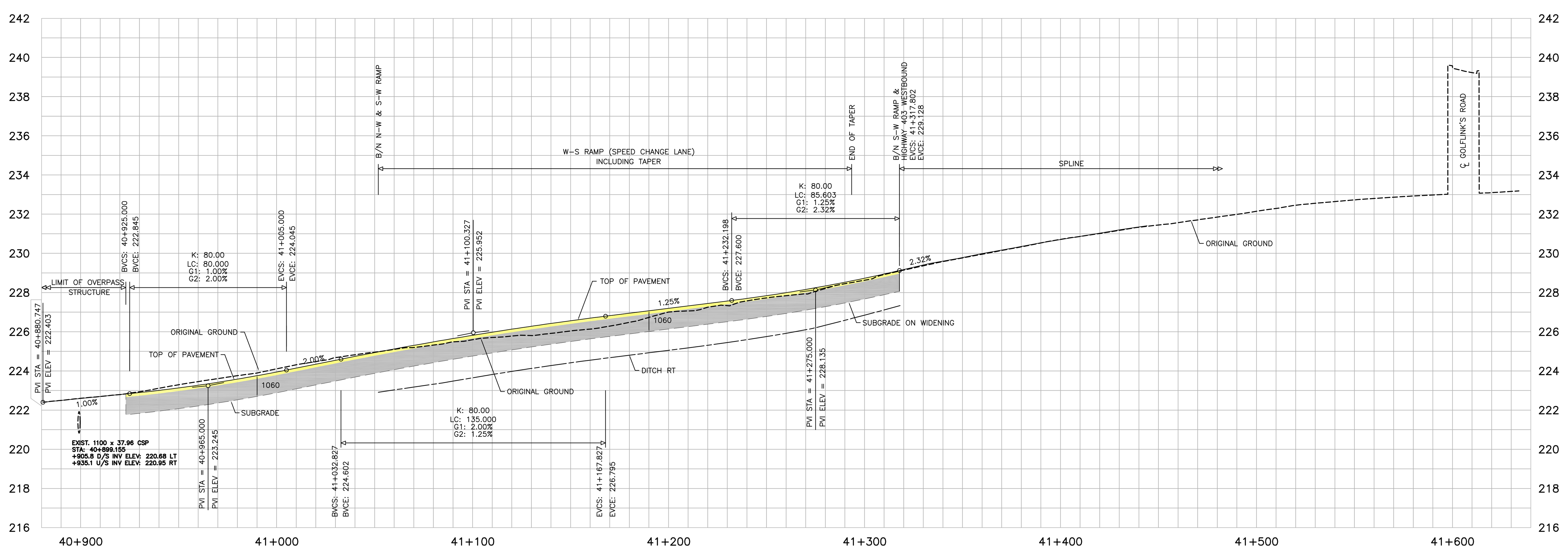
MOHAWK ROAD EXIT RAMP OPTIONS

FIGURE 4

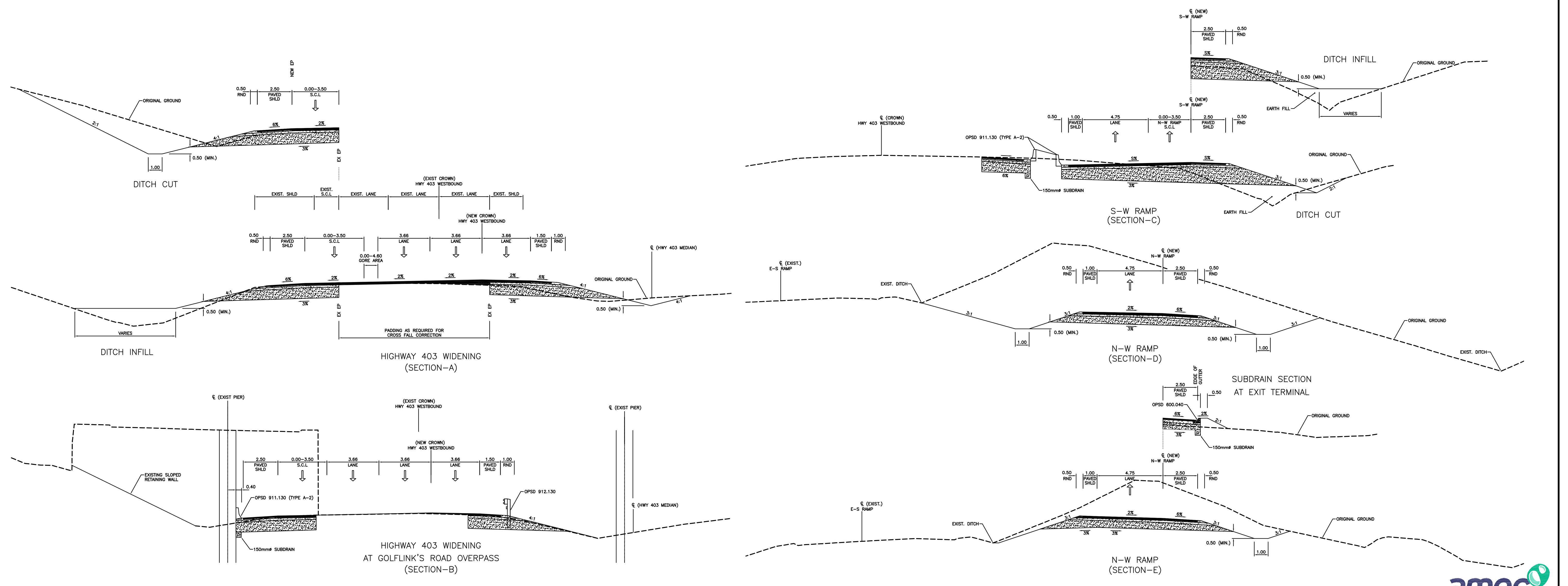
Appendix H: Preferred Design Concept



N-W RAMP



S-W RAMP



Highway 403 and Mohawk Road Ramp Environmental Assessment
Town of Ancaster - Hamilton

FIGURE 5

Appendix I: Design Criteria

Ministry of Transportation

Ministère des Transports

Ontario

DRAFT DESIGN CRITERIA

Date: July 17, 2017

WORK PROJECT NO. N/A HWY No. 403 TYPE OF PROJECT Highway Widening & Ramp Construction

LOCATION Highway 403 - from Southcote Road easterly to Mohawk Road LENGTH 1.4 km

LIMITS FROM STA 23+700 PLAN B-85-403-81701 B-85-403-81702 B-85-403-98404 TO STA 25+060 PLAN B-85-403-81701 B-85-403-81702 B-85-403-98404

MUNUCIPAL JURISDICTIONS

Geographic Township(s) Township of Ancaster (Town of Ancaster)

County of City of Hamilton

Highway 403 – Westbound Lanes

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
HIGHWAY CLASSIFICATION		UFD120	UFD120	UFD120
MINIMUM STOPPING SIGHT DISTANCE		> 245 m	245 m	> 245 m
EQUIVALENT MINIMUM "K" FACTOR	**CREST**	> 120	120	> 120
	SAG	> 60	60	> 60
GRADES MAXIMUM		1.5 %	3 %	1.5 %
RADIUS MINIMUM		8515.2 m	650 m	8515.2 m
PAVEMENT WIDTH		14.48 m (3.5 + 3x3.66)	14.75 m (3.5 + 3x3.75)	14.48 m (3.5 + 3x3.66)
SHOULDER WIDTH		2.5 – 3.0 m, Outside (1) 1.5 m, Median	3.0 m Outside 1.0 m, Median	2.5 – 3.0 m Outside (1) 1.5 m, Median
SHOULDER ROUNDING		1.0 m (2)	1.0 m	1.0 m (2)
MEDIAN WIDTH		Varies 21.0 – 22.0 m (3)	22.0 m	Varies 21.0 – 22.0 m (3)
R.O.W. WIDTH		Varies 90 m Min	N/A	Varies 90 m Min
POSTED SPEED		100 km/h	100 km/h	100 km/h
CROSS-FALL		2%	2%	2%
ENTRANCE TERMINAL SPEED-CHANGE LENGTH WEST OF SOUTHCOTE ROAD		400 m (4)	400 m (4)	400 m (4)
MISCELLANEOUS		N/A	N/A	N/A

RECOMMENDED BY:

Signature:

Printed Name:

Date:

MTO PROJECT MANAGER / ENGINEER

Signature:

Printed Name:

Date:

HEAD, PLANNING AND DESIGN or HEAD, STRUCTURAL

APPROVED BY:

Signature:

Printed Name:

Date:

REGIONAL MANAGER, ENGINEERING

DRAFT DESIGN CRITERIA

WORK PROJECT NO. GWP2092-11-00 HWY NO. 403 TYPE OF PROJECT Ramp

Notes:

1) The outside shoulder along proposed S-W Ramp Speed Change Lane shall be 2.5m.

2) Where steel beam guiderail is present, shoulder rounding shall increase to 1.0m otherwise a 0.5m rounding shall be maintain.

3) Roadside safety barriers shall be implemented/maintained where median width is less than 22.0m.

4) Entrance Terminal based on Design Speed of 120km/hr for Highway 403 and as per figure F4-5 in the GDSOH.

Interchange Standards Table

Ramp: N-W Ramp (Mohawk Road to Highway 403 Westbound)

N-W Ramp		DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		70 km/hr	70 km/hr
RAMP DESIGN SPEED		70 km/h	70 km/h
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		N/A	N/A
EQUIVALENT MINIMUM "K" FACTOR	CREST	25 std.	15
	SAG	25 std. 12 comfort	18
GRADES MAXIMUM		6%	1.58%
RADIUS MINIMUM		90 m std. (1) 55 m min.	90 m
PAVEMENT WIDTH		4.75 m	4.75 m
SHOULDER WIDTH (Outside/Inside)		2.5m Outside 1.0m Inside	2.5m Outside 1.0m Inside
SHOULDER ROUNDING		0.5 m	0.5 m
SUPERELEVATION MAXIMUM RATE		0.06 m/m	0.06 m/m
SIGHT DISTANCE AT EXIT TERMINAL		N/A	N/A
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		N/A	N/A
SIGHT DISTANCE AT ENTRANCE TERMINAL		240 m	> 240 m
ENTRANCE TERMINAL SPEED-CHANGE LANE LENGTH		150 m (2)	241 m

Notes:

1) As per table F5-1 Ramp Design Speed.

2) Entrance Terminal based on Design Speed of 80km/hr for S-W Ramp (Lincoln M. Alexander Pkwy to Highway 403 Westbound) and as per figure FA-5 in the GDSOH.

DRAFT DESIGN CRITERIA

WORK PROJECT NO. GWP2092-11-00 HWY NO. 403 TYPE OF PROJECT Ramp

Ramp: S-W Ramp (Lincoln M. Alexander Pkwy to Highway 403 Westbound)

S-W Ramp		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		N/A	N/A	N/A
RAMP DESIGN SPEED		80 km/h (1)	120 km/h	80 km/h (1)
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		N/A	N/A	N/A
EQUIVALENT MINIMUM "K" FACTOR	**CREST**	80	35	80
	SAG	80	30	80
GRADES MAXIMUM		2.32%	6%	2.32%
RADIUS MINIMUM		250 m	250 m	250 m
PAVEMENT WIDTH		4.75 m	4.75 m	4.75 m
SHOULDER WIDTH (Outside/Inside)		2.5m Outside 1.0m Inside	2.5m Outside 1.0m Inside	2.5m Outside 1.0m Inside
SHOULDER ROUNDING		0.5 m	0.5 m	0.5 m
SUPERELEVATION MAXIMUM RATE		0.06 m/m	0.06 m/m	0.06 m/m
SIGHT DISTANCE AT EXIT TERMINAL		N/A	N/A	N/A
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		N/A	N/A	N/A
SIGHT DISTANCE AT ENTRANCE TERMINAL		>240 m	240 m	>240 m
ENTRANCE TERMINAL SPEED-CHANGE LANE LENGTH		500 m (3)	500 m	500 m (3)

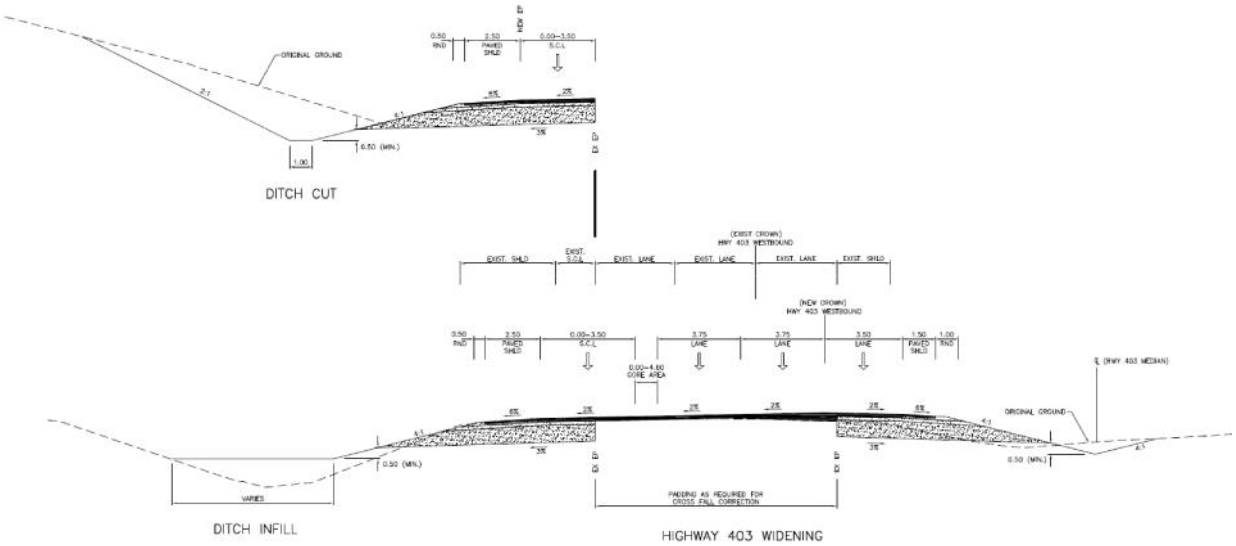
Notes:

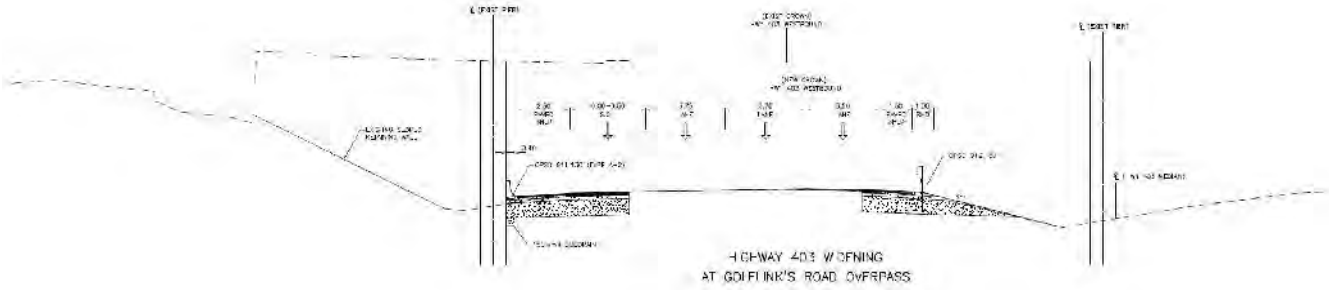
1) Design speed based on existing ramp horizontal geometrics.
2) Entrance Terminal based on Design Speed of 120km/hr for Highway 403 and as per figure FA-6 in the GDSOH.

DRAFT DESIGN CRITERIA

WORK PROJECT NO. GWP2092-11-00 HWY NO. 403 TYPE OF PROJECT Ramp

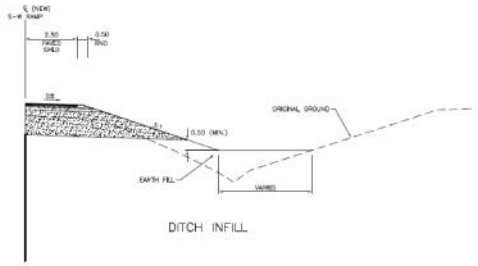
TYPICAL SECTIONS

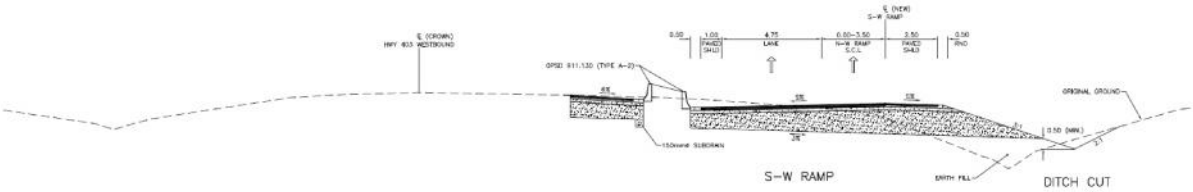


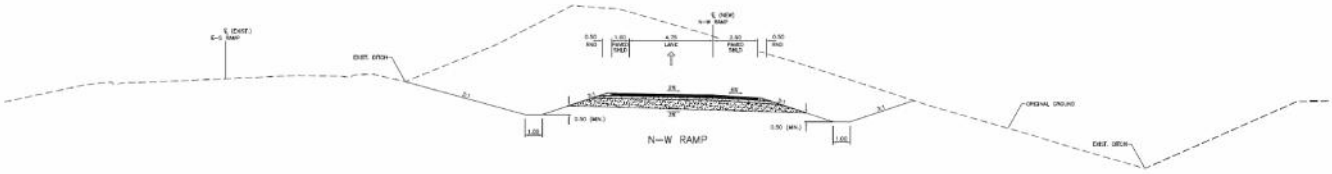


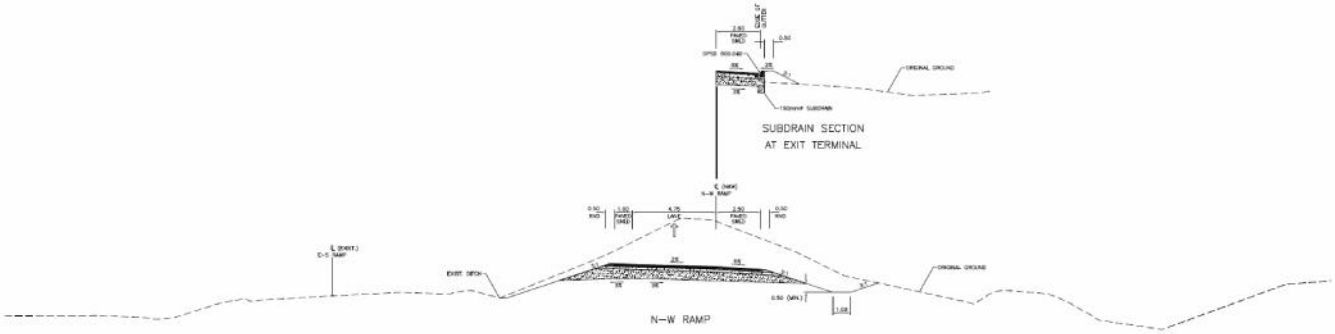
DRAFT DESIGN CRITERIA

WORK PROJECT NO. GWP2092-11-00 HWY NO. 403 TYPE OF PROJECT Ramp





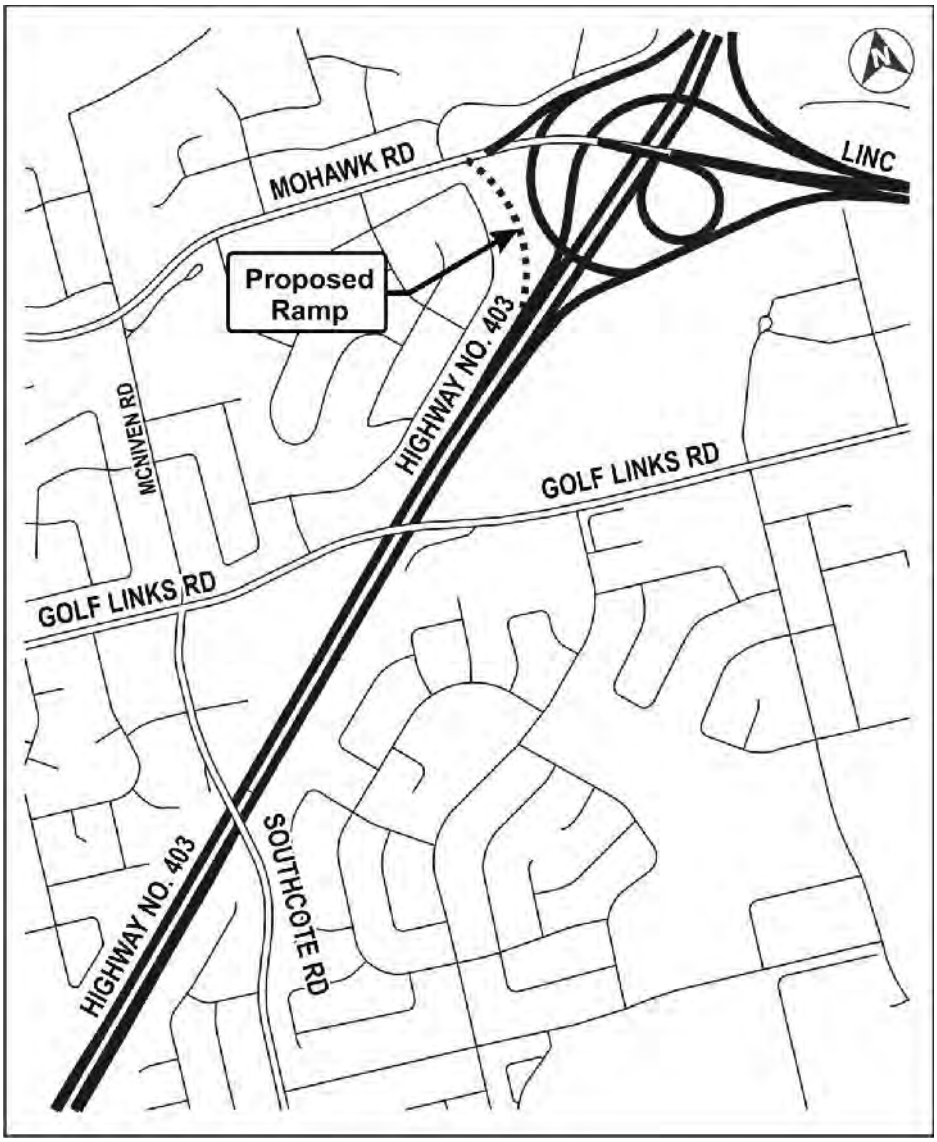




DRAFT DESIGN CRITERIA

WORK PROJECT NO. GWP2092-11-00 HWY NO. 403 TYPE OF PROJECT Ramp

KEY MAP:



Appendix J: Design Stormwater Brief

HIGHWAY 403 MOHAWK ROAD RAMP FEASIBILITY AND ENVIRONMENTAL ASSESSMENT STUDY

STORMWATER DESIGN BRIEF

CITY OF HAMILTON

October 2014

AMEC ENVIRONMENT & INFRASTRUCTURE
3215 North Service Road
Burlington, ON L7N 3G2

Telephone: (905) 335-2353
Facsimile: (905) 335-1414

Project No.: TP113070

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5. HYDRAULICS 6

6. STORMWATER MANAGEMENT 7

7. CONCLUSIONS 8

APPENDICES

Appendix 'A' Hydrologic Design Flow Information
Appendix 'B' Culvert Hydraulics

1. INTRODUCTION

The City of Hamilton proposes to construct an additional access ramp to the Brantford-bound lanes of Highway 403, from Mohawk Road.

This Design Brief has been prepared to document the hydrologic and hydraulic analyses carried out in support of the proposed on-ramp. This includes drainage, stormwater management, and sizing of all proposed culverts, including the determination of the design flows to be conveyed at the crossing, and the minimum size of the new structures. This brief details the hydraulic implications and design supporting the proposed structures to satisfy current Provincial, Municipal, and Conservation Authority criteria.

2. BACKGROUND INFORMATION REVIEW

The following background information was reviewed during the preparation of this document:

- MTO Drawings (provided by City)
- Master Drainage Plan for the Town of Ancaster (1987), prepared by Philips Planning + Engineering Ltd.
- Highway 403/LINC Interchange Stormwater Management Report, Stantec 2000 (City)
- Regulatory Mapping (HCA)
- Aerial photography (City)
- IDF Curves (MTO IDF Look Up website)
- Total Station Survey (AMEC/ J.D. Barnes)

3. POLICIES AND CRITERIA

The proposed N-W ramp is part of a 400 series highway interchange, and hence has been classified as a freeway. For this classification, the applicable hydraulic design criteria as stipulated by the Ministry of Transportation Ontario policies and guidelines (MTO Highway Drainage Design Standards, January 2008) are:

- For bridges and culverts with a total span less than 6.0 m, the design flood is the 50 year event, with a minimum freeboard of 1.0 m. The check flow for scour is 130% of the 100 year event and shall not exceed the elevation of the edge of the travelled lane.

- For culverts with a diameter or rise < 3.0 m, HW/D ≤ 1.5 under the design flood.

- A 900 mm minimum rise is required for box culverts. An 800 mm minimum rise or diameter is required for elliptical, arch, and circular culverts.

4. HYDROLOGY

The construction of a new ramp of the Mohawk Road/Highway 403 interchange will introduce a combination of cuts and fill and will impact the existing drainage to the tributary of Tiffany Creek. Two culvert locations are being proposed beneath the ramp to allow for adequate conveyance of the existing and proposed drainage (see attached figure.) The first, Culvert A, is proposed to cross the proposed N-W ramp at station 10+320, just upstream of the existing S-W ramp culvert of the same interchange, before ultimately draining to the main branch of Tiffany Creek. The second, Culvert B, is proposed to cross the proposed N-W ramp around station 10+087, just upstream of the existing E-S ramp culvert of the same interchange, before draining to Tiffany Creek. The proposed N-W ramp is part of a provincial series 400 highway and therefore has been categorized as a freeway, for hydraulic criteria purposes.

Utilizing the Master Drainage Plan (1987) for the Town of Ancaster, prepared by Philips Planning + Engineering Ltd., it was determined that the majority (41.7 ha) of the 57.8 ha of sub-catchment 209 would contribute to the flow being conveyed through Culvert A; the peak flows have been estimated using an areally-weighted contribution from the portion of sub-catchment 209 that drains to the existing S-W ramp culvert. A 7.4 ha portion of the remainder of sub-catchment 209 drains to Culvert B, and the 8.7 ha balance of subcatchment 209 drains directly to Tiffany Creek and bypasses the two proposed culverts altogether. Based on the Master Drainage Plan's future land use models for Tiffany Creek, a SWMHYMO hydrological model has been created for sub-catchments 209A (i.e. drains to Culvert A) and 209B (i.e. drains to Culvert B.) An existing and proposed configuration has been developed based on the parameterization from the Master Drainage Plan's future land use models, with a modified impervious percentage in the proposed configuration to account for the inclusion of the N-W ramp. Multiple rainfall distributions and durations have been assessed under the proposed condition in order to determine the design storm that produces the most conservative results, as seen in Table 4.1:

Table 4.1: 100 Year Design Storms

	6 Hour Chicago	6 Hour SCS Type II	12 Hour Chicago	12 Hour SCS Type II	24 Hour Chicago	24 Hour SCS Type II
Peak Flow (m^3/s)	4.7	4.6	4.8	5.0	4.9	5.4
Runoff Volume (mm)	55.1	55.0	71.0	72.4	90.9	95.2

As per Table 4.1, a 24 hour SCS Type II storm event provides the highest peak flows and runoff volume and thus has been selected for use in the SWMHYMO hydrological model. Estimated flows have been shown in Table 4.2:

Table 4.2: Peak Flows (m^3/s)					
Culvert	**Drainage Area (ha)**	**Design Flow - 50 year (m^3/s)**		**Check Flow for Scour – 130% of 100 year (m^3/s)**	
		Existing	Proposed	Existing	Proposed
A	41.7	3.9	4.1	5.8	6.0
B	7.4	0.7	0.7	1.0	1.1

An existing 800mm diameter CSP is currently conveying the local runoff draining from Hiawatha Boulevard underneath the existing gravel entrance off Mohawk Road (which will be removed during construction) to the culvert under the E-S ramp. Culvert B has been proposed to convey these local flows in place of the existing CSP. The peak flows have been estimated (see Table 4.2) using an areally-weighted contribution from the portion of sub-catchment 209 that drains to the existing CSP.

5. HYDRAULICS

The proposed N-W ramp is part of a freeway, and as such, MTO Highway Drainage Standards specify that the 50 year storm event with 1.0 m of freeboard be applied for spans less than 6 m. Further, for culverts with a diameter or rise < 3.0 m, the HW/D ratio must be ≤ 1.5 under the design flood. The water level generated by the check flow, shall not exceed the elevation of the edge of the travelled lane. As a basis of comparison, the existing 1100 mm diameter CSP culvert with an approximate length of 38 m just downstream of the proposed Culvert A (i.e. crossing the S-W ramp) was also reviewed for this design.

Based on feedback from HCA, this tributary is not considered to be a fish bearing watercourse, as a result fish passage is not required for the design.

MTO Nomographs (Charts D5-2A and D5-1B, see Appendix B) were used to size Culvert A, the culvert taking the majority of flow from the contributing sub-catchment. Culvert A will be a box culvert with a 1 m rise, 2 m width, and an approximate length of 26 m. Its inlet will have beveled edges (45 degree) and will be connected to a 90 degree headwall. The inlet invert is approximately 2.65 m below the edge of travelled lane. According to the nomographs, under the 50 year design flood, this configuration will achieve an HW/D ratio ≤ 1.5 and a freeboard of approximately 1.45 m. The check flow for scour indicates an upstream water depth of 1.7 m, resulting in a water surface elevation below the edge of travelled lane.

An existing 800 mm diameter CSP, conveying local drainage from Hiawatha Boulevard towards the E-S ramp, is to be removed below the existing gravel entrance off of Mohawk Road. With the addition of the proposed N-W ramp, Culvert B will provide the same function by conveying local drainage to Tiffany Creek. MTO Nomographs (Charts D5-2C and D5-1G, see Appendix B) were used to size Culvert B, which will be a 900 mm diameter CSP with an approximate length of 30 m and a mitered inlet. The inlet invert is approximately 1.75 m below the edge of travelled lane. According to the nomographs, under the 50 year design flood, this configuration will achieve HW/D ≤ 1.5 and a freeboard of approximately 1.0 m. The check flow for scour indicates an upstream water depth of about 1.0 m, resulting in a water surface elevation below the travelled lane.

6. STORMWATER MANAGEMENT

QUALITY CONTROL

As a result of the N-W ramp construction, an additional impervious area of 0.784 ha will be created and water quality treatment is required to manage the impacts of the proposed ramp on the receiving watercourse. Flat-bottom, grassed swales can provide effective stormwater management for sediment/pollutant removal and have been proposed to be utilized in this design to optimize the area treated. Table 6.1 indicates the levels of treatment achieved for the impervious area. Full treatment would be achieved by having flow from impervious areas travel through a length of at least 60 m of the proposed grassed swales. Half treatment indicates that the runoff from the specified area travelled through an average 30 m of swale. No treatment indicates that the runoff did not reach a proposed, flat-bottom swale.

Table 6.1: Water Quality

Impervious Area (ha)	Level of Treatment	Comment
0.528	Full	
0.154	Half	Segment of N-W Ramp nearest Culverts A and B
0.102	None	Flow enters existing ditches (possibly via storm sewer)

The information presented in Table 6.1 demonstrates that the proposed, flat-bottomed swales will be treating 0.605ha of the total 0.784ha (i.e. 77%) to a Normal MOE standard. It should also be noted that some portions of the area receiving full treatment travel through a length of swale in excess of the minimum 60m.

QUANTITY CONTROL

In accordance with MTO requirements, the final design solution will incorporate stormwater management quantity control for the proposed works. The controls are required to ensure that post-development flows do not exceed pre-development flows for all return periods (5, 10, 25, 50 and 100 year). The exact nature of the quantity control features will be determined at the detailed design stage. Given the nominal increases (ref. Table 4.2) it is anticipated that the stormwater management quantity controls will consist of in-swale storage upstream of the ramp culverts.

7. CONCLUSIONS

In order to convey existing and proposed drainage to the tributary of Tiffany Creek, two (2) culverts will be required as part of the proposed N-W on-ramp. Stormwater management for the new ramp surface has been proposed to be provided in a system of new enhanced grass swales, which will provide at least 70% sediment/pollutant removal to over 77% of the new pavement.

Should you have any questions or require further information, please do not hesitate to contact us.

Respectfully submitted,

AMEC Environment & Infrastructure
A division of AMEC Americas Limited

Per: Matthew Kuyntjes, B. Eng., E.I.T.
Design Engineer

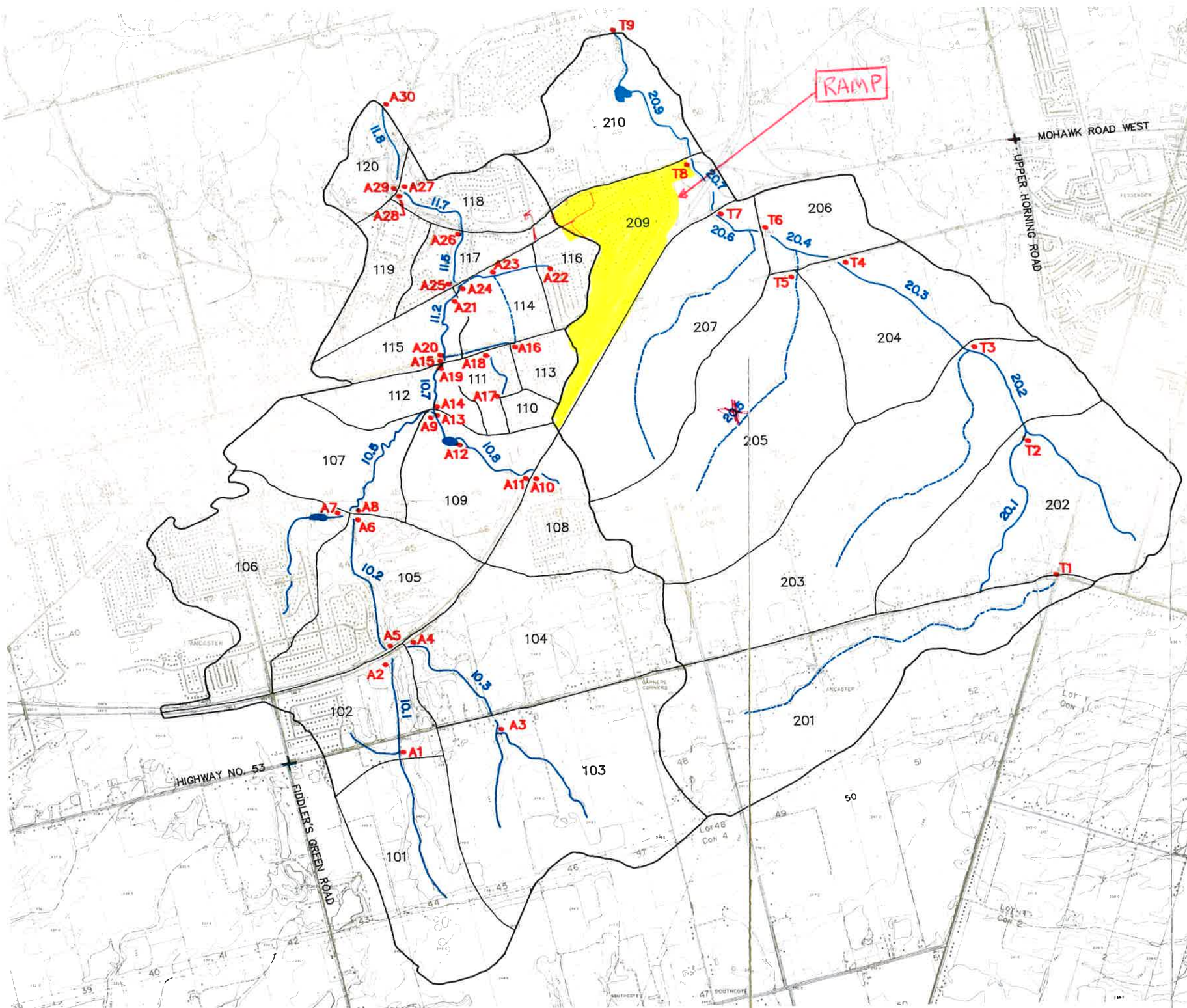
Per: Brian E. Bishop, M. Eng., P. Eng.
Senior Associate

MK/BB/ll

LICENSED PROFESSIONAL ENGINEER
B.E. BISHOP
Oct 3/2014
PROVINCE OF ONTARIO

APPENDIX 'A'

Hydrologic Design Flow Information



TOWN OF ANCASTER

HAMILTON REGION
CONSERVATION AUTHORITY

MASTER DRAINAGE STUDY

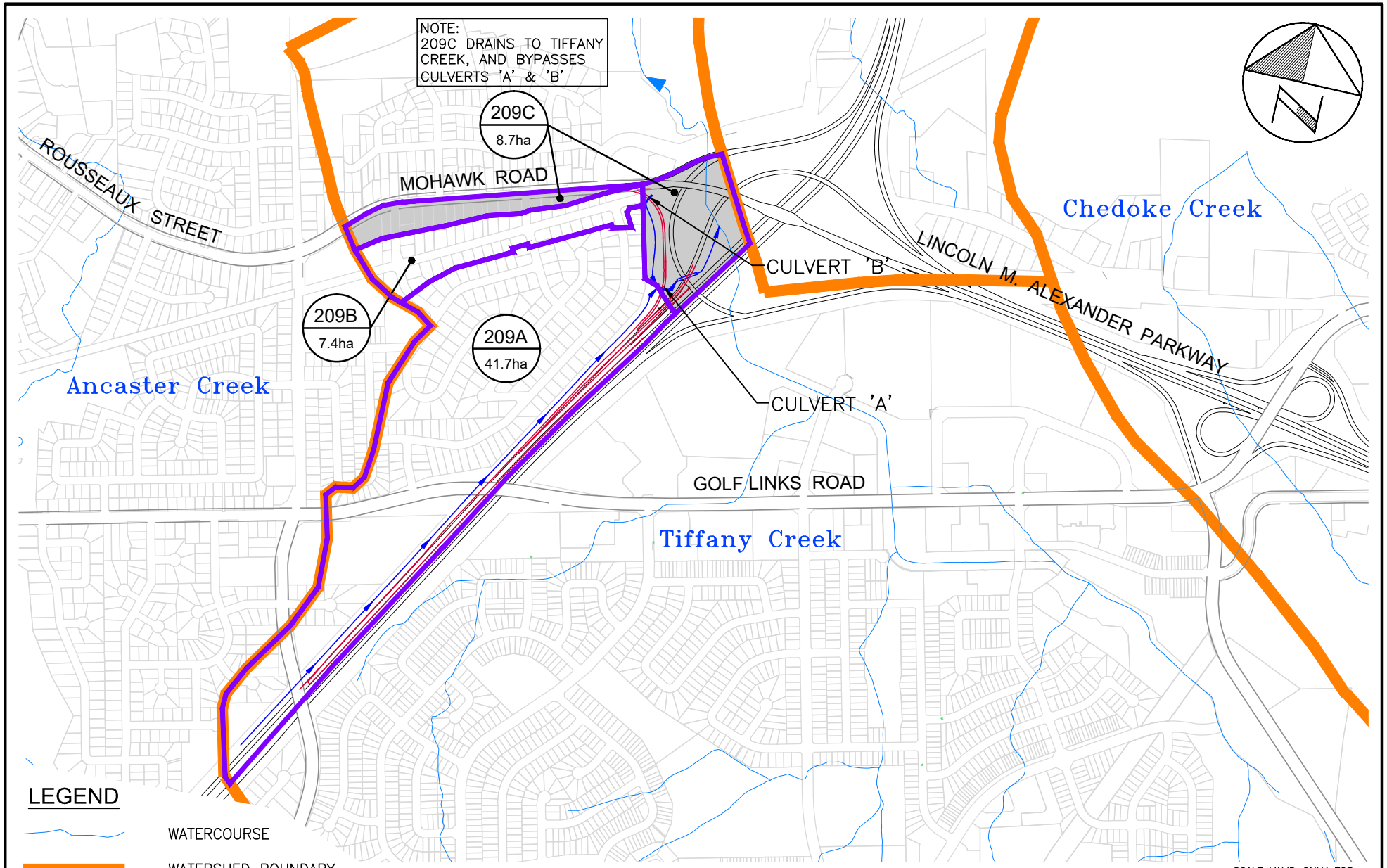
HYDROLOGIC & HYDRAULIC
MODELLING LAYOUT

LEGEND

• A1	NODAL POINT – ANCASTER CREEK
• T2	NODAL POINT – TIFFANY CREEK
10.1	REACH NO.
10.1	SUBCATCHMENT NO.

0 1000 m

Plotted: 2014-10-03 Plotted By: richard.bartolo
Last Saved: 2014-10-03 Last Saved By: richard.bartolo Path: P:\Work\TP113070\Water\Dwg\Figure1.dwg



LEGEND

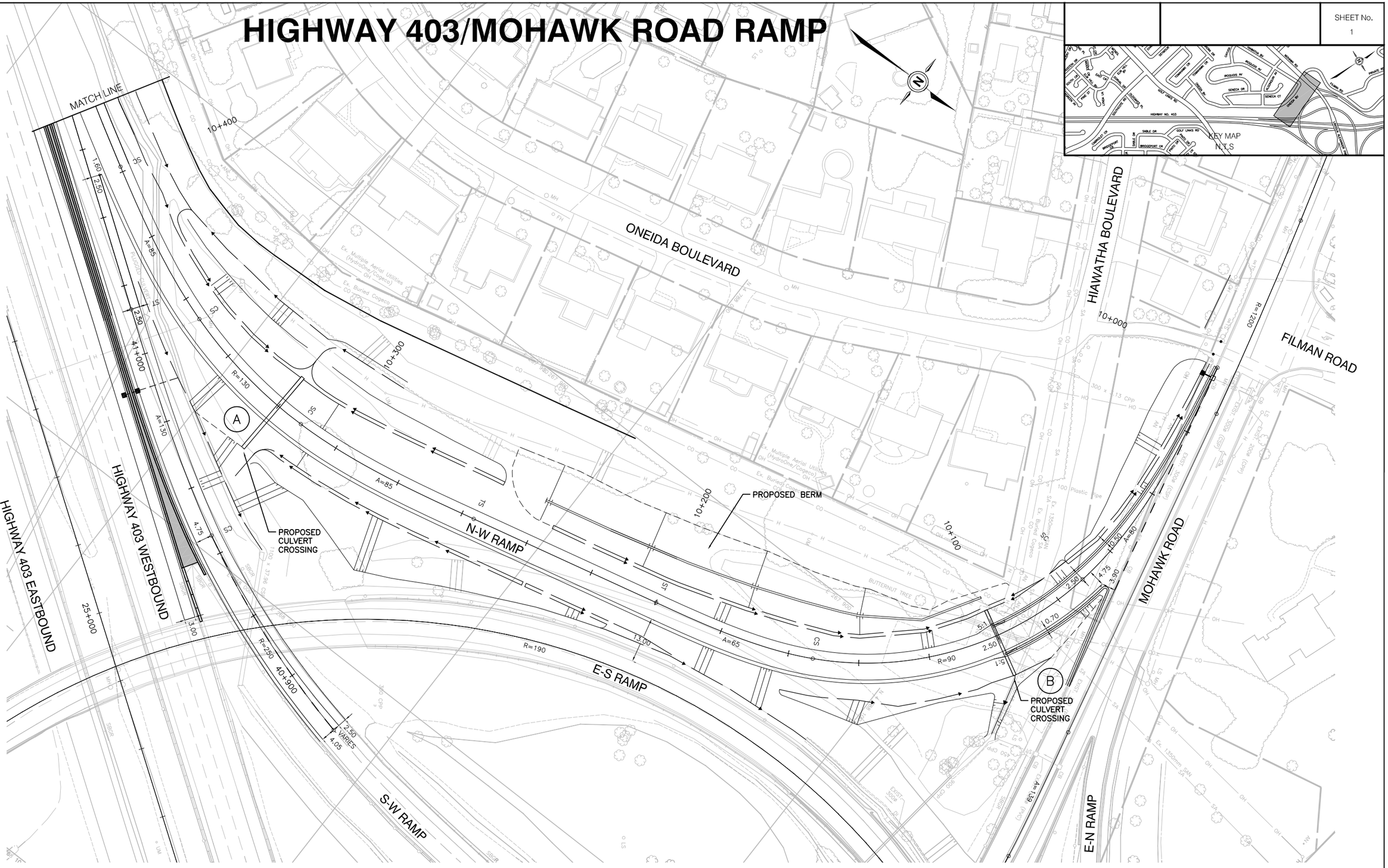
- WATERCOURSE
- WATERSHED BOUNDARY
- SUBCATCHMENT BOUNDARY
- 100 / 25.0ha — SUBCATCHMENT ID# / SUBCATCHMENT AREA

SCALE VALID ONLY FOR LETTER VERSION

HIGHWAY 403 MOHAWK ROAD RAMP FEASIBILITY AND ENVIRONMENTAL ASSESSMENT STUDY CITY OF HAMILTON	PROPOSED CULVERTS CONTRIBUTING DRAINAGE AREAS	amec	Scale 1:12500 (0 75 150 300) Consultant File No. TP113070 Figure No. 1

HIGHWAY 403/MOHAWK ROAD RAMP

SHEET No. 1



No.	REVISIONS	INITIAL	DATE

DRAWN BY: J.C. DATE: APRIL 28, 2014

REFERENCE MATERIAL:
Surveyed By : J.D. Barnes Limited
Sewer Plans :
Water Plans :
Survey Plan :

Geodetic Bench Mark Index No. Elevation=???.???m
Borehole Report:

SCALE
0 5m 10m 20m

amec

Project Manager (Design)
?

Manager of Design
?

CITY OF HAMILTON
Public Works Department

HIGHWAY 403/MOHAWK ROAD RAMP

PROPOSED CULVERT LOCATION

Proposed Westbound Ramp

From : Southcote Road
To : Mohawk Road

```
2     Metric units
*#*****************************************************************************
*#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
*#  Date        : 09-30-2014
*#  Modeller    : [M. Kuyntjes]
*#  Company     : AMEC
*#  License #   :  3569108
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*# REPRESENTS PROPOSED CONDITION - NO SWM
*# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
*# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
*#*********************************************************************
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*#####################################################################
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 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9 Ver. 4.02
     S   W W   M   M  H   H    Y    M   M  O   O       9999   9999 July 1999
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9 =========
                                                      9   9  9   9 # 3569108
      StormWater Management HYdrologic Model           999    999  =========

 ************************************************************************
 ************************** SWMHYMO-99 Ver/4.02 **************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                 OTTHYMO-83 and OTTHYMO-89.                  *******
 ************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.          *******
 *******                  Ottawa,  Ontario: (613) 727-5199           *******
 *******                  Gatineau, Quebec: (819) 243-6858           *******
 *******                  E-Mail: swmhymo@jfsa.Com                   *******
 ************************************************************************

 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Philips Engineering Ltd                     +++++++
 +++++++                Burlington           SERIAL#:3569108       +++++++
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:  15000            *******
 *******           Max. number of flow points    :  15000            *******
 ************************************************************************

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 ***----------------------------------------------------------------------***
 ***    ID:  Hydrograph IDentification numbers, (1-10).                   ***
 ***  NHYD:  Hydrograph reference numbers, (6 digits or characters).      ***
 ***  AREA:  Drainage area associated with hydrograph, (ac.) or (ha.).    ***
 *** QPEAK:  Peak flow of simulated hydrograph, (ft^3/s) or (m^3/s).      ***
 *** TpeakDate_hh:mm is the date and time of the peak flow.               ***
 ***  R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).         ***
 ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).         ***
 ***     *:  see WARNING or NOTE message printed at end of run.           ***
 ***    **:  see  ERROR  message printed at end of run.                   ***
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 ************************************************************************

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

 ************************************************************************

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 * Output  filename: C:\SWMHYMO\MHK403ds.out                            *
 * Summary filename: C:\SWMHYMO\MHK403ds.sum                            *
 * User comments:                                                       *
 * 1:___________________________________________________________________*
 * 2:___________________________________________________________________*
 * 3:___________________________________________________________________*
```

```
 ******************************************************************************


#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
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# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
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#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
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#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
```

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# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
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#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
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#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
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# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 003:0003--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
```

```
     CALIB STANDHYD     01:209       49.11    4.924 No_date    8:00   90.93 .728
      [XIMP=.32:TIMP=.32]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 003:0004--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    4.924 No_date    8:00   90.93  n/a
  ** END OF RUN :   3

*******************************************************************************




 RUN:COMMAND#
 004:0001----------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   4 ]
#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
 004:0002----------------------------------------------------------------------
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 6 HOUR RAINFALL - TOWN OF ANCASTER 100 YEAR DESI
      [SDT=10.00:SDUR=   6.00:PTOT=  84.60]
#*********************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 004:0003--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    4.582 No_date    3:00   55.02 .650
      [XIMP=.32:TIMP=.32]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 004:0004--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    4.582 No_date    3:00   55.02  n/a
  ** END OF RUN :   4

*******************************************************************************




 RUN:COMMAND#
 005:0001----------------------------------------------------------------------
```

```
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   5 ]
#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
 005:0002-------------------------------------------------------------------
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 12 HOUR RAINFALL - TOWN OF ANCASTER 100 YEAR DES
      [SDT=10.00:SDUR=  12.00:PTOT= 104.39]
#*********************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 005:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    5.032 No_date    6:00   72.39 .693
      [XIMP=.32:TIMP=.32]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 005:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    5.032 No_date    6:00   72.39  n/a
  ** END OF RUN :   5

*******************************************************************************




 RUN:COMMAND#
 006:0001-------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   6 ]
#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
 006:0002-------------------------------------------------------------------
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 24 HOUR RAINFALL - TOWN OF ANCASTER 100 YEAR DES
      [SDT=10.00:SDUR=  24.00:PTOT= 129.60]
```

```
#*************************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# DESIGN STORM CHECK FOR MOST CONSERVATIVE DESIGN
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*************************************************************************
#########################################################################
#Subcatchment 209 OUTFLOW - November 1987
#########################################################################
 006:0003--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    5.430 No_date   12:00   95.24 .735
      [XIMP=.32:TIMP=.32]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 006:0004--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    5.430 No_date   12:00   95.24  n/a
 006:0002-------------------------------------------------------------------------
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2014-10-03     at 11:26:27
===============================================================================
```

```
2     Metric units
*#******************************************************************************
*#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
*#  Date        : 09-30-2014
*#  Modeller    : [M. Kuyntjes]
*#  Company     : AMEC
*#  License #   :  3569108
*#******************************************************************************
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
*%                  "TIFSCS24.050" <--storm filename, one per line for NSTORM time
*%-----------------|-------------------------------------------------------------|
READ STORM          STORM_FILENAME=["Storm.001"]
*%-----------------|-------------------------------------------------------------|
*#*********************************************************************
*# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987))
*# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
*# Original File: 86003 -NOVEMBER 1987
*# FUTURE CONFIGURATION (from 1987) - REPRESENTS EXISTING CONDITION - NO SWM
*# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
*#*********************************************************************
*%-----------------|-------------------------------------------------------------|
*#####################################################################
*#Subcatchment 209 OUTFLOW - November 1987
*#####################################################################
CALIB STANDHYD      ID=[1], NHYD=["209"], DT=[10](min), AREA=[49.11](ha),
                    XIMP=[0.30], TIMP=[0.30], DWF=[0.0](cms), LOSS=[2],
                    SCS curve number CN=[79.5],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.30](%),
                                         LGP=[1010](m), MNP=[0.128], SCP=[0](min),
                    Impervious surfaces: IAimp=[5](mm), SLPI=[0.70](%),
                                         LGI=[1010](m), MNI=[0.02], SCI=[0](min),
                    END=-1
*%-----------------|-------------------------------------------------------------|
PRINT HYD           ID=[1],   # of PCYCLES=[-1]
*%-----------------|-------------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[2]
                    ["TIFSCS24.100"]
*%-----------------|-------------------------------------------------------------|


FINISH
```

```
==============================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999  =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9 Ver. 4.02
     S   W W   M   M  H   H    Y    M   M  O   O       9999   9999 July 1999
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9 =========
                                                      9   9  9   9 # 3569108
      StormWater Management HYdrologic Model           999    999  =========

 ***************************************************************************
 ************************** SWMHYMO-99 Ver/4.02 **************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                 OTTHYMO-83 and OTTHYMO-89.                  *******
 ***************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.          *******
 *******                  Ottawa,  Ontario: (613) 727-5199           *******
 *******                  Gatineau, Quebec: (819) 243-6858           *******
 *******                  E-Mail: swmhymo@jfsa.Com                   *******
 ***************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Philips Engineering Ltd                      +++++++
 +++++++                Burlington           SERIAL#:3569108        +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ***************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:  15000            *******
 *******           Max. number of flow points    :  15000            *******
 ***************************************************************************

 *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) ***
 ***-----------------------------------------------------------------------***
 ***    ID:  Hydrograph IDentification numbers, (1-10).                  ***
 ***  NHYD:  Hydrograph reference numbers, (6 digits or characters).     ***
 ***  AREA:  Drainage area associated with hydrograph, (ac.) or (ha.).   ***
 *** QPEAK:  Peak flow of simulated hydrograph, (ft^3/s) or (m^3/s).     ***
 *** TpeakDate_hh:mm is the date and time of the peak flow.              ***
 ***  R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).        ***
 ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).        ***
 ***     *:  see WARNING or NOTE message printed at end of run.          ***
 ***    **:  see  ERROR  message printed at end of run.                  ***
 ***************************************************************************
 ***************************************************************************

:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

 ***************************************************************************

 *********************   S U M M A R Y   O U T P U T   *********************
 ***************************************************************************
 *       DATE: 2014-10-03     TIME: 11:32:42     RUN COUNTER: 000460       *
 ***************************************************************************
 * Input   filename: C:\SWMHYMO\MHK403ex.DAT                               *
 * Output  filename: C:\SWMHYMO\MHK403ex.out                               *
 * Summary filename: C:\SWMHYMO\MHK403ex.sum                               *
 * User comments:                                                          *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
```

```
 ******************************************************************************


#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
 RUN:COMMAND#
 001:0001-------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   1 ]
 001:0002--------------------------------------------------------------------
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 24 HOUR RAINFALL - TOWN OF ANCASTER 50 YEAR DESI
      [SDT=10.00:SDUR=  24.00:PTOT= 117.60]
#*********************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# FUTURE CONFIGURATION (from 1987) - REPRESENTS EXISTING CONDITION - NO SWM
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 001:0003--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    4.613 No_date   12:00   83.61 .711
      [XIMP=.30:TIMP=.30]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 001:0004--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    4.613 No_date   12:00   83.61  n/a
  ** END OF RUN :   1

******************************************************************************




 RUN:COMMAND#
 002:0001-------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   2 ]
#******************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#******************************************************************************
 002:0002--------------------------------------------------------------------
```

```
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 24 HOUR RAINFALL - TOWN OF ANCASTER 100 YEAR DES
      [SDT=10.00:SDUR=  24.00:PTOT= 129.60]
#*********************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# FUTURE CONFIGURATION (from 1987) - REPRESENTS EXISTING CONDITION - NO SWM
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 002:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    5.208 No_date   12:00   94.55 .730
      [XIMP=.30:TIMP=.30]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 002:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    5.208 No_date   12:00   94.55  n/a
 002:0002-------------------------------------------------------------------------
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2014-10-03     at 11:32:42
===============================================================================
```

```
2     Metric units
*#******************************************************************************
*#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
*#  Date        : 09-30-2014
*#  Modeller    : [M. Kuyntjes]
*#  Company     : AMEC
*#  License #   :  3569108
*#******************************************************************************
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
*%                  "TIFSCS24.050" <--storm filename, one per line for NSTORM time
*%-----------------|-------------------------------------------------------------|
READ STORM          STORM_FILENAME=["Storm.001"]
*%-----------------|-------------------------------------------------------------|
*#*********************************************************************
*# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987))
*# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
*# Original File: 86003 -NOVEMBER 1987
*# REPRESENTS PROPOSED CONDITION - NO SWM
*# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
*#*********************************************************************
*%-----------------|-------------------------------------------------------------|
*#####################################################################
*#Subcatchment 209 OUTFLOW - November 1987
*#####################################################################
CALIB STANDHYD      ID=[1], NHYD=["209"], DT=[10](min), AREA=[49.11](ha),
                    XIMP=[0.316], TIMP=[0.316], DWF=[0.0](cms), LOSS=[2],
                    SCS curve number CN=[79.5],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[1.30](%),
                                         LGP=[1010](m), MNP=[0.128], SCP=[0](min),
                    Impervious surfaces: IAimp=[5](mm), SLPI=[0.70](%),
                                         LGI=[1010](m), MNI=[0.02], SCI=[0](min),
                    END=-1
*%-----------------|-------------------------------------------------------------|
PRINT HYD           ID=[1],   # of PCYCLES=[-1]
*%-----------------|-------------------------------------------------------------|
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[2]
                    ["TIFSCS24.100"]
*%-----------------|-------------------------------------------------------------|

FINISH
```

```
==============================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999  =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9 Ver. 4.02
     S   W W   M   M  H   H    Y    M   M  O   O       9999   9999 July 1999
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9 =========
                                                      9   9  9   9 # 3569108
      StormWater Management HYdrologic Model           999    999  =========

 ***************************************************************************
 ************************** SWMHYMO-99 Ver/4.02 **************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                 OTTHYMO-83 and OTTHYMO-89.                  *******
 ***************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.          *******
 *******                  Ottawa,  Ontario: (613) 727-5199           *******
 *******                  Gatineau, Quebec: (819) 243-6858           *******
 *******                  E-Mail: swmhymo@jfsa.Com                   *******
 ***************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Philips Engineering Ltd                      +++++++
 +++++++                Burlington           SERIAL#:3569108        +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ***************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:  15000            *******
 *******           Max. number of flow points    :  15000            *******
 ***************************************************************************

 *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) ***
 ***-----------------------------------------------------------------------***
 ***    ID:  Hydrograph IDentification numbers, (1-10).                    ***
 ***  NHYD:  Hydrograph reference numbers, (6 digits or characters).       ***
 ***  AREA:  Drainage area associated with hydrograph, (ac.) or (ha.).     ***
 *** QPEAK:  Peak flow of simulated hydrograph, (ft^3/s) or (m^3/s).       ***
 *** TpeakDate_hh:mm is the date and time of the peak flow.                ***
 ***  R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).          ***
 ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).          ***
 ***     *:  see WARNING or NOTE message printed at end of run.            ***
 ***    **:  see  ERROR  message printed at end of run.                    ***
 ***************************************************************************
 ***************************************************************************

:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

 ***************************************************************************

 *********************   S U M M A R Y   O U T P U T   *********************
 ***************************************************************************
 *       DATE: 2014-10-03     TIME: 11:36:24     RUN COUNTER: 000461       *
 ***************************************************************************
 * Input   filename: C:\SWMHYMO\MHK403pr.DAT                               *
 * Output  filename: C:\SWMHYMO\MHK403pr.out                               *
 * Summary filename: C:\SWMHYMO\MHK403pr.sum                               *
 * User comments:                                                          *
 * 1:_______________________________________________________________________*
 * 2:_______________________________________________________________________*
 * 3:_______________________________________________________________________*
```

```
 ****************************************************************************


#****************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#****************************************************************************
 RUN:COMMAND#
 001:0001-------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   1 ]
 001:0002--------------------------------------------------------------------
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 24 HOUR RAINFALL - TOWN OF ANCASTER 50 YEAR DESI
      [SDT=10.00:SDUR=  24.00:PTOT= 117.60]
#*********************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 001:0003--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    4.812 No_date   12:00   84.27 .717
      [XIMP=.32:TIMP=.32]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 001:0004--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    4.812 No_date   12:00   84.27  n/a
  ** END OF RUN :   1

****************************************************************************




 RUN:COMMAND#
 002:0001-------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2    (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   2 ]
#****************************************************************************
#  Project Name: [Tiffany Creek]    Project Number: [ 113070 ]
#  Date        : 09-30-2014
#  Modeller    : [M. Kuyntjes]
#  Company     : AMEC
#  License #   :  3569108
#****************************************************************************
 002:0002--------------------------------------------------------------------
```

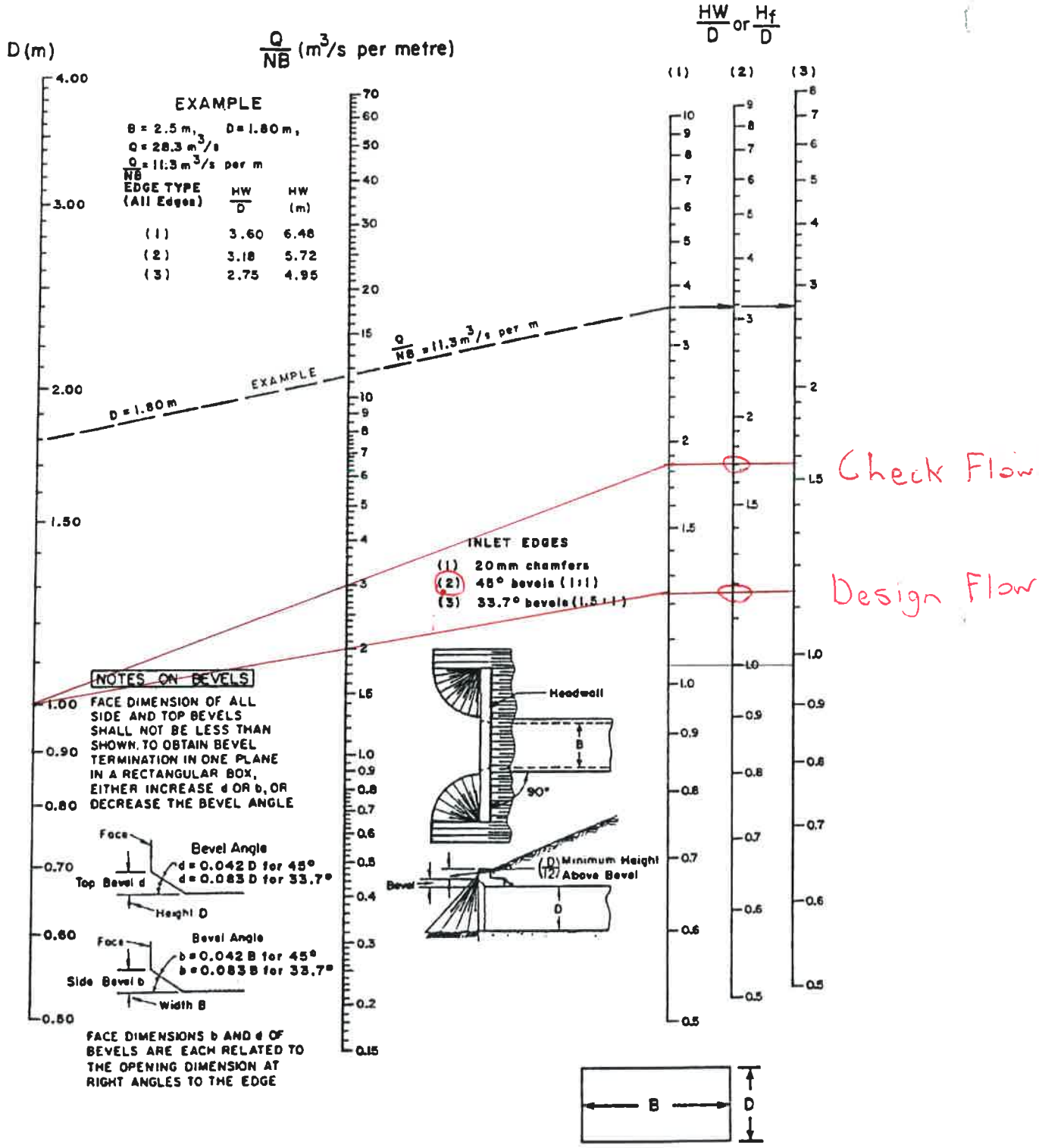
```
     READ STORM
      Filename = Storm.001
      Comment  = SCS TYPE II 24 HOUR RAINFALL - TOWN OF ANCASTER 100 YEAR DES
      [SDT=10.00:SDUR=  24.00:PTOT= 129.60]
#*********************************************************************
# MOHAWK ROAD/403 N-W RAMP (ref. TOWN OF ANCASTER - MASTER DRAINAGE PLAN (1987)
# REGIONAL MUNICIPALITY OF HAMILTON - TIFFANY CREEK
# Original File: 86003 -NOVEMBER 1987
# REPRESENTS PROPOSED CONDITION - NO SWM
# THE FOLLOWING MODEL IS A CONDENSED VERSION OF SWMHYMO
#*********************************************************************
#####################################################################
#Subcatchment 209 OUTFLOW - November 1987
#####################################################################
 002:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:209       49.11    5.430 No_date   12:00   95.24 .735
      [XIMP=.32:TIMP=.32]
      [LOSS= 2 :CN= 79.5]
      [Pervious     area: IAper= 5.00:SLPP=1.30:LGP=1010.:MNP=.128:SCP=   .0]
      [Impervious   area: IAimp= 5.00:SLPI= .70:LGI=1010.:MNI=.020:SCI=   .0]
 002:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     PRINT HYD          01:209       49.11    5.430 No_date   12:00   95.24  n/a
 002:0002-----------------------------------------------------------------------
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2014-10-03     at 11:36:24
===============================================================================
```

APPENDIX 'B'

Culvert Hydraulics

CHART D5 - 1B

Culvert A

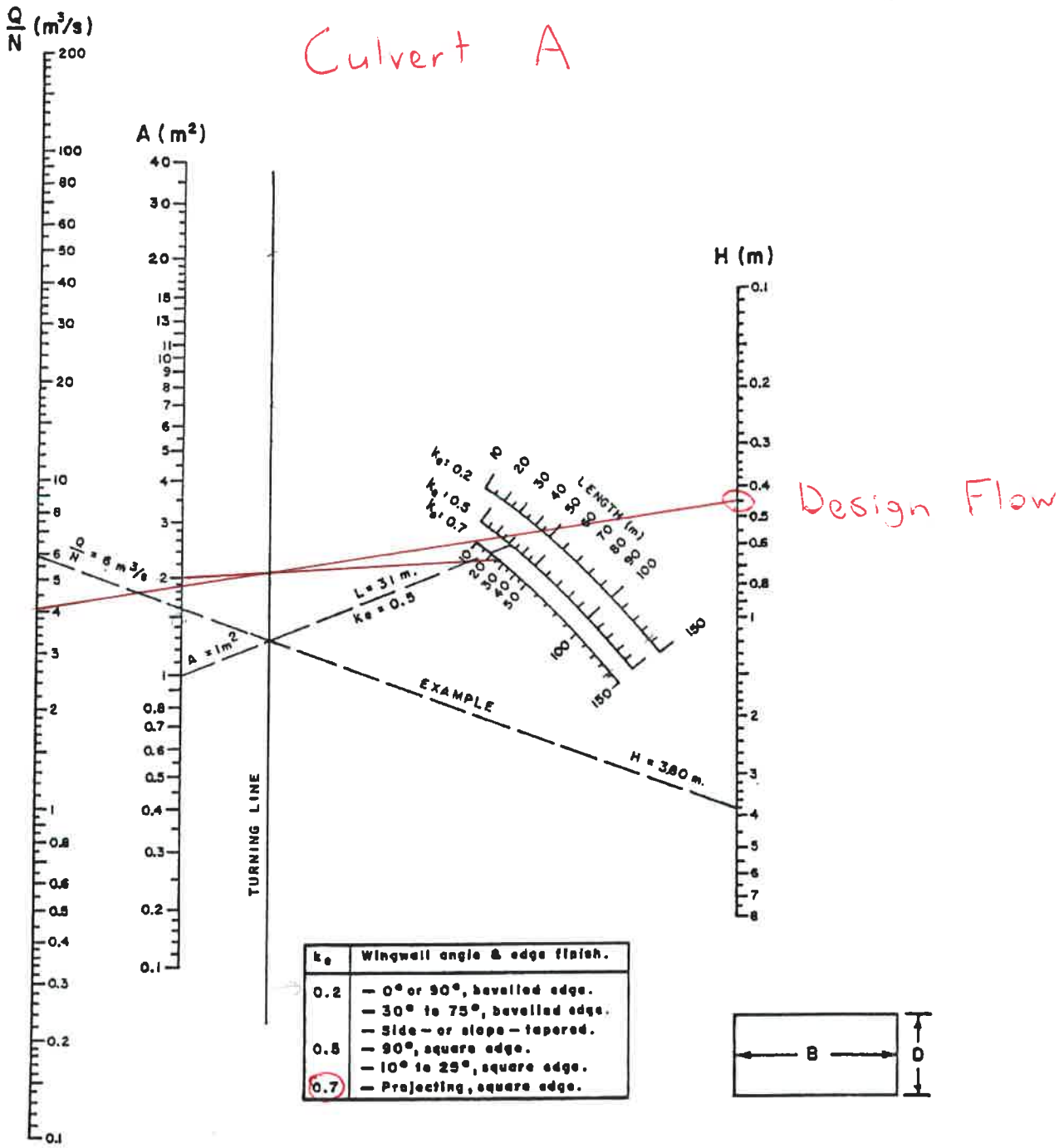


INLET CONTROL
BOX CULVERT
90° HEADWALLS AND CHAMFERED
OR BEVELED INLET EDGES

FHA 73 05 (2)

MTC Metric

CHART D5 - 2A



k_e	Wingwall angle & edge finish.
0.2	— 0° or 90°, bevelled edge.
	— 30° to 75°, bevelled edge.
	— Side — or slope — tapered.
0.5	— 90°, square edge.
	— 10° to 25°, square edge.
0.7	— Projecting, square edge.

A = Cross-sectional area per barrel.

Note: If B/D ≠ 0.5 to 2.0, calculate H from equation D3.5.

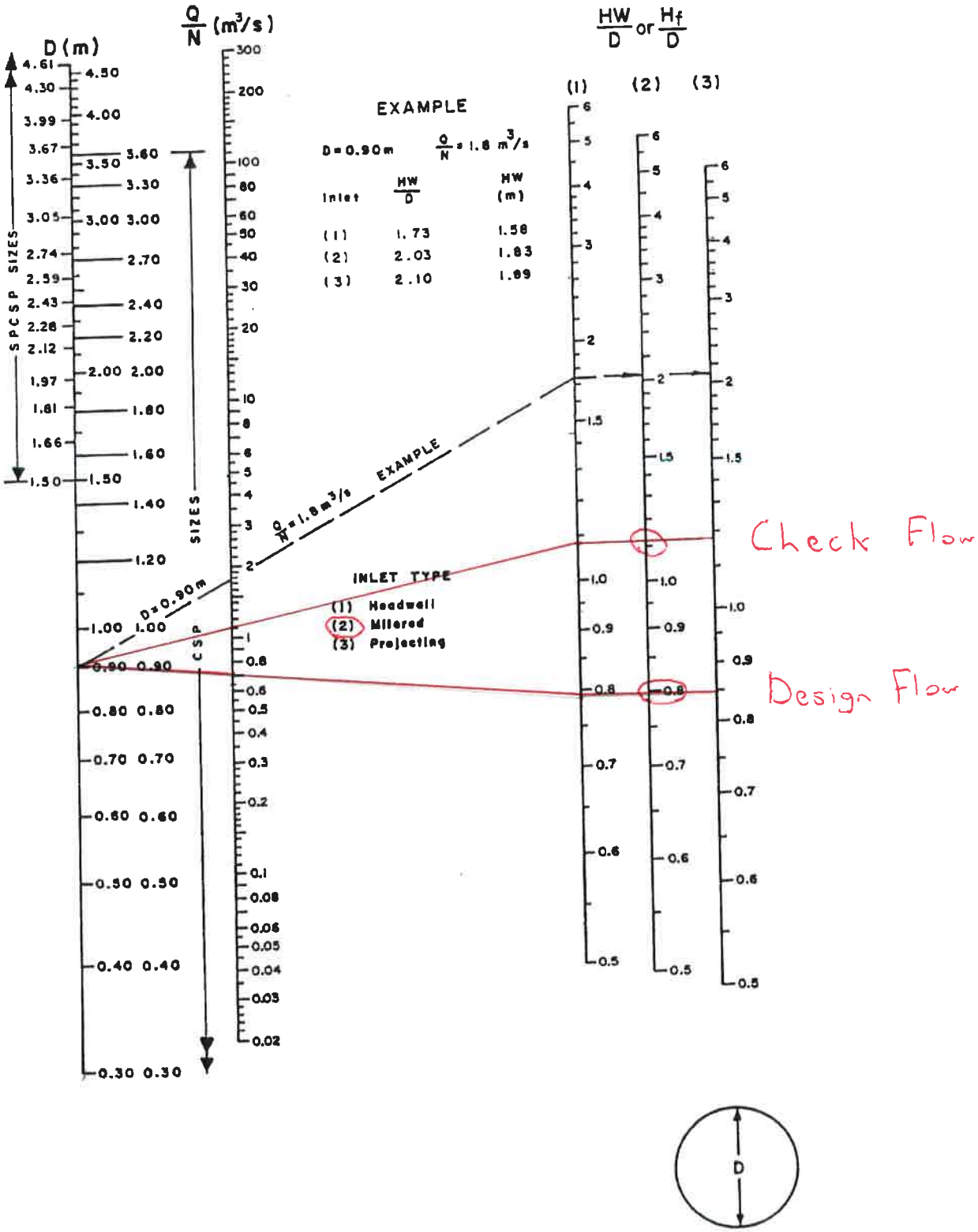
A = BD

OUTLET CONTROL
CONCRETE BOX CULVERT
FLOWING FULL
n = 0.012

FHA 63 01
METRIC FHA 74 06 (51)

CHART D5 - 1G

Culvert B

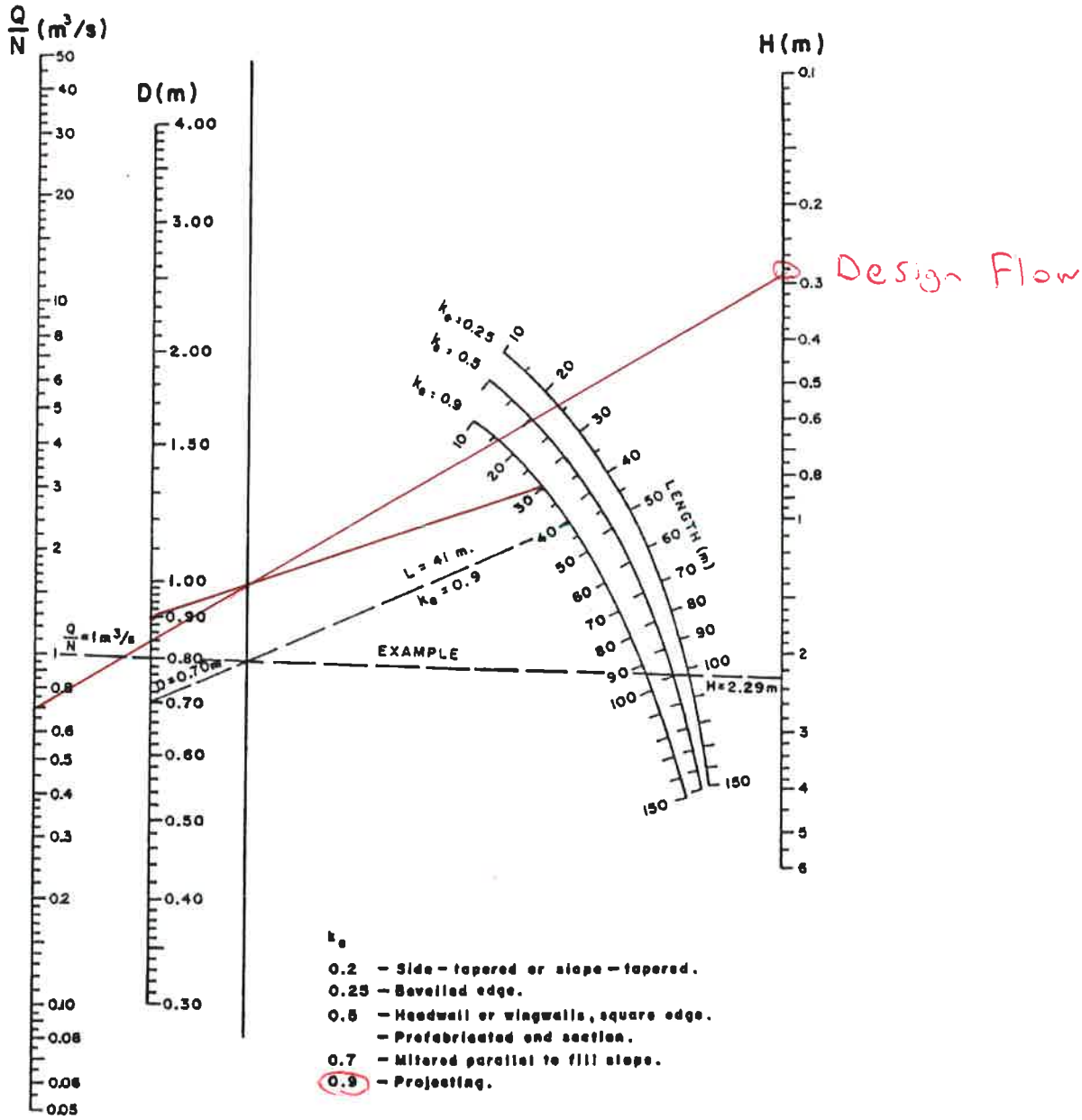


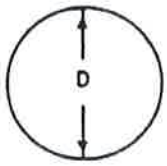
FHA 63 01
METRIC FHA 74 06 (SI)

INLET CONTROL
CSP & SPCSP CULVERT

Culvert B

CHART D5 - 2C





OUTLET CONTROL
CORRUGATED STEEL PIPE
FLOWING FULL
n = 0.024

FHA 63 01
METRIC FHA 74 06 (SI)

Appendix K: Traffic Noise Impact Assessment

TRAFFIC NOISE IMPACT ASSESSMENT FOR MOHAWK ROAD RAMP FEASIBILITY AND ENVIRONMENTAL ASSESSMENT STUDY

(Highway 403 Brantford-bound Access Ramp)
Ancaster, Ontario

Submitted to:

The City of Hamilton
71 Main Street West
Hamilton, Ontario
L8P 4Y5

Submitted by:

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited
160 Traders Blvd., Suite 110
Mississauga, Ontario
L4Z 3K7

September 2014

TP113070

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1.0 INTRODUCTION

The City of Hamilton is proposing to construct a new Highway 403 Brantford-bound access ramp at Mohawk Road, in Ancaster, Ontario and the City has retained AMEC Environment & Infrastructure, a Division of AMEC Americas Limited (AMEC) to undertake a Schedule C Municipal Class Environmental Assessment (Class EA) for the proposed ramp. This traffic noise impact assessment report is prepared to support the Municipal Class EA process.

The objective of the study is to predict future "build" and future "no-build" sound levels from road traffic noise sources in the area (i.e., noise levels with and without the proposed project taking place); to use these predictions to assess potential impacts according to the applicable guidelines; to specify mitigation measures where required; and to assess the potential for construction noise and provide a Code of Practice to minimize potential construction noise impacts.

A glossary of commonly used noise terminology can be found in Appendix A.

1.1 Project Description (Nature of the Undertaking)

Mohawk Road is classified as an arterial roadway and is under the jurisdiction of the City of Hamilton. The proposed ramp is to provide access from Mohawk Road to Highway 403 westbound access. The proposed Mohawk Road Ramp and project limits are shown in Figure 1.

2.0 ROAD TRAFFIC NOISE IMPACTS (OPERATIONAL NOISE)

For surface transportation projects, noise from the operation of a project following its completion is of primary concern. This section of the report provides an evaluation of noise impacts from road traffic noise resulting from the project.

2.1 Applicable Guidelines

There are several transportation noise guidelines that are applicable to this project. Ontario Provincial policies established by the MTO and MOE are directly applicable under the Municipal Class EA process for transportation projects, and are discussed in detail in this report. There are no other noise guidelines applicable to this project.

2.1.1 Ontario Provincial Guidelines and Policies

Ontario has a number of guidelines and documents related to assessing road traffic noise impacts applicable to Mohawk Road Ramp. These documents and policies include:

- Ontario MTO, *Environmental Guide For Noise* (MTO 2006); and
- Ontario MTO, *Environmental Reference for Highway Design* (MTO 2002).

These guidelines apply to major roadway construction and reconstruction of municipal roads, provincial highways and freeways. The *Environmental Guide for Noise* updates, improves and supersedes both the MOE/MTO "Joint Protocol" (MTO & MOE, 1986) and the MTO Quality and Standards Directive QST-A1 (MTO 1992a).

The Environmental Office Manual, Environmental Reference for Highway Design, and Draft Environmental Guide for Noise are all MTO documents that serve as detailed technical references for assessing vehicular road traffic noise on provincial highways in Ontario. All these MTO documents have been considered in the preparation of the road traffic noise impact outlined below.

Under the *Environmental Guide for Noise* the importance of changes from a noise impact perspective is based on the objective level and change from existing conditions. Assessments should be based on a minimum 10-year future horizon year (i.e., on traffic volumes 10 years after the completion of the project). For this project, traffic data for years 2021 and 2031 are available, and the data for 2031 is considered for the assessment.

Noise mitigation is warranted when sound levels are increased to 65 dBA or greater or 5 dB over the "no-build" ambient sound levels (MTO Environmental Guide for Noise). Mitigation measures can include noise barriers, noise reducing asphalts, and changes in vertical profiles and horizontal alignments. Noise mitigation where applied must be administratively, economically and technically feasible, and must provide at least 5 dB of reduction averaged over the first row of noise-sensitive receivers. Mitigation measures are restricted to within the roadway right-of-way. Off right-of-way noise mitigation, such as window upgrades and air conditioning, is not considered. Noise mitigation requirements per MTO guidelines are summarized in Table 1.

Table 1: Summary of Mitigation Efforts under Ontario Road Traffic Noise Guidelines

Change in Sound Levels above Ambient and Absolute Future Sound Levels with Project	Mitigation Effort Required
<5 dB Increase OR <65 dBA Absolute	• None
≥5 dB Increase OR >65 dBA Absolute	• Investigate noise control measures within right-of-way • Noise control measures where used must provide a minimum of 5 dB of attenuation, averaged over the first row of receivers or 3 dB of attenuation over the first row of affected receivers for upgrading existing measures • Mitigated to as close to ambient as possible, where technically, economically and administratively feasible

Note: Values are L_{eq} (16h) levels for municipal and Provincial Highways, and L_{eq} (24h) for Freeways

Under MTO and MOE policies, L_{eq} (24h) sound levels are used to assess impacts from freeways (major highways), and daytime L_{eq} (16h) sound levels are used to assess impacts from all other roadways. L_{eq} (16h) values have been used in the assessment even though the roads associated with this project include both highways and municipal arterial roads. The traffic volumes on freeways were equally distributed for day and night for this assessment.

2.2 Location of Noise Sensitive Areas within the Area of Investigation

2.2.1 Definition of Noise Sensitive Areas

Noise impacts from transportation projects are evaluated at noise sensitive receptors within the area. Noise receptors are called “Noise Sensitive Areas (NSAs)” in the MTO documents. Under current Ontario guidelines, NSAs include the following land uses, provided they have an Outdoor Living Area (OLA) associated with them:

- Private homes (single family units and townhouses);
- Multiple unit buildings such as apartments, provided they have a communal OLA associated with them;
- Hospitals and nursing homes for the aged, provided they have an OLA for use by patients;
- Campgrounds that provide overnight accommodation; and
- Hotels and motels with outdoor communal OLAs (e.g., swimming pools) for visitors.

The following land uses are generally not considered to qualify as NSAs:

- Apartment balconies;
- Churches and other places of worship;
- Educational facilities and daycare centres where there are OLAs for students (except dormitories with OLA);
- Cemeteries;
- Parks and picnic areas not part of a defined OLA;
- All commercial; and
- All industrial.

2.2.2 Future Land Uses

Lands that have been zoned for future noise sensitive uses and have an approved Plan of Subdivision in place, but where NSAs do not currently exist must also be considered under MOE policies. A review of the land use zoning within the project Area of Investigation has been conducted for this assessment and there are no new subdivisions proposed in this area.

2.2.3 Location and Number of Noise Receptors within the Area of Investigation

Twenty-six existing single family homes are identified as noise receptors in the study area and six (6) representative noise receptors are modelled in this assessment to represent them. The noise receptors considered in the noise modelling are shown in Figure 2 and described in Table 2.

Table 2: Representative Noise Receptors Considered in the Analysis

Receptor ID [1]	Receptor Description	Approximate No. of Residences Represented
NR01	Single Family Home south of Mohawk Road	3
NR02	Single Family Home on Oneida Blvd	2
NR03	Single Family Home on Oneida Blvd	2
NR04	Single Family Home on Oneida Blvd	5
NR05	Single Family Home on Oneida Blvd	7
NR06	Single Family Home on Oneida Blvd	7

Note: [1] Representative receptors modelled.

The receptor location for this traffic noise impact assessment is the OLA of noise sensitive land uses. The OLA may be situated on any side of the receptor, but is generally taken to be the backyard. For assessment purposes, it is taken as a point 3 m from the façade of the receptor, and 1.5 m (approximate head-height) above the ground surface. Where the actual position of the OLA is unknown, the side or backside closest to the proposed roadway has been assumed. The locations of the representative noise receptors used in the analysis are shown in Figure 2.

2.3 Road Traffic Data

Assessment is completed based on minimum 10-year future horizon year traffic (i.e., on traffic volumes 10 years after the completion of the project). Accordingly, a design year of 2031 is considered for the assessment of this project.

Projected future build and no-build traffic volumes, traffic split between passenger cars and trucks, and traffic speed for the Year 2031 design year were provided by the traffic consultant for the project (CIMA+).

Traffic data was provided in the form of Peak AM and PM hourly traffic volumes and AADT. Traffic split between day and night was done based on MOE's traffic volume projection guideline (90%/10%). Traffic split for the commercial vehicle percentage was provided by the traffic consultant. The breakdown of commercial vehicles into heavy trucks and medium trucks was assumed to be proportional to the 55%/45%. The traffic data used in the assessment is summarized in Tables 3 and 4.

Table 3: Future "No-Build" Traffic Data for Mohawk Road and Other Roads (Year 2031)

Road	Between		AADT	Day/Night Split [1]	Overall % Commercial Vehicles	Heavy / Medium Truck Split [2]	Speed Limit (km/h)
Hwy 403 Mainline	Hwy 6	LINC	87,005	67/33	10	55/45	100
Hwy 403, Mohawk Road and LINC Interchange Ramps	LINC NB	Hwy 403 EB	19,501	67/33	10	55/45	60
	LINC NB	Hwy 403 WB	24,870	67/33	10	55/45	60
	LINC NB	Mohawk NB	6,679	90/10	5	55/45	70/50[3]
	Hwy 403 EB	LINC SB	14,592	67/33	10	55/45	80
	Hwy 403 WB	LINC SB	20,723	67/33	10	55/45	60
	Hwy 403 EB	Mohawk NB	8,926	90/10	5	55/45	50
	Mohawk SB	Hwy 403 EB	11,326	90/10	5	55/45	40
	Mohawk SB	LINC SB	14,884	90/10	5	55/45	70/50[3]
	Mohawk SB	Hwy 403 WB	-	-	-	-	-

Notes: [1] DD / NN is the percentage of vehicle traffic in the 16 daytime and 8 hour night-time respectively.
[2] HT / MT is the percentage of heavy trucks and medium trucks used in the analysis, respectively.
[3] Posted traffic speed north of Filman Road is 50 km/h and that for south of Filman Road is 70 km/h.

Table 4: Future 'Build' Traffic Data for Mohawk Road and Other Roads (Year 2031)

Road	Between		AADT	Day/Night Split [1]	Overall % Commercial Vehicles	Heavy / Medium Truck Split [2]	Speed Limit (km/h)
Hwy 403 Mainline	Hwy 6	LINC	88,069	67/33	10	55/45	100
Hwy 403, Mohawk Road and LINC Interchange Ramps	LINC NB	Hwy 403 EB	19,546	67/33	10	55/45	60
	LINC NB	Hwy 403 WB	24,817	67/33	10	55/45	60
	LINC NB	Mohawk NB	6,629	90/10	5	55/45	70/50[3]
	Hwy 403 EB	LINC SB	14,588	67/33	10	55/45	80
	Hwy 403 WB	LINC SB	20,776	67/33	10	55/45	60
	Hwy 403 EB	Mohawk NB	9,060	90/10	5	55/45	50
	Mohawk SB	Hwy 403 EB	11,309	90/10	5	55/45	40
	Mohawk SB	LINC SB	14,390	90/10	5	55/45	70/50[3]
	Mohawk SB	Hwy 403 WB	1,538	90/10	5	55/45	70

Notes: [1] DD / NN is the percentage of vehicle traffic in the 16 daytime and 8 hour night-time respectively.
[2] HT / MT is the percentage of heavy trucks and medium trucks used in the analysis, respectively.
[3] Posted traffic speed north of Filman Road is 50 km/h and that for south of Filman Road is 70 km/h.

2.4 Noise Model Used

Traffic noise modelling for both the future "no-build" and future "build" cases were completed using the US FHWA Traffic Noise Model (TNM), Version 2.5 as the project is complex with flyovers and interchanges, and is a recognized modeling method by the MTO. TNM allows the user to model multiple roadways and incorporate specific elements such as terrain, meteorology, intervening buildings, barriers, ground type (e.g., soft vs. hard ground). TNM was favoured for this project over the MOE Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) noise procedure, as ORNAMENT was not expected to accurately account for the complexity of the road noise analysis.

The following factors were taken into account in the analysis:

- Horizontal and vertical road-receiver geometry;
- Road gradients;
- Intervening terrain types (ground absorption);
- Traffic volumes and percentage of trucks;
- Vehicle speeds; and
- Screening provided by terrain, houses and existing sound barriers.

Roads, barrier, terrains and receptor locations were obtained from plan drawings and aerial map. A copy of the proposed project layout is provided in Appendix B.

2.5 Determination of Potential Impacts

Under the Joint Protocol and MTO Environmental Guide for Noise, the assessment of impact is conducted by comparing future "build' sound levels (with the project in place) with future "no-build" sound levels. Table 5 presents a comparison of future "build" versus future "no-build" sound levels.

Table 5: Future Noise Levels With and Without the Undertaking – Unmitigated

Receptor ID	Description	Approx. No. of Residences Represented	Future "Build" L_{eq} (16h) dBA	Future "No-Build" L_{eq} (16h) dBA	Change ("Build" – "No-Build") dB
NR01	Single Family Home south of Mohawk Road	3	67	67	0
NR02	Single Family Home on Oneida Blvd	2	61	61	0
NR03	Single Family Home on Oneida Blvd	2	60	59	1
NR04	Single Family Home on Oneida Blvd	5	58	57	1

Receptor ID	Description	Approx. No. of Residences Represented	Future "Build" L_{eq} (16h) dBA	Future "No-Build" L_{eq} (16h) dBA	Change ("Build" – "No-Build") dB
NR05	Single Family Home on Oneida Blvd	7	56	56	0
NR06	Single Family Home on Oneida Blvd	7	57	57	0

Notes: [1] Mitigation required for NR01 as the sound level exceeded the criteria.

The sound levels are expected to meet the MTO limits at all receptors except NR01. In keeping with MTO requirements, impacts are also ranked in terms of increasing future build sound level in Table 6.

Table 6: Ranking of Absolute Future Noise Levels - Unmitigated

Future Build Sound Level	Receptors in Category	Total No. of Affected NSAs
55 to <60 dBA	NR04, NR05, NR06	19
60 to <65 dBA	NR02, NR03	4
65 to <70 dBA	NR01	3

The results indicate that the representative receptors NR02, NR03, NR04, NR05 and NR06 are in compliance with the MTO noise guidelines. However, the sound levels exceed the MTO limits at representative receptor NR01. Investigation of noise mitigation is provided for NR01 in the next section. Noise contours (unmitigated) are shown in Figure 3.

2.6 Investigation of Noise Mitigation

Based on the projected sound levels resulting from the project, an investigation of noise mitigation measures is required.

- Noise mitigation should be investigated within the right-of-way. Noise mitigation measures such as window upgrades and air conditioning outside the right-of-way are not considered.
- Mitigation measures should achieve at least 5 dB of attenuation over the first row of affected receivers or 3 dB of attenuation over the first row of affected receivers for upgrading existing measures.
- Mitigation should be implemented where administratively, technically, and economically feasible.

2.6.1 Potential Noise Mitigation Measures

Noise mitigation measures that can feasibly be implemented within the right-of-way include:

- Changes to vertical and horizontal alignments;
- Changes to pavement surface types; and
- Acoustical barriers (noise walls and berms).

Horizontal and Vertical Alignments

Horizontal changes in alignment can result in increases or decreases in noise levels at noise sensitive receptors, through moving the roadway closer or further away. However, the changes that result are limited, since the distance to the roadway must be doubled for a 3 to 5 dB decrease in noise level to result. For this particular project, the alignment is constrained by the location and width of the right-of-way, and the location of noise sensitive receptors. Changes to the horizontal alignment within the right-of-way will result in negligible changes in sound levels at the receptors and therefore, this mitigation method has not been investigated further.

Vertical changes in alignment can affect noise at receptors by affecting the line-of-sight between the roadway sources and the receiver. This affects ground attenuation and barrier effects of the surrounding topography. For example, placing the roadway at the bottom of a shallow cut can create a natural barrier effect at the edge of the excavation. However, this may create drainage issues or other issues with highway construction and maintenance. Paradoxically, elevated roadways located on embankments or structures may also have reduced noise levels, as the structure/berm can act as a noise barrier for ground level receptors, blocking the line-of-sight for roadway lanes on the “far side” of the road from the receptor in question. For the project in question, changes in the vertical alignment are constrained by existing topography and adjacent roadway, ramp and highway, and therefore any changes in vertical profile that can be accommodated will result in negligible acoustical changes off-site. Therefore, this mitigation method has not been investigated further.

Pavement Type

For vehicles travelling at highway speeds, the majority of the noise produced is due to interactions between the tires and pavement surface. The type of pavement surface can therefore substantially affect off-site noise levels. Table 7 illustrates the relative sound levels produced by different pavement types and the relative cost per tonne for asphalt pavements (concrete pavement costs are subject to more variables in the design of the system).

Table 7: Sound Reduction from Various Pavement Types (Relative to "Normal")

Pavement Type	Relative Sound Emission Level (dB)	Approximate Costs [1]
Grooved Concrete	+ 1 to + 4	Variable
Normal Dense-graded Friction Course (DFC)	0	$45 / tonne
Open-graded Friction Course (OFC)	- 2.5	$65 / tonne to $100 / tonne
Stone Mastic Asphalt (SMA)	- 2.5	$100 / tonne

Note: [1] Relative costs based on 2004 noise reducing asphalt studies conducted by the Regional Municipality of Waterloo, and the University of Waterloo – Centre for Pavement and Transportation Technology.

Noise reducing asphalts may cost twice as much as conventional DFC mixes, and by themselves produce noise reductions of only 2.5 dB – half of the 5 dB minimum required for noise mitigation to be considered effective under the Environmental Guide for Noise. Other mitigation measures must therefore be employed in conjunction with noise-reducing pavements to meet the 5 dB requirements (e.g., barriers or alignment changes). As alignment changes have already been ruled out as an effective mitigation measure for this project, and noise barriers by themselves will produce the required 5 dB reduction in noise level, pavement type as a noise mitigation measure has not been investigated further.

Noise Barriers

Noise barriers reduce noise levels at protected receptors through blocking the path of sound waves emanating from the source towards the receiver, and by absorbing or reflecting the incident sound energy away. Therefore, a noise barrier must at least break the line-of-sight between the source (the roadway) and the receptor (the ground-level OLA of the noise receptors under investigation). Such a barrier will provide at least 5 dB of attenuation.

Where height of barrier restricted higher than these limits it can be achieved by using a combination of earthen berm and wall. Where earthen berms are used, side slopes of 3:1 should be used for drainage and erosion control and right-of-way maintenance. Where noise walls are to be used, they should be free of gaps and cracks, and have a minimum surface density (mass per unit of face area) of 20 kg/m^2 (4 lb/ft^2). It is preferable that barriers are absorptive at least on the roadway side, and this is mandatory in situations where parallel walls (e.g., walls on both sides of a roadway) are proposed. Noise wall costs typically around $500 per m^2 of face area ($2,000 per running meter length for a 4.0 m high barrier).

Cost Effectiveness of Mitigation

Noise mitigation must be cost effective and economically feasible. The current practice for the MTO is to use a maximum cost of $50,000 to $100,000 per protected receptor. An average value of $75,000 per protected receptor has been used in this assessment.

Barrier Aesthetics

Noise wall colour and surface appearance and other aesthetic features must be considered in the detailed design. Landscaping, including planting of trees, shrubs and ground cover must be considered for noise berms and berm/wall combinations.

2.6.2 Recommended Noise Mitigation Measures

Existing Barriers

A site visit was conducted by AMEC staff on May 8, 2014. The existing noise wall at the backyard of the house on Oneida Blvd (NR04, NR05 and NR06) was identified during the site and is included in the assessment. The existing barrier height ranges from about 2 metres at the east end to 4 metres at west end. However, a semi-private wood fence on the north side receptors on Mohawk Road was noted (NR01) and is not included in the assessment as this wood fence does not practically function as a noise barrier.

Recommended Barriers (New)

Based on this assessment, a 3 m high noise wall is recommended south of Mohawk Road. Recommended noise barrier location, characteristics, effectiveness and its economic and technical feasibility are evaluated in Table 8 below and they are shown in Figure 4.

Table 8: Noise Barriers and Summary of Economical/Technical Feasibility

Barrier ID	Affected Modelled Receptor	No of Affected Residences [1]	Average Reduction (dB)	Barrier Height (m)	Barrier Length (m)	Approx. Barrier Cost Per Receptor ($) [2]	Economically Feasible? [3]	Technically Feasible?
NB1	NR01	3	5	3	90	$45,000	Yes	Yes

Notes: [1] The number of affected residences in the first row of houses which will be protected by the noise barrier.
[2] Based on a barrier cost of $500 per m^2 of face area, divided by the number of affected residences and it is applicable for existing receptors only.
[3] "Yes" if barrier costs is within $75,000 per receptor limit; else, "No."

Barrier NB1 is recommended for three houses facing away from Mohawk Road (Receptor NR01).

2.7 Mitigated Noise Levels

Noise levels with the recommended noise barriers in place that meet the applicable criteria are shown in Table 9.

Table 9: Future Noise Levels with and without the Undertaking – Mitigated

Receptor ID	Description	Approx. No. of Residences Represented	Future "Build" L_{eq} (16h) dBA	Future "No-Build" L_{eq} (16h) dBA	Change ("Build" – "No-Build") dB
NR01	Single Family Home south of Mohawk Road	3	62	62	0
NR02	Single Family Home on Oneida Blvd	2	61	61	0
NR03	Single Family Home on Oneida Blvd	2	60	59	1
NR04	Single Family Home on Oneida Blvd	5	58	57	1
NR05	Single Family Home on Oneida Blvd	7	56	56	0
NR06	Single Family Home on Oneida Blvd	7	57	57	0

3.0 CONSTRUCTION NOISE IMPACTS

Construction noise impacts are temporary in nature, and largely unavoidable. With adequate controls, impacts can be minimized. However, for some periods of time and types of work, construction noise will be noticeable at some receptor locations. This section of the report provides an evaluation of noise impacts from construction resulting from the undertaking, and discusses guideline and Code of Practice requirements to minimize impacts.

3.1 Construction Noise Guidelines

3.1.1 Local Noise Control Bylaws

The proposed project is under City of Hamilton jurisdiction and City of Hamilton Noise By-law (No. 11-285). The City's noise bylaw restricts noise, specifically from construction activities to the daytime period (7:00 to 22:00).

3.1.2 MOE Model Municipal Noise Control Bylaw

The MOE stipulates limits on noise emissions from individual items of equipment, rather than for overall construction noise. In the presence of persistent noise complaints, sound emission standards for the various types of construction equipment used on the project should be verified to ensure that they meet the specified limits contained in MOE Publication NPC-115 "Construction Equipment", as follows (MOE 1977b):

Table 10: NPC-115 Maximum Noise Emission Levels for Typical Construction Equipment

Type of Unit	Maximum Sound Level[1] (dBA)	Distance (m)	Power Rating (kW)
Excavation Equipment[2]	83	15	Less than 75 kW
	85	15	75 kW or Greater
Pneumatic Equipment[3]	85	7	-
Portable Compressors	76	7	-

Notes: [1] Maximum permissible sound levels presented here are for equipment manufactured after Jan. 1, 1981.
[2] Excavation equipment includes bulldozers, backhoes, front end loaders, graders, excavators, steam rollers and other equipment capable of being used for similar applications.
[3] Pneumatic equipment includes pavement breakers.

3.2 Anticipated Construction Activities

The following construction activities are anticipated as part of this project:

- Construction and rehabilitation of the base course;
- Addition of new lane(s); and
- Paving (and repaving) of the roadway surface.

3.3 Anticipated Construction Noise Levels

Construction activities will vary temporally and spatially as the project progresses. Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location within the right-of-way.

At this time, a detailed construction plan is not available. An analysis of potential worst-case construction noise levels for the aforementioned activities has been conducted based on generic data (equipment types and activities). The analysis, including anticipated construction sound levels, is described in Appendix C. Exceptions to the City of Hamilton's noise bylaw may be required to facilitate widening of the Highway 403 roadway platform given applicable MTO lane closure restrictions.

3.4 Construction Code of Practice Requirements (Mitigation)

To minimize the potential for construction noise impacts, it is recommended that provisions be written into the contract documentation for the contractor, as outlined below:

- All equipment should be properly maintained to limit noise emissions. As such, all construction equipment should be operated with effective muffling devices that are in good working order.

- There should be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-laws is the responsibility of the Municipality for all work done by Contractors.
- The Contract documents should contain a provision that any initial noise complaint will trigger verification that the general noise control measures agreed to are in effect.
- In the presence of persistent noise complaints, all construction equipment should be verified to comply with MOE NPC-115 guidelines, as outlined in Section 3.
- In the presence of persistent complaints and subject to the results of a field investigation, alternative noise control measures may be required, where reasonably available. In selecting appropriate noise control and mitigation measures, consideration should be given to the technical, administrative and economic feasibility of the various alternatives.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The potential environmental noise impacts of the new Mohawk Road ramp construction have been assessed. Both operational and construction noise impacts have been considered in this assessment. The unmitigated sound levels at noise receptor NR01 are expected to exceed the MTO guideline limits. Additional noise mitigation at this receptor location has been investigated, in accordance with MTO/MOE Joint Protocol. Alignment changes and pavement mitigations have been ruled out as they are not effective mitigation measure for this project.

Based on this assessment, one representative receptor requires noise barrier. Recommended noise mitigation measures are provided in Section 2.6.2. It is recommended that a new noise barrier (NB1) be installed for receptor NR01. The minimum required height of the barrier is provided in Table 8. A modified berm and associated landscaping will be provided adjacent to the new Brantford bound ramp to address concerns raised by local residents regarding noise and visual impacts associated with the ramp. The height and extents of the berm will be maximized to the extent feasible without impacting existing mature vegetation within the highway right-of-way. Some marginal noise attenuation may be achieved dependent on the height of berm that can be accommodated.

Construction noise impacts are temporary in nature but will be noticeable at times at residential receptors. Methods to minimize construction noise impacts should be included in the Construction Code of Practice, as outlined in the Section 3.4.

5.0 REFERENCES

Ontario Ministry of the Environment (MOE) / Ontario Ministry of Transportation (MTO), 1986, "Joint Protocol", *A Protocol for Dealing with Noise concerns during the Preparation, Review and Evaluation of Provincial Highway's Environmental Assessments.*

Ontario Ministry of the Environment (MOE), 1977a, *Model Municipal Noise Control Bylaw,* which includes Publication NPC-103 – Procedures.

Ontario Ministry of the Environment (MOE), 1977b, *Model Municipal Noise Control Bylaw,* which includes Publication NPC-115 – Construction Equipment.

Ontario Ministry of Transportation (MTO), 1992a, Quality and Standards Directive QST-A1, *Noise Policy and Acoustic Standards for Provincial Highways.*

Ontario Ministry of Transportation (MTO), 1992b, *Environmental Office Manual Technical Areas – Noise*, EO-V-1000-00.

Ontario Ministry of Transportation (MTO), 2006, *Environmental Guide for Noise* Version 1.1 July 2008.

Ontario Ministry of Transportation (MTO), 2009, *Environmental Reference for Highway Design.*

FIGURES

Project Extent with Area of Investigation

Mohawk Road Ramp Class EA - Ancaster, Ontario

North

Drawn by: MS	Figure: **1**
Scale:	1:5,000
Date:	May 2014

amec

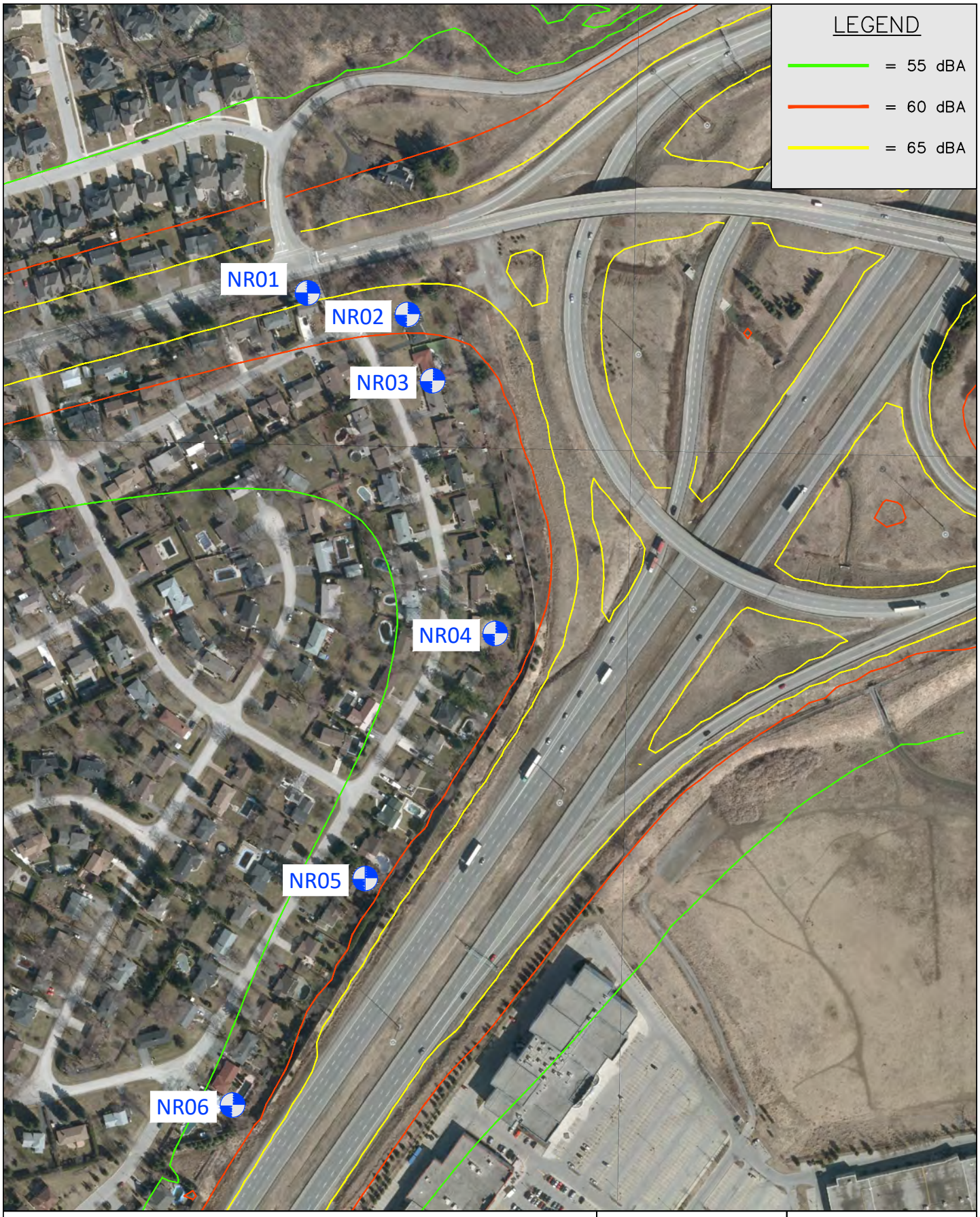
Noise Sensitive Areas and Representative Receptor Locations

Mohawk Road Ramp Class EA - Ancaster, Ontario

North

Drawn by: MS	Figure: 2
Scale:	1:5,000
Date:	May 2014

amec



NOISE CONTOURS

Mohawk Road Ramp Class EA – Ancaster, Ontario

Figure: 3

Scale: 1:300

Date: July 2014

amec

Recommended Noise Barrier Location

Mohawk Road Ramp Class EA - Ancaster, Ontario

North

Drawn by: MS	Figure: **4**
Scale:	1:5,000
Date:	July 2014

amec

APPENDIX A

GLOSSARY OF COMMONLY USED NOISE TERMINOLOGY

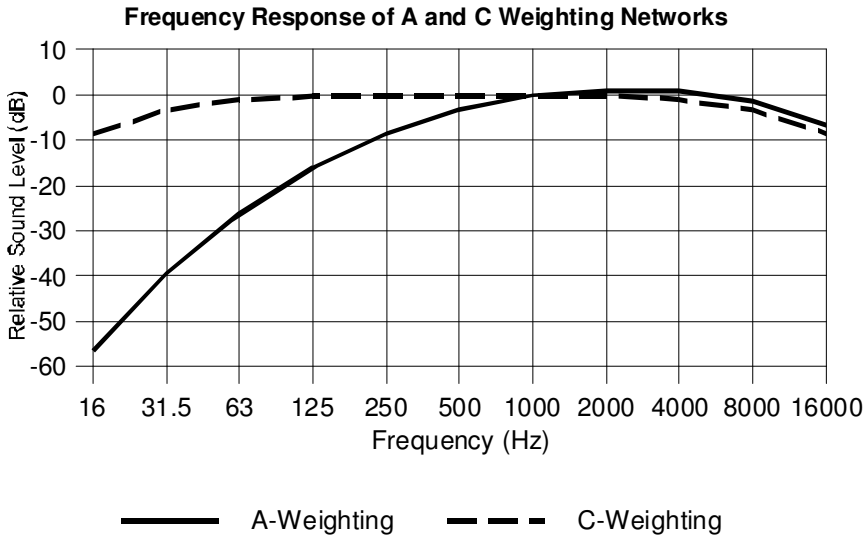
APPENDIX A: BACKGROUND INFORMATION ON NOISE

Ambient or Background Noise: The ambient noise from all sources other than the sound of interest (i.e. sound other than that being measured). Under most MOE guidelines, aircraft overflights and train noise, due to their transient nature, are normally excluded from measurements of background noise.

Attenuation: The reduction of sound intensity by various means (e.g., air, humidity, porous materials, etc.).

dB - Decibel: The logarithmic units associated with sound pressure level, sound power level, or acceleration level. See sound pressure level, for example.

dBA - Decibel, A-Weighted: The logarithmic units associated with a sound pressure level, where the sound pressure signal has been filtered using a frequency weighting that mimics the response of the human ear to quiet sound levels. The resultant sound pressure level is therefore representative of the subjective response of the human ear. A-weighted sound pressure levels are denoted by the suffix 'A' (ie. dBA), and the term pressure is normally omitted from the description (i.e., sound level or noise level).



dBC - Decibel, C-Weighted: The logarithmic units associated with a sound pressure level, where the sound pressure signal has been filtered using a frequency weighting that mimics the response of the human ear to loud sound levels. C-weighted sound pressure levels are denoted by the suffix 'C' (ie. dBC). C-weighted levels are often used in low-frequency noise analysis, as the filtering effect is nearly flat at lower frequencies.

dBL or dBLin - Decibel, Linear: The logarithmic units associated with a sound pressure level, where the sound pressure signal is unfiltered, and represents the full spectrum of incoming noise.

Calibrator (Acoustical): A device which produces a known sound pressure on the microphone of a sound level measurement system, and is used to adjust the system to standard specifications.

Directivity Factor (Q) (also, **Directional** or **Directionality Factor):** A factor mathematically related to Directivity Index, used in calculating propagated sound levels to account for the effect of reflecting surfaces near to the source. For example, for a source in free space where the sound is radiating spherically, Q = 1. For a source located on or very near to a surface (such as the ground, a wall, rooftop, etc.), where the sound is radiating hemispherically, Q = 2. This accounts for the additional sound energy reflecting off the surface, and translates into a +3 dB add.

Energy Equivalent Sound Level (L_{eq}): An energy-average sound level taken over a specified period of time. It represents the average sound pressure encountered for the period. The time period is often added as a suffix to the label (e.g., $L_{eq}(24)$ for the 24-hour equivalent sound level). L_{eq} is usually A-weighted. An L_{eq} value expressed in dBA is a good, single value descriptor of the annoyance of noise.

Exceedance Noise Level (L_N): The noise level exceeded N% of the time. It is a statistical measure of the noise level. For highly varying sounds, the L_{90} represents the background noise level, L_{50} represents the median or typical noise level, and L_{10} represents the short term peak noise levels, such as those due to occasional traffic or a barking dog.

Far Field: Describes a region in free space where the sound pressure level from a source obeys the inverse-square law (the sound pressure level decreases 6 dB with each doubling of distance from the source). Also, in this region the sound particle velocity is in phase with the sound pressure. Closer to the source where these two conditions do not hold constitutes the "near field" region.

Free Sound Field (Free Field): A sound field in which the effects of obstacles or boundaries on sound propagated in that field are negligible.

Frequency: The number of times per second that the sine wave of sound or of a vibrating object repeats itself, now expressed in hertz (Hz), formerly in cycles per second (cps).

Hertz (Hz): Unit of measurement of frequency, numerically equal to cycles per second.

Human Perception of Sound: The human perception of noise impact is an important consideration in qualifying the noise effects caused by projects. The following table presents a general guideline.

Increase in Noise Level (dB)	Perception
3 or less	insignificant due to imperceptibility
4 to 5	just-noticeable difference
6 to 9	marginally significant
10 or more	significant, perceived as a doubling of sound exposure

Impact Sound: The sound produced by the collision of two solid objects, e.g., footsteps, dropped objects, etc., on an interior surface (wall, floor, or ceiling) of a building. Typical industrial sources include punch presses, forging hammers, etc.

Impulsive Noise: a) Single or multiple sound pressure peak(s) (with either a rise time less than 200 milliseconds or total duration less than 200 milliseconds) spaced at least by 500 millisecond pauses, b) A sharp sound pressure peak occurring in a short interval of time.

Infrasonic: Sounds of a frequency lower than 20 hertz.

Insertion Loss (IL): The arithmetic difference between the sound level from a source before and after the installation of a noise mitigation measure, at the same location. Insertion loss is typically presented as a positive number, i.e., the post-mitigation sound level is lower than the pre-mitigation level. Insertion loss is expressed in dB and is usually specified per 1/1 octave band, per 1/3 octave band, or overall.

Low Frequency Noise (LFN): Noise in the low frequency range, from infrasonic sounds (<20 Hz) up to 250 Hz.

Masking: a) The process by which the threshold of audibility for a sound is raised by the presence of another (masking) sound, or b) The amount by which the threshold of audibility of a sound is raised by the presence of another (masking) sound.

Near Field: The sound field very near to a source, where sound pressure does not obey the inverse-square law and the particle velocity is not in phase with the sound pressure.

Noise: Unwanted sound.

Noise Level: Same as Sound Level, except applied to unwanted sounds.

Peak Sound Pressure Level: Same as Sound Pressure Level except that peak (not peak-to-peak) sound pressure values are used in place of RMS pressures.

Quasi-Steady Impulsive Noise: Noise composed of a series of short, discrete events, characterized by rapid rise times, but with less than 0.5 seconds elapsing between events.

RMS Sound Pressure: The square-root of the mean-squared pressure of a sound (usually the result of an RMS detector on a microphone signal).

Reverberant Field: The region in a room where the reflected sound dominates, as opposed to the region close to the noise source where the direct sound dominates.

Sound: a dynamic (fluctuating) pressure.

Sound Exposure Level (SEL): An L_{eq} referenced to a one second duration. Also known as the Single Event Level. It is a measure of the cumulative noise exposure for a single event. It provides a measure of the accumulation of sound energy over the duration of the event.

Sound Intensity: The sound energy flow through a unit area in a unit time.

Sound Level Meter: An instrument comprised of a microphone, amplifier, output meter, and frequency-weighting networks which is used for the measurement of noise and sound levels.

Sound Pressure Level (SPL): The logarithmic ratio of the RMS sound pressure to the sound pressure at the threshold of hearing. The sound pressure level is defined by equation (1) where P is the RMS pressure due to a sound and P_0 is the reference pressure. P_0 is usually taken as 2.0×10^{-5} Pascals.

(1) $\text{SPL (dB)} = 20 \log(P_{RMS}/P_0)$

Sound Power Level (PWL): The logarithmic ratio of the instantaneous sound power (energy) of a noise source to that of an international standard reference power. The sound power level is defined by equation (2) where W is the sound power of the source in watts, and W_0 is the reference power of 10^{-12} watts.

(2) $\text{PWL (dB)} = 10 \log(W/W_0)$

Interrelationships between sound pressure level (SPL) and sound power level (PWL) depend on the location and type of source.

Spectrum: The description of a sound wave's resolution into its components of frequency and amplitude.

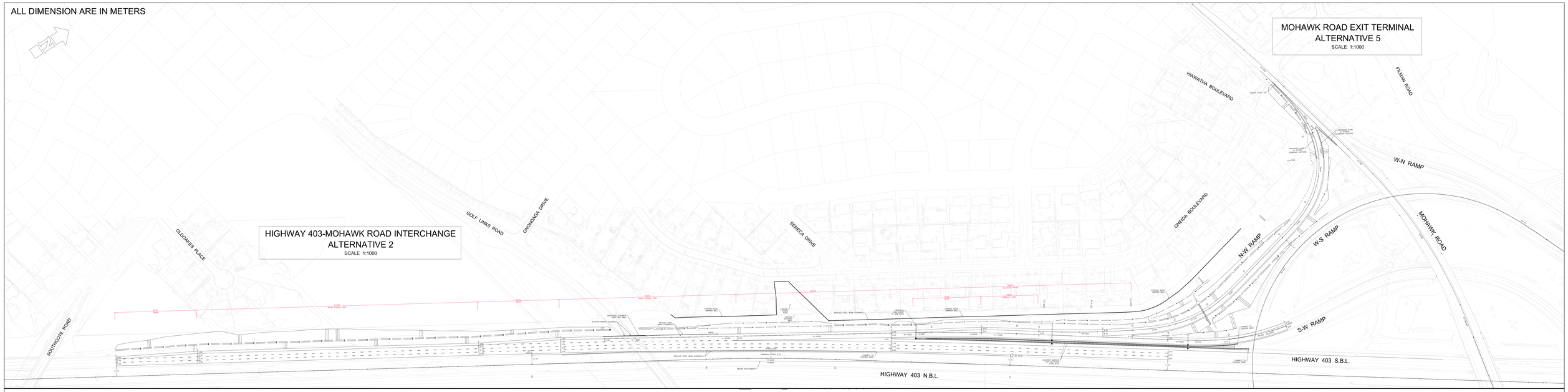
Speed (Velocity) of Sound in Air: 344 m/s (1128 ft/s) at 70°F (21°C) in air at sea level.

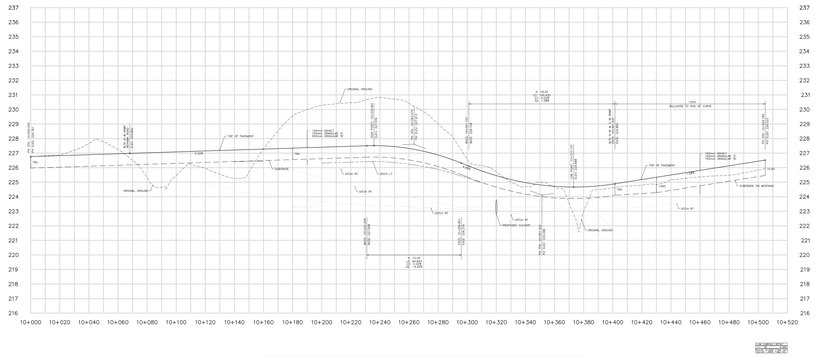
Threshold of Audibility (Threshold of Detectability): The minimum sound pressure level at which a person can hear a specified frequency of sound over a specified number of trials.

APPENDIX B

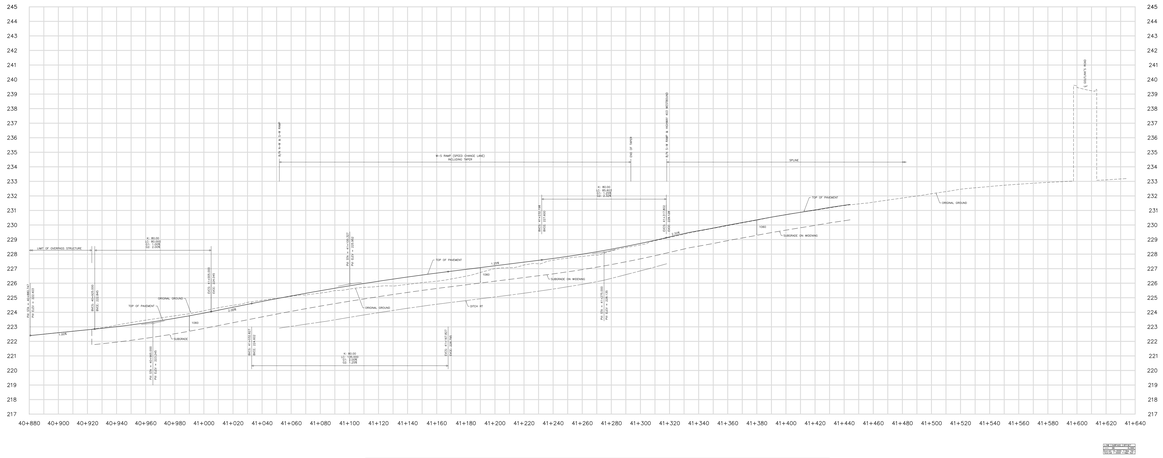
PROJECT DRAWINGS

ALL DIMENSION ARE IN METERS





N-W RAMP
(FROM MOHAWK ROAD TO E-S RAMP)
SCALE 1:1000



S-W RAMP
(FROM LINCOLN M. ALEXANDER PKWY TO HWY 403 SOUTH BOUND)
SCALE 1:1000

APPENDIX C

CONSTRUCTION NOISE LEVEL CALCULATIONS

Road Construction Noise Assessment

Job No: TP113070
Job Name: Mohawk Road Ramp

2. Compaction of Subgrade

Type	Amt	Act. PWL[1]	Max. SPL[2]	Equipment
5	2	111	83	Compactor
		0	0	
		0	0	
		0	0	
		0	0	
		0	0	
		0	0	
		0	0	
TOTAL	**2**	**111**		

4. Compaction of Base Course

Type	Amt	Act. PWL[1]	Max. SPL[2]	Equipment
5	1	108	83	Compactor
11	1	108	80	Graders
		0	0	
		0	0	
		0	0	
		0	0	
		0	0	
		0	0	
TOTAL	**2**	**111**		

5. Surface Course

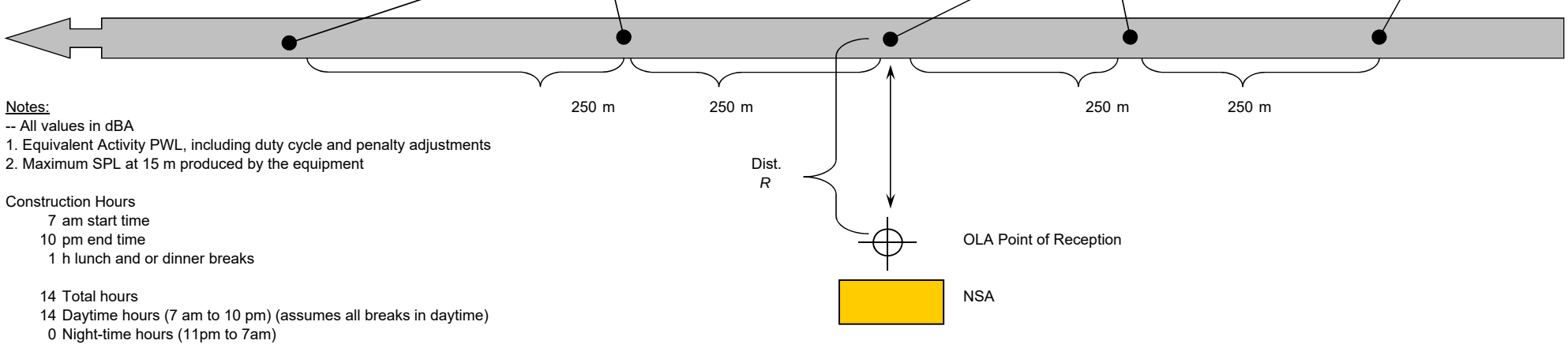
Type	Amt	Act. PWL[1]	Max. SPL[2]	Equipment
1	2	110	79	Backhoes / Wheeled Loaders
14	3	108	76	Haul truck (Typical 3-axle)
12	1	105	77	Asphalt Spreader
6	1	98	73	Road Roller
		0	0	
		0	0	
		0	0	
		0	0	
TOTAL	**7**	**113**		

1. Removal of Overburden

Type	Amt	Act. PWL[1]	Max. SPL[2]	Equipment
2	1	109	81	Excavators
14	3	108	76	Haul truck (Typical 3-axle)
3	1	110	82	Bulldozers
4	1	112	84	Scrapers
		0	0	
		0	0	
		0	0	
		0	0	
TOTAL	**6**	**116**		

3. Base Course

Type	Amt	Act. PWL[1]	Max. SPL[2]	Equipment
1	2	110	79	Backhoes / Wheeled Loaders
3	1	110	82	Bulldozers
14	4	110	76	Haul truck (Typical 3-axle)
		0	0	
		0	0	
		0	0	
		0	0	
		0	0	
TOTAL	**7**	**114**		



Notes:
-- All values in dBA
1. Equivalent Activity PWL, including duty cycle and penalty adjustments
2. Maximum SPL at 15 m produced by the equipment

Construction Hours
7 am start time
10 pm end time
1 h lunch and or dinner breaks

14 Total hours
14 Daytime hours (7 am to 10 pm) (assumes all breaks in daytime)
0 Night-time hours (11pm to 7am)

Predicted Construction Noise Levels

Receptor No.	Description	Distance to Centre-line *R* (m)	Approximate Screening (dBA)	L_{eq} (1h) [1.]	L_{max} [2.]	L_{10} [3.]	L_{dn} [4.]
NR01	Single Family Home south of Mohawk Road	11	0	86	86	89	83
NR02	Single Family Home on Oneida Blvd	36	0	75	75	78	73
NR03	Single Family Home on Oneida Blvd	66	0	70	70	73	68
NR04	Single Family Home on Oneida Blvd	45	10	63	63	66	61
NR05	Single Family Home on Oneida Blvd	36	10	65	65	68	63
NR06	Single Family Home on Oneida Blvd	35	10	66	66	69	63

Notes:
- All values are in dBA unless otherwise noted
1. Equivalent Activty PWL for the group (includes duty cycle, penalties and no of vehicle adjustments) and distance correction
2. Higher of L_{eq} (1 h) or (Max of (Max SPL for each group added with the distance correction
3. L_{eq} (1 h) + 3 dB, based on typical construction sites, per RCNM
4. Based on L_{eq} (1 h) values and construction hours, includes a 10 dB penalty for night-time operations (11 pm to 7 am)

Appendix L: Electrical Condition Assessment Reprot

Ministry of Transportation

CITY OF HAMILTON
PROPOSED MOHAWK ROAD N-W RAMP
AT HIGHWAY 403 INTERCHANGE
CONTRACT NUMBER: C11-21-13

ELECTRICAL CONDITION ASSESSMENT REPORT

September 2014

Prepared By:

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Consulting Engineers

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Ref. No. 4506

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1. Introduction

2. Existing Electrical Systems

2.1 Introduction:
2.2 Existing Electrical Systems
2.3 Ownership, Age and Condition
2.4 Deficiencies / Deviation from Current Standards
2.5 Salvageable Items

Appendix 'A' Photographs

1. INTRODUCTION

This report outlines the detailed assessment of the existing electrical systems at the Highway 403 Interchange in the vicinity of the proposed Mohawk Road N-W Ramp. The existing electrical systems that are impacted by the proposed ramp construction are as follows:

- Power Supply Distribution Assembly
- Maintenance Holes and Roadway Illumination nearby
- Hydro power servicing

Field investigations, discussions and site meeting with the Ministry's Electrical Project Manager, the Electrical Coordinator, and a review of available reference materials were conducted in assessing the ownership, age, condition and operational concerns. **Appendix A** contains Figure 1 (Plan) and photographs of the existing electrical plant within the study area.

Subsequent to electrical field investigations, the following was undertaken and is described in this report:

- Inventory of major electrical components affected by the proposed work;
- Determination of system ownership, age and condition;
- Identification of deficiencies and compliance to current standards; and,
- Identification of the salvageable electrical equipment.

2. EXISTING ELECTRICAL SYSTEMS

2.1 Introduction

The electrical Distribution Assembly for the Highway 403 Interchange at Lincoln Alexander Parkway / Mohawk Road is located on the south/west side of Mohawk Road and is accessible by an entrance way. Refer to Figure 1 (Plan) under **Appendix A.** The Distribution Assembly is in the shoulder of the proposed N-W Ramp and will require removal. Existing 75mm ducts and wiring run from the Distribution Assembly northerly to maintenance hole EMH7 and southerly to EHH1. These ducts are affected by construction and require relocation to a new Distribution Panel location. The nearby hydro pole with 3 pole mounted transformers is also affected by construction and requires relocation. The existing MTO light standard EP29 may be too close to the edge of the proposed N-W Ramp pavement and may require relocation.

2.2 Existing Electrical Systems

Plant:

A. Existing Electrical Systems

- The Distribution Assembly is 600 volts, 3 phase, 4 wire and was installed under a Region of Hamilton - Wentworth Contract No. RHW-00-231 (SPO) in August 2001. Power supply to the Distribution Assembly is fed underground from an adjacent hydro pole with 3 transformers. The main switch is rated 100A, 600V, 3 phase.

- The maintenance hole EMH7 and handhole EHH1 were not accessible during the inspection, but appear to be reusable.

- The existing lighting pole EP29 belongs to MTO and consists of one (1) drop lens cobra head luminaire. The lighting pole is 15.1m, octagonal steel pole with 2.4m aluminum tapered elliptical bracket, with a frangible base mounted on a concrete footing.

2.3 Ownership, Age and Condition

The electrical systems at the Highway 403 Interchange at Lincoln Alexander Parkway / Mohawk Road are owned and maintained by the Ministry.

The electrical systems at the interchange were installed in 2001. The systems were found operational and generally in good condition with the following exceptions and site observation noted below.

2.4 Deficiencies / Deviation from Current Standards

The systems are in general accordance with current Ministry standards, with the following exceptions:

- The distribution assembly for supply ‘A’ is the old small obsolete type and does not meet current MTO standards.

2.5 Salvageable Items

The existing decision point lighting pole EP29 may be salvageable and be reused in the Contract.

- END -

APPENDIX 'A'

Photographs & Figure 1

Highway 403 Interchange at
Lincoln Alexander Parkway / Mohawk Road
Distribution Assembly – Supply 'A'

Distribution Assembly Label

Maintenance Hole closer to the Distribution Assembly

Lighting Pole with Frangible Base and Concrete Footing
nearby the Distribution Assembly

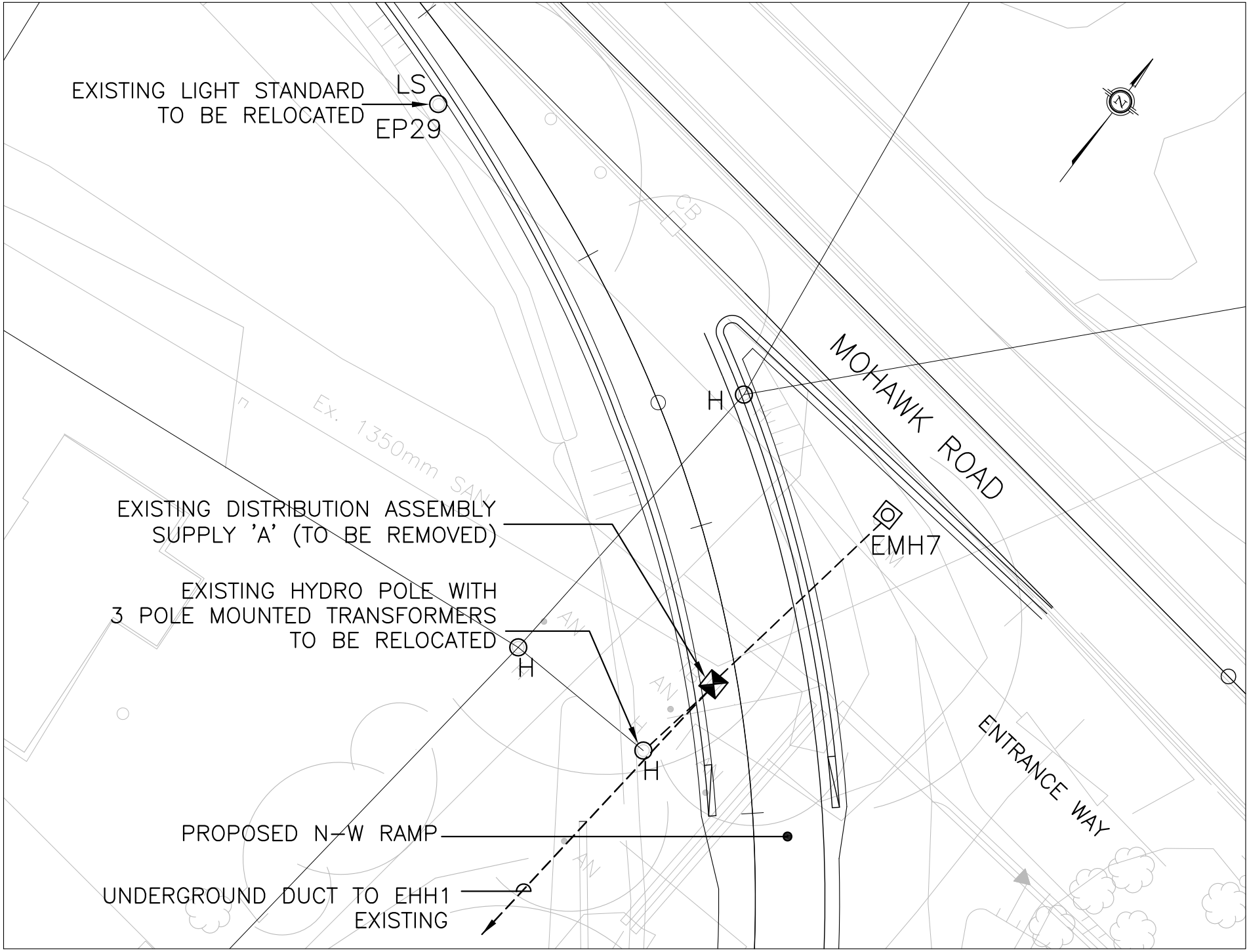
EXISTING LIGHT STANDARD
TO BE RELOCATED
LS
EP29
MOHAWK ROAD
H
EMH7
EXISTING DISTRIBUTION ASSEMBLY
SUPPLY 'A' (TO BE REMOVED)
EXISTING HYDRO POLE WITH
3 POLE MOUNTED TRANSFORMERS
TO BE RELOCATED
H
H
ENTRANCE WAY
PROPOSED N-W RAMP
UNDERGROUND DUCT TO EHH1
EXISTING
Ex. 1350mm SAN

FIGURE 1

N.T.S

Stormwater Design

The impacts of the new Mohawk Road ramp on the hydrology within the study area have been assessed. It is anticipated that the construction of the new Mohawk Road ramp will introduce changes in the topography of the area (combination of cuts and fills are expected) and will impact the existing drainage to the tributary of Tiffany Creek. In order to convey existing and proposed drainage to the tributary of Tiffany Creek, two (2) culverts will be required as part of the proposed N-W on-ramp. Further details regarding the size, location, and orientation of these culverts is discussed within the **Stormwater Design Brief**; which can be found in the **Appendix G**.

Additionally, as a result of the ramp construction, an added impervious area of 0.784 ha will be created and water quality treatment will be required to manage the impacts of the proposed ramp on the receiving watercourse. Flat-bottom, grassed swales can provide effective stormwater management for sediment/pollutant removal and have been proposed to be utilized in this design to optimize the area treated. This treatment system will provide at least 70% sediment/pollutant removal to over 77% of the new pavement.

Noise Impact Assessment

The potential environmental noise impacts of the new Mohawk Road ramp construction have been assessed. Both operational and construction noise impacts have been considered in this assessment. The unmitigated sound levels at noise receptor NR01 are expected to exceed the MTO guideline limits. Additional noise mitigation at this receptor location has been investigated, in accordance with MTO/MOE Joint Protocol.

Recommended noise mitigation measures include: changes to vertical and horizontal alignment, changes to pavement surface types, and the implementation of acoustical barriers (noise walls and berms). These mitigation measures are discussed in further detail within the **Traffic Noise Impact Assessment Report**; which can be found in the **Appendix I**. Alignment changes and pavement alterations have been ruled out as they are not effective mitigation measure for this project. It is recommended that a new noise barrier (NB1) be installed for receptor NR01. The minimum required height of the barrier is 3 metres (a summary is provided in Table 8 within the Noise Assessment report). A modified berm and associated landscaping will be provided adjacent to the new N-W on-ramp to address concerns raised by local residents regarding noise and visual impacts associated with the ramp. The height and extents of the berm will be maximized to the extent feasible without impacting existing mature vegetation within the highway right-of-way. Some marginal noise attenuation may be achieved dependent on the height of berm that can be accommodated.

Construction noise impacts are temporary in nature but will be noticeable at times at residential receptors. Methods to minimize construction noise impacts should be included in the Construction Code of Practice.

Electrical Condition Assessment

A detailed assessment of the existing electrical systems at the Highway 403 interchange in the vicinity of the proposed Mohawk Road ramp has been completed. The electrical systems at this interchange are owned and maintained by the Ministry of Transportation (MTO) and were installed in 2001. After inspection, the systems were found to be operational and generally in good condition. The systems are in general accordance with current Ministry standards aside from one exception – the Distribution Assembly.

Existing electrical systems that will be impacted by the proposed ramp construction include: power supply distribution assembly, maintenance holes and roadway illumination, and hydro power servicing. The electrical Distribution Assembly for the Highway 403 Interchange at Lincoln Alexander Parkway/Mohawk Road is located on the south/west side of Mohawk Road and is accessible via an entrance way. The Distribution Assembly is currently located in the shoulder of the proposed N-W on-ramp and will require removal. A nearby hydro pole with three (3) pole mounted transformers will also be affected by construction and requires relocation. Additionally, the existing MTO light standard EP29 may be too close to the edge of the proposed N-W on-ramp pavement and may require relocation. This light standard may be salvageable and can be reused in the Contract. Further details regarding the location and orientation of the electrical systems is discussed in the **Electrical Condition Assessment Report**; which can be found in **Appendix #**.

Appendix M: Mohawk Road Ramp Feasibility Study

AMEC

Mohawk Road Ramp Feasibility Study

Examination of Impacts to Adjacent Intersections

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May 2014

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Mohawk Road Ramp Feasibility Study

Examination of Impacts to Adjacent Intersections

ORIGINAL

May 2014

B000355

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1. Introduction

The purpose of this study is to undertake a traffic operations analysis, utilizing Synchro, to evaluate the impacts of the proposed Mohawk Road onramp to westbound Highway 403 on two signalized intersections identified in the public and agency consultation.

Figure 1 illustrates the study area for the traffic operations analysis which includes the two intersections:

- Wilson Street at Rousseaux Street/Old Dundas Road; and
- Mohawk Road at McNiven Road/Lime Kiln Road.

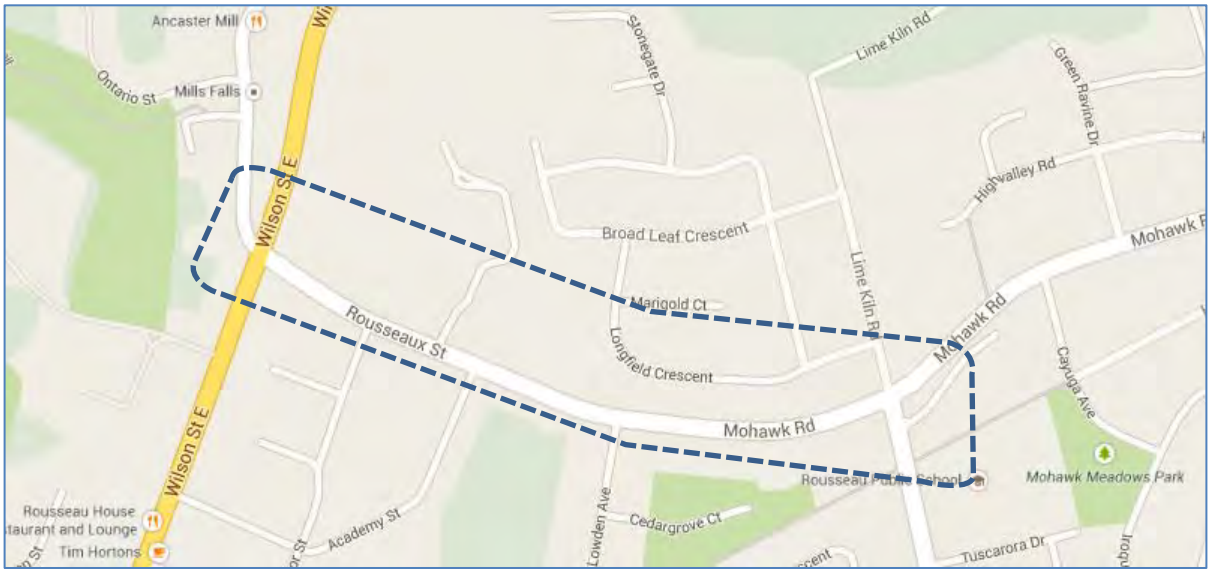

Figure 1: Study Area

1.1 Traffic Analysis Methodology

The operational performance of an intersection is typically assessed based on its volume to capacity ratio (v/c), Level of Service (LOS) and delay.

The v/c ratio indicates how much of the theoretical capacity of a specific lane, approach or the entire intersection is being used by the traffic demand. A v/c ratio of 1.0 indicates that the lane, approach or intersection is being utilized at full capacity.

The Level of Service is a qualitative representation of the average delay experienced by drivers at an intersection. LOS ranges from “A” to “F”, corresponding to average delays lower than 10 seconds and higher than 50 seconds, respectively.

For signalized intersections, the City of Hamilton TIS guidelines state that the analysis must highlight all conditions at signalized intersections or movements where:

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- Volume to capacity (v/c) ratios for through movements or shared through/turning movements will operate at 0.85 or greater (0.85 is considered the maximum acceptable level of service for these movements);
- Volume to capacity (v/c) ratios for exclusive turning movements increase to 0.90 or greater (0.90 is considered the maximum acceptable level of service for these movements): and
- Queues for an individual movement are projected to exceed available turning lane storage at 95th percentile volumes.

2. Existing Conditions

2.1 Existing Traffic Volumes

CIMA utilized existing traffic counts for the study area intersections from 2008 which corresponds to the City's 2008 existing EMME model.

A summary of the 2008 existing traffic volumes for AM and PM Peak hours are illustrated in **Figure 2**.

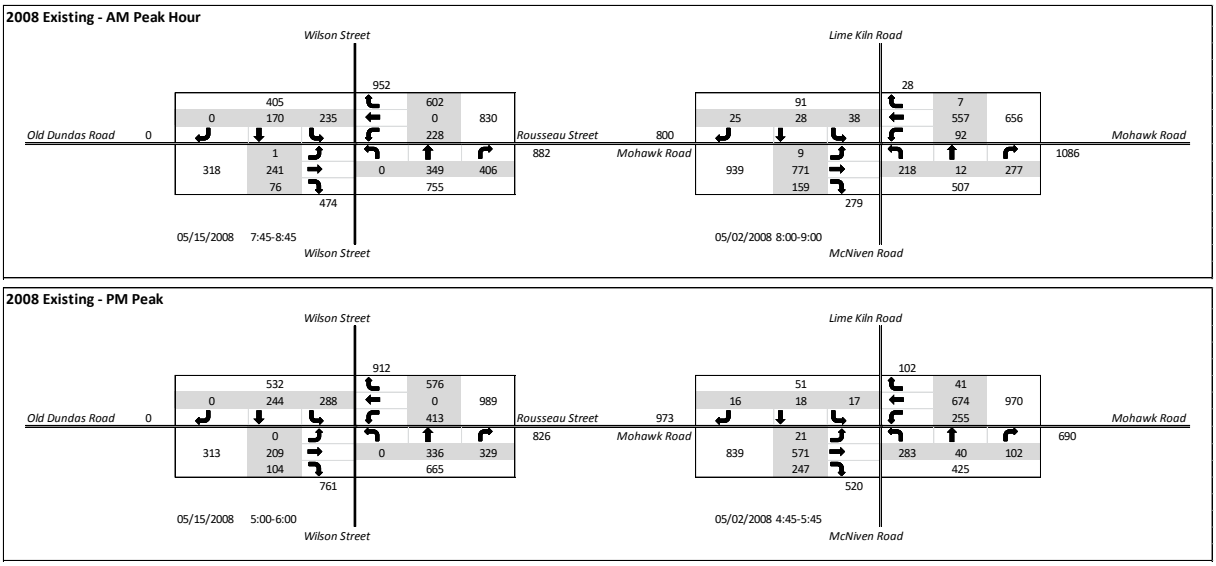

Figure 2: Existing Traffic Volumes

2.2 Existing Traffic Operations

The 2008 existing traffic operations at the intersections of Wilson Street at Rousseaux Street/Old Dundas Road and Mohawk Road at McNiven Road/Lime Kiln Road were evaluated to determine the benchmark that future scenarios would be compared to. Current traffic signal timings provided by the City were utilized in this analysis. The results of the operational analysis are shown in **Table 1** and details provided in **Appendix A** for further reference.

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Table 1: Existing Traffic Operations

Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	D	0.82	47.3	**E**	**0.87**	**59.0**
	WB	L	D	0.65	38.6	**E**	**0.92**	**59.2**
		R	C	0.40	33.4	C	0.40	31.8
	NB	T	D	0.81	44.3	D	0.84	53.3
		R	C	0.28	29.8	C	0.23	33.5
	SB	L	D	0.82	39.1	**F**	**1.16**	**137.1**
		T	C	0.25	20.3	C	0.40	26
	Overall Results		**D**	**0.80**	**36.5**	**D**	**1.04**	**54.4**
Mohawk Road at McNiven Road / Lime Kiln Road	EB	L	B	0.02	10.1	B	0.09	15.8
		T	C	0.84	24.4	C	0.81	28.7
		R	B	0.15	10.8	B	0.21	16.6
	WB	L	B	0.39	13.8	B	0.70	18.8
		T/R	A	0.51	9.3	B	0.71	14.7
	NB	L	D	0.70	35.2	D	0.79	38.1
		T/R	C	0.22	25.6	C	0.16	23.0
	SB	L	C	0.23	26.1	C	0.05	22.2
		T/R	C	0.08	24.6	C	0.05	22.2
	Overall Results		**C**	**0.77**	**20.3**	**C**	**0.79**	**22.5**

The results of the existing traffic operations analysis indicate that the Wilson Street intersection is expected of operate under an acceptable level of service during the AM peak hour; however, during the PM peak hour, levels of service become unacceptable, especially the southbound left-turn movement.

The results of the existing traffic operations analysis indicate that the Mohawk Road intersection is operating under an acceptable level of service during the both peak hours.

3. Ancaster Transportation Master Plan

The following section summarizes the applicable recommended transportation systems improvements in the Ancaster Transportation Master Plan which were considered in this analysis. Three recommendations were provided for the intersection of Wilson Street at Rousseax Street/old Dundas Road which are illustrated below in **Figure 3** through **Figure 5**. For the purposes of this analysis only the interim option (**Figure 5**) was analyzed.

Please note the roundabout option is not investigated or pursued further as it was not approved by the Public Works Committee/City Council.

The analysis also considered the recommended roadway widenings, which included the addition of three-lane cross-sections with centre two-way left turn lanes on sections of Wilson Street, Rousseax Street/Mohawk Road (from Wilson Street to Highway 403), and McNiven Road.

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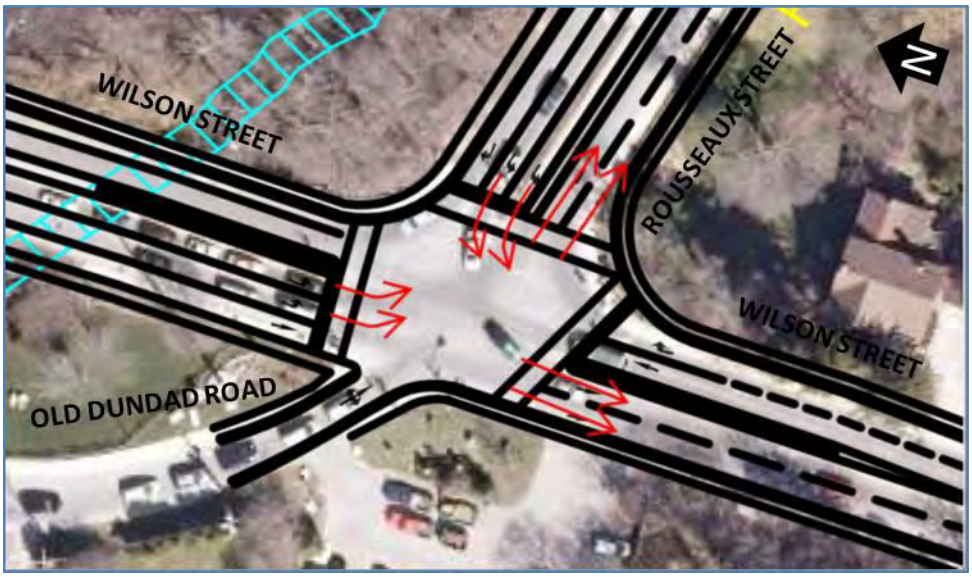

Figure 3: Wilson/Rousseaux Improvement Option #1[1]

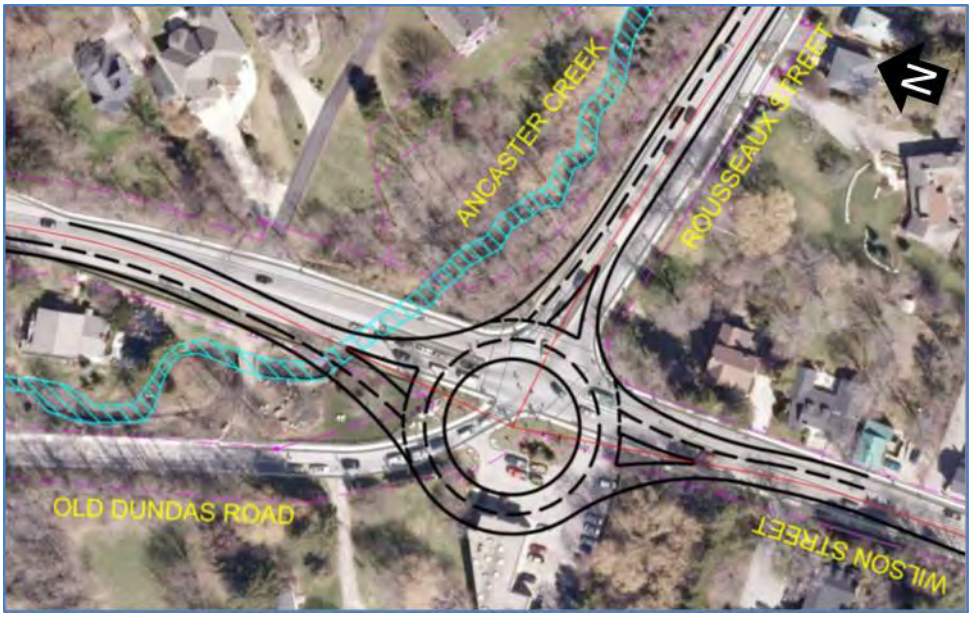

Figure 4: Wilson/Rousseaux Improvement Option #2[2]

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[1] Source: Dillion Consulting (2010)
[2] Source: Dillion Consulting (2010)

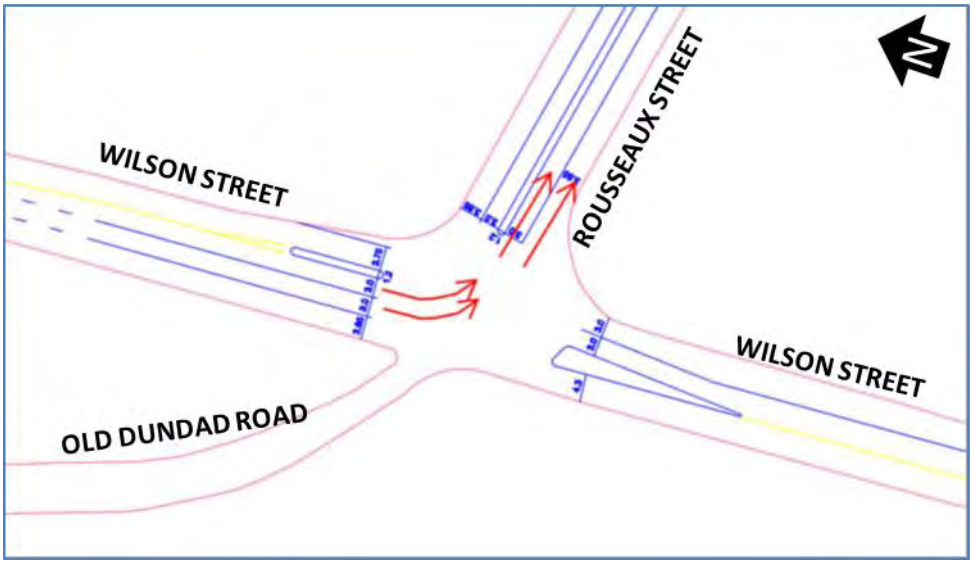

Figure 5: Wilson/Rousseaux Interim Improvement Option[3]

4. 2021 Future Conditions – Do Nothing Scenario

4.1 2021 Traffic Volumes – Do Nothing Scenario

Figure 6 summarizes the future traffic volumes for the 2021 do nothing scenario for the AM and PM peak hours. Future traffic volumes were calculated by applying a growth factor of 1.159 (obtained from EMME) to the existing traffic volumes. Note, 2021 forecast volumes are similar to the 2031 horizon year.

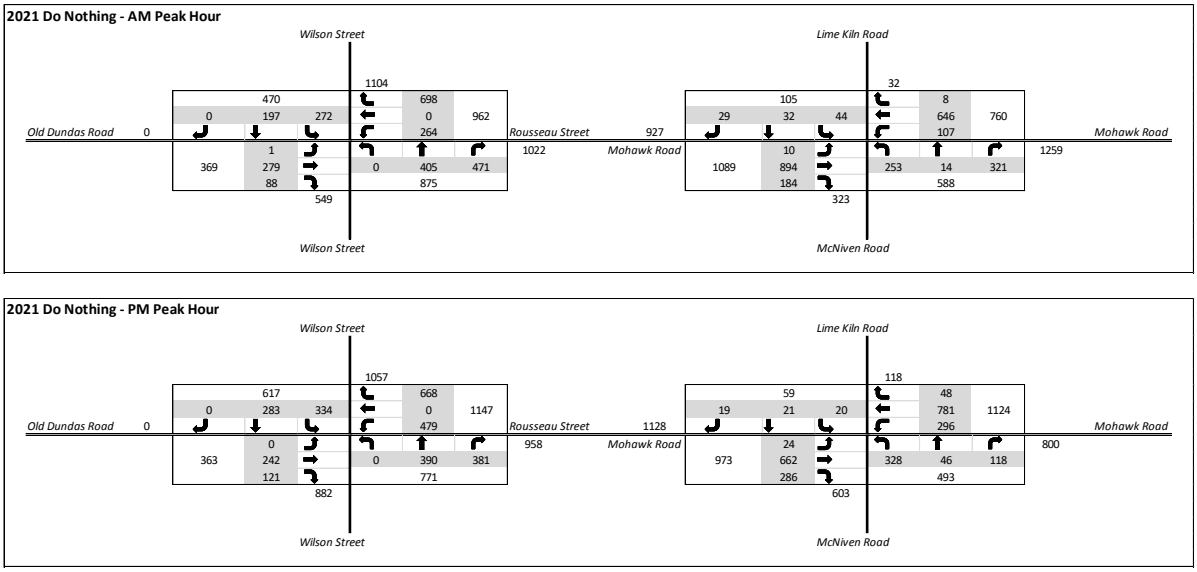

Figure 6: Future Traffic Volumes – Do Nothing Scenario

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[3] Source: Dillion Consulting (2010)

4.2 2021 Future Traffic Operations – Do Nothing Scenario

4.2.1 Without Ancaster TMP Recommended Improvements

Table 2 summarizes the results of the do nothing scenario without the recommended improvements identified in the Ancaster Transportation Master Plan. Current traffic signal timings provided by the City were utilized in this analysis. Synchro results are provided in **Appendix B** for further reference.

Table 2: 2021 Future Traffic Operations – Do Nothing Scenario – Without TMP Improvements

Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	E	0.91	62.2	F	0.98	82.2
	WB	L	D	0.73	44.5	F	1.06	98.9
		R	D	0.66	41.5	D	0.55	36.1
	NB	T	E	0.90	57.9	E	0.95	72.8
		R	C	0.33	31.9	D	0.27	35.0
	SB	L	F	1.16	134.9	F	1.56	304.5
		T	C	0.29	22.6	C	0.46	28.3
	Overall Results		**D**	**1.01**	**53.5**	**F**	**1.28**	**87.2**
Mohawk Road at McNiven Road / Lime Kiln Road	EB	L	B	0.03	11.3	B	0.16	18.4
		T	D	0.96	42.2	D	0.90	40.6
		R	B	0.18	12.4	B	0.27	19.1
	WB	L	C	0.49	21.1	E	0.95	64.8
		T/R	B	0.58	10.8	C	0.80	20.0
	NB	L	D	0.81	49.0	E	0.89	55.2
		T/R	C	0.31	30.5	C	0.20	26.8
	SB	L	C	0.37	32.3	C	0.06	25.6
		T/R	C	0.10	28.5	C	0.06	25.5
	Overall Results		**C**	**0.88**	**29.6**	**C**	**0.96**	**35.0**

The results of the operations analysis indicate that the Wilson Street intersection is expected to operate under an unacceptable level of service during both peak hours, with failing levels of service and movements above capacity on each approach.

The results of the operations analysis indicate that the Mohawk Road intersection is expected to operate under acceptable level of service during both peak hours. Some movements are marginally above the acceptable threshold values; specifically the eastbound through and westbound left-turn movements.

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4.2.2 With Ancaster TMP Recommended Improvements

Table 3 summarizes the results of the do nothing scenario with the recommended interim improvements identified in the Ancaster Transportation Master Plan. The signal timings for both intersections were increased to a 120 second cycle length and optimized. Synchro results are provided in **Appendix B** for further reference.

Table 3: 2021 Future Traffic Operations – Do Nothing Scenario – With TMP Interim Improvements

Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	E	0.90	64.0	F	1.06	113.6
	WB	L	D	0.80	55.0	F	1.03	93.0
		R	D	0.69	48.4	D	0.58	39.3
	NB	T	D	0.86	53.2	E	0.96	78.0
		R	C	0.32	33.5	D	0.26	38.1
	SB	L/L (NEW)	E	0.81	62.2	F	0.99	99.5
		T	C	0.27	22.2	C	0.43	28.5
	Overall Results		**D**	**0.85**	**48.8**	**E**	**1.01**	**68.4**
Mohawk Road at McNiven Road / Lime Kiln Road	EB	L	B	0.03	10.1	B	0.16	19.1
		T	C	0.90	30.6	D	0.89	40.1
		R	B	0.16	10.9	B	0.28	20.0
	WB	L	C	0.64	26.7	E	0.95	66.9
		T/R	B	0.57	11.0	C	0.80	20.8
	NB	L	D	0.81	49.0	D	0.87	53.9
		T/R	C	0.54	34.0	C	0.20	28.0
	SB	L	C	0.37	32.9	C	0.06	26.7
		T/R	C	0.10	29.0	C	0.05	26.6
	Overall Results		**C**	**0.86**	**26.2**	**D**	**0.95**	**35.3**

The results of the operations analysis indicate that the Wilson Street intersection is expected to operate under an unacceptable level of service during both peak hours, especially during the PM, with failing levels of service and movements above capacity on each approach.

The results of the operations analysis indicate that the Mohawk Road intersection is expected to operate under an acceptable level of service during both peak hours. Some movements are marginally above the acceptable threshold values; specifically the eastbound through and westbound left-turn movements.

4.2.3 Modified Interim Scenario

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Table 4 summarizes the results of the do nothing test scenario alongside a new scenario whih examined the recommended interim improvements identified in the Ancaster Transportation Master Plan plus additional improvements for the Old Dundas Road approach. This scenario includes an eastbound shared left-turn / through lane and an exclusive right-turn lane with a nomination 30

metres of storage on Old Dundas Road. The signal timings for both intersections were increased to a 120 second cycle length and optimized. For this test scenario only the critical PM peak hour was analyzed. Additionally, the improvements included in the test were not evaluated for feasibility and were only presented for discussion purposes. Synchro results are provided in **Appendix B** for further reference.

Table 4: 2021 Future Traffic Operations – Do Nothing Scenario – With TMP Interim Improvements (TEST)

Intersection	Approach	Movement	PM Peak Hour (Shared EB LTR)			PM Peak Hour (EBLT /EBR)		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	F	1.06	113.6	-	-	-
		LT (new)	-	-	-	E	0.80	59.0
		R (new)	-	-	-	D	0.12	40.8
	WB	L	F	1.03	93.0	E	0.99	78.6
		R	D	0.58	39.3	D	0.57	36.8
	NB	T	E	0.96	78.0	E	0.95	73.2
		R	D	0.26	38.1	D	0.26	36.6
	SB	L/L (NEW)	F	0.99	99.5	F	0.94	82.1
		T	C	0.43	28.5	C	0.42	26.7
	Overall Results		**E**	**1.01**	**68.4**	**D**	**0.93**	**54.8**

The results of the test operations analysis indicate that the Wilson Street intersection is expected to operate better during the PM peak hour with the additional improvements on Old Dundas Road, with the overall levels of service improving from E to D and volume-to-capacity ratios from 1.01 to 0.93. The eastbound approach now operates under an acceptable level of service. Marginal improvements to the level of service and volume-to-capacity ratios were noted on the other approaches.

5. 2021 Future Conditions – Mohawk Ramp Scenario

5.1 2021 Traffic Volumes – Mohawk Ramp Scenario

Figure 7 summarizes the future traffic volumes for the 2021 Mohawk Ramp Scenario for the AM and PM peak hours. Future traffic volumes were calculated by applying a growth factor of 1.159 (obtained from EMME) to the existing traffic volumes. Future traffic volumes were also adjusted to account for new trip distribution resulting from the Mohawk Ramp. Vehicles which accessed Highway 403 westbound via the Wilson Street interchange (Do Nothing Scenario) are now utilizing the Mohawk Ramp in this scenario.

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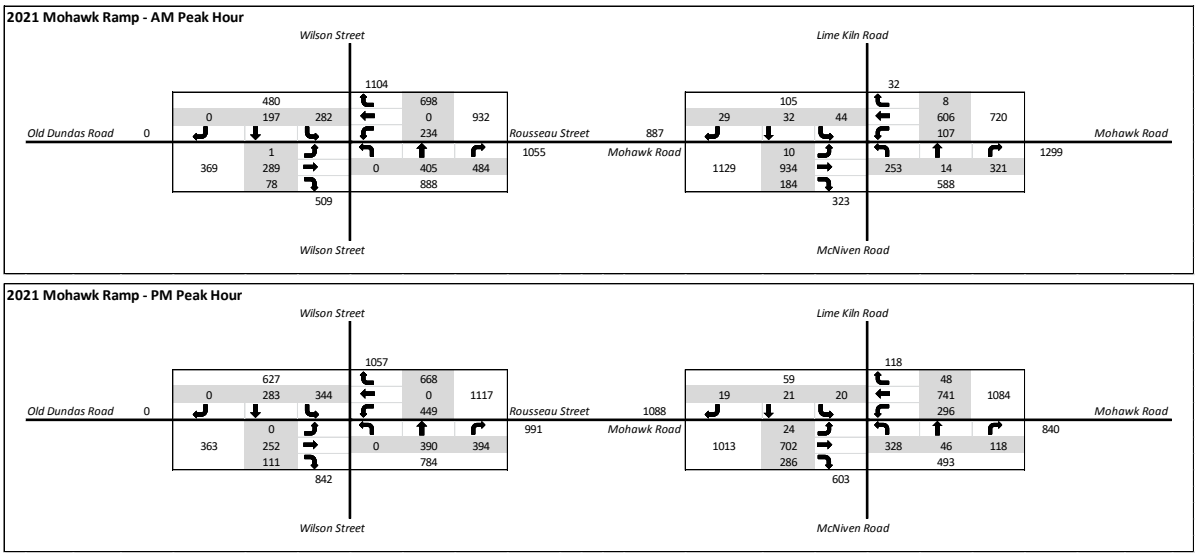

Figure 7: Future Traffic Volumes – Mohawk Ramp Scenario

5.2 2021 Future Traffic Operations – Mohawk Ramp Scenario

5.2.1 Without Ancaster TMP Recommended Improvements

Table 5 summarizes the results of the Mohawk Ramp scenario without the recommended improvements identified in the Ancaster Transportation Master Plan. Current traffic signal timings provided by the City were utilized in this analysis. Synchro results are provided in **Appendix C** for further reference.

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Table 5: 2021 Future Traffic Operations – Mohawk Ramp Scenario – Without TMP Improvements

Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	E	0.90	59.1	F	0.97	81.7
	WB	L	D	0.67	41.9	E	1.00	79.9
		R	D	0.67	42.2	D	0.55	36.1
	NB	T	E	0.89	55.9	E	0.95	72.8
		R	C	0.34	31.5	D	0.28	35.1
	SB	L	F	1.18	141.7	F	1.61	325.5
		T	C	0.29	22.1	C	0.46	28.3
	Overall Results		**D**	**1.00**	**53.7**	**F**	**1.28**	**87.1**
Mohawk Road at McNiven Road / Lime Kiln Road	EB	L	B	0.03	11.3	B	0.12	17.7
		T	D	1.00	53.1	D	0.93	43.9
		R	B	0.18	12.4	B	0.28	19.0
	WB	L	C	0.49	21.9	E	0.96	70.7
		T/R	B	0.54	10.3	B	0.75	17.3
	NB	L	D	0.81	49.0	E	0.92	63.3
		T/R	C	0.33	30.6	C	0.20	28.6
	SB	L	C	0.37	32.3	C	0.07	27.4
		T/R	C	0.10	28.5	C	0.06	27.2
	Overall Results		**C**	**0.91**	**34.0**	**D**	**0.97**	**37.1**

The results of the operations analysis indicate that the Wilson Street intersection is expected to operate under an unacceptable level of service during both peak hours, especially during the PM, with failing levels of service and movements above capacity on each approach.

The results of the operations analysis indicate that the Mohawk Road intersection is expected to operate under an acceptable level of service during both peak hours. Some movements are marginally above the acceptable threshold values; specifically the eastbound through and westbound left-turn movements.

5.2.2 With Ancaster TMP Recommended Improvements

Table 6 summarizes the results of the Mohawk Ramp scenario with the recommended interim improvements identified in the Ancaster Transportation Master Plan. The signal timings for both intersections were increased to a 120 second cycle length and optimized. Synchro results are provided in **Appendix C** for further reference.

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Table 6: 2021 Future Traffic Operations – Mohawk Ramp Scenario – With TMP Improvements

Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	E	0.91	64.3	F	1.02	99.2
	WB	L	D	0.73	50.6	F	1.02	90.6
		R	D	0.73	51.3	D	0.54	39.2
	NB	T	D	0.84	50.0	E	0.96	79.4
		R	C	0.35	33.1	D	0.27	38.3
	SB	L	E	0.83	64.0	F	0.96	89.4
		T	C	0.27	21.4	C	0.43	28.0
	Overall Results		**D**	**0.83**	**48.7**	**E**	**0.99**	**64.9**
Mohawk Road at McNiven Road / Lime Kiln Road	EB	L	A	0.03	9.8	B	0.13	18.4
		T	C	0.92	32.9	D	0.92	43.3
		R	B	0.16	10.7	B	0.29	19.8
	WB	L	C	0.69	32.6	F	0.99	83.1
		T/R	B	0.53	10.2	B	0.75	18.1
	NB	L	D	0.83	53.6	E	0.90	60.8
		T/R	D	0.56	36.2	C	0.21	29.7
	SB	L	D	0.40	35.0	C	0.07	28.4
		T/R	C	0.10	30.5	C	0.06	28.2
	Overall Results		**C**	**0.88**	**28.2**	**D**	**0.99**	**38.5**

The results of the operations analysis indicate that the Wilson Street intersection is expected to operate under an unacceptable level of service during both peak hours, especially during the PM, with failing levels of service and movements above capacity on each approach.

The results of the operations analysis indicate that the Mohawk Road intersection is expected to operate under an acceptable level of service during both peak hours. Some movements are marginally above the acceptable threshold values; specifically the eastbound through and westbound left-turn movements.

5.2.3 Modified Interim Scenario

Table 7 summarizes the results of the Mohawk Ramp scenario with the recommended interim improvements identified in the Ancaster Transportation Master Plan plus additional improvements on Old Dundas Road. This scenario includes an eastbound shared left-turn / through lane and an exclusive right-turn lane with a nominal 30 metres of storage on Old Dundas Road. The signal timings for both scenarios were increased to a 120 second cycle length and optimized. For this additional scenario only the critical PM peak hour was analyzed. Additionally, the improvements

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included in the test were not evaluated for feasibility and were only presented for discussion purposes. Synchro results are provided in **Appendix C** for further reference.

Table 7: 2021 Future Traffic Operations – Mohawk Ramp Scenario – With TMP Improvements (TEST)

Intersection	Approach	Movement	PM Peak Hour (Shared EB LTR)			PM Peak Hour (EBLT / EBR)		
			LOS	V/C	Delay	LOS	V/C	Delay
Wilson Street at Rousseaux Street / Old Dundas Road	EB	LTR	F	1.02	99.2	-	-	-
		LT (new)	-	-	-	E	0.81	60.0
		R (new)	-	-	-	D	0.08	40.0
	WB	L	F	1.02	90.6	E	0.97	73.8
		R	D	0.54	39.2	D	0.54	37.0
	NB	T	E	0.96	79.4	E	0.94	71.5
		R	D	0.27	38.3	D	0.27	36.6
	SB	L	F	0.96	89.4	E	0.92	76.6
		T	C	0.43	28.0	C	0.41	26.0
	Overall Results		**E**	**0.99**	**64.9**	**D**	**0.92**	**53.1**

The results of the operations analysis indicate that the Wilson Street intersection is expected to operate better during the PM peak hour with the additional improvements on Old Dundas Road, with the overall levels of service improving from E to D and volume-to-capacity ratios from 0.99 to 0.92. The eastbound approach now operates under an acceptable level of service. Marginal improvements to the level of service and volume-to-capacity ratios were noted on the other approaches.

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5.3 Summary of Results

The results of the operational analysis are summarized by intersection below in **Table 8** and **Table 9.**

Table 8: Summary of Results – Wilson Street at Rousseaux Street / Old Dundas Road

Scenario	AM Peak Hour			PM Peak Hour		
	LOS	V/C	Delay	LOS	V/C	Delay
2008 Existing	D	0.80	36.5	D	1.04	54.4
2021 Future Traffic Operations Do Nothing Scenario Without TMP Improvements	D	1.01	53.5	F	1.28	87.2
2021 Future Traffic Operations Do Nothing Scenario With TMP Improvements	D	0.85	48.8	E	1.01	68.4
2021 Future Traffic Operations *Do Nothing Scenario* *With TMP Improvements (TEST)*	N/A	N/A	N/A	D	0.93	54.8
2021 Future Traffic Operations Mohawk Ramp Scenario Without TMP Improvements	D	1.00	53.7	F	1.28	87.1
2021 Future Traffic Operations Mohawk Ramp Scenario With TMP Improvements	D	0.83	48.7	E	0.99	64.9
2021 Future Traffic Operations *Mohawk Ramp Scenario* *With TMP Improvements (+ RT lane on Old Dundas)*	N/A	N/A	N/A	D	0.92	53.1

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Table 9: Summary of Results – Mohawk Road at McNiven Road / Lime Kiln Road

Scenario	AM Peak Hour			PM Peak Hour		
	LOS	V/C	Delay	LOS	V/C	Delay
2008 Existing Traffic Operations	C	0.77	20.3	C	0.79	22.5
2021 Future Traffic Operations Do Nothing Scenario Without TMP Improvements	C	0.88	29.6	C	0.96	35.0
2021 Future Traffic Operations Do Nothing Scenario With TMP Improvements	C	0.86	26.2	D	0.95	35.3
2021 Future Traffic Operations Mohawk Ramp Scenario Without TMP Improvements	C	0.91	34.0	D	0.97	37.1
2021 Future Traffic Operations Mohawk Ramp Scenario With TMP Improvements	C	0.88	28.2	D	0.99	38.5

6. Conclusions

- Ramp scenario has a very minor positive effect on the intersection of Wilson Street at Rousseaux Street / Old Dundas Road.
- Ramp scenario has a very minor negative effect on the intersection of Mohawk Road at McNiven Road / Lime Kiln Road.
- The scenarios which included the recommended improvements from the Ancaster TMP operated better overall against the scenarios without.
- With or without the proposed Mohawk Road on-ramp, the interim intersection improvements recommended in the Ancaster TMP will not adequately address the operational issues at this intersection.
- Further investigation is required in order to arrive at intersection improvements that address the growing traffic demands at the Wilson Street intersection. There is an 'ultimate' solution identified in the Ancaster TMP that improves operations. Options to improve the Old Dundas Road approach could also be investigated.

B000355

Appendix A: Existing Conditions Synchro Results

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

14/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	241	76	228	0	602	0	349	406	235	170	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99		1.00		1.00		1.00	0.95	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.97		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778		1770		1583		1863	1509	1766	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.22	1.00	
Satd. Flow (perm)		1778		1770		1583		1863	1509	408	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	254	80	240	0	634	0	367	427	247	179	0
RTOR Reduction (vph)	0	10	0	0	0	502	0	0	323	0	0	0
Lane Group Flow (vph)	0	325	0	240	0	132	0	367	104	247	179	0
Confl. Peds. (#/hr)			19	19			4		15	15		4
Turn Type	Perm	NA		Prot		Perm		NA	Perm	pm+pt	NA	
Protected Phases		8		4				2		1	6	
Permitted Phases	8					4			2	6		
Actuated Green, G (s)		21.4		19.9		19.9		23.3	23.3	36.5	36.5	
Effective Green, g (s)		21.4		19.9		19.9		23.3	23.3	36.5	36.5	
Actuated g/C Ratio		0.22		0.21		0.21		0.24	0.24	0.38	0.38	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		398		369		330		455	368	301	712	
v/s Ratio Prot				c0.14				0.20		c0.09	0.10	
v/s Ratio Perm		0.18				0.08			0.07	c0.23		
v/c Ratio		0.82		0.65		0.40		0.81	0.28	0.82	0.25	
Uniform Delay, d1		35.1		34.6		32.6		33.9	29.3	22.8	20.1	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		12.2		4.1		0.8		10.3	0.5	16.2	0.2	
Delay (s)		47.3		38.6		33.4		44.3	29.8	39.1	20.3	
Level of Service		D		D		C		D	C	D	C	
Approach Delay (s)		47.3			34.8			36.5			31.2	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	20.6
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	771	159	92	557	7	218	12	277	38	28	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.86		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1530	1770	1859		1770	1559		1766	1731	
Flt Permitted	0.43	1.00	1.00	0.12	1.00		0.72	1.00		0.38	1.00	
Satd. Flow (perm)	808	1863	1530	232	1859		1343	1559		712	1731	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	9	803	166	96	580	7	227	12	289	40	29	26
RTOR Reduction (vph)	0	0	52	0	0	0	0	219	0	0	20	0
Lane Group Flow (vph)	9	803	114	96	587	0	227	82	0	40	35	0
Confl. Peds. (#/hr)			8	8					2	2		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	42.8	42.8	42.8	51.6	51.6		20.3	20.3		20.3	20.3	
Effective Green, g (s)	42.8	42.8	42.8	51.6	51.6		20.3	20.3		20.3	20.3	
Actuated g/C Ratio	0.51	0.51	0.51	0.62	0.62		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	413	953	783	249	1147		326	378		172	420	
v/s Ratio Prot		c0.43		0.03	c0.32			0.05			0.02	
v/s Ratio Perm	0.01		0.07	0.21			c0.17			0.06		
v/c Ratio	0.02	0.84	0.15	0.39	0.51		0.70	0.22		0.23	0.08	
Uniform Delay, d1	10.1	17.5	10.8	12.8	8.9		28.8	25.3		25.4	24.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	6.9	0.1	1.0	0.4		6.3	0.3		0.7	0.1	
Delay (s)	10.1	24.4	10.8	13.8	9.3		35.2	25.6		26.1	24.6	
Level of Service	B	C	B	B	A		D	C		C	C	
Approach Delay (s)		21.9			10.0			29.7			25.2	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	14.7
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

14/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	209	104	413	0	576	0	336	329	288	244	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.98		1.00		0.98		1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.95		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1751		1770		1547		1863	1514	1767	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.20	1.00	
Satd. Flow (perm)		1751		1770		1547		1863	1514	363	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	222	111	439	0	613	0	357	350	306	260	0
RTOR Reduction (vph)	0	17	0	0	0	447	0	0	271	0	0	0
Lane Group Flow (vph)	0	316	0	439	0	166	0	357	79	306	260	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA		Prot		Perm		NA	Perm	pm+pt	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases						4			2	6		
Actuated Green, G (s)		21.9		28.4		28.4		23.8	23.8	36.9	36.9	
Effective Green, g (s)		21.9		28.4		28.4		23.8	23.8	36.9	36.9	
Actuated g/C Ratio		0.21		0.27		0.27		0.23	0.23	0.35	0.35	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		365		479		419		423	343	263	655	
v/s Ratio Prot		c0.18		c0.25				0.19		c0.11	0.14	
v/s Ratio Perm						0.11			0.05	c0.30		
v/c Ratio		0.87		0.92		0.40		0.84	0.23	1.16	0.40	
Uniform Delay, d1		40.0		37.0		31.2		38.7	33.0	30.1	25.6	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		18.9		22.2		0.6		14.6	0.4	107.0	0.5	
Delay (s)		59.0		59.2		31.8		53.3	33.5	137.1	26.0	
Level of Service		E		E		C		D	C	F	C	
Approach Delay (s)		59.0			43.3			43.5			86.1	
Approach LOS		E			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	20.6
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	571	247	255	674	41	283	40	102	17	18	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1549	1770	1847		1770	1637		1767	1731	
Flt Permitted	0.32	1.00	1.00	0.17	1.00		0.73	1.00		0.66	1.00	
Satd. Flow (perm)	597	1863	1549	310	1847		1367	1637		1229	1731	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	22	607	263	271	717	44	301	43	109	18	19	17
RTOR Reduction (vph)	0	0	133	0	2	0	0	78	0	0	12	0
Lane Group Flow (vph)	22	607	130	271	759	0	301	74	0	18	24	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	33.9	33.9	33.9	48.9	48.9		23.6	23.6		23.6	23.6	
Effective Green, g (s)	33.9	33.9	33.9	48.9	48.9		23.6	23.6		23.6	23.6	
Actuated g/C Ratio	0.40	0.40	0.40	0.58	0.58		0.28	0.28		0.28	0.28	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	240	750	623	388	1072		383	458		344	485	
v/s Ratio Prot		c0.33		0.10	c0.41			0.04			0.01	
v/s Ratio Perm	0.04		0.08	0.31			c0.22			0.01		
v/c Ratio	0.09	0.81	0.21	0.70	0.71		0.79	0.16		0.05	0.05	
Uniform Delay, d1	15.6	22.3	16.4	13.4	12.6		28.0	22.8		22.1	22.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	6.4	0.2	5.4	2.2		10.2	0.2		0.1	0.0	
Delay (s)	15.8	28.7	16.6	18.8	14.7		38.1	23.0		22.2	22.2	
Level of Service	B	C	B	B	B		D	C		C	C	
Approach Delay (s)		24.8			15.8			33.1			22.2	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	14.7
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Appendix B: 2021 Do Nothing Scenario Synchro Results

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

14/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	279	88	264	0	698	0	405	471	272	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99		1.00		1.00		1.00	0.95	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.97		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1776		1770		1583		1863	1506	1768	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.14	1.00	
Satd. Flow (perm)		1776		1770		1583		1863	1506	265	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	294	93	278	0	735	0	426	496	286	207	0
RTOR Reduction (vph)	0	10	0	0	0	511	0	0	370	0	0	0
Lane Group Flow (vph)	0	378	0	278	0	224	0	426	126	286	207	0
Confl. Peds. (#/hr)			19	19			4		15	15		4
Turn Type	Perm	NA		Prot		Perm		NA	Perm	pm+pt	NA	
Protected Phases		8		4				2		1	6	
Permitted Phases	8					4			2	6		
Actuated Green, G (s)		24.1		22.2		22.2		26.1	26.1	39.1	39.1	
Effective Green, g (s)		24.1		22.2		22.2		26.1	26.1	39.1	39.1	
Actuated g/C Ratio		0.23		0.22		0.22		0.25	0.25	0.38	0.38	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		415		381		341		472	381	246	707	
v/s Ratio Prot				c0.16				0.23		c0.11	0.11	
v/s Ratio Perm		0.21				0.14			0.08	c0.33		
v/c Ratio		0.91		0.73		0.66		0.90	0.33	1.16	0.29	
Uniform Delay, d1		38.4		37.6		36.9		37.2	31.3	26.5	22.3	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		23.8		6.9		4.5		20.6	0.6	108.5	0.3	
Delay (s)		62.2		44.5		41.5		57.9	31.9	134.9	22.6	
Level of Service		E		D		D		E	C	F	C	
Approach Delay (s)		62.2			42.3			43.9			87.8	
Approach LOS		E			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	894	184	107	646	8	253	14	321	44	32	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.86		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1527	1770	1859		1770	1559		1766	1730	
Flt Permitted	0.37	1.00	1.00	0.08	1.00		0.72	1.00		0.28	1.00	
Satd. Flow (perm)	690	1863	1527	140	1859		1334	1559		515	1730	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	931	192	111	673	8	264	15	334	46	33	30
RTOR Reduction (vph)	0	0	51	0	0	0	0	230	0	0	23	0
Lane Group Flow (vph)	10	931	141	111	681	0	264	119	0	46	40	0
Confl. Peds. (#/hr)			8	8					2	2		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	50.3	50.3	50.3	61.5	61.5		23.5	23.5		23.5	23.5	
Effective Green, g (s)	50.3	50.3	50.3	61.5	61.5		23.5	23.5		23.5	23.5	
Actuated g/C Ratio	0.52	0.52	0.52	0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	358	969	794	227	1182		324	378		125	420	
v/s Ratio Prot		c0.50		0.04	c0.37			0.08			0.02	
v/s Ratio Perm	0.01		0.09	0.27			c0.20			0.09		
v/c Ratio	0.03	0.96	0.18	0.49	0.58		0.81	0.31		0.37	0.10	
Uniform Delay, d1	11.3	22.3	12.3	19.4	10.1		34.5	30.0		30.4	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	20.0	0.1	1.7	0.7		14.5	0.5		1.8	0.1	
Delay (s)	11.3	42.2	12.4	21.1	10.8		49.0	30.5		32.3	28.5	
Level of Service	B	D	B	C	B		D	C		C	C	
Approach Delay (s)		36.9			12.2			38.5			30.1	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	96.7	Sum of lost time (s)	14.7
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

15/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	279	88	264	0	698	0	405	471	272	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	0.97	1.00	
Frpb, ped/bikes		0.98		1.00		1.00		1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.97		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1775		1770		1583		1863	1534	3433	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1775		1770		1583		1863	1534	3433	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	294	93	278	0	735	0	426	496	286	207	0
RTOR Reduction (vph)	0	9	0	0	0	519	0	0	364	0	0	0
Lane Group Flow (vph)	0	379	0	278	0	216	0	426	132	286	207	0
Confl. Peds. (#/hr)			19	19			4		15	15		4
Turn Type	Perm	NA		Prot		Perm		NA	Perm	Prot	NA	
Protected Phases		8		4				2		1	6	
Permitted Phases	8					4			2			
Actuated Green, G (s)		26.5		22.1		22.1		29.9	29.9	11.5	45.9	
Effective Green, g (s)		26.5		22.1		22.1		29.9	29.9	11.5	45.9	
Actuated g/C Ratio		0.24		0.20		0.20		0.27	0.27	0.10	0.41	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		419		348		312		496	409	352	762	
v/s Ratio Prot				c0.16				c0.23		c0.08	0.11	
v/s Ratio Perm		0.21				0.14			0.09			
v/c Ratio		0.90		0.80		0.69		0.86	0.32	0.81	0.27	
Uniform Delay, d1		41.6		42.9		41.8		39.1	33.0	49.2	22.0	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		22.4		12.1		6.5		14.1	0.5	13.3	0.2	
Delay (s)		64.0		55.0		48.4		53.2	33.5	62.6	22.2	
Level of Service		E		D		D		D	C	E	C	
Approach Delay (s)		64.0			50.2			42.6			45.6	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	112.1	Sum of lost time (s)	22.1
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	894	184	107	646	8	253	14	321	44	32	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.86		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1526	1770	1859		1770	1559		1766	1730	
Flt Permitted	0.35	1.00	1.00	0.07	1.00		0.72	1.00		0.28	1.00	
Satd. Flow (perm)	649	1863	1526	137	1859		1334	1559		513	1730	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	931	192	111	673	8	264	15	334	46	33	30
RTOR Reduction (vph)	0	0	57	0	0	0	0	145	0	0	23	0
Lane Group Flow (vph)	10	931	135	111	681	0	264	204	0	46	40	0
Confl. Peds. (#/hr)			8	8					2	2		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	54.8	54.8	54.8	63.1	63.1		24.2	24.2		24.2	24.2	
Effective Green, g (s)	54.8	54.8	54.8	63.1	63.1		24.2	24.2		24.2	24.2	
Actuated g/C Ratio	0.55	0.55	0.55	0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	359	1031	844	174	1184		326	381		125	422	
v/s Ratio Prot		c0.50		c0.03	0.37			0.13			0.02	
v/s Ratio Perm	0.02		0.09	0.37			c0.20			0.09		
v/c Ratio	0.03	0.90	0.16	0.64	0.57		0.81	0.54		0.37	0.10	
Uniform Delay, d1	10.0	19.7	10.8	19.3	10.3		35.2	32.5		31.1	28.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	10.9	0.1	7.5	0.7		13.8	1.4		1.8	0.1	
Delay (s)	10.1	30.6	10.9	26.7	11.0		49.0	34.0		32.9	29.0	
Level of Service	B	C	B	C	B		D	C		C	C	
Approach Delay (s)		27.1			13.2			40.4			30.7	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	14.7
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

14/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	242	121	479	0	668	0	390	381	334	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.98		1.00		0.98		1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.95		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1749		1770		1547		1863	1512	1768	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.14	1.00	
Satd. Flow (perm)		1749		1770		1547		1863	1512	258	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	257	129	510	0	711	0	415	405	355	301	0
RTOR Reduction (vph)	0	16	0	0	0	479	0	0	310	0	0	0
Lane Group Flow (vph)	0	370	0	510	0	232	0	415	95	355	301	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA		Prot		Perm		NA	Perm	pm+pt	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases						4			2	6		
Actuated Green, G (s)		24.0		30.0		30.0		25.9	25.9	38.9	38.9	
Effective Green, g (s)		24.0		30.0		30.0		25.9	25.9	38.9	38.9	
Actuated g/C Ratio		0.22		0.27		0.27		0.23	0.23	0.35	0.35	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		379		480		420		436	354	227	655	
v/s Ratio Prot		c0.21		c0.29				0.22		c0.14	0.16	
v/s Ratio Perm						0.15			0.06	c0.41		
v/c Ratio		0.98		1.06		0.55		0.95	0.27	1.56	0.46	
Uniform Delay, d1		43.0		40.2		34.5		41.7	34.6	30.4	27.7	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		39.3		58.7		1.6		31.1	0.5	274.1	0.6	
Delay (s)		82.2		98.9		36.1		72.8	35.0	304.5	28.3	
Level of Service		F		F		D		E	D	F	C	
Approach Delay (s)		82.2			62.3			54.2			177.8	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	87.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	20.6
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	662	286	296	781	48	328	46	118	20	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1548	1770	1847		1770	1635		1767	1730	
Flt Permitted	0.21	1.00	1.00	0.09	1.00		0.73	1.00		0.61	1.00	
Satd. Flow (perm)	391	1863	1548	171	1847		1359	1635		1132	1730	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	704	304	315	831	51	349	49	126	21	22	20
RTOR Reduction (vph)	0	0	128	0	2	0	0	83	0	0	14	0
Lane Group Flow (vph)	26	704	176	315	880	0	349	92	0	21	28	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	41.5	41.5	41.5	58.8	58.8		28.6	28.6		28.6	28.6	
Effective Green, g (s)	41.5	41.5	41.5	58.8	58.8		28.6	28.6		28.6	28.6	
Actuated g/C Ratio	0.42	0.42	0.42	0.59	0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	163	780	648	332	1095		392	471		326	499	
v/s Ratio Prot		0.38		c0.14	0.48			0.06			0.02	
v/s Ratio Perm	0.07		0.11	c0.42			c0.26			0.02		
v/c Ratio	0.16	0.90	0.27	0.95	0.80		0.89	0.20		0.06	0.06	
Uniform Delay, d1	17.9	26.9	18.9	29.2	15.7		33.7	26.6		25.6	25.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	13.7	0.2	35.7	4.4		21.4	0.2		0.1	0.0	
Delay (s)	18.4	40.6	19.1	64.8	20.0		55.2	26.8		25.6	25.5	
Level of Service	B	D	B	E	C		E	C		C	C	
Approach Delay (s)		33.7			31.8			45.7			25.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	14.7
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

15/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	242	121	479	0	668	0	390	381	334	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	0.97	1.00	
Frpb, ped/bikes		0.98		1.00		0.98		1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.95		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1748		1770		1547		1863	1539	3433	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1748		1770		1547		1863	1539	3433	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	257	129	510	0	711	0	415	405	355	301	0
RTOR Reduction (vph)	0	15	0	0	0	460	0	0	311	0	0	0
Lane Group Flow (vph)	0	371	0	510	0	251	0	415	94	355	301	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA		Prot		Perm		NA	Perm	Prot	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases						4			2			
Actuated Green, G (s)		24.0		33.4		33.4		27.9	27.9	12.5	44.9	
Effective Green, g (s)		24.0		33.4		33.4		27.9	27.9	12.5	44.9	
Actuated g/C Ratio		0.20		0.28		0.28		0.23	0.23	0.10	0.37	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		349		493		430		433	358	357	697	
v/s Ratio Prot		c0.21		c0.29				c0.22		c0.10	0.16	
v/s Ratio Perm						0.16			0.06			
v/c Ratio		1.06		1.03		0.58		0.96	0.26	0.99	0.43	
Uniform Delay, d1		48.0		43.2		37.3		45.4	37.6	53.7	28.0	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		65.7		49.7		2.0		32.5	0.5	45.9	0.5	
Delay (s)		113.6		93.0		39.3		78.0	38.1	99.5	28.5	
Level of Service		F		F		D		E	D	F	C	
Approach Delay (s)		113.6			61.7			58.3			66.9	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	68.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	22.1
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	662	286	296	781	48	328	46	118	20	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1548	1770	1847		1770	1635		1767	1730	
Flt Permitted	0.21	1.00	1.00	0.10	1.00		0.73	1.00		0.60	1.00	
Satd. Flow (perm)	384	1863	1548	180	1847		1359	1635		1122	1730	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	704	304	315	831	51	349	49	126	21	22	20
RTOR Reduction (vph)	0	0	117	0	2	0	0	77	0	0	14	0
Lane Group Flow (vph)	26	704	187	315	880	0	349	98	0	21	28	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	44.5	44.5	44.5	62.3	62.3		30.8	30.8		30.8	30.8	
Effective Green, g (s)	44.5	44.5	44.5	62.3	62.3		30.8	30.8		30.8	30.8	
Actuated g/C Ratio	0.42	0.42	0.42	0.59	0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	163	791	657	331	1097		399	480		329	508	
v/s Ratio Prot		0.38		c0.13	0.48			0.06			0.02	
v/s Ratio Perm	0.07		0.12	c0.43			c0.26			0.02		
v/c Ratio	0.16	0.89	0.28	0.95	0.80		0.87	0.20		0.06	0.05	
Uniform Delay, d1	18.6	27.9	19.7	30.2	16.5		35.2	27.8		26.6	26.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	12.2	0.2	36.7	4.3		18.7	0.2		0.1	0.0	
Delay (s)	19.1	40.1	20.0	66.9	20.8		53.9	28.0		26.7	26.6	
Level of Service	B	D	B	E	C		D	C		C	C	
Approach Delay (s)		33.6			32.9			45.2			26.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	14.7
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

29/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	242	121	479	0	668	0	390	381	334	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2	6.2	5.6		5.6		5.8	5.8	4.5	5.8	
Lane Util. Factor		1.00	1.00	1.00		1.00		1.00	1.00	0.97	1.00	
Frpb, ped/bikes		1.00	0.95	1.00		0.98		1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1863	1503	1770		1547		1863	1539	3433	1863	
Flt Permitted		1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1863	1503	1770		1547		1863	1539	3433	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	257	129	510	0	711	0	415	405	355	301	0
RTOR Reduction (vph)	0	0	97	0	0	454	0	0	310	0	0	0
Lane Group Flow (vph)	0	257	32	510	0	257	0	415	95	355	301	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA	Perm	Prot		Perm		NA	Perm	Prot	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases			8			4			2			
Actuated Green, G (s)		20.1	20.1	33.8		33.8		27.4	27.4	12.8	44.7	
Effective Green, g (s)		20.1	20.1	33.8		33.8		27.4	27.4	12.8	44.7	
Actuated g/C Ratio		0.17	0.17	0.29		0.29		0.24	0.24	0.11	0.38	
Clearance Time (s)		6.2	6.2	5.6		5.6		5.8	5.8	4.5	5.8	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		322	259	514		449		439	362	378	716	
v/s Ratio Prot		c0.14		c0.29				c0.22		c0.10	0.16	
v/s Ratio Perm			0.02			0.17			0.06			
v/c Ratio		0.80	0.12	0.99		0.57		0.95	0.26	0.94	0.42	
Uniform Delay, d1		46.1	40.6	41.1		35.1		43.7	36.2	51.3	26.2	
Progression Factor		1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		12.9	0.2	37.5		1.8		29.5	0.5	30.7	0.5	
Delay (s)		59.0	40.8	78.6		36.8		73.2	36.6	82.1	26.7	
Level of Service		E	D	E		D		E	D	F	C	
Approach Delay (s)		52.9			54.3			55.1			56.7	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	116.2	Sum of lost time (s)	22.1
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	662	286	296	781	48	328	46	118	20	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1548	1770	1847		1770	1635		1767	1730	
Flt Permitted	0.21	1.00	1.00	0.10	1.00		0.73	1.00		0.60	1.00	
Satd. Flow (perm)	384	1863	1548	180	1847		1359	1635		1122	1730	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	704	304	315	831	51	349	49	126	21	22	20
RTOR Reduction (vph)	0	0	117	0	2	0	0	77	0	0	14	0
Lane Group Flow (vph)	26	704	187	315	880	0	349	98	0	21	28	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	44.5	44.5	44.5	62.3	62.3		30.8	30.8		30.8	30.8	
Effective Green, g (s)	44.5	44.5	44.5	62.3	62.3		30.8	30.8		30.8	30.8	
Actuated g/C Ratio	0.42	0.42	0.42	0.59	0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	163	791	657	331	1097		399	480		329	508	
v/s Ratio Prot		0.38		c0.13	0.48			0.06			0.02	
v/s Ratio Perm	0.07		0.12	c0.43			c0.26			0.02		
v/c Ratio	0.16	0.89	0.28	0.95	0.80		0.87	0.20		0.06	0.05	
Uniform Delay, d1	18.6	27.9	19.7	30.2	16.5		35.2	27.8		26.6	26.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	12.2	0.2	36.7	4.3		18.7	0.2		0.1	0.0	
Delay (s)	19.1	40.1	20.0	66.9	20.8		53.9	28.0		26.7	26.6	
Level of Service	B	D	B	E	C		D	C		C	C	
Approach Delay (s)		33.6			32.9			45.2			26.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	14.7
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Appendix C: 2021 Mohawk Ramp Scenario Synchro Results

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

14/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	289	78	234	0	698	0	405	484	282	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99		1.00		1.00		1.00	0.95	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.97		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1786		1770		1583		1863	1506	1768	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.15	1.00	
Satd. Flow (perm)		1786		1770		1583		1863	1506	275	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	304	82	246	0	735	0	426	509	297	207	0
RTOR Reduction (vph)	0	8	0	0	0	516	0	0	379	0	0	0
Lane Group Flow (vph)	0	379	0	246	0	219	0	426	130	297	207	0
Confl. Peds. (#/hr)			19	19			4		15	15		4
Turn Type	Perm	NA		Prot		Perm		NA	Perm	pm+pt	NA	
Protected Phases		8		4				2		1	6	
Permitted Phases	8					4			2	6		
Actuated Green, G (s)		24.1		21.2		21.2		26.1	26.1	39.1	39.1	
Effective Green, g (s)		24.1		21.2		21.2		26.1	26.1	39.1	39.1	
Actuated g/C Ratio		0.24		0.21		0.21		0.26	0.26	0.38	0.38	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		421		367		329		476	385	251	714	
v/s Ratio Prot				c0.14				0.23		c0.12	0.11	
v/s Ratio Perm		0.21				0.14			0.09	c0.34		
v/c Ratio		0.90		0.67		0.67		0.89	0.34	1.18	0.29	
Uniform Delay, d1		37.8		37.2		37.2		36.6	30.9	26.1	21.8	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		21.4		4.8		5.0		19.3	0.6	115.5	0.3	
Delay (s)		59.1		41.9		42.2		55.9	31.5	141.7	22.1	
Level of Service		E		D		D		E	C	F	C	
Approach Delay (s)		59.1			42.1			42.7			92.6	
Approach LOS		E			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	102.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	934	184	107	606	8	253	14	321	44	32	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.86		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1527	1770	1859		1770	1559		1766	1730	
Flt Permitted	0.40	1.00	1.00	0.08	1.00		0.72	1.00		0.28	1.00	
Satd. Flow (perm)	749	1863	1527	140	1859		1334	1559		515	1730	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	973	192	111	631	8	264	15	334	46	33	30
RTOR Reduction (vph)	0	0	48	0	0	0	0	226	0	0	23	0
Lane Group Flow (vph)	10	973	144	111	639	0	264	123	0	46	40	0
Confl. Peds. (#/hr)			8	8					2	2		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	50.3	50.3	50.3	61.5	61.5		23.5	23.5		23.5	23.5	
Effective Green, g (s)	50.3	50.3	50.3	61.5	61.5		23.5	23.5		23.5	23.5	
Actuated g/C Ratio	0.52	0.52	0.52	0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	389	969	794	227	1182		324	378		125	420	
v/s Ratio Prot		c0.52		0.04	c0.34			0.08			0.02	
v/s Ratio Perm	0.01		0.09	0.27			c0.20			0.09		
v/c Ratio	0.03	1.00	0.18	0.49	0.54		0.81	0.33		0.37	0.10	
Uniform Delay, d1	11.3	23.2	12.3	20.2	9.8		34.5	30.1		30.4	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	29.9	0.1	1.7	0.5		14.5	0.5		1.8	0.1	
Delay (s)	11.3	53.1	12.4	21.9	10.3		49.0	30.6		32.3	28.5	
Level of Service	B	D	B	C	B		D	C		C	C	
Approach Delay (s)		46.1			12.0			38.5			30.1	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	96.7	Sum of lost time (s)	14.7
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

15/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	289	78	234	0	698	0	405	484	282	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	0.97	1.00	
Frpb, ped/bikes		0.99		1.00		1.00		1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.97		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1785		1770		1583		1863	1534	3433	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1785		1770		1583		1863	1534	3433	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	304	82	246	0	735	0	426	509	297	207	0
RTOR Reduction (vph)	0	8	0	0	0	515	0	0	363	0	0	0
Lane Group Flow (vph)	0	379	0	246	0	220	0	426	146	297	207	0
Confl. Peds. (#/hr)			19	19			4		15	15		4
Turn Type	Perm	NA		Prot		Perm		NA	Perm	Prot	NA	
Protected Phases		8		4				2		1	6	
Permitted Phases	8					4			2			
Actuated Green, G (s)		26.1		21.1		21.1		30.4	30.4	11.6	46.5	
Effective Green, g (s)		26.1		21.1		21.1		30.4	30.4	11.6	46.5	
Actuated g/C Ratio		0.23		0.19		0.19		0.27	0.27	0.10	0.42	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		418		335		300		508	418	357	778	
v/s Ratio Prot				c0.14				c0.23		c0.09	0.11	
v/s Ratio Perm		0.21				0.14			0.10			
v/c Ratio		0.91		0.73		0.73		0.84	0.35	0.83	0.27	
Uniform Delay, d1		41.4		42.5		42.4		38.1	32.5	48.9	21.2	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		22.9		8.1		8.9		11.8	0.6	15.1	0.2	
Delay (s)		64.3		50.6		51.3		50.0	33.1	64.0	21.4	
Level of Service		E		D		D		D	C	E	C	
Approach Delay (s)		64.3			51.1			40.8			46.5	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	22.1
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	934	184	107	606	8	253	14	321	44	32	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.86		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1525	1770	1859		1770	1559		1766	1730	
Flt Permitted	0.38	1.00	1.00	0.07	1.00		0.72	1.00		0.26	1.00	
Satd. Flow (perm)	706	1863	1525	122	1859		1334	1559		487	1730	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	973	192	111	631	8	264	15	334	46	33	30
RTOR Reduction (vph)	0	0	53	0	0	0	0	140	0	0	23	0
Lane Group Flow (vph)	10	973	139	111	639	0	264	209	0	46	40	0
Confl. Peds. (#/hr)			8	8					2	2		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	58.1	58.1	58.1	66.3	66.3		24.5	24.5		24.5	24.5	
Effective Green, g (s)	58.1	58.1	58.1	66.3	66.3		24.5	24.5		24.5	24.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.65	0.65		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	1056	864	162	1202		318	372		116	413	
v/s Ratio Prot		c0.52		c0.03	0.34			0.13			0.02	
v/s Ratio Perm	0.01		0.09	0.41			c0.20			0.09		
v/c Ratio	0.03	0.92	0.16	0.69	0.53		0.83	0.56		0.40	0.10	
Uniform Delay, d1	9.8	20.1	10.6	21.2	9.7		37.0	34.3		32.8	30.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	12.8	0.1	11.4	0.5		16.6	1.9		2.2	0.1	
Delay (s)	9.8	32.9	10.7	32.6	10.2		53.6	36.2		35.0	30.5	
Level of Service	A	C	B	C	B		D	D		D	C	
Approach Delay (s)		29.1			13.5			43.7			32.4	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	102.5	Sum of lost time (s)	14.7
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

14/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	252	111	449	0	668	0	390	394	344	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.98		1.00		0.98		1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.96		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1759		1770		1547		1863	1512	1768	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.14	1.00	
Satd. Flow (perm)		1759		1770		1547		1863	1512	258	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	268	118	478	0	711	0	415	419	366	301	0
RTOR Reduction (vph)	0	14	0	0	0	479	0	0	321	0	0	0
Lane Group Flow (vph)	0	372	0	478	0	232	0	415	98	366	301	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA		Prot		Perm		NA	Perm	pm+pt	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases						4			2	6		
Actuated Green, G (s)		24.0		30.0		30.0		25.9	25.9	38.9	38.9	
Effective Green, g (s)		24.0		30.0		30.0		25.9	25.9	38.9	38.9	
Actuated g/C Ratio		0.22		0.27		0.27		0.23	0.23	0.35	0.35	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	3.0	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		382		480		420		436	354	227	655	
v/s Ratio Prot		c0.21		c0.27				0.22		c0.15	0.16	
v/s Ratio Perm						0.15			0.06	c0.42		
v/c Ratio		0.97		1.00		0.55		0.95	0.28	1.61	0.46	
Uniform Delay, d1		42.9		40.2		34.5		41.7	34.6	30.4	27.7	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		38.8		39.7		1.6		31.1	0.5	295.0	0.6	
Delay (s)		81.7		79.9		36.1		72.8	35.1	325.5	28.3	
Level of Service		F		E		D		E	D	F	C	
Approach Delay (s)		81.7			53.7			53.9			191.4	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	87.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	20.6
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	702	286	296	741	48	328	46	118	20	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1548	1770	1846		1770	1635		1767	1730	
Flt Permitted	0.26	1.00	1.00	0.08	1.00		0.73	1.00		0.60	1.00	
Satd. Flow (perm)	483	1863	1548	157	1846		1359	1635		1115	1730	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	747	304	315	788	51	349	49	126	21	22	20
RTOR Reduction (vph)	0	0	118	0	2	0	0	84	0	0	14	0
Lane Group Flow (vph)	26	747	186	315	837	0	349	91	0	21	28	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	44.6	44.6	44.6	62.5	62.5		28.7	28.7		28.7	28.7	
Effective Green, g (s)	44.6	44.6	44.6	62.5	62.5		28.7	28.7		28.7	28.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.61	0.61		0.28	0.28		0.28	0.28	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	807	670	328	1121		379	456		310	482	
v/s Ratio Prot		0.40		c0.14	0.45			0.06			0.02	
v/s Ratio Perm	0.05		0.12	c0.44			c0.26			0.02		
v/c Ratio	0.12	0.93	0.28	0.96	0.75		0.92	0.20		0.07	0.06	
Uniform Delay, d1	17.5	27.6	18.8	31.7	14.5		36.0	28.3		27.3	27.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	16.3	0.2	39.0	2.7		27.3	0.2		0.1	0.0	
Delay (s)	17.7	43.9	19.0	70.7	17.3		63.3	28.6		27.4	27.2	
Level of Service	B	D	B	E	B		E	C		C	C	
Approach Delay (s)		36.2			31.8			51.7			27.3	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	102.9	Sum of lost time (s)	14.7
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

15/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	252	111	449	0	668	0	390	394	344	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	0.97	1.00	
Frpb, ped/bikes		0.98		1.00		0.98		1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.96		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1758		1770		1547		1863	1539	3433	1863	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1758		1770		1547		1863	1539	3433	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	268	118	478	0	711	0	415	419	366	301	0
RTOR Reduction (vph)	0	13	0	0	0	491	0	0	322	0	0	0
Lane Group Flow (vph)	0	373	0	478	0	220	0	415	97	366	301	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA		Prot		Perm		NA	Perm	Prot	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases						4			2			
Actuated Green, G (s)		25.0		31.8		31.8		27.8	27.8	13.3	45.6	
Effective Green, g (s)		25.0		31.8		31.8		27.8	27.8	13.3	45.6	
Actuated g/C Ratio		0.21		0.27		0.27		0.23	0.23	0.11	0.38	
Clearance Time (s)		6.2		5.6		5.6		5.8	5.8	4.5	5.8	
Vehicle Extension (s)		3.0		3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		366		469		409		431	356	380	707	
v/s Ratio Prot		c0.21		c0.27				c0.22		c0.11	0.16	
v/s Ratio Perm						0.14			0.06			
v/c Ratio		1.02		1.02		0.54		0.96	0.27	0.96	0.43	
Uniform Delay, d1		47.5		44.1		37.8		45.6	37.8	53.1	27.5	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		51.7		46.5		1.4		33.8	0.5	36.3	0.5	
Delay (s)		99.2		90.6		39.2		79.4	38.3	89.4	28.0	
Level of Service		F		F		D		E	D	F	C	
Approach Delay (s)		99.2			59.8			58.8			61.7	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	64.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.1
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	702	286	296	741	48	328	46	118	20	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1548	1770	1846		1770	1635		1767	1730	
Flt Permitted	0.25	1.00	1.00	0.08	1.00		0.73	1.00		0.60	1.00	
Satd. Flow (perm)	472	1863	1548	147	1846		1359	1635		1107	1730	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	747	304	315	788	51	349	49	126	21	22	20
RTOR Reduction (vph)	0	0	110	0	2	0	0	77	0	0	14	0
Lane Group Flow (vph)	26	747	194	315	837	0	349	98	0	21	28	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	47.6	47.6	47.6	65.9	65.9		31.0	31.0		31.0	31.0	
Effective Green, g (s)	47.6	47.6	47.6	65.9	65.9		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.44	0.44	0.44	0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	816	678	317	1120		387	466		315	493	
v/s Ratio Prot		0.40		c0.14	0.45			0.06			0.02	
v/s Ratio Perm	0.06		0.13	c0.46			c0.26			0.02		
v/c Ratio	0.13	0.92	0.29	0.99	0.75		0.90	0.21		0.07	0.06	
Uniform Delay, d1	18.1	28.6	19.6	34.5	15.4		37.3	29.5		28.3	28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	14.7	0.2	48.6	2.8		23.4	0.2		0.1	0.0	
Delay (s)	18.4	43.3	19.8	83.1	18.1		60.8	29.7		28.4	28.2	
Level of Service	B	D	B	F	B		E	C		C	C	
Approach Delay (s)		36.1			35.9			50.4			28.3	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	14.7
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Wilson Street E & Old Dundas Road/Rousseaux Street

29/05/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	252	111	449	0	668	0	390	394	344	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2	6.2	5.6		5.6		5.8	5.8	4.5	5.8	
Lane Util. Factor		1.00	1.00	1.00		1.00		1.00	1.00	0.97	1.00	
Frpb, ped/bikes		1.00	0.95	1.00		0.98		1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1863	1503	1770		1547		1863	1539	3433	1863	
Flt Permitted		1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1863	1503	1770		1547		1863	1539	3433	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	268	118	478	0	711	0	415	419	366	301	0
RTOR Reduction (vph)	0	0	96	0	0	478	0	0	319	0	0	0
Lane Group Flow (vph)	0	268	22	478	0	233	0	415	100	366	301	0
Confl. Peds. (#/hr)	1		13	13		1	4		12	12		4
Turn Type		NA	Perm	Prot		Perm		NA	Perm	Prot	NA	
Protected Phases	8	8		4				2		1	6	
Permitted Phases			8			4			2			
Actuated Green, G (s)		20.6	20.6	32.4		32.4		27.6	27.6	13.5	45.6	
Effective Green, g (s)		20.6	20.6	32.4		32.4		27.6	27.6	13.5	45.6	
Actuated g/C Ratio		0.18	0.18	0.28		0.28		0.24	0.24	0.12	0.39	
Clearance Time (s)		6.2	6.2	5.6		5.6		5.8	5.8	4.5	5.8	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)		330	266	493		431		442	365	398	731	
v/s Ratio Prot		c0.14		c0.27				c0.22		c0.11	0.16	
v/s Ratio Perm			0.01			0.15			0.06			
v/c Ratio		0.81	0.08	0.97		0.54		0.94	0.27	0.92	0.41	
Uniform Delay, d1		45.9	39.9	41.4		35.6		43.5	36.1	50.8	25.6	
Progression Factor		1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		14.1	0.1	32.4		1.4		28.0	0.5	25.8	0.4	
Delay (s)		60.0	40.0	73.8		37.0		71.5	36.6	76.6	26.0	
Level of Service		E	D	E		D		E	D	E	C	
Approach Delay (s)		53.9			51.8			53.9			53.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	116.2	Sum of lost time (s)	22.1
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	702	286	296	741	48	328	46	118	20	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1548	1770	1846		1770	1635		1767	1730	
Flt Permitted	0.25	1.00	1.00	0.08	1.00		0.73	1.00		0.60	1.00	
Satd. Flow (perm)	472	1863	1548	147	1846		1359	1635		1107	1730	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	747	304	315	788	51	349	49	126	21	22	20
RTOR Reduction (vph)	0	0	110	0	2	0	0	77	0	0	14	0
Lane Group Flow (vph)	26	747	194	315	837	0	349	98	0	21	28	0
Confl. Peds. (#/hr)			1	1					1	1		
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	47.6	47.6	47.6	65.9	65.9		31.0	31.0		31.0	31.0	
Effective Green, g (s)	47.6	47.6	47.6	65.9	65.9		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.44	0.44	0.44	0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	5.8	5.8	5.8	3.0	5.8		5.9	5.9		5.9	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	816	678	317	1120		387	466		315	493	
v/s Ratio Prot		0.40		c0.14	0.45			0.06			0.02	
v/s Ratio Perm	0.06		0.13	c0.46			c0.26			0.02		
v/c Ratio	0.13	0.92	0.29	0.99	0.75		0.90	0.21		0.07	0.06	
Uniform Delay, d1	18.1	28.6	19.6	34.5	15.4		37.3	29.5		28.3	28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	14.7	0.2	48.6	2.8		23.4	0.2		0.1	0.0	
Delay (s)	18.4	43.3	19.8	83.1	18.1		60.8	29.7		28.4	28.2	
Level of Service	B	D	B	F	B		E	C		C	C	
Approach Delay (s)		36.1			35.9			50.4			28.3	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	14.7
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

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