The Corporations of the Cities of Brampton and Mississauga

Improvements to Goreway Drive From Steeles Avenue to Brandon Gate Drive Class Environmental Assessment Study Environmental Study Report

Goreway Drive

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Project Overview

Goreway Drive is currently functioning as a four-lane urban arterial roadway within the City of Brampton, and as a major collector roadway within the City of Mississauga. The roadway provides north-south connectivity for commuter, commercial and emergency service vehicles between the two cities. In addition, Goreway Drive crosses CN's existing Halton Subdivision approximately 300 m north of Brandon Gate Drive. Presently, there are three tracks in service to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north of the Project Area (also referred to as the Study Area Corridor). The Halton Subdivision currently accommodates about 50 freight trains per day to service industry.

The City of Brampton and the City of Mississauga are responsible for monitoring population and employment growth to determine the anticipated impact on their respective transportation networks and implementing the required improvements in a timely manner. In keeping with this responsibility, the cities of Brampton and Mississauga, as co-proponents, propose to make requisite improvements to Goreway Drive within the Project Area. The proposed improvements will address the need for a grade separation at CN's Halton Subdivision.

This Environmental Study Report (ESR) was prepared pursuant to the Municipal Engineers Association (MEA) *Municipal Class Environmental Assessment* (Municipal Class EA) to facilitate proposed improvements within the Goreway Drive Study Area Corridor. This Report provides a full and complete account of Phases 1 through 4 of the planning process followed for the Project. This Study involved undertaking an inventory of the natural, physical, socio-economic, cultural and technical setting within the Goreway Drive Study Area Corridor. This information was used to produce maps identifying features/areas, which could be sensitive to roadway construction, and to facilitate the identification of Alternate Solutions and Designs. These Alternative Solutions and Designs were then compared and a Preferred Alternative Design (or method to resolve the problem) was selected, which minimizes environmental and socio-economic impacts in a cost-effective manner.

Class Environmental Assessment

Prior to proceeding with any road improvements within the Goreway Drive Study Area Corridor, the proponent must comply with the requirements of the Municipal Class EA. This Project has been carried out in compliance with **Schedule C** of the Municipal Class EA as it is expected to cost in excess of $8.7 million to construct. As a **Schedule C Project**, it has the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Municipal Class EA, that is, Phase 1 through Phase 4 of the planning and design process. Once the ESR has been filed (Phase 4 of the process) and provided the Minister of the Environment has not received a Request for a Part II Order within the 30-day review period, the municipality/proponent may proceed to Phase 5 and implementation of the Project (i.e., detailed design and construction).

Description of the Problem (Phase 1)

Due to the existing at-grade (level) crossing of CN's Halton Subdivision, traffic delays to motorists, truckers and transit riders are a frequent occurrence as trains cross Goreway Drive. This results in reduced operational conditions and road safety, coupled with restrictions in traffic flow and driver frustration. If not improved, this will result in deterioration to the quality of life for area residents. This

deterioration is typically accompanied by higher levels of noise and air pollution, driver frustration and decreased road safety, and will continue in the future if a grade separation is not constructed.

Extended periods of traffic congestion and/or delays add significantly to the cost of business through delays to the movement of goods and people. Businesses and industries relying on just-in-time delivery of goods tend to avoid congested roadways leading to the dispersion of truck traffic to routes not designed for commercial vehicles. To this end, the need to resolve the identified deficiencies within the Goreway Drive Study Area Corridor is summarized in the following Problem Statement:

A transportation solution is required to accommodate existing and future travel demands, to resolve existing traffic delays and impacts on surrounding land uses, and to enhance overall traffic safety and flow within the Goreway Drive Study Area Corridor.

Preferred Solution (Phase 2)

As described above, improvements are required to alleviate road vehicle delays at the existing at-grade (level) crossing of CN's Halton Subdivision within the Goreway Drive Study Area Corridor. An integral component of the Municipal Class EA process is the evaluation of Alternative Solutions to address the deficiencies within the Corridor. In recognition that there may be more than one way to solve these deficiencies, five Alternative Solutions were evaluated as part of this Study, including:

1. Do Nothing, that is, maintain four lanes on Goreway Drive with no grade separation at the CN crossing;
2. Maintain four lanes on Goreway Drive with a grade separation at the CN crossing;
3. Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue);
4. Provide localized intersection improvements; and,
5. Provide enhanced bus service.

The evaluation of Alternative Solutions was based on an assessment of potential natural, socio-economic, cultural, and technical impacts, and review of input received from the public and regulatory agencies during Phase 2 of the Study process. The evaluation examined the extent or degree to which each of the five Alternative Solutions solved the problem or addressed the deficiencies within the Study Area Corridor.

Based on the evaluation of Alternative Solutions, Alternative Solution No. 2 was selected as the Preliminary Preferred Solution. Alternative Solution No. 2 includes maintaining the existing four-lane cross section on Goreway Drive and grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass. In addition, the Preliminary Preferred Solution includes improving pedestrian and cyclist facilities and intersection improvements such as the addition of turning lanes and optimization of traffic signals within the Project Limits. Some of the benefits and potential impacts associated with implementation of the Preliminary Preferred Solution include:

Benefits

- Improved traffic flow and reduced vehicle emissions as traffic delays at the CN crossing are alleviated
- Enhanced traffic safety and decreased driver frustration within the Corridor
- Reduced need to acquire property.

Impacts

- Removal of some roadside vegetation
- Moderate to high construction costs to build grade separation
- Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications
- Relocation/closure of private entrances
- Possible relocation of utility plant and/or municipal sewer/water infrastructure within the Corridor.

The results of the comparative evaluation were presented to the public, for review and input as part of the consultation activities undertaken during Phase 2. Interested stakeholders who provided comments during this Phase were in general agreement that improvements are needed on Goreway Drive and supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the CN rail crossing. All input received during Phase 2 was taken into consideration and used to refine the Preliminary Preferred Solution, where appropriate. Most of the issues and concerns raised related to property implications in general, as well as noise pollution and visual impacts associated with the possible construction of an overpass structure (road over rail structure).

Based on the above benefits and minor impacts associated with **Alternative Solution No. 2,** coupled with the disadvantages associated with Alternative Solution Nos. 1, 3, 4, and 5, Alternative Solution No. 2 was selected as the **Preferred Solution**. As the Preferred Solution, Alternative Solution No. 2 was carried forward to facilitate the development of Alternative Design Concepts (i.e., Phase 3).

Preferred Design Concept (Phase 3)

As indicated above, maintaining the existing four-lane cross section combined with a grade separation at the CN crossing, improved pedestrian/cyclist facilities, and intersection improvements was selected as the Preferred Solution to address the identified deficiencies within the Goreway Drive Study Area Corridor. The purpose of Phase 3 of the Municipal Class EA process is to develop and evaluate Alternative Design Concepts to select a Preferred Design Alternative to implement the Preferred Solution.

The extent of the proposed grade separation at the CN crossing generally falls within the limits of Kenview Boulevard and Brandon Gate Drive. The following Alternative Design Concepts were developed for the grade separation:

1. Do Nothing
2. Alternative 1: Road over Rail (Overpass) Structure
3. Alternative 2: Road under Rail (Underpass) Structure.

The Do Nothing scenario represents the existing roadway conditions with no grade separation. To this end, Goreway Drive would remain at grade with the CN corridor. This option was screened out during the evaluation of Alternative Solutions because it did not solve the problem of traffic delays caused by long queues at the CN level crossing. Thus, it has been included as part of the evaluation of Alternative Designs for comparison purposes only.

The comparative evaluation of the two grade separation alternatives concluded that the overpass option would result in the greatest advantages when considering the impacts on the Natural and Socio-economic environments, as well as existing road and rail operations. The resultant Preliminary Preferred Design Concept for a grade separation at the CN crossing is the overpass option. The benefits associated with implementation of the Preliminary Preferred Design Concept include:

- Significant improvement to road safety as a result of alleviating road vehicle delays at the CN rail crossing
- Minimal risk of potential flooding during major storm events
- Less likely to encounter and require the removal of contaminated soils
- Minimal impact to groundwater resources
- Moderate construction costs and low operating and maintenance costs compared to Alternative 2 - Underpass
- Significantly less disruptive to existing CN freight rail services than Alternative 2 and does not require track diversions during construction
- No need for a pumping station, significant underground utility relocates, and off peak construction force during construction
- Less time required to construct than Alternative 2 (single construction season).

The results of the comparative evaluation were presented to the public, for review and input as part of the consultation activities undertaken during Phase 3. Most of the issues and concerns raised related to potential impacts on private properties and private property entrances. Key concerns related to property access, safety, and construction timing for the overpass (road over rail) structure.

Based on the above benefits and minor impacts, **Alternative Solution No. 1** was selected as the Preferred Design Concept. The justification for this project and evaluation of alternatives has been documented throughout this ESR (i.e., Phase 4).

Construction Schedule and Preliminary Cost Schedule

Construction of the proposed improvements to Goreway Drive is tentatively scheduled to start in 2013 under the City of Brampton's 2007-2016 Capital Programme. However, the timing of construction will be subject to the availability of funding from the City of Brampton and the City of Mississauga, successful procurement of all requisite approvals, and/or property requirements.

The estimated total cost of the Project is approximately $16,150,000 although it is noted that this does not include any costs for acquiring approximately 0.40 ha of private property outside the existing right-of-way (ROW). It is also noted that a large contingency cost allowance of 30% is included to reflect the preliminary status of the design. A more detailed and accurate cost estimate will be developed during the Detailed Design stage.

Environmental Impacts Associated with the Project

It is recognized that the proposed overpass grade separation will result in some impacts on the existing environment. **Table 12** (see **Chapter 6.0)** provides a detailed assessment of the potential environmental effects associated with the Project and the recommended mitigative measures required to ameliorate these effects.

Recognizing that environmental effects can interact and combine with each other over time and space, an assessment of cumulative effects was deemed prudent for this Study. Cumulative effects are environmental effects of individual activities and Projects that combine and interact with each other over time and distance to cause aggregate effects that may be different in nature and significance than those of the individual activities or Projects.

As the Project involves reconstruction within the existing Goreway Drive ROW, for the most part, cumulative environmental effects are expected to be low. Existing road ROWs, by their very nature, are continuously experiencing environmental changes brought about by regular maintenance activities, for

example. With respect to Goreway Drive, it has been subjected to many disturbances due to past road construction and maintenance activities, and is not considered a sensitive environment.

The Project Team has identified one construction Project that could coincide with the proposed improvements on Goreway Drive. The Regional Municipality of Peel has undertaken a separate Class EA Study to improve the intersection of Goreway Drive and Steeles Avenue. At the time of writing, the timing of construction of these intersection improvements is uncertain. In the event construction of the Goreway Drive improvements are to occur during the Steeles Avenue/Goreway Drive intersection improvements, monitoring and additional mitigative measures will be developed to minimize any significant cumulative effects that may occur. As this Study does not propose changes to Goreway Drive in the vicinity of Steeles Avenue, the overall cumulative environmental effects associated with the proposed improvements to Goreway Drive are anticipated to be low.

Public and Regulatory Agency Consultation

Recognizing that public and regulatory agency consultation is a significant and integral part of the Municipal Class EA process, a Consultation Program was initiated from the outset of the Study and continued throughout. The objectives of the Consultation Program were:

- to identify potentially affected stakeholders;
- to provide information to the stakeholders on all components of the Study;
- to obtain input from these stakeholders during all phases of the Study; and,
- to integrate information received into the planning and decision-making processes.

In keeping with the Municipal Class EA process, all public and regulatory agency consultation activities carried out throughout the Study are documented within this Report. Hence, details regarding the number and type of public meetings held, the various regulatory agencies contacted, and specific concerns raised during the Study process that influenced development of the Problem Statement and selection of the Preferred Solution/Design Concept are provided throughout this Report.

A wide range of stakeholders were identified and contacted at the outset of the Study, to "scope" potential issues and areas of interest or concern. Interest in the Project was considered to be any feedback received from a stakeholder indicating that they could be directly or indirectly affected during the planning, construction and/or operation of the proposed undertaking. In keeping with the spirit and intent of the Municipal Class EA, a number of methods were undertaken to achieve the above-stated objectives, including:

- placement of a Notice of Study Commencement within the *Brampton Guardian* and the *Mississauga News* (see Notices provided in **Appendix A**);
- establishment of a Technical Steering Committee (TSC);
- scheduling/convening of TSC Meetings throughout the Study to solicit feedback regarding various aspects of the Project;
- scheduling of a Public Information Centre (PIC) event during Phases 2 and 3 of the Study;
- placement of a Notice of PIC within the *Brampton Guardian* and the *Mississauga News* prior to each PIC (see Notices provided in **Appendix A**);
- distribution of informational mailings (e.g., Commencement/PIC/Completion letters) to regulatory agencies and the public during various stages of the Study process;
- receiving/responding to written submissions;
- participation in meetings and telephone discussions with regulatory agencies and the public;
- scheduling/convening of a Stakeholders Meeting and separate meetings with individual property owners during Phase 3 of the Study;

- placement of a Notice of Study Completion within the *Brampton Guardian* and the *Mississauga News* (see Notices provided in **Appendix A**); and,
- placement of this ESR on the Public Record and provision of a Notice of Study Completion to regulatory agencies and the public during Phase 4 of the Study.

Principal Issues and Concerns Raised During the Study

First Nations

During Phase 1 of the Study, a Notification letter was mailed to the Ontario Secretariat for Aboriginal Affairs (OSAA) informing them about the Project and to solicit their respective input. Feedback received from OSAA noted that the proposed Project could impact or be of interest to Aboriginal peoples, specifically the Mississaugas of Scugog Island First Nation and the Anishinabek Nation. The Project Team was also advised to contact the Indian and Northern Affairs Canada (INAC) and the Ministry of Attorney General (MAG) for information pertaining to possible litigation or claims in the area.

During Phase 2 of the Study, direct Notification letters were distributed to the identified First Nations, inviting the Mississaugas of Scugog Island First Nation and the Anishinabek Nation to attend the PIC. The letter requested feedback on additional First Nations that should be notified with regard to this Project. In addition, Notification letters were mailed out to INAC and MAG during Phase 2 of the Project informing them about the Project and to solicit their respective input.

Feedback received from the Mississaugas of Scugog Island First Nation indicates that the lands involved in the proposed undertaking are within the treaty lands of the First Nation and within the lands claimed by the First Nation in an unresolved specific land claim presently before the Canada Indian Land Claims Commission. The First Nation also advised of non-site specific Aboriginal rights that are applicable within the Study Area (e.g., the right to have Aboriginal burials not disturbed), and further requested that an archaeological survey be completed for the Study Area. Feedback received from INAC, however, indicates that there are no comprehensive claims in the City of Brampton and the City of Mississauga.

Technical Steering Committee

During Phase 2 of the Study, an overview of the Sub-Area Transportation Network Analysis was presented to the TSC by UMA. Based on the Analysis, a four lane cross section along Goreway Drive, coupled with a grade separation of CN's Halton Subdivision was recommended as the Technically Preferred Solution. It was emphasized that other factors such as natural, social, economic and cultural, will also be taken into consideration to justify/confirm selection of the Preferred Solution.

The Technically Preferred Solution was generally accepted by those present. City of Mississauga representatives emphasized that the City of Mississauga Official Plan clearly states the need for Goreway Drive to remain a four-lane roadway within its jurisdiction. It was also noted that from a policy perspective, the Study should not encourage additional traffic on Goreway Drive, as it would lead to increased demands on Derry Road to the south.

During Phase 3 of the process, the Preliminary Preferred Design Concept drawings were forwarded to the TSC for review and comment. Much discussion ensued regarding the proposed cross section for Goreway Drive. It was noted that reducing the lane and median widths could reduce the property acquisition requirements. It was suggested that graded slopes be 3:1 as opposed to 2:1, as reinforced earth retaining walls could be employed with benches to reduce property impacts. It was generally agreed that further evaluation of the two grade separation options is warranted, as they both offer a wide

range of advantages versus disadvantages. In addition, retaining wall facing/design options should be examined.

Toronto and Region Conservation Authority

The Toronto and Region Conservation Authority (TRCA) was notified of the Study in August, 2006, to obtain pertinent background information related to Environmentally Significant Areas (ESAs), wetlands, fisheries resources, as well as flood and fill line mapping within proximity to the Study Area Corridor. Based on feedback received in response to the Notice of Study Commencement, TRCA Staff identified the following environmental concerns within the Study Area:

- Aquatic Species and Habitat
- Generic Regulation
- Regional Storm Flood Plains
- Watercourses, Streams and Valley Corridors
- Terrestrial Natural Heritage System.

As improvements to Goreway Drive will entail working over and within the east branch of Mimico Creek which crosses the roadway approximately 625 m south of Steeles Avenue, UMA convened a meeting with TRCA Staff to solicit the Authority's feedback on the Project. During this meeting, TRCA Staff raised the following environmental issues:

- TRCA does not promote the placement of fill in a regulated floodplain.
- TRCA would like to see minimal ecological impacts by providing a culvert size to accommodate wildlife passage.
- Other environmental concerns identified by the TRCA related to flood hazard, emergency response, and public safety due to flooding of an underpass. TRCA noted the profile for the underpass is within the Regional Flood line and therefore would be flooded during a Regional storm event. This would require the road to be closed during this time and emergency response services would be impacted by the cutting off of access at this location.
- It was noted that in-stream culvert works could result in a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. In July, 1998, the TRCA signed a Level 3 Agreement with the Department of Fisheries and Oceans (DFO), which established a streamlined approach to addressing issues pertaining to the Federal *Fisheries Act*. Conservation Authorities with a Level 3 Agreement determine whether the proposal has a potential for a HADD of fish habitat. TRCA indicated in their letter of November 27, 2007, that a HADD is not anticipated for this Project. However, the potential for a HADD will need to be confirmed during detail design.
- The TRCA indicated preference for the overpass option and requested a draft of the ESR in advance of the final public review period.

A second meeting was convened with the TRCA during Phase 3 to update the Authority on the Class EA process, to present the findings of the environmental investigations as well as the Preliminary Preferred Design Concept, to present the findings on the hydraulic analysis for Mimico Creek and to obtain their support for the proposed undertaking. During this meeting, UMA submitted their Surface Water Management (SWM) Report and highlighted the salient issues. In addition to the SWM Report, UMA summarized the potential impacts to adjacent properties and individual property access for the TRCA's information. In response to the SWM Report and related issues, TRCA had the following comments:

- TRCA is satisfied with the recommendation to replace the existing culvert with a 12.2 m Hy-Span structure but requested the City to provide an acknowledgement that a net ecological/environmental benefit will be achieved. TRCA noted much of this is obtained through the increased span and can

be enhanced through the addition of plantings in the corridor. TRCA also requested comments in the ESR pertaining to fish and wildlife passage being accommodated through the increased bridge span.
- Stormwater quality management by providing Oil-Grit Separators is not required but TRCA requests the City to commit to providing enhanced vegetated swales for the outlet ditches where feasible.
- TRCA agreed it is reasonable to permit overtopping in the Regional flood event but requested the City to provide comment in the ESR regarding available emergency access routes in the vicinity.
- Interference with the watercourse should be minimized by locating the access on the west side as far south of the culvert location as reasonable.
- The access to 35 Kenview Drive should be "pushed" as far north as possible to minimize the footprint of the driveway grading/toe of slope in the flood plain.

The TRCA requested that the ESR identify available emergency routes in the vicinity of the Project Area. Personal communication with the City of Brampton's Manager of Emergency Measures and Corporate Security (Mr. Alain Normand) indicates that there is no emergency access route plan available. However, there are procedures in place that will determine the optimum route based on conditions at the time of call. These procedures are documented within the City of Brampton Emergency Plan. It was noted that Airport Road would be the most likely alternate access route for emergency vehicles as it is presently more in use by emergency vehicles than Goreway Drive due to the population residing in the area.

Canadian National (CN) Railway

UMA held a meeting with CN Staff during Phase 2 of the Study to discuss possible solutions to resolving the noted traffic delays at the CN rail crossing. CN's Halton Subdivision is comprised of three in service tracks, including two main lines and a third track to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north. CN Staff noted that the Halton Subdivision accommodates approximately 50 plus freight trains per day. It was confirmed that the Halton Subdivision is used exclusively for freight traffic, and that there are no immediate or long-term plans for GO trains to utilize the line.

CN Staff expressed preference for an overpass, as construction of a road over rail structure is a more feasible option for the railway company than a road under rail structure (underpass). Construction of an overpass would eliminate the requirement for a rail diversion, which would be extremely disruptive to existing freight rail services within CN's busy corridor. CN Staff indicated that rail diversions are typically costly, and would likely be so for this particular location due to the significant number of current rail infrastructure (e.g., switches, rail cross overs) potentially affected by an underpass. In addition, construction of an overpass would minimize impacts to the existing rail switches in proximity to the crossing. Key issues raised by CN for further consideration in the Study included:

- Possible construction staging scenarios
- CN's clearance requirements
- Provision for future tracks
- Other CN requirements for subsequent design/construction, including access to CN's rail corridor from either side of the overpass structure and the need for flagging, both during completion of the required geotechnical/engineering investigations and subsequent construction activities.

A follow-up meeting with CN Staff was convened during Phase 3 of the Study. The purpose of the meeting was to update CN on the Class EA process, to present the findings of the environmental investigations, to discuss the Alternative Preliminary Design Concepts completed to date, and to seek endorsement in principle for the proposed undertaking. The Preliminary Design plans included a track alignment drawing showing a possible track diversion that would be necessary to construct a conventional underpass. CN indicated that the diversion geometry appeared to be feasible; however, the

diversion would be extremely large, complex, and costly. Also, they noted that the risk to train operations associated with the construction of any such diversion would be significant. CN Staff made it clear that they prefer an overpass, as no track diversions would be required, the time of construction could be reduced, the costs would be lower, and the risk to their operations would be significantly less.

CN Staff noted that there may not be sufficient crews and personnel available to start the diversion construction prior to 2009 and a shortage of available flagging will also impact construction of the structure if the commencement date is before spring 2010. CN Staff stated that construction of the diversions would likely take 2-3 months for each phase, and noted that because of their "Just-in-Time" delivery method for freight, they will not accept any impact to their train operations. It was noted that an overpass is the preferred solution from CN's perspective.

CN Staff reviewed the General Arrangement drawing for the proposed overpass option for the grade separation at Goreway Drive. As indicated in their letter dated May 28, 2007, CN has no objections in-principal to the proposed Preliminary Design (see **Appendix A** for a copy of the letter).

Public Meetings

A **Public Information Centre** (PIC) was held during Phase 2 of the Study to present the Project and Alternative Solutions to potentially affected property owners and interested members of the public. Based on the input received, most of those in attendance at the PIC were in general agreement that improvements are needed on Goreway Drive. Many participants were supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the CN rail crossing. Participants indicated the nature of current problems on Goreway Drive to be congestion, vehicle delays, turning at intersections(s), auto/train conflicts, through traffic volumes and infiltration of traffic (including trucks) into surrounding residential areas. Most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to noise pollution, property implications, and visual impacts associated with construction of an overpass structure (road over rail structure). Based on the feedback received, most in attendance preferred an underpass versus an overpass as they were of the opinion it is more compatible with the surrounding residential land uses.

A **Stakeholders Meeting** was held during Phase 3 of the Study to present the preferred solution and Alternative Preliminary Design Concepts for the Preferred Solution to potentially affected property owners. Based on the input received, most of those in attendance at the Stakeholders Meeting were in general agreement with the advantages and disadvantages of the Preliminary Preferred Design Concept (i.e., Road over Rail Structure (Overpass)). Most of the questions and concerns raised during the meeting related to potential impacts on private properties, particularly with respect to noise pollution, entrances and visual aesthetics. Overall, the information presented at the meeting, including details concerning the Preliminary Preferred Design Concept, was met with little opposition.

A **second PIC** was held during Phase 3 of the Study to present the comparative analysis of alternative design concepts and the Preliminary Preferred Design Concept (i.e., Road over Rail Structure (Overpass)) to potentially affected property owners and/or interested members of the public. Based on the input received, most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to property access, safety, and construction timing for the overpass (road over rail) structure.

Meeting with Property Owners

Affected property owners who did not have an opportunity to attend the Stakeholders Meeting or second PIC were invited to meet with the Project Team to review their entrance impacts. Separate meetings were convened in April, May, and June, 2007, with four property owners whose existing entrances or potential access on Goreway Drive would be affected by the proposed grade separation.

Altogether, five existing property entrances are proposed to be closed or relocated throughout the corridor. As shown in **Appendix C**, these include one entrance to the hydro transformer station, two entrances to the golf course facility, one residential entrance to the condominium corporation, and one field entrance to the CN corridor. In addition, access to two vacant properties on the west side of Goreway Drive just north of the CN corridor will be provided as per discussions with the affected parties. Details regarding the discussions are provided in **Section 2.4**.

In addition to the above access issues, the Chief of Mississauga's Fire and Prevention Services was consulted to determine the potential implications of the grade separation and the proposed removal of the condominium entrance from Goreway Drive, south of the CN corridor (personal communication, Brian Walsh, 2007). It was explained that providing a secondary access would not be necessary as there is a current full access to the condominium from Brandon Gate Drive. It was further confirmed that removing the existing secondary access to the condominium from Goreway Drive does not represent a concern for Fire and Prevention Services or contravene the fire route by-law.

Following discussions with the Ontario Realty Corporation (ORC), it was agreed that the City of Brampton would complete a Category 'B' EA under the ORC's Class EA process for the proposed sale of a section of ORC property that is required to facilitate construction of the proposed grade separation and associated widening of the ROW. As part of the ORC Class EA process, a Consultation and Documentation Record has been completed and made available for public review. The City of Brampton has coordinated the public review period for the Consultation and Documentation Record with the public review period for the ESR. A copy of the ORC Consultation and Documentation Record is included in **Appendix D**.

Additional Consultation

During Phase 4 of the Study, all parties previously notified throughout Phases 1 through 3 of the Study were notified by letter that the Class EA has been completed, including Notice of Completion of the ESR. The letter explained that the ESR has been filed for public review at the Clerk's Offices of the City of Brampton, City of Mississauga, and Regional Municipality of Peel, as well as at the Malton Community Library. Recipients have been asked to provide their written comments within 30 calendar days from the date of the Notice. As per Municipal Class EA requirements, the Notice also indicated that the public has the right to request a Part II Order within the 30-day review period.

A formal Notice of Completion of the ESR was placed in the *Brampton Guardian* as well as in the *Mississauga News* (see copy of Notice provided in **Appendix A**). As above, the Notice announced that the ESR has been filed with the Clerks of the City of Brampton, City of Mississauga, and Regional Municipality of Peel, and made available at the Malton Community Library. Copies were made available for public review at the respective review centres for a 30-day review period, during which time comments will be received from interested parties, regulatory agencies and the public. The Notice also indicated the public's right to request a Part II Order within the 30-day review period.

Concerns raised during the review period will be addressed by the cities of Brampton and Mississauga, with significant changes documented in an addendum to the ESR, if required. Should significant

concerns remain unresolved; a request can be made to the Minister of the Environment requiring the Project to comply with Part II of the *EA Act* (which addresses individual EAs) before proceeding with the proposed undertaking. This is referred to as a Part II Order. Requests for a Part II Order must be received by the Minister in writing, at the address provided below. A copy of the request must also be sent to the City of Brampton Senior Project Engineer (see address below). If no requests are received within the review period, the cities of Brampton and Mississauga may proceed to implementation of the Project, that is, detailed design and construction.

The Honourable John Gerretsen
Minister of the Environment
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City of Brampton
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Conclusions

Based on the EA process and the public/regulatory agency consultation carried out throughout the Study, and as described throughout the ESR, the Preferred Design for improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive consists of:

- an overpass (grade separation) to facilitate safe and effective movement of vehicular traffic over the existing triple-track CN Halton Subdivision;
- a profile raise to accommodate the grade separation over the CN corridor, to provide for CN's standard vertical clearance of 7.01 m (23 ft) from top of rail to the underside of the new structure;
- rehabilitation of the existing pavement (asphalt cover) from Steeles Avenue south to approximately Kenview Boulevard;
- an urban, four-lane cross section with a raised median on the bridge and right and left turn lanes at the intersections; and,
- a symmetrical horizontal alignment which will generally follow the existing centerline.

As part of the Preferred Design, the retaining wall height will be a maximum of approximately 9 m on the west and a maximum of approximately 7 m on the east, adjacent to a number of properties backing onto Goreway Drive. In addition, the proposed cross section along the grade separation will include a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive.

The Study Area Corridor does not represent a complex natural, physical, socio-economic and/or cultural environment. With the exception of the main (east) branch of Mimico Creek and its associated flood plain, there are no significant natural areas or sensitive features along the Corridor. The overall conclusion drawn from this ESR is that the construction of the proposed road improvements can be achieved with minimal disruption to and impact upon the natural, physical, socio-economic and cultural environment. The principal negative environmental impacts will include:

- Removal of some roadside vegetation
- Disturbance to fisheries resources and aquatic habitat
- Visual impact due to intrusive embankment, which carries new roadway facilities
- Partial acquisition of three private properties
- Relocation/closure of five existing property entrances
- Moderate to high construction costs to build grade separation
- Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications
- Possible relocation of utility plant and/or municipal sewer/water infrastructure within the Corridor.

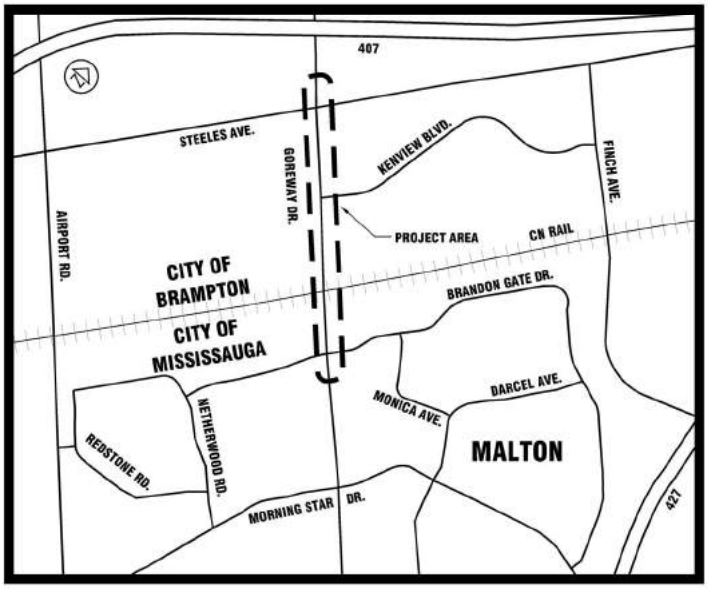
The above impacts are generally limited in scale or extent, short-term in nature, minor and/or reversible. The significance of these effects can be mitigated through the measures prescribed in this Report, along with the use of standard design measures and Best Construction Management Practices. It is noted that construction of the proposed roadway improvements will not require unique or complex mitigative measures. In the long-term, the proposed roadway improvements are not expected to have any discernable adverse impact on the environment.

1.0 Introduction and Background

1.1 Introduction

The City of Brampton, in collaboration with the City of Mississauga, has completed a Class Environmental Assessment (Class EA) Study for improvements to Goreway Drive. **Figure 1** shows that the Project Area (also referred to as Study Area Corridor) for Goreway Drive stretches approximately 1.2 km southerly from Steeles Avenue in the City of Brampton to Brandon Gate Drive in the City of Mississauga. The Project Area covers a distance of approximately 100 m on each side of the roadway. Improvements to this section of Goreway Drive are needed to accommodate future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing (8.80 Mile Halton Subdivision).

Figure 1 – Map of Project Area



All municipal road reconstruction or widening Projects in Ontario require approval under the *Environmental Assessment Act* (EA Act). However, carrying out an individual Environmental Assessment (EA) or seeking exemptions to comply with the requirements of the EA Act can be onerous, time consuming and expensive for routine Projects that generally have a predictable range of impacts. To assist municipalities undertaking numerous infrastructure Projects each year, the Municipal Engineers Association (MEA) *Municipal Class Environmental Assessment* (Municipal Class EA) process was introduced to enable the planning of municipal infrastructure to be undertaken in accordance with an approved procedure designed to protect the environment. The Municipal Class EA process provides a decision-making framework that enables the requirements of the *EA Act* to be met in an effective manner. Further details regarding the Municipal Class EA process are provided in **Section 1.4** of this Report.

UMA Engineering Ltd. (UMA) was retained by the City of Brampton in July 2006 to undertake a Class EA Study for Goreway Drive. This Study has included assessing the need for road improvements and selecting a Preferred Solution/Design Concept that would best address the identified deficiencies and facilitate improvements to this approximately 1.2 km section of Goreway Drive.

1.2 Background

In September 2004, the City of Brampton completed its *Transportation and Transit Master Plan* (TTMP) to guide future transportation decisions, taking into account the City's anticipated growth over the next 30 years. As a long-term multi-modal transportation strategy, the TTMP outlines policies and programs to support the transportation vision for the City, and describes an implementation plan based on 10 year horizon intervals. The policies of the TTMP have been incorporated in the City of Brampton Official Plan (2006) and includes recommendations specific to the Goreway Drive Project Area, specifically:

- replacement of CN's existing three-track level crossing with a grade separation by 2011 to avoid train-road vehicle conflicts, long queues and road delays
- widening of Goreway Drive to six-through lanes from Steeles Avenue south to the CN crossing.

The City of Mississauga Official Plan (2006) indicates the potential need for a road/rail grade separation at Goreway Drive and CN Halton Subdivision. The Official Plan states that wider right-of-way (ROW) widths at intersections and grade separations may be required to accommodate such facilities as auxiliary lanes, bus bays and bicycle paths, particularly within the section of Goreway Drive from CN's Halton Subdivision to Brandon Gate Drive. Furthermore, the Official Plan supports a four-lane roadway on Goreway Drive within Mississauga's jurisdiction.

The City of Brampton and the City of Mississauga are responsible for monitoring population and employment growth to determine the anticipated impact on their respective transportation networks and implementing the required improvements in a timely manner. In keeping with this responsibility, the cities of Brampton and Mississauga, as co-proponents, propose to make requisite improvements to Goreway Drive within the Project Area. The proposed improvements will address the need for a grade separation at CN's Halton Subdivision.

1.3 Purpose of the Study

The purpose of this Study is to formulate a solution to remedy the identified deficiencies associated with the approximately 1.2 km section of Goreway Drive. This Study was completed following the Municipal Class EA process for 'Schedule C' Projects. The scope of a Class EA Study for 'Schedule C' Projects requires completion of Phases 1 through 4 of the Municipal Class EA process (see **Section 1.4** for more details). For this Project, the scope of the Study entails:

- Defining transportation deficiencies within the Project Area
- Examining a range of "Alternative Solutions" to address future travel demands and to alleviate road vehicle delays at the existing CN level railway crossing within the Project Area
- Selecting a Preferred Solution to address the above-noted deficiencies
- Identifying and evaluating Alternative Design Concepts and selecting a Preferred Design Concept
- Presenting Project-specific information to, and receiving input from, the public and relevant regulatory agencies throughout the Study
- Preparing and filing an Environmental Study Report (ESR) for a minimum 30 day public review. The ESR fully documents the Class EA process, including mitigation and monitoring measures required during the implementation of the proposed improvements.

1.4 Municipal Class Environmental Assessment

To facilitate the proposed road improvements, a municipality (as proponent) is obligated to carry out a Class EA Study in accordance with the Municipal Class EA process. A Class EA is a standard process that addresses needs and options, and recommends a solution.

Approved by the Minister of the Environment on October 4, 2000, and as amended in 2007, the Municipal Class EA is a planning document that provides a streamlined, self-administered framework for EA

planning of municipal Projects in accordance with the provisions of the EA Act. The Municipal Class EA enables the planning and execution of municipal road Projects in accordance with an approved procedure that is designed to ensure that potential effects on the natural, social, cultural, technical and economic environment are taken into consideration on a consistent basis. Provided the Municipal Class EA process is followed, the City of Brampton and the City of Mississauga (as co-proponents) are not required to obtain Project-specific approval under the EA Act.

The Municipal Class EA ensures that the intent of the EA Act is met by providing for the identification of problems or opportunities, giving due regard to the need to protect the environment and minimize environmental effects; and, by completing the foregoing with the involvement of the public and regulatory agencies in the planning and decision-making processes. The Municipal Class EA process incorporates the key principles of EA planning, that is:

- consultation with affected parties early in and throughout the process, such that the planning process is a cooperative venture
- consideration of a reasonable range of alternatives, both the functionally different "alternatives to" and the "alternative methods" of implementing the solution
- identification and consideration of the effects of each alternative on all aspects of the environment
- systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects
- provision of clear and complete documentation of the planning process followed, to allow "traceability" of decision-making with respect to the Project.

Given that municipal road Projects vary in their level of environmental impact, Projects are classified in terms of "schedules". The schedules for municipal road Projects are as follows:

Schedule A Projects are limited in scale, have minimal adverse environmental impacts and require no public notification or documentation.

Schedule A+ Projects are limited in scale, have minimal adverse environmental impacts and require no documentation. However, the public is to be advised prior to implementation.

Schedule B Projects have the potential for some adverse environmental impacts. The proponent is required to undertake a screening process, involving mandatory contact with the directly affected public and regulatory agencies, to ensure that they are aware of the Project and that their concerns are addressed. 'Schedule B' Projects require that a Project File be prepared and made available for public review.

Schedule C Projects have the potential for significant environmental impacts and must proceed under the full planning and documentation procedures of the Municipal Class EA document. 'Schedule C' Projects require that an ESR be prepared and filed on the public record for review by the public and regulatory agencies.

The Municipal Class EA includes an appeal provision, referred to as a 'Part II Order Request', during the public review period for the ESR, should any parties feel that their concerns have not been adequately addressed through the Class EA Study process. The Municipal Class EA recommends that the party first contact the municipality or proponent to resolve any outstanding issues. If issues remain unresolved, the public may request the Minister of the Environment to order the municipality/proponent to comply with Part II of the EA Act, possibly elevating the Project to a higher level of assessment. In this case, a Part II Order would elevate the Project from a 'Schedule C' Municipal Class EA to an Individual EA Study, requiring formal approval from the Minister of the Environment as per the requirements of the EA Act.

1.5 Canadian Environmental Assessment Act

In addition to complying with the Ontario EA Act, this Project must also comply with the requirements of the *Canadian Environmental Assessment Act* (CEAA). A federal EA is triggered under Section 5 of the CEAA if a federal authority proposes a Project, grants money to a Project, grants interest in land for a Project, or exercises its regulatory duty in relation to a Project.

This Project involves the construction of a 'road over rail' structure (overpass) crossing CN's existing Halton Subdivision. As such, authorization from the Canadian Transportation Agency (i.e., decision-making authority) would be required should the City of Brampton and the City of Mississauga not be able to negotiate an Agreement to carry out the undertaking. In such an instance, an EA pursuant to the CEAA would need to be completed prior to construction.

1.6 Study Approach

As illustrated in **Figure 2**, the Municipal Class EA process consists of five phases. To summarize, the process progresses from problem identification (Phase 1), through a preferred solution (Phase 2), through a Preferred Design Concept (Phase 3), to documentation (Phase 4), and finally detail design and construction (Phase 5). It should be noted that public and regulatory agency consultation is an integral part of the entire Study process.

As a 'Schedule C' Project, this Project has the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Municipal Class EA. The two co-proponents are required to complete Phase 1 through Phase 4 of the Municipal Class EA planning and design process. Once the ESR has been filed (Phase 4 of the process), and provided the Minister of the Environment has not received a Request for a Part II Order within the minimum 30-day review period, the cities of Brampton/Mississauga may proceed to Phase 5 (detailed design and construction) or implementation of the Project.

1.7 Purpose and Organization of the Environmental Study Report

As per the requirements for a 'Schedule C' Project under the Municipal Class EA, this ESR has been prepared to document and provide a traceable and easily understood record of the planning and decision-making processes that resulted in the identification of the preferred alternative to remedy the identified deficiencies within the Goreway Drive Project Area. The ESR is organized as follows:

Executive Summary – provides an overview of the Project, and summarizes the public and regulatory agency consultation activities undertaken and the principal concerns raised during the process.

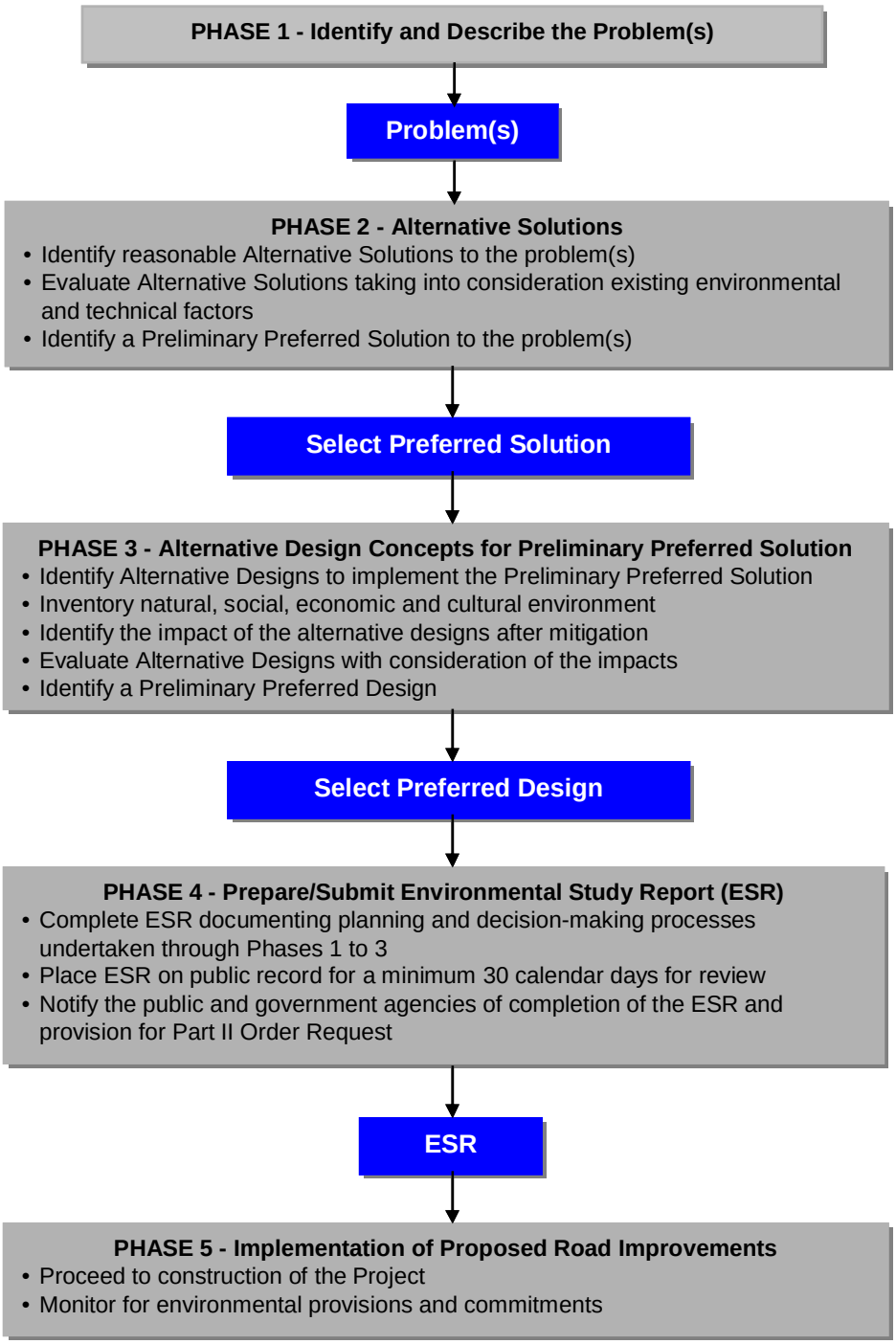
Chapter 1 – **Introduction and Background** – includes an explanation of and the reason the Project is being developed under the Municipal Class EA process. It provides the background to the Project, including a description of the ESR, details on the Project Team, and the time frame over which the planning process was undertaken.

Chapter 2 – **Public and Agency Consultation** – documents the public and regulatory agency consultation activities carried out throughout the Study.

Chapter 3 – **Need and Justification** – describes the purpose of, and need and justification for the Project (including its objectives). This Chapter describes Phase 1 of the Municipal Class EA process.

Chapter 4 – **Alternative Solutions** – describes the Alternative Solutions to resolve the deficiencies identified within the Study Area Corridor and considered during the Study process. Furthermore, it details the decision-making process used to select the Preferred Solution. This Chapter describes Phase 2 of the Municipal Class EA process.

Figure 2 – Municipal Class EA Process



Chapter 5 – **Alternative Design Concepts** – describes Phase 3 of the Municipal Class EA process, that is, the Alternative Design Concepts developed and evaluated to select a Preferred Design Concept to implement the Preferred Solution.

Chapter 6 – **Project Description** – provides a detailed description of the Project, with specific details given to the engineering characteristics of the works proposed as well as anticipated environmental impacts and prescribed mitigation measures. This Chapter also documents part of Phase 3 of the Municipal Class EA process.

Chapter 7 – **Construction Monitoring and Inspection Program** – describes the proposed Construction Monitoring/Inspection Program designed during the planning process to be carried out during and following completion of Project construction. This Chapter also documents part of Phase 3 of the Municipal Class EA process.

Chapter 8 – **Conclusions** – presents the conclusions arising from this Study.

Chapter 9 – **References** – lists the background reports and studies examined as part of this Study, in addition to those regulatory agency representatives consulted.

Appendices – includes specific public and regulatory agency consultation materials (e.g., Notices), information received (e.g., input and opinions), applicable background reports, and Preliminary Design Plates.

This ESR has been placed on the public record for a minimum 30-day review period. A Notice of Study Completion was published in the local newspapers, announcing where the public can view the Report. In addition to the ESR, a number of technical studies and environmental investigations were carried out as part of the Study. Documentation of these studies and investigations are provided in the appendices and referenced throughout this Report.

1.8 Project Team Organization

This Study has been carried out pursuant to the Municipal Class EA process by a Project Team consisting of Municipal and Consultant Team Staff led by UMA. In addition, a number of sub-consultants, external regulatory agencies, and stakeholders have participated throughout the process. Each of the participants has provided input throughout, and has therefore played an integral role in the planning and decision-making process. Key Staff involved in the Study include:

City of Brampton

- Mr. Solomon Choi, Senior Project Engineer, Works and Transportation
- Mr. Khurram Tunio, Senior Project Engineer, Works and Transportation
- Mr. David Monaghan, Transportation Planning Technologist, Planning Design and Development
- Mr. Compton Bobb, Design Coordinator, Works and Transportation
- Ms. Susan Evans, Street Lighting Coordinator, Works and Transportation
- Ms. Carolyn Ricker, Traffic Signal Technologist, Works and Transportation
- Mr. Jeffrey Black, Traffic Operations Supervisor, Works and Transportation
- Mr. Walter Fischer, Landscape Architect, Planning Design and Development
- Mr. Robert Waldon, Senior Real Estate Coordinator
- Mr. Doug Lawr, Supervisor, Surveys
- Mr. Bill Winterhalt, Associate Director, Planning/Policy

- Mr. Kant Chawla, Policy Planner, Transportation/Infrastructure
- Mr. Shawn De Jager, Planning Coordinator, Brampton Transit
- Mr. Dave Kenth, Development Engineer
- Ms. Gaea Walsh, Supervisor, Geographic Information Systems (GIS) Services
- Ms. Janice Given, Manager, Growth Management and Special Policy
- Mr. Farhad Aziz, Environmental Engineer, City of Brampton

City of Mississauga

- Mr. Steve Barrett, Manager, Transportation Asset Management
- Mr. Abdul Shaikh, Transportation Project Engineer, Transportation and Works Department
- Mr. Robert Sasaki, Manager, Transportation Planning
- Mr. Mel Kayama, Transportation Planning Analyst, Transportation and Works Department

Regional Municipality of Peel

- Ms. Kathy Cater, Manager of Engineering and Infrastructure Planning
- Mr. Sabbir Saiyed, Principal Transportation Planner
- Ms. Margie Chung, Technical Analyst, Traffic and Transportation Engineering
- Mr. Barry Mulcahy, Public Works Project Manager

UMA Engineering Ltd.

- Mr. Greg Smith, Project Manager
- Mr. Philip Rowe, Project Advisor/Quality Control Leader
- Mr. Andrew Ritchie, Deputy Project Manager/Lead Environmental Planner
- Ms. Sonya Kapusin, Environmental Planner
- Mr. Marek Trzaski, Transportation Planner/Traffic Engineer
- Mr. Traian Popivanov, Road Design Engineer
- Ms. Barbara Kolesnik, Electrical Engineer
- Mr. Steve Hollingworth, Drainage/Water Resources Engineer
- Mr. Srdjan Brasic, Structural Engineer
- Mr. Paul Kim, Bridge Engineer
- Mr. Steve Donald, CN Liaison
- Mr. Eric Smith, Rail Designer
- Mr. Brian Ruby, Constructability Reviewer

Sub-Consultants

- Mr. Peter Dalton, Traffic Modeling (Peter Dalton Associates)
- Mr. Hazem Gidamy, Noise Assessment Specialist (SS Wilson Associates)
- Ms. Kim Slocki, Archaeologist (Archeoworks)
- Mr. Robert Ng, Geotechnical Investigations (Peto MacCallum Ltd.)
- Mr. Mori Mortazavi, Environmental Site Assessment, Geo-environmental and Hydrogeological Services (Peto MacCallum Ltd.)

1.9 Study Schedule

The Study was initiated in July, 2006 and completed in May, 2008. Specific details for each of the four phases are as follows:

Phase 1 completed in October 2006.

Phase 2 (including first Public Information Centre (PIC)) completed in December 2006.

Phase 3 (including second PIC) completed in May 2007.

Phase 4 (including Placement of ESR on the Public Record) completed in May, 2008

Provided a Request for a Part II Order is not received by the Minister of the Environment within the 30-day review period, the cities of Brampton/Mississauga may proceed to Phase 5 of the Municipal Class EA process, that is, completion of detailed design drawings and specifications, and implementation of the Project. Subject to the availability of funding, construction is expected to be initiated in 2013.

2.0 Public and Agency Consultation

2.1 General

Recognizing that public and regulatory agency consultation is a significant and integral part of the Municipal Class EA process, a Consultation Program was initiated from the outset of the Study and continued throughout. The objectives of the Consultation Program were:

- to identify potentially affected stakeholders;
- to provide information to the stakeholders on all components of the Study;
- to obtain input from these stakeholders during all phases of the Study; and,
- to integrate information received into the planning and decision-making processes.

In keeping with the Municipal Class EA process, all public and regulatory agency consultation activities carried out throughout the Study are documented within this Report. Hence, details regarding the number and type of public meetings held, the various regulatory agencies contacted, and specific concerns raised during the Study process that influenced development of the Problem Statement and selection of the Preferred Solution/Design Concept are provided throughout this Report.

A wide range of stakeholders were identified and contacted at the outset of the Study, to "scope" potential issues and areas of interest or concern. Interest in the Project was considered to be any feedback received from a stakeholder indicating that they could be directly or indirectly affected during the planning, construction and/or operation of the proposed undertaking. In keeping with the spirit and intent of the Municipal Class EA, a number of methods were undertaken to achieve the above-stated objectives, including:

- placement of a Notice of Study Commencement within the *Brampton Guardian* and the *Mississauga News* (see Notices provided in **Appendix A**);
- establishment of a Technical Steering Committee (TSC);
- scheduling/convening of TSC Meetings throughout the Study to solicit feedback regarding various aspects of the Project;
- scheduling of a Public Information Centre (PIC) event during Phases 2 and 3 of the Study;
- placement of a Notice of PIC within the *Brampton Guardian* and the *Mississauga News* prior to each PIC (see Notices provided in **Appendix A**);
- distribution of informational mailings (e.g., Commencement/PIC/Completion letters) to regulatory agencies and the public during various stages of the Study process;
- receiving/responding to written submissions;
- participation in meetings and telephone discussions with regulatory agencies and the public;
- scheduling/convening of a Stakeholders Meeting and separate meetings with individual property owners during Phase 3 of the Study;
- placement of a Notice of Study Completion within the *Brampton Guardian* and the *Mississauga News* (see Notices provided in **Appendix A**); and,
- placement of this ESR on the Public Record and provision of a Notice of Study Completion to regulatory agencies and the public during Phase 4 of the Study.

Table 1 summarizes the Consultation Program activities undertaken as part of this Study. Details pertaining to the Consultation Program are provided in the following sections. In addition, reference is made to feedback received and associated inputs to the process throughout the ESR, where appropriate.

Table 1 – Consultation Program Activities

Phase 1 - Notice of Study Commencement		
August 6 and 9, 2006	Newspaper Notices	*Brampton Guardian* and *Mississauga News*
August 8 and 9, 2006	Letters	Property Owners, Residents and Regulatory Agencies
Phase 2 - Public Information Centre No. 1		
September 21, 2006	Meeting with CN Rail	Discuss alternative solutions
November 10, 2006	Letters	Property Owners, Residents and Regulatory Agencies
November 15 and 24, 2006	Newspaper Notices	*Brampton Guardian* and *Mississauga News*
October 23, 2006	Technical Steering Committee Meeting No. 1	City of Brampton, City of Mississauga, Regional Municipality of Peel and UMA Consultant Team
November 28, 2006	PIC No. 1	All Interested Parties
Phase 3 - Public Information Centre No. 2		
January 23, 2007	Technical Steering Committee Meeting No. 2	City of Brampton, City of Mississauga, Regional Municipality of Peel and UMA Consultant Team
February 5, 2007	Meeting with TRCA	Discuss project status and preliminary preferred design
February 6, 2007	Meeting with CN	Discuss preliminary preferred design and construction staging
March 27, 2007	Stakeholders Meeting	Potentially Affected Property Owners and Residents adjacent to Goreway Drive in the vicinity of the proposed grade separation, and Local Councillors.
April 17, 2007	Letters	Property Owners, Residents and Regulatory Agencies
April 18 and 27, 2007	Newspaper Notices	*Brampton Guardian* and *Mississauga News*
April 24, 2007	Meeting with representative of owner for property on the west side of Goreway Drive (PIN 140220133)	Discuss property and entrance impacts
May 1, 2007	PIC No. 2	All Interested Parties
May 23, 2007	Meeting with property owner of 7797 Goreway Drive	Discuss preliminary preferred design and associated impacts to driveway and property
May 29, 2007	Meeting with TRCA	Discuss stormwater management and access lane
June 14, 2007	Meeting with property owners of 1 and 35 Kenview Drive	Discuss preliminary preferred design and associated impacts to driveway and property
Phase 4 - Notice of Study Completion and Filing of ESR		
May 7, 2008	Letters	Property Owners, Residents and Regulatory Agencies
May 14 and 23, 2008	Newspaper Notices	*Brampton Guardian* and *Mississauga News*

2.2 Phase 1 Consultation

2.2.1 Public Involvement

Based on available municipal property ownership/assessment roll information, a list of landowners within 200 m of the Study Area Corridor was compiled in July 2006. A letter was distributed in August 2006 to all those listed (see **Appendix A** for a copy of the letter) as well as to local councillors, informing them of the Study, and soliciting their comments and interest in participating in the Class EA process.

Notice of Study Commencement

A Notice of Study Commencement was placed in both the *Brampton Guardian* and the *Mississauga News* on August 6 and August 9, 2006. As noted in **Appendix A**, the Notice advised of the Study commencement, outlined its purpose and rationale, solicited comments and invited the public to participate in the Study. Contact names were given where the public could receive additional information if desired. Additionally, the Notice was mailed to property owners within 200 m of the Study Area Corridor as well as hand delivered to 100 businesses/residents adjacent to Goreway Drive within the Project Limits.

2.2.2 Regulatory Agency Involvement

A list of regulatory agencies thought to be possibly affected or interested in the Project was compiled in July 2006, including regional and local municipal departments, provincial ministries/agencies (including the Ontario Secretariat for Aboriginal Affairs), federal departments/agencies, Toronto and Region Conservation Authority (TRCA), and various utility companies (see Contact List provided in **Table 2** below). This list was continuously updated throughout the Study to ensure that it remained current, and the Project Team had the most appropriate contact information.

Table 2 – Agency Contact List

Provincial Agencies	
Ministry of Agriculture, Food and Rural Affairs	Ministry of Natural Resources
Ministry of Community and Social Services	Ministry of Public Infrastructure Renewal
Ministry of Community Safety and Correctional Services	Ministry of Transportation
Ministry of Culture	Ministry of the Attorney General
Ministry of Environment	Ontario Provincial Police
Ministry of Municipal Affairs and Housing	Ontario Secretariat for Aboriginal Affairs
	Ontario Realty Corporation
Federal Departments	
Environmental Canada	Department of Fisheries and Oceans
Transport Canada	Indian and Northern Affairs Canada
Municipalities	
City of Brampton	Local and Area Councillors
City of Mississauga	Peel Regional Police
Regional Municipality of Peel	
First Nations	
Anishinabek Nation	Metis Nation of Ontario
Mississaugas of Scugog Island	Haudenosaunee Six Nations Confederacy
Mississauga of the New Credit First Nation	Huron-Wendat First Nation
Six Nations of the Grand River Territory	Founding First Nations Circle
Association of Iroquois and Allied Indians	Peel Aboriginal Network

Utilities	
Allstream	Telus
Bell Canada	TransCanada Pipelines Ltd.
Enbridge Gas Distribution Inc.	Trans-Northern Pipelines Inc.
Enersource Corporation	Canada Post
FCI Broadband	
Hydro One	
Rogers Cable	
Other Stakeholders	
CN Rail	Dufferin-Peel Catholic District School Board
Toronto and Region Conservation Authority	407 Express Toll Route
Brampton Board of Trade	York Federation of Agriculture
Mississauga Board of Trade	
Peel District School Board	

Regulatory agencies were contacted by letter in August 2006 (see **Appendix A** for a copy of the letter). The purposes of this initial mailing was to inform them of the Study, solicit their comments on issues they felt should be addressed throughout the Class EA process, and request any information each respective agency may have of relevance to this Project.

In addition, applicable regulatory agencies were consulted in August 2006 (e.g., TRCA, Ministries of Natural Resources and Culture), as well as the Regional Municipality of Peel and the City of Mississauga, to assemble the necessary background information to prepare a description of the existing Study Area environment. This description served as the baseline for identifying and assessing potential impacts on the environment brought about by the proposed road improvements.

To provide input to the Project Team (City of Brampton/Mississauga and UMA Consultant Team) throughout the Study, and to facilitate the development of constructive solutions in a spirit of cooperation, a Technical Steering Committee (TSC) was established in July 2006. The overall purpose of the TSC was to obtain constructive and informative feedback from the various municipal representatives as it related to the Project and their respective mandates. One such meeting was held during Phase 1, serving as a forum to discuss the Project, and to identify issues/concerns of relevance to the Study. Details regarding this meeting are provided below.

Technical Steering Committee Meeting No. 1

A meeting was convened on October 23, 2006 to introduce the Project Team (City of Brampton/Mississauga and UMA Consultant Team Staff) to the TSC. The main purpose of the meeting was to initiate coordination of the Project with the Regional Municipality of Peel, obtain the Region's position on the Project and the proposed improvements to Goreway Drive, and request relevant data and information. In addition, the meeting entailed a review of the Project status, including the EA process, data collection efforts, and a discussion of the Study justification, analyses undertaken, and the interim results, as well as the Project schedule.

Issues/Concerns Raised

An overview of the Sub-Area Transportation Network Analysis was presented by UMA. Based on the Analysis, a four lane cross section along Goreway Drive, coupled with a grade separation of CN's Halton Subdivision was recommended as the Technically Preferred Solution. UMA confirmed that existing and future traffic volumes do not justify a road widening of Goreway Drive to six lanes within the 1.2 km Project Limits. It was confirmed that the modelling results indicate that a grade separation of CN's Halton

Subdivision was warranted to reduce traffic delays and improve road safety within the Project Limits. It was emphasized that other factors such as natural, social, economic and cultural, will also be taken into consideration to justify/confirm selection of the Preferred Solution.

The Technically Preferred Solution was generally accepted by those present. City of Mississauga representatives emphasized that the City of Mississauga Official Plan clearly states the need for Goreway Drive to remain a four-lane roadway within its jurisdiction. Furthermore, it was noted that a six-lane cross section through Malton would be opposed by the community, as well as local politicians, as it is not in conformance with City planning policy. It was also noted that from a policy perspective, the Study should not encourage additional traffic on Goreway Drive, as it would lead to increased demands on Derry Road to the south.

2.2.3 First Nations Consultation

A Notification letter was mailed out to the Ontario Secretariat for Aboriginal Affairs (OSAA) on August 8, 2006 informing them about the Project and to solicit their respective input. Feedback received from OSAA noted that the proposed Project could impact or be of interest to Aboriginal peoples, specifically the Mississaugas of Scugog Island First Nation and the Anishinabek Nation. Details regarding notification of potentially affected/interested First Nations are provided in **Section 2.3.3**.

2.3 Phase 2 Consultation

2.3.1 Public Involvement

Public Information Centre No. 1

A Public Information Centre (PIC) was held on November 28, 2006, to present and receive public input on the need for improvements to Goreway Drive, the existing conditions within the Project Area, the preliminary evaluation of Road Improvement Alternatives, and future Class EA activities. The PIC was held at the Lincoln M. Alexander Secondary School in Mississauga located at 3545 Morning Star Drive, between 6:30 pm and 9:30 pm. The purpose of the PIC was to introduce the Project to potentially affected property owners and interested stakeholders.

A notice inviting the public to attend the PIC was published in the *Brampton Guardian* and in the *Mississauga News* on November 15 and 24, 2006. Notification letters were also mailed to approximately 522 property owners and/or residents within approximately 200 m of the Project Area. In addition, notification letters were mailed to review agencies and First Nation communities. A contact name was also given to enable the public and agencies to obtain additional information if desired. Sample letters are provided in **Appendix A**.

The PIC was held in the form of a drop-in centre. Participants were invited to drop in at the school between 6:30 pm and 9:30 pm to view display boards containing information about the Project, and to speak one-on-one with representatives from the City of Brampton, City of Mississauga, Regional Municipality of Peel and/or UMA. During PIC No. 1, potentially affected property owners and other interested stakeholders were provided with an opportunity to:

- view the display materials, including the rationale for the Project and other Project-specific information as outlined below
- ask questions and comment on the Project
- discuss issues and concerns related to the Preliminary Preferred Solution with representatives from the City of Brampton, City of Mississauga, Regional Municipality of Peel, and UMA.

The following display boards were presented at the PIC covering a wide range of topics, including:

- Welcome To Public Information Centre No. 1
- Purpose Of Public Information Centre No. 1
- Study Area Corridor (Aerial Photo)
- Purpose Of The Study
- Schedule C Class Ea Process
- Background To The Study
- Rationale For The Study
- Population/Employment Forecasts
- Transportation/Road Network Analysis
- Transportation/Road Network Analysis – Alternatives
- Transportation/Road Network Analysis – Results
- Transportation/Road Network Analysis – Travel Demand Forecast Vs. Roadway Capacity
- Transportation/Road Network Analysis – Summary Of Findings
- Traffic Operations Analysis – Intersections
- Need And Justification
- Problem Statement
- Existing Roadway Conditions
- Existing Environmental Conditions
- Existing Conditions (Aerial Photo)
- Alternative Solutions
- Recommended Evaluation Criteria
- Summary Evaluation Of Alternative Solutions
- Preliminary Preferred Solution (Description)
- Preliminary Preferred Solution (Benefits/Impacts)
- Next Steps
- Remain Involved In The Study

A PIC Brochure was also distributed to participants summarizing the content of the display materials and outlining future Class EA activities to be carried out. Participants were offered and encouraged to fill in and submit a Comment Sheet1 to gauge feedback on the Project.

As noted above, representatives from the City of Brampton, City of Mississauga, Regional Municipality of Peel and UMA were present at the PIC to provide information, answer questions, and receive comments from participants. The following representatives were in attendance:

City of Brampton:	Mr. Peter Anderson, Manager, Engineering Services Mr. Solomon Choi, Senior Project Engineer Mr. Khurram Tunio, Project Engineer Mr. David Monaghan, Transportation Planning Technologist Mr. Kant Chawla, Policy Planner Mr. Robert Waldon, Senior Real Estate Coordinator
City of Mississauga:	Mr. Steve Barrett, Manager, Transportation Asset Management
Regional Municipality of Peel:	Ms. Kathy Cater, Manager of Engineering and Infrastructure Planning Mr. Barry Mulcahy, Public Works Project Manager Ms. Margie Chung, Technical Analyst, Traffic and Transportation Engineering
UMA:	Mr. Greg Smith, Project Manager Mr. Andrew Ritchie, Lead Environmental Planner Ms. Sonya Kapusin, Environmental Planner Mr. Marek Trzaski, Transportation Planner/Traffic Engineer Mr. Philip Rowe, Project Advisor/Quality Control Leader

[1] Public Comment Sheets could be submitted during the PIC or emailed/faxed/mailed to members of the Project Team by **December 15, 2006**. Comments submitted following the PIC were addressed as they were received and further summarized in the ESR where warranted.

It is estimated that between 15 and 20 people attended the PIC. However, it is noted that 13 people officially signed in at the PIC. This attendance record is in addition to the number of representatives attending from the City of Brampton, City of Mississauga, Regional Municipality of Peel, and UMA. Most of the participants were residents and/or property owners living near the Goreway Drive Project Area.

Public Comment Sheets were also made available to solicit feedback on the Study and progress made to date. Four Public Comment Sheets were received at the PIC, while two were received prior to the December 15, 2006 cut-off date and one additional comment sheet was received in January, 2007. A summary of the comments received and issues raised is provided below.

Issues/Concerns Raised at PIC No. 1

Seven comment sheets were completed and submitted during or following the PIC by residents and/or property owners living near the Project Area (see completed comment sheets in **Appendix A**). These participants indicated the nature of current problems on Goreway Drive to be congestion, vehicle delays, turning at intersections(s), auto/train conflicts, through traffic volumes and infiltration of traffic (including trucks) into surrounding residential areas. Participants noted that while waiting for trains to cross Goreway Drive, many vehicles travelling to Airport Road make u-turns and proceed via Brandon Gate Drive, Netherwood Road, through to Redstone Road. Due to the cut-through traffic, it can take up to 10 minutes for residents on these streets to exit their driveways. When asked if there were other issues to be aware of, participants noted that there are currently no speeding or parking signs on Brandon Gate Drive and Redstone Road.

A summary of comments received at and following the PIC is provided below. This summary has been prepared based on a review of Comment Sheets submitted by PIC participants, as well as issues/concerns recorded following one-on-one discussions with individual attendees. Key issues included:

Preliminary Preferred Solution - Many participants preferred a grade separation, either over or under the CN rail crossing, as the preferred solution to the traffic problems on Goreway Drive. Some participants indicated a preference for an underpass (road under rail structure), suggesting that an overpass (road over rail structure) would have greater noise effects. An overpass was also perceived by some to be a visual obstruction, particularly for those whose properties back on to Goreway Drive.

Property Impacts - With respect to the Preliminary Preferred Solution, many participants were interested to know if and how much property would be required to build a structure over the CN rail crossing. At least one participant ranked property acquisition as the most important factor to consider when evaluating alternatives to solve the traffic problems on Goreway Drive.

Access Impacts - One participant who represents a land owner within the Project Limits expressed concern that construction of a grade separation may restrict access to this property from Goreway Drive, and ultimately development of the said property.

Grade Separation - A number of questions concerning the proposed grade separation were raised during the PIC. Participants inquired about the type of grade separation (under or overpass), length of approaches to the grade separation, and implications to the entrance and access to the condominium complex located on the east side of Goreway Drive, south of the CN rail crossing.

Existing Drainage Conditions - One participant noted that ponding has been observed along Goreway Drive near the Mimico Creek crossing, particularly during the spring and winter. It is noted that water overtops the roadway and creates a pond which has frozen at times.

Another participant was interested to know whether the Class EA Study will include an assessment of the drainage channel that runs east of Goreway Drive, and turns south into the residential area. It was felt that this may be the cause of periodic flooding within the area.

Based on the input received, most of those in attendance at the PIC were in general agreement that improvements are needed on Goreway Drive. Many participants were supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the CN rail crossing. Most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to noise pollution, property implications, and visual impacts associated with construction of an overpass structure (road over rail structure).

Based on the feedback received, most in attendance preferred an underpass versus an overpass as they were of the opinion it is more compatible with the surrounding residential land uses. Where requested, written responses were provided to individual comments (see **Appendix A**). All issues raised have been addressed as part of the Class EA study. As there were no issues that could not be addressed, it was recommended that the City of Brampton and the City of Mississauga proceed with the Preferred Solution and continue with Phase 3 of the Class EA process.

2.3.2 Regulatory Agency Involvement

Consultation with applicable regulatory agencies continued during Phase 2, to discuss the background information collected during Phase 1 as well as other aspects of the Project. Details concerning these activities are provided below.

Consultation with Staff of Toronto and Region Conservation Authority

The Study Area Corridor is situated within the Mimico Creek Subwatershed, which is under the jurisdiction of the TRCA. The TRCA was consulted in August, 2006, to obtain pertinent background information related to Environmentally Significant Areas (ESAs), wetlands, fisheries resources, as well as flood and fill line mapping within proximity to the Study Area Corridor. Based on feedback received in response to the Notice of Study Commencement, TRCA Staff identified the following environmental concerns within the Study Area:

- Aquatic Species and Habitat
- Generic Regulation
- Regional Storm Flood Plains
- Watercourses, Streams and Valley Corridors
- Terrestrial Natural Heritage System.

Meeting with Staff of the Canadian National (CN) Railway

UMA held a meeting with CN Staff on September 21, 2006 to discuss possible solutions to resolving the noted traffic delays at the CN rail crossing (see **Appendix A** for a copy of the meeting minutes). CN's Halton Subdivision is comprised of three in service tracks, including two main lines and a third track to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north. CN Staff noted that the Halton Subdivision accommodates approximately 50 plus freight trains per day. It was confirmed that the Halton Subdivision is used exclusively for freight traffic, and that there are no immediate or long-term plans for GO trains to utilize the line.

Following selection of the Preferred Solution, it was noted that UMA will develop a reasonable number of Alternative Structural Designs, which will be reviewed for fundamental feasibility at the conceptual level based on constructability, cost, railway constraints (including disturbance to existing rail operations), disturbance to the travelling public, additional land requirements, and environmental implications. Once the analysis is completed, a preliminary design for the Preferred Solution will be developed taking into consideration input from CN.

CN Staff expressed preference for an overpass, as construction of a road over rail structure is a more feasible option for the railway company than a road under rail structure (underpass). Construction of an overpass would eliminate the requirement for a rail diversion, which would be extremely disruptive to existing freight rail services within CN's busy corridor. CN Staff indicated that rail diversions are typically costly, and would likely be so for this particular location due to the significant number of current rail infrastructure (e.g., switches, rail cross overs) potentially affected by an underpass. Construction of an overpass would minimize impacts to the existing rail switches in proximity to the crossing.

Key issues raised by CN for further consideration in the Study included:

- Possible construction staging scenarios
- CN's clearance requirements
- Provision for future tracks
- Other CN requirements for subsequent design/construction, including access to CN's rail corridor from either side of the overpass structure and the need for flagging, both during completion of the required geotechnical/engineering investigations and subsequent construction activities.

2.3.3 First Nations Consultation

Direct Notification letters, including information regarding the PIC on November 28, 2006, were distributed during the week of November 10, 2006 inviting the Mississaugas of Scugog Island First Nation and the Anishinabek Nation to attend the PIC. The letter requested feedback on additional First Nations that should be notified with regard to this Project. Details regarding feedback received from First Nations are provided in **Section 2.4.3**.

In addition, Notification letters were mailed out to Indian and Northern Affairs Canada (INAC) and the Ontario Ministry of the Attorney General during the week of November 10, 2006 informing them about the Project and to solicit their respective input. Feedback received from INAC indicates that there are no comprehensive claims in the City of Brampton and the City of Mississauga.

2.4 Phase 3 Consultation

2.4.1 Public Involvement

Stakeholders Meeting

The City of Brampton and City of Mississauga held a Stakeholders Meeting on March 27, 2007, to present and receive public input on the preliminary evaluation of Alternative Design Concepts for the Preferred Solution (i.e., an overpass or underpass grade separation at the CN rail crossing). The meeting was held at the Malton Community Centre located in Mississauga at 3540 Morning Star Drive, between 7:00 pm and 8:30 pm. The purpose of the meeting was to present the Preliminary Preferred Design Concept (i.e., overpass grade separation) to potentially affected property owners.

Meeting invitations were mailed and/or hand delivered on March 14, 2007, to more than 29 landowners/residents adjacent to Goreway Drive in the vicinity of the proposed grade separation. In addition, three local councillors were invited to attend the meeting.

The purpose of the meeting was to provide potentially affected property owners with information regarding the comparative evaluation of an overpass versus an underpass structure. Based on the evaluation, an overpass structure was identified as the Preliminary Preferred Design Concept. Participants were provided with an opportunity to:

- view the display materials as outlined below
- listen to a presentation prepared by the Consultant Project Team
- ask questions and comment on the Project
- discuss issues and concerns related to the Preliminary Design Concept with representatives from the City of Brampton, City of Mississauga, and UMA.

The following display boards were presented at the Stakeholder Meeting:

- Study Area Corridor (Aerial Photo)
- Schedule C Class Environmental Assessment Process
- Problem Statement
- Comparative Evaluation of Grade Separation Design Alternatives
- Preliminary Design Plans and Profiles
- Architectural Renderings for the Preliminary Preferred Design Concept (overpass).

An evaluation matrix was distributed to participants summarizing the advantages and disadvantages of each alternative. Participants were offered and encouraged to fill in and submit a Comment Sheet[2] to gauge feedback on the Project.

As noted above, representatives from the City of Brampton, City of Mississauga, and UMA were present at the Stakeholder Meeting to present the information, answer questions, and receive comments from participants. The following representatives were in attendance:

City of Brampton:	Mr. Khurram Tunio, Project Engineer
City of Mississauga:	Mr. Steve Barrett, Manager, Transportation Asset Management
	Mr. Abdul Shaikh, Transportation Project Engineer
UMA:	Mr. Greg Smith, Consultant Project Manager (Presenter)
	Mr. Andrew Ritchie, Lead Environmental Planner (Presenter)
	Ms. Sonya Kapusin, Environmental Planner (Recorder)
	Mr. Philip Rowe, Project Advisor/Quality Control Leader (Facilitator)

Councillor Eve Adams commenced the meeting with welcoming remarks and introductions of the Project Team. Philip Rowe, UMA Project Advisor, was introduced as the meeting facilitator and provided an overview of the meeting agenda.

Andrew Ritchie, UMA Environmental Planner, provided an overview of the Class EA and public consultation process. The presentation included a summary of the background to the Class EA Study, the context of the Study Area, problem statement, and preferred solution (i.e., grade separation). Following the overview, Andrew summarized the evaluation completed to date for each of the grade

[2] Public Comment Sheets could be submitted during the Stakeholder Meeting or emailed/faxed/mailed to members of the Project Team by **April 11, 2007**.

separation design alternatives (i.e. Road over Rail Structure (overpass) and Road under Rail Structure (underpass)).

Greg Smith, UMA Project Manager, provided an overview of the Preliminary Design Concept for the overpass option. The presentation included design drawings, profiles and architectural renderings.

Six (6) people attended and officially signed in at the Stakeholders Meeting. This attendance record is in addition to the number of representatives attending from the City of Brampton, City of Mississauga, and UMA. Most of the participants were owners of properties adjacent to Goreway Drive.

A summary of comments received at the Stakeholders Meeting is provided below. These comments have been addressed throughout this Report (e.g., refer to **Section 4.7.7** for noise impacts and mitigation, as well as the description to follow regarding Issues/Concerns Raised at PIC No. 2 and Meetings with Property Owners). This summary has been prepared based on issues, concerns, and comments raised by participants during the meeting, and recorded by UMA Staff during the question and answer period. Key issues included:

Noise Impacts

- Will there be a sound barrier for the overpass option?
- Do retaining walls help to mitigate noise impact?
- Impact on sleeping areas (e.g., second level homes)
- Mitigation to alleviate noise impacts

Property Impacts

- Which properties will require acquisition for the overpass option?

Visual Impacts

- How high will the retaining walls be?
- Regarding the affected entrance to 3525 Brandon Gate Drive, a one-way in and one-way out entrance is understood to be the preferred access for fire trucks. Would the City consider an entrance entering from the Brandon Gate Drive / Goreway Drive intersection, and continuing along the proposed bridge, for local traffic to access the condominium complex?

Project Status

- Are there future plans to add more lanes to Goreway Drive?
- Has the proposal for an overpass structure been confirmed?
- When will Council review the final proposal?
- Can a property owner obtain an electronic copy of the design drawings to review the information in detail?

Other Comments

- What will happen to the existing Goreway Drive?
- Request for electronic copy of Evaluation Matrix.

At the conclusion of the question and answer period, it was clearly communicated to all participants that their respective comments would be taken into consideration during finalization of the Preliminary

Preferred Design Concept. Furthermore, it was noted that the materials would be presented at the forthcoming Public Information Centre (PIC), tentatively scheduled for late April/early May 2007.

Based on the input received, most of those in attendance at the Stakeholders Meeting were in general agreement with the advantages and disadvantages of the Preliminary Preferred Design Concept (i.e., Road over Rail Structure (Overpass)). Most of the questions and concerns raised during the meeting related to potential impacts on private properties, particularly with respect to noise pollution, entrances and visual aesthetics. Overall, the information presented at the meeting and the Preliminary Preferred Design Concept was met with little opposition. All issues raised have been addressed as part of the Class EA study. As there were no issues raised that could not be addressed, it was recommended that the City of Brampton and the City of Mississauga present the overpass option as the Preliminary Preferred Design Concept at PIC No. 2.

Public Information Centre No. 2

In keeping with the Municipal Class EA process, a second PIC was held on May 1, 2007, at the Malton Community Centre located at 3540 Morning Star Drive in Mississauga, between 6:30 pm and 9:00 pm. The purpose of PIC No. 2 was to present and receive public input on the evaluation of Alternative Design Concepts for the Preferred Solution, the selection of the Preliminary Preferred Design Concept, the potential benefits and impacts associated with the Preliminary Preferred Design Concept and future scheduled EA activities.

A notice inviting the public to attend PIC No. 2 was published in the *Brampton Guardian* and the *Mississauga News* on April 18 and 27, 2007. Notification letters were also mailed to approximately 532 property owners and/or residents within approximately 200 m of the Project Area, including other interested stakeholders who have requested to be on the Study Mailing List. In addition, notification letters were mailed to regulatory review agencies and First Nation communities.

As with PIC No. 1, the PIC was held in the form of a drop-in centre. Participants were invited to attend between 6:30 pm and 9:00 pm to view display boards containing information about the Project, and to speak one-on-one with representatives from the City of Brampton, City of Mississauga, and/or UMA. At PIC No. 2, potentially affected property owners and other interested stakeholders were provided with an opportunity to:

- view the display materials, including the evaluation of Design Alternatives and other Project-specific information as outlined below
- ask questions and comment on the Project
- discuss issues and concerns related to the Preliminary Preferred Design Concept with representatives from the City of Brampton, City of Mississauga, and UMA.

The following display boards were presented at the PIC covering a wide range of topics, including:

- Welcome to Public Information Centre No. 2
- Purpose of Public Information Centre No. 2
- Study Area Corridor (Existing Features Aerial Photo)
- Schedule C Class EA Process
- Summary of PIC No. 1 Problem Statement
- Summary of PIC No. 1 Preliminary Preferred Solution
- Summary of PIC No. 1 Summary of Comments Received
- Alternative Design Concept No. 2
- Comparative Evaluation of Alternative Grade Separation Design Concepts
- Preliminary Preferred Design – Road over Rail Structure (Alternative 1) [Two Boards]
- Overpass and Underpass Design Plans with Typical Cross Sections and Profiles
- Landscape Renderings
- Next Steps
- Remain Involved in the Study

- Alternative Design Concept No. 1

In addition to the above display boards, City and UMA staff had a copy of the Municipal Class EA document, display boards presented at PIC No. 1, general arrangement drawings, and detour plan available on hand. A PIC Brochure was also distributed to participants summarizing the content of the display materials and outlining future Class EA activities to be carried out. Participants were offered and encouraged to fill in and submit a Comment Sheet[3] to gauge feedback on the Project. As well, copies of the City of Brampton *Road Improvement Projects and Your Property* brochures were available at the registration desk.

As noted above, representatives from the City of Brampton, City of Mississauga, and UMA were present at the PIC to provide information, answer questions, and receive comments from participants. The following representatives were in attendance:

City of Brampton:	Mr. Solomon Choi, Senior Project Engineer
	Mr. Khurram Tunio, Project Engineer
	Mr. Robert Waldon, Senior Real Estate Coordinator
	Mr. Don Segodnia, Senior Real Estate Coordinator
City of Mississauga:	Mr. Steve Barrett, Manager, Transportation Asset Management
	Mr. Abdul Shaikh, Transportation Project Engineer
UMA:	Mr. Greg Smith, Consultant Project Manager
	Mr. Andrew Ritchie, Lead Environmental Planner
	Ms. Sonya Kapusin, Environmental Planner

In addition to the above staff, Barry Mulcahy (Regional Municipality of Peel) and Chris Duyvestyn (City of Brampton) attended the PIC.

It is estimated that between 20 and 25 people attended the PIC. However, 20 people officially signed in at the PIC, including Councillor Eve Adams and two of her staff representing Ward 5 in Mississauga. This attendance record is in addition to the number of representatives attending from the City of Brampton, City of Mississauga, Regional Municipality of Peel, and UMA. Most of the PIC participants were residents and/or property owners living within or near the Goreway Drive Project Area.

Issues/Concerns Raised at PIC No. 2

Four comment sheets were completed and submitted during or following the PIC by residents and/or property owners living near the Project Area (see **Appendix A**). A summary of comments received at the PIC is provided below. This summary has been prepared based on a review of Comment Sheets submitted by participants during the PIC, as well as issues/concerns recorded following one-on-one discussions with individual attendees. Specific issues/concerns raised from those received included:

<u>Access to the condominium (townhouse) complex on the northeast corner of Goreway Drive and Brandon Gate Drive</u>

- Four scenarios make it difficult to enter and exit the condominium complex from Brandon Gate Drive:
  (1) A 15 Hour Street Parking allowance is currently posted along Brandon Gate Drive - Could the parking duration be enforced and/or reduced from 15 Hours or extended east on Brandon Gate Drive?

[3] Public Comment Sheets could be submitted during the PIC or emailed/faxed/mailed to members of the Project Team by **May 16, 2007**.

(2) Cars are often parked along the south side of Brandon Gate Drive making it difficult to negotiate the turn and pass between the parked cars.
(3) Centre Median - Could the median be reduced and a left-turn lane implemented?
(4) School bus drop/pick up zone.

- Consider alternatives to the entrance proposed for closure. For example, consider a right-turn out exit on Goreway Drive from the condominium complex.
- The condominium complex requires more than one entry/exit.

Gap between the retaining wall and the property fence

- Consider a chain link fence to prevent people using the area as a hang out and to reduce garbage build-up (2).
- Consider a terra cotta wall similar to the wall at the Toronto International Centre.
- Regarding the "ditch" that will be created between the retaining wall and property line – suggest more inspections and/or clean ups in maintaining the "ditch"; grading and drainage is a concern within the 'ditch"; Will the high tension wire remain on the current post within the "ditch"?

General safety issues

- Concern for the safety of children under 10 years. Residents would appreciate if the bridge could be constructed sooner rather than later.

Other issues

- Some participants felt the proposed improvements would add value to the area, improve air quality, and/or address the problem of automobile/truck traffic travelling through neighbouring roads as a result of traffic delays at the CN rail crossing.
- More truck traffic will occur; noise is a concern.
- Propose planting of high canopy trees and evergreens to screen out wind and noise.
- With regard to the format of the PIC, participants who filled out a comment sheet were generally satisfied with the meeting arrangements and indicated that their questions were answered satisfactorily. Participants in attendance indicated that the display materials were very informative.

Following the PIC, the Chief of Mississauga's Fire and Prevention Services was consulted to determine the potential implications of the grade separation and the proposed removal of the condominium entrance from Goreway Drive, south of the CN corridor (personal communication, Brian Walsh, 2007). It was explained that providing a secondary access would not be necessary as there is a current full access to the condominium from Brandon Gate Drive. It was further confirmed that removing the existing secondary access to the condominium from Goreway Drive does not represent a concern for Fire and Prevention Services or contravene the fire route by-law.

Based on the input received, most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to property access, safety concerns, and construction timing for the overpass (road over rail) structure. Where requested, written responses were provided to individual comments (see **Appendix A**). All issues raised have been addressed as part of the Class EA study. As there were no issues raised that could not be addressed, it was recommended that the City of Brampton and the City of Mississauga proceed with the Preferred Design Concept and continue with Phase 4 of the Class EA process.

Meeting with Property Owners

Affected property owners who did not have an opportunity to attend the Stakeholders Meeting or second PIC were invited to meet with the Project Team to review their entrance impacts. Separate meetings were convened on April 24, May 23, and June 14, 2007, with four property owners whose existing entrances or potential access on Goreway Drive would be affected by the proposed grade separation. Preliminary recommendations for revised access to their properties were presented and reviewed with the affected owners. Copies of the meeting notes are included in **Appendix A**. A summary of the discussions is provided below.

Meeting with Representative of Owner for property on the west side of Goreway Drive, PIN 140220133, April 24, 2007

The key issues discussed during the meeting were property access and acquisition. The feasibility of providing an access road was discussed in order to maintain current access of the subject property to Goreway Drive. The Property Owner intends to develop part of the land and would like to maintain an entrance to this future development from Goreway Drive.

City staff advised that a formal request for future access is considered for approval as part of the site plan development and rezoning application process, and is therefore considered as a separate issue from the current EA process. If an access road were provided as part of the current EA process, it would be designed to accommodate vehicles that service the current land use.

Policies of the Secondary Plan (Area 32) restrict access from individual properties to Arterial Roads, including Goreway Drive. However, access to future development at this location can be provided through an internal road network that is shared with adjacent properties owned by the ORC and 7900 Goreway Drive. The opportunity for providing such an access can be reviewed in coordination with the development review process during the detailed design phase and property negotiation process. Once the application for development has been received, any access proposed will require approval from the City of Brampton.

Furthermore, it was noted that most of the land under consideration for development falls under the Open Space/Hazard Lands designation of the Secondary Plan (Area 32). The Secondary Plan states that any additional development in this area will require realignment and/or channelization of Mimico Creek and/or widening of the opening at the CN crossing further downstream, to the east of Goreway Drive.

Meeting with Property Owner of 7797 Goreway Drive, May 23, 2007

The purpose of the meeting was to review the Preliminary Preferred Design Concept drawings and the need for driveway regrading and property acquisition. Approximately 50 m of existing driveway was identified for regrading due to an increase in the Goreway Drive profile. It was explained that a steel beam guide rail will be constructed along the south side of the regraded driveway, and efforts will be made to minimize impacts to the flood plain.

Meeting with Property Owners of 1 and 35 Kenview Drive, June 14, 2007

The meeting was held to discuss the Preliminary Preferred Design Concept, including impacts to the existing access as a result of the proposed changes in the road profile and associated retaining walls. A representative of the Property Owner for 35 Kenview Drive attended the meeting to discuss the proposed improvements along Goreway Drive as well as the proposed development at the Parkshore Golf Club (1 and 35 Kenview Drive).

Altogether, five existing property entrances are proposed to be closed or relocated throughout the corridor. As shown in **Appendix C**, these include one entrance to the hydro transformer station, two

entrances to the golf course facility, one residential entrance to the condominium corporation, and one field entrance to the CN corridor. In addition, access to two vacant properties on the west side of Goreway Drive just north of the CN corridor will be provided as per discussions with the affected parties.

Following discussions with the ORC, it was agreed that the City of Brampton would complete a Category 'B' EA under the ORC's Class EA process for the proposed sale of a section of ORC property that is required to facilitate construction of the proposed grade separation and associated widening of the ROW. As part of the ORC Class EA process, a Consultation and Documentation Record has been completed and made available for public review. The City of Brampton has coordinated the public review period for the Consultation and Documentation Record with the public review period for the ESR. A copy of the ORC Consultation and Documentation Record is included **Appendix D**.

2.4.2 Regulatory Agency Involvement

The Consultant Team continued to consult with applicable regulatory agencies during Phase 3 of the process. The purpose of these discussions were to address specific concerns raised during previous phases of the process and to acquire information to assist in the formulation of applicable mitigative measures to minimize or alleviate potential impacts associated with construction of the Preferred Solution.

Provision of Preliminary Preferred Design Alternative to Technical Steering Committee

During Phase 3 of the process, the Preliminary Preferred Design Concept drawings (showing plan, profile and preferred alignment) were forwarded to the TSC on January 23, 2007 to provide the Committee with an opportunity to review and comment on the Design prior to PIC No. 2. Following this review, all comments received were taken into consideration and incorporated into the Preliminary Preferred Design Concept before the second PIC.

Much discussion ensued regarding the proposed cross section for Goreway Drive. It was noted that reducing the lane and median widths could reduce the property acquisition requirements. It was suggested that graded slopes be 3:1 as opposed to 2:1, as reinforced earth retaining walls could be employed with benches to reduce property impacts. It was agreed that minimizing property impacts should be a top priority. It was generally agreed that further evaluation of the two grade separation options is warranted, as they both offer a wide range of advantages versus disadvantages. In addition, retaining wall facing/design options should be examined.

Follow-up Meeting with Staff of Toronto and Region Conservation Authority

As improvements to Goreway Drive will entail working over and within the east branch of Mimico Creek which crosses the roadway approximately 625 m south of Steeles Avenue, UMA convened a meeting with TRCA Staff on February 5, 2007 to solicit the Authority's feedback on the Project. During this meeting, TRCA Staff raised the following environmental issues:

- TRCA does not promote the placement of fill in a regulated floodplain.
- TRCA would like to see minimal ecological impacts by providing a culvert size to accommodate wildlife passage.
- Other environmental concerns identified by the TRCA related to flood hazard, emergency response, and public safety due to flooding of an underpass. TRCA noted the profile for the underpass is within the Regional Flood line and therefore would be flooded during a Regional storm event. This would require the road to be closed during this time and emergency response services would be impacted by the cutting off of access at this location.
- It was noted that in-stream culvert works could result in a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. In July, 1998, the TRCA signed a Level 3 Agreement with the

Department of Fisheries and Oceans (DFO), which established a streamlined approach to addressing issues pertaining to the Federal *Fisheries Act*. Conservation Authorities with a Level 3 Agreement determine whether the proposal has a potential for a HADD of fish habitat. TRCA indicated in their letter of November 27, 2007, that a HADD is not anticipated for this Project. However, the potential for a HADD will need to be confirmed during detail design.

The TRCA indicated preference for the overpass option and requested a draft of the ESR in advance of the final public review period. In addition, TRCA staff requested that the ESR identify available emergency routes in the vicinity of the Project Area. Personal communication with the City of Brampton's Manager of Emergency Measures and Corporate Security (Mr. Alain Normand) indicates that there is no emergency access route plan available. However, there are procedures in place that will determine the optimum route based on conditions at the time of call. These procedures are documented within the City of Brampton Emergency Plan. It was noted that Airport Road would be the most likely alternate access route for emergency vehicles as it is presently more in use by emergency vehicles than Goreway Drive due to the population residing in the area.

A second meeting was convened with the TRCA on May 29, 2007 to update the Authority on the Class EA process, to present the findings of the environmental investigations as well as the Preliminary Preferred Design Concept, to present the findings on the hydraulic analysis for Mimico Creek and to obtain their support for the proposed undertaking. During this meeting, UMA submitted their Surface Water Management (SWM) Report and highlighted the salient issues as follows:

- The existing Mimico Creek culvert is not structurally able to withstand the increased fill height and as a result this culvert must be replaced.
- Hydraulic analysis indicates the span length of the existing culvert is sufficient for passing the design flows.
- A Fluvial Geomorphologic analysis based on historical movement of the creek from Year 1974 to present indicates there is very little movement in the watercourse. Thus, the culvert be replaced with a 12.2 m Hy-span structure to allow for channel movement and wildlife passage.
- The road is currently overtopped in the Regional storm event and it is not practical to raise the road profile by the 1.5 m required to prevent future overtopping.

In response to the SWM Report and related issues, TRCA had the following comments:

- TRCA is satisfied with the recommendation to replace the existing culvert with a 12.2 m Hy-Span structure but requested the City to provide an acknowledgement that a net ecological/environmental benefit will be achieved. TRCA noted much of this is obtained through the increased span and can be enhanced through the addition of plantings in the corridor. TRCA also requested comments in the ESR pertaining to fish and wildlife passage being accommodated through the increased bridge span.
- Stormwater quality management by providing Oil-Grit Separators is not required but TRCA requests the City to commit to providing enhanced vegetated swales for the outlet ditches where feasible.
- TRCA agreed it is reasonable to permit overtopping in the Regional flood event but requested the City to provide comment in the ESR regarding available emergency access routes in the vicinity.
- Interference with the watercourse should be minimized by locating the access on the west side as far south of the culvert location as reasonable.
- The access to 35 Kenview Drive should be "pushed" as far north as possible to minimize the footprint of the driveway grading/toe of slope in the flood plain.

Follow-up Meeting with Staff of the Canadian National (CN) Railway

A follow-up meeting with CN Staff was convened on February 6, 2007. The purpose of the meeting was to update CN on the Class EA process, to present the findings of the environmental investigations, to

discuss the Alternative Preliminary Design Concepts completed to date, and to seek endorsement in principle for the proposed undertaking.

The Preliminary Designs were presented to CN Staff. This included a track alignment drawing showing a possible track diversion that would be necessary to construct a conventional underpass. CN indicated that the diversion geometry appeared to be feasible, however, the diversion would be extremely large, complex, and costly. Also, they noted that the risk to train operations associated with the construction of any such diversion would be significant. CN Staff made it clear that they prefer an overpass, as no track diversions would be required, the time of construction could be reduced, the costs would be lower, and the risk to their operations would be significantly less.

CN Staff noted that there may not be sufficient crews and personnel available to start the diversion construction prior to 2009 and a shortage of available flagging will also impact construction of the structure if the commencement date is before spring 2010. CN Staff stated that construction of the diversions would likely take 2-3 months for each phase, and noted that because of their "Just-in-Time" delivery method for freight, they will not accept any impact to their train operations. It was noted that an overpass is the preferred solution from CN's perspective.

CN Staff reviewed the General Arrangement drawing for the proposed overpass option for the grade separation at Goreway Drive. As indicated in their letter dated May 28, 2007, CN has no objections in-principal to the proposed Preliminary Design (see **Appendix A** for a copy of the letter).

2.4.3 First Nations Consultation

Feedback received from the Mississaugas of Scugog Island First Nation indicates that the lands involved in the proposed undertaking are within the treaty lands of the Mississaugas of Scugog Island First Nation, and are within the lands claimed by the First Nation in an unresolved specific land claim presently before the Canada Indian Land Claims Commission (see **Appendix A** for a copy of the letter). The First Nation also advised of non-site specific Aboriginal rights that are applicable within the Study Area (e.g., the right to have Aboriginal burials not disturbed), and further requested that an archaeological survey be completed for the Study Area. A response to the comments provided by the Mississauga of Scugog Island First Nation is provided in **Appendix A**.

2.5 Phase 4 Consultation

2.5.1 Public and Regulatory Agency Involvement

All parties previously notified throughout Phases 1 to 3 of the Study were notified by letter that the Class EA has been completed, including Notice of Completion of the ESR. The letter explained that the ESR has been filed for public review at the Clerk's Offices of the City of Brampton, City of Mississauga, and Regional Municipality of Peel, as well as at the Malton Community Library. Recipients have been asked to provide their written comments within 30 calendar days from the date of the Notice. As per Municipal Class EA requirements, the Notice also indicated that the public has the right to request a Part II Order within the 30-day review period.

A formal Notice of Completion of the ESR was placed in the *Brampton Guardian* as well as in the *Mississauga News* (see copy of Notice provided in **Appendix A**). As above, the Notice announced that the ESR has been filed with the Clerks of the City of Brampton, City of Mississauga, and Regional Municipality of Peel, and is made available at the Malton Community Library. Copies were made available for public review at the respective review centres for a 30-day review period, during which time comments will be received from interested parties, regulatory agencies and the public. The Notice also indicated the public's right to request a Part II Order within the 30-day review period.

Concerns raised during the review period will be addressed by the cities of Brampton and Mississauga, with significant changes documented in an addendum to the ESR, if required. Should significant concerns remain unresolved, a request can be made to the Minister of the Environment requiring the Project to comply with Part II of the *EA Act* (which addresses individual EAs) before proceeding with the proposed undertaking. This is referred to as a Part II Order. Requests for a Part II Order must be received by the Minister in writing, at the address provided below. A copy of the request must also be sent to the City of Brampton Senior Project Engineer (see address below). If no requests are received within the review period, the cities of Brampton and Mississauga may proceed to implementation of the Project, that is, detailed design and construction.

The Honourable John Gerretsen
Minister of the Environment
12th Floor, 135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Khurram Tunio, P.Eng.
Senior Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1

3.0 Need and Justification (Phase 1)

3.1 Introduction

This Chapter describes the purpose, need, justification, and objectives for the Project, including applicable planning policies that relate to the project. It also includes a detailed description of the deficiencies within the Study Area Corridor. In completing this Chapter, pertinent City of Brampton, City of Mississauga, and Regional Municipality of Peel Staff were consulted. In addition, a reconnaissance of the Goreway Drive Study Area Corridor was carried out during the initial stages of the Study to ascertain the need for improvements within the approximately 1.2 km section of Goreway Drive, extending from Steeles Avenue to Brandon Gate Drive.

3.2 Planning Context

3.2.1 Future Population and Employment Growth

Strategically located within the Greater Toronto Area (GTA), the Regional Municipality of Peel and its constituent municipalities are expected to experience significant growth over the next two decades as demand for development shifts westerly. As noted below, the Region's population is projected to reach 1,528,263 by 2031, which represents an increase of 512,774 (or approximately 50% between 2001 and 2031). Similarly, employment is forecasted to reach 852,282 by 2031, or increase by approximately 58%.

Table 3 – Population/Employment Forecasts, 2001 to 2031

Year	Peel	Brampton	Caledon	Mississauga	Total Employment
2001	1,015,489	325,428	52,620	637,441	540,145
2011	1,291,252	504,229	66,155	720,868	722,574
2021	1,450,428	632,923	83,978	733,527	806,550
2031	1,528,263	693,325	84,450	750,488	852,282

Source: City of Brampton Growth Management and Special Policy Section. It is noted that this data was used in the Transportation Analysis for this Study.

In keeping with Regional Municipality of Peel Official Plan (2005) policy, much of the growth has occurred and will continue to occur within the 2021 Regional Urban Boundary, which includes the cities of Brampton and Mississauga. Within the City of Mississauga, the Study Area Corridor passes through the Malton District, which is currently at full build out, with a mid-2005 population of 40,000 people (City of Mississauga, 2005). Future forecasts for the Malton District indicate that the District's population will slowly decline from a peak of 40,300 in 2006, to 33,900 by mid-2041 (City of Mississauga, 2005).

3.2.2 Provincial Planning Policies

The *Planning Act* (2006) sets out the ground rules for land use planning in Ontario and describes how land uses may be controlled, and who may control them. Pursuant to the *Planning Act*, the Province of Ontario is the primary planning authority in Ontario. The *Planning Act* enables the Province to delegate some of its planning authority to the upper-tier municipalities (e.g., counties and regional/district

municipalities, as well as planning boards) while retaining control through the approval process. Municipalities must conform to approved policies of the Provincial government and its agencies.

The Ministry of Municipal Affairs and Housing has delegated much of the planning authority to the regional and local municipalities, including the Regional Municipality of Peel. The Province has also implemented a "one-window" approach for providing comments on provincial matters. The intent of this "one-window" approach is to streamline and coordinate the input of information previously provided individually by the Provincial Ministries of Municipal Affairs and Housing; Environment; Natural Resources; Transportation; Culture; and Agriculture, Food and Rural Affairs.

Matters of Provincial interest, as set out in the *Planning Act*, include among other matters, the protection of the natural environment, the provision of educational, health, transportation services, the financial well being of the municipalities and the provision of a range of housing types. There are a number of Provincial policies affecting this Study, including those concerning the effective and efficient use of land, resources, infrastructure, public services and facilities, and the long term protection of ecological function and biodiversity of the natural heritage system. Details regarding policies directly affecting improvements to Goreway Drive are summarized below.

Growth Plan

In recognition of the Greater Golden Horseshoe's (GGH)[4] distinction as one of the fastest growing regions in North America, Bill 136, the *Places to Grow Act*, 2005 received Royal Assent on June 13, 2005 (Ministry of Public Infrastructure Renewal (MPIR), 2006). The Act provides the legal framework necessary to implement the Government of Ontario's vision for building stronger, prosperous communities by better managing growth in the GGH to the year 2031. The Act enables the government to plan for population growth, economic expansion and the protection of the environment, agricultural lands and other valuable resources in a coordinated and strategic way (MPIR, 2006).

On June 16, 2006, the Province of Ontario released its *Growth Plan for the Greater Golden Horseshoe* (MPIR, 2006). By 2031, the GGH's population will grow by 3.7 million people, which represents an approximately 47.5% increase from the area's existing (2001) population of 7,790,000 (MPIR, 2006). During this same period, employment within the GGH will continue to grow from 3,810,000 to 5,560,000, representing an approximately 46 percent increase (MPIR, 2006). As one of the fastest growing areas in Canada, the purpose of the Plan is to "lay the course for future economic prosperity in the Greater Golden Horseshoe" (MPIR website).

The Growth Plan envisages increasing intensification of the existing built-up area, with a focus on "urban growth centres, intensification corridors, major transit station areas, brownfield sites, and greyfields" (MPIR, 2006). The Greater Toronto Area-Hamilton (GTAH) is one of the fastest growing regions in North America, as it is the destination of choice for many people looking to relocate from other parts of Canada and around the world because of its high quality of life and economic opportunities. Overall, the Growth Plan sets the stage for the Regional Municipality of Peel to absorb a larger portion of the growth projected for the western half of the GTAH. An estimated 1,640,000 people are expected to reside in the Region by the year 2031 (MPIR, 2006), which represents an increase of 624,511 when compared to the Region's 2001 population of 1,015,489 (Peel Planning Department). Employment Projections for the Region are expected to increase from 530,000 in 2001, to 870,000 by 2031 (MPIR, 2006).

The Growth Plan designates both downtown Brampton and the Mississauga City Centre as "Urban Growth Centres" within the GTAH (MPIR, 2006). With respect to the City of Brampton, it is expected to absorb much of the growth forecasted for the Region over the next 25 years, that is, by 2031. As the

[4] The GGH includes the cities of Toronto, Hamilton and Kawartha Lakes, the regional municipalities of Halton, Peel, York, Durham, Waterloo and Niagara and the counties of Haldimand, Brant, Wellington, Dufferin, Simcoe, Northumberland and Peterborough (MPIR, 2006).

supply of available development land declines in other areas of the GTAH, the City of Brampton will continue to represent a significant component of the greenfield land needed to accommodate future residential and employment growth. By 2031, Brampton's 2006 population of about 430,000 is projected to reach 725,000 which represents an increase of approximately 300,000 over this 25 year period (City of Brampton, 2006).

The City of Mississauga's population, on the other hand, is expected to experience less growth, increasing from 700,300 in 2006 to 768,800 in 2031. This represents an increase of 68,500 during this 25 year time frame, and is due to the fact the City is near full build out. As a result, much of the future growth will be infill development and/or intensification of existing urbanized areas (City of Mississauga website).

Provincial Policy Statement

The *Provincial Policy Statement* (PPS) is the complimentary policy document to the *Planning Act*. Issued under the authority of Section 3 of the *Planning Act*, the PPS provides direction on matters of provincial interest related to land use planning and development, and promotes the provincial "policy-led" planning system that recognizes and addresses the complex inter-relationship among environmental, economic and social factors in land use planning.

The *Planning Act* requires that the PPS be reviewed periodically to make sure its policies are still effective. The new PPS (2005) took effect on March 1, 2005 and provides for enhanced protection of the environment by identifying the significance of the natural heritage system and water resources, including natural hazards and water quality, air quality and energy use. The new policies also provide for intensifications and brownfields development to ensure the maximum use of sewer, water and energy systems, roads and transit. The new PPS also provides for more transit-friendly land-use patterns using intensification and more compact, higher density development, as a means of bringing more people closer to the transit routes.

Parkway Belt West Plan

The Parkway Belt West Plan was tabled by the Province of Ontario in July 1978 under the provisions of *The Parkway Belt West Planning and Development Act* and the *Ontario Planning and Development Act*. The Plan outlines policies for lands designated as part of the Parkway Belt West Plan Area. The Parkway Belt West Plan Area is a multi-purpose open-space utility and transportation corridor that extends from Hamilton to the eastern limits of Toronto (City of Brampton, 2006). The purpose of the Plan is to:

- separate the boundaries of urban areas to provide residents with a sense of community;
- link urban areas by providing space for the movement of people, goods, energy, and information;
- provide a land reserve for future linear facilities and for unanticipated activities that need to be highly accessible and require substantial land;
- provide a linked system of open space and recreational facilities.

The area covered by the Plan is divided into two categories: the Public Use Area and the Complementary Use Area. Public Use Areas are currently used or may be used in the future for public uses. These areas consist of lands designated as Public Open Space and Buffer Area, Utility, Electric Power Facility, Road and Inter-Urban Transit. Complementary Use Areas are to be used for private uses that aim to preserve the country landscape and encourage land uses such as agricultural, recreational and institutional (i.e., land uses that do not require intense urbanization) (Ministry of Municipal Affairs and Housing (MMAH) Website, 2007).

In relation to the Goreway Drive Study Area Corridor, review of Figure 2 of the Regional Municipality of Peel Official Plan indicates that the Parkway Belt West Plan Area envelopes the portion of the corridor that extends north of the City of Brampton/Mississauga municipal boundary (Regional Municipality of Peel, 2005). To this end, the Parkway Belt West Plan Area lands border both sides of the Goreway Drive Study Area Corridor from the municipal boundary north to Steeles Avenue.

3.2.3 Regional Transportation Planning Policies

The Goreway Drive Study Area Corridor is situated within the cities of Brampton and Mississauga, which are area municipalities of the Regional Municipality of Peel. The Region has a two-tier planning system whereby planning responsibilities are divided between the Region and its three area municipalities. From a transportation planning perspective, the proposed improvements to the approximately 1.2 km segment of Goreway Drive will impact both the Region (upper-tier municipality) and the cities of Brampton and Mississauga (lower-tier municipalities). Given that both levels are responsible for regulating land use and establishing policies for physical, economic and social development within their respective jurisdiction, details regarding the applicable transportation planning policies for all three municipalities are provided below. It is noted that applicable planning policies for each municipality are provided in **Section 4.7.2** of this Report.

Regional Municipality of Peel Planning Policy

In accordance with Section 5.6 of the 2005 Regional Official Plan, "the concurrent planning of urban and rural growth and the transportation system is required to provide an integrated, safe and efficient system for transporting people and goods". The Region's transportation system is intended to accommodate projected travel demands, and to serve commuters and through traffic. The general objectives of the Official Plan from a transportation perspective are:

- to achieve convenient and efficient movement of people and goods in the region and the Greater Toronto Area (GTA);
- to ensure the provision of an integrated transportation system in the Peel region that balances travel demand with the transportation capacity of transportation facilities;
- to plan and implement a transportation system in Peel that is safe, sensitive to the protection of the Greenlands System, environmentally responsible and cost effective;
- to encourage an increased public transit modal share;
- to encourage greater accessibility by road and public transit to the Lester B. Pearson International Airport from Peel and the GTA;
- to integrate the transportation system in Peel with the transportation plans of the area municipalities, neighbouring municipalities and the Province;
- to support the objectives and policies in this Plan and area municipal official plans, especially the Regional Structure policies of this chapter of the Plan; and,
- to provide for bicycle and pedestrian opportunities in the design of roadways.

The Region's Transportation System includes a network of freeways, major roads and public transit systems which serve to link communities within the Region and other areas in the GTA. While all of the freeways are under provincial jurisdiction, parts of the major roads are under provincial, regional or area municipal jurisdiction. The public transit systems are under provincial or area municipal jurisdiction. The Region cooperates with the area municipalities to plan for transportation on a region-wide basis, and operates Regional roads that typically provide a high transportation capacity inter-municipal service. Section 5.6.4 of the Region's Official Plan indicates that a key objective is "to have a reliable and efficient Major Road Network to enhance the safe movement of people and goods".

As noted in Schedule E of the Region's Official Plan (2005), Goreway Drive is designated as a "Major Road" from Steeles Avenue north to Castlemore Road. Major Roads are typically designed to carry medium to high volumes of traffic (relative to its urban or rural context) between significant activity nodes or more localized elements of the overall road network (Regional Municipality of Peel, 2005).

3.2.4 Local Transportation Planning Policies

Within the approximately 1.2 km Project Limits, Goreway Drive is under the jurisdiction of the City of Brampton from Steeles Avenue south to CN's Halton Subdivision, which delineates the municipal boundary between Brampton and the City of Mississauga. To the south of the municipal boundary, Goreway Drive is under the jurisdiction of the City of Mississauga. Details regarding these two area municipalities' transportation policies are provided below.

City of Brampton Planning Policy

The Brampton Official Plan (2006) "charts the course for land use decision-making within the municipality for the next 25 years. The Plan is used to guide many development and infrastructure decisions on issues such as land use, built form, transportation and the environment" (City of Brampton, 2006). To summarize, the City's "Official Plan sets the groundwork for addressing the challenges of growth and positioning Brampton's future as a preferred choice to live, work and play" (City of Brampton, 2006). Section 4.4 of the Brampton Official Plan (2006) details the City's commitments and objectives from a transportation perspective. As noted therein, "the City is committed to the provision and enhancement of an efficient transportation system, which is consistent with the City's 'Six Pillars' Strategic Plan to promote a Modern Transportation System". The Plan envisages the harmonious integration of all modes and elements of transportation with a long-term vision to provide a "Balanced Transportation System" that is accessible to all members of the Brampton community including persons with disabilities (City of Brampton, 2006). The broad objectives for developing the transportation system policies are:

- To develop a balanced, integrated and accessible multi-modal transportation system which provides for the safe, economic and efficient movement of people, including persons with disabilities, as well as goods and services
- To ensure the provision of adequate and accessible road, transit, pedestrian and bicycle links between Brampton and adjacent municipalities;
- To promote the development of an efficient transportation system and land use patterns that foster strong live-work relationships and encourage an enhanced public transit modal share;
- To promote a high standard of environmental management and aesthetic quality in the routing, design and construction of transportation and associated structures; and,
- To work cooperatively with the neighbouring Municipalities and the Regions to develop an integrated transportation plan.

Brampton's Transportation System consists of the existing and proposed road network, transit, cycling, pedestrian, trucking, rail and air facilities. The intent of the City's Transportation System and related policies of the Plan is to achieve the broad objective of a balanced transportation system that is accessible to all members of the Brampton community, including persons with disabilities. The various aspects of the Transportation System include:

- Road Network section dealing with the hierarchy and functionality of roads, ROW widths, road planning, traffic circulation and transportation system and demand management improvement measures in order to enhance the overall efficiency of the road network;
- Transportation System and Demand Management (TSM/TDM) Measures section dealing with policies focussed on enhancing the capacity of the existing transportation system by adopting TSM/TDM strategies and devising traffic circulation patterns to optimize road network efficiency;

- Public Transit section dealing with policies intended to support the enhanced use and accessibility of public transit by addressing supportive land use policies, a hierarchy of transit services, the rationalisation of the overall route network, transit priority schemes, interrelationships with urban form and land use, and the overall planning of local and interregional transit services;
- Parking Management section dealing with policies to achieve planning of the location, quantity, and cost of parking to ensure appropriate provision and accessibility of parking areas facilitating efficient functioning of the transportation system in keeping with the transit objectives of the Plan;
- Pathways System section incorporating policies to encourage the use of cycling and walking and to develop a detailed pathway network in conjunction with the 'Pathways Master Plan', in order to accommodate work, recreational and other trips, while addressing issues of accessibility including accessibility for persons of disabilities, safety, aesthetics, community involvement and public awareness;
- Trucking and Goods Movement section incorporating policies proposing the development of goods movement strategies in consultation with goods movement companies and other levels of government to provide a safe and efficient multi-modal goods movement network with effective inter modal connections, while addressing the protection of residential communities from adverse impacts of the goods movement;
- Railways section incorporating policies respecting the need to provide adequate, accessible, and safe rail facilities, and particularly the need for the grade separation of railway mainlines from urban roads where feasible;
- Airport section recognizing the importance of the Lester B. Pearson International Airport as a major transportation facility and setting out policies supporting the integration of the Airport with other modes of travel and encouraging the provision of reliable, efficient and accessible transit services between the City and the Airport;
- Implementation and Monitoring section dealing with policies proposing to set out the comprehensive implementation strategy to ensure that the transportation objectives of the Plan are met and the functional efficiency of the transportation system is reviewed and monitored on a regular basis.

Brampton's existing road network consists of city roads, regional roads and provincial highways. The road network has been planned taking into account the anticipated evolution of the network from the existing level to the Plan horizon of 2031 (City of Brampton, 2006). Schedule 'B' - City Road Hierarchy indicates that Goreway Drive, between Steeles Avenue and the municipal boundary (Halton Subdivision), is classified as a "Major Arterial". As specified in the City's Official Plan, "Major Arterials" are to be planned, designed, and constructed to carry medium to high volumes of traffic at medium speeds. Schedule 'B1' – City Road ROW Widths indicates a desired ROW width of 40-45 m for the section of Goreway Drive between Steeles Avenue and the municipal boundary. It is noted that the City may require additional road ROW to provide for streetscape improvements, such as medians and double row planted trees.

City of Brampton Transportation and Transit Master Plan

As noted in **Section 1.2**, the City of Brampton *Transportation and Transit Master Plan* (TTMP) was completed in 2004 to develop a long-term multi-modal transportation strategy to guide future transportation decisions, taking into account the City's anticipated growth over the next 30 years. The TTMP sets out policies and programs to support the long-term transportation vision for the City, and includes an implementation strategy based on 10 year horizon intervals. In relation to Goreway Drive, the TTMP recommends:

- replacement of CN's existing three-track level crossing with a grade separation by 2011 to avoid train-road vehicle conflicts, long queues and road delays
- widening of Goreway Drive to six-through lanes from Steeles Avenue south to the CN crossing.

Parkway Belt West Industrial Area, Secondary Plan

Goreway Drive within the Project Limits is located within the Secondary Planning Area for the Parkway Belt West Industrial Area (City of Brampton, 2005). The Secondary Plan includes transportation policies to ensure the development and maintenance of an effective transportation network. In particular, Section 6.1.8 of the Plan states that "the City shall ensure that adequate lands are reserved, as a condition of development approval for grade separations at [two] intersections, [including Goreway Drive at the CN Railway]". Furthermore, the Plan states that in order "to protect the arterial road function of Steeles Avenue, Torbram Road, Airport Road, Goreway Drive, and Finch Avenue, it is the policy of the City and the Regional Municipality of Peel to restrict access from individual properties. To this end, a local industrial road system shall be designed to organize access to these roads."

City of Mississauga Planning Policy

Mississauga's Official Plan (2006) describes the goals, objectives and policies for land use planning within its jurisdiction. The objectives of the Mississauga Official Plan from a transportation perspective are summarized below:

- to develop a transportation system that will support the urban form, and that will support development in accordance with District policies;
- to encourage the provision of parking that is compatible with urban form, land use and transit policies, and to improve pedestrian linkages to existing and future parking areas;
- to locate conventional transit services near medium and high density development and near lower density areas where appropriate;
- to place a high priority to the provision of transportation facilities that are designed to accommodate inner-City trips;
- to improve road network efficiency and to design the road network with regard for urban design, land use considerations, and the needs of all road users;
- to encourage the integration of Mississauga's transportation system within the City and between neighbouring municipalities;
- to promote road safety, encourage increased pedestrian and cyclist trips, and increase the use of public transit; and,
- to promote improved access to Lester B. Pearson International Airport.

The City's network of arterial, collector and local public roads connect neighbourhoods within the inner City and provide linkages with the transportation network of neighbouring municipalities. The section of Goreway Drive extending south from CN's Halton Subdivision to Brandon Gate Drive is designated within the City of Mississauga Official Plan as a "Major Collector", with a desired ROW width of 35 m. "Major Collector" roads are designed to accommodate inter-district and neighbourhood traffic, and may carry arterial traffic during peak hours. The Official Plan further states that wider ROW widths at intersections and grade separations may be required to accommodate such facilities as auxiliary lanes, bus bays and bicycle paths.

3.3 Sub-Area Transportation Network Analysis

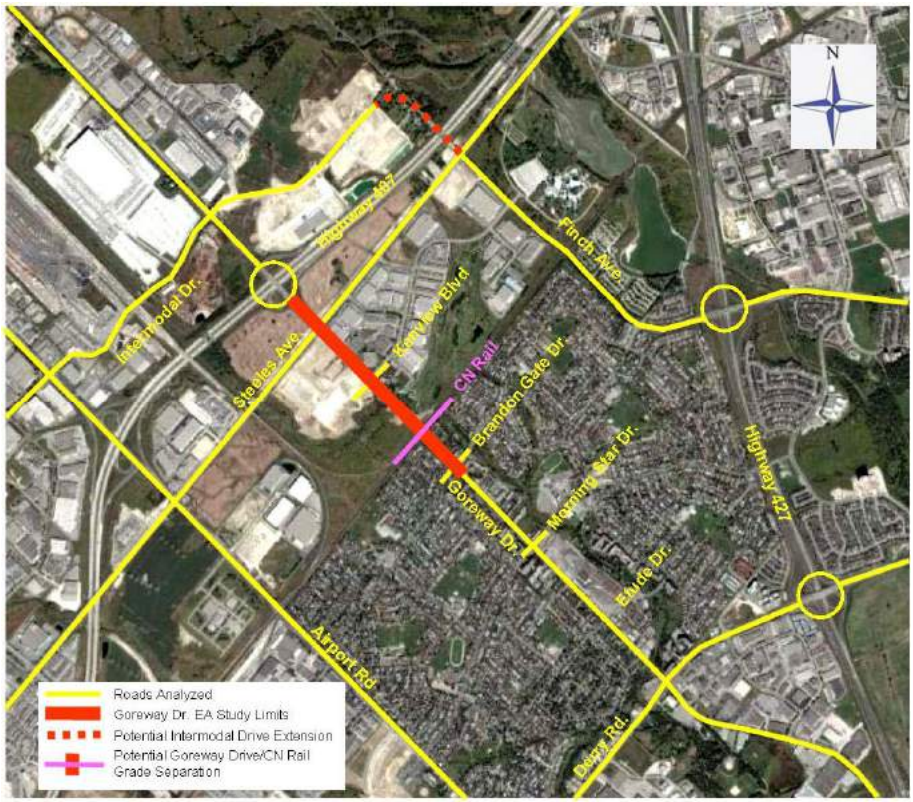
A Sub-area Transportation Network Study[5] was completed to examine existing and future travel demand within the wider transportation network and establish requirements for improvements within the road network. The examination of options (Alternative Solutions) to satisfy existing and future travel demand within the Study Area Corridor was undertaken using the regional transportation model. The modelling analysis focused on the surrounding area, encompassing three north-south arterials (Airport Road,

[5] A **Transportation/Traffic Study Report** documenting the Analysis was prepared and is provided in **Appendix B**.

Goreway Drive and Finch Avenue) from north of Highway 407 to south of Derry Road, including connections to the freeway system as shown in **Figure 3**. Specifically, the analysis was carried out to:

- examine potential (future) alternative improvements to the road network within the surrounding area, including road widening, extensions and grade separation of CN's existing at-grade Halton Subdivision (as potential alternatives to six-laning of Goreway Drive)
- confirm the need and timing for potential improvements to Goreway Drive.

Figure 3 – Map of Transportation Network Analysis Area



According to the results of the Transportation Modeling analysis, the mainline of Goreway Drive will experience significant traffic growth between now and 2011 (11% and 3% annually on southbound and northbound lanes, respectively), as well as at Steeles Avenue approaches to Goreway Drive. After 2011 a nominal growth of 1.5% is anticipated on Goreway Drive. No significant traffic growth is expected on Kenview Boulevard and Brandon Gate Drive during the analysis period (up to 2021).

Overall, the results of the Analysis indicate that for the section of Goreway Drive extending from Steeles Avenue to south of Morning Star Drive (beyond the Project Limits), forecast demand is below the capacity for a four-lane roadway during the 2011, 2021 and 2031 horizon years. It is noted that traffic volumes increase on the section of the corridor to the north of Derry Road, approaching the capacity for a four-lane facility in the 2031 horizon year. The Analysis confirmed that the existing four-lane roadway configuration on Goreway Drive from Steeles Avenue to Derry Road is sufficient to service future traffic demand.

Furthermore, a detailed examination of the volume to capacity (V/C) ratio at the approach to CN's at-grade Halton Subdivision indicates an obvious improvement in capacity when a grade separation is introduced due to the alleviation of timely delays as trains pass. As noted previously, the Halton Subdivision currently accommodates about 50 freight trains per day to service industry. In addition,

Goreway Drive has an Average Annual Daily Traffic (AADT) volume of approximately 15,000 vehicles per day. Based on these volumes, the at-grade CN crossing has an existing Exposure Index of 750,000 (50 trains multiplied by 15,000 vehicles). It is noted that an Exposure Index above 200,000 warrants a grade separation from a capacity, delay and safety perspective.

The above Analysis confirms that existing and future traffic volumes do not justify the need to widen Goreway Drive from 4 to 6 lanes within the 1.2 km Project Limits. Notwithstanding, additional capacity and level of service improvements may be realized through implementation of intersection improvements such as turning lanes, improved geometrics, and/or traffic signal optimization. A traffic operational analysis was carried out to ascertain the degree to which capacity can be increased, and the level of service improved at signalized intersections along the corridor, particularly at Steeles Avenue, Kenview Boulevard and Brandon Gate Drive. The results are documented in a **Traffic Operations and Safety Performance Review Report**[6] provided in **Appendix B** and summarized in **Section 3.4** below.

3.4 Safety

In support of the Class EA Study, a Traffic Operations and Safety Performance Review was conducted to provide input to the need and justification of the Project, and the evaluation of Alternative Solutions. The ultimate objective of the Traffic Operations analysis was to establish roadway/intersection improvement requirements for further assessment and recommendations of specific solutions for the preliminary design. The Safety Performance Analysis included a review of collision data and speed survey data on Goreway Drive within the Project Limits to assess the level of traffic safety and identify accident-prone locations.

No significant safety problems are experienced/reported for the section of Goreway Drive within the Project Limits that would be indicative of systemic deficiencies related to roadway/intersection configuration and geometry, visibility, roadside conditions, and traffic patterns and operations. Goreway Drive between Steeles Avenue and Brandon Gate Drive is a straight and relatively flat section of roadway. There are no visibility constraints along the road, as well as at all intersections within the Project Limits.

Motor vehicle collision data for the years 2002-2005 was obtained from the City of Mississauga for the segment of Goreway Drive between Brandon Gate Drive and the municipal boundary (approximately 0.286 km). The AADT in 2006 was 21,770 entering the Brandon Gate Drive intersection from all four approaches, and 15,925 on Goreway Drive north of Brandon Gate Drive. The annual number of collisions for the segment of Goreway Drive between Brandon Gate Drive and the municipal boundary totalled 2, with one collision occurring in each of 2002 and 2005. The collision rates over the four year period were less than 1 collision per million vehicle kilometres (MVK).

For the intersection of Goreway Drive and Brandon Gate Drive, the collision rates over the years have generally decreased, with a rate of less than 1 per million vehicles entering (MVE) in 2005. By type of impact, rear end and angle collisions constituted approximately 34% each, with an additional 24% occurring as turning movement collisions.

Motor vehicle collision data for the years 2001-2005 was obtained from the City of Brampton for the Kenview Boulevard and Goreway Drive intersection. At this location, the AADT in 2005 was 20,500 vehicles entering the intersection from all four approaches. The majority of incidents in this time frame were reported as property damage only (88%), with the remainder reported as non-fatal injury crashes (12%).

[6] A **Traffic Operations and Safety Performance Review Report** was prepared and is provided in **Appendix B**.

No collision data was available for the railway crossing. This can be attributed to the fact that there were no automobile collisions at this specific location, or that there were no automobile collisions with trains. Barriers and signals at the crossing are in keeping with applicable standards and are in good operating condition. However, it is recognized and confirmed by field observations that there is a potential safety problem related to the operations of the crossing. During extended closures of the crossing, it was observed that many drivers try to avoid the long queues and find another route to their destinations. In doing so, their reversing and turning maneuvers are potential situations which may lead to collisions.

The City of Mississauga conducted a speed study in 2006 for Goreway Drive just south of the Study Area (north and south of Morning Star Drive) to assess existing speed patterns on the road. The percentile of the vehicles exceeding the posted speed limit is relatively high. At the section immediately south of the Project Limit, almost 25% of the traffic moves at a speed exceeding the posted speed of 60 km/hr. It can be expected that further to the north, as the road passes through a more rural/open area, an even higher number of vehicles may exceed the speed limits. This may affect safety on the road, particularly in the context of the existing at grade railway crossing.

3.5 Problem Statement

Goreway Drive is currently functioning as a four-lane urban arterial roadway within the City of Brampton, and as a major collector roadway within the City of Mississauga. The roadway provides north-south connectivity for commuter, commercial and emergency service vehicles between the two cities. In addition, Goreway Drive crosses CN's existing Halton Subdivision approximately 300 m north of Brandon Gate Drive. Presently, there are three tracks in service to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north of the Project Area. The Halton Subdivision currently accommodates about 50 freight trains per day to service industry.

Due to the existing at-grade (level) crossing of CN's Halton Subdivision, traffic delays to motorists, truckers and transit riders are a frequent occurrence as trains cross Goreway Drive. This results in reduced operational conditions and road safety, coupled with restrictions in traffic flow and driver frustration. If not improved, this will result in deterioration to the quality of life for area residents. This deterioration is typically accompanied by higher levels of noise and air pollution, driver frustration and decreased road safety, and will continue in the future if a grade separation is not constructed.

Extended periods of traffic congestion and/or delays add significantly to the cost of business through delays to the movement of goods and people. Businesses and industries relying on just-in-time delivery of goods tend to avoid congested roadways leading to the dispersion of truck traffic to routes not designed for commercial vehicles. To this end, the need to resolve the identified deficiencies within the Goreway Drive Study Area Corridor is summarized in the following Problem Statement:

> ***A transportation solution is required to accommodate existing and future travel demands, to resolve existing traffic delays and impacts on surrounding land uses, and to enhance overall traffic safety and flow within the Goreway Drive Study Area Corridor.***

4.0 Alternative Solutions (Phase 2)

4.1 Introduction

As noted in **Chapter 3.0**, some deficiencies have been identified within the approximately 1.2 km section of Goreway Drive between Steeles Avenue and Brandon Gate Drive. Prior to selecting the Preferred Solution and Design Concept, the Municipal Class EA calls for an examination of Alternative Solutions and Preliminary Designs to solve the noted deficiencies on the existing roadway. This Chapter documents the evaluation of Alternative Solutions and provides the rationale for selecting the Preferred Solution. The evaluation of Alternative Solutions involved carrying out the following activities:

- preparing a description of the existing Project Area environment (i.e., natural, socio-economic, cultural and technical aspects);
- identifying Alternative Solutions to resolve the noted deficiencies within the Study Area Corridor;
- determining the extent to which the Alternative Solutions resolve the identified deficiencies;
- determining the advantages and disadvantages associated with the Alternative Solutions;
- assessing the effects of the Alternative Solutions on the environment;
- soliciting input from the public and applicable regulatory agencies on the Alternative Solutions; and,
- selecting a Preferred Solution.

Details regarding each of these activities are provided below.

4.2 Description of the Existing Project Area Environment

This section provides a description of the existing natural, physical, socio-economic, cultural and technical setting for the Goreway Drive Study Area Corridor. In preparing the baseline description of the Study Area Corridor, available background information was assembled and reviewed, and applicable regulatory agencies consulted (e.g., the Ministry of Natural Resources (MNR), TRCA, cities of Brampton and Mississauga, and the Regional Municipality of Peel, among others) regarding specific data files, clarification of resource mapping, and other potential data sources. Based on these activities, a number of secondary source information (e.g., maps, reports) were obtained and used to characterize the Goreway Drive Study Area Corridor and record significant natural, socio-economic and cultural features. As noted in **Table 4**, much of the data were obtained from provincial agencies, the Regional Municipality of Peel, the cities of Mississauga and Brampton, and the TRCA.

Table 4 – Secondary Sources Reviewed

Data Source	Reference
Maps	• 1:50,000 scale National Topographic Series (NTS) Maps - Map Sheet 30/M12 • 1:10,000 scale Ontario Base Maps (OBMs) • 1:10,000 scale Ministry of Natural Resources (MNR) Forest Resource Inventory (FRI) Mapping • 1:50,000 scale Canada Land Inventory (CLI) Soil Capability for Agriculture Mapping • Illustrated Historical Atlas of the County of Peel (1877) • Aerial photographs provided by the City of Brampton
Database Inventories	• Natural Heritage Information Centre (NHIC) • Committee on the Status of Endangered Wildlife in Canada (COSEWIC) • Species at Risk in Ontario

Data Source	Reference
Transportation Reports/Studies	• Long Range Transportation Plan (2005) • Brampton Transportation and Transit Master Plan (2004) • York/Peel Boundary Area Transportation Study (2003) • Brampton's Pathways Master Plan (2002)
Environmental Reports/Studies	• Draft Toronto and Region Terrestrial Natural Heritage System Strategy (2004) • The State of the Environment: Atmosphere Summary Report (2002) • The State of the Environment: Land Report (1998) • State of the Watershed Report: Etobicoke and Mimico Creek Watersheds (1998) • The State of the Environment: Water Report (1996)
Planning Documents	• Places to Grow: Growth Plan for the Greater Golden Horseshoe (2006) • Regional Municipality of Peel Official Plan (2005) • City of Mississauga Official Plan (2006) • City of Brampton Official Plan (2006) • Parkway Belt West Industrial Area Secondary Plan (2005)

In addition, roadside reconnaissance activities and a number of technical studies and environmental investigations were carried out between September 2006 and August 2007 to confirm and/or augment the secondary information collected and reviewed. The scope of the data collection exercise was to provide the co-proponents with significant information to identify, evaluate and compare Alternative Solutions and Design Concepts. Specific investigations conducted included:

- a Topographic Survey
- a Transportation/Traffic Study
- a Traffic Operations Analysis and Road Safety Performance Review
- a Geotechnical Evaluation
- a Phase 1 Environmental Site Assessment
- a Surface Water Management Study
- a Stage 1 Archaeological Assessment
- a Noise Impact Study.

Based on the above activities, the description of the Study Area Corridor is provided below. This description identifies the constraints and opportunities that form the basis for selecting Alternative Solutions and Design Concepts to resolve the identified transportation-related deficiencies. Furthermore, it serves as the baseline for identifying and assessing potential impacts associated with the proposed undertaking.

4.3 Transportation Characteristics

4.3.1 Existing Road Network

Goreway Drive within the Project Limits operates as a typical urban commuter road. Goreway Drive is designated as a "Major Arterial" under the jurisdiction of the City of Brampton and as a "Major Collector" under the jurisdiction of the City of Mississauga. The roadway serves as a primary north-south link between the two cities within the Regional Municipality of Peel, stretching from Mayfield Road in Brampton to Highway 427 in Mississauga. In addition, Goreway Drive serves as a key link to Queen Street East (Highway 7), the Highway 407 Express Toll Route (ETR), and Highway 427.

Within the approximately 1.2 km Study Area Corridor, Goreway Drive serves predominately as an urban four-lane roadway with a maximum posted speed limit of 70 km/hr between Steeles Avenue and the CN Halton Subdivision, and a posted speed limit of 60 km/hr in the section south of the CN Halton Subdivision. The roadway is abutted primarily by residential and commercial/industrial land uses fronting onto and in some instances with direct access to the roadway throughout its length. Some natural and private recreational land uses, such as Mimico Creek and the Parkshore Golf Course, are also situated adjacent to the roadway. Specific features of the current Goreway Drive configuration within the Study Area Corridor include:

- a number of driveways accessing Goreway Drive, including residential, commercial/industrial, and field entrances;
- utility installations within the road ROW including hydro poles, high pressure gas main, and underground cable infrastructure;
- municipal services and/or facilities within the ROW including fire hydrants and watermain.

4.3.2 Intersection Characteristics and Entrances

Signalized Intersections

There are three signalized intersections within the Study limits: Steeles Avenue, Kenview Boulevard and Brandon Gate Drive. Under existing traffic volumes the intersection of Goreway Drive and Steeles Avenue operates close to capacity and experiences a poor level of service. The remaining two intersections within the Project Limits have some capacity reserves and operate at a satisfactory level of service. Details regarding each intersection are described below.

Steeles Avenue

Steeles Avenue is a major urban arterial (Regional Road under Regional Municipality of Peel's jurisdiction) providing connectivity for local, regional and long distance traffic. Steeles Avenue forms a cross intersection with Goreway Drive.

Confirming a general perception of the congested conditions at the Goreway Drive/Steeles Avenue intersection, the traffic analysis indicates that some turning movements approach critical volumes for the existing intersection lane configuration. In particular, high values of volume to capacity (v/c) ratio are observed for the southbound left turn and through lane groups, the mainline of Steeles Avenue (in both directions) and the Goreway Drive northbound approach to the intersection.

In November 2008, the Regional Municipality of Peel completed a separate Class EA Study to evaluate potential intersection improvements at the Steeles Avenue/Goreway Drive intersection. Thus, improvements to this intersection are outside the scope of the Goreway Drive Class EA Study.

Kenview Boulevard

Kenview Boulevard is a short industrial collector providing access to the industrial district developed between Steeles Avenue (north), the CN corridor (south), Mimico Creek (west) and Finch Avenue (east). Available lands in this area are almost fully developed. Kenview Boulevard forms a T-intersection with Goreway Drive.

At the Goreway Drive/Kenview Boulevard intersection, the southbound left turn movement operates at a relatively high v/c ratio (0.83) in the morning peak hour. The northbound two lane group (through and through-right turn lane) also operates close to capacity during the afternoon peak hour (v/c=0.87). This indicates a potential need for intersection improvements as traffic grows on Goreway Drive in the future.

Brandon Gate Drive

Brandon Gate Drive is an east-west local residential collector providing access to the well established residential area immediately south of the CN corridor (north Malton neighbourhood). Brandon Gate Drive forms a cross intersection with Goreway Drive. Based on the analysis, there are no capacity deficiencies at present at the Goreway Drive/Brandon Gate Drive intersection. The southbound through and right turn group lane experiences a v/c ratio of 0.78 in the morning Peak Hour, which may indicate future problems as southbound and northbound volumes grow.

Existing Property Entrances

In addition to the above noted intersections, direct access to Goreway Drive is limited. Altogether, there are eight (8) property entrances on Goreway Drive within the Project Limits, including:

- Four (4) commercial/industrial entrances between Steeles Avenue and the CN tracks, including one entrance on each side of the road, one entrance forming the west leg of the Kenview Boulevard intersection, and one entrance to the hydro transformer station on the east side.
- One (1) commercial/residential entrance to a single family dwelling (which has been converted into a private maintenance office for the adjacent golf course facility).
- Two (2) field entrances between Kenview Boulevard and the CN tracks, including one entrance to the golf course on the east side and one entrance to the CN corridor on the west side, immediately south of the tracks.
- One (1) residential entrance to the condominium corporation just north of Brandon Gate Drive on the east side.

4.3.3 Existing Rail Network

Within the Project Limits, the roadway crosses CN's existing Halton Subdivision approximately 300 m north of Brandon Gate Drive (at Mile 8.80). Presently there are three tracks in service, which include two main lines and a third track to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north of the Project Area. This at-grade crossing currently accommodates 46 to 52 freight trains per day to service industry, with current crossing protection including flashing lights, bells and gates. Due to the length and number of trains using the Halton Subdivision, users of Goreway Drive are subjected to lengthy and numerous road vehicle delays.

Based on the existing AADT volume of approximately 15,000 vehicles per day, this at-grade CN crossing has an existing Exposure Index of 750,000 (50 trains multiplied by 15,000 vehicles). It is noted that an Exposure Index above 200,000 warrants a grade separation.

4.3.4 Transit Service

Presently, there are two municipal transit routes on Goreway Drive within the Project Area. Brampton Transit operates Route 5 along the entire Corridor and Route 11 between Steeles Avenue and Kenview Boulevard. Beyond the limits of the Project, Route 11 services Steeles Avenue west of Goreway Drive and continues on Kenview Boulevard to Finch Avenue. Mississauga Transit operates Route 16 on Brandon Gate Drive, east of Goreway Drive. Each route leads to a Transit Terminal located near Westwood Mall to the south of the Project Area (i.e., east of the Goreway Drive/Morning Star Drive intersection). Schedule 'C' of the City of Brampton Official Plan, *Mass Transit Network*, denotes Steeles Avenue as a potential route for a future High-Occupancy Vehicle or Reserved Bus Lane.

4.3.5 Pedestrian and Cyclists

Currently, there are no cycling facilities along Goreway Drive within the Project Limits. Brampton's *Pathways Master Plan* (2002) does not include a future bike lane along the Study Area Corridor; however, the Plan recognizes that the Corridor may be used by cyclists.

A sidewalk is present on the east side of Goreway Drive from Brandon Gate Drive to the south side of a driveway entrance into a residential condominium complex (approximately 90 m from Brandon Gate Drive northerly on the east side of the road). In addition, a sidewalk is present on the east side of Goreway Drive between Kenview Boulevard and Steeles Avenue. Between these areas, it is noted that a worn path has formed within the grassed boulevard. This is especially prevalent on the east side of Goreway Drive to the north of the aforementioned condominium complex.

4.3.6 Existing Traffic Conditions

Goreway Drive has an AADT volume of approximately 15,000 vehicles per day. As part of the road safety review for Goreway Drive, the AADT volume was noted at 20,500 vehicles entering the Kenview Boulevard/Goreway Drive intersection and 21,770 vehicles entering the Brandon Gate Drive/Goreway Drive intersection from all four approaches.

Collision data was provided by the cities of Brampton and Mississauga for two of the three intersections within the Study Area Corridor. The collision rate over the four year period from 2002-2006 for the Kenview Boulevard/Goreway Drive intersection was less than 2.0 collisions per million vehicle kilometers (MVK), with the highest collision rate at 1.60 MVK in 2004. Over the years (2002-2005), the collision rates at the Brandon Gate Drive/Goreway Drive intersection have generally decreased, with a rate of less than 1 per MVE in 2005.

Vehicle collision data for the years 2001-2005 was obtained from the City of Brampton for the length of Goreway Drive from Steeles Avenue to the municipal boundary. The average annual collision rate for the segment of Goreway Drive between Steeles Avenue and the municipal boundary is approximately 2 MVK. The collision rate for the section of Goreway Drive from the municipal boundary to Brandon Gate Drive was less than 1.0 collision per MVK during the 2002-2006 time period.

4.4 Engineering Environment

4.4.1 Storm Drainage

UMA completed a **Surface Water Management Study** to document the existing drainage and flooding conditions through the Study Area, evaluate the relative impacts of the Alternative Solutions on the receiving surface water systems, and recommend measures to mitigate the impacts of the proposed improvements on the receiving surface water systems. The Study was documented in a report, which is included in **Appendix B**. The existing conditions are summarized below.

The Goreway Drive Study Area Corridor is situated entirely within the Mimico Creek watershed, which is located within the Great Lakes Basin Ecosystem and is under the jurisdiction of the TRCA. The watershed drains a total area of 77 km^2. Within the Study Area, Mimico Creek flows in a southerly direction from Steeles Avenue, and then turns eastward, crossing under Goreway Drive approximately 250 m north of the CN rail lines. The total drainage area to Mimico Creek at Goreway Drive is more than 1500 ha.

A 4.9 m wide by 1.8 m high by 19.5 m long open bottomed concrete box culvert was constructed over Mimico Creek at Goreway Drive in the late 1950's. Goreway Drive was subsequently upgraded in the

mid-1990's, at which time the existing culvert was extended by approximately 1.9 m on both the upstream and downstream ends. It is noted that the existing culvert span and depth were maintained for the extensions.

In 2004, the City of Brampton completed a structural assessment to determine the condition of the Mimico Creek culvert. A copy of the assessment is included in **Appendix B**. Overall, the culvert was reported to be in good condition with no major deterioration. The major concern for this culvert is the potential for concrete deterioration as a result of leakage at the construction joints.

From Goreway Drive, Mimico Creek flows in a south-easterly direction through the Parkshore Golf Course towards the CN corridor. In the late 1980's, a control structure was constructed on Mimico Creek immediately upstream of the CN corridor to manage the increase in peak flow rates associated with the planned upstream industrial development (GM Sernas, 1987). The control structure takes the form of a 850 mm wide by 2000 mm high concrete box culvert for low flows and a 9.6 m wide weir for higher flows.

Downstream of the control structure, Mimico Creek crosses under the CN corridor through a combination of a 1350 mm diameter corrugated steel pipe (CSP) for low flows, and a 3000 mm diameter CSP for higher flows. The invert of the 3000 mm diameter CSP is approximately 0.5 m above that of the smaller pipe. Both culverts are perched significantly above the stream bed on the downstream side of the CN corridor.

More recently, the Goreway and Steeles Business Campus was constructed on the west side of Goreway Drive, north (and east) of Mimico Creek. A private, off-line stormwater management pond was constructed to treat storm runoff from the Business Campus for water quality, streambank erosion and peak flow attenuation prior to discharging to Mimico Creek (Trow, June 2004).

The HEC-2 hydraulic model of Mimico Creek was obtained from the TRCA on January 16, 2007. The modelling and corresponding flood plain mapping indicate that flood depths in Mimico Creek are significant at Goreway Drive, due to a backwater condition behind the on-line flood control structure (for the 2 to 100 year events) and CN railway embankment (Regional storm event). Flooding is predicted to overtop Goreway Drive for the 25 year return period and more severe storms, with a maximum flood depth of more than 2 m over Goreway Drive during the Regional (Hurricane Hazel) storm event.

Through the Study Area, Goreway Drive has an urban cross section, with storm drainage collected by a curb and gutter drainage system. Storm drainage from Goreway Drive between Steeles Avenue and the Mimico Creek culvert is collected in a storm sewer system, discharging on the west side of Goreway Drive, approximately 45 m north of Mimico Creek. A vegetated swale connects the storm sewer outlet to Mimico Creek.

The storm sewer draining Goreway Drive between Mimico Creek and the CN corridor discharges on the east side of Goreway Drive, approximately 45 m south of Mimico Creek. A grassed swale connects the storm sewer outfall to Mimico Creek.

South of the CN corridor, runoff from Goreway Drive and a small external area to the west of Goreway Drive is collected in a storm sewer system draining south to Brandon Gate Drive, where it is intercepted into a larger storm sewer flowing eastward under Brandon Gate Drive, discharging to Mimico Creek through the existing 2.74 m x 4.88 m concrete box culvert under Brandon Gate Drive.

4.4.2 Subsurface Conditions and Pavement Structure

A geotechnical investigation was completed by Peto MacCallum Ltd. in August, 2007, to determine the subsurface conditions along the road alignment and in the area of the crossing structures. The

subsurface stratigraphy along the existing road alignment is relatively consistent and typically comprises of topsoil, pavement, and fill to a depth of 2.9 m from the existing grade. These materials overlay firm to very stiff clayey silt over compact sandy silt, silty sand, and sand deposits.

Specifically, the subsurface stratigraphy revealed at the boreholes drilled along the road alignment is generally comprised of topsoil (ranging from 0.45 m to 0.80 m in thickness), fill (ranging from 0.2 m to 2.0 m in thickness), and pavement structures. The pavement structures comprised of 150 mm of asphaltic concrete over 450 mm to 650 mm of brown sand and gravel. The topsoil/fill/pavement structures overlay clayey silt, which is underlain by sandy silt. The sandy silt in turn overlays silty sand/sand deposits.

The subsurface stratigraphy revealed at the borehole locations along the areas of the Mimico Creek crossing and the potential grade separation is comprised of fill (0.75 m to 3.5 m thick) and pavement structures (comprised of 150 mm asphaltic concrete over 450 mm of brown sand and gravel) underlain by alternating layers of sandy silt/silty sand over clayey silt till. These alternating layers overlay sand and gravel.

As part of its ongoing pavement monitoring and maintenance program, the City carries out pavement condition surveys of its road network. The results of the latest pavement condition survey indicates that the pavement along the section of Goreway Drive from Steeles Avenue to the south City limits is more than 15 years old and is in poor condition (Chris Wootton, Personal Communications, 2008).

4.4.3 Right-of-Way

At present, the road ROW width within the Study Area Corridor varies from 20 m to 42 m north of the CN corridor and from 37 m to 66 m south of the CN corridor. In keeping with City of Brampton policy for “Major Arterial” roadways, a ROW width of 40 m to 45 m is considered desirable. As per the City of Mississauga policy for “Major Collector” roadways, a ROW width of 35 m is considered desirable.

4.5 Physical Environment

4.5.1 Physiography and Topography

The Study Area Corridor is situated within the Physiographic Region known as the Peel Plain (TRCA, 1998). The physiography of the Study Area Corridor is the result of extensive glacial activity, which occurred in the late Wisconsinan substage of the Pleistocene Epoch (Chapman and Putnam, 1984). This period of time lasted from approximately 12,000 to 23,000 years ago, and was marked by the repeated advance and melting of massive, continental ice sheets (Chapman and Putnam, 1984).

Topographically, the Study Area Corridor gently slopes toward Lake Ontario and is characterized by smooth, very gently sloping terrain. Through this approximately 1.2 km section of Goreway Drive, the roadway reaches a peak of approximately 176 metres above sea level (masl) at the Steeles Avenue intersection and a low of approximately 170 masl at the Mimico Creek crossing. At the intersection with Brandon Gate Drive, the existing roadway has an elevation of approximately 172 masl.

4.5.2 Soils and Agricultural Capability

There are four major soil types within the Study Area Corridor according to the Ontario Soil Survey mapping for the former County of Peel. Soils within the former County were surveyed and classified between 1941 and 1950, and documented within the *Soil Survey of Peel County - Report No. 18 of the Ontario Soil Survey* (Hoffman and Richards, 1955). Further details regarding the Corridor’s four major soil types are provided below, along with their respective agricultural capability. As part of the soils

description, a review of Canada Land Inventory (CLI) Soil Capability for Agriculture[7] mapping was carried out for the Study Area Corridor. As noted below, most of the soils within the Study Area Corridor are comprised of CLI Class 1 to 3 soils.

Malton soils are found within the Study Area Corridor from Steeles Avenue south to approximately Kenview Boulevard. The Malton series are part of the Dark Grey Gleisolic soils group, with a surface layer of approximately 10 to 15 cm in thickness. These soils are generally found on smooth, gently sloping topography and have poor natural drainage capabilities (Hoffman, and Richards, 1955). According to the CLI, the Malton soils are Class 3 soils with moderate to severe limitations that restrict the choice of crops that can be cultivated, or that require special conservation practices. The Malton soils within the Study Area Corridor have been converted from rural to urban uses and are currently used for warehousing on the west side of Goreway Drive, and for light industrial and office commercial uses on the east side of Goreway Drive.

Peel soils extend from approximately Kenview Boulevard to just north of Mimico Creek. The Peel soils series are part of the Grey-Brown Podzolic soils group with a surface thickness of 7 to 10 cm. These soils are typically found on smooth, gently sloping terrain and are imperfectly drained (Hoffman, and Richards, 1955). The Peel soils are mapped as Class 1 for agricultural capability and generally have no limitations on the choice of crops that can be grown (Hoffman, and Richards, 1955). As with the Malton soils, the Peel soils are now urbanized and are currently used for light industrial/commercial purposes.

Cashel soils are found within the Study Area Corridor from south of the creek crossing to Brandon Gate Drive. These soils are also part of the Grey-Brown Podzolic soils group. Cashel soils develop on smooth, moderately sloping topography and generally have good natural drainage capability (Hoffman, and Richards, 1955). According to the CLI, the Cashel soils are mapped as a combination of Class 1 and 2 soils with moderate limitations that reduce the choice of crops that can be cultivated, or that require moderate conservation practices. Within the Study Area Corridor, the Cashel soils form part of an abandoned field on the west side of Goreway Drive. To the east of the roadway, these soils have been developed for the Parkshore Golf Course immediately north of the CN crossing. The Cashel soils immediately south of the crossing have been developed for residential uses, including single and semi-detached dwellings on the west side and a multiple unit condominium complex on the east side.

Soils in close proximity to and paralleling Mimico Creek are referred to as Bottom Land soils with variable drainage and topography. Bottom Land soils are normally found on low-lying, flood-prone surfaces along stream corridors (Hoffman, and Richards, 1955). These soils are not classified by the CLI for agricultural potential and are generally composed of floodplains.

Though the Corridor's soils vary from well to poorly drained, they are inherently well-suited for agricultural production. For the most part, these soils have been converted over the years to urban uses as noted above. Though there are open fields to the north of the CN corridor on the east side of Goreway Drive, it is believed these lands were used for agriculture in the past. These open areas are currently vacant and are overgrown with successional vegetation including herbaceous grasses and various shrub/tree species.

4.5.3 Groundwater Resources

The Study Area Corridor is serviced by lake water treated at the Lakeview Water Treatment Facility on the shore of Lake Ontario in Mississauga (Region, 2007). Residential, recreational and

[7] The CLI categorizes soils into seven classes which reflect the soil's capability to produce field and forage crops (Department of the Environment, 1972). Lands classified as Class 1 are considered to have the highest capability or potential, while those classified as Class 7 are considered to have the lowest potential. The classification system reflects limitations such as slope, topography, soil depth, climate, drainage and stoniness, among others.

commercial/industrial establishments along the Corridor are not dependent on groundwater resources for their drinking water. With respect to the Parkshore Golf Club at 7797 Goreway Drive, drinking water is provided by the local municipality and the golf course is irrigated using water drawn from Mimico Creek.

4.5.4 Surface Water Resources

As noted above, the Study Area Corridor is situated within the Mimico Creek watershed. This watershed drains a total area of 77 km^2. Surface runoff drains quickly to Mimico Creek as much of the watershed is urbanized with steep stream gradients and impermeable soils (TRCA, 1998). Mimico Creek generally flows in a southerly direction for approximately 33 km from its headwaters in north Brampton to Lake Ontario (TRCA, 1998; Region, 1998).

There are two branches of Mimico Creek: the main branch and the west branch. Goreway Drive crosses the main (east) branch of the creek approximately 625 m south of Steeles Avenue. As noted previously, the total drainage area to Mimico Creek at Goreway Drive is more than 1500 ha. Mimico Creek is conveyed under the roadway through an approximately 19.5 m long by 4.9 m wide open bottomed concrete box culvert.

Through the Study Area, Goreway Drive has an urban cross section, with storm drainage collected by a curb and gutter drainage system. Storm drainage from Goreway Drive between Steeles Avenue and the Mimico Creek culvert is collected in a storm sewer system, discharging via a vegetated swale on the west side of Goreway Drive approximately 45 m north of Mimico Creek. The storm sewer draining Goreway Drive between Mimico Creek and the CN corridor discharges on the east side of Goreway Drive via a grassed swale, approximately 45 m south of Mimico Creek. South of the CN corridor, runoff from Goreway Drive and a small external area to the west of Goreway Drive is collected in a storm sewer system draining south to Brandon Gate Drive, and then discharging to Mimico Creek through an existing 2.74 m by 4.88 m concrete box culvert under Brandon Gate Drive.

4.6 Natural Environment

4.6.1 Designated Natural Areas

A review of the MNR's Natural Heritage Information Centre (NHIC) database[8] did not reveal the presence of any mapped significant natural areas within the Study Area. Further information received from the MNR's Aurora District Office and the TRCA confirms that there are no Environmentally Significant Areas or Areas of Natural and Scientific Interest (ANSI) in close proximity to the Study Area Corridor. In addition, there are no provincially significant wetlands within the Study Area. Terrestrial mapping available within the TRCA's *Draft Terrestrial Natural Heritage System Strategy Report* (2004) also suggests that there are no locally significant wetlands within the Study Area.

4.6.2 Terrestrial Habitat

Vegetative Cover

Peel Region is comprised of two Forest zones: the Great Lakes St. Lawrence (Mixed) Forest and the Eastern Deciduous (Carolinian) Forest. The Study Area Corridor is situated within the Eastern Deciduous (Carolinian) Forest zone (Region, 1998). Species typically found in the Carolinian forest include black maple, shagbark hickory, sycamore, black walnut, tulip, and, red, white or bur oak. Due to past urban

[8] The NHIC compiles, maintains and provides information on rare, threatened and endangered species and spaces in Ontario. This information is stored in a central repository containing a computerized database, map files and an information library, which are accessible for conservation applications, land use planning, park management, etc. The NHIC website makes this information available through the internet.

and agricultural activities, less than 5% of the original forest remains within Peel Region. The remaining woodlands within the urban areas are small and scattered (Region, 1998).

The extent and composition of terrestrial habitat were identified through air photo interpretation, field investigations and secondary sources obtained by the UMA Consultant Team. Terrestrial mapping provided within the TRCA's *Draft Terrestrial Natural Heritage System Strategy Report* (2004) indicates that there are no significant forest areas within the Study Area Corridor. This was confirmed through review of current natural features mapping provided by the TRCA as part of this Study, and field investigations carried out by the UMA Consultant Team.

Natural features mapping provided by the TRCA indicates that terrestrial habitat within the Corridor is categorized as successional forest or meadow as shown in **Figure 4**. As noted therein, successional forest lands are found on the west side of Goreway Drive, extending westerly to the CN corridor. The lands mapped as meadow are located on the east side of the roadway within portions of the Parkshore Golf Course lands (see **Figure 4**).

Review of 1978 MNR FRI mapping indicates that the lands to the north of the CN corridor were mapped as developed agricultural land. These lands extended north from the CN corridor to beyond Steeles Avenue on both sides of Goreway Drive, and were used primarily for the cultivation of field crops. As noted above, these lands have been allowed to revert to a more natural state on the west side, while they have been developed into the Parkshore Golf Course on the east side.

Though the lands on the west side are presently under vegetative cover, they are composed of old field grasses, and a wide variety of scattered shrubs and trees such as hawthorn (*Crataegus spp*), willow (*Salix spp*) and gray dogwood (*Cornus racemosa*). The meadow lands mapped on the east side of the roadway are characterized by herbaceous grasses and/or forbs, as well as manicured lands associated with the Parkshore Golf Course. While these areas are of some biological significance, they are considered of less value as they have been highly disturbed due to past agricultural practices or current golf course maintenance activities.

Within the immediate road ROW, roadside vegetation between the CN corridor and Brandon Gate Drive consists of grassed boulevards with deciduous tree plantings at 5 to 10 m intervals (typically). The majority of trees are maples with a maximum height of approximately 10 to 12 m. These trees are set back approximately 5 to 7 m from the road edge. At the creek crossing, the upstream channel is vegetated with a range of deciduous tree and shrub species, such as willow and hawthorn, as well as dense herbaceous grasses and forbs. Though the riparian vegetation on the east (downstream) side has been altered due to golf course activities, Manitoba maple (*Acer negundo*) and willow trees were noted along the channel banks in addition to herbaceous grasses and forbs.

Wildlife Species

The Study Area Corridor is comprised primarily of commercial/industrial and residential land uses. Consequently, the Study Area Corridor has been extensively disturbed from current and past human activities and has few natural features, as noted above. The riparian zone associated with Mimico Creek and the successional and meadow areas in the vicinity of the creek provide the majority of the habitat cover and diversity within the Study Area Corridor. Collectively, these areas provide habitat for more opportunistic species, which are tolerant of conditions created and altered by human activity.

As the proposed improvements to Goreway Drive will not likely result in the removal of extensive wildlife habitat, a detailed inventory of the Study Area's wildlife species was not carried out as part of this Study. Nonetheless, it is anticipated that the Study Area provides suitable habitat for various opportunistic

wildlife species, that is, birds, reptiles, amphibians, and mammals. Wildlife observed in the area during the field reconnaissance activities consisted of geese, ducks and squirrels.

Species at Risk

A review of applicable background information sources was conducted to determine the potential presence of species at risk within and in proximity to the Goreway Drive Study Area Corridor. These entailed accessing and reviewing the following website registries to provide a framework for the field investigations:

- Ministry of Natural Resources' Natural Heritage Information Centre (NHIC) database[9] for rare, threatened and endangered species.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC[10]) database
- Environment Canada's Species at Risk Registry for species protected by federal legislation, that is, the *Species at Risk Act* (SARA).

There are 58 rare species listed in the MNR NHIC database for NTS Map Sheet 30 M/12, which geographically covers the Study Area Corridor. Of these species, 17 are classified as "Species at Risk", which are protected under federal and provincial legislation. The species at risk listed for NTS Map Sheet 30 M/12 are included in **Table 5**.

Table 5 – Rare Species Records Corresponding with NTS Map Sheet 30 M/12

Specie (Scientific Name)	Common Name	MNR	COSEWIC	SARA
Ambystoma jeffersonianum	Jefferson Salamander	THR	THR	THR
Ixobrychus exilis	Least Bittern	THR	THR	THR
Buteo lineatus	Red-shouldered Hawk	SC	NAR	
Colinus virginianus	Northern Bobwhite	END	END	END
Dendroica cerulea	Cerulean Warbler	SC	SC	SC
Seiurus motacilla	Louisiana Waterthrush	SC	SC	SC
Wilsonia citrina	Hooded Warbler	THR	THR	THR
Icteria virens	Yellow-breasted Chat	SC	SC	SC
Ammodramus henslowii	Henslow's Sparrow	END-R	END	END
Myoxocephalus thompsoni	Deepwater Sculpin	THR	SC	
Coregonus kiyi	Kiyi	SC	EXTI	EXTI[11]
Coregonus reighardi	Shortnose Cisco	EXT	END	END
Clinostomus elongatus	Redside Dace	THR	END	END
Heterodon platirhinos	Eastern Hog-nosed Snake	THR	THR	THR
Lampropeltis triangulum	Milksnake	SC	SC	SC
Juglans cinerea	Butternut	END	END	END
Asplenium scolopendrium var. americanum	American Hart's-tongue Fern	SC	SC	SC

THR: Threatened
SC: Special Concern
END-R: Endangered Regulated
END: Endangered
EXTI: Extirpated
EXT: Extinct
NAR: Not at Risk

[9] The NHIC compiles, maintains and provides information on rare, threatened and endangered species and spaces in Ontario. This information is stored in a central repository containing a computerized database, map files and an information library, which are accessible for conservation applications, land use planning, park management, etc. The NHIC website makes this information available through the internet.

[10] COSEWIC is mandated to assess and designate wildlife species that are considered to be in danger of becoming extinct in Canada.

[11] A search of the Common Name *Kiyi* on the COSEWIC and SARA website registries indicated freshwater fish in two locations. These include the *Kiyi* in Lake Ontario, which are now extinct, and the *kiyi* within the Upper Great Lakes, which have been given special concern.

Figure 4 – Natural Cover and Associated Habitat

Source: TRCA, 2004

It is noted that the above species were not observed within the corridor during the 2006 site investigations. Furthermore, they are not likely to be found within the limits of the Project due to the disturbed nature of the Study Area and its surrounding environs. For example, the Least Bittern survives in woodland swamp or freshwater marsh habitat, which is not characteristic of the Study Area Corridor. The Cerulean Warbler and the Hooded Warbler survive in forest habitat, which has been largely lost in this area, mainly to urbanization during the past 40 years (Region, 1996). Mammals also require forest interior habitat and hence survive in areas with large woodlands. Mammal species declined considerably upon European settlement, when early settlers in Peel Region trapped mammals such as fox and deer for food and clothing (Region, 1996). Consultation with the MNR confirms that there are no species of special concern within the Study Area Corridor.

4.6.3 Aquatic Species and Habitat

Watercourses

The Study Area Corridor is situated within the Mimico Creek watershed, which is under the jurisdiction of the TRCA. At this location, Mimico Creek is conveyed under the roadway via an approximately 20 m long concrete culvert (approximately 5 m span width). During UMA's site visit in September 2006, the upstream and downstream channel was observed to be approximately 6 to 8 m wide. The downstream channel consisted of muck and rock of approximately 6 cm to 15 cm in diameter. Water flow in the downstream channel appeared to be slow moving.

Aquatic Species

The MNR collects fisheries data from one fish sampling station within the Study Area. Station No. 38 is located at Goreway Drive starting at the road and ending approximately 75 m downstream. The most recent data available for the creek at this location was collected on September 15, 1997. During this sampling, the MNR recorded the presence of a number of fish species at Station No. 38, including 52 Fathead Minnow (*Pimephales promelas*), two Bluntnose Minnow (*Pimephales notatus*), five Creek Chub (*Semotilus atromaculatus*), three Brook Stickleback (*Culaea inconstans*) and one unknown cyprinid. Fisheries data obtained from the TRCA indicated similar results for the same sampling location.

4.7 Socio-Economic Environment

4.7.1 Political Jurisdiction

As noted in **Figure 1**, the Study Area Corridor is located within the City of Brampton and the City of Mississauga, both area municipalities within the Regional Municipality of Peel. Consequently, this 1.2 km section of Goreway Drive is under the jurisdiction of both the City of Brampton and the City of Mississauga.

4.7.2 Planning Policies and Designated Land Uses

The Regional Municipality of Peel came into existence on January 1, 1974, under the Province of Ontario's *Regional Municipality of Peel Act* (Region, 2005). The Act also established the lower tier constituent municipalities, or area municipalities, of the City of Mississauga, the City of Brampton and the Town of Caledon. Consequently, the Regional Municipality of Peel has a 2-tier planning system whereby planning responsibilities are divided between the Region and its three area municipalities. From a planning perspective, the proposed improvements to the approximately 1.2 km section of Goreway Drive will impact both the Region (upper-tier municipality) and the Cities of Mississauga and Brampton (lower-tier municipalities). Given that they are each responsible for regulating land use and establishing policies

for physical, economic and social development within their respective jurisdiction, details regarding the applicable planning policies for each are provided below.

Regional Municipality of Peel

Pursuant to the *Planning Act*, Regional Council adopted the Regional Official Plan on July 11, 1996 through By-law 54-96. The Minister of Municipal Affairs and Housing subsequently approved the Plan with modifications through the Minister's Notice of Decision on the Plan dated October 22, 1996. Following four hearings before the Ontario Municipal Board (OMB), the Regional Official Plan was consolidated in 2001 to incorporate and include Ministry of Municipal Affairs and Housing (MMAH) and OMB approvals. The Regional Official Plan was consolidated again in 2005 to incorporate Official Plan Amendments adopted between 2000 and 2004.

The Regional Official Plan is a legal document that outlines strategies to guide growth and development in the Region for the period 1996 to 2021. To this end, the Regional Official Plan is the primary long range strategic land use policy document for the Regional Municipality of Peel. The purpose of the Plan is to:

- provide Regional Council with the long-term regional strategic policy framework for guiding growth and development in Peel while having regard for protecting the environment, managing the renewable and non-renewable resources, and outlining a regional structure that manages this growth within Peel in the most effective and efficient manner
- interpret and apply the intent of Provincial legislation and policies within a Regional context using the authority delegated or assigned to the Region from the Province
- provide a long-term regional strategic policy framework for the more specific objectives and land use policies contained in the area municipal official plans which must conform to this Plan
- recognize the duality in Peel Region between the urban nature of the Cities of Brampton and Mississauga and the primarily rural nature of the Town of Caledon
- recognize the need for effective environmental protection and management measures to ensure environmental sustainability
- recognize the importance of protecting and enriching the natural and cultural heritage of Peel Region
- provide for the health and safety of those living and working in Peel; and,
- maintain and enhance the fiscal sustainability of the Region.

The Region's primary role is to provide broad policy directions on strategic matters such as management of land and natural resources, growth strategies, housing, economic development, water and wastewater services, solid waste management, transportation, and health and social services. The three area municipalities are to deal with their local environments to best express their own individualities. The structuring of communities and neighbourhoods and the internal configuration of each area municipality, for instance, is the sole responsibility of each respective area municipality, provided the overall planning vision for Peel and policies of the Regional Official Plan are adhered to. To this end, the *Planning Act* requires that area municipalities' Official Plans and Zoning By-laws be amended to conform to the Regional Official Plan, when approved.

As shown in Schedule 'D' of the Regional Official Plan, the Goreway Drive Study Area Corridor passes through the Urban System and the Parkway Belt West Planning Area. The Urban System represents lands within the Regional Urban Boundary, which indicates where urban growth is to occur to the year 2021. The Parkway Belt West Plan Area is a multi-purpose open-space utility and transportation corridor that extends from Hamilton to the eastern limits of Toronto (City of Brampton, 2005). The policies governing this area are described in detail in **Section 3.2.2**.

City of Brampton

Formed in 1974, the City of Brampton Planning Area is defined in Bill 138, *An Act to Establish the Regional Municipality of Peel*. The latest Official Plan for the City of Brampton was adopted by Council on October 11, 2006.

Lands within the Study Area Corridor under the jurisdiction of the City of Brampton are classified in Schedule 'A' of the City's Official Plan (2006) as Industrial and Open Space. Industrial land use designations permit the development of industrial, distribution, mixed industrial/commercial, and limited office uses. Lands designated as Open Space in Schedule 'A' are to be maintained as park space or in a natural state, where development is generally prohibited. These lands may include natural areas of local, regional or provincial significance, valleylands/watercourse corridors and/or public and private open spaces.

Schedule 'D' of the City's Official Plan identifies environmental features surrounding Mimico Creek as valleylands and/or watercourse corridors. These lands are designated as such to preserve natural features/functions and may be used for conservation, recreation and stormwater management facilities. It is noted that these lands are so designated to correspond with TRCA policies and regulations in place to protect and manage valleylands, floodplains and watercourses (Metropolitan Toronto and Region Conservation Authority, 1994).

Parkway Belt West Industrial Secondary Plan

The Study Area Corridor is located within the Parkway Belt West Industrial Secondary Plan Area. The Secondary Plan for this area was consolidated in 2005 to include Chapter 32 of Part IV of the 1984 Official Plan, which is based on Official Plan Amendment 166, and includes all applicable modifications and amendments as approved by the Province. The purpose of the Secondary Plan is to establish detailed land use and policy guidelines for the development of lands within the Parkway Belt West Industrial Area.

Schedule SP 32(A) illustrates the land use designations within the Industrial Area. The lands along the Goreway Drive Study Area Corridor are marked as Prestige Industrial, Open Space/Hazard Lands, and Utility Corridor.

Lands from Steeles Avenue to south of Kenview Boulevard are designated as Prestige Industrial. Prestige Industrial land uses support a high standard of amenity and building design within a landscaped setting and in accordance with the objectives of the Parkway Belt West Plan. The uses permitted on lands designated as Prestige Industrial include manufacturing, warehousing, office uses, utility uses, recreation structures, limited accessory retail uses and day nurseries.

It is noted that the southeast quadrant of Steeles Avenue and Goreway Drive is recognized as an Office Centre. High density Office Centres are encouraged in highly visible and accessible locations near major transportation facilities. The permitted uses within Office Centres include business, professional or administrative office buildings along with the uses permitted under the Prestige Industrial designation.

Lands adjacent to Goreway Drive from south of Kenview Boulevard to north of the CN corridor are designated as Open Space/Hazard Lands. The Secondary Plan states that these lands have inherent environment hazards due to flood susceptibility, or are required for linear open space or recreation purposes to meet the objectives of the Parkway Belt West Plan. The uses permitted on these lands include conservation, flood control and stormwater management, outdoor recreation facilities, linear open space systems and other public uses required by the Province of Ontario. The Secondary Plan further

states that proposed alterations to watercourses within these lands are subject to approval by the MNR under the *Lakes and Rivers Improvement Act*.

A strip of land immediately to the north of the CN corridor is designated as Utility Corridor. These lands are to be used for utility proposes in accordance with the Parkway Belt West Plan.

City of Mississauga

The Official Plan for the City of Mississauga was approved by the Regional Municipality of Peel on May 5, 2003, with the exception of parts of the Plan where a decision was withheld or had been appealed to the OMB. The relevant sections and subsequent amendments of the City's 1997 Official Plan, originally approved by the MMAH, apply to parts of the Plan that are pending approval. The Official Plan was updated in 2005.

The southern portion of the Study Area Corridor, under the jurisdiction of the City of Mississauga, lies within the Malton District. The City's Official Plan indicates that most of the lands within the Malton District have been developed. Policies contained within the Official Plan focus on preserving the character of the existing neighbourhoods within the District, and concentrating commercial development in existing areas along Goreway Drive further south of the Study Area.

Lands along the west side of Goreway Drive from the Mississauga-Brampton municipal boundary to Brandon Gate Drive are designated in the City's Official Plan as low density residential. In general, the low density residential designations permit detached, semi-detached and duplex dwellings within a net density range of 17 to 30 units per net residential hectare.

Lands along the east side of Goreway Drive from the Mississauga-Brampton municipal boundary to Brandon Gate Drive, as well as those lands immediately south of the Brandon Gate Drive/Goreway Drive intersection are designated in the City's Official Plan as medium density residential. Medium density residential designations permit townhouse dwellings and low-rise apartment buildings with a net density range of 25 to 45 units per net residential hectare.

4.7.3 Existing Land Uses

At present, the Study Area Corridor can be described as predominantly urban. Existing land uses include commercial/industrial, residential, recreational and natural areas. Lands immediately north of the Steeles Avenue and Goreway Drive intersection appear to be meadow or open fields. The property in the southwest quadrant of the intersection includes a large warehousing development.

Four offices/warehouses occupy lands adjacent to the east side of Goreway Drive between Steeles Avenue and the Mimico Creek crossing. These properties form part of the Goreway Business Park. One warehouse occupies property adjacent to the west side of Goreway Drive, in addition to the warehousing development in the southwest quadrant of the Steeles Avenue/Goreway Drive intersection. Business activities at these sites include manufacturing of aircraft simulators and heating ventilation systems, as well as security and trucking services. These warehouses are located at:

- 1 Kenview Boulevard on the east side of Goreway Drive (Atlantis Systems International - manufacture military and commercial aircraft simulator)
- 2 Kenview Boulevard on the east side of Goreway Drive (Siemens Building Technologies Ltd.- building, fire, security services and heating ventilation products)
- 7925 Goreway Drive on the east side (Unalloy IWRC a division of Samuel Manu-tech Inc. - wire roping and rigging products/inspection and testing services)

- 7965 Goreway Drive on the east side (isg transport inc. – trucking; Southern Graphic Systems Canada - packaging services and systems)
- 7900 Goreway Drive on the west side (US Consolidators - logistics/transportation and warehouse; Exel Canada Ltd. - paper products/warehousing and logistics).

Land uses change in the vicinity of Mimico Creek. An area of successional forest begins immediately to the northwest of the creek crossing and includes a large stormwater management pond set back approximately 240 m from Goreway Drive. To the south of Mimico Creek, along the west side of Goreway Drive to the CN corridor, old field (or abandoned farmland) is the primary land use. Lands immediately northeast of the creek crossing are occupied by a single family dwelling (which has been converted into a private maintenance office for the nearby Parkshore Golf Course) and a hydro transformer station. To the south of the maintenance office is an area of meadow as well as the said golf course which occupy the lands adjacent to the roadway on the east side.

Land uses along Goreway Drive south of the CN corridor to Brandon Gate Drive are residential. The east side of this section consists of two-story and three-storey townhomes, while the west side consists of single family and semi-detached dwellings. It is noted that these homes have backyards that back onto Goreway Drive.

4.7.4 First Nation Interests

Given their lengthy history in the area, and their importance as stewards of the environment, consultation with First Nations is integral to the Study process. Based on feedback received from OSAA, the Mississaugas of Scugog Island First Nation may have an interest in this Project. The Mississaugas of Scugog Island First Nation community is situated within Durham Region and is located approximately 90 km to the northeast of the Goreway Drive Study Area Corridor on the shores of Lake Scugog. This First Nation community is well removed from the Goreway Drive Study Area Corridor.

Feedback received from the Mississaugas of Scugog Island First Nation indicates that the lands involved in the proposed undertaking are within the treaty lands of the Mississaugas of Scugog Island First Nation, and are within the lands claimed by the First Nation in an unresolved specific land claim presently before the Canada Indian Land Claims Commission. The First Nation also advised of non-site specific Aboriginal rights that are applicable within the Study Area (e.g., the right to have Aboriginal burials not disturbed).

4.7.5 Emergency Service Providers

Within the Goreway Drive Study Area Corridor, emergency services include police, fire and ambulance coverage. Both the City of Brampton and the City of Mississauga are protected by the Peel Regional Police. The Malton Community Station, providing crime protection services, is located at Westwood Mall to the south of the Study Area Corridor at 7205 Goreway Drive (Peel Regional Police, 2007).

Fire protection services within the Study Area Corridor are provided by both the City of Brampton and the City of Mississauga. The City of Brampton Fire and Emergency Services provides fire protection from 11 stations and two volunteer stations throughout the municipality (City of Brampton, 2007). The City of Mississauga Fire and Emergency Services provides fire protection from 20 fire halls throughout the City, with the nearest fire hall located to the south of the Study Area Corridor, at 7101 Goreway Drive (i.e. “Malton” Station 105) (City of Mississauga, 2007). The Regional Municipality of Peel provides land ambulance and paramedic care services within the Cities of Brampton and Mississauga.

4.7.6 School Busing

The Peel District School Board and the Dufferin-Peel Catholic District School Board provide joint transportation services for their students within the cities of Brampton and Mississauga. With four schools located in the vicinity of the Study Area, Goreway Drive is used as a bus route by both district School Boards. Personal communication with Sharon Brennan at the Dufferin-Peel Catholic School Board (Transportation Department, 2007) confirmed that although Goreway Drive is used as a bus route, there are no school bus stopping locations along the Study Area Corridor.

4.7.7 Noise

In accordance with the Ministry of the Environment (MOE)/Ministry of Transportation (MTO) Noise Protocol, land use such as residential developments, hospitals, nursing/retirement homes, schools, and day-care centres are designated as noise sensitive. Land uses such as commercial and light industrial are not considered to be noise sensitive. Noise sensitive areas within the Goreway Drive Study Area Corridor include the residential neighbourhoods situated to the south of the CN corridor.

The main sources of noise within the Study Area Corridor include vehicular traffic, rail traffic and aircraft traffic from the Lester B. Pearson International Airport (LBIA). Noise levels from vehicular and rail traffic are controlled to an extent using noise criteria adopted by the area municipalities, the Regional Municipality of Peel and the Ministry of the Environment (MOE). Residential development, for example, is restricted where the attenuated sound level in outdoor recreational areas exceeds 70 decibels (dBA). The 2002 *State of the Environment Report* indicates that traffic noise levels are generally not a concern for Peel residents due to the noise control measures in place.

As Canada's largest airport, LBIA was ranked in 2000 as one of the busiest airports in the world (Region, 2002). Transport Canada uses a Noise Exposure Forecast (NEF) System to assess and determine the degree of noise exposure from aircraft. The levels of exposure are mapped by contour lines that connect points of equal noise impact (levels of noise exposure are represented by 40, 35, 30, 28 and 25 NEF). It is noted that NEF contours are based on five to ten year forecasts.

Generally, areas mapped with a NEF of greater than 25 are considered by Transport Canada to be affected by aircraft noise. Areas mapped with a NEF of greater than 30 are considered to be unsuitable for sensitive residential development. Based on the 2000 NEF Composite Noise Contours, the Study Area Corridor is mapped between a NEF of 25 and 30 (Greater Toronto Airports Authority (GTAA), 2005).

Goreway Drive has been identified by the GTAA (2005) as part of the LBIA Operating Area boundary, which encompasses all lands mapped with a NEF of 30. The LBIA Operating Area includes all lands west of the Study Area Corridor. Aircraft Noise Policies within the Mississauga Official Plan place restrictions on development, redevelopment and infilling within the LBIA Operating Area.

SS Wilson Associates completed a Noise Assessment for the Study Area Corridor in March, 2007. The objectives of the Study were to determine the potential changes to the road traffic sound levels due to the proposed improvements, to assess the significance of the predicted changes to the road traffic sound levels, and to recommend measures to mitigate the road traffic noise impact where warranted. The applicable criteria for this study were based on the MOE/MTO Noise Protocol. The Study is provided in **Appendix B** while the results are summarized below.

Five receptor locations were selected to represent all the residential areas along Goreway Drive within the Study Area. The existing ambient sound levels are predicted to be in the range of 55 to 59 dBA, while the future Project sound levels are predicted to be in the range of 52 to 61 dBA. Based on the findings of this Study, no noise impact is anticipated as a result of the proposed road improvements.

4.7.8 Utilities and Other Services

Overhead utility plant was observed during UMA's site reconnaissance activities in 2006. A number of overhead hydro distribution lines parallel both sides of Goreway Drive for portions of its length within the corridor. There are hydro poles with lighting standards along the west side of Goreway Drive from Brandon Gate Drive to the CN corridor. Within the same section, there are lighting poles spaced approximately 40 to 50 m apart along the west side of Goreway Drive. The same pattern of hydro poles and lighting standards continue from the Mimico Creek crossing to Steeles Avenue. As noted above, a hydro transformer station is located north of the creek on the east side of Goreway Drive.

As part of this Study, applicable utility companies were contacted to ascertain the location of their respective plant within the Goreway Drive Study Area Corridor. Applicable companies contacted included:

Allstream Communications
Bell Canada
City of Brampton Public Service Network
Enbridge Consumers Gas
Enersource Hydro Mississauga
FCI Broadband
Hydro One Brampton
Hydro One Networks
Hydro One Telecom
Regional Municipality of Peel (i.e., watermain infrastructure)
Rogers Cable
Telus Communications
TransCanada Pipelines Ltd.
Trans-Northern Pipelines Inc.

Mark-up drawings were forwarded to the appropriate representative of each of the above utility companies in January 2007. Based on feedback received, it is confirmed that Bell Canada, Enbridge Consumers Gas, Enersource Hydro Mississauga, Hydro One Brampton, Hydro One Telecom, Regional Municipality of Peel (i.e., watermain infrastructure), Rogers Cable, and Telus Communications have plant within the corridor. FCI Broadband has aerial cable on Steeles Avenue only. Details regarding the existing utility plant within the corridor and the above- or below-ground plant that will require relocation prior to construction are summarized in **Section 6.7** and in **Table 10**.

4.7.9 Sources of Potential Contamination

As part of the Class EA Study, UMA retained Peto MacCallum Ltd. to conduct a Phase 1 Environmental Site Assessment (ESA) within the Project Limits. The Phase 1 ESA was conducted in May 2007, and was carried out in accordance with Canadian Standards Association (CSA) Standard Z768-01 (dated November 2001). The purpose of the ESA was to assess the past and present geo-environmental conditions within the Project Limits and to identify actual or potential on-site and off-site sources of contamination. The results of the assessment are documented in a Phase 1 ESA Report which is included in **Appendix B**.

The presence of potential sources of contamination within the Study Area Corridor was assessed based on site reconnaissance activities and aerial photography interpretation undertaken by the UMA Consultant Team (includes Peto MacCallum personnel). As a result of these activities, the following potential sources of contamination were identified within the Corridor:

- the CN corridor due to possible spills and/or leaks of oils, metals, arsenic, solvents, and other petroleum products (e.g., fuels, lubricants) from moving rail equipment. In addition, the CN corridor includes chemically-treated railway ties
- the Parkshore Golf Course due to the likely use of fertilizers and pesticides as part of course operations

- a Hydro One transformer station located north of Mimico Creek on the east side of the roadway due to the possible release of Polychlorinated Biphenyls (PCBs) that may have been used to make coolants and lubricants for the electrical equipment
- Goreway Drive and its associated ROW due to deposition of heavy metals and petroleum products from vehicles and road-salting operations which have been reported to result in elevated chloride levels in some municipalities.

In addition, a considerable volume of refuse, that is the accumulation of roadside garbage, was also observed within the ROW and on some adjoining lands. Based on the above sources, contaminants that may be present within proximity to the road ROW include hydrocarbons (i.e., gasoline, diesel fuel, and fuel oils), fuel additives and PCBs, among others. It is noted that no above or underground storage tanks were observed within the Study Area Corridor. Due to the presence of these sources, there is a possibility of encountering contaminated soils during excavation and ground clearing activities, thereby posing a potential risk to public health and the environment, as well as construction personnel who incorrectly handle the excavated material.

4.7.10 Cultural Environment

The Study Area Corridor has a lengthy history of human occupation. The *Ontario Heritage Act* provides for the conservation of Ontario's cultural heritage resources and regulates archaeological field activities through licensing. In recognition of the essentially timeless quality of "things of the past", consideration must be given to the assessment of potential impacts on the cultural environment prior to commencement of a proposed undertaking.

In keeping with the spirit and intent of the *Ontario Heritage Act*, a literature and records review of the Study Area Corridor's cultural resources was carried out by the UMA Consultant Team. In addition, the UMA Consultant Team consulted with applicable staff of the Ministry of Culture (MCL), as well as the cities of Brampton and Mississauga to ascertain the cultural significance of the Study Area Corridor. For the purposes of this Study, cultural resources have been categorized into two distinct types: heritage resources and archaeological resources. Details regarding each are provided below.

Heritage Resources

The cities of Brampton and Mississauga were contacted to confirm the presence of heritage resources within the Study Area Corridor. The Heritage Coordinator (Mark Warrack, Personal Communication, 2007) at the City of Mississauga confirmed that there are no known heritage resources within the Study Area. The Heritage Coordinator (Jim Leonard, Personal Communication, 2007) at the City of Brampton confirmed that there are no listed or designated heritage resources on Goreway Drive between Steeles Avenue and the City limits.

Consultation with the Heritage Coordinator for the cities of Brampton and Mississauga was supplemented with a review of historic mapping to ascertain and characterize the heritage resources within the Study Area Corridor. The *Illustrated Historical Atlas of Peel County* (1877) indicates the presence of five farmsteads and three orchards along the Goreway Drive Study Area Corridor. Based on UMA's site reconnaissance, these cultural features do not presently exist as farms or orchards within the Study Area Corridor.

Archaeology

Feedback received from the MCL indicated that there are no documented archaeological resources within the Project Area. Notwithstanding, a portion of the subject property has archaeological potential based on its proximity to a former potable water source (i.e., Mimico Creek). As such, UMA retained

Archeoworks Inc. in October 2006 to conduct a Stage 1 Archaeological Assessment for the Study Area Corridor to identify any potential archaeolgocial resources which could be affected by construction activities (see **Appendix B** for a copy of the **Stage 1 Archaeological Assessment** Report).

Results of the Stage 1 Archaeological Assessment indicate that the predominantly undisturbed, central section of the Study Area Corridor can be classified as having moderate to high archaeological potential for locating Euro-Canadian remains due to the close proximity of three historic homesteads. Two of the homestead structures are mapped in close proximity to the east boundary of the Goreway Drive Study Area Corridor. The third homestead structure is mapped in close proximity to the west side of the Study Area Corridor. Due to the crossing of Mimico Creek, the central portion of the Study Area Corridor is considered to have high archaeological potential for locating Aboriginal remains. Consequently, a Stage 2 Archaeological Assessment of the undisturbed areas is recommended prior to construction.

4.8 Alternative Solutions to Address the Problem

As described in **Chapter 3.0**, improvements are required to alleviate road vehicle delays within the Goreway Drive Study Area Corridor. An integral component of the Municipal Class EA process is the evaluation of Alternative Solutions to address the deficiencies within the Corridor. In recognition that there may be more than one way to solve these deficiencies, five Alternative Solutions were examined as part of this Study, including:

1. Do Nothing, that is, maintain four lanes on Goreway Drive with no grade separation at the CN crossing;
2. Maintain four lanes on Goreway Drive with a grade separation at the CN crossing;
3. Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue);
4. Provide localized intersection improvements; and,
5. Provide enhanced bus service.

4.9 Evaluation of Alternative Solutions

The overall objective of the evaluation is to identify a Preliminary Preferred Solution that will allow for the safe and efficient movement of traffic, at the least cost, while minimizing impacts on the environment. To this end, a set of Evaluation Criteria (or Factors) were established based on the experience of the UMA Consultant Team and input received from the City of Brampton, City of Mississauga, Regional Municipality of Peel, the public and regulatory agencies to comparatively evaluate the five Alternative Solutions identified above. The Criteria (with no order of preference or importance implied) used to carry out the evaluation, and assess how well each Alternative Solution addressed the identified deficiencies included:

- Natural Environment
- Social Environment
- Cultural Environment
- Economic Environment
- Engineering/Technical.

Though not shown in **Table 6**, Transportation factors were also taken into consideration as part of the evaluation of Alternative Solutions. Specifically, the results or findings of the Sub-Area Transportation Network Analysis (see **Section 3.3** of this Report) were factored into the evaluation. In this case, an assessment of whether or not the Alternative solves the problem, or noted deficiencies, was determined and is reflected in column 7 of **Table 6**.

The evaluation of Alternative Solutions was based on an assessment of potential impacts, and review of input received from the public and regulatory agencies during Phase 2 of the Study process. The evaluation examined the extent or degree to which each of the five Alternative Solutions solved the problem or addressed the deficiencies within the Study Area Corridor. The results of the comparative evaluation of Alternative Solutions are presented in the form of a matrix in **Table 6**. A summary of the evaluation, in the context of each Alternative Solution's advantages and disadvantages, is provided below.

Alternative Solution No. 1 - Do Nothing

Under the Do Nothing Alternative, no measures to improve the identified deficiencies within the Goreway Drive Study Area Corridor were considered. The Do Nothing Alternative would maintain four lanes on Goreway Drive with no grade separation at the CN crossing. This Alternative was examined to provide a base to compare the other Alternative Solutions.

Advantages

The Do Nothing Alternative has the advantage of negligible impacts on the Natural Environment and the Cultural Environment. In addition, it will require no property takings, and therefore has low impact on the Socio-Economic Environment (in the short-term). Furthermore, it will not require any immediate costs to implement.

Disadvantages

The Do Nothing Alternative does not address the identified deficiencies related to traffic delays within the corridor. Maintaining the existing situation will result in higher levels of noise and air pollution, increased driver frustration and decreased road safety in the short- to long-term. In addition, the traffic delays currently experienced on Goreway Drive have the potential to encourage additional truck traffic to divert to alternate routes that are not designed for commercial vehicles. Although the Do Nothing Alternative will result in no immediate cost implications, long-term costs will be incurred by local businesses and industries. Frequent and extended periods of traffic delays add significantly to the cost of business through delays to the movement of goods and people, particularly for services that rely on just-in-time delivery of goods. Furthermore, this Alternative is not in keeping with the general intent of the transportation policies contained within each of the respective Official Plans, that is, to provide an integrated, safe and efficient system for transporting people and goods.

Based on the above disadvantages, the "Do Nothing" option cannot be considered viable, given the present traffic delays and/or congestion on the roadway. Consequently, Alternative Solution No. 1 is not recommended to be carried forward for further analysis.

Table 6 – Summary of Alternative Solutions

Alternative Solutions / Environmental Criteria	Natural	Social	Cultural	Economic	Technical	Solves Problem	Recommendation
(1) Do Nothing (i.e., Maintain status quo)	◑	◑	●	◑	●	○	**Carried forward** (For comparison purposes)
(2) Maintain 4 lanes + grade separation at CN crossing	◑	●	●	○	◑	●	**Carried forward** (Solution with least impact)
(3) Divert traffic to and/or upgrade adjacent roads	○	○	◑	○	◑	◑	**Not carried forward** (Does not solve Problem)
(4) Intersection Improvements	◑	◑	◑	◑	◑	○	**Carried forward** (As part of Alt. 2)
(5) Enhanced Bus Service	●	◑	◑	◑	◑	○	**Not carried forward** (Does not solve Problem)

Rating: ○ **Poor** ◑ **Neutral** ● **Good**

Alternative Solution No. 2 – Maintain four lanes on Goreway Drive with a grade separation at the CN crossing

Alternative Solution No. 2 includes maintaining the existing four-lane cross section on Goreway Drive with a grade separation at CN's existing at-grade (level) crossing (either an overpass or an underpass structure). This Alternative provides an opportunity to improve the movement (or flow) of traffic as well as provide for pedestrian and cyclist facilities throughout the Study Area Corridor.

Advantages

Alternative Solution No. 2 provides many benefits to improving the traffic problems on Goreway Drive. With a grade separation, this Alternative will improve traffic flow and hence alleviate traffic delays at the CN crossing. As a result, vehicle emissions related to the current congestion experienced on this section of Goreway Drive will be reduced and traffic safety improved as driver frustration decreases. Furthermore, the need to acquire property is low as a four-lane cross section will be maintained. The potential to impact archaeological resources is low as the majority of construction work will take place within the disturbed ROW.

This Alternative offers the greatest opportunity to address and improve the noted deficiencies within the Study Area Corridor. It is most in keeping with the transportation policies provided within the local and regional Official Plans.

Disadvantages

Alternative No. 2 has the potential for some negative impact on the surrounding Natural, Cultural and Socio-Economic Environments. For example, construction of the proposed grade separation will result in the removal of roadside vegetation. When compared to all Alternatives considered in this Study, Alternative No. 2 will have moderate to high construction costs, primarily to build the grade separation. Construction activity will become a temporary disruption to residents, businesses, and road users due to increased noise, dust, traffic delays, and access modifications. However, these impacts are temporary and localized. This Alternative may also involve the relocation of utility plant and/or municipal infrastructure (i.e., sewer, water) within the corridor.

Based on the above advantages/disadvantages analysis, it is recommended that Alternative Solution No. 2 be carried forward for further detailed evaluation.

Alternative Solution No. 3 – Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

This Alternative entails the diversion of existing and future traffic to adjacent north-south arterial roads, such as Airport Road to the west or Finch Avenue to the east, to alleviate traffic demand on Goreway Drive.

Advantages

The diversion of existing and future traffic to adjacent north-south arterial roads will result in negligible impacts on the Natural and Cultural Environment, within the Goreway Drive Study Area Corridor. In addition, this Alternative will not require the taking of private property, or significant costs in the immediate future to implement.

Disadvantages

The disadvantages associated with Alternative Solution No. 3 are significant. Traffic within the Study Area Corridor cannot be diverted to these adjacent arterials without some out-of-way travel, with increases to travel distances, time and costs. Furthermore, such a measure merely transfers the problem to these alternative north-south roadways. Potential impacts on the Natural, Socio-Economic and Cultural Environments may therefore be incurred in locations well beyond the Goreway Drive Study Area Corridor as these alternative routes are overburdened with additional traffic.

This Alternative does not address the traffic delays identified within the Corridor. Though this Alternative may address deteriorating safety conditions on Goreway Drive, they are anticipated to increase on other roadways due to increased future traffic volumes. While this Alternative will result in no immediate cost implications, long-term costs will increase substantially for businesses as the movement of goods continue to be delayed by the long queues at the CN rail crossing and/or the cost for out-of-way travel.

As this Alternative is not in keeping with the intent of the local municipal and regional transportation policies, it is not considered a viable option. Consequently, it is recommended that Alternative Solution No. 3 not be carried forward for further analysis.

Alternative Solution No. 4 – Provide localized intersection improvements

This alternative includes minor improvements, such as the addition of turning lanes and optimization of traffic signals, at the following intersections: (1) Steeles Avenue and Goreway Drive (under the jurisdiction of the Regional Municipality of Peel), (2) Kenview Boulevard and Goreway Drive (under the jurisdiction of the City of Brampton), and (3) Brandon Gate Drive and Goreway Drive (under the jurisdiction of City of Mississauga).

Advantages

The intersection improvements noted above will increase traffic flow and help alleviate congestion, as well as enhance road safety on Goreway Drive. The Natural, Cultural and Socio-Economic impacts associated with this Alternative are minimal in comparison to Alternative Solution Nos. 2 and 3.

Disadvantages

The advantages of Alternative No. 4 do not address the specific problems associated with traffic delays at the CN rail crossing. This Alternative can be combined with other Alternative Solutions that best address this issue (e.g., Alternative No. 2 which includes a grade separation). It is recommended that Alternative Solution No. 4 be carried forward for further analysis.

Alternative Solution No. 5 – Provide enhanced bus service

The local Official Plans encourage and promote the use and development of public transit as a means to reduce the number of private automobiles using the road network. Alternative No. 5 considers enhanced transit service as a means to help alleviate congestion on Goreway Drive.

Advantages

Similar to the Do Nothing scenario, this Alternative has negligible Natural and Cultural Environmental impacts. By enhancing bus service along Goreway Drive, this Alternative has the potential to alleviate congestion and hence reduce the associated noise and vehicle emissions impacts.

Disadvantages

It is recognized that the advantages of public transit are significant from a regional perspective, and may offset the initial cost of enhancing services. However, this Alternative does not address the specific problems associated with traffic delays caused by long queues at the CN rail crossing (e.g., road safety, driver behaviour, diversion of traffic, and costs associated with delayed goods movement). As Alternative Solution No. 5 does not resolve the noted traffic delays, it is recommended that it not be carried forward for further evaluation. Though it is recognized that improved public transit has many positive effects, such improvements are beyond the scope of this Study.

4.10 Selection of Preferred Solution

Based on the evaluation of Alternative Solutions, Alternative Solution No. 2 was selected as the Preliminary Preferred Solution. Alternative Solution No. 2 includes maintaining the existing four-lane cross section on Goreway Drive and grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass. In addition, the Preliminary Preferred Solution includes improving pedestrian and cyclist facilities and intersection improvements such as the addition of turning lanes and optimization of traffic signals within the Project Limits. Some of the benefits and potential impacts associated with implementation of the Preliminary Preferred Solution include:

Benefits

- Improved traffic flow and reduced vehicle emissions as traffic delays at the CN crossing are alleviated
- Enhanced traffic safety and decreased driver frustration within the Corridor
- Reduced need to acquire property.

Impacts

- Removal of some roadside vegetation
- Moderate to high construction costs to build grade separation
- Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications
- Relocation/closure of private entrances
- Possible relocation of utility plant and/or municipal sewer/water infrastructure within the Corridor.

The results of the comparative evaluation were presented to the public, for review and input as part of the consultation activities undertaken during Phase 2. Interested stakeholders who provided comments during this Phase were in general agreement that improvements are needed on Goreway Drive and supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the CN rail crossing.

All input received during Phase 2 was taken into consideration and used to refine the Preliminary Preferred Solution, where appropriate. Most of the issues and concerns raised related to property implications in general, as well as noise pollution and visual impacts associated with the possible construction of an overpass structure (road over rail structure).

Based on the above benefits and minor impacts associated with **Alternative Solution No. 2,** coupled with the disadvantages associated with Alternative Solution Nos. 1, 3, 4, and 5, Alternative Solution No. 2 was selected as the Preferred Solution. To this end, Alternative Solution No. 2 was carried forward to facilitate the development of Alternative Design Concepts (i.e., Phase 3).

5.0 Alternative Design Concepts (Phase 3)

As documented in **Chapter 4.0**, maintaining the existing four-lane cross section combined with a grade separation at the CN crossing, improved pedestrian/cyclist facilities, and intersection improvements was selected as the Preferred Solution to address the identified deficiencies within the Goreway Drive Study Area Corridor. The purpose of Phase 3 of the Municipal Class EA process is to develop and evaluate Alternative Design Concepts to select a Preliminary Preferred Design Concept to implement the Preferred Solution. Details regarding the tasks or activities carried out during Phase 3 are provided below.

5.1 Design Criteria

The Design Criteria were developed in collaboration with the City of Brampton and City of Mississauga to meet the functional needs of this roadway as it spans both municipal jurisdictions. Based on the Cities' designations, Goreway Drive within the study area is classified as an Urban Arterial Undivided Roadway with a Design Speed of 80 km/hr (UAU80).

Based on a Design Speed of 80 km/hr, Goreway Drive will be designed and constructed applying the geometric design criteria summarized in **Table 7** on the next page. As noted therein, Goreway Drive is proposed to carry four through lanes with a posted speed of 60/70 km/hr.

5.2 Description of Alternative Design Concepts

The Preferred Solution includes maintaining the existing four-lane cross section on Goreway Drive, improving pedestrian and cyclist facilities, grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass, and intersection improvements including the addition of turning lanes and optimization of traffic signals. In keeping with the Preferred Solution identified in Phase 2, a grade separation is warranted at the location where Goreway Drive crosses the CN rail corridor (Halton Subdivision) to improve roadway safety (i.e., reduce the number of train/automobile conflicts) and to improve traffic carrying capacity by removing delays to vehicular traffic during train crossings of Goreway Drive.

The extent of the proposed grade separation at the CN crossing generally falls within the limits of Kenview Boulevard and Brandon Gate Drive. The following Alternative Design Concepts were developed for the grade separation:

- Do Nothing
- Alternative 1: Road over Rail (Overpass) Structure
- Alternative 2: Road under Rail (Underpass) Structure.

Do Nothing

The Do Nothing scenario represents the existing roadway conditions with no grade separation. Goreway Drive would remain at level with the CN corridor. This option was screened during the evaluation of Alternative Solutions because it did not solve the problem of traffic delays caused by long queues at the CN level crossing. It has been included here for comparison purposes only.

Table 7 – Design Criteria

Description	Goreway Drive		
	TAC* Design Standard	City of Brampton Standard	Proposed Standard
Classification			
Road Classifications	UAU 80	UAU 80	UAU 80
Design Speed (km/h)	80	80	80
Posted Speed (km/h)	60	70	70/60
Horizontal Alignments			
NC Normal Crown (-0.02m/m) **R**min. (m)	2620	2620	3000
Curve Radius with Superelev. Rate e=0.06 **R**min (m)	340	N/A	N/A
RC Remove Crown (+0.02m/m) **R**min (m), for e=0.06	600	N/A	N/A
Curve Radius with Superelev. Rate e=0.04 **R**min (m)	380	N/A	N/A
RC Remove Crown (+0.02m/m) **R**min (m), for e=0.04	530	N/A	N/A
Transition between 4-Lane AND 2-Lane :			
Parallel Lane (m)	140-215		140-215
Merging Taper (m)	135		130
Diverging Taper (m)	70		70
Right Turn Taper	60-84	80	70
Left Turn Taper	55-170	80	130
Left and Right Turn Parallel	60-130	60	50-60
Cross Sections			
Though Lane Width (m)	3.7	3.75	3.75
LT Lane Width (m)	3.5-3.3		3.5
RT Lane Width (m)	3.5-3.3		3.5
Curb Lane Width (m)	3.5-3.3		3.75
Tangent Section Crossfall	2%	2%	2% (3%, if req.)
Sidewalk Width (m) on Grade		1.50	1.50
Sidewalk Width (m) on Structure		2.70	3.00 (R) / 2.40 (L)
Kill strip width		1.00	0.75-1
Bike path		2.50	3.00
Driveway Grades (max %) behind Sidewalk		10.00%	10.00%
Driveway Grades (max %) b/w Back of Curb and Sidewalk		8.00%	6.00%
Sidewalk Crossfall (%)		2-4%	2-4%
Vertical Alignments			
Maximum Grade (%)	7	5	5
Minimum Grade (%)	0.5	0.5	0.5
Sag Vertical Curve **K**min.	12 to 16	12 to 16	15
Crest Vertical Curve **K**min.	24-36	24 to 36	35
Layout			
Radius of Curbs at Intersections			
Arterial to Local		15	15
Arterial to Arterial		18	18
ROW Width (m)		36-45	36-45

*Transportation Association of Canada

Alternative 1: Road over Rail (Overpass) Structure

The overpass option involves raising Goreway Drive over the CN corridor. The vertical clearance between the underside of the deck and the existing rail would be 7.01 m. The roadway would consist of four lanes over the three CN tracks with a maximum grade of 5%. The profile for this option, as shown in **Appendix C**, creates a low point approximately 100 m south of Kenview Boulevard.

With this option, about 3.5 m of fill would be required at the private entrance into the condominium complex located on the east side of Goreway Drive, north of Brandon Gate Drive. About 6.5 m of fill would be required at the field entrance into the Parkshore Golf Club located on the east side of Goreway Drive, north of the CN corridor. Approximately 2.5 m of fill would be required at the Mimico Creek culvert, which would also need to be extended to accommodate the additional fill.

As part of this option, the retaining wall height will be a maximum of approximately 9 m on the west and a maximum of 7 m on the east, adjacent to a number of properties fronting onto Goreway Drive. This option involves the relocation/closure of five existing property entrances.

Goreway Drive would include an urban road cross section with four lanes and curb and gutter. The proposed cross section along the grade separation would include a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive.

Alternative 2: Road under Rail (Underpass) Structure

The underpass option is designed so that Goreway Drive crosses under CN's Halton Subdivision. The profile for this option is included in **Appendix C**. The vertical clearance between the underside of the deck and the road would be 5.3 m and the road would have a maximum grade of 5%.

Approximately 1.4 m of grade would be cut at the private entrance into the condominium complex located on the east side of Goreway Drive, north of Brandon Gate Drive. About 1.1 m of grade would be cut at the field entrance into the Parkshore Golf Club located on the east side of Goreway Drive. Approximately 1.2 m of fill would be required at the Mimico Creek culvert, resulting in an extension to accommodate the additional fill. Approximately 8.0 m of grade would be cut at the crossing with the Enbridge Gas 900 mm diameter high pressure gas main resulting in significant and costly impacts to their distribution system during relocation. Approximately 8.0 m of grade would be cut at the deepest point over top of the Regional Municipality of Peel's existing 500 mm diameter watermain.

Similar to the overpass option, Goreway Drive would consist of an urban road cross section with four lanes and curb and gutter. The proposed cross section would include a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive.

As part of this option, retaining walls with a maximum height of 5 m would need to be placed adjacent to a number of properties fronting onto Goreway Drive on the north side of CN's Halton Subdivision. This option involves the relocation/closure of five existing property entrances.

5.3 Evaluation of Alternative Design Concepts

5.3.1 Overpass versus Underpass

To facilitate the comparative evaluation of Alternative Design Concepts, a set of Evaluation Criteria were developed and presented to the public at the first and second PIC to solicit and incorporate their feedback into the decision-making process. As presented in **Table 8**, the Evaluation Criteria were divided into four distinct categories so as to measure the relative degree of impact associated with each Alternative

Design Concept. Based on feedback received from those who attended both PICs, all were in agreement with the Evaluation Criteria selected and presented in **Table 8**.

Table 8 – Evaluation Criteria

Category	Criteria
Natural Environment	• Surface Water Impacts • Groundwater Impacts • Fisheries Impacts • Terrestrial Impacts
Socio-economic Environment	• Property Impacts • Noise and Visual Impacts (Operations) • Entrance Impacts • Construction Disruption (Increased noise, dust, traffic) • Road Safety (Operations) • Public Safety (Operations) • Capital Cost • Operating and Maintenance Costs
Cultural Environment	• Archaeological Resources
Construction Complexity	• Utility Impacts • Rail Operations Impacts • Contaminated Soils • Adequacy of Construction Space • Construction Timing

For each criteria, impacts are measured as low, moderate or high based on the anticipated net environmental effects (following inclusion of mitigative measures). In this regard, a rating of low has the least impact, while a rating of high has the greatest anticipated negative impact. It is noted that the evaluation criteria have not been weighted.

The result of the evaluation of the Alternative Design Concepts is provided in the form of an Evaluation Matrix in **Table 9**. The goal of the comparative evaluation of Alternative Design Concepts was not to rank the Alternatives, but to assess their relative impacts using the Evaluation Criteria provided above. Based on the analysis of potential impacts, the three proposed Alternative Design Concepts offer varying advantages, and have varying disadvantages as indicated in the Evaluation Matrix provided in **Table 9**.

Discussion of Advantages and Disadvantages

Both the overpass and underpass options will lead to significant improvements in existing conditions by relieving traffic delays at the CN crossing. From a Natural Environment perspective, both options will have minimal impact on roadside vegetation as tree removal during construction will be kept to a minimum and restricted within the existing road ROW for the most part. Either option will have a moderate impact on fisheries resources as they will both require the replacement, extension and widening of the Mimico Creek culvert. In addition, some riparian vegetation will need to be removed as part of the culvert works. From a Socio-economic perspective, both the overpass and underpass options will require partial acquisition of three properties and the relocation or closure of five existing entrances.

During the public information sessions, members of the public expressed their preference for an underpass due to concerns over noise, visual/aesthetic impacts, and reduced property values. However, the noise assessment completed for this Study indicated a negligible increase in noise levels with the introduction of an overpass. The visual/aesthetic concerns can be mitigated through enhanced

landscaping and selection of aesthetically pleasing retaining wall treatments. As mentioned above, the impacts to access are comparable as both options will require partial acquisition of property and the relocation/closure of property entrances/access.

The overpass option provides greater advantages over the underpass option when considering the impacts on public safety. The TRCA have expressed their preference for an overpass because of concerns for potential flooding during sever storm events should an underpass structure be constructed. As the profile for the underpass is within the Regional Flood line, it is likely that the underpass would be flooded during a Regional storm event. The road would be closed during this time, cutting off access for emergency response services. With the underpass option, emergency access along Goreway Drive during storm events would be greatly compromised, and there would be an increased potential for storm damages downstream during severe storm events. An overpass structure would reduce the risk of overtopping during significant storm events, thereby improving emergency access along Goreway Drive, with minimal impact on upstream and downstream flooding.

Furthermore, the number of utility relocates and the level of disruption to rail operations will be considerably less when constructing an overpass structure versus an underpass. Significant earth excavation during construction of an underpass would result in the relocation of existing utility both within the Goreway Drive ROW and the CN corridor. In terms of rail operations, the construction of an underpass would require temporary rail diversions during construction, which would be extremely disruptive to CN's existing freight rail services. Consultation with CN clearly indicated their preference for an overpass structure, as no track diversions would be required, the time of construction could be reduced, the overall construction costs would be lower, and the risk to their operations would be significantly less. In addition, construction of an overpass structure would not require as many utility relocates within the CN corridor.

The amount of space for construction is further restricted during construction of an underpass due to the limited rail diversion options, which would be restricted to the north side of the CN corridor. In addition, an overpass structure can be completed within a single construction season whereas construction of an underpass would occur over two construction seasons.

Rail corridors by their very nature are currently subjected to the potential release of contaminants into the corridor environment. As noted within **Table 9**, construction of an underpass has the greater potential (or likelihood) to require the excavation of contaminated soils and/or materials. Excavation of these soils poses a potential risk to public health and the environment, as well as construction personnel who incorrectly handle the excavated materials. In the event contaminated soils are identified during underpass construction, such soils or materials will need to be managed, transported and disposed in accordance with *Ontario Regulation 347* of the *Environmental Protection Act*. This would increase the overall cost of construction versus the overpass option.

Overall, constructing an underpass involves significantly higher construction costs than the overpass option due to the need for track diversions, road detours, rail flagging personnel, deeper and more complex temporary shoring, significant underground utility relocates, possible excavation/removal of contaminated soils, and employment of an off peak construction force over two construction seasons (see **Appendix C** for a cost breakdown of each alternative). In addition, the design of an underpass would need to include a new pumping station located in a wet well. Dewatering will also be required during construction of an underpass structure, which could result in significant groundwater draw down effects during and following construction.

The comparative evaluation of the two grade separation alternatives concluded that the overpass option would result in the greatest advantages when considering the impacts on the Natural and Socio-economic environments, as well as existing road and rail operations. The resultant Preliminary Preferred Design Concept for a grade separation at the CN crossing is the overpass, road over rail structure, option.

Table 9 – Comparative Evaluation of Grade Separation Alternatives

Evaluation Categories/Criteria	Grade Separation Alternative Design Concepts		
	Do-Nothing	Rail over Road Structure (Underpass)	Road over Rail Structure (Overpass)
Natural Environment			
Surface water impacts	Low, as no impacts anticipated.	High, as underpass would be subjected to potential flooding during major storm events. Design will need to include pumping station located in a wet well. Less acceptable to Toronto and Region Conservation Authority.	Moderate to high, due to need to place additional fill within the regulatory floodplain, and need to extend/widen existing Mimico Creek culvert. More acceptable to Toronto and Region Conservation Authority, as not prone to potential flooding during major storm events.
Groundwater impacts	Low, as no impacts anticipated.	High, as dewatering will be required during construction. Could result in groundwater draw effects during road operations.	Low, as minimal impacts anticipated.
Fisheries impacts	Low, as no impacts anticipated.	Moderate, as requires culvert replacement, extension, and widening, which will impact fisheries resources.	Moderate, as requires culvert replacement, extension, and widening, which will impact fisheries resources.
Terrestrial impacts	Low, as no impacts anticipated.	Low, as construction will result in removal of existing roadside trees within right-of-way only.	Low, as construction will result in removal of existing roadside trees within right-of-way only.
Socio-Economic Environment			
Property impacts	Low, as no impacts anticipated.	Moderate, as three (3) individual properties affected (partial acquisition), in addition to need for temporary easements during construction of rail diversion.	Low to moderate, as three (3) individual properties affected (partial acquisition).
Noise and visual impacts (operations)	Moderate, as no change/improvement to existing conditions.	Low, as minor improvement to existing conditions due to lowering of roadway.	Moderate, as embankment and structure is perceived to be intrusive to adjoining residences on south side of CN corridor. However, the actual impact is not anticipated to be as great as the perceived impact with mitigation. With respect to noise, an insignificant increase is predicted.
Entrance impacts	Low, as no impacts anticipated.	High, due to marked change in entrance grades. Five (5) existing entrances to be relocated/closed.	High, due to marked change in entrance grades. Five (5) existing entrances to be relocated/closed.
Construction disruption (increased noise, dust, traffic)	Low, as no impacts anticipated.	High, as construction requires significant pile driving activities, more road detours, as well as increased level of construction work in off-peak periods (night time, weekends) to minimize impacts to CN freight operations. In addition, disruption to occur over two construction seasons.	Moderate, due to the need for pile driving activities, road detours, increased noise, dust, traffic and entrance closures.
Road safety (operations)	High, as no improvement to existing delays at CN crossing.	Low, as significant improvement to existing conditions, including improved sight lines during operation.	Low to moderate, as significant improvement to existing condition.
Public safety (operations)	Low, as no impacts anticipated.	High, due to potential flooding during major storm events, which could result in road closure. Alternative route required during road closure.	Low, as overpass is not prone to potential flooding during major storm events.
Capital cost	Low, as no change/improvement to existing conditions.	High (approximately $22.8 M), due to need for track diversions, road detours, rail flagging personnel, temporary shoring, pumping station, significant underground utility relocates, and off peak construction force over two (2) construction seasons.	Moderate (approximately $16.1 M), as no need for track diversions, pumping station, significant underground utility relocates, and off peak construction force during single construction season.
Operating and maintenance costs	Low, as no change/improvement to existing conditions.	High, due to need to maintain pumping station and more expensive structure.	Low, as no need for pumping station and less expensive structure.
Cultural Environment			
Archaeological resources	Low, as no impacts anticipated.	Moderate, due to the potential to disturb yet to be discovered archaeological resources during earth excavation and displacement.	Moderate, due to the potential to disturb yet to be discovered archaeological resources during earth excavation and displacement.
Construction Complexity			
Utility impacts	Low, as no impacts anticipated.	High, as significant earth excavation will result in relocation of existing utilities, both within Goreway Drive right-of-way and CN corridor.	Low to moderate, as less utility relocation requirements, specifically within CN corridor.
Rail operations impacts	Low, as no impacts anticipated.	High, given need for temporary rail diversions during construction. Less acceptable to CN as extremely disruptive to existing freight rail services.	Low to moderate, as construction will not require need for rail diversions and therefore more acceptable to CN. Less disruptive to existing freight rail services.
Contaminated soils	Low, as no impacts anticipated.	Low to moderate, given volume of potentially contaminated soils that will need to be excavated.	Low, as limited disturbance to existing grades.
Adequacy of construction space	Low, as no impacts anticipated.	High, as limited options for rail diversion (i.e., north side of CN corridor only).	Moderate, due to the need to place significant volume of fill within existing road right-of-way.
Construction timing	Low, as no impacts anticipated.	High, as construction will occur over two (2) construction seasons.	Moderate, as construction can be completed within a single construction season.
Overall Results	**Included for comparison purposes only.**	**Least Preferred Alternative.**	**Preferred Alternative.**

Impacts are measured as low, moderate or high based on the anticipated net environmental effects (following inclusion of mitigative measures). In this regard, a rating of low has the least impact, while a rating of high has the greatest anticipated negative impact. It is noted that the evaluation criteria have not been weighted.

5.3.2 Assessment of Flooding Implications

As noted in the previous section, an overpass has been selected as the Preliminary Preferred Design Concept. Nonetheless, the hydraulic model and corresponding flood plain mapping for Mimico Creek indicate that flood depths are significant at Goreway Drive with the inclusion of an overpass. This is primarily due to a backwater condition behind the on-line flood control structure (for the 2 to 100 year events) and CN railway embankment (for the Regional (Hurricane Hazel) storm event) located to the east of the corridor. Flooding is predicted to overtop Goreway Drive for the 25 year return period and more severe storms, with a maximum flood depth of more than 2 m over Goreway Drive during the Regional storm event.

Resolving the issue of backwater conditions behind the above mentioned flood control structure and CN railway embankment is beyond the scope of this Study. As such, the alternatives considered in this Study to minimize overtopping from the Regional storm event were limited to three options, which are detailed below. These options apply exclusively to the Overpass structure.

1. Eliminate Overtopping - 100% of the flow would pass through the Mimico Creek culvert (at Goreway Drive), with no head loss (i.e., the flood level upstream and downstream would remain equal). In this instance, the lowest point on Goreway Drive would be raised to an elevation of 175 m and the existing 5 m wide concrete box culvert under Goreway Drive would be replaced with a bridge structure with a total span of approximately 90 m.

2. Limited Depth of Overtopping (e.g., 0.3 m) – In this instance, the lowest point on the Goreway Drive profile would be raised to an elevation of approximately 172 m. With this configuration, the length of Goreway Drive available for 'weir flow' and the available depth of weir flow would be greatly diminished over the proposed profile. The majority of the Regional storm flow would need to be conveyed through a bridge under Goreway Drive with no head loss, requiring a bridge with a total span of approximately 75 m.

3. Do Nothing beyond the Preliminary Preferred Design Concept - To reduce the depth of overtopping, the lowest point on Goreway Drive would be raised from approximately 170.2 m to 170.77 m. In this instance, the depth of flooding over Goreway Drive would be reduced by 0.5 m, but the total depth of flooding would be 1.5 m. The overpass profile would continue to provide approximately 200 m of roadway below the elevation of the Regional flood plain.

With respect to the first option, it is not practical to raise the road profile by the 1.5 m required to prevent future overtopping due to the considerable expense of building a bridge with the requisite span width of approximately 90 m. Both the expense of the bridge and additional retaining wall length and height make the first and second options impractical. Furthermore, the first and second options would eliminate access to the clubhouse on the east side of Goreway Drive north of Mimico Creek. The existing driveway would need to be removed to create a continuous flow path through the bridge for severe storm events. These options would also eliminate access to the Mississauga Hydro transformer station without significant grading of the existing site.

The possible range of alternatives considered in this Study will either maintain overtopping during the Regional storm event or increase the opening of the Mimico Creek culvert to unreasonable lengths. The preferred option is to accept the plan as currently proposed (i.e., Do Nothing beyond the Preliminary Preferred Design Concept), whereby the depth of overtopping will be reduced by raising the lowest point of the road profile to a maximum of 170.77 m. The considerable remaining weir length and flow depth will allow Goreway Drive to be overtopped during a Regional flood event with minimal head loss. In this scenario, Goreway Drive will be overtopped during a Regional flood event with no impacts on upstream flooding. Further, as flow velocities over Goreway Drive will be very low, the road could be overtopped during a Regional event with very little damage to the road structure.

A structural assessment of the current culvert over Mimico Creek indicated that the original section would not be structurally adequate to support the additional depth of cover required to facilitate construction of an overpass. Therefore, it was determined that the existing culvert needs to be replaced. A replacement is also favourably viewed by the TRCA as it provides an opportunity to employ best environmental practices to design a more environmentally sensitive crossing.

A site visit and air photo analysis was conducted to determine an appropriate span for a replacement structure. Existing mapping was examined, and it was concluded that upstream of Goreway Drive, Mimico Creek is contained within an approximately 60 m wide meander belt. Unfortunately, a migration rate and 100 year erosion limit could not be extracted from the air photo analysis with any confidence, as the extent of stream movement over the past 28 years is less than the error inherent in such an analysis.

In determining and selecting the optimal replacement structure, consideration was given to the existing condition of Mimico Creek, the current location of the creek channel adjacent to the south valley wall immediately north of Goreway Drive, and the effect of the downstream flood control structure on water levels and flow energy in Mimico Creek at Goreway Drive. Based on this assessment, a 12.2 m Hy-Span pre-cast bridge span is recommended for the replacement structure.

The recommended 12.2 m Hy-Span replacement structure will mitigate minor increases in upstream flood levels due to the raised road profile for the overpass option, and will significantly improve access along Goreway Drive for both passenger vehicles and emergency vehicles during severe storm events. In addition, the recommended replacement structure calls for an increased span or opening width that will facilitate the movement of wildlife under this structure.

Hydraulic modeling predicts that, with a 12.2 m Hy-Span culvert in place, approximately 8% of the Regional flow would pass through the expanded culvert, with the remaining approximately 92% flowing over Goreway Drive. Goreway Drive would remain submerged sufficiently below the Regional flood elevation so as not to influence flood depths at the crossing. The only properties in the City of Brampton that would not be readily accessed by Brampton emergency services are the two vacant and undeveloped properties south of Mimico Creek and west of Goreway Drive. It is noted that these properties have very limited development potential as they are largely within the Regional flood plain.

5.4 Selection of Preferred Design Concept

Based on the evaluation of Alternative Design Concepts, Alternative No. 1 was selected as the Preliminary Preferred Design Concept. Alternative No. 1 involves construction of an overpass (road over rail) structure, including replacement of the Mimico Creek culvert. The design parameters of the overpass option are illustrated in **Appendix C**. The benefits associated with implementation of the Preliminary Preferred Design Concept include:

- Significant improvement to road safety as a result of alleviating road vehicle delays at the CN rail crossing
- Minimal risk of potential flooding during major storm events
- Less likely to encounter and require the removal of contaminated soils
- Minimal impact to groundwater resources
- Moderate construction costs and low operating and maintenance costs compared to Alternative 2 - Underpass
- Significantly less disruptive to existing CN freight rail services than Alternative 2 and does not require track diversions during construction
- No need for a pumping station, significant underground utility relocates, and off peak construction force during construction
- Less time required to construct than Alternative 2 (single construction season).

The results of the comparative evaluation were presented to the public, for review and input as part of the consultation activities undertaken during Phase 3. All input received during Phase 3 was taken into consideration and used to refine the Preliminary Preferred Design Concept, where appropriate. Based on the input received, most of the issues and concerns raised during the PIC related to potential impacts on private properties and entrances.

Based on the advantages and disadvantages associated with **Alternative No. 1 – Road over Rail (Overpass) Structure,** coupled with the disadvantages associated with Alternative No. 2 – Road under Rail (Underpass) Structure, Alternative No. 1 was selected as the Preferred Design Concept.

6.0 Project Description

6.1 Plan and Profile

Goreway Drive will be reconstructed as a basic four-lane urban arterial roadway, with left and right turn lanes at intersections. The preliminary plan and profile drawing of the recommended alignment is shown in **Appendix C**. It is noted that the preliminary plan and profile only extend as far north as Kenview Boulevard, where the profile change of the grade separation matches back to the existing road profile. From approximately Kenview Boulevard north to Steeles Avenue, the existing pavement surface will be rehabilitated and an asphalt overlay applied. As shown in **Appendix C**, the Preliminary Preferred Design Concept for the improvements to the approximately 800 m section of Goreway Drive will consist of:

- an urban, four-lane cross section with a raised median on the bridge and right and left turn lanes at the intersections;
- a symmetrical horizontal alignment which will generally follow the existing centerline;
- an overpass (grade separation) to facilitate safe and effective movement of vehicular traffic over the existing triple-track CN Halton Subdivision;
- a profile raise to accommodate the grade separation over the CN corridor, to provide for CN's standard vertical clearance of 7.01 m (23 ft) from top of rail to the underside of the new structure. The profile utilizes minimum vertical curves of K-35 for crest curves and K-15 for sag curves.

6.2 Typical Sections

Typical cross sections of Goreway Drive are provided in **Appendix C**. As noted therein, Goreway Drive will continue to have an urban cross section throughout the length of the Project Limits. The proposed roadway is to be comprised of four 3.75 m wide through and curb lanes, and 3.5 m wide left and right turn lanes. To meet geometric design guidelines, 1.5 m wide shoulders and a 1.5 m raised median will be incorporated into the cross section across the overpass structure. The 1.5 m median will continue south to the Project Limits at Brandon Gate Drive. The extension of the centre median southward is recommended to maintain a consistent road alignment given the relatively short distance between the south limits of the overpass structure and the southbound left turn lane for Brandon Gate Drive.

Curbside catchbasins and a storm sewer are provided to suit the urban cross section. The existing storm sewer system on Goreway Drive will be removed and replaced with a new storm sewer to accommodate the significant profile change for the overpass structure.

The east and west boulevard platforms will be widened to incorporate a 1.0 m asphalt splash pad and 1.5 m concrete sidewalk on the west side and a 1.0 m asphalt splash pad and 3.0 m multi-use asphalt path on the east side. The multi-use path is proposed for the east side to provide connectivity to the City of Mississauga's park/trail system in the Malton Greenway which runs parallel to Mimico Creek on the east side of Goreway Drive. The boulevard platform will also accommodate street lights, street tree planting and various utilities.

6.3 Intersections and Entrances

An intersection capacity and operational analysis was carried out as a component of this Class EA Study. The requirements at the Brandon Gate Drive intersection in the City of Mississauga and the Kenview Boulevard intersection in the City of Brampton were assessed in terms of existing and projected conditions for the 2011 and 2021 time horizons. It should be noted that reliability of traffic projections for a 25 year time horizon is questionable for the purposes of making detailed intersection recommendations. As such, the recommendations within this Report will only be provided up to the Year 2021.

Existing right turn and left turn lane storage lengths provide an acceptable Level of Service B/C for both the Brandon Gate Drive and Kenview Boulevard intersections through to Year 2011 and as such no improvements are required in the near term. Thus, no improvements to these two intersections are recommended to be constructed as a component of the scope of the Preferred Solution for a grade separation. In order to maintain a Level of Service C at the Kenview Boulevard intersection, an auxiliary northbound right turn lane and an extension of the southbound left turn lane should be constructed in the Year 2021. However, the Brandon Gate Drive intersection continues to operate at a Level of Service B through to Year 2021 and as such no improvements to this intersection are warranted.

Although the Project Limits extend to the north side of the Steeles Avenue intersection, operational analysis and improvements to this intersection are being undertaken by the Regional Municipality of Peel through a separate Class EA Study. Although this Report includes preliminary recommendations for this intersection, improvements to Steeles Avenue are not within the scope of this Study and will not be elaborated on.

Five existing property entrances are proposed to be closed or relocated throughout the corridor. As shown in **Appendix C**, these include one entrance to the hydro transformer station, two entrances to the golf course facility, one residential entrance to the condominium corporation, and one field entrance to the CN corridor. In addition, access to two vacant properties on the west side of Goreway Drive just north of the CN corridor will be provided as per discussions with the affected parties.

6.4 Temporary Road Detour

Given the significance of Goreway Drive as a four-lane urban arterial/major collector roadway, a minimum of one lane of traffic in each direction is to be maintained for the duration of construction. To this end, a temporary road detour will be constructed, with the preferred location being the east side of Goreway Drive to take advantage of the available ROW width to the north of the CN crossing. The majority of the construction can be undertaken with the detour constructed on the east side, although periodic short term full road closures may be required to connect the detour back to the existing road at the north and south limits of the profile changes, where there is a narrowing of the existing ROW widths.

A preliminary road detour plan is shown in **Appendix C**. The detours are designed as temporary road with 3.5 m wide lanes and 1.0 m wide shoulders. Minimum design parameters are established for a reduced posted speed of 40 km/hr during construction. The exact location and limits of the temporary road detours will be confirmed during the Detailed Design phase.

6.5 Retaining Walls

To retain the high fill from the significant profile raise for the overpass structure either high walls, extensive fill slopes or a combination of both will need to be constructed. During preparation of the preliminary design a number of considerations were involved in determining the appropriate retaining wall. This includes, but is not limited to, available space within existing property limits, boulevard treatments, utility requirements and aesthetics. The objective is to achieve a balance and to develop an optimum retaining wall configuration with consideration for the various competing needs including costs.

To meet the above objective south of the CN corridor, on both the east and west sides of Goreway Drive, the retaining wall alignment is shifted away from the road edge and is essentially parallel to the ROW. This alignment allows for a graded slope from the back of boulevard down to the top of the retaining wall, thereby lowering the overall wall height and reducing costs. As a result of this alignment, the maximum wall height is reduced from approximately 9 m down to 5 m on the west side and from approximately 9 m down to 6.5 m on the east side. In turn this design provides a graded slope for application of landscape treatments to mitigate or minimize the visual impacts of the raised road profile. A similar approach is taken on the east side of Goreway Drive north of the CN corridor, with the retaining wall at its highest point being reduced from 9.5 m down to 7 m.

To improve aesthetics and mitigate visual impacts of the proposed retaining walls, it is recommended that Reinforced Earth Company Ltd. (RECO) retaining walls be specified for use in the construction. RECO walls can be produced in a variety of patterns and colours that will help to minimize the intrusiveness of the view from residential properties backing onto Goreway Drive. A decorative handrail can also be installed at the top of the walls to improve aesthetics while addressing safety needs. Those in attendance at PIC No. 2 were supportive of these features and consider them to be a key factor in their acceptance of the retaining walls associated with the overpass solution.

The restriction of the narrow ROW on the west side of Goreway Drive north of the CN corridor limits the opportunity to shift the retaining wall away from the road and reduce the overall height. Within this section, the intent is to reduce the need for additional property to the extent possible.

6.6 CN Structure

The proposed grade separation over CN's Halton Subdivision involves the construction of an approximately 29 m single span bridge consisting of 1500 mm concrete precast I-girders. The structure will provide for the road cross section detailed in **Section 6.2** above, and will span the three existing CN tracks. Provisions have already been built into CN's existing track layout to allow for a future fourth track expansion to be accommodated between the existing middle and northernmost tracks. Therefore the span does not have to be increased to accommodate future track expansion. The span will provide additional clearance between the centreline of the rail and abutment face on the north side to allow for a 2.44 m (8 ft) CN access road.

6.7 Utilities

Throughout the Study, the various utility companies were consulted to confirm the existence and location of their existing plant within the Study Area Corridor, obtain information on future requirements, and identify possible conflicts and/or relocation requirements. A summary of the various utilities that have confirmed plant in the Corridor and the need for utility relocation is provided in **Table 10** below. As noted therein, the majority of the utilities requiring relocation are associated with the hydro pole line on the west side of Goreway Drive. This pole line and the joint use tenants will require relocation due to the significant grade raise for the overpass structure.

A meeting was held with utility companies on November 16, 2007, with City of Brampton Staff. Enersource and Hydro One Brampton have indicated that the relocation of utilities on top of the proposed grade separation is acceptable, and therefore no property acquisition or easement is required. Each of the utilities will need to be consulted and coordinated during the Detailed Design phase to resolve any anticipated conflicts and determine a suitable relocation strategy.

Table 10 – Utility Coordination

Utility	Description	Relocation Required
Enbridge Consumers Gas	• 900 mm high pressure gas main in 3 m gas easement on north side of CN corridor • 100 mm buried gas main in east boulevard, offset 0.9 m from Property Line, from Steeles Avenue to the north side of the CN corridor • 20 mm buried gas main in east boulevard, offset 0.9 m from Property Line, from the north side of the CN corridor to Brandon Gate Drive	NO NO NO
Hydro One Brampton	• Pole line and aerial cable on the west side from Steeles Avenue to the north side of the CN corridor • 100 mm direct buried duct on the west side from Kenview Boulevard to the north side of the CN corridor • Pad mounted transformer on the west side, north of the CN corridor	YES YES YES
Enersource Hydro Mississauga	• Pole line and aerial cable on the west side from Brandon Gate Drive to the south side of the CN corridor • Underground duct and transformers on the east side from Brandon Gate Drive to the south side of the CN corridor	YES NO
Hydro One Telecom	• Aerial fibre optic cable on pole line on the west side from Steeles Avenue to the south side of the CN corridor • Aerial fibre optic cable on pole line on the south side of Kenview Boulevard, crossing to the west side of Goreway Drive • Underground fibre optic cable in duct on the west side from Kenview Boulevard to 60 m south of Kenview Boulevard	YES NO YES
Bell Canada	• Underground conduit 6 m west of centerline to 70 m north of Brandon Gate Drive changing alignment to 2 m off property line and extending to CN tracks • Underground conduit 1.6 m east of centerline from Brandon Gate Drive to Kenview Boulevard • Double underground conduits crossing Gorway Drive 30 m north of Brandon Gate Drive • Underground conduit 14 m west of centerline to 40 m north of Brandon Gate Drive • Existing pedestal 90 m south of Kenview Boulevard and connecting underground conduit 1 m west of centerline	YES YES YES NO YES
Rogers Cable	• Aerial fibre cable on pole line on the west side from Steeles Avenue to Brandon Gate Drive • Buried fibre optic cable in duct on the south side of the CN corridor • Buried coaxial cable in east boulevard from the north end of the condominiums to Brandon Gate Drive • Buried fibre optic cable and coaxial cable crossing Goreway Drive north of Brandon Gate Drive	YES NO NO NO
Hydro One Networks	• No existing plant in the area	N/A
Allstream Communications	• No existing plant in the area	N/A
Trans-Northern Pipelines Inc.	• No facilities in the area	N/A

Utility	Description	Relocation Required
TransCanada Pipelines Ltd.	• No facilities in the area	N/A
City of Brampton Public Service Network	• No existing fibre in the area	N/A
FCI Broadband	• Aerial cable on Steeles Avenue only	N/A
Telus Communications	• 10 m length of buried 100 mm conduit in the west boulevard just north of the CN corridor • Shared infrastructure with 360 Networks along north side of CN corridor	YES NO
Telus Network	• No existing or future plant in the area	N/A
Region of Peel	• 500 mm diameter concrete watermain, hydrants and chambers in the east side boulevard	Relocation of hydrants and chambers

6.8 Mimico Creek Crossing Structure

A structural assessment of the current culvert over Mimico Creek indicated that the original section would not be structurally adequate to support the additional depth of cover. Therefore, it was determined that the existing culvert needs to be replaced.

Considering the existing condition of Mimico Creek, the current location of the creek channel adjacent to the south valley wall immediately north of Goreway Drive, and the effect of the downstream flood control structure on water levels and flow energy in Mimico Creek at Goreway Drive, a 12.2 m Hy-Span pre-cast bridge span is recommended for the replacement structure. The recommended 12.2 m Hy-Span replacement structure will mitigate the minor increases in upstream flood levels due to the raised road profile for the overpass option, and will significantly improve access along Goreway Drive for both passenger vehicles and emergency vehicles during severe storm events.

At present, wildlife must travel through the water to cross under Goreway Drive at this structure. The recommended replacement structure calls for a 12.2 m Hy-Span Bridge, as noted above, thereby resulting in an increased span or opening width. In keeping with feedback received from the TRCA, it is recommended that consideration be given during the Detailed Design phase to provide opportunities for wildlife species to pass under Goreway Drive. To this end, a low flow channel design is recommended to provide stream bank within the replacement structure to enable wildlife to pass under the roadway unencumbered during most flow conditions and reduce the existing barrier effect.

6.9 Stormwater Management Analysis and Recommendations

Given that Goreway Drive is to be maintained as a four-lane roadway, the proposed improvements to Goreway Drive will have a negligible impact on the quality and quantity of storm runoff delivered to Mimico Creek. Eventually, the existing impacts of Goreway Drive on the quality and quantity of runoff delivered to Mimico Creek will be mitigated through future stormwater management retrofit projects. Funds are currently being collected in both a general stormwater management retrofit plan in the City of Mississauga, and through a plan specific to a future retrofit facility on Mimico Creek immediately downstream of Goreway Drive in the City of Brampton. Opportunities to further enhance the quality and quantity of runoff delivered from Goreway Drive should be explored. Best management practices for stormwater management in relation to this project will be evaluated during the Detailed Design stage for review and approval by the TRCA.

6.10 Property Requirements

The width of the existing ROW in the Study Area varies from 20 m to 42 m north of the CN corridor and from 37 m to 66 m south of the CN corridor. The wider ROW south of the CN corridor accommodates the wider road platform and substantial profile raise associated with the Preferred Solution. However, north of the CN corridor, in particular on the west side, the existing ROW is not sufficient for the proposed improvements. The road and boulevard platform extends beyond the existing west property line and a high retaining wall is required for the grade raise. In addition to the property acquisition required to construct the proposed works, additional width is required beyond the construction footprint to allow for access to the private properties and to accommodate utility relocations as well as access for maintenance provisions. Similarly, on the east side of Goreway Drive north of the CN corridor, property acquisition is required to facilitate the extension of the existing Mimico Creek culvert.

Appendix C identifies the proposed property to be acquired from three separate owners and defines the width of acquisition at the limits of each property as well as the estimated area. The total area of property acquisition is estimated to be 0.40 ha. It is noted that this estimate is based on preliminary grading requirements and as such further engineering input is required during the Detailed Design phase to determine actual grading and property requirements. Further property acquisition may be required to accommodate additional utility relocations and easements which will also be determined during the Detailed Design phase.

6.11 Cost Estimate

Table 11 includes a summary of the anticipated costs to construct the Preferred Solution. As noted therein, the estimated total cost of the Project is approximately $16,150,000. It is noted that this cost estimate does not include any costs for acquiring approximately 0.40 ha of private property outside the existing ROW. It is also noted that a large contingency cost allowance of 30% is included to reflect the preliminary status of the design. A more detailed and accurate cost estimate will be developed during the Detailed Design stage.

Table 11 – Preliminary Cost Estimate to Construct Preferred Solution

	Description	Payment Amount ($)
1	General Office and Site Overhead	1,180,000.00
2	Asphalt and Curb Removals	32,000.00
3	Storm Sewers and Associated Works	315,000.00
4	Earth Excavation and Grading	745,000.00
5	Surface Course Asphalt	110,000.00
6	Binder Course Asphalt	186,000.00
7	Asphalt Splash Pad and Multi-use Path	102,000.00
8	Granular 'A'	91,000.00
9	Granular 'B', Type I	167,000.00
10	Concrete Curb and Gutter (All Types)	65,000.00
11	Concrete Sidewalks	54,000.00
12	100 mm Topsoil and Nursery Sod	87,000.00
13	Landscaping (Allowance)	300,000.00
14	Pavement Marking	31,000.00
15	Watermain Relocation	77,000.00
16	Roadway Illumination	300,000.00
17	Bridge Structure	1,900,000.00
18	Retaining Walls	5,250,000.00
19	Temporary Shoring Protection	100,000.00

	Description	Payment Amount ($)
20	Replace Existing Concrete Culvert	850,000.00
21	Relocate Existing Hydro Poles and Lines	350,000.00
22	Relocate Existing Bell Conduit and 360 Networks Fibre	250,000.00
23	Temporary Road Detour	190,000.00
24	Rail Diversion and Temporary Signals	100,000.00
	SUBTOTAL	**12,832,000.00**
	30% Contingency	**3,318,000.00**
TOTAL		**16,150,000.00**

6.12 Environmental Effects and Mitigation Measures

It is recognized that the proposed improvements to Goreway Drive will result in some impacts on the existing environment. **Table 12** provides a detailed assessment of the potential environmental effects associated with the Project and the recommended mitigative measures required to ameliorate these effects. For the purposes of this discussion, the potential environmental effects are broken down into the pre-construction and construction, and post-construction (or operations) phases.

6.13 Cumulative Environmental Effects

Recognizing that environmental effects can interact and combine with each other over time and space, an assessment of cumulative effects was deemed prudent for this Study. Cumulative effects are environmental effects of individual activities and Projects that combine and interact with each other over time and distance to cause aggregate effects that may be different in nature and significance than those of the individual activities or Projects.

As the Project involves reconstruction within the existing Goreway Drive ROW, for the most part, cumulative environmental effects are expected to be low. Existing road ROWs, by their very nature, are continuously experiencing environmental changes brought about by regular maintenance activities, for example. With respect to Goreway Drive, it has been subjected to many disturbances due to past road construction and maintenance activities, and is not considered a sensitive environment.

The Study Area Corridor does not represent a complex natural, physical, socio-economic and/or cultural environment. With the exception of the main (east) branch of Mimico Creek and its associated flood plain, there are no significant natural areas or sensitive features along the route length. Over the past 25 years, construction standards and practices, coupled with improved land rehabilitation techniques, have advanced to the point where disturbances within and adjacent to the road ROW can be readily mitigated. It is now possible to eliminate many of the negative effects associated with construction activities on the surrounding environment, including the main (east) branch of Mimico Creek and its associated flood plain.

The Project Team has identified one construction Project that could coincide with the proposed improvements on Goreway Drive. The Regional Municipality of Peel has completed a separate Class EA to improve the intersection of Goreway Drive and Steeles Avenue. At the time of writing, the timing of construction of these intersection improvements is uncertain. However, in the event construction of the Goreway Drive improvements are to occur during the Steeles Avenue/Goreway Drive intersection improvements, monitoring and additional mitigative measures will be developed to minimize any significant cumulative effects that may occur. As this Study does not propose changes to Goreway Drive in the vicinity of Steeles Avenue, the overall cumulative environmental effects associated with the proposed improvements to Goreway Drive are anticipated to be low.

It is recognized that once the proposed improvements to the Steeles Avenue intersection and Goreway Drive are constructed, there will be less queuing of traffic along Goreway Drive and at Steeles Avenue within the Study Area Corridor. As a result, these will be a net benefit given that there will be less traffic congestion in the area, which will contribute to improved air quality, due to less vehicle emissions, driver frustration and traffic infiltration of neighbouring residential areas, for example. In addition, the proposed improvements will improve overall road safety due to the elimination of train/vehicle conflicts.

Table 12 – Environmental Effects and Mitigative Measures

A. PRIOR TO AND DURING CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
1.0	***Community Issues***		
1.1	Potential disruption to motorists and residents during construction.	1.1	Prior to commencing construction activities, the public, regulatory agencies and property/business owners will be notified regarding the scheduling of construction activities. No temporary access re-routings are necessary as one lane of traffic is to be maintained at all times. Designate routes to be used by construction traffic to keep it off unsuitable (i.e., residential) roads.
1.2	Potential disruption to emergency vehicles (ambulance, police, fire).	1.2	Emergency services will be kept informed of construction activities and scheduled to minimize/avoid delays during an emergency.
1.3	Potential noise impacts to residents during construction.	1.3	Noise produced during the construction process is temporary and will be addressed as part of the timing restrictions.
		1.4	Contractor shall adhere to all applicable Noise By-laws of the City of Brampton and City of Mississauga.
		1.5	Contractor to ensure that all construction equipment be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts.
		1.6	Idling of equipment shall be restricted to the minimum necessary to perform the specified work.
1.4	Potential to affect safety of road users and construction workers.	1.7	Due to productivity and safety concerns, construction activities will be carried out during daylight hours, except under special conditions where night time construction is warranted (scheduling delays).
		1.8	Implement signage/speed restrictions to minimize hazards.
		1.9	Follow Ministry of Labour Occupational Health and Safety Regulations for construction sites.
1.5	Potential effects on pedestrian and/or cyclist movements.	1.10	Safe passage shall be maintained at all times.
1.6	Potential reduction in air quality due to dust and/or equipment emissions.	1.11	Water and/or commercial dust suppressants approved by the MOE to be used during construction to reduce dust emissions.
		1.12	Contractor to sweep road clean at the end of each work day if mud has been tracked onto the roadway.
		1.13	Contractor to comply with all applicable by-laws for dust control and emissions.
2.0	***Property***		
2.1	Partial acquisition of three (3)	2.1	Commitment to provide fair market value for land and/or compensation for damages due to

A. PRIOR TO AND DURING CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
	individual properties.		acquisition.
2.2	Potential loss of public and private access during construction.	2.2	All public and private access to be maintained at all times.
		2.3	Contractor shall not enter or occupy with crews, equipment or materials, any lands other than City of Brampton or City of Mississauga property, and the easements shown on the Preliminary Design Drawings, unless formal consent has been received from all affected parties.
2.3	Relocation/closure of five (5) existing entrances.	2.4	During Detailed Design, property/business owners will be contacted to further discuss their respective entrance impacts. Applicable mitigation strategies will be developed in consultation with property/business owners. Compensation, if any, for property impacts will be determined in consultation with property owners during the property negotiation process at the Detailed Design stage.
3.0	***Vegetation***		
3.1	Potential loss of roadside vegetation.	3.1	Limit ROW clearing to required area of construction.
		3.2	Tree removal shall be avoided between May 1 and August 1 (regardless of the calendar year) to prevent the incidental take of migratory birds or their nests as per the *Migratory Birds Convention Act* (1994). In the event construction works must be conducted during the breeding bird season, that is, May 1 to August 1, a nest survey shall be conducted by a qualified Avian Biologist prior to commencement of construction activities to identify and locate active nests of species covered by the *Migratory Birds Convention Act* (1994).
3.2	Potential effects on mature (i.e., specimen) trees.	3.3	Existing trees to be removed/relocated due to construction activities are to be confirmed during the Detailed Design stage.
		3.4	Drip line to be fenced off around mature (specimen) trees to be preserved to minimize disturbance to root systems.
		3.5	Mature (specimen) trees to be preserved shall be pruned and fertilized to promote survival/ rehabilitation.
		3.6	All areas disturbed during construction will be reseeded and revegetated immediately with native (non-invasive) species.
		3.7	Re-establish vegetation to maintain habitat typical of opportunistic wildlife species. Specific species to be determined during the Detailed Design phase, following consultation with TRCA.

A. PRIOR TO AND DURING CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
		3.8	A qualified Environmental Inspector is recommended to oversee the environmental aspects of construction at the field level. The Environmental Inspector's primary responsibilities are to: • advise construction crews on environmental matters; • ensure that the mitigation and monitoring requirements outlined in this Report (and to be contained within the Contract Documents) are carried out effectively; and, • that construction activities are carried out in compliance with permit conditions, and the Cities' environmental policies.
4.0	***Drainage (Water Quantity and Quality)***		
4.1	Potential migration of sediment from the construction site.	4.1	Contractor shall ensure applicable erosion and sediment control measures are in place prior to commencement of any construction activities and remain in place until all disturbed areas are fully stabilized. Erosion and sediment control measures shall be inspected on a regular basis to ensure they are functioning properly and are maintained and/or upgraded as required. Proposed measures include: • mulching and hydroseeding of exposed soil; • placing silt control at catchbasins; • placing silt fencing adjacent to slopes without sod or seed/mulch; • installing silt fencing, rock check dams, and/or other appropriate measures in ditches where required in accordance with the *Erosion and Sediment Control Guideline for Urban Construction* (2006) and/or as specified in Contract Drawings; and, • regular maintenance (clean-out) of ditches to minimize sedimentation build-up.
4.2	Potential erosion of newly exposed cut and fill slopes and ditches.	4.2	Use soft, vegetative stabilizing treatments (e.g. seeding, shrubs, trees, ground cover). Use erosion control blankets, mats or nets to assist in stabilizing newly graded slopes outside of the growing season when seed cannot be established. Daily monitoring of construction activities by a qualified Environmental Inspector with regard to sediment control and establishment of a maintenance protocol to respond immediately to identified problems.
5.0	***Groundwater Resources***		
5.1	Potential to disrupt groundwater flow pattern and impair groundwater quality/quantity.	5.1	Although construction is not anticipated to have any adverse effects on groundwater resources, investigations will be undertaken should any complaints related to the impairment of groundwater flow pattern and/or groundwater quality/quantity be received. The need for dewatering during construction will be determined and confirmed during the Detailed Design phase. If dewatering is required during construction, the dewatering

A. PRIOR TO AND DURING CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
			scheme will be reviewed with the TRCA prior to implementation. Groundwater quality will be tested to ensure that discharge from dewatering activities, if warranted, meets local Sewer Use By-law criteria. If dewatering effluent is to be discharged to the natural environment, the effluent will be treated prior to its release.
		5.2	If construction dewatering discharge is greater than 50,000 litres per day, a Permit to Take Water (PTTW) will be secured from the MOE in accordance with the PTTW Manual (2005).
6.0	***Fisheries Habitat***		
6.1	Potential impacts to fisheries resources and habitat due to in-stream works.	6.1	Construction timing constraints imposed by the MNR/TRCA will be strictly adhered to during construction in or adjacent to the main (east) branch of Mimico Creek. Works shall take place between July 1 and February 28 of any given year. Work areas should be delineated with construction fencing to minimize disturbance to the area.
6.2	Replacement, extension, and widening of the Mimico Creek culvert to accommodate additional fill materials, which will require in-stream works. Will have an impact on fisheries resources.	6.2	The new (replacement) culvert should be installed to match the invert of the existing culvert and stream bed. As well, the new (replacement) culvert should be open bottom or countersunk a minimum of 20% of the culvert height, if possible, and backfilled with native substrate.
		6.3	All in-stream work should be performed in the dry using a temporary flow bypass system.
		6.4	Dewatered effluent should be treated in advance of discharge to the receiving watercourse.
		6.5	Fish isolated during construction activities should be captured and safely released to the watercourse upstream of the work zone.
		6.6	Heavy equipment should be secluded from inundated areas.
		6.7	All activities, including maintenance procedures, should be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the corridor's watercourses or roadside ditches that discharge to nearby watercourses. Vehicular refuelling and maintenance will be conducted away (minimum of 30 m) from all identified watercourses.
		6.8	Good housekeeping practices should be implemented during construction in relation to materials storage/stockpiling, equipment fuelling/maintenance, etc.
7.0	***Contaminated Soils***		
7.1	Potential risk to construction personnel	7.1	A program of limited sampling and chemical testing of soil is recommended prior to construction to determine appropriate management of excess excavated soil. The specific

A. PRIOR TO AND DURING CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
			details regarding the limited sampling and soil testing program shall be determined during the Detailed Design phase.
		7.2	In the event that contaminated soils are encountered during construction, the Contract Administrator or Inspector shall determine the level and type of contamination as expediently as possible. Should the excavated materials be deemed "contaminated", the soils shall be handled and disposed in compliance with *Ontario Regulation 347* under the *Environmental Protection Act*. Moreover, the health and safety protocols specified under Regulation 839 of the *Ontario Occupational Health and Safety Act* shall be adhered to when encountering contaminated soils/materials.
8.0	***Archaeological and Heritage Resources***		
8.1	Potential to disturb archaeological resources.	8.1	A Stage 2 Archaeological Assessment shall be completed prior to construction within the undisturbed areas listed within the Stage 1 Assessment Report. Once Archaeological Clearance is received from the Ministry of Culture, then construction can commence.
		8.2	In the event deeply buried archaeological resources are found during construction, the office of Regulatory and Operations Group, Ministry of Culture (416-314-7143) will be contacted. In the event that human remains are encountered during construction activities both the Ministry of Culture (416-314-7143) and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Business Services (416-326-8404) will be contacted, in addition to the Peel Regional Police Service, the local coroner and the City.
9.0	***Rail Operations***		
9.1	Potential impacts to CN's existing rail operations along the Halton Subdivision	9.1	A CN flagman will be posted when construction operations are within 10 m of the mainline track. The Contractor's personnel must obey the flagman's instructions.
		9.2	CN's standard safety procedures will be referenced by the Contract, including provisions that no work take place within 10 m of the mainline tracks when a train is passing and that no equipment may move in that area while a train is passing. Such provisions will be enforced by the CN flagman.
		9.3	All workers will be required to pass the CN railway safety course prior to working on site.

B. AFTER CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
10.0	***Community Issues***		
10.1	Potential traffic noise.	10.1	Future project sound levels are predicted to be in the range of 52 to 61 dBA. In accordance with the MOE/MTO Noise Protocol, the predicted sound levels do not warrant noise mitigative measures.
10.2	Landscape Plan	10.2	A Landscape Plan will be developed during the Detailed Design phase to return the Project Area to its pre-construction condition. At this time, consideration will be given to identifying species to reduce roadway noise.
11.0	***Drainage (Water Quantity and Quality)***		
11.1	Potential for increase of overland flows (i.e. water quantities) to watercourses.	11.1	Although no impacts to overland flow were identified during the Class EA, the potential for increase of overland flows will be assessed, and measures to address water quantity concerns developed during the Detailed Design phase.
11.2	Deterioration of water quality due to stormwater runoff.	11.2	Water quality will be addressed through future stormwater management retrofits. Best management practices for stormwater management in relation to this project will be evaluated during the Detailed Design stage for review and approval by the TRCA.
12.0	***Landscaping***		
12.1	Potential loss of roadside vegetation and mature (i.e., specimen) trees.	12.1	Focus will be on preserving existing vegetation. Existing vegetation will be transplanted where feasible.
12.2	Potential visual effect of new roadway facilities.	12.2	Existing vegetation will be retained and may be buttressed with new vegetation as determined during preparation of the Landscape Plan as part of the Detailed Design phase.
		12.3	Existing trees will be pruned and fertilized to promote rehabilitation.
		12.4	Alternative landscape treatments to be identified and evaluated during the Detailed Design phase.
		12.5	A post-construction monitoring and environmental inspection program will be implemented to ensure, to the extent possible, that lands disturbed as a result of construction activities will be restored to their original use and condition as soon as possible after construction. To this end: • surplus excavated material (provided it is free of contaminated soils) will be removed to an environmentally suitable location; • all temporary culverts will be removed; • all disturbed areas will be seeded with a cover crop consisting of a mixture of grasses

B. AFTER CONSTRUCTION			
Environmental Issue/Concern/Effect		**Proposed Mitigative Measure**	
No.	**Details**	**No.**	**Details**
			and legumes indigenous to the Study Area; and, • native trees or shrubs will be planted as per the Landscape Plan to reinstate removed growth, and to augment vegetation at visually sensitive locations, or to serve as an erosion control measure.
13.0	***Aesthetics***		
13.1	Loss of landscaping along the ROW	13.1	Minimize removal of vegetation and salvage landscaping materials such as bushes and trees where possible for use after construction. Replant landscaping materials and/or re-sod affected areas where warranted, as per the Landscape Plan.
13.2	Visual impact due to intrusive embankment, which carries new roadway facilities.	13.2	Native trees or shrubs will be planted to reinstate removed growth, and to augment vegetation at visually sensitive locations as per the Landscape Plan.
		13.3	Following construction, lands disturbed as a result of construction activities will be restored to their original use and condition to the extent possible. All disturbed areas will be rehabilitated, re-stabilized and re-vegetated immediately upon completion of the construction works.
14.0	***Fisheries Habitat***		
14.1	Potential impacts to fisheries resources and habitat.	14.1	The Construction Administrator or Environmental Inspector will be responsible for carrying out a visual inspection of all disturbed lands, and all lands where seeding, sodding and/or vegetative planting have been installed to ascertain the level of success of revegetation efforts and to assess success of erosion control measures.
		14.2	Where construction has occurred in or adjacent to the east (main) branch of Mimico Creek, the Construction Administrator or Environmental Inspector will assess the stability of the creek banks and creek bed. Any features determined to be unstable will be stabilized.
15.0	***Wildlife***		
15.1	Potential impact on ecological features, landforms and functions.	15.1	Re-establish vegetation to maintain habitat typical of opportunistic wildlife species.
		15.2	During the Detailed Design, consideration will be given to providing opportunities for wildlife species to pass under Goreway Drive. To this end, a low flow channel design is recommended to provide stream bank within the replacement structure to enable wildlife to pass under the roadway unencumbered during most flow conditions and to reduce the existing barrier effect.

7.0 Construction Monitoring and Inspection Program

The construction stage is the implementation of the Project, and involves execution of the proposed roadway improvements within the approximately 1.2 km section of Goreway Drive. As environmental protection during construction is paramount, this Chapter describes the Construction Monitoring and Inspection Program proposed during and following the proposed construction works to protect the environment. The Program, as detailed below, includes monitoring and review of the predicted environmental impacts and the commitments made during completion of this Study.

Prior to commencement of Project construction, the City will retain the services of a Contract Administrator to oversee all aspects of construction at the field level. The Contract Administrator will be the Owner's (City of Brampton/Mississauga) representative during construction. All instructions to the Contractor, including instructions from the Owner, will be issued by the Contract Administrator. The Contract Administrator will have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

The Contract Administrator will be present on-site during all construction activities. To this end, the Contract Administrator will ensure that all construction activities are carried out in conformity with pertinent environmental legislation, regulations and industry standards, and are consistent with the Contract Documents. Conversely, upon completion of the Project, the primary objective of the Construction Monitoring/Inspection Program is to ensure that the construction site is returned to pre-construction condition as soon as reasonably possible, and to ascertain the success of the restoration effort.

7.1 Monitoring/Inspection During Construction

In carrying out the proposed road improvements to Goreway Drive, some clearing, grading and vegetation removal is required. In addition, the proposed works entail working in and/or within proximity to Mimico Creek to replace and lengthen the existing box culvert. Consequently, qualified Environmental Specialist Staff are recommended to oversee the environmental aspects of construction at the field level as it relates to the Mimico Creek replacement/extension. The on-site Contract Administrator/Inspection Staff (to be retained by the City) will be responsible for:

- advising construction personnel on environmental matters;
- ensuring that the mitigation and monitoring requirements outlined in this Report are carried out effectively;
- ensuring that construction activities are carried out in compliance with environmental legislative requirements, and pursuant to the Cities' environmental policies;
- liaison between the Contractor and City Staff; and,
- making any formal environmental reporting to applicable environmental agencies and others as required by statute.

Furthermore, the Contract Administrator will be responsible for identifying any activities which may cause environmental impacts that are different and/or at a greater level of intensity than anticipated, and/or which may be in contravention with applicable environmental regulations. In such instances, the Contract Administrator will take the necessary steps to change or modify the Contractor's method(s) of operation to

reduce those impacts, or recommend immediate suspension of specific construction activities, if necessary.

7.2 Post-construction Monitoring and Inspection

Though surplus materials and debris will be removed following each successive construction activity, a final clean up will be carried out once all construction activities have been completed. The purpose of the post-construction monitoring component of the Program is to ensure, to the extent possible, that the lands disturbed as a result of construction activities will be restored to their original use and condition as soon as reasonably possible after construction, and to ensure that the stormwater management facilities are functioning as designed. At this time, the following restoration activities are typically carried out:

- all disturbed areas will be graded as required to fill in ruts and holes;
- surplus excavated material (provided it is free of contaminated soils) will be reused during construction or removed to an environmentally suitable location(s);
- all temporary culverts will be removed;
- all disturbed areas will be seeded with a cover crop consisting of a mixture of native grasses and legumes; and,
- native trees or shrubs will be planted as per the Landscape Plan to reinstate removed growth, and to augment vegetation at visually sensitive locations, or to serve as an erosion control measure.

To ensure that the above restoration efforts have been carried out in a satisfactory manner, the Contract Administrator/Inspection Staff will be responsible for carrying out a visual inspection of:

- all disturbed lands; and,
- all lands where seeding, sodding and/or vegetative planting have occurred.

At this time, the areas/features listed above will be visually inspected to ascertain the level of success of revegetation efforts (tree and shrub planting viability) and examined for evidence of subsidence (i.e., assess success of erosion control measures). In addition, any other environmental sensitivities that have developed after construction will be identified. In the event a problem or issue is identified, it will be addressed at on-site meetings with appropriate staff from the City and/or agency/utility, depending on the nature, extent and significance of the problem/issue.

7.3 Operation and Maintenance

Upon completion of the roadway improvements, the roadway will be maintained according to the Cities' standards and practices. After construction, the Cities' Public Works Staff will ensure that the roadway is maintained regularly such that ditches, storm sewers and gutters will be periodically cleaned of winter deposits. The Cities' Staff will also attend to any trees that require attention.

7.4 Commitment to Further Work

Detailed Design

During the Detailed Design stage, further contact will be made with applicable regulatory agencies and utility companies to facilitate the review of applicable documentation or to obtain pertinent permits/approvals, as required, or as deemed necessary. At this time, TRCA will be provided with the following information for review and comment:

- construction dewatering estimates for the widening of the existing culvert and the construction of the overpass at the CN railway line

- details for addressing dewatering operations
- retaining wall design
- specific erosion and sediment control measures
- design of the storm water quality treatment facilities
- details relating to access for the proposed culvert works and access grading of entranceways
- updated hydrology and hydraulic models for the Mimico Creek Watershed
- design of the detour road including phasing and impacts
- detailed Sediment and Erosion Control Plan consistent with the *Erosion and Sediment Control Guideline for Urban Construction* (2006)
- design of the storm sewer system and outfall.

In addition, all affected property owners, residents, and business owners/operators within the corridor will continue to be consulted to inform them of Phase 5 of the Municipal Class EA process. At this time, the City will commence negotiations with affected property owners to secure the additional lands to effect the works, including advance utility contracts to clear the corridor of encumbrances and utility relocations.

Prior to Construction

Upon completion of the Detailed Design component, the City will have a good understanding of the proposed construction start date. Once the exact date has been established, the City will consult all agencies and utility companies who may be affected by the proposed undertaking to discuss the Project's implications and the permit/approvals requirements. Agencies and utility companies to be contacted will include:

- Ministry of Culture;
- Ministry of the Environment;
- Ministry of Natural Resources;
- Toronto and Region Conservation Authority;
- Peel Regional Police Service;
- City of Brampton and City of Mississauga Emergency Services
- CN Rail
- Bell Canada;
- Enbridge Consumers Gas;
- Enersource Hydro Mississauga;
- Hydro One (Brampton and Telecom);
- Region of Peel (hydrants and chambers)
- Rogers Cable; and,
- Telus Communications.

Groundwater sampling within the corridor indicated high concentrations of electrical conductivity, total dissolved solids, and some metals. During construction, temporary run-off controls will be provided and installed to prevent uncontrolled water/sediment flow into Mimico Creek or any ditches that outlet into the creek. The need for dewatering during construction will be determined and confirmed during the Detailed Design phase. If dewatering is required during construction, the dewatering scheme will be reviewed with the TRCA prior to implementation. Groundwater quality will be tested to ensure that discharge from dewatering activities, if warranted, meets local Sewer Use By-law criteria. If dewatering effluent is to be discharged to the natural environment, the effluent will be treated prior to its release to minimize impacts on the natural environment. All existing conditions shown in the Detailed Design plans will be confirmed prior to construction.

7.5 Approvals/Permits Required Prior to Construction

Completion of Phases 1 through 4 of the Municipal Class EA process does not replace or negate the need to obtain a number of pertinent permits or approvals pursuant to other applicable federal, provincial and/or municipal legislation prior to construction. The various agency and utility permits/approvals to facilitate the proposed improvements within the Goreway Drive Study Area Corridor include:

- TRCA (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses permit), related to works within the regulated flood plain and to replace/extend the existing Mimico Creek culvert, and sign-off on Stormwater Management Plan;
- DFO (federal *Fisheries Act* Authorization), related to in-stream works to facilitate replacement/extension of the Mimico Creek culvert. Authorization from DFO will trigger CEAA;
- MOE (Approval under the *Ontario Water Resources Act*), related to Stormwater Management Plan. In addition, the MOE will need to issue a PTTW in the event construction dewatering discharge is estimated to be greater than 50,000 litres per day.
- CN Agreement to permit construction of the proposed grade separation of CN's Halton Subdivision;
- Bell Canada, Enbridge Consumers Gas, Enersource Hydro Mississauga, Hydro One Brampton, Hydro One Telecom, Regional Municipality of Peel (i.e., watermain infrastructure), Rogers Cable, Telus Communications (Agreement on and Approval of construction procedures to cross their facilities); and,
- Hydro One (Agreement for power supply, illumination and signal plant).

In addition to the above, clearance will need to be secured from the MCL prior to construction. Due to the moderate to high archaeological potential within the Study Area Corridor, it is recommended that:

- A Stage 2 Archaeological Assessment is conducted for lands located centrally within the Study Area (i.e., to the north and south of Mimico Creek) and in any areas outside the existing disturbed ROW during the Detailed Design stage and prior to construction activities. A copy of the Stage 1 and 2 Archaeological Assessment Reports will be forwarded to the Mississaugas of Scugog Island First Nation upon completion of the Stage 2 archaeological assessment.

Pursuant to the MCL's *Archaeological Assessment Technical Guidelines* (1993), a licensed Archaeologist will be retained should significant cultural resources be identified during the reconstruction of Goreway Drive. The role of the Archaeologist will be to bring the site(s) to the attention of the MCL and develop an impact mitigation strategy in consultation with the Ministry to minimize the impacts of construction on the resources. In addition, if any archaeological remains are unearthed during construction, immediate measures will be undertaken to protect the site in accordance with the mitigation strategy proposed for the site. At this time, a permit to excavate or alter archaeological and historical sites will be required from the Ministry.

8.0 Conclusions

This ESR was prepared pursuant to the Municipal Class EA to facilitate proposed improvements within the Goreway Drive Study Area Corridor. The Report provides a full and complete account of Phases 1 through 4 of the planning process followed for the Project.

This Study involved undertaking an inventory of the natural, physical, socio-economic, cultural and technical setting within the Goreway Drive Study Area Corridor. The information was used to produce maps identifying features/areas, which could be sensitive to roadway construction, and to facilitate the identification of Alternate Solutions and Designs. These Alternative Solutions and Designs were then compared and a Preliminary Preferred Solution/Design Concept (or method to resolve the problem) was selected, which minimizes environmental and socio-economic impacts in a cost-effective manner.

Regulatory agencies, affected property owners, and stakeholders have participated in the planning process by providing input throughout the Study. A Technical Steering Committee was established at the outset to facilitate the two-way exchange of Project information. Two PICs were held to inform the public and regulatory agencies about the Project and to solicit feedback on the environmental features inventoried within the Study Area Corridor, the planning process followed, proposed evaluation criteria, the Alternative Solutions/Design Concepts identified, and the Preliminary Preferred Solution/Design Concept. In addition, separate meetings were held with owners of property adjacent to Goreway Drive within the Study Area Corridor.

Based on the EA process and the public/regulatory agency consultation carried out throughout the Study, and as described throughout the ESR, a Preferred Design Concept for the Preferred Solution was chosen. The Preferred Design for the improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive will consist of:

- an urban, four-lane cross section with a raised median on the bridge and left turn lane at the Brandon Gate Drive and Kenview Boulevard intersections;
- a symmetrical horizontal alignment which will generally follow the existing centerline;
- rehabilitation of the existing pavement (asphalt overlay) from Steeles Avenue south to approximately Kenview Boulevard;
- an overpass (grade separation) to facilitate safe and effective movement of vehicular traffic over the existing triple-track CN Halton Subdivision; and,
- a profile raise to accommodate the grade separation over the CN corridor, to provide for CN's standard vertical clearance of 7.01 m (23 ft) from top of rail to the underside of the new structure.

As part of the Preferred Design, the retaining wall height will be a maximum of approximately 9 m on the west and a maximum of approximately 7 m on the east, adjacent to a number of properties backing onto Goreway Drive. In addition, the proposed cross section along the grade separation will include a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive.

The Study Area Corridor does not represent a complex natural, physical, socio-economic and/or cultural environment. With the exception of the main (east) branch of Mimico Creek and its associated flood plain, there are no significant natural areas or sensitive features along the Corridor.

The overall conclusion drawn from this ESR is that construction of the proposed improvements can be achieved with minimal disruption to and impact upon the natural, physical, socio-economic and cultural environment. The principal negative environmental impacts will include:

- Removal of some roadside vegetation
- Disturbance to fisheries resources and aquatic habitat

- Visual impact due to intrusive embankment, which carries new roadway facilities
- Partial acquisition of three private properties
- Impacts to five existing property entrances
- Moderate to high construction costs to build grade separation
- Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications
- Possible relocation of utility plant and/or municipal sewer/water infrastructure within the Corridor.

The above impacts are generally limited in scale or extent, short-term in nature, minor and/or reversible. The significance of these effects can be mitigated through the measures prescribed in this Report, along with the use of standard design measures and Best Construction Management Practices. It is noted that construction of the proposed roadway improvements will not require unique or complex mitigative measures. In the long-term, the proposed roadway improvements are not expected to have any discernable adverse impact on the environment.

Construction of the proposed improvements to Goreway Drive is tentatively scheduled to start in 2013 under the City of Brampton's 2007-2016 Capital Programme. However, the timing of construction will be subject to the availability of funding from the City of Brampton and the City of Mississauga, successful procurement of all requisite approvals, and/or property requirements.

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Leonard, Jim. 2007. Heritage Coordinator, City of Brampton.

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Appendix A – Agency and Public Consultation

A1 – Newspaper Notices and Notification Letters

A2 – Agency Contact List

A3 – Agency Correspondence

A4 – Meeting Minutes

A5 – Public Information Centre Materials

A6 – Public Correspondence

A7 – Summary of Comments

NOTE:

In keeping with the *Freedom of Information and Protection of Privacy Act*, all personal information has been omitted where warranted.

A1 – Newspaper Notices and Notification Letters

NOTICE OF STUDY COMPLETION

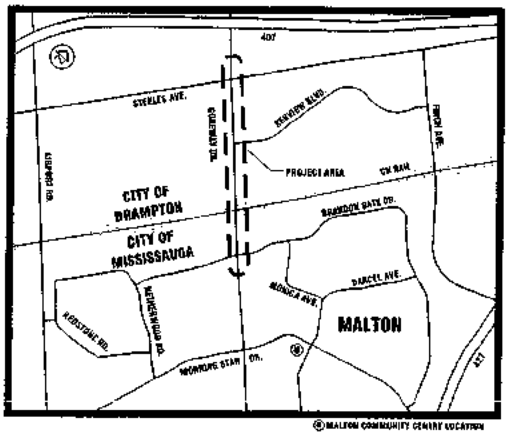
IMPROVEMENTS TO GOREWAY DRIVE
FROM STEELES AVENUE TO BRANDON GATE DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

The Study

In partnership with the City of Mississauga, the City of Brampton has completed a Class Environmental Assessment (EA) Study to facilitate the improvement of Goreway Drive from Steeles Avenue to Brandon Gate Drive (see map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

The Process

This Study has been carried out in accordance with the planning and design process for 'Schedule C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000; amended in 2007), which is approved under the Ontario *Environmental Assessment Act* (EA Act). The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and development of measures to mitigate identified impacts. A Notice of Study Commencement inviting initial input was published on August 6, 2006, and Public Information Centres were held on November 28, 2006 and May 1, 2007.



Following the second Public Information Centre on May 1, 2007, the recommended alternative was reviewed in light of comments received and modified as required. The preferred alternative includes:

- Overpass (Road over Rail) grade separation at CN crossing with intersection improvements along the corridor while maintaining existing four lanes on Goreway Drive.

Environmental Study Report

An Environmental Study Report (ESR) has been prepared for this Study to document the planning and decision-making process undertaken for this study. By this notice, the ESR is being placed on the public record for a 30-day review period (starting **May 14, 2008** and ending **June 13, 2008**) in accordance with the requirements of the Municipal Class EA. The ESR is available for review at the following locations:

The City of Brampton **Clerk's Department** 2 Wellington Street West Brampton, ON L6Y 4R2 Mon.-Fri.:8:30 a.m. to 4:30 p.m.	**The City of Mississauga** **Clerk's Department** 300 City Centre Drive Mississauga, ON L5B 3C1 Mon.-Fri.: 8:30 a.m. to 4:30 p.m.	**The Region of Peel** **Clerk's Department** 10 Peel Centre Drive Brampton, ON L6T 4B9 Mon.-Fri.: 8:30 a.m. to 4:30 p.m.	**The City of Mississauga** **Malton Community Library** 3540 Morning Star Drive Mississauga, ON L4T 1Y2 Mon.-Thu.:10:00 a.m. to 4:30 p.m. Fri.: 10:00a.m. to 6:00p.m. Sat.: 9:00a.m. to 5:00p.m.

If you have questions or comments regarding the Study and/or the ESR, please contact either of the following Project Team members prior to **June 13, 2008**:

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Tel: 905-615-3200 Ext. 3734
Fax: 905-615-3173
Email: abdul.shaikh@mississauga.ca

Concerns raised during the review period will be addressed by the City of Brampton, in collaboration with the City of Mississauga, and UMA Engineering Limited. If concerns regarding this project cannot be resolved through discussions with the City, a person or party may make a written request that the Minister of the Environment make an order for the project to comply with Part II of the *Environmental Assessment Act* (referred to as a Part II Order). Written requests for a Part II Order must be received by the Minister, at the address below by **Friday, June 13, 2008.** A copy of the written request must also be sent to either of the above listed Project Team members. If no request is received by Friday June 13, 2008, the City of Brampton and City of Mississauga intend to proceed with detail design and construction as outlined in the ESR.

The Honourable John Gerretsen
Minister of the Environment
12th Floor, 135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

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.

This Notice first issued on **May 14, 2008.**

UMA Engineering Ltd.
5000 Commerce Boulevard
Mississauga, Ontario L4W 4P1
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 7, 2008

File Name: 4020-009

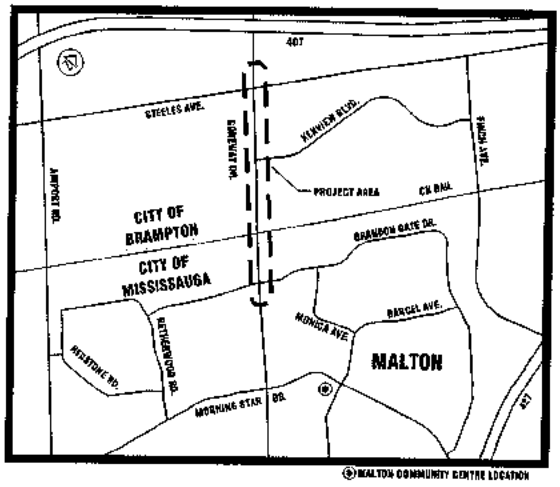
PUBLIC NOTIFICATION LETTER

Dear Public Contact / Occupant,

Re: Notice of Completion
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment Study

The City of Brampton, in partnership with the City of Mississauga, has completed a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). Based on a comparative evaluation of Alternative Solutions and Design Concepts, with public and agency input, the Preferred Solution includes maintaining four lanes on Goreway Drive with intersection improvements throughout and providing a grade separation (overpass or 'Road over Rail' structure) at the CN rail crossing. The purpose of this letter is to announce that the Study has been completed and to inform you of the 30-day public review period for the Environmental Study Report (ESR).

This Study has been carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000; amended in 2007), which is approved under the Ontario *Environmental Assessment Act* (EA Act). The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and development of measures to mitigate identified impacts.



Two Public Information Centres (PICs) were held during the Study to present the project and receive public and agency input. The first PIC was held in November, 2006, to review the problem/opportunity and alternative solutions. The second PIC was held in May, 2007, to review alternative design concepts for the preferred solution. An ESR has been prepared for this Study to document the planning and decision-making process that resulted in the identification of the Preferred Solution and Design Concept. All comments received throughout the Study process have been addressed in the ESR. Copies of the ESR can be viewed at the following review centres:

The City of Brampton
Clerk's Department
2 Wellington Street West
Brampton, ON L6Y 4R2
Mon. to Fri.:
8:30 am to 4:30 pm

The City of Mississauga
Clerk's Department
300 City Centre Drive
Mississauga, ON L5B 3C1
Mon. to Fri.:
8:30 am to 4:30 pm

The Region of Peel
Clerk's Department
10 Peel Centre Drive
Brampton, ON L6T 4B9
Mon. to Fri.:
8:30 am to 4:30 pm

The City of Mississauga
Malton Community Library
3540 Morning Star Drive
Mississauga, ON L4T 1Y2
Mon.-Thu.:
10:00 am to 4:30 pm
Fri.: 10:00 am to 6:00 pm
Sat.: 9:00 am to 5:00 pm

The review period for the ESR will end on **June 13, 2008**. If you have questions or comments regarding the Study and/or the ESR, please contact either of the following Project Team members prior to **June 13, 2008**:

Khurram Tunio, M.Eng., P.Eng.
Senior Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2500
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Abdul Shaikh, P.Eng.
Transportation Project Engineer
City of Mississauga
3484 Semenyk Court
Mississauga, ON L5C 4R1
Tel: 905-615-3200 Ext. 3734
Fax: 905-615-3173
Email: abdul.shaikh@mississauga.ca

Concerns raised during the review period will be addressed by the City of Brampton, in collaboration with the City of Mississauga, and UMA. Should significant concerns remain unresolved, a request can be made to the Minister of the Environment requiring the project to comply with Part II of the *EA Act* before proceeding with the proposed undertaking. This is referred to as a Part II Order, which addresses individual environmental assessments. Requests for a Part II Order must be received by the Minister in writing, at the address provided below. A copy of the request must also be sent to the City of Brampton's Senior Project Engineer (see address above). If no requests are received within the review period, the City may proceed to implementation of the project (i.e., detailed design and construction).

The Honourable John Gerretsen
Minister of the Environment
12th Floor, 135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Please note that 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. In addition to contacting the above Project Team members, please feel free to contact the undersigned should you have any further questions regarding the Study. Thank you for your interest and participation in this Study.

Sincerely,

UMA Engineering Ltd.

ORIGINAL SIGNED BY

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

AR:sk

cc: K. Tunio, Senior Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
A. Shaikh, Transportation Project Engineer, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

UMA Engineering Ltd.
5060 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 7, 2008 File Name: 4020-009

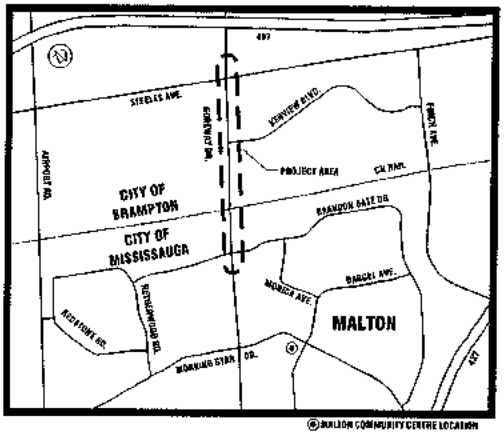
AGENCY NOTIFICATION LETTER

Dear Agency Contact,

Re: Notice of Completion
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment Study

The City of Brampton, in partnership with the City of Mississauga, has completed a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). Based on a comparative evaluation of Alternative Solutions and Design Concepts, with public and agency input, the Preferred Solution includes maintaining four lanes on Goreway Drive with intersection improvements throughout and providing a grade separation (overpass or 'Road over Rail' structure) at the CN rail crossing. The purpose of this letter is to announce that the Study has been completed and to inform your agency of the 30-day public review period for the Environmental Study Report (ESR).

This Study has been carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000; amended in 2007), which is approved under the Ontario *Environmental Assessment Act* (EA Act). The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and development of measures to mitigate identified impacts.



Two Public Information Centres (PICs) were held during the Study to present the project and receive public and agency input. The first PIC was held in November, 2006, to review the problem/opportunity and alternative solutions. The second PIC was held in May, 2007, to review alternative design concepts for the preferred solution. An ESR has been prepared for this Study to document the planning and decision-making process that resulted in the identification of the Preferred Solution and Design Concept. All public and agency comments received throughout the Study process have been addressed in the ESR.

Copies of the ESR can be viewed Monday to Friday at the following review centres:

The City of Brampton
Clerk's Department
2 Wellington Street West
Brampton, ON L6Y 4R2
Mon. to Fri.:
8:30 am to 4:30 pm

The City of Mississauga
Clerk's Department
300 City Centre Drive
Mississauga, ON L5B 3C1
Mon. to Fri.:
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The Region of Peel
Clerk's Department
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Brampton, ON L6T 4B9
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The City of Mississauga
Malton Community Library
3540 Morning Star Drive
Mississauga, ON L4T 1Y2
Mon.-Thu.:
10:00 am to 4:30 pm
Fri.: 10:00 am to 6:00 pm
Sat.: 9:00 am to 5:00 pm

The review period for the ESR will end on **June 13, 2008**. If you have questions or comments regarding the Study and/or the ESR, please contact either of the following Project Team members prior to **June 13, 2008**:

Khurram Tunio, M.Eng., P.Eng.
Senior Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2500
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Abdul Shaikh, P.Eng.
Transportation Project Engineer
City of Mississauga
3484 Semenyk Court
Mississauga, ON L5C 4R1
Tel: 905-615-3200 Ext. 3734
Fax: 905-615-3173
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Concerns raised during the review period will be addressed by the City of Brampton, in collaboration with the City of Mississauga, and UMA. Should significant concerns remain unresolved, a request can be made to the Minister of the Environment requiring the project to comply with Part II of the *EA Act* before proceeding with the proposed undertaking. This is referred to as a Part II Order, which addresses individual environmental assessments. Requests for a Part II Order must be received by the Minister in writing, at the address provided below. A copy of the request must also be sent to the City of Brampton's Senior Project Engineer (see address above). If no requests are received within the review period, the City may proceed to implementation of the project (i.e., detailed design and construction).

The Honourable John Gerretsen
Minister of the Environment
12th Floor, 135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

In addition to contacting the above Project Team members, please feel free to contact the undersigned should you have any further questions regarding the Study. Thank you for your interest and participation in this Study.

Sincerely,

UMA Engineering Ltd.

ORIGINAL SIGNED BY

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

AR:sk

cc: K. Tunio, Senior Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
A. Shaikh, Transportation Project Engineer, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

NOTICE OF SECOND PUBLIC INFORMATION CENTRE

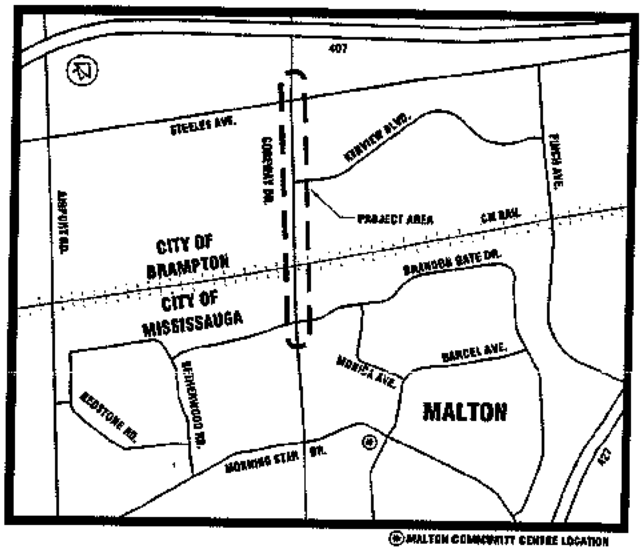
IMPROVEMENTS TO GOREWAY DRIVE FROM STEELES AVENUE TO BRANDON GATE DRIVE CLASS ENVIRONMENTAL ASSESSMENT STUDY

The Study

In partnership with the City of Mississauga, the City of Brampton is undertaking a Class Environmental Assessment (EA) Study to facilitate the improvement of Goreway Drive from Steeles Avenue to Brandon Gate Drive (see map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

The Process

The Study is being carried out in accordance with the planning and design process for 'Schedule C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000), which is approved under the Ontario *Environmental Assessment Act*. The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and development of measures to mitigate identified impacts.



Public Information Centre No. 2

Public consultation is a key component of this Study. Public Information Centres (PICs) are being held during the Study to present the project, review Alternative Solutions and Design Options, and receive public and agency input.

The first PIC was held in November 28, 2006. Based on input received from regulatory agencies and the public, consideration given to solving the problem, and the assessment of environmental effects, the Preferred Solution includes maintaining four lanes on Goreway Drive with intersection improvements throughout and providing a grade separation at the CN rail crossing.

A second PIC has been arranged to review the Preliminary Preferred Design and receive public comments. Following the PIC, the Preliminary Preferred Design will be reviewed taking into consideration the comments received, and confirmed or modified. The second PIC is to be held on:

Date: **Tuesday, May 1, 2007**
Time: **6:30 p.m. to 9:00 p.m. (Drop-in-Centre Format)**
Location: **Malton Community Centre, 3540 Morning Star Drive, Mississauga**

If you cannot attend and would like to provide comments, please forward them by May 16, 2007 to either of the listed project team members below.

Comments Invited

If you have questions or comments regarding the Study, or wish to be added to the Study mailing list, please contact either of the following Project Team members:

Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2500
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

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.

This Notice first issued on April 18, 2007.

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

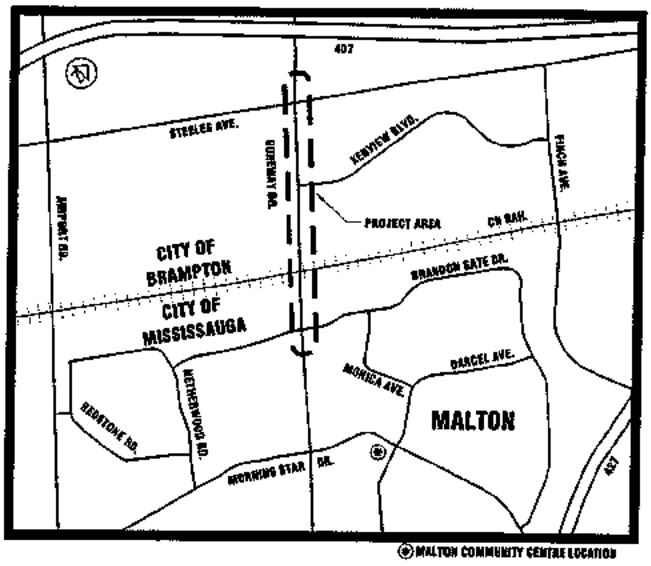
April 17, 2007 File Name: 4020-009

AGENCY NOTIFICATION LETTER

Re: Notice of Public Information Centre No. 2
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

As you are aware, the City of Brampton, in partnership with the City of Mississauga, is undertaking a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). You are invited to attend a Public Information Centre (PIC) scheduled for May 1, 2007, for the above-noted Project.

This Study is being carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000), which is approved under the Ontario *Environmental Assessment Act*. The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and development of measures to mitigate identified impacts.



Public Information Centres (PICs) are being held during the Study to present the project, review Alternative Solutions and Design Options, and receive public input. The first PIC was held on November 28, 2006, to present the project and receive public input on the Alternative Solutions. Based on input received from regulatory agencies and the public, consideration given to solving the problem, and the assessment of environmental effects, the Preferred Solution includes maintaining four lanes on Goreway Drive with intersection improvements throughout and providing a grade separation at the CN rail crossing.

A second PIC has been arranged to review the Preliminary Preferred Design and receive public comments. Following the PIC, the Preliminary Preferred Design will be reviewed taking into consideration the comments received, and confirmed or modified. The second PIC is to be held on:

Date: **Tuesday, May 1, 2007**
Time: **6:30 p.m. to 9:00 p.m. (Drop-in-Centre Format)**
Location: **Malton Community Centre, 3540 Morning Star Drive, Mississauga**

Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared and made available for public/agency review and comment. Notices announcing the 30-day public review period for the ESR will be advertised in future editions of the *Brampton Guardian* and the *Mississauga News.*

We are interested in receiving any comments that you may have about the Study. If you cannot attend the PIC and would like to provide comments, please forward your comments to either of the Project Team members identified below by May 16, 2007.

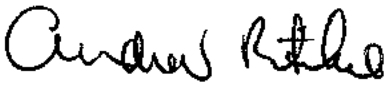
Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

In addition to contacting the above Project Team members, please feel free to contact the undersigned should you have any further questions regarding the Study. Thank you for your interest in this Study. We look forward to receiving your input.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
A. Shaikh, Transportation Project Engineer, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

April 17, 2007 File Name: 4020-009

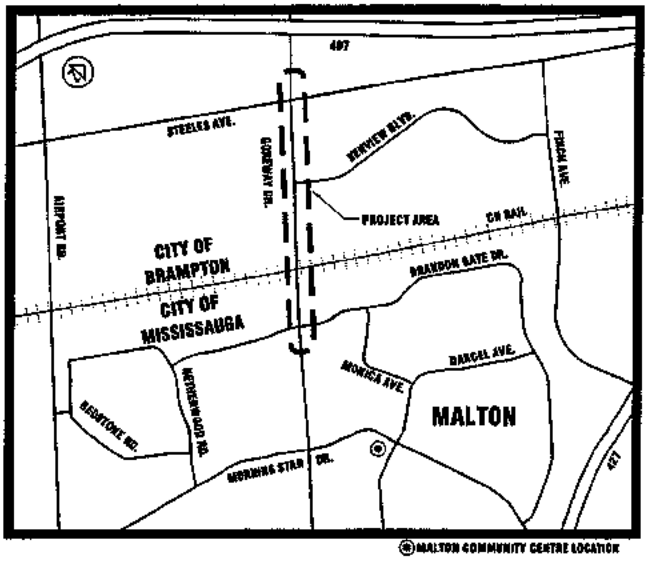
PUBLIC NOTIFICATION LETTER

Dear Sir/Madam,

Re: Notice of Public Information Centre No. 2
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

As you are aware, the City of Brampton, in partnership with the City of Mississauga, is undertaking a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). You are invited to attend a Public Information Centre (PIC) scheduled for May 1, 2007, for the above-noted Project.

This Study is being carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000), which is approved under the Ontario *Environmental Assessment Act*. The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and development of measures to mitigate identified impacts.



Public Information Centres (PICs) are being held during the Study to present the project, review Alternative Solutions and Design Options, and receive public input. The first PIC was held on November 28, 2006, to present the project and receive public input on the Alternative Solutions. Based on input received from regulatory agencies and the public, consideration given to solving the problem, and the assessment of environmental effects, the Preferred Solution includes maintaining four lanes on Goreway Drive with intersection improvements throughout and providing a grade separation at the CN rail crossing.

A second PIC has been arranged to review the Preliminary Preferred Design and receive public comments. Following the PIC, the Preliminary Preferred Design will be reviewed taking into consideration the comments received, and confirmed or modified. The second PIC is to be held on:

Date: **Tuesday, May 1, 2007**
Time: **6:30 p.m. to 9:00 p.m. (Drop-in-Centre Format)**
Location: **Malton Community Centre, 3540 Morning Star Drive, Mississauga**

Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared and made available for public/agency review and comment. Notices announcing the 30-day public review period for the ESR will be advertised in future editions of the *Brampton Guardian* and the *Mississauga News*.

We are interested in receiving any comments that you may have about the Study. If you cannot attend the PIC and would like to provide comments, please forward your comments to either of the Project Team members identified below by May 16, 2007.

Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
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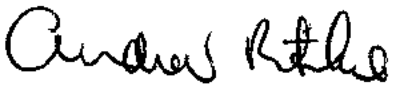
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

Please note that information related to this Project will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments received will become part of the public record and may be included in Study documentation prepared for public review. In addition to contacting the above listed Project Team members, please feel free to contact the undersigned should you have any further questions regarding the Study.

Sincerely,

UMA Engineering Ltd.



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cc: K. Tunio, Project Engineer, City of Brampton
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S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

March 14, 2007 File Name: 4020-009

PUBLIC NOTIFICATION LETTER

Dear Sir/Madam,

Re: Notice of Stakeholders Meeting
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

As you are aware, the City of Brampton, in partnership with the City of Mississauga, is undertaking a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive. The proposed improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

Since the first Public Information Centre (PIC) on November 28, 2006, we have completed the evaluation of Alternative Design Concepts for the Preferred Solution (grade separation at CN crossing), and would like your input in advance of the second PIC to be scheduled in April 2007. You are cordially invited to attend a Stakeholders Meeting scheduled for:

Tuesday March 27, 2007
7:00 pm to 8:30 pm
at the
Malton Community Centre
3540 Morning Star Drive Mississauga

The purpose of this informal meeting is to provide you and those property owners/representatives immediately adjacent to the proposed grade separation location with details regarding the status of the Study, and solicit your input. This meeting will include a brief presentation of the preliminary evaluation of Alternative Design Concepts for the Preferred Solution. Following this presentation, you will have an opportunity to review the Preliminary Design Concept for the Preferred Solution including the proposed plan and profile drawings, potential impacts and mitigation measures associated with the Preliminary Preferred Design. Project Team members from the City of Mississauga, City of Brampton, and UMA Engineering Ltd. will be present to answer and address any comments you may have on this matter.

To assist us in arranging a suitable venue, we kindly ask that you contact the undersigned to confirm your attendance.

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
A. Shaikh, Transportation Project Engineer, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

NOTICE OF PUBLIC INFORMATION CENTRE #1

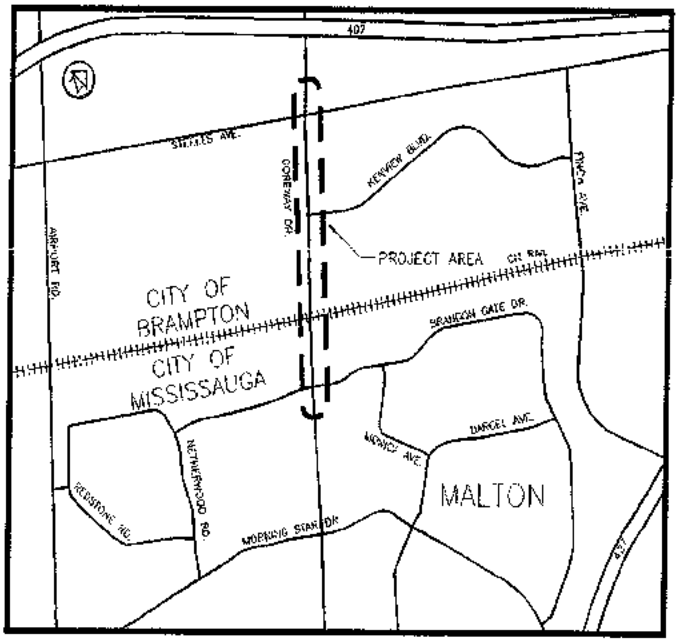
IMPROVEMENTS TO GOREWAY DRIVE FROM STEELES AVENUE TO BRANDON GATE DRIVE CLASS ENVIRONMENTAL ASSESSMENT STUDY

The Study

In partnership with the City of Mississauga, the City of Brampton is undertaking a Class Environmental Assessment (EA) Study to facilitate the improvement of Goreway Drive from Steeles Avenue to Brandon Gate Drive (see map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

The Process

The Study is being carried out in accordance with the planning and design process for 'Schedule C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and formulation of measures to mitigate identified impacts.



Public Information Centre #1

Public consultation is a key component of this Study. Public Information Centres (PICs) will be held during the Study to present the project, review Alternative Solutions and Design Options, and receive public input. The first PIC will be held:

Date: **Tuesday, November 28, 2006**
Time: **6:30 pm to 9:30 pm**
Location: **Lincoln M. Alexander Secondary School**
3545 Morning Star Drive, Mississauga

A second PIC is tentatively scheduled for February 2007 and will be advertised in this newspaper as the Study progresses. Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared for public/agency review and comment.

Comments Invited

If you have questions or comments regarding the Study, or wish to be added to the Study mailing list, please contact either of the following Project Team members:

Khurram Tunio, P.Eng.
Project Manager
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

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Email: greg.smith@uma.aecom.com

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.

This Notice first issued on November 15, 2006.

UMA | AECOM

UMA Engineering Ltd.
5060 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

November 10, 2006 File Name: 4020-009

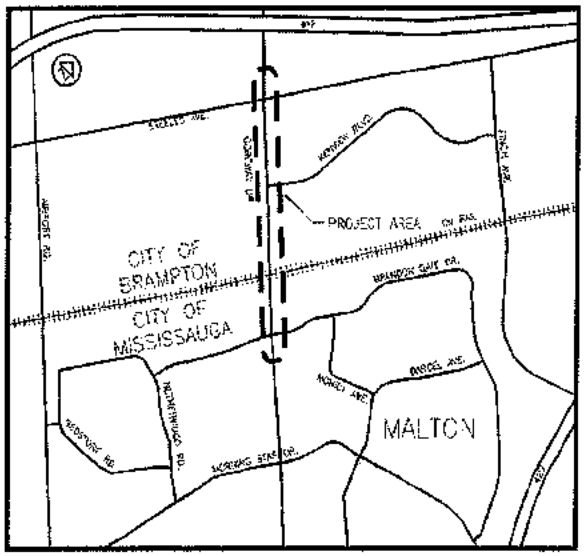
AGENCY NOTIFICATION LETTER

Dear

Re: Notice of Public Information Centre No. 1
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

In partnership with the City of Mississauga, the City of Brampton has retained UMA Engineering Ltd. (UMA) to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). You are cordially invited to attend a Public Information Centre (PIC) scheduled for November 28, 2006, for the above-noted Project.

This Study is being carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Study will include an evaluation of alternatives to improve this section of Goreway Drive and an evaluation of Alternative Design Concepts for the Preferred Solution. In addition, the Study will include a review of the need for the proposed replacement of CN's existing three-track level crossing with a grade separation, an assessment of the natural, socio-economic, cultural, and technical impacts associated with the proposed improvements; and, identification of mitigative measures to address any adverse impacts.



Public and external agency consultation is a key component of this Study. Details regarding the Project will be presented at two scheduled PICs to provide interested stakeholders with an opportunity to meet the Project Team and to discuss Alternative Solutions, environmental considerations/impacts, evaluation criteria and Alternative Design Concepts. The first PIC will be held:

Tuesday, November 28, 2006
6:30 pm to 9:30 pm
Lincoln M. Alexander Secondary School
3545 Morning Star Drive, Mississauga

The second PIC is scheduled for early 2007 and will be advertised in the *Brampton Guardian* and the *Mississauga News*, announcing the specific date and location. Upon completion of the Study, an Environmental Study Report (ESR) documenting the Study process and the proposed improvements will be filed on the public record for review and comment.

In addition to contacting the undersigned, you may contact either of the following Project Team members to discuss your comments or to obtain additional information concerning this Project:

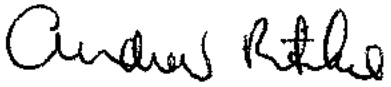
Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

Your prompt reply is appreciated so that we can consider your input in a timely manner and meet the Project schedule. We look forward to you reply.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

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T 905.238.0007 F 905.238.0038 www.uma.aecom.com

November 10, 2006

File Name: 4020-009

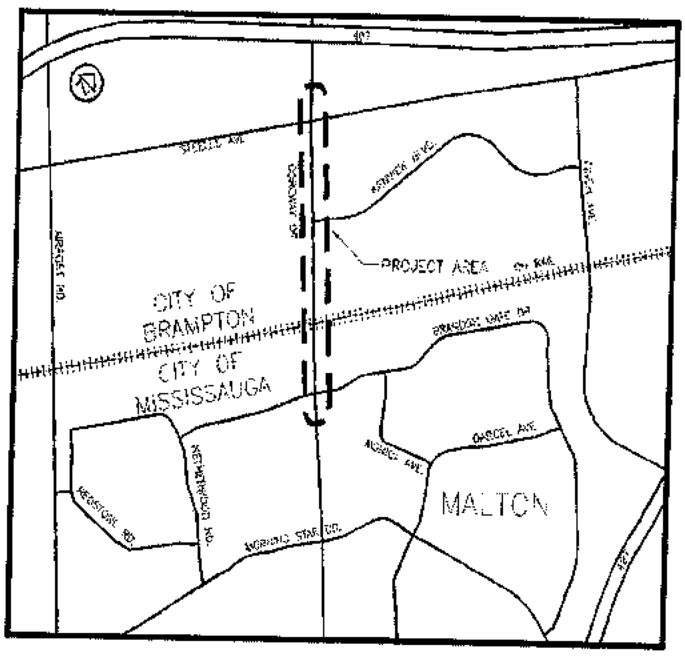
PUBLIC NOTIFICATION LETTER

Dear Sir/Madam,

Re: Notice of Public Information Centre No. 1
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

The City of Brampton, in partnership with the City of Mississauga, is undertaking a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). You are cordially invited to attend a Public Information Centre (PIC) scheduled for November 28, 2006, for the above-noted Project.

This Study is being carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Study will include an evaluation of alternatives to improve this section of Goreway Drive and an evaluation of Alternative Design Concepts for the Preferred Solution. In addition, the Study will include a review of the need for the proposed replacement of CN's existing three-track level crossing with a grade separation, an assessment of the natural, socio-economic, cultural, and technical impacts associated with the proposed improvements; and, identification of mitigative measures to address any adverse impacts.



Public consultation is a key component of this Study. Two PICs will be held during the Study to present the project, review Alternative Solutions and Design Concepts, and receive public input. The first PIC will be held:

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6:30 pm to 9:30 pm
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A second PIC is scheduled for early 2007 and will be advertised in the *Brampton Guardian* and the *Mississauga News*, announcing the specific date and location. Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared for public/agency review and comment.

We are interested in receiving any comments that you may have about the Study. In addition to contacting the undersigned, please contact either of the following Project Team members should you have any questions or comments, or if you cannot attend the PIC:

Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
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Please note that information related to this Project will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments received will become part of the public record and may be included in Study documentation prepared for public review.

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

UMA Engineering Ltd.
5080 Commerce Boulevard
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T 905.238.0007 F 905.238.0038 www.uma.aecom.com

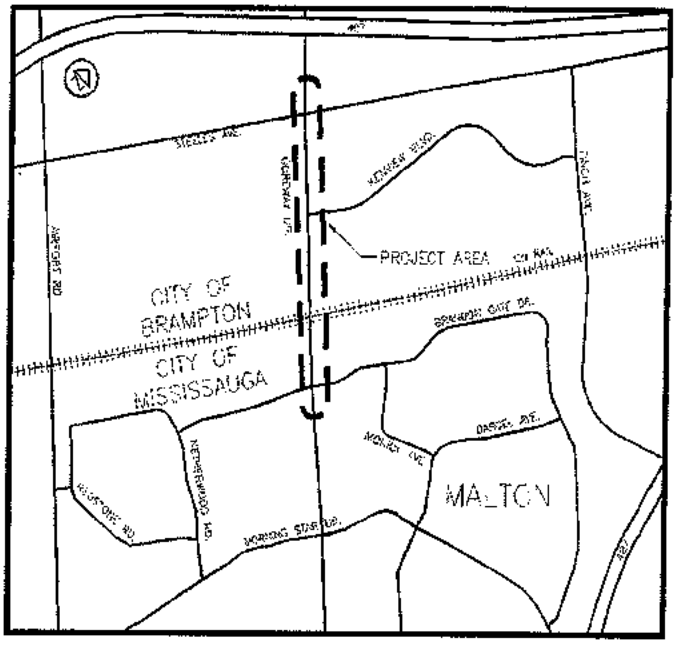
November 10, 2006

Mr. Al Dokis
Intergovernmental Affairs Director
Anishinabek Nation
Nipissing First Nation
P.O. Box 711
North Bay, Ontario

Dear Mr. Dokis,

Re: Notice of Public Information Centre #1
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

In partnership with the City of Mississauga, the City of Brampton has retained UMA Engineering Ltd. (UMA) to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).



As this Project could impact or be of interest to one or more First Nation communities, the purpose of this letter is to inform you of the Project and to solicit comments that should be addressed throughout the Study. To this end, your assistance in ensuring this letter is circulated to the appropriate personnel and providing the City with timely feedback is greatly appreciated. Based on discussions and feedback received from the Ontario Secretariat for Aboriginal Affairs (OSAA), please note that a similar letter has been forwarded to the Mississaugas of Scugog Island First Nation. We would also appreciate receiving feedback on any additional contacts that should be notified.

This Study is following the approved environmental planning process for Schedule C Projects as described in the Municipal Engineers Association *Municipal Class Environmental Assessment* (2000). A Consultation Plan has been developed to ensure First Nations, external agencies, the public and other affected/interested stakeholders have an opportunity to participate in the planning and decision-making processes throughout the Study. In keeping with the Consultation Plan, a Public Information Centre (PIC) has been scheduled for:

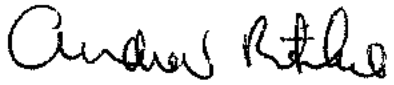
Tuesday, November 28, 2006
6:30 pm to 9:30 pm
Lincoln M. Alexander Secondary School
3545 Morning Star Drive, Mississauga

You are invited to attend the PIC to review the proposed plans for the roadway improvements and offer any comments on potential impacts and proposed mitigative measures. A Notice announcing the PIC will be placed in forthcoming issues of the *Brampton Gaurdian* and the *Mississauga News.*

Should you have any questions/concerns regarding this Project or require additional information please contact the undersigned at 905-238-0007. Alternatively, I can be reached via email at Andrew.Ritchie@uma.aecom.com. I look forward to meeting with you.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

AR:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

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5080 Commerce Boulevard
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T 905.238.0007 F 905.238.0038 www.uma.aecom.com

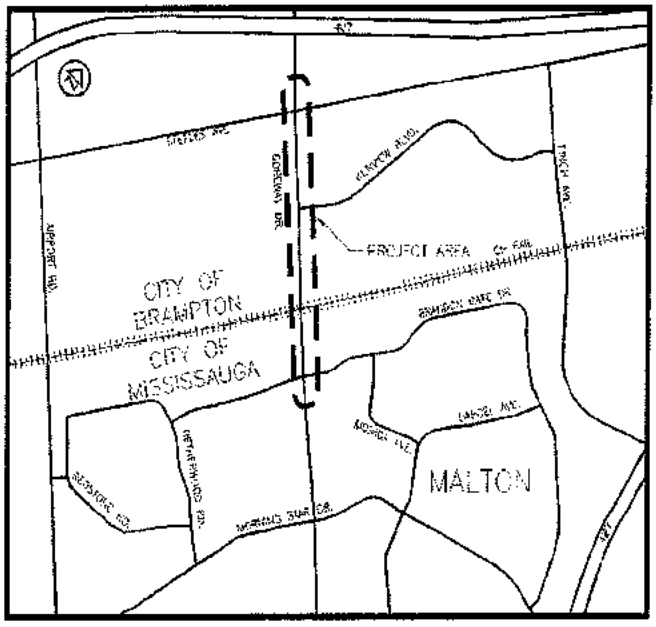
November 10, 2006

Chief Tracy Gauthier
Mississaugas of Scugog Island
22521 Island Road, RR#5
Port Perry, Ontario
L9L 1B6

Dear Chief Gauthier,

Re: Notice of Public Information Centre No. 1
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

In partnership with the City of Mississauga, the City of Brampton has retained UMA Engineering Ltd. (UMA) to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).



As this Project could impact or be of interest to the Mississaugas of Scugog Island First Nation, the purpose of this letter is to inform you of the Project and to solicit comments that should be addressed throughout the Study. To this end, your assistance in ensuring this letter is circulated to the appropriate personnel and providing the City with timely feedback is greatly appreciated.

This Study is following the approved environmental planning process for Schedule C Projects as described in the Municipal Engineers Association *Municipal Class Environmental Assessment* (2000). A Consultation Plan has been developed to ensure First Nations, external agencies, the public and other affected/interested stakeholders have an opportunity to participate in the planning and decision-making processes throughout the Study. In keeping with the Consultation Plan, a Public Information Centre (PIC) has been scheduled for:

Tuesday, November 28, 2006
6:30 pm to 9:30 pm
Lincoln M. Alexander Secondary School
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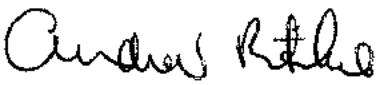
Should you have any questions/concerns regarding this Project or require additional information please contact the undersigned at 905-238-0007. Alternatively, I can be reached via email at Andrew.Ritchie@uma.aecom.com. I look forward to meeting with you.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

AR:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

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UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

November 10, 2006

File Name: 4020-009

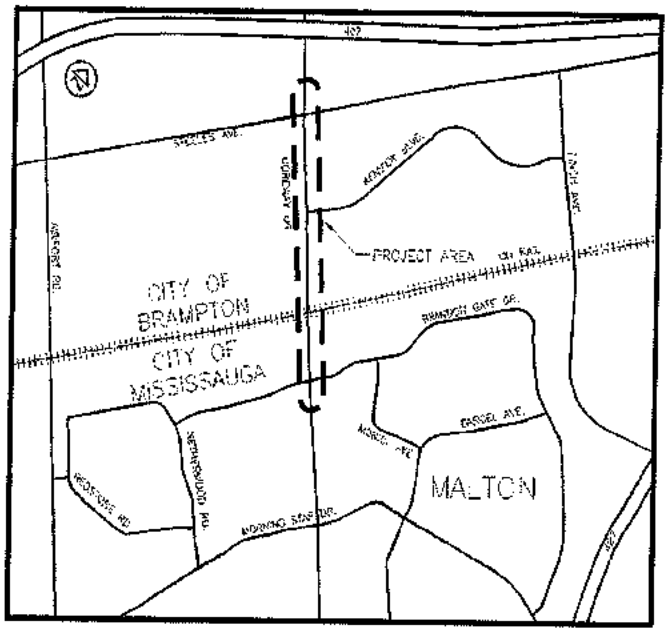
Ms. Louise Trepanier, Director
Comprehensive Claims Branch
Claims East of Manitoba
Indian and Northern Affairs Canada
10 Wellington St.
Gatineau, QC K1A 0H4

Dear Ms. Trepanier,

Re: Notice of Study Commencement and Public Information Centre No. 1
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

In partnership with the City of Mississauga, the City of Brampton has retained UMA Engineering Ltd. (UMA) to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

As this Project could impact or be of interest to one or more First Nation communities, the purpose of this letter is to firstly inform you of the Project. Secondly, we would appreciate receiving any information your agency may have which is relevant to this Project. To this end, please contact the undersigned with any input into the Study.



Based on discussions and feedback received from the Ontario Secretariat for Aboriginal Affairs (OSAA), please note that a similar letter has been forwarded to the Mississaugas of Scugog Island First Nation and the Anishinabek Nation to inform them of the Project and solicit their respective input.

This Study is following the approved environmental planning process for Schedule C Projects as described in the Municipal Engineers Association *Municipal Class Environmental Assessment* (2000). A Consultation Plan has been developed to ensure external agencies, First Nations, the public and other affected/interested stakeholders have an opportunity to participate in the planning and decision-making processes throughout the Study. In keeping with the Consultation Plan, a Public Information Centre (PIC) has been scheduled for:

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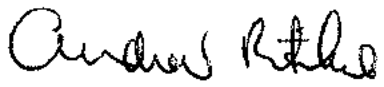
If you have any questions, or require further information, please contact me at (905) 238-0007. I look forward to your response.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
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cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

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UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

November 10, 2006

File Name: 4020-009

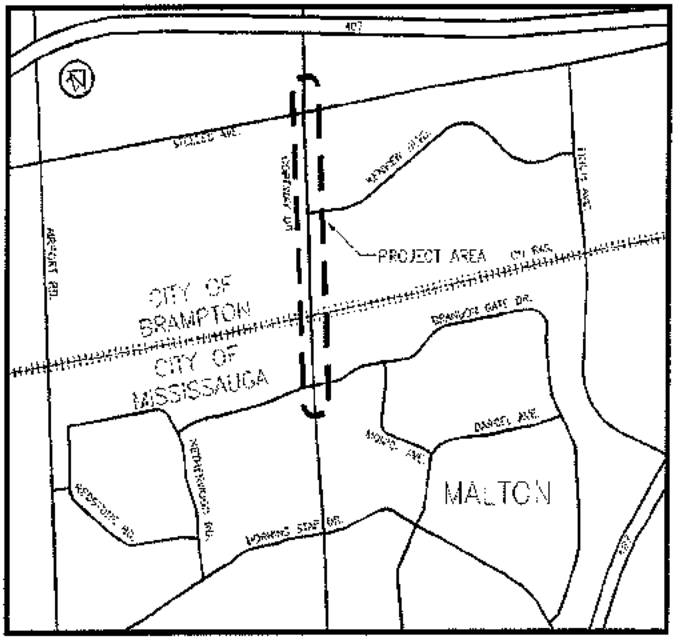
Mr. Grant Wedge, Counsel
Ministry of the Attorney General
Crown Law Office - Civil
8th floor, 720 Bay St.
Toronto, ON M5G 2K1

Dear Mr. Wedge,

Re: Notice of Study Commencement
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

In partnership with the City of Mississauga, the City of Brampton has retained UMA Engineering Ltd. (UMA) to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

This Study is following the approved environmental planning process for Schedule C Projects as described in the Municipal Engineers Association *Municipal Class Environmental Assessment* (2000). A Consultation Plan has been developed to ensure external agencies, First Nations, the public and other affected/interested stakeholders have an opportunity to participate in the planning and decision-making processes throughout the Study.



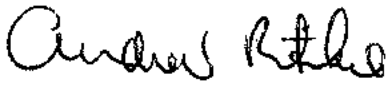
As this Project could impact or be of interest to one or more First Nation communities, the purpose of this letter is to inform you of the Project. In addition, your assistance in providing pertinent details regarding the nature and/or status of possible litigation within proximity to the Goreway Drive Study Area would be greatly appreciated.

Based on discussions and feedback received from the Ontario Secretariat for Aboriginal Affairs (OSAA), please note that a similar letter has been forwarded to the Mississaugas of Scugog Island First Nation and the Anishinabek Nation to inform them of the Project and solicit their respective input.

If you have any questions, or require further information, please contact me at (905) 238-0007. I look forward to your response.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
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S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

NOTICE OF STUDY COMMENCEMENT

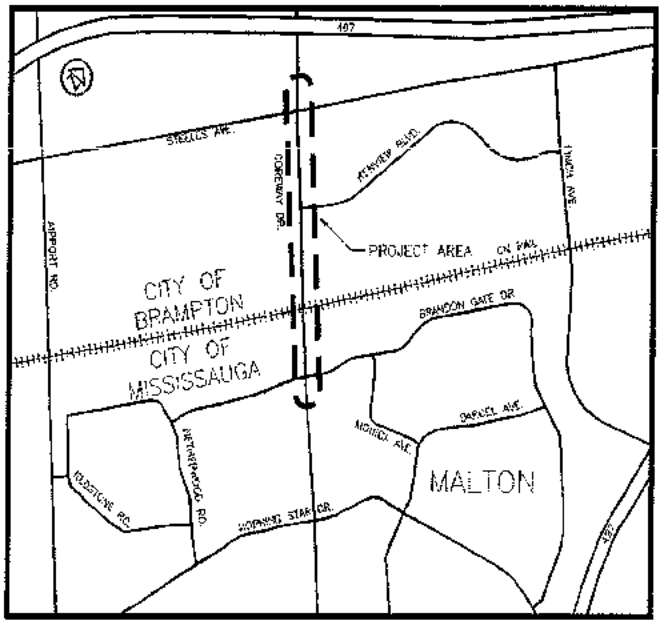
IMPROVEMENTS TO GOREWAY DRIVE FROM STEELES AVENUE TO BRANDON GATE DRIVE CLASS ENVIRONMENTAL ASSESSMENT STUDY

The Study

In partnership with the City of Mississauga, the City of Brampton has initiated a Class Environmental Assessment (EA) Study to facilitate the improvement of Goreway Drive from Steeles Avenue to Brandon Gate Drive (see map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National Rail (CNR) at-grade (level) crossing (Halton Subdivision).

The Process

The Study is being carried out in accordance with the planning and design process for 'Schedule C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and formulation of measures to mitigate identified impacts.



Public Information Centres (PICs) will be held during the Study to present the project, review alternative solutions and alternative design concepts, and receive public input. Additional notices indicating the date and location of the PICs will be published in future editions of this newspaper. Upon completion of the Study, an Environmental Study Report (ESR) documenting the Preferred Solution and Preliminary Design will be prepared for public/agency review and comment.

Comments Invited

If you have questions or comments regarding the Study, or wish to be added to the Study mailing list, please contact either of the following Project Team members:

Khurram Tunio, P.Eng.
Project Manager
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

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.

This Notice issued on August 6, 2006.

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

August 9, 2006 File Name: 4020-009

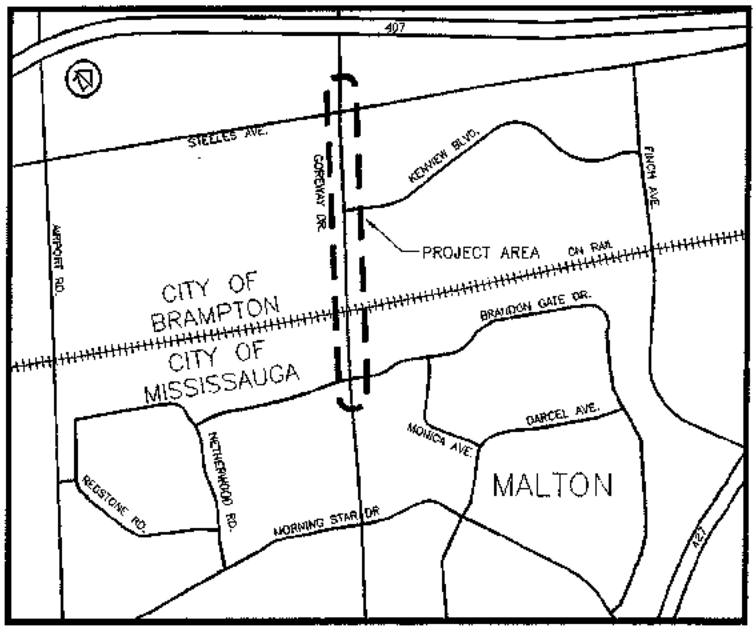
PUBLIC NOTIFICATION LETTER

Dear Sir/Madam,

Re: Notice of Study Commencement
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

The purpose of this letter is to inform you that the City of Brampton, in partnership with the City of Mississauga, has initiated a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National Rail (CNR) at-grade (level) crossing (Halton Subdivision). We invite you to submit comments with regard to this Study.

This Study is being carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Study will include an evaluation of alternatives to improve this section of Goreway Drive and an evaluation of Alternative Design Concepts for the Preferred Solution. In addition, the Study will include a review of the need for the proposed replacement of CNR's existing three-track level crossing with a grade separation, an assessment of the natural, socio-economic, cultural, and technical impacts associated with the proposed improvements; and, identification of mitigative measures to address any adverse impacts.



Public consultation is a key component of this Study. Public Information Centres will be held during the Study to present the project, review Alternative Solutions and Design Options, and receive public input. These forthcoming Public Information Centres will be advertised in the *Brampton Guardian* and the *Mississauga News* as the Study progresses. Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared for public/agency review and comment.

We are interested in receiving any comments that you may have about the Study. Should you have any questions or comments, or wish to receive additional information regarding this project, please contact either of the following Project Team members:

Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
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Greg Smith, P.Eng.
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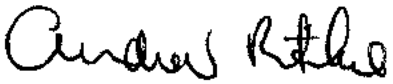

Andrew Ritchie, M.Pl., MCIP, RPP
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G. Smith, Consultant Project Manager, UMA Engineering Ltd.
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5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

August 8, 2006

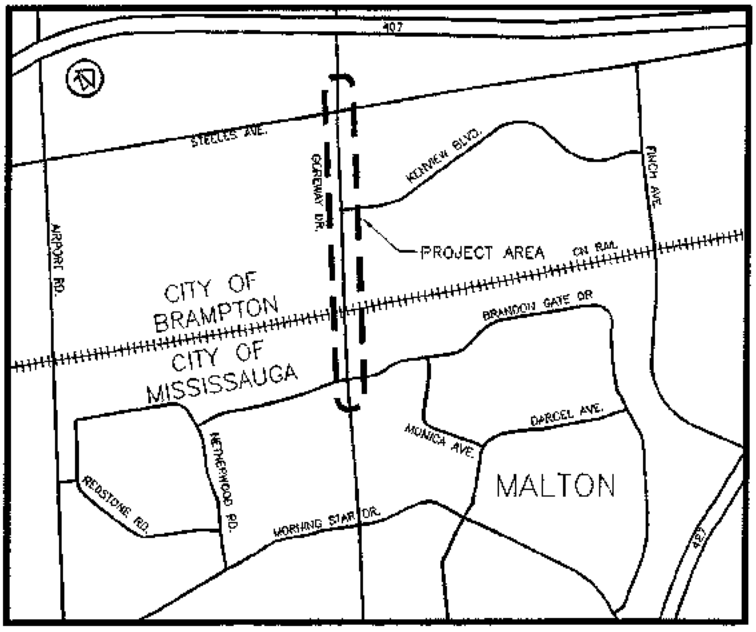
File Name: 4020-009

AGENCY NOTIFICATION LETTER

Dear,

Re: Notice of Study Commencement
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

In partnership with the City of Mississauga, the City of Brampton has retained UMA Engineering Ltd. (UMA) to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive (see Map of Project Area). Improvements to this section of Goreway Drive are needed to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National Rail (CNR) at-grade (level) crossing (Halton Subdivision). We invite your agency's participation and input in this Study.



This Study is being carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Study will include an evaluation of alternatives to improve this section of Goreway Drive and an evaluation of Alternative Design Concepts for the Preferred Solution. In addition, the Study will include a review of the need for the proposed replacement of CNR's existing three-track level crossing with a grade separation, an assessment of the natural, socio-economic, cultural, and technical impacts associated with the proposed improvements; and, identification of mitigative measures to address any adverse impacts.

Public and external agency consultation is a key component of this Study. Details regarding the project will be presented at Public Information Centres to provide interested stakeholders with an opportunity to meet the Project Team and to discuss alternative solutions, environmental considerations/impacts, evaluation criteria and design options. These forthcoming Public Information Centre(s) will be advertised in the *Brampton Guardian* and the *Mississauga News* as the Study progresses. Upon completion of the Study, an Environmental Study Report (ESR)

documenting the Study process and the proposed improvements will be filed on the public record for review and comment.

We are interested in receiving any comments that you may have about the Study or any information your agency may have which is relevant to this project. Should your agency have any comments regarding this project or you wish to provide input into the Study, please contact the undersigned using the **Fax Back Form** provided. Should the proposed project have no affect on your agency's program mandate and/or policies, please advise the undersigned of this fact by returning the **Fax Back Form** provided.

In addition to contacting the undersigned, you may contact either of the following Project Team members to discuss your comments or to obtain additional information concerning this project:

Khurram Tunio, M.Eng., P.Eng.
Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
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Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
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Your prompt reply would be appreciated so that we can consider your input in a timely manner and meet the project schedule. We look forward to you reply.

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Environmental Planner, UMA Engineering Ltd.

A2 – Agency Contact List

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Mr. Max Gros-Louis Grand Chief	255, Place Michel Laveau Village Huron Wendake, Quebec G0A 4V0
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A3 – Agency Correspondence

UMA | AECOM

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T 905 238.0007 F 905 238.0038 www.umaeng.com

May 7, 2008

File Name: 4020-009

Ms. Angela Johnson
Councillor
Mississaugas of Scugog Island First Nation
22521 Island Road
Port Perry, ON L9L 1B6

Dear Ms. Johnson:

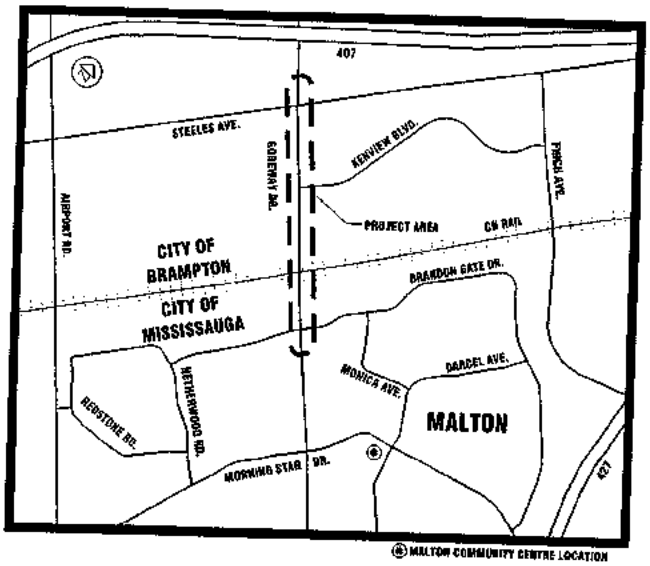
Re: Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment (Class EA) Study

Thank you for your letter dated June 18, 2007, regarding the Class EA Study for improvements to Goreway Drive. As you are aware, the City of Brampton, in partnership with the City of Mississauga, is completing a Class EA Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive. The Study recommends that a grade separation (overpass or 'road over rail' structure) be constructed at Goreway Drive and the CN rail corridor to alleviate road vehicle delays at the CN rail crossing.

An Environmental Study Report (ESR) has been drafted to document the proposed improvements as well as the planning and decision making process that resulted in the identification of the proposed improvements. This Study has been carried out in accordance with the planning and design process for Schedule 'C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (2000, as amended in 2007), which is approved under the Ontario *Environmental Assessment Act*.

As part of this Class EA Study, we have contacted the Ministry of Culture for input regarding potential archaeological resources within the Project Area. Feedback received from the Ministry of Culture indicated that there are no documented archaeological resources within the Project Area. Notwithstanding, UMA Engineering Ltd. (UMA) retained Archeoworks Inc. in October 2006 to conduct a Stage 1 Archaeological Assessment for the Study Area Corridor to identify any potential archaeological resources which could be affected by construction activities.

Results of the Stage 1 Archaeological Assessment indicated that the predominantly undisturbed, central section of the Study Area Corridor can have archaeological potential for locating Euro-Canadian remains due to the close proximity of three historic homesteads. Due to the crossing of Mimico Creek, the central portion of the Study Area Corridor exhibits archaeological potential for locating Aboriginal remains. In keeping with Archeowork's recommendations, a Stage 2 Archaeological Assessment of the undisturbed areas will be undertaken prior to construction.



The results and recommendations, including a copy, of the Stage 1 Archaeological Assessment have been included in the aforementioned ESR. The ESR has been made available for public/agency review and comments. See attached Notice of Study Completion for additional details. The City of Brampton will keep you informed of the results for the Stage 2 Archaeological Assessment, which will be carried out by

Archeoworks Inc. in Spring 2008. A copy of the Archaeological Report(s) will be forwarded to you upon completion of the Stage 2 assessment. We note that construction will not commence until Archaeological Clearance is received from the Ministry of Culture.

We trust this addresses your concerns for the time being. Should you have any questions regarding this project or require further information, you are encouraged to contact the undersigned.

Sincerely,

UMA Engineering Ltd.

ORIGINALLY SIGNED BY

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
Andrew.Ritchie@uma.aecom.com

AR:sk

Encl. Notice of Study Completion

cc: K. Tunio, Senior Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
C. Duyvestyn, Manager, Infrastructure Planning, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
A. Shaikh, Transportation Project Engineer, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

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February 25, 2008

Ms. Kim Slocki
Archeoworks Inc.
16715-12 Yonge Street, Suite 1029
Newmarket, Ontario
L3X 1X4

RE: Review and acceptance of Report Entitled, "Stage 1 Archaeological Assessment (AA) of: Goreway Dive, Between Steeles Avenue and Brandon Gate Drive, Cities of Brampton and Mississauga, Regional Municipality of Peel, Class EA, Ontario", MCL File 21RD093

Dear Ms. Slocki,

This office has had the opportunity to review the above noted Stage 1 archaeological assessment report prepared by your firm (Licence/PIF # P029-288-2006). The report details an archaeological assessment undertaken as part of a Class EA study for improvements to the portion of Goreway Drive situated between Steeles Avenue and Brandon Gate Drive. It is noted that portions of the subject lands display archaeological potential and, therefore, recommends that a Stage 2 archaeological assessment be carried out in advance of development. This Ministry concurs with this recommendation.

Given the above, a Stage 2 archaeological assessment must be carried out for all areas of the study corridor, as identified in Figure 4, which display archaeological potential. If any significant archaeological deposits are identified during the assessment, these will need to be mitigated by either avoidance or excavation.

Please do not hesitate to contact us if you require further information.

Sincerely,

K. Cappella

Katherine Cappella
Archaeology Review Officer
Culture Programs Unit

cc. MCL Archaeology Licence Office
UMA Engineering Ltd.

UMA | AECOM

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February 6, 2008

File Name: 4020-009

Ms. Sharon Lingertat
Environmental Assessment Review
Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON M3N 1S4

Dear Ms. Lingertat:

Re: Response to Comments concerning the Draft Environmental Study Report (ESR)
Goreway Drive improvements (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) – Schedule C

Thank you for your comments regarding the Draft Environmental Study Report (ESR) for the above noted project. This letter is written in response to comments raised in your letter dated November 27 and December 6, 2007. As per your request, we have itemized our response using the numbering scheme provided in each letter (see attached). The attached comments and responses will be included in the Appendix of the ESR.

We trust this letter addresses your comments regarding the ESR. Should you have any questions or need further clarification, please do not hesitate to contact the undersigned.

Sincerely,

UMA Engineering Ltd.

Greg Smith, P.Eng.
Consultant Project Manager
greg.smith@uma.aecom.com

:sk

Encl.

cc: Khurram Tunio, City of Brampton
Andrew Ritchie, UMA Engineering Ltd.

Response to Letter dated November 27, 2007

1. At the detailed design stage please provide construction dewatering estimates for the widening of the existing culvert and the construction of the overpass at the CN railway line.

   Response: Construction dewatering estimates as requested will be provided during the detailed design phase for TRCA review and comment.

2. Groundwater sampling results from the two boreholes (BH 6 and BH 15) indicate very high concentrations of electrical conductivity (EC), total dissolved solids (TDS) and some metals. Electrical conductivity values range from 9990 to 13800 µS/cm and TDS from 6750 to 9670. Chromium was reported at an elevated concentration of 0.012 mg/L, copper 0.009 mg/L, vanadium 0.028 mg/L and iron 10.4 mg/L. All of these levels are above Provincial water Quality Objectives (PWQO). Depending on where the water will be discharged, any required dewatering at the construction stage will require treatment before it can be released into the natural environment. Please discuss provisions for this treatment in the EA.

   Response: During construction, temporary run-off controls such as sediment traps, rip rap and/or silt fence will be provided and installed to prevent uncontrolled water/sediment flow into the watercourse. The effluent from dewatering operations will also be passed through filter bags. Provisions for the treatment of dewatering at the construction stage has been included as a commitment in the ESR.

3. The EA indicates that the preferred design will result in a maximum of 6 m (Executive Summary) and 7 m (Page 69) high retaining walls. However, Section 5.2.1 of the geotechnical report dated August 21, 2007 indicates that the maximum height of the retaining wall will be approximately 9.5 m. Please confirm and revise the EA accordingly.

   Response: It is noted that the retaining wall height will be a maximum of approximately 9 m on the west and a maximum of approximately 7 m on the east. These heights are based on a preliminary level of detail and will be refined if warranted during the detailed design phase. The ESR has been revised accordingly to reflect the correct heights based on the preliminary design level of detail.

   The geotechnical investigations were undertaken and a report prepared during the initial stages of the EA process, prior to the development of the preliminary design. The wall heights indicated in the ESR are correct and do not require revision. Therefore the wall heights listed in the preliminary geotechnical report are not accurate but will not be revised. Additional investigations and final geotechnical recommendations for the proposed design will be undertaken during the detailed design phase and will conform to the actual proposed retaining wall requirements.

4. Retaining walls associated with the overpass are proposed as high as a maximum of approximately 9.5 m. Please ensure that details regarding the retaining walls are provided to TRCA staff at detailed design.

   Response: As noted above, the retaining wall design is based on a preliminary level of detail. The retaining wall design will be finalized during the detailed design phase and provided to the TRCA for review and comment at that time.

5. Please note in the EA that the *Erosion and Sediment Control Guideline for Urban Construction* (2006) will be followed at detailed design. For example, staff does not support the use of straw bale check dams (Table 13, Section 4.1). Please remove all references to straw bale check dams and replace with another appropriate erosion and sediment control measure.

   Response: All reference in the ESR to straw bale check dams has been deleted and replaced with another appropriate measure in accordance with the *Erosion and Sediment Control Guideline for Urban Construction* (2006). The specific erosion and sediment control measure will be determined during the detailed design phase and provided to the TRCA for review and comment at that time.

Response to Letter dated November 27, 2007

6. Table 13, Section 4.2 indicates that vegetation will be used to stabilize disturbed soils. Please revise this section to recognize that a physical method such as erosion blankets will be required at the detailed design to immediately stabilize soils outside of the growing season when seed cannot be established.

   Response: In accordance with the *Erosion and Sediment Control Guideline for Urban Construction* (2006), the ESR has been revised to include reference to use of erosion control blankets, mats or nets to assist in stabilizing newly graded slopes out side of the growing season when seed cannot be established. The specific measure will be determined during the detailed design phase and provided to the TRCA for review and comment at that time.

7. It was discussed at our May 29, 2007 meeting that all opportunities to establish as wide a stream corridor as possible should be explored. Please incorporate this into Table 13 and consider this when relocating driveways of neighbouring properties.

   Response: Driveway relocations have been established to minimize the footprint in the floodplain to the extent possible. Table 13 has been revised accordingly to reflect TRCA comments.

8. Please indicate in the EA that tree removals will only take place during times that avoid nesting birds. Please ensure that removals avoid the nesting window of May 1 to August 1.

   Response: The ESR has been revised accordingly to reflect TRCA comments.
   As requested above, tree removal shall be avoided between May 1 and August 1 (regardless of the calendar year) to prevent the incidental take of migratory birds or their nests as per the *Migratory Birds Convention Act* (1994). In the event construction works must be conducted during the breeding bird season, that is, May 1 to August 1, a nest survey shall be conducted by a qualified Avian Biologist prior to commencement of construction activities to identify and locate active nests of species covered by the *Migratory Birds Convention Act* (1994).

9. a) Table 13, Section 6.1 refers to construction timing constraints imposed by the MNR. Please note that TRCA is now responsible for applying the fisheries timing window. Please revise accordingly.

   Response: The ESR has been revised accordingly to identify TRCA as the responsible authority for applying the fisheries timing window.

   b) The watercourse located within this study area is considered warmwater. As a result, all required works located in or near water will need to take place between July 1 and March 31 of any given year. To avoid impacts due to the spring freshet on the construction area, works should avoid high flows in March. As a result, works should be take place between July 1 and February 28 of any given year. Please ensure that this is included as part of the EA.

   Response: The ESR has been revised accordingly to specify that all required in-water works shall take place between July 1 and February 28 of any given year.

10. Please include in the EA discussion regarding incorporation of the terrestrial and aquatic species passage into the detailed design of the new 12.2m Hy-Span structure.

    Response: The ESR has been revised accordingly to reflect TRCA comments.

11. As natural systems are dynamic and site conditions often change from the time the EA is prepared to when construction takes place please ensure that construction using the methods and phasing shown on the plans is confirmed, as appropriate, for the site prior to the commencement of any works. Please include discussion in the EA indicating that existing conditions shown in the detailed design plans will be confirmed prior to construction.

Response to Letter dated November 27, 2007

Response: The ESR has been revised accordingly to reflect TRCA comments.

12. It is noted in the EA that several First Nations groups were contacted however; staff strongly recommends also contacting the 6 Nations Confederacy and the Huron-Wendat.

Response: As noted within the ESR, a Notification letter was mailed out to the Ontario Secretariat for Aboriginal Affairs (OSAA) (now called the Ministry of Aboriginal Affairs) on August 8, 2006 informing them about the Project and to solicit their respective input. Feedback received from OSAA noted that the proposed Project could impact or be of interest to the Mississauga's of Scugog Island First Nation and the Anishinabek Nation. As such, these two First Nations were contacted during this study.

13. Please revise Figure 4 as the Regulation Limit and Floodline is incorrect.

Response: The ESR has been revised to include the updated Figure 4 provided by TRCA.

14. It appears as though the last paragraph in Section 4.7.4 is incomplete. Please revise accordingly.

Response: The last paragraph in Section 4.7.4 has been updated and revised accordingly.

15. a) Section 7.5 addresses various agency and utility permits and approvals. Please revise the information discussed in the TRCA section so that it reads, "Toronto and Region Conservation Authority (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses permit)". Although TRCA staff reviews applications on behalf of DFO, the Letter of Intent is only required if the proposed works will result in a HADD. At present time a HADD is not anticipated, however this will be confirmed at detailed design.

Response: The ESR has been revised accordingly to reflect TRCA comments.

b) The following may be included in the EA to further clarify TRCA's involvement in review of DFO applications.

> "On July 24, 1998, the TRCA signed a Level 3 Agreement with Fisheries and Oceans Canada (DFO), which established a streamlined approach to addressing issues pertaining to the Federal Fisheries Act. Conservation Authorities with a Level 3 Agreement determine whether the proposal has a potential for a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. CA staff will work with the proponent to suggest ways to mitigate the HADD and if mitigable write Letters of Advice on behalf of DFO. If the CA determines that the HADD cannot be mitigated then the CA will provide a skeleton of a Letter of Intent and a DFO application in order for the proponent to prepare a compensation package. Note that only DFO through the Minister of Fisheries and Oceans can authorize compensation regarding a HADD pursuant to Section 35 (2) of the Federal Fisheries Act".

Response: The ESR has been revised accordingly to incorporate the above information.

16. Please include the TRCA comment letter dated June 18, 2007 in Appendix A3.

Response: The TRCA comment letter dated June 18, 2007 has been included in the ESR.

Response to Letter dated December 6, 2007

1. Staff previously noted that stormwater quality management through the use of oil grit separators (OGS) is not required; however, staff requested that the City provide enhanced vegetated swales for the outlet ditches, where feasible. It is noted on page 8 of the Surface Water Management (SWM) Report that ultimately SWM control will be provided for the stretch of Goreway Drive in the City of Brampton, by the retrofit facility immediately downstream of Goreway Drive. The detailed design for this facility is currently underway; however, it is anticipated that full water quality treatment will not be achieved (i.e. the pond will not provide Level 1 water quality treatment). Therefore, as previously discussed, please maintain and enhance the existing swales to the extent possible to provide additional water quality benefit. Please also provide additional details relating to the outfall swales at the detailed design stage.

   Response: Design of the storm water quality treatment facilities will be undertaken during the detailed design phase and provided to TRCA for comment/approval.

2. Staff noted that interference with the watercourse should be minimized by locating the access on the west side as far south of the culvert as reasonable. At detailed design please provide details relating to the access for the proposed culvert works.

   Response: For safety and functional reasons, the access on the west side cannot be situated too far south due to the steep grade of the proposed profile for the proposed overpass solution. However, it is noted that this access on the west side has been located as far south of the culvert as feasible. Details relating to the access and proposed culvert will be provided to TRCA during the detailed design phase.

3. a) Staff noted that access to 35 Kenview Drive should be moved as far north as possible to minimize the footprint of the driveway grading and toe of slope in the floodplain. At the detailed design stage please provide additional details regarding the proposed relocation/closure of existing access roads or entranceways.

      Response: The access at 35 Kenview Dr has been located as far north as possible to minimize the footprint of grading in the flood plain. However, it is noted that the location of the access is constrained by the existing Hydro transformer station. Additional details of the access grading will be provided to TRCA during the detailed design phase.

   b) Several of the entranceways are located within the Regional Floodplain. Please ensure that the level of flood risk associated with ingress and egress is not increased for these properties and, where possible, please try to reduce the existing level of flood threat.

      Response: Most existing accesses are proposed to be either closed or relocated/regraded. As a result of the profile change for the overpass, there is a grade raise at the entrances being relocated and this should result in a reduction in flood level threat at those locations.

4. Please include a plan showing the existing and proposed floodplain, and the location of all cross-sections used in the hydraulic assessment. The summary of results should include sufficient sections to show that there will be no adverse impact to flood levels upstream or downstream of the proposed works (i.e. the current summary only includes data for sections at the crossing location)

   Response: Flood plain mapping and cross section locations for Mimico Creek were provided to UMA on January 16, 2007 by TRCA staff. The mapping was taken from a flood study completed in support of the recent industrial development adjacent to Mimico Creek on the west side of Goreway Drive. Given that the change in Regional flood elevation between existing and proposed conditions is a maximum of 1 cm, the extent of the Regional flood plain between existing and proposed conditions is identical. As requested please find enclosed the following:

Response to Letter dated December 6, 2007

- Flood plain mapping showing the section locations
- HEC-2 Summary output (existing and proposed) for selected cross sections above and below Goreway Drive. It is noted that Digital HEC-2 input files were provided to Patricia Lewis of the TRCA by e-mail on November 27, 2007.

5. TRCA staff is currently in the process of updating both the hydrology and hydraulic models for the Mimico Creek Watershed. At detailed design, please address and incorporate any updated information.

   Response: The updated hydrology and hydraulic models for Mimico Creek Watershed will be incorporated during the detailed design phase and provided to TRCA for review and comment at that time.

6. Please provide additional details with respect to the temporary road detour (i.e. phasing, impacts to existing culvert, impacts to valley, etc.)

   Response: The plan and profile for the proposed detour road has been undertaken to the preliminary design level of detail and is included in Appendix C of the ESR. Design of the detour road including phasing and impacts will be undertaken during the detailed design phase and will be provided to the TRCA at that time for review and comment.

7. Please submit a detailed erosion and sediment control plan following the new guidelines recently developed for the Greater Golden Horseshoe Conservation Authorities (a copy of the document can be downloaded at www.sustainabletechnologies.com). Extra care will be required given that the Phase 1 ESA concluded that the soils may have been contaminated, as a result of various activities within the area. Additional precautions will need to be considered as part of the erosion and sediment control plan to ensure that contaminated soil does not enter the watercourse.

   Response: A Sediment and Erosion Control Plan will be prepared at the detailed design phase of this project as more information will be available at that time (i.e. construction methodology, staging) to guide the preparation of a specific, detailed plan. The ESR will be revised to document the requirement for a detailed Sediment and Erosion Control Plan during the detailed design phase. Moreover, the ESR will document that the Sediment and Erosion Control Plan is to be consistent with the *Erosion and Sediment Control Guideline for Urban Construction* (2006).

8. The Phase 1 ESA noted that there is the potential for groundwater contamination. Please ensure that additional details are provided with respect to dewatering operations at detailed design.

   Response: Appropriate details for addressing dewatering operations will be established during the detailed design phase and provided to TRCA for review and comment.

9. It is noted that the existing storm sewer will need to be replaced. Please provide details of the proposed servicing and outfall structure as part of the detailed design.

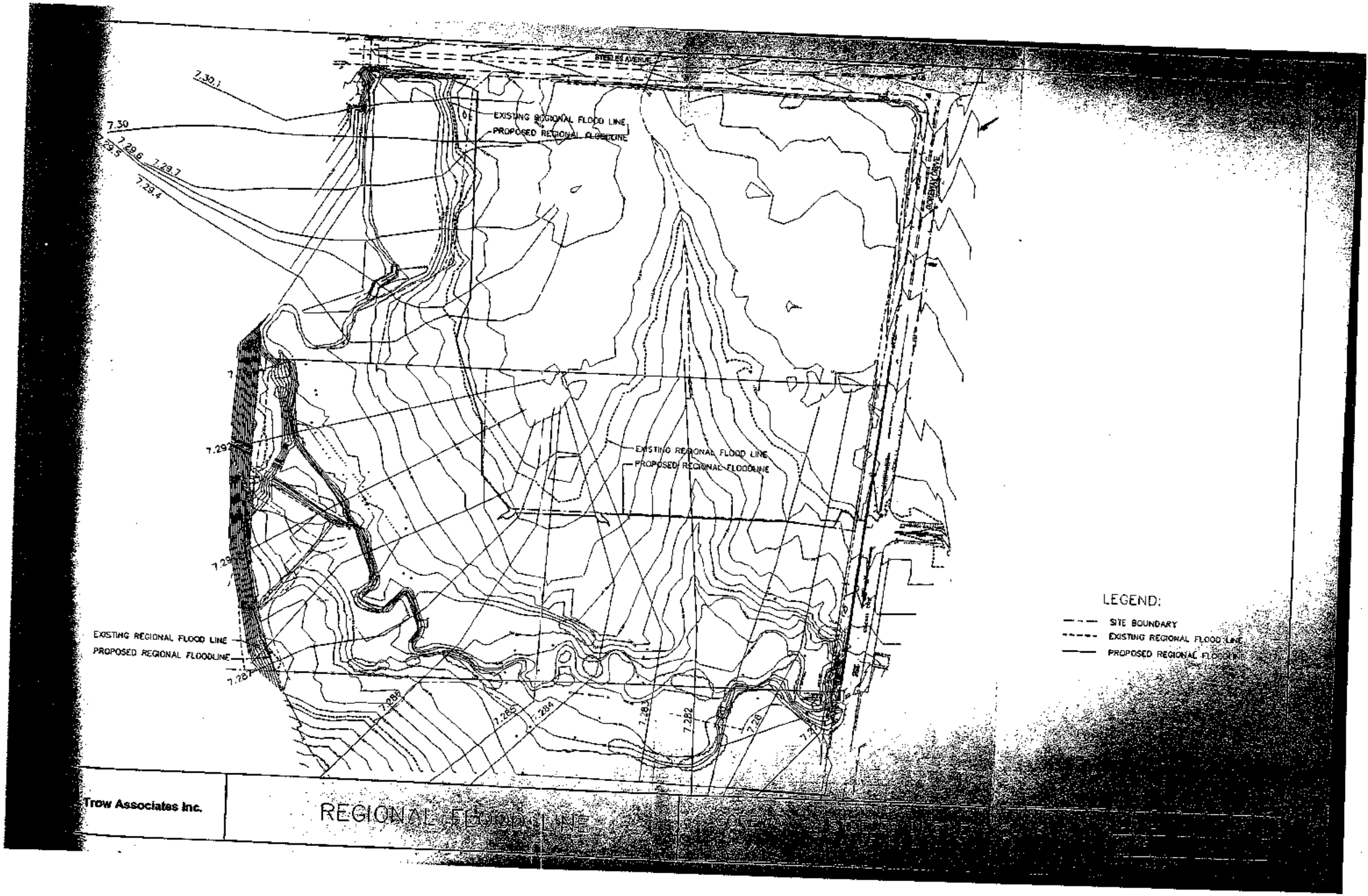
   Response: Design of the storm sewer system and outfall will be undertaken during the detailed design phase and will be provided to the TRCA for review and comment at that time.

10. It was previously agreed that it is reasonable to permit overtopping of the road during a Regional Flood event, however, TRCA staff requested that the City of Brampton provide comment on available emergency access routes in the vicinity. The proponent notes on page 25 of the ESR that the City's Manager of Emergency Measures and Corporate Security has indicated that an emergency access route plan is not available and that the optimum emergency route is determined at the time of call.

Response to Letter dated December 6, 2007

TRCA staff is currently working closely with City staff with respect to Emergency Planning. TRCA staff will identify this area as a potential concern and will continue to work with the City to develop a city-wide plan. No further information is required at this time.

Response: As noted, the City of Brampton and TRCA will continue to discuss the issue regarding emergency measures and route planning.


STEELES AVENUE
7.30.1
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EXISTING REGIONAL FLOOD LINE
PROPOSED REGIONAL FLOODLINE
CONMEE AVENUE
7.29
EXISTING REGIONAL FLOOD LINE
PROPOSED REGIONAL FLOODLINE
EXISTING REGIONAL FLOOD LINE
PROPOSED REGIONAL FLOODLINE
7.28
7.285
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LEGEND:
SITE BOUNDARY
EXISTING REGIONAL FLOOD LINE
PROPOSED REGIONAL FLOODLINE
Trow Associates Inc.
REGIONAL FLOODLINE

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|              S U M P O            |
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|  Interactive Summary Printout     |
|  for MS/PC-DOS micro computers    |
|            May 1991               |
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NOTE - Asterisk (*) at left of profile number indicates message in summary of errors list

REGIONAL STORM HYMO FLO

Summary Printout

	SECNO	CWSEL	Q	VLOB	VCH	VROB	XLCH	CUMDS
	7.26	172.27	137.00	.14	.36	.12	63.20	3159.40
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*	7.26	169.98	17.00	.00	.99	.00	63.20	3159.40
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	7.27	171.11	40.00	.10	.28	.11	23.50	3182.90
	7.27	170.63	32.00	.10	.29	.11	23.50	3182.90
	7.27	170.54	25.00	.08	.24	.09	23.50	3182.90
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|  Interactive Summary Printout     |
|  for MS/PC-DOS micro computers    |
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NOTE - Asterisk (*) at left of profile number indicates message in summary of errors list

REGIONAL STORM HYMO FLO

Summary Printout

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	7.28	172.28	137.00	.21	.58	.21	55.90	3240.90
*	7.28	171.17	40.00	.11	.28	.10	55.90	3240.90
*	7.28	170.65	32.00	.12	.29	.11	55.90	3240.90
*	7.28	170.49	25.00	.10	.24	.10	55.90	3240.90
*	7.28	170.05	17.00	.09	.21	.09	55.90	3240.90
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	7.28	169.37	8.00	.06	.15	.06	55.90	3240.90
	7.29	172.30	137.00	.21	.60	.20	132.00	3952.90
	7.29	171.18	40.00	.11	.36	.11	132.00	3952.90
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*	7.30	170.71	12.00	.20	.70	.23	50.00	4530.90
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TORONTO AND REGION Conservation
for The Living City

December 6, 2007

CFN 37551

BY MAIL AND E-MAIL (greg.smith@uma.aecom.com)

Mr. Greg Smith
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2

Dear Mr. Smith:

Re: **Response to Draft Environmental Study Report (ESR) – Engineering Comments**
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Mississauga; City of Brampton; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the draft Environmental Study Report (ESR) dated October 16, 2007, on October 18, 2007 and October 24, 2007. Ecology, hydrogeology and geotechnical comments were provided in a letter dated November 27, 2007. Engineering comments have now been provided and can be found in Appendix A. These comments should be included as an appendix in the final EA report.

Please ensure that the TRCA receives a copy of the Notice of Study Completion and one (1) hard copy and one (1) digital copy, in pdf form, of the final ESR. The final EA document should be accompanied by a covering letter which uses the numbering scheme provided in this letter and identifies how these comments have been addressed in the final document.

Should you have any questions please contact me at extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessment Review
Planning and Development

SL/

BY EMAIL

cc: Khurram Tunio, City of Brampton (khurram.tunio@brampton.ca)
Beth Williston, TRCA, Manager, Environmental Assessments
Quentin Hanchard, TRCA, Manager, Development Planning and Regulation
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

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APPENDIX A

1. Staff previously noted that stormwater quality management through the use of oil grit separators (OGS) is not required; however, staff requested that the City provide enhanced vegetated swales for the outlet ditches, where feasible. It is noted on page 8 of the Surface Water Management (SWM) Report that ultimately SWM control will be provided for the stretch of Goreway Drive in the City of Brampton, by the retrofit facility immediately downstream of Goreway Drive. The detailed design for this facility is currently underway; however, it is anticipated that full water quality treatment will not be achieved (i.e. the pond will not provide Level 1 water quality treatment). Therefore, as previously discussed, please maintain and enhance the existing swales to the extent possible to provide additional water quality benefit. Please also provide additional details relating to the outfall swales at the detailed design stage.

2. Staff noted that interference with the watercourse should be minimized by locating the access on the west side as far south of the culvert as reasonable. At detailed design please provide details relating to the access for the proposed culvert works.

3. a) Staff noted that access to 35 Kenview Drive should be moved as far north as possible to minimize the footprint of the driveway grading and toe of slope in the floodplain. At the detailed design stage please provide additional details regarding the proposed relocation/closure of existing access roads or entranceways.
   b) Several of the entranceways are located within the Regional Floodplain. Please ensure that the level of flood risk associated with ingress and egress is not increased for these properties and, where possible, please try to reduce the existing level of flood threat.

4. Please include a plan showing the existing and proposed floodplain, and the location of all cross-sections used in the hydraulic assessment. The summary of results should include sufficient sections to show that there will be no adverse impact to flood levels upstream or downstream of the proposed works (i.e. the current summary only includes data for sections at the crossing location)

5. TRCA staff is currently in the process of updating both the hydrology and hydraulic models for the Mimico Creek Watershed. At detailed design, please address and incorporate any updated information.

6. Please provide additional details with respect to the temporary road detour (i.e. phasing, impacts to existing culvert, impacts to valley, etc.)

7. Please submit a detailed erosion and sediment control plan following the new guidelines recently developed for the Greater Golden Horseshoe Conservation Authorities (a copy of the document can be downloaded at www.sustainabletechnologies.com). Extra care will be required given that the Phase 1 ESA concluded that the soils may have been contaminated, as a result of various activities within the area. Additional precautions will need to be considered as part of the erosion and sediment control plan to ensure that contaminated soil does not enter the watercourse.

8. The Phase 1 ESA noted that there is the potential for groundwater contamination. Please ensure that additional details are provided with respect to dewatering operations at detailed design.

9. It is noted that the existing storm sewer will need to be replaced. Please provide details of the proposed servicing and outfall structure as part of the detailed design.

10. It was previously agreed that it is reasonable to permit overtopping of the road during a Regional Flood event, however, TRCA staff requested that the City of Brampton provide comment on available emergency access routes in the vicinity. The proponent notes on page 25 of the ESR that the City's Manager of Emergency Measures and Corporate Security has indicated that an emergency access route plan is not available and that the optimum emergency route is determined at the time of call. TRCA staff is currently working closely with City staff with respect to Emergency Planning. TRCA staff will identify this area as a potential concern and will continue to work with the City to develop a city-wide plan. No further information is required at this time.

TORONTO AND REGION Conservation
for The Living City

November 27, 2007

CFN 37551

BY MAIL AND E-MAIL (greg.smith@uma.aecom.com)

Mr. Greg Smith
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2

Dear Mr. Smith:

Re: Response to Draft Environmental Study Report (ESR)
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Mississauga; City of Brampton; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the draft Environmental Study Report (ESR) dated October 16, 2007, on October 18, 2007 and October 24, 2007. It is our understanding that the preferred design involves maintaining the existing 4-lane cross-section along Goreway Drive, constructing a grade separation at the CN crossing as an overpass, improving pedestrian and cyclist facilities by including a sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive, and intersection improvements.

Staff has reviewed the draft EA and comments are provided in Appendix A. These comments should be included as an appendix in the final EA report. Please note that engineering comments are not included in this submission and will follow under separate cover.

Please ensure that the TRCA receives a copy of the Notice of Study Completion and one (1) hard copy and one (1) digital copy, in pdf form, of the final ESR. The final EA document should be accompanied by a covering letter which uses the numbering scheme provided in this letter and identifies how these comments have been addressed in the final document.

Should you have any questions please contact me at extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessment Review
Planning and Development

SL/

BY EMAIL

cc: Khurram Tunio, City of Brampton (khurram.tunio@brampton.ca)
Quentin Hanchard, TRCA, Manager, Development Planning and Regulation
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist
Carolyn Woodland, TRCA, Director, Planning and Development
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APPENDIX A

1. At the detailed design stage please provide construction dewatering estimates for the widening of the existing culvert and the construction of the overpass at the CN railway line.

2. Groundwater sampling results from the two boreholes (BH 6 and BH 15) indicate very high concentrations of electrical conductivity (EC), total dissolved solids (TDS) and some metals. Electrical conductivity values range from 9990 to 13800 μS/cm and TDS from 6750 to 9670. Chromium was reported at an elevated concentration of 0.012 mg/L, copper 0.009 mg/L, vanadium 0.028 mg/L and iron 10.4 mg/L. All of these levels are above Provincial water Quality Objectives (PWQO). Depending on where the water will be discharged, any required dewatering at the construction stage will require treatment before it can be released into the natural environment. Please discuss provisions for this treatment in the EA.

3. The EA indicates that the preferred design will result in a maximum of 6 m (Executive Summary) and 7 m (Page 69) high retaining walls. However, Section 5.2.1 of the geotechnical report dated August 21, 2007 indicates that the maximum height of the retaining wall will be approximately 9.5 m. Please confirm and revise the EA accordingly.

4. Retaining walls associated with the overpass are proposed as high as a maximum of approximately 9.5 m. Please ensure that details regarding the retaining walls are provided to TRCA staff at detailed design.

5. Please note in the EA that the Erosion and Sediment Control Guideline for Urban Construction (2006) will be followed at detailed design. For example, staff does not support the use of straw bale check dams (Table 13, Section 4.1). Please remove all references to straw bale check dams and replace with another appropriate erosion and sediment control measure.

6. Table 13, Section 4.2 indicates that vegetation will be used to stabilize disturbed soils. Please revise this section to recognize that a physical method such as erosion blankets will be required at detailed design to immediately stabilize soils outside of the growing season when seed cannot be established.

7. It was discussed at our May 29, 2007 meeting that all opportunities to establish as wide a stream corridor as possible should be explored. Please incorporate this into Table 13 and consider this when relocating driveways of neighbouring properties.

8. Please indicate in the EA that tree removals will only take place during times that avoid nesting birds. Please ensure that removals avoid the nesting window of May 1 to August 1.

9. a) Table 13, Section 6.1 refers to construction timing constraints imposed by the MNR. Please note that TRCA is now responsible for applying the fisheries timing window. Please revise accordingly.

   b) The watercourse located within this study area is considered warmwater. As a result, all required works located in or near water will need to take place between July 1 and March 31 of any given year. To avoid impacts due to the spring freshet on the construction area, works should avoid high flows in March. As a result, works should be take place between July 1 and February 28 of any given year. Please ensure that this is included as part of the EA.

10. Please include in the EA discussion regarding incorporation of the terrestrial and aquatic species passage into the detailed design of the new 12.2m Hy-Span structure.

11. As natural systems are dynamic and site conditions often change from the time the EA is prepared to when construction takes place please ensure that construction using the methods and phasing shown on the plans is confirmed, as appropriate, for the site prior to the commencement of any works. Please include discussion in the EA indicating that existing conditions shown in the detailed design plans will be confirmed prior to construction.

12. It is noted in the EA that several First Nations groups were contacted however; staff strongly recommends also contacting the 6 Nations Confederacy and the Huron-Wendat.

13. Please revised Figure 4 as the Regulation Limit and Floodline is incorrect.

14. It appears as though the last paragraph in Section 4.7.4 is incomplete. Please revise accordingly.

15. a) Section 7.5 addresses various agency and utility permits and approvals. Please revise the information discussed in the TRCA section so that it reads, "Toronto and Region Conservation Authority (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses permit)". Although TRCA staff reviews applications on behalf of DFO, the Letter of Intent is only required if the proposed works will result in a HADD. At present time a HADD is not anticipated, however this will be confirmed at detailed design.

    b) The following may be included in the EA to further clarify TRCA's involvement in review of DFO applications.

> "On July 24, 1998, the TRCA signed a Level 3 Agreement with Fisheries and Oceans Canada (DFO), which established a streamlined approach to addressing issues pertaining to the Federal Fisheries Act. Conservation Authorities with a Level 3 Agreement determine whether the proposal has a potential for a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. CA staff will work with the proponent to suggest ways to mitigate the HADD and if mitigable write Letters of Advice on behalf of DFO. If the CA determines that the HADD cannot be mitigated then the CA will provide a skeleton of a Letter of Intent and a DFO application in order for the proponent to prepare a compensation package. Note that only DFO through the Minister of Fisheries and Oceans can authorize compensation regarding a HADD pursuant to Section 35 (2) of the Federal Fisheries Act."

16. Please include the TRCA comment letter dated June 18, 2007 in Appendix A3.

Kapusin, Sonya

Subject: FW: Goreway Drive (UMA File Name 4020-009-00)

-----Original Message-----
From: evicente@hydroonebrampton.com [mailto:evicente@hydroonebrampton.com]
Sent: October 25, 2007 10:12 AM
To: Smith, Greg
Cc: revangelista@hydroonebrampton.com; RMena@hydroonebrampton.com
Subject: Goreway Drive (UMA File Name 4020-009-00)

Hello Greg:

Our 27.6kv primary feeder #74M2 deadends at existing pole #7834, approximately 50m south of Kenview Blvd. The grade change introduced at our pole locations 7850 and 7834 calls for taller poles but can remain at the offset. The pole line farther to the south are Enersource. Furthermore, installation of our proposed primary underground service on the westside may have to be delayed until the grade separation is completed.

If you have any other questions, please let me know.

Sincerely,

Ernie C. Vicente
e-mail evicente@hydroonebrampton.com
tel #(905) 840-6300 Ext3322
fax #(905) 840-1305

Regional Engineering
Engineering Services

Canadian National Railway
1 Administration Road
P.O. Box 1000
Concord, Ontario L4K 1B9
Tel.: 905-669-3155
Fax: 905-760-3406

October 25, 2007
Email: greg.smith@uma.aecom.com

Mr. Greg Smith, P.Eng.,
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd,
Mississauga, Ontario L4W 4P2

Dear Mr. Smith;

Re: Improvements to Goreway Drive from Steels Ave to Brandon Gate Drive
Class Environmental Assessment – Draft Environmental Study Report

Thank you for the draft ESR report dated October 16, 2007 for the above noted project. CNR does have interest in this project due to the existing at grade crossing at Mile 8.80 on the Halton Subdivision. CNR has briefly reviewed the document and has no objections to the preferred design overpass alternative. CNR requests to be consulted during the design stage and advised if there will be any potential impacts to the railway. The Road Authority will be required to enter into a grade crossing agreement with CNR prior to the start of construction.

As part of the overpass option, a temporary road detour and rail crossing is proposed to the east of the existing crossing. Please be informed, the installation of a new crossing and associated modifications to the Automatic Warning Devices for the detour may take up to 18 months to complete after the purchase order is received. Also, the preliminary cost estimate for the "rail diversion and temporary signals" on Table 12 should be increased to $300,000 to cover the estimated cost of the new crossing surface, the relocation of the signal bungalow and the modifications to the AWD's. The $300,000 value is only an order of magnitude estimate and a detailed estimate will be provided at a later date. CNR should be consulted prior to the design of the detour to determine the best location for the detour crossing due to the possible conflicts with switch points and signal devices.

Sincerely,
Darylann Perry for
John F. MacTaggart, P.Eng.
Senior Engineering Services Officer

Hydro One Brampton
175 Sandalwood Pkwy West
Brampton, Ontario L7A 1E8
Tel: (905) 840-6300

www.HydroOneBrampton.com

September 19, 2007

hydro one Brampton

City of Brampton
8850 McLaughlin Road
Brampton, ON
L6Y 5T1

Attention: Khurram Tunio, M. Eng., P. Eng.

Re: Goreway Drive / CNR Grade Separation

Dear Sir:

Recently we were made aware of a proposed grade separation where Goreway Drive crosses the CN rail line near the Brampton / Mississauga boundary.

Hydro One Brampton has a vested interest in this project as it impacts the electrical supply to our customer, Parkshore Golf Course.

Hydro One Brampton will require vehicular access off Goreway Drive to the existing point of supply to the Golf Course. The point of supply is located on the east side of Goreway Drive approximately 28m north of the CN railway.

Please add Hydro One Brampton to your mailing list for this project. We would also appreciate receiving any design details for the grade separation.

Yours truly,
Hydro One Brampton Inc.

W. Schaefer, C.E.T.
Engineering Supervisor – Capital Works & Maintenance
WS/lm

Ontario Realty Corporation / Société immobilière de l'Ontario

11th Floor
Ferguson Block
Queen's Park
Toronto, Ontario
M7A 1N3
Tel: (416) 327-3933

11e étage
Idifice Ferguson
Queen's Park
Toronto, Ontario
M7A 1N3
Fax: (416) 327-1920

R.D. Waldon
Senior Real Estate Consultant

July 4, 2007

City of Brampton
2 Wellington Street West
Brampton, ON,
L6Y 4R2

Dear Sir,

Re: Application for Easement / Right of Way Acquisition
Goreway Drive Grade Separation / Provincially owned lands

I wish to acknowledge receipt of your letter of June 20, 2007, and confirm discussions at a meeting attended by yourself and Chris Duyvestyn from the City of Brampton, and by Brian Agensky and Bill Salmon from Ontario Realty Corporation (ORC) on June 27, 2007.

I understand that Brian was able to provide you with information on our Class Environmental Assessment process (EA) that hopefully will assist you in expediting your application. Brian has also provided you with his contact information and offered to answer any EA-related questions which may arise as you prepare your application.

In regards to the Goreway Drive grade separation, it was agreed that at this stage of design, it is premature to specify the consequences that the grade separation will have on the Province's land. In order to understand how the construction will affect the Provincial property, it was agreed that we would continue discussions as the design work progresses.

We look forward to working with you through this process and we would be pleased to provide any additional information you may require.

Yours truly,

per

Graham Martin
Director, Real Estate Development

Cc: Bill Salmon
Brian Agensky

ORC 2

MISSISSAUGAS OF SCUGOG ISLAND FIRST NATION

22521 ISLAND ROAD • PORT PERRY, ON • L9L 1B6 • TEL: 905-985-3337 • FAX: 905-985-8828 • www.scugogfirstnation.com

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario
L4W 4P2

June 18, 2007

Re: Notice of Public Information Centre No. 2 – Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive – Class Environmental Assessment

Dear Mr. Ritchie:

We acknowledge receipt of materials respecting this environmental assessment of lands in which we have several interests.

The lands involved in the proposed undertaking are within the treaty lands of the Mississaugas of Scugog Island First Nation, and are within the lands claimed by the First Nation in an unresolved specific land claim presently before the Canada Indian Land Claims Commission. The First Nation also has several Aboriginal rights that are applicable within the subject lands which are not site specific and which are similarly protected by s. 35 of the constitution, such as the right to have Aboriginal burials not disturbed.

The First Nation has a constitutional right to be consulted with respect to any decision that is contemplated that could cause an adverse affect upon the interests of the First Nation. It also has the right to be consulted under the *Environmental Assessment Act* and has procedural administrative law rights, because its interests could be adversely affected.

The delivery of notices, like the notice or notices which have been sent are not consultations respecting these interests. Presently, there have not been any consultations with the Governments of Canada or Ontario. We ask you to advise if you represent the Government of Ontario or Canada for the purposes of such consultations.

We require that an archaeological resource survey be done of the lands and when it is completed that a copy be provided to us for our review. We require that your engagement of an archaeologist be limited to:

Dr. William R. Fitzgerald
Archaeologist
2207 Bruce County Road
R.R. #2
Tiverton, Ontario N0G 2T0
Telephone: (519) 368-5899
Facsimile: (519) 368-8886
Email: dr_dig@xplornet.com

Archeoworks Incorporated
16715-12 Yonge Street,
Suite #1029
Newmarket, ON
L3X 1X4
Telephone: 416-676-5597
Facsimile: 416-676-5810
Email: kslocki@archeoworks.com

The planning and execution of the proposed undertaking requires many decisions, approvals, permits and other similar steps by governments. Owing to the governments' obligation to consult regarding these decisions, we require reasonable notice of these steps, so that there can be the appropriate consultations with the government involved.

As a first step, we require your assurance that the subject lands will not be disturbed until we have completed our consultations with you or the applicable government. Preservation of any burial sites could not be achieved unless such stand still agreement is in place.

As you may appreciate, the consultations will give rise to costs by the First Nation. We ask to have your proposal regarding the financing of these costs, and after we have reached an agreement with you regarding this financing, we will be in a position to respond meaningfully to the matters which will require resolution for this project to proceed.

Yours very truly,

Angela Johnson

Angela Johnson
Councillor
Mississaugas of Scugog Island First Nation

TORONTO AND REGION Conservation
for The Living City

June 18, 2007

CFN 37551

BY MAIL AND E-MAIL (greg.smith@uma.aecom.com)

Mr. Greg Smith
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON
L4W 4P2

Dear Mr. Smith:

Re: Response to Draft Surface Water Management Report
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Mississauga and City of Brampton; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the Draft Surface Water Management Report on May 29, 2007. Staff has reviewed the above-noted report and has no objection in principle to the size of the proposed culvert replacement.

It is our understanding that the proposed works include replacing the existing 4.9 m wide culvert with a 12.2 m Hy-Span pre-cast bridge, and that under existing conditions the lowest point along Goreway Drive is overtopped by the 10 year storm event, or greater. By increasing the span of the crossing over Mimico Creek, and by raising the low point on Goreway Drive, flood depths will be reduced from current conditions for most storm events. However, a small increase in water levels will occur for the 50 year, 100 year and Regional storm events due to backwater conditions created by the undersized culverts under the CN rail lines and/or the control structure for the on-line flood control facility located upstream of the rail lines. Modeling shows that Goreway Drive would remain impassable by passenger vehicles for events greater than the 50 year storm event and impassable by emergency vehicles for events greater than the 100 year storm event.

While overtopping will still occur along Goreway Drive, the larger structure will mitigate minor increases in upstream flood levels due to raised road profiles, and will improve access along Goreway Drive for both passenger vehicles and emergency vehicles during severe storm events. It was also noted that development on the west side of Goreway Drive between Steeles Avenue and Mimico Creek is protected from flooding up to an elevation of 172.45 and that the proposed overpass and culvert replacement would not pose any additional risk to the development during the Regional storm event.

Please ensure that we receive four (4) hard copies and one (1) digital copy, in .pdf form, of the draft ESR, once available for review. Should you have any questions please contact me at extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessments
Planning and Development

SL/

BY E-MAIL

cc: Khurram Tunio, City of Brampton (khurram.tunio@brampton.ca)
Steve Hollingworth, UMA (Steve.Hollingworth@uma.aecom.com)
Quentin Hanchard, Manager, Development Planning and Regulations
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

F:\Home\Public\Development Services\EA\Letters for Mailing\37551 - Surface Water Report.doc

Kapusin, Sonya

From: Lagakos, Ted (MTO) [Ted.Lagakos@ontario.ca]
Sent: June 4, 2007 9:04 AM
To: Kapusin, Sonya
Subject: Improvements to Goreway Drive - Steeles Ave to Brandon Gate Drive, Class EA

Attention Ms. Sonya Kapusin,

This is to confirm receipt of your letter dated May 30, 2007. I have reviewed the enclosed plans and can confirm that MTO has no objection to the proposed improvements on Goreway Drive.

I trust that this is satisfactory.

Sincerely,

Ted Lagakos
Project Manager
Ministry of Transportation
416-235-3497
ted.lagakos@onatio.ca

Kapusin, Sonya

From: Matthew Bonas [mbonas@407ETR.com]
Sent: June 1, 2007 9:25 AM
To: Kapusin, Sonya
Subject: Improvements to Goreway Dr. from Steeles Ave to Brandon Gate Dr.

Sonya,

407 ETR has reviewed the drawing for the above Class EA study and have no comments or concerns. Should the plans change in the future and the intersection of Steeles and Goreway becomes involved in the design please contact us and provide us with updated drawings for our review. Thank you.

Regards,

Matthew Bonas
Highway Operations Technician
407 ETR Concession Company Ltd.
Office: 905.265.4070 ext. 5431
Cell: 416.991.6622
Fax: 905.264.5379

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 30, 2007

File Name: 4020-009

Mr. Ted Lagakos
Ministry of Transportation
Central Region - Corridor Management Section
1201 Wilson Avenue, Building D, 7th Floor
Downsview, Ontario M3M 1J8

Dear Mr. Lagakos:

Re: Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment (EA) Study

In response to your email of May 29 to Mr. Andrew Ritchie, we have enclosed a copy of the preliminary plan and profile drawings for improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive. We would appreciate receiving your comments on the enclosed materials by June 15, 2007.

If you have any questions regarding the Class EA Study, please do not hesitate to contact Mr. Ritchie at 905-238-0007, ext. 8135 or the undersigned at ext. 2902.

Sincerely,

UMA Engineering Ltd.

Sonya Kapusin, MCIP, RPP
Consultant Environmental Planner
Sonya.Kapusin@uma.aecom.com

SK

Encl.

cc: Greg Smith, Consultant Project Manager, UMA
Andrew Ritchie, Lead Consultant Environmental Planner, UMA

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 30, 2007

File Name: 4020-009

Mr. Sean Stewart
Supervisor, Highway Engineering Services
407 ETR Concession Company Ltd.
6300 Steeles Avenue West
Woodbridge, Ontario L4H 1J1

Dear Mr. Stewart:

Re: Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment (EA) Study

In response to your email of May 16 to Mr. Greg Smith, we have enclosed a copy of the preliminary plan and profile drawings for improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive. We would appreciate receiving your comments on the enclosed materials by June 15, 2007.

If you have any questions regarding the Class EA Study, please do not hesitate to contact Mr. Smith at 905-238-0007, ext. 8136 or the undersigned at ext. 2902.

Sincerely,

UMA Engineering Ltd.

Sonya Kapusin, MCIP, RPP
Environmental Planner
Sonya.Kapusin@uma.aecom.com

SK

Encl.

cc: Greg Smith, Consultant Project Manager, UMA

Kapusin, Sonya

From: Ritchie, Andrew
Sent: May 29, 2007 11:18 AM
To: Ritchie, Andrew
Cc: Tunio, Khurram; Choi, Solomon; Abdul Shaikh; Smith, Greg; Kapusin, Sonya
Subject: RE: 4020-009 - Goreway Drive Class EA Study

Ted,

Further to my previous email, I wish to note that Steeles Avenue is approximately 400 m south of Highway 407. Thus, Kenview Boulevard is actually about 800 m south of Highway 407. My apologies for the oversight.

Regards,

Andrew

-----Original Message-----
From: Ritchie, Andrew
Sent: May 29, 2007 10:58 AM
To: 'Lagakos, Ted (MTO)'
Cc: Kapusin, Sonya
Subject: RE: 4020-009 - Goreway Drive Class EA Study

Ted,

Thank you for the information. A set of drawings will be couriered out for delivery tomorrow of Thursday.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

-----Original Message-----
From: Lagakos, Ted (MTO) [mailto:Ted.Lagakos@ontario.ca]
Sent: May 29, 2007 10:56 AM
To: Ritchie, Andrew
Subject: RE: 4020-009 - Goreway Drive Class EA Study

Andrew,

Our mailing address is:

Ministry of Transportation
Central Region - Corridor Management Section
1201 Wilson Ave, Building D, 7'th Floor
Downsview ON

M3M 1J8

-----Original Message-----
From: Ritchie, Andrew [mailto:Andrew.Ritchie@uma.aecom.com]
Sent: May 29, 2007 10:15 AM
To: Lagakos, Ted (MTO)
Cc: Tunio, Khurram; Choi, Solomon; Smith, Greg; Abdul Shaikh; Kapusin, Sonya; finbarr.mulcahy@peelregion.ca
Subject: 4020-009 - Goreway Drive Class EA Study

Mr. Lagakos,

Further to my previous email dated May 14, 2007, we will courier a set of Plan/Profile Drawings to your attention today. Could you please confirm your mailing address.

It is noted that these drawings will be for the Preferred Design Concept (road over rail structure (overpass)) at the CN crossing (south of Steeles Avenue) while maintaining the existing 4-lane cross section within the Project Limits. Please note that since we are not proposing any widening of Goreway Drive and/or intersection improvements at Steeles Avenue, the proposed improvements do not extend north of Kenview Boulevard, which is approximately 400 m south of Highway 407.

As noted previously, please contact Barry Mulcahy at finbarr.mulcahy@peelregion.ca for additional information on the proposed Steeles Avenue/Goreway Drive intersection improvements.

If you have any additional questions/concerns, please contact me at the number provided below.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

-----Original Message-----
From: Lagakos, Ted (MTO) [mailto:Ted.Lagakos@ontario.ca]
Sent: May 16, 2007 7:21 AM
To: Ritchie, Andrew
Subject: RE: PIC for Class EA - Improvements to Goreway Dr from Steeles Ave to Brandon Gate, File: 4020-009

Andrew,

Yes, please send us some details when available for our review and comment. Call me if you have any questions.

Ted Lagakos
Project Manager
Corridor Management Section
Ministry of Transportation
Central Region

Tel: 416-235-3497
Fax: 416-234-4267

Email: ted.lagakos@ontario.ca

-----Original Message-----
From: Ritchie, Andrew [mailto:Andrew.Ritchie@uma.aecom.com]
Sent: May 14, 2007 10:20 PM
To: Lagakos, Ted (MTO)
Cc: Tunio, Khurram; Choi, Solomon; Abdul Shaikh; Smith, Greg; Kapusin, Sonya; finbarr.mulcahy@peelregion.ca
Subject: RE: PIC for Class EA - Improvementes to Goreway Dr from Steeles Ave to Brandon Gate, File: 4020-009

Mr. Lagakos,

Thanks for your input. Much appreciated.

At this point, we had our second PIC on May 1, 2007. The PIC was held at the Malton Community Centre located at 3540 Morning Star Drive, between 6:30 pm and 9:00 pm. The purpose of the second PIC was to present and receive public input on the evaluation of Alternative Design Concepts for the Preferred Solution, selection of the Preliminary Preferred Design Concept, potential benefits and impacts associated with the Preliminary Preferred Design Concept and future scheduled EA activities.

Based on input received at the PIC and subsequent external agency meetings, we are now in the process of confirming/selecting the Preferred Design Concept. We will then finalize the description of potential impacts and mitigation measures for the Preferred Design Concept, and then document the Class EA study in an Environmental Study Report (ESR) to be placed on the Public Record for a minimum 30-day public review period.

As per your email, we will continue to circulate and keep the Ministry informed of this study. You noted that the Ministry will provide "detailed comments when plans are made available for our review". I wish to inform you that the Preferred Design Concept calls for a road over rail (overpass) at the CN crossing (south of Steeles Avenue) while maintaining the existing 4-lane cross section within the Project Limits.
Though within the Project Limits, we are not proposing any changes/modifications to the Steeles Avenue/Goreway Drive intersection.
Do you still require preliminary design plans for your review?

In addition, it is noted that the Region of Peel is currently undertaking a Schedule 'B' Class EA study for the Steeles Avenue/Goreway Drive intersection. I suggest you contact Barry Mulcahy at finbarr.mulcahy@peelregion.ca for additional information on the proposed intersection improvements.

If you have any additional questions/concerns, please contact me at the number provided below.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

-----Original Message-----
From: Lagakos, Ted (MTO) [mailto:Ted.Lagakos@ontario.ca]
Sent: May 14, 2007 9:59 AM
To: Ritchie, Andrew
Subject: PIC for Class EA - Improvementes to Goreway Dr from Steeles Ave to Brandon Gate,
File: 4020-009

Attention Mr. Andrew Ritchie:

The Ministry has reviewed your recent circulation dated April 17, 2007 in accordance with the requirements under the Public Transportation and Highway Improvement Act (PTHIA) and we offer the following comments:

- We have no objection in principal with the City's plans to improve the operation and capacity of Goreway Drive.

- The Project Team should be aware of the 407 Transitway and the station in the north-west quadrant of the intersection (see attachment). Please note the Transitway's stations right-in right-out access on Goreway Drive and the fully signalised access on Steeles Avenue.

- Please ensure that the Ministry continues to be circulated and kept informed of the ongoing status of this study. Detailed comments will be provided when plans are made available for our review.

- In general, any proposed improvements within the vicinity of the Highway 407 will require Ministry review, approval and permits. The Ministry's limit of "permit control" extends 395 m from the centre point of the intersection of Goreway Drive and the Highway 407.

I trust that this is satisfactory. Please contact me if you have any further questions and/or concerns.

<<scan.pdf>>
Ted Lagakos
Project Manager
Corridor Management Section
Ministry of Transportation
Central Region

Tel: 416-235-3497
Fax: 416-234-4267
Email: ted.lagakos@ontario.ca

UMA | AECOM

UMA Engineering Ltd.
5060 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 29, 2007

File Name: 4020-009-00-3

Ms. Sharon Lingertat, Acting Planner II
Environmental Assessment Review
Planning and Development
Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON M3N 1S4

Dear Ms. Lingertat:

Re: Surface Water Management Report (DRAFT)
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

We are pleased to submit herewith 5 draft copies of the Surface Water Management Report (dated May 28, 2007) for the above project. Through the Class EA process, the project team has established that the Overpass Option is the preferred design alternative for the grade separation of the CN Halton subdivision. In this report, UMA Engineering has addressed storm water issues related to the evaluation of the overpass versus underpass options, issues specifically related to the preferred overpass option as well as issues that have been identified by TRCA throughout the course of the study.

Please note the Cities of Brampton and Mississauga have scheduled to complete this Class EA study in June 2007 and as such we request that you review this report and provide your comments at your earliest possible convenience. Upon incorporation of all final comments, we will submit 3 copies of the final report to TRCA for your records.

We thank you for your participation in this Class EA process and for your cooperation in meeting our scheduled study completion date. If you have any questions regarding this submission, please direct your inquiries to Steve Hollingworth at (905) 238-0007 ext. 2209.

Sincerely,

UMA Engineering Ltd.

Greg Smith, P.Eng.
Consultant Project Manager
greg.smith@uma.aecom.com

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
A. Shaikh, Project Engineer, City of Mississauga.
S. Barrett, Manager, Transportation Asset Management, City of Mississauga

Division Engineering
Engineering Services

Canadian National Railway
1 Administration Road
P.O. Box 1000
Concord, Ontario L4K 1B9
Phone: 905-669-3155
Fax: 905-760-3406

May 28, 2007

Greg.smith@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
Attn.: Mr. Greg Smith, P. Eng.

Dear Greg:

Subject: **Goreway Drive - Mile 8.80 Halton Subdivision**
Class EA Preliminary Design Approval

CN has undertaken a preliminary review of the General Arrangement drawing, dated January 27, 2007 for the proposed overpass option as the grade separation at Goreway Drive, Mile 8.80 Halton Subdivision.

CN has no objections in-principal to the proposed preliminary design.

Sincerely,

Darylann Perry for
John F. MacTaggart, P.Eng.
Senior Engineering Services Officer

FCI Broadband
Different. like you.

Friday, May 25, 2007

UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 3A1

Attn: Greg Smith

Re: Improvements to Goreway Drive Class Environmental Assessment Study – Utility Impacts
File: 4020-009-00

Dear Matt:

Please note that FCI Broadband does not have any underground facilities within the parameters of the above-mentioned project.

Please do not hesitate to contact me if you have any questions or concerns.

Sincerely Yours,

G. Barclay

Gord Barclay
Service Provisioning Manager
FCI Broadband

FCI Broadband • 280 Hillmount Rd • Unit 9 • Markham • ON • L6C 3A1
Fax # (416) 987-4701 • Phone # (416) 987-4700
www.fcibroadband.com

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 25, 2007

File Name: 4020-009-00

Mr. John MacTaggart
Senior Engineering Service Officer
CN Rail
4 Welding Way
P.O. Box 1000
Concord, Ontario L4K 1B9

Dear Mr. MacTaggart,

Re: Class Environmental Assessment : Goreway Dr. from Steeles Ave. to Brandon Gate Dr. Preliminary Design Approval

The City of Brampton and City of Mississauga, as co-proponents of the Class Environmental Assessment (EA) for Goreway Dr. from Steeles Ave. to Brandon Gate Dr., are close to completing the Class EA process for this project and wish to advise that the Overpass Option for the proposed CN Grade Separation has been identified as the Preferred Solution. In selecting the preferred design concept, consideration was given to comments received by CN, the TRCA and other applicable stakeholders, including the public. We have prepared a Structural General Arrangement plan that considers comments received by the various stakeholders and attach a copy herewith for your review. At this time, we request CN to review this General Arrangement plan and if you are satisfied with the preliminary design, request that you provide your written approval in-principal to my attention.

The project proponents intend to file the Environmental Study Report (ESR) in June 2007 and shall include CN's approval as a component of the ESR. Therefore, your prompt response to our request for approval would be appreciated so that we can meet the project schedule.

We look forward to your reply and if you have any questions, please contact the undersigned to discuss.

Sincerely,

UMA Engineering Ltd.

Greg Smith, P.Eng.
Consultant Project Manager
greg.smith@uma.aecom.com

cc: K. Tunio, Project Manager, City of Brampton
S. Choi, Senior Project Manager, City of Brampton
A. Shaik, Project Manager, City of Mississauga
S. Barrett, Senior Project Manager, City of Mississauga
A. Ritchie, Consultant Environmental Planner, UMA

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

May 22, 2007

File Name: 4020-009-00

«First_Name» «Last_Name»
«Title_»
«Company»
«Address»

Dear Mr. «Last_Name»:

Re: Improvements to Goreway Drive Class Environmental Assessment Study – Utility Impacts

Further to our original correspondence to you dated January 11, 2007, UMA Engineering Ltd. (UMA) has determined through the Class EA process that the preliminary preferred design for the undertaking is to maintain Goreway Drive at four lanes and provide a grade separation at the existing CN railway crossing. On this basis we have developed a preliminary plan and profile for the grade separation and include a copy for your information and review.

To facilitate the City of Brampton's intention to proceed to Detailed Design upon completion of the Class EA process, we hereby request that you identify any conflicts with your existing and/or future plant in the Study Area and provide information pertaining to any required relocations.

For your information, we have forwarded a similar request to the following utility companies that have identified existing plant within the Study Area:

Bell Canada
Enersource Corporation
Enbridge Gas Distribution Inc.
FCI Broadband
Hydro One Telecom Inc.
Hydro One Brampton
Rogers Cable
Telus Communication

To meet the project schedule, we request that you return your mark up plan or identify relocation requirements by **June 11, 2007.**

Thank you in advance for your assistance. If you have any questions or require additional information please contact the undersigned at (905) 206-8136 or at the email address provided below.

Sincerely,

UMA Engineering Ltd.

Greg Smith, P.Eng.
Consultant Project Manager
Greg.Smith@uma.aecom.com

Encl.
cc: K. Tunio – City of Brampton
A. Ritchie – UMA Engineering Ltd.

4020-009-00-3-Z

TELUS®

FAX

Plantec
CONSULTING ENGINEERS

Date May 7, 2007

Number of pages including cover sheet 2

TO: UMA Engineering Ltd
Attention: Greg Smith. P. Eng.

Phone 905-228-0007
Fax Phone 905-238-0038

FROM: **Plantec Inc.**
Hernando Martinez
200 Town Centre Blvd.
Suite 300
Markham, Ontario
L3R 8G5
Phone 905-470-2112 Ext 230
Fax Phone 905-470-8956

CC: Plantec file 07-021-0815

REMARKS: ☐ Urgent ☒ For your review ☐ Reply ASAP ☐ Please Comment

YOUR FILE:	4020-009
REF:	Goreway Dr. from Steeles Ave. to Brandon Gate Dr.

To Whom It May Concern,

Please find attached the signed Application Review for your files.

Yours Truly,
Plantec Inc. – Consulting Engineers

On behalf of Telus Communications

Hernando Martinez
Telus Utility Markups

TELUS

TELUS Address:
2700 Matheson Boulevard East
5th floor, West Tower
Mississauga, Ontario,
L4W 4V9

May 7, 2007

APPLICATION REVIEW

APPLICANT: UMA Engineering Ltd

FILE NO: 4020-009

LOCATION: Goreway Dr. from Steeles Ave. to Brandon Gate Dr.
Toronto, Ontario

NO CONFLICT [X]

COMMENTS:

TELUS has no infrastructure along the proposed construction routes or areas.

SIGNATURE: DATE: May 7, 2007

Hernando Martinez, Plantec Inc.

J. Grant Crowson
Design Technician
National Access Network Design

2700 Matheson Boulevard East
5th Floor, West Tower
Mississauga, Ontario, L4W 4V9
Office: 905-804-6090
Cell: 613-453-7014
Fax: 905-804-6143

April 24, 2007

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2

Dear Mr. Ritchie:

Subject: **Notice of Public Information Centre No. 2**
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

The Union of Ontario Indians is in receipt of your letter dated April 17, 2007 with respect to the above noted initiative of the City of Brampton and Mississauga. Your letter outlines some minor details related to the Public Information Centre No. 2 for improving traffic operations of Goreway Drive between Steeles Avenue and Brandon Gate Drive.

This letter re-confirms that under no circumstance should any of the correspondence exchanged between representatives from this organization and the City of Brampton and the City of Mississauga related to the above noted initiative be characterized or construed as a consultation with this organization, its member First Nations or the members of those First Nations. This letter shall serve as evidence that there was no consultation.

We maintain that Aboriginal and treaty rights and any First Nations' interest in its traditional territory, including its resources, cannot be abrogated, derogated or infringed in any way by any government legislation, regulation, policy or initiative.

Section 35 of the *Constitution Act, 1982* recognizes and affirms Aboriginal and treaty rights, and in doing so, it protects both the content of these rights and requires a process of consultation and accommodation.

According to recent decisions of the Supreme Court of Canada, in order to trigger constitutional obligations around meaningful consultation and accommodation, First Nations are not required to prove the existence of section 35 rights in a court of law. Instead, First Nations must demonstrate a "prima facie" case for the existence of a section 35 right.

UNION OF ONTARIO INDIANS
Head Office: Nipissing First Nation, P.O. Box 711, North Bay, ON P1B 8J8 Phone: (705) 497-9127 Fax: (705) 497-9135

In light of the high standard that has been set in law and by the Courts for governments to consult with First Nations, we are recommending that you meet with all Anishinabek First Nation communities whose traditional territory may be affected by this initiative. It is only through direct discussions with Anishinabek First Nation communities that you will be able to work towards the development of a meaningful consultation process with each individual First Nation.

However, your correspondence on the above issue is not satisfaction of any legal obligation of the government to consult with First Nations.

Yours truly,

Allan Dokis
Intergovernmental Affairs Director

Copy to: S. Choi, City of Brampton
K. Tunio, City of Brampton
G. Smith, UMA Engineering
S. Barrett, City of Mississauga
A. Shaikh, City of Mississauga
S. Kapusin, UMA Engineering

TORONTO AND REGION Conservation
for The Living City

RECEIVED
APR 27 2007
UMA

April 23, 2007

CFN 37551

BY MAIL AND E-MAIL (greg.smith@uma.aecom.com)

Mr. Greg Smith
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON
L4W 4P2

Dear Mr. Smith:

Re: Response to Notice of Public Information Centre #2
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Mississauga and City of Brampton; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received notice of the upcoming Public Information Centre (PIC) scheduled for May 1, 2007 on April 19, 2007. Further to TRCA correspondence dated August 18, 2006 and January 29, 2007 staff has expressed interest in this project. While staff is unable to attend the meeting, please forward one copy of any handouts or display materials from this meeting for our files.

Also, further to our letter dated January 29, 2007 and my email of April 13, 2007, it is our understanding that Goreway Drive currently overtops at Mimico Creek during storm events. Please ensure that a hydraulic analysis is prepared for each of the alternative crossings. If the culvert crossing at Mimico Creek will be replaced please ensure that a meander belt width analysis and 100 year erosion limit analysis is also prepared.

Should you have any questions please contact me at extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessments
Planning and Development

SL/

BY E-MAIL

cc: Khurram Tunio, City of Brampton (khurram.tunio@brampton.ca)
Quentin Hanchard, Manager, Development Planning and Regulations
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

F:\Home\Public\Development Services\EA\Letters for Mailing\37551 PIC2.wpd

From: Kapusin, Sonya
Sent: March 21, 2007 1:48 PM
To: 'john.sprovieri@brampton.ca'
Cc: 'Tunio, Khurram'; solomon.choi@brampton.ca; Steve Barrett; 'Abdul Shaikh'; Smith, Greg; Ritchie, Andrew
Subject: Goreway Drive Class EA - Notice of Stakeholders Meeting

Dear Councillor Sprovieri,

Re: Notice of Stakeholders Meeting
Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment

As you are aware, the City of Brampton, in partnership with the City of Mississauga, is undertaking a Class Environmental Assessment (EA) Study to assess options for improving traffic operations on Goreway Drive between Steeles Avenue and Brandon Gate Drive. The proposed improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

Since the first Public Information Centre (PIC) on November 28, 2006, we have completed the evaluation of Alternative Design Concepts for the Preferred Solution (grade separation at CN crossing), and would like your input in advance of the second PIC to be scheduled in April 2007. You are cordially invited to attend a Stakeholders Meeting scheduled for:

Tuesday March 27, 2007
7:00 pm to 8:30 pm
at the
Malton Community Centre
3540 Morning Star Drive Mississauga

The purpose of this informal meeting is to provide you and those property owners/representatives immediately adjacent to the proposed grade separation location with details regarding the status of the Study, and solicit your input. This meeting will include a brief presentation of the preliminary evaluation of Alternative Design Concepts for the Preferred Solution. Following this presentation, you will have an opportunity to review the Preliminary Design Concept for the Preferred Solution including the proposed plan and profile drawings, potential impacts and mitigation measures associated with the Preliminary Preferred Design. Project Team members from the City of Mississauga, City of Brampton, and UMA Engineering Ltd. will be present to answer and address any comments you may have on this matter.

For your information, we have invited land owners immediately adjacent to the proposed grade separation and the majority of these land owners reside in the City of Mississauga. To assist us in arranging a suitable venue, we kindly ask that you contact the undersigned to confirm your attendance.

Sincerely,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038

Goreway Drive Class EA - Heritage FeaturesFrom: Leonard, Jim
[jim.leonard@city.brampton.on.ca]
Sent: March 1, 2007 9:44 AM
To: Kapusin, Sonya; Hutton, Mary
Cc: Leonard, Jim
Subject: RE: Goreway Drive Class EA - Heritage Features

Hello Sonya,

I can confirm that there are no listed or designated heritage resources on Goreway between Steeles and the city limit.

I cannot comment on registered archaeological sites or areas of archaeological potential. I also cannot comment on significance of environmentally sensitive areas.

Thanks,

Jim

Jim Leonard, Heritage Coordinator, B.A. (Hons), C.M.S., CAPHC

City of Brampton, Urban Design and Public Buildings Section

City Hall, 2 Wellington Street West, HERITAGE - 3RD FLOOR

Brampton, Ontario, Canada, L6Y 4R2.

phone: 905-874-3825

cell: 416-897-5157

fax: 905-874-3819

-----Original Message-----
From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: 2007/03/01 9:38 AM
To: Hutton, Mary
Cc: Leonard, Jim
Subject: RE: Goreway Drive Class EA - Heritage Features

Hello Jim, Mary,

Have you had a chance to check the heritage features for Goreway Drive? We are completing a draft report characterizing our Study Area today and would like to include this information, if available.

1020-009-00

enersource
Hydro Mississauga

3240 Mavis Road
Mississauga, Ontario
L5C 3K1
Tel: 905.283.4160
Fax: 905.566.2712

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February 28, 2007

UMA ENGINEERING LTD.
5080 Commerce Blvd
Mississauga, ON
L4W 4P2

Attention: Greg Smith

RE: Goreway Drive Environmental Assessment Study

Please find enclosed section prints of our Distribution Area Map (D01), Streetlighting Area Map (D04) and Fibre Area map (D01) showing existing overhead conductors and underground cables labeled as such.

Also enclosed are prints of our detail construction (D07) drawings for hydro installations as highlighted on our distribution map print, where applicable.

Map product and drawing prints are issued for information only.

For further clarification, please call the undersigned at 905.283.4160

Yours Truly,

Rosemary Sawczyszyn
GIS and Records Analyst,
Enersource Hydro Mississauga

Hydro One Brampton
175 Sandalwood Pkwy West
Brampton, Ontario L7A 1E8
Tel: (905) 840-6300

www.HydroOneBrampton.com

23 February 2007

UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, On
L4W 4P2

ATTN: Greg Smith, P.Eng.

Re: Improvements to Goreway Dr., In City of Brampton Project 4020-009

Re: The Location of Hydro One Brampton's Underground Plant

Please find attached your base plan dwgs. for the above noted project marked-up to show the approximate location of HOB underground plant and poles in the effected work area. We have also included a copy of our construction drawing M5-11-11 detailing the installation of new facilities currently under construction in this area.

The exact location of all plant is to be located in the field as noted. These plant locations should be confirmed on site, prior to digging, by calling 905-840-6300 extension 3241 for locates.

Please note that the City of Brampton should be consulted for the location of all streetlighting plant (if any) within the project area.

Sincerely,

Greg Mather
Drafting & Records Supervisor.
Hydro One Brampton

c.c. Robert Evangelista
Hydro One Brampton
Engineering Supervisor

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Rodrigues, Patricia

From: Smith, Greg
Sent: Thursday, February 08, 2007 1:45 PM

From: j.bignell@HydroOne.com [mailto:j.bignell@HydroOne.com]
Sent: January 10, 2007 8:50 AM
To: Smith, Greg
Subject: RE: Goreway Drive - Steeles Avenue to Brandon Gate (City of Brampton and City of Mississauga)

Greg
If your project limit is south of Steeles, we do not need to comment other than this email.

Thanks
B. Jamie Bignell
ADET Zone 3A/ Zone 8
(416)791-1805 Cell
(905)713-6927 Fax
j.bignell@HydroOne.com

From: Smith, Greg [mailto:Greg.Smith@uma.aecom.com]
Sent: Wednesday, January 10, 2007 8:25 AM
To: BIGNELL Jamie
Subject: RE: Goreway Drive - Steeles Avenue to Brandon Gate (City of Brampton and City of Mississauga)

Good morning Jamie,

Our north project limit on Goreway Drive does not extend much further north than Kenview Blvd, which is approximately 450 metres south of Steeles Avenue. So if your pole line is on the north side of Steeles Ave, there will be no impact from our project. At this moment we are still developing our preliminary profiles for the alternatives so all we are doing at this time is sending out plans for the utilities to identify where their plant is. Do you want us to send you our base drawings to mark up and send back or are you more interested in seeing the drawings when we have developed the preliminary plan and profile design?

Regards,

Greg

From: j.bignell@HydroOne.com [mailto:j.bignell@HydroOne.com]
Sent: January 10, 2007 7:17 AM
To: Smith, Greg
Subject: RE: Goreway Drive - Steeles Avenue to Brandon Gate (City of Brampton and City of Mississauga)

Greg
Hydro One Networks has a pole line and double circuit 44kv line on the north side of Steeles Ave, from Airport Rd east to Hwy 27 (poles and conductor) sharing with Hydro One Brampton. I would like to see the drawings for comment before I commit to the mailing list.

Please forward the drawings to:
Hydro One Networks Inc.
Attention: Scheduling Department
913 Crawford Drive
Peterborough, Ontario
K9J 3X1
Zone3scheduling@HydroOne.com
Phone: 1-888-871-3514
Fax: 1-705-743-9890

B. Jamie Bignell
ADET Zone 3A/ Zone 8
(416)791-1805 Cell
(905)713-6927 Fax
j.bignell@HydroOne.com

From: Smith, Greg [mailto:Greg.Smith@uma.aecom.com]
Sent: Tuesday, January 09, 2007 5:14 PM
To: BIGNELL Jamie
Subject: Goreway Drive - Steeles Avenue to Brandon Gate (City of Brampton and City of Mississauga)

Hi Jamie,

We are doing a Class Environmental Assessment for improvements to Goreway Drive within the limits described above and at this time are trying to retreive information on any utilities within our project limits. This will be used to determine who may be impacted by the proposed works. Can you let me know if HON has any plant in this area. If you do, we will send you drawings for you to mark up and send back to us so we can put it in our database. Also, please let me know if you want us to add HON to our mailing list so that you will receive information on this project and be contacted for updates throughout the process.

Thanks for your help.

Greg

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From: Smith, Greg
Sent: Thursday, February 08, 2007 1:43 PM
To:
Subject: Trans Northern Pipelines

-----Original Message-----
From: Satish Korpal [mailto:SKORPAL@tnpi.ca]
Sent: January 22, 2007 2:21 PM
To: Smith, Greg
Subject: your file: 4020-009

Goreway Drive between Steels Ave. between Steels Ave. and Brandon Gate Dr.-- City of Brampton

Trans-Northern Pipelines Inc. has no facilities at the above location.
tnx

Satish Kumar Korpal
Co-ordinator- Crossings & Facilities
Trans-Northern Pipelines Inc.
45 Vogell Road, Suite 310
Richmond Hill, On.
L4B 3P6
skorpal@tnpi.ca
905-770-3353 ext. 211
Fax: 905-770-8675

fci Broadband
Different. like you.

5

Thursday, February 08, 2007

UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON
L4W 4P2

Attention: Greg Smith, P.Eng.

Re: Improvements to Goreway Drive Class Environment Assessment Study – Utlity Mark Ups File Name: 4020-009

Dear Mr. Smith:

Please find enclosed a copy of FCI Broadband's drawing identifying our facitlities in the aforementioned area.

Please note that the only facilities that FCI Broadband has in the area is aerial on existing hydro poles along the north side of Steeles Avenue. We currently do not have any facilities on Goreway Drive south of Steeles Avenue.

Please do not hesitate to contact me if you have any questions or concerns.

Sincerely Yours,

D. Barclay

Gord Barclay
Service Provisioning Manager
FCI Broadband

Ministry
of the
Environment

5775 Yonge Street
8th Floor
North York, ON M2M 4J1

Technical Support
Central Region

Ministère
de
l'Environnement

5575, rue Yonge
8e étage
North York, ON M2M 4J1

Règion du Centre

Tel: (416) 326-6700
Fax: (416) 325-6345

Ontario

February 7, 2007

Khurram Tunio
City of Brampton
8850 McLaughlin Road
Brampton, Ontario
L6Y 5T1

RE: Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
City of Brampton
Class Environmental Assessment
Notice of Commencement
Our File: EA 05-02-05

Dear Khurram:

This letter is our response to your Notice of Commencement for the above noted project. This response acknowledges that the City of Brampton (in partnership with the City of Mississauga) has indicated that its study is following the approved environmental planning process for a Schedule C project under the *Municipal Engineers Association Municipal Class Environmental Assessment* (Class EA).

On the basis of our review of the information submitted, we are providing the following general comments to assist you and your project team members in the proposed undertaking:

Groundwater/Surfacewater

- Our records show that there is a watercourse crossing along the Study Area, therefore the ESR must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of the watercourse. Measures should be included in the planning and design process to ensure that any watercourses are protected and restored as part of the proposed road improvements. Opportunities for ecological restoration include activities such as:
    - re-establishing aquatic ecosystem linkages;
    - restoring natural streambanks; and,
    - re-establishing riparian cover.

- Measures should be included in the planning and design process and described in

the ESR to ensure that sediment discharge from construction activities and roadway operations will be minimized and that there will be no ecological impacts to local watercourses. Exposed areas should be kept to a minimum at all times in order to minimize the potential for erosion. The MOE *Guidelines for Evaluating Construction Activities Impacting on Water Resources* (Guideline B-6) should be utilized during planning and construction phase of this project.

- Additional stormwater runoff from new pavement can impact receiving watercourses and cause flooding. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing road surfaces. We recommend a Stormwater Management Plan/Report be prepared as part of the Class EA process and included in the ESR. Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams should be described in this plan, and these should ensure that adequate (Enhanced) water quality is maintained. This plan should integrate existing background information including sub-watershed information, existing drainage conditions, future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and should include information on maintenance and monitoring commitments. The MOE's *Stormwater Management Planning and Design Manual* (2003) should be referenced in the ESR and utilized when designing stormwater control methods.

- De-watering associated with construction activities may temporarily impact local groundwater wells and interfere with baseflow to streams. In addition, the dispersal of pumped water can affect a receiving watercourse. A temporary PTTW will be required should any de-watering taking exceed 50,000 litres per day. Please note that the Ministry of the Environment has implemented a new Permit to Take Water (PTTW) program. Consultation with the Permit to Take Water Manual (April 2005) is recommended for information on how the new Water Taking and Transfer Regulation 387/04 under the *Ontario Water Resources Act* and improvements to the PTTW program have been implemented. Studies prepared as part of the Class EA process should be carried out to a sufficient level of detail to determine if a PTTW, or any other approvals, will be required for this undertaking. The ESR should clearly identify if a PTTW or any other approvals are expected to be necessary.

- If construction activities are likely to encounter groundwater water, then an assessment of impact is required. The ESR should include a description of the City of Brampton's plans and commitments to prevent and mitigate negative impacts until the aquifer has recovered.

- We recommend preparing a Contingency Plan for dealing with potential adverse effects on surface water (e.g. spills) and groundwater (e.g. well impacts), and including a description of this plan in the ESR.

- We recommend consultation with MNR, the Department of Fisheries and Oceans (DFO), and your local conservation authority as part of the Class EA planning process to solicit their input on any Groundwater/Surface Water concerns and to

determine if any subsequent approvals or permits are required from the agencies.

Dust and Noise

- The ESR/Project File <edit as appropriate> should consider the potential impacts of increased noise levels due to potentially higher traffic volumes resulting from this project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives. Please refer to the *MTO/MOE Noise Protocol (1996).*

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the Study Area are not adversely affected during construction activities. If dust suppressants are proposed to be used, we recommend the use of non-chloride based compounds to protect water quality.

Mitigation and Monitoring

- Design and construction report(s) and plans should be based on a best management approach that centres on the prevention of impacts, protection of existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- All waste generated during construction activities must receive proper disposal in accordance with MOE requirements.

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation work are met. Mitigation measures should be clearly referenced in the ESR and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly. The proponent's construction and post-construction monitoring plans should be documented in the ESR.

Class EA Process

- The ESR should provide clear and complete documentation of the planning process in order to allow traceability of decision-making. It must also demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all public consultation efforts undertaken during the planning process. Additionally, it should identify all concerns that were raised and how they have been addressed throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project, and the proponent's responses.

- The Class EA requires the consideration of the effects of each alternative on all

aspects of the environment. Therefore, the ESRshould include a level of detail (e.g. hydrogeologic investigations) such that all potential impacts can be identified and appropriate mitigation measures be developed.

- Any supporting studies conducted during the Class EA process (e.g. natural environment, hydrology) should be referenced and included as part of the ESR.

- We have listed above several ministry guides available to assist you in planning this project. These are available at http://www.ene.gov.on.ca under the publications link. We encourage the proponent to review all the available guides and reference those applicable throughout the ESR.

- Please include, in the ESR, a list of all subsequent permits/approvals that may be required for the implementation of the preferred alternative. The proponent should consider if the proposed project will require approval under the *Canadian Environmental Assessment Act* (CEAA) and document this in the ESR.

Thank you for the opportunity to comment on this project. Please ensure that MOE Central Region, **EA and Planning Coordinator**, is placed on the project mailing list and forward our office the Notice of Completion when completed. Should you or any members of your project team have any questions regarding the above, please feel free to contact me at (416) 326-5745. Myself or any of Central Region's EA and Planning Coordinator's would be pleased to assist you.

Yours sincerely,

Cora Sheppard

Cora Sheppard
Environmental Assessment and Planning Coordinator
Air, Pesticides and Environmental Planning

c. J. Budz, Halton-Peel District Office, MOE
Greg Smith, UMA Engineering
Central Region EA File
A & P File

E-Kapusin-4020-009-03- Mississauga Heritage Features-070206.txt
From: Mark Warrack [Mark.Warrack@mississauga.ca]
Sent: February 5, 2007 9:25 AM
To: Kapusin, Sonya
Subject: Re: Goreway Drive Class EA - Heritage Features

Sonya:

I checked our data and mapping for the subject area and found there were no known heritage resources.

If you need any further information please do not hesitate to contact me.

Mark Warrack
Heritage Coordinator
Community Services
905-615-3200, ext.5070
Fax: 905-615-3976
E-mail: mark.warrack@mississauga.ca

>>> "Kapusin, Sonya" <Sonya.Kapusin@uma.aecom.com> 2007/02/05 8:53:00 am >>>
Good morning Mark,

As per our conversation this morning, please find attached study area map for the Goreway Drive Class EA study. We are interested to know if there are any heritage buildings or features within the study area. The
study area corridor extends from Steeles Avenue in Brampton to Brandon Gate Drive in Mississauga.

Further information on the project is provided in the Notice. However,
if you have any questions, please do not hesitate to call.

Thank you,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

<<RN-4020-009-03-Goreway Notice of PIC #1-061107.pdf>>

Let me know. Thanks for your help on this.

Sonya.

From: Hutton, Mary [mailto:mary.hutton@city.brampton.on.ca]
Sent: February 5, 2007 9:48 AM
To: Kapusin, Sonya
Cc: Leonard, Jim
Subject: RE: Goreway Drive Class EA - Heritage Features

Thanks Sonya: I just spoke to Jim Leonard our Heritage Co-ordinator and he will do a check for you and respond to your request.

Mary Hutton

-----Original Message-----
From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: 2007/02/05 9:41 AM
To: mary.hutton@brampton.ca
Subject: Goreway Drive Class EA - Heritage Features

<<RN-4020-009-03-Goreway Notice of PIC #1-061107.pdf>>
Good morning Mary,

As per our conversation this morning, please find attached study area map for the Goreway Drive Class EA study. We are interested to know if there are any heritage buildings or features within the study area. The study area corridor extends from Steeles Avenue in Brampton to Brandon Gate Drive in Mississauga.

Further information on the project is provided in the Notice. However, if you have any questions, please do not hesitate to call.

Thank you for your help,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

Brampton

2

Management and Administrative Services

February 02, 2007

RECEIVED
FEB 0 9 2007
UMA

Greg Smith
Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON, L4W 4P2

Dear Greg:

Re: Improvements to Goreway Drive Class Environmental Assessment Study – Utility Mark Ups

In reference to your request in identifying utility impacts on Goreway Drive between Steeles Avenue and Brandon Gate Drive, I examined the enclosed plans and I would like to inform you that PSN has no fibre in this area.

Should you have any further question please contact me directly.

Sincerely,

A.R. Sabouri

Ali Sabouri
Network Administrator
City of Brampton - Information Technology
2 Wellington Street West
Brampton, ON, L6Y 4R2
Ph: 905-874-2022
Fax: 905-874-2019
Email: ali.sabouri@brampton.ca

Enbridge Gas Distribution Inc.
500 Consumers Rd.
North York, ON, M2J 1P8
Canada
www.enbridge.com/gas

Jamie Delaney
Tel 416-495-6321
Fax 416-758-4374
jamie.delaney@enbridge.com
mark-ups@enbridge.com

4

ENBRIDGE

EGD File Number: 46354

To Whom It May Concern,

Re: 4020-009 - CLASS EA ON GOREWAY DR FROM STEELES AV & BRANDON GATE DR

Please find attached a copy of your drawing(s) on which we have marked our existing/proposed underground plant and have made the following determinations:

☒ **GENERAL LOCATION**

- Please refer to the attached drawings for information on our existing or proposed gas plant. The information provided is for **GENERAL LOCATION ONLY**. You must re-submit your detailed drawings for sign off by Enbridge Gas Distribution.

☐ **NO-CONFLICT**

- We have **NO OBJECTION** to your proposed plant as indicated. Please refer to the attached drawings for information on our existing or proposed gas plant. GAS MAINS MUST BE FIELD LOCATED. Before digging, please call ONTARIO ONE CALL. 48 hours in advance at 1-800-400-2255 for free gas locates service.
- See **"Third Party Requirements"** booklet for definitions, requirements & contact information.
- Test Holes are required to determine actual depth where infrastructure crosses gas plant.

☐ **CONFLICT**

- We have an **OBJECTION** to your proposed plant as indicated. Please refer to the attached drawings for information on our existing or proposed gas plant. Review your proposal and make changes to your plant to satisfy these requirements.
- See **"Third Party Requirements"** booklet for definitions, requirements & contact information.
- If relocation of our plant is required, contact Manager of Special Projects:
  - ☐ Central Region: Carmelo Tancioco 416-758-7956
  - ☐ Eastern Region: Ian Taylor 613-742-4637
  - ☐ Niagara Region: Martin Goddard 905-641-4815

☐ **NEB PERMIT REQUIRED**

- An application form needs to be filed when crossing or working within 30 m of the right-off-way of the NEB regulated natural gas pipeline.
- Find enclosed booklet containing information and permit application form.
- If you want to discuss NEB permit process contact the Enbridge Gas Distribution Land Dept.:
  Chuck Reaney: 416-753-6929

☐ **VITAL MAIN**

- You are working within 3 m of a Vital Main Pipeline. A representative of the company must be contacted three (3) days prior to commencement of work. A member of our field force must be present while excavation of the main takes place and prior to backfilling. Alternatively please contact the Enbridge Gas Distribution Damage Prevention Dept: 1(866) 922-3622.
- See **"Third Party Requirements"** booklet for definitions, requirements & contact information.

For Enbridge Internal Use:

☐ **PILING & SHORING - SPECIAL PROJECTS REVIEW REQUIRED**

☐ **EXCAVATION, REPAVING OR GRADING - SPECIAL PROJECTS REVIEW REQUIRED**

Yours,

Jamie Delaney

January 30, 2007

UMA Engineering Ltd.
5060 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

January 30, 2007

File Name: 4020-009

Ms. Sharon Lingertat, Acting Planner II
Environmental Assessment Review
Planning and Development
Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON M3N 1S4

Dear Ms. Lingertat:

Re: Response to Public Information Centre No. 1 Materials
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

Thank you for your correspondence sent to my colleague Greg Smith dated January 29, 2007. As you are aware, UMA Engineering Ltd. (UMA) has been retained to complete a Class Environmental Assessment (EA) Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive. Improvements to this section of Goreway Drive are needed to accommodate future traffic demands and to alleviate road vehicle delays and road/rail exposure levels at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

This Study is following the approved environmental planning process for Schedule C Projects as described in the Municipal Engineers Association *Municipal Class Environmental Assessment* (2000). In this regard, the scope of the Study requires completion of Phases 1 through 4 of the *Municipal Class EA* process, and entails:

- Examining a range of "Alternative Solutions" to address future traffic demands and to alleviate road vehicle delays at the existing CN at-grade (level) railway crossing within the Study Area Corridor
- Selecting a Preliminary Preferred Solution to address the above-noted deficiencies
- Identifying/evaluating Alternative Design Concepts and selecting a Preliminary Preferred Design
- Presenting project-specific information and receiving public/agency input throughout the Study
- Preparing/filing an Environmental Study Report (ESR) for a minimum 30 day public review. The ESR will include full documentation of the Class EA process including mitigation and monitoring requirements for Phase 5, that is, implementation of the proposed improvements.

At the conclusion of Phase 2, we convened Public Information Centre No. 1 in November, 2006 whereby the Preliminary Preferred Solution was presented to the public. As recognized in your response letter, the Preliminary Preferred Solution involves maintaining the existing four-lane cross section within the approximately 1.2 km Project Limits, coupled with intersection improvements, improvements to pedestrian/cyclist facilities where warranted, and grade separating CN's existing Halton Subdivision.

We recently commenced and are currently carrying out Phase 3 of the four-phase Municipal Class EA process. To this end, we have identified and are currently evaluating the advantages and disadvantages associated with Alternative Design Concepts for the grade separation. The two noted designs include an underpass (road under rail structure), versus an overpass (road over rail structure).

In your letter you note a number of reports to be discussed at our upcoming meeting. Though we have compiled the necessary documentation to describe the existing conditions within the Study Area Corridor, we are currently completing a more detailed inventory so as to facilitate comparison of the two noted Alternative Design Concepts. To this end, a number of these specific reports have yet to be completed. As such, the environmental impacts associated with each alternative are not fully understood at this time.

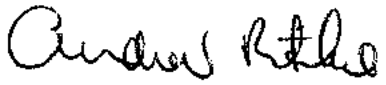
Once completed, we will have a much better understanding of the potential environmental impacts associated with each respective design. Furthermore, the results of these studies and investigations will be taken into consideration in developing appropriate mitigative measures to avoid or minimize the identified environmental impacts. We will then be in a position to fully evaluate the Alternative Design Concepts and select the Preferred Design for Goreway Drive.

In light of the above, the purpose or intent of our meeting is to provide Authority staff with a brief overview of the project and to present the advantages/disadvantages associated with the two Alternative Design Concepts in relation to the Authority's interests. As a key agency, we wish to solicit and discuss your concerns with both concepts, which will then be incorporated into the Preferred Design, and ESR, where appropriate. Each of the completed studies will either be included as an appendix to the ESR, or summarized in the ESR.

We look forward to meeting with you and your colleagues this coming Monday, and to receiving your input into the preliminary design process. In the interim, please contact me at (905) 238-0007 should you have any questions, or require further information.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

AR:sk

cc: K. Tunio, Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

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January 29, 2007

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2

Attention: Greg Smith, P.Eng.
Consultant Project Manager

RE: Improvements to Goreway Drive Class Environmental Study – Utility Mark Ups
File: 4020-009

Please find attached mark ups and description of existing HOT underground and aerial fibre optic cable in the area indicated above (as per attached plans).

Hydro One Telecom has no future work planned in this area.

Sincerely,

B. Kolodziej

Barbara Kolodziej
Outside Plant Engineering
Hydro One Telecom Inc.
Tel: 416-240-6842
Fax: 416-240-6790

TORONTO AND REGION Conservation
for The Living City

January 29, 2007

CFN 37551

SENT VIA EMAIL

Mr. Greg Smith
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON
L4W 4P2

Dear Mr. Smith:

Re: Response to Notice of PIC#1 Materials
Goreway Drive Grade Separator
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Brampton, City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the Goreway Drive Public Information Centre (PIC) material and summary on January 23, 2007. It is our understanding that the EA will address traffic delays along Goreway Drive, between Steeles Avenue in the City of Brampton and Brandon Gate Drive in the City of Mississauga. The preferred alternative solution involves maintaining the existing four-lane cross section of Goreway Drive, improving pedestrian and cyclist facilities, intersection improvements and constructing a grade separator at the CN crossing, as either an overpass or underpass.

A meeting is scheduled for February 5, 2007 with yourself, the City of Brampton and the TRCA to discuss the design alternatives. Please provide the reports to be discussed (e.g., stormwater, natural features, geotechnical, archaeology, hydrogeology) prior to this meeting so that our team will have the opportunity to do a preliminary review of the information. It is also our understanding that Goreway Drive currently overtops at the Mimico Creek crossing during storm events. Please note that as per Ontario Regulation 166/06 and TRCA's Valley and Stream Corridor Management Program that TRCA does not support development that in any way negatively impacts the control of flooding, erosion, dynamic beaches, pollution or the conservation of land. As a result, please also provide, prior to the meeting, the hydraulic analysis for each of the alternative designs. Formal comments will be compiled and submitted in a letter following the meeting.

Should you have any questions or require any further information please either give me a call at (416)661-6600 ext. 5717 or send me an email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessment Review
Planning and Development

/sl

cc: Khurram Tunio, City of Brampton
Andrew Ritchie, UMA
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist
Joshua Campbell, TRCA, Acting Senior Planner

F:\Home\Public\Development Services\EA\Letters for Mailing\37551 - Response to PIC Info.wpd

RECEIVED
JAN 2 5 2007
UMA

9

TELUS®

TRANSMITTAL

Plantec
CONSULTING ENGINEERS

Date January 24, 2007

TO: **UMA Engineering Ltd**
Attention: Greg Smith
5080 Commerce Blvd
Mississauga, On
L4W 4P2
Phone 905-238-0007
Fax Phone **905-238-0038**

FROM: **Plantec Inc.**
Hernando Martinez
200 Town Centre Blvd.
Suite 300
Markham, Ontario
L3R 6G5
Phone 905-470-2112 Ext 230
Fax Phone 905-470-8956

CC: Plantec File 07-021-0107

REMARKS: ☐ Urgent ☒ For your review ☐ Reply ASAP ☐ Please Comment

REF:

CONTENTS:

QUANTITY	DESCRIPTION	MEDIA
1	Application Review	Paper Copy
1	Field View Map	Paper Copy
1	As-Built PL-01	Paper Copy

Yours Truly,

Plantec Inc. – Consulting Engineers
On behalf of Telus Communications

Hernando Martinez
Telus Utility Markups

TELUS

TELUS Address:
2700 Matheson Boulevard East
5th floor, West Tower
Mississauga, Ontario
L4W 4V9

January 24, 2007

APPLICATION REVIEW

APPLICANT: UMA
YOUR FILE: Request for information to Goreway Dr Class Environmental Assessment Study
LOCATION: Goreway Dr & CNR
Brampton, ON

CONFLICT [ ] **CAUTION** [X]

CAUTION! Telus has shared infrastructure with 360Network along CNR as shown in the Field View map. Refer to 360Network for their plans. Telus has infrastructure along Goreway Dr at the West side of CNR as shown in the field view map , as well as in the as-built attached. Please incorporate this information into your drawings. Contact TELUS for more information if required. When working near TELUS plant, please adhere to these rules:

1) TELUS standards call for a minimum clearance as follows:

   a) Open cut method of construction: maintain a minimum clearance of 600 mm horizontally on either side of our facility and a minimum clearance of 300 mm vertically below our facility, especially at crossings.
   b) Directional bore method of construction: maintain a minimum clearance of 1000 mm horizontally on either side of our facility and a minimum clearance of 600 mm vertically below our facility at crossings.
   TELUS facilities shall be exposed prior to crossing

2) You are required to contact TELUS for route locates prior to digging/construction.
   You must hand trench to expose TELUS' infrastructure at all locations, pressurized water technology (Hydro-Vacuuming) is not permitted as alternate form of hand trenching.

Please contact TELUS 72hrs prior to construction to witness hand trenching at all locations indicated (1-800-593-5558)

SIGNATURE: _____ DATE: January 24, 2007
Hernando Martinez, Plantec Inc.
Tel: 905 470 2112 ext 230

PER
J. Grant Crowson
Design Technician
National Access Network Design
2700 Matheson Boulevard East
5th Floor, West Tower
Mississauga, Ontario, L4W 4V9
Office: 905-804-6090, Cell: 613-453-7014, Fax: 905-804-6143

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

January 19, 2007

File Name: 4020-009

Ms. Christine Anderson
Allstream
50 Worchester Road
Etobicoke, ON
M9W 5X2

Dear Ms. Anderson:

Re: Improvements to Goreway Drive Class Environmental Assessment Study – Utility Mark Ups

UMA Engineering Ltd. (UMA) has been retained by the City of Brampton to undertake a Class Environmental Assessment Study to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive. The purpose of the Study is to evaluate alternative solutions and design concepts that will accommodate future traffic demands on Goreway Drive and alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision). The Preferred Solution is to maintain Goreway Drive at four lanes and provide a grade separation at the existing CN railway crossing.

To assist the Project Team in identifying utility impacts, we would appreciate it if you could confirm your existing plant within the Study Area by marking the enclosed base map prepared for this study. We kindly ask that you provide a description of existing and planned underground and above ground utilities within the limits of the base mapping provided (including location, type, size, depths, clearances, offsets from roadway or property line, and year of installation). Also, please identify if the facility is shared.

For your information, we have forwarded a similar request to the following utility companies that may own plant within the Study Area:

Bell Canada
City of Brampton Public Service Network
Enersource Corporation
Enbridge Gas Distribution Inc.
FCI Broadband
Hydro One Brampton
Hydro One Telecom Inc.
Rogers Cable
Telus Communication
Telus Network
Trans Canada Pipelines
Trans Northern Pipelines

Please let us know if you are aware of other utilities within the Project Limits that are not listed above. If this study falls under the jurisdiction of another representative of your office, please forward this letter and enclosed plan to their attention, and advise us at your earliest convenience. To meet the project schedule, we request that you return your mark up plan by **February 2, 2007**.

Thank you in advance for your assistance. If you have any questions or require additional information please contact the undersigned at (905) 206-8136 or at the email address provided below.

Sincerely,

UMA Engineering Ltd.

Greg Smith, P.Eng.
Consultant Project Manager
Greg.Smith@uma.aecom.com

:sk
Encl.
cc: K. Tunio – City of Brampton
A. Ritchie – UMA Engineering Ltd.

From: Kapusin, Sonya
Sent: January 2, 2007 2:31 PM
To: 'sstewart@407ETR.com'
Cc: Smith, Greg; Ritchie, Andrew; khurram.tunio@brampton.ca; 'cwhite@407etr.com'
Subject: RE: Improvements to Goreway Drive from Steeles to Brandon Gate Drive

Attachments: RN-4020-009-03-PIC Brochure-061128.pdf

Dear Sean,

As per your earlier message to Greg Smith, we have added Craig's contact information to our study mailing list. Craig will be receiving a Notice for a second PIC, tentatively scheduled for early 2007.

In response to your request, please find attached a copy of the brochure that was handed out at the first PIC in November. Feel free to call if you have any questions or comments regarding this Study.

Sincerely,

Sonya Kapusin, MCIP, RPP
Environmental Planner
UMA Engineering Ltd.
(905) 238-0007 Ext. 2902

-----Original Message-----
From: Sean Stewart [mailto:sstewart@407ETR.com]
Sent: November 28, 2006 4:25 PM
To: Smith, Greg
Cc: Khurram.tunio@brampton.ca; Joseph Lai (E-mail)
Subject: Improvements to Goreway Drive from Steeles to Brandon Gate Drive

Dear Sir,

407 ETR would like to acknowledge and thank you for UMA's letter of November 10, 2006 to our President Mr. Antonio de Santiago concerning the Public Information Centre No. 1 for the Class Environmental Assessment of Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive. 407 ETR under our Concession Ground Lease Agreement with the Province of Ontario is responsible to manage and operate Highway 407 corridor lands which includes Goreway Drive from Steeles Avenue northerly to Hydro One Transmission corridor. As a result 407 ETR would like to request that 407 ETR and the Ministry of Transportation be included for review and comments on this Environmental Assessment (EA). Our concern is any possible changes or impact that may occur to Goreway Drive north of Steeles that may result from this EA which would effect the 407 ETR corridor.

The contact person for this project at 407 ETR is Mr. Craig White, P.Eng. Mr. White contact information is as follows:

Mr. Craig White, P.Eng.
Director, Highway Operations
6300 Steeles Avenue West
Woodbridge, Ontario
L4H 1J1

Phone: 905-264-5225
Email: cwhite@407etr.com

Unfortunately, personnel from 407 ETR are unable to attend the PIC scheduled for tonight. We would like to request that a copy of any hands to be issued at the PIC be forward to 407 ETR for our review.

Thank you,

Sean Stewart
Supervisor, Highway Engineering Services
407 ETR Concession Company Ltd.

Tel. 905-265-4070 x.5485
Fax. 905-264-5379

From: Sprovieri, John Councillor [john.sprovieri@city.brampton.on.ca]
Sent: December 15, 2006 11:32 PM
To: Kapusin, Sonya; Sprovieri, John Councillor
Cc: Ritchie, Andrew; Smith, Greg; khurram.tunio@brampton.ca
Subject: RE: Ratepayers Association
Thank you for the information Sonya.
My Apologies in mentioning Mayfield Road. I was mistaking this study with the Gorway north study.
John.

-----Original Message-----
From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: December 15, 2006 4:42 PM
To: Sprovieri, John Councillor
Cc: Ritchie, Andrew; Smith, Greg; khurram.tunio@brampton.ca
Subject: RE: Ratepayers Association

Councillor Sprovieri,

The meeting was well received with approximately 15 people attending. We circulated notices for the meeting to property owners within 200 m of the project area. If you would like to send us your list of residents, we can check to see if they are currently on our mailing list. If you are aware of any Ratepayers Associations representing residents in this area, please let us know and we will add them to our study mailing list.

As presented at the PIC, the Preferred Solution for Goreway Drive entails maintaining the existing four-lane cross section, and constructing a grade separation at the existing at-grade crossing of CN's Halton Subdivision. Based on the above, we will be developing conceptual design drawings for both an underpass and overpass structure, including proposed approaches. These designs, including their respective advantages/disadvantages will be presented at PIC No. 2 which we plan to hold in late February 2007.

With respect to your comment concerning Mayfield Road, it is noted that this roadway is located well outside our Project Limits which includes Steeles Avenue south to Brandon Gate Drive. I have attached a PIC Brochure for your information. You may also view the PIC materials on the City of Brampton website.

Feel free to give me a call if you have any other questions.

Sonya Kapusin
Environmental Planner
UMA Engineering Ltd.
(905) 238-0007 Ext. 2902

From: Sprovieri, John Councillor [mailto:john.sprovieri@city.brampton.on.ca]
Sent: December 3, 2006 4:39 PM
To: Kapusin, Sonya
Cc: Sprovieri, John Councillor
Subject: RE: Ratepayers Association

Hi Sonya,
I apologize for the late reply, I just returned from a two week vacation. Can you let me know how the meeting went and the number of residents that attended? I may be able to provide you with a few manes of residents that live in the area. These residents may have attended the meeting on the

28th. Some of these residents have questioned the need for a four lane roadway for the next 20 years, until Caledon starts development north of Mayfield Road.
Regards, John.

-----Original Message-----
From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: November 23, 2006 10:16 AM
To: john.sprovieri@brampton.ca
Subject: Ratepayers Association

Good morning Councillor Sprovieri,

We are working with the City of Brampton on a Class Environmental Assessment Study for improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive. Are you aware of any Ratepayers Associations or Groups that represent this area? If so, would you mind forwarding their contact information so we can include them on our study mailing list? If you can at your earliest convenience, this would be much appreciated as we have a PIC coming up on November 28 and we could forward a notice to them in advance. Up to this point we have been unable to locate such groups.

Thank you for your help,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

Affaires indiennes et du Nord Canada
www.ainc.gc.ca

Indian and Northern Affairs Canada
www.inac.gc.ca

Votre référence - Your file

Notre référence - Our file

NOV 2 8 2006

UMA Engineering Ltd.
5080 Commerce Boulevard
MISSISSAUGA ON L4W 4P2

Attn: Andrew Ritchie, M.Pl., MCIP, RPP, Consultant Environmental Planner

RE: Notice of Study Commencement and Public Information Centre No. 1
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment

Dear Mr. Ritchie,

I am responding to your request of information sent to the Comprehensive Claims Branch, by mail, on November 10 2006. We can confirm that there are no comprehensive claims in the City of Brampton and the City of Mississauga, Ontario. We cannot make any comments regarding potential or future claims, or claims filed under other departmental policies. This includes claims under Canada's Specific Claims Policy or legal action by the First Nation against the Crown. For more information, I suggest you contact Audrey Stewart, Director General, Specific Claims Branch at (819) 994-2323 and Franklin Roy, Director General, Litigation Management and Resolution Branch at (819) 997-3582.

Yours truly,

Gail Mitchell
Director
Policy and Coordination Directorate
Comprehensive Claims Branch
(819) 953-2909

Canada

Regional Engineering
Engineering Services

Canadian National Railway
1 Administration Road
P.O. Box 1000
Concord, Ontario
L4K 1B9
Tel.: 905-669-3155
Fax: 905-760-3406

November 27, 2006

Email: Andrew.Ritchie@uma.aecom.com

Mr. Andrew Ritchie
UMA Engineering Ltd
5080 Commerce Blvd
Mississauga, Ontario L4W 4P2

Dear Mr. Ritchie:

Re: Goreway Drive from Steels Ave to Brandon Gate Drive
Class Environmental Assessment Study

Thank you for your letter dated November 10, 2006, informing us of the Class Environmental Assessment Study initiated to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive and the upcoming Public Information Center scheduled for November 28, 2006.

CNR will not be attending the PIC but continues to have interest in this project due to the existing at-grade railway crossing on Goreway Drive (Mile 8.80 Halton Subdivision). CNR requests to be kept informed during the EA process.

Sincerely,

Darylann Perry for
John F. MacTaggart, P.Eng.
Senior Engineering Services Officer

Ontario Realty Corporation
Société immobilière de l'Ontario

Ferguson Block
Queen's Park
Toronto, Ontario
M7A 2G3
Tel: 416-212-6456

Edifice Ferguson
Queen's Park
Toronto, Ontario
M7A 2G3
Fax: 416-212-1131

November 22, 2006

To Greg Smith and Khurram Tunio,

RE: ORC Initial Comments on Class EA Road Improvements Goreway Drive (City of Brampton and Mississauga)

Thank you for circulating Ontario Realty Corporation (ORC) on your notice related to your environmental assessment undertaking.

ORC is the strategic manager of the government's real property with a mandate of maintaining and optimizing value of the portfolio, while ensuring real estate decisions reflect public policy objectives of the government.

We are writing to provide you with the following initial comments for consideration and inclusion in your EA project file.

Potential Negative Impacts to ORC Tenants and Lands

Our preliminary review of your notice and supporting information indicates that ORC managed lands are present in your study area. As a result, your proposal may have the potential to impact these lands and/or the activities of tenants present on ORC managed lands. Attached please see a map that identifies ORC managed lands within your study area to assist you in identifying and avoiding potential impacts.

Negative environmental impacts associated with the project design and construction, such as the potential for dewatering, dust, noise vibration impacts, and impacts to natural heritage features/habitat and functions, should be avoided and/or appropriately mitigated in accordance with applicable regulations best practices and MNR and MOE standards. Avoidance and mitigation options that characterize baseline conditions and quantify the potential impacts should be present as part of the EA project file. Details of appropriate mitigation, contingency plans and triggers for implementing contingency plans should also be present.

Negative impacts to land holdings, such as taking of developable parcels of ORC managed land or fragmentation of utility or transportation corridors, should be avoided. If the potential for such impacts is present as part of this undertaking, you should contact the undersigned to discuss these issues at the earliest possible stage of your study.

If takings are suggested as part of any alternative these should be appropriately mapped and quantified within EA report documentation. In addition, details of appropriate mitigation and or next steps related to compensation for any required takings should be present. ORC requests circulation of the draft EA report prior to finalization if potential impacts to ORC managed lands are present as part of this study.

Cultural Heritage Issues

If proposed alternatives may impact cultural heritage features on ORC managed lands, we would request that the examination of cultural heritage features be enhanced to include issues such as cultural landscapes, archaeology and places of sacred and secular value.

Potential Triggers Related to ORC's Class EA

The ORC Class Environmental Assessment (ORC Class EA) applies to a range of realty and planning activities that may be triggered as part of environmental assessment (EA) undertakings. The range of activities includes leasing or letting, planning approvals, selling, demolition and property maintenance/repair, all of which could be triggered if an EA undertaking involves land takings or work on ORC managed lands. If the potential to trigger the ORC Class EA is present as part of this undertaking you should contact ORC's General Manager of Environment and Heritage to discuss these issues at the earliest possible stage of your study. For details on the ORC Class EA please visit the Environment and Heritage page of our website found at http://www.orc.on.ca/Page133.aspx. If the ORC Class EA is triggered consideration should be given to explicitly referring to the ORC's undertaking in your EA study.

Specific Comments

The ORC managed land identified within your study area is a stretch of the Parkway Belt identified on the attached map. If land takings or easements in the Parkway Belt are required you should contact ORC's Real Estate and Sales Division (through our main line at 416-327-3937) as early in the process as possible to make the necessary arrangements. For Planning implications in the Parkway Belt questions can be referred to our Planning Department.

Concluding Comments

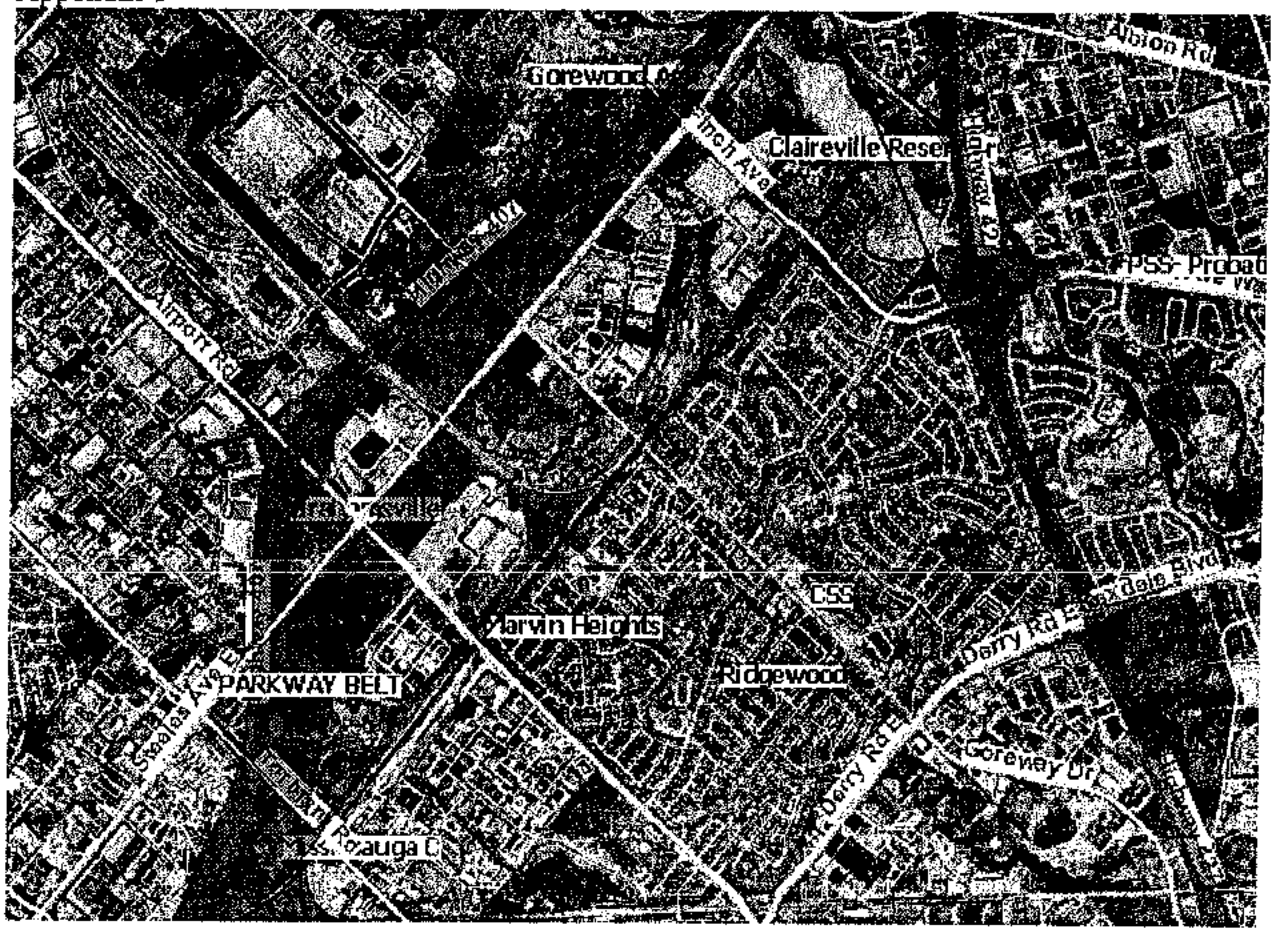
Thank you for the opportunity to provide initial comments on this undertaking. If you have any questions on the above I can be reached at 519-837-6379 or by email at alan.sawyer@orc.gov.on.ca.

Sincerely,

A. Sawyer

Alan Sawyer, B.Sc.(Env.)
Environmental Assessment Facilitator
Portfolio Strategy and Asset Management Department
Ontario Realty Corporation

Appendix 1


Albion Rd
Claireville Reser
Finch Ave
Airport Rd
Marvin Heights
PARKWAY BELT
Ridgewood
Derry Rd
Goreway Dr
CSS

TORONTO AND REGION Conservation
for The Living City

November 16, 2006

CFN 37551

SENT VIA EMAIL

Mr. Greg Smith
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON
L4W 4P2

Dear Mr. Smith:

Re: Response to Notice of Public Information Centre #1
Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Brampton and City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received notice of the upcoming Public Information Centre (PIC) scheduled for Tuesday, November 28, 2006. Further to TRCA correspondence dated August 18, 2006, staff has expressed interest in this project. While staff is unable to attend the meeting, please forward two copies of any handouts or display materials from this meeting for our files.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessment Review
Planning and Development

cc: Khurram Tunio, City of Brampton
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

F:\Home\Public\Development Services\EA\Letters for Mailing\37551 - PIC.wpd

From: Gill, Surinder Singh (OSAA) [Surinder.Singh.Gill@ontario.ca]
Sent: November 3, 2006 10:09 AM
To: Kapusin, Sonya
Subject: Notice of Study Commencement Improvements to Goreway Drive from Steels Ave to Brandon Gate Dr City of Brampton

Dear Sonya, Please find as discussed

Re: Notice of Study Commencement Improvements to Goreway Drive from Steels Ave to Brandon Gate Dr City of Brampton

Thank you for your enquiry dated August 8, 2006 to the Ontario Secretariat for Aboriginal Affairs (OSAA) regarding the above noted project. We would like to apologize for the delay in responding to your request.I will be forwarding the final approved comments at a latter date and the Land Claims information will be included in this correspondence.

The mandated responsibilities of OSAA include conducting land claim negotiations and finalizing and implementing land claim settlement agreements on behalf of the Province.

For your information, OSAA notes that the proposed project could impact or be of interest to Aboriginal peoples. OSAA recommends that your office contact the following First Nations:

Mississaugas of Scugog Island
22521 Island Road
PORT PERRY, Ontario
L9L 1B6
(905) 985-3337
(Fax) 985-8828
msifn@on.aibn.com

In addition, OSAA recommends that you contact the following organization that represents a number of First Nations to ask whether there are other First Nations who may be interested in the project and wish to provide comments.

Anishinabek Nation
Nipissing First Nation (head office)
P.O. Box 711
NORTH BAY, Ontario
PH: 705 497-9127
FX: 705 497-9135

As well, the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. For information about possible claims in the area, OSAA recommends the proponent contact the following federal contacts:

Maryanne PearceA/Sr Claims Analyst
Ontario Research Team
Indian and Northern Affairs Canada
10 Wellington St.
Gatineau, QC K1A 0H4
Tel: (819) 953-1940
Fax: (819) 997-9873

Louise TrepanierDirector,
Claims East of ManitobaComprehensive Claims Branch Indian and Northern Affairs

Canada 10 Wellington St., 8th Floor Gatineau, QC K1A 0H4
Tel: (819) 994-1211
Fax: (819) 953-3109

OSAA notes that sometimes projects fall within an area subject to litigation. For further information on the nature of possible litigation, its status and the litigation process, OSAA recommends you call or write the following Ministry of the Attorney General contact:

Grant Wedge, Counsel
Crown Law Office
Ministry of the Attorney General
8th floor, 720 Bay St.
Toronto, ON M5G 2K1
Tel: (416) 326-4112

For future E. A. inquiries direct your correspondence to Pam Wheaton, Director Policy and Relationship Branch. We will iform you the approved

Yours truly,

Surinder

Surinder Singh Gill
Policy Advisor,
Policy and Relationships Branch
Ontario Secretariat for Aboriginal Affairs 720, Bay Street, 4th Floor Toronto, ON M5G 2K1
Phone: (416) 314-6781
email: surinder.singh.gill@osaa.gov.on.ca

Ontario Secretariat for Aboriginal Affairs

720 Bay Street
4th Floor
Toronto, ON M5G 2K1

Tel: (416) 326-4741
Fax: (416) 326-4017

website: www.aboriginalaffairs.osaa.gov.on.ca

Secrétariat des affaires autochtones de l'Ontario

720, rue Bay
4e étage
Toronto, ON M5G 2K1

Tél: (416) 326-4741
Téléc: (416) 326-4017

Ontario

October 12, 2006

Mr. Andrew Ritchie, P. Eng
Lead Environmental Planner
UMA Engineering Ltd.
5080 Commerce Blvd
Mississauga, ON
L4W 4P2

Dear Mr. Ritchie:

Re: Notice of Study Commencement Improvements to Goreway Drive from Steels Ave to Brandon Gate Dr – City of Brampton

Thank you for your enquiry dated August 8, 2006 to the Ontario Secretariat for Aboriginal Affairs (OSAA) regarding the above noted project. We would like to apologize for the delay in responding to your request.

The mandated responsibilities of OSAA include conducting land claim negotiations and finalizing and implementing land claim settlement agreements on behalf of the Province. In light of this mandate, OSAA has reviewed the materials and notes that it is not aware of any First Nation land claims submitted to the Government of Ontario that will have an impact on this project.

As well, the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. For information about possible claims in the area, OSAA recommends the proponent contact the following federal contacts:

Don Boswell
A/Sr Claims Analyst
Ontario Research Team
Indian and Northern Affairs Canada
10 Wellington St.
Gatineau, QC K1A 0H4
Tel: (819) 953-1940
Fax: (819) 997-9873

Louise Trepanier
Director, Claims East of Manitoba
Comprehensive Claims Branch
Indian and Northern Affairs Canada
10 Wellington St., 8th Floor
Gatineau, QC K1A 0H4
Tel: (819) 994-1211
Fax: (819) 953-3109

OSAA notes that sometimes projects fall within an area subject to litigation. For further information on the nature of possible litigation, its status and the litigation process, OSAA recommends you call or write the following Ministry of the Attorney General contact:

Ria Tzimas, Counsel
Crown Law Office
Ministry of the Attorney General
8th floor, 720 Bay St.
Toronto, ON M5G 2K1
Tel: (416) 326-4930

For future E. A. inquiries direct your correspondence to me. You may contact Surinder Singh Gill, Policy Advisor, OSAA at (416) 314-6781 if you have any further inquiries.

Yours truly,

Alan Kary
Deputy Director
Policy and Relationships Branch

c: Surinder Singh Gill

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD. Date: Oct 6, 2006

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: Robb Mimnes

TITLE: Project Manager

AGENCY: MTO

ADDRESS: 1201 Wilson Ave. Ton

POSTAL CODE: M3M1J8

PHONE: 416 235-5481

FAX: 416 235 4002

E-MAIL: Robb.Mimnes@mto.gov.on.ca

Please indicate the appropriate response:

___ My group/agency is interested in providing input regarding this study.

X My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

407 Transitway and station north of Steeles Ave.

From: Heaton, Mark (MNR) [mark.heaton@mnr.gov.on.ca]
Sent: September 19, 2006 3:15 PM
To: Kapusin, Sonya
Subject: RE: Goreway Drive Class EA

Attachments: Goreway south of Steeles.jpg
Hello Sonya,

Attached is our natural environment information for the study area.

Woodlots are in green. Watercourse is Mimico Creek and its tributaries. Red dots indicate fish survey locations with file #'s

There are no ANSIs, wetlands or species of special concern within the study area.

Regards,

Mark Heaton
Fish and Wildlife Biologist
OMNR - Aurora
(905) 713-7406

-----Original Message-----
From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: Monday, September 18, 2006 7:56 AM
To: Patterson, Mark (MNR)
Cc: Heaton, Mark (MNR); Ritchie, Andrew; Smith, Greg; Tunio, Khurram
Subject: Goreway Drive Class EA

Dear Mark,

RE: Goreway Drive Improvements, Class Environmental Assessment
Further to our letter of August 8 to Mr. Tracy Smith of your office, announcing the Study Commencement for the above project, we are writing to request information that you or your organization can contribute to this Study. We hope to receive information that will assist us in assessing the alternatives and associated impacts for this project.

As you may recall, UMA Engineering Ltd. has been retained by the City of Brampton to complete a Municipal Class Environmental Assessment Study for the proposed improvements to Goreway Drive, between Steeles Avenue and Brandon Gate Drive. The improvements are being considered to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National Rail (CNR) at-grade (level) crossing (Halton Subdivision).

We would appreciate receiving any information that you can provide within the mandate of your program or policy area. We are particularly interested in information that describes areas of social and/or natural environment concerns within the Study Area (e.g., Areas of Natural and Scientific Interest, Environmentally Significant Areas, wetlands, fisheries habitat and resources, etc.). This information will be taken into consideration during the Study to both characterize the area's existing conditions and to comparatively evaluate alternative design solutions.

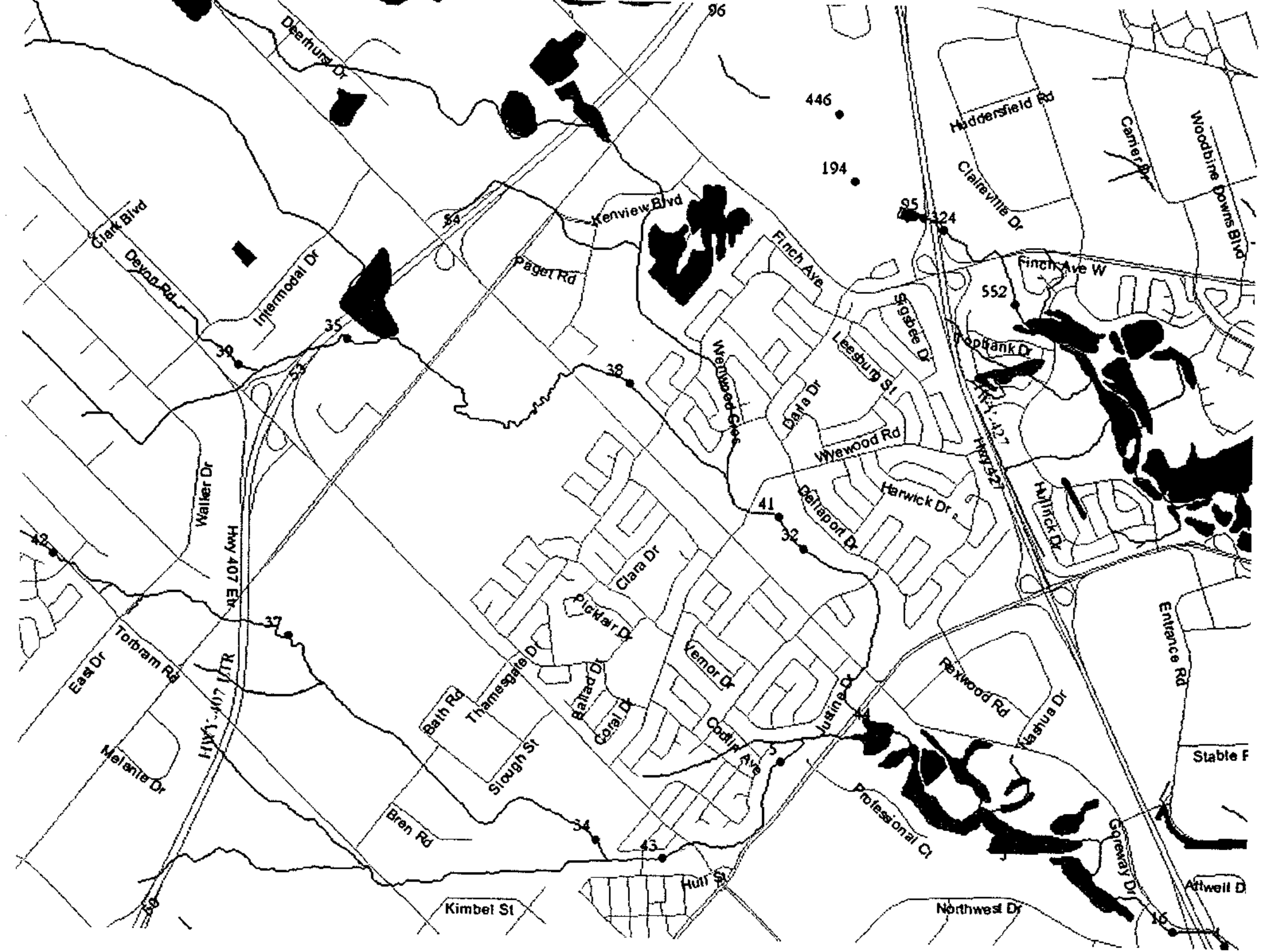
We would appreciate your reply at your earliest convenience so that we may consider the information you

provide within the project schedule. You may fax the information to my attention at (905) 238-0038 or mail to the address below. If you require further information, please call me directly at (905) 238-0007 Ext. 2902.

Thank you,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com


Deerhurst Dr
Clark Blvd
Devon Rd
Intermodal Dr
Kenview Blvd
Paget Rd
Finch Ave
Finch Ave W
Huddersfield Rd
Claireville Dr
Camer Dr
Woodbine Downs Blvd
Sycamore Dr
Leesburg St
Rockbank Dr
Wenwood Cres
Daria Dr
Wenwood Rd
Harwick Dr
Hullrick Dr
Hwy 427
Walker Dr
Hwy 407 Etr
Clara Dr
Pickmar Dr
Vernor Dr
Thamesgate Dr
Ballad Dr
Coral Dr
Bath Rd
Slough St
Coolidge Ave
Justine Dr
Rexwood Rd
Niagara Dr
Entrance Rd
Stable F
East Dr
Torbram Rd
Melanie Dr
Bren Rd
Professional Ct
Goreway Dr
Attwell D
Hull St
Kimbel St
Northwest Dr
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Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)From: Prowse, Shari (MCL) [Shari.Prowse@ontario.ca]
Sent: September 11, 2006 4:24 PM
To: Kapusin, Sonya
Subject: RE: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)

Hi Sonya,

They may be undocumented sites in the area that could be impacted by this project.

Shari Prowse
Heritage Planner / Archaeologist
Heritage Operations Unit
Programs and Services Branch
Ministry of Culture
400 University Avenue, 4th Floor
Toronto, Ontario
M7A 2R9
Tel: 416 314-7143
Fax: 416 314-7175

From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: September 11, 2006 3:21 PM
To: Prowse, Shari (MCL)
Subject: RE: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)

Hi Shari,

Thanks for your message. Can you clarify your first sentence? Are there no archeological sites registered within the Study Area?

Sonya.

From: Prowse, Shari (MCL) [mailto:Shari.Prowse@ontario.ca]
Sent: September 5, 2006 1:49 PM
To: Kapusin, Sonya
Subject: RE: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)

Hi Sonya,

While there are no as yet undocumented archaeological resources within the project area, a portion of the subject property has archaeological potential based on its proximity to water sources. I would recommend that a licensed archaeologist be

retained to conduct an archaeological assessment of the area proposed to be impacted by this project.

Shari Prowse
Heritage Planner / Archaeologist
Heritage Operations Unit
Programs and Services Branch
Ministry of Culture
400 University Avenue, 4th Floor
Toronto, Ontario
M7A 2R9
Tel: 416 314-7143
Fax: 416 314-7175

From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: September 1, 2006 11:48 AM
To: Prowse, Shari (MCL)
Cc: Ritchie, Andrew; Tunio, Khurram
Subject: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)

Hi Shari,

Thank you for sending us your Fax Back Form regarding Improvements to Goreway Drive in the City of Brampton and Mississauga. As you indicated an interest to provide input in this Study, I am writing to ask if you could forward any cultural or heritage information for the Study Area. We would consider this input when describing the existing environment and comparing alternatives to improve this section of roadway.

I look forward to your response and will be in touch to answer any questions you may have.

Sincerely,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

Division Engineering
Engineering Services

4 Welding Way
(off Administration Road)
P.O. Box 1000
Concord, Ontario L4K 1B9
T: 905.669.3155
F: 905.760.3498

TRANSMITTAL

To: Greg Smith
UMA Engineering Ltd.

From: John MacTaggart *Date::* September 22, 2006

Project : Goreway Drive Halton Mile 8.80

We are sending you the following:

Quantity	Drawing No.	Description
7	Train OS Graphs	Daily train movement graphs for Halton Subdivision September 14 – 20, 2006 inclusive (use HUMB data).

- ☐ For your information / action
- ☐ For your approval and return
- ☒ For your use
- ☐ As requested
- ☐ Reviewed
- ☐ Reviewed as modified
- ☐ Revise and resubmit
- ☐ Not reviewed

Comments:

Regards,

Darylann Perry
Engineering Services

TORONTO AND REGION Conservation
for The Living City

5 Shoreham Drive
Downsview, Ontario
M3N 1S4

Sharon Lingertat
Acting Planner II
Planning and Development
T (416) 661-6600 ext. 5717
F (416) 661-6898
email: slingertat@trca.on.ca

Record of Data Transmittal

Date: August 31, 2006

Attention: **Mr. Andrew Ritchie**

UMA Engineering Ltd., 5080 Commerce Blvd., Mississauga, ON L4W 4P2

Regarding: **CFN 37551 - Goreway Drive (Steeles Ave. to Brandon Gate Dr.)**

Further to our letter dated August 18, 2006, please find enclosed a digital copy of:

- Fish monitoring data
- Natural Features data (shape files)
- Current Regulation Limits
- Flood Lines

Please note that I have not provided flora and fauna data because this information has not been collected for the proposed study area.

Should you have any questions or require any additional information please contact the undersigned at either the phone number or email address noted above.

Sincerely,

Sharon Lingertat
Acting Planner II, Environmental Assessment Review
Planning and Development

cc: Khurram Tunio, City of Brampton
Solomon Choi, City of Brampton

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UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD.

Date: August 31, 2006

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: Craig White

TITLE: Director, Highway Operations

AGENCY: 407 ETR Concession Company Ltd.

ADDRESS: 6300 Steeles Ave. West, Woodbridge

POSTAL CODE: L4H 1J1

PHONE: 905-264-5225

FAX: 905-264-5379

E-MAIL: cwhite@407etr.com

Please indicate the appropriate response:

✓ My group/agency is interested in providing input regarding this study.

___ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

Impacts to 407 ETR right of way and interchange

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD. Date: Aug 30 2006

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: Bruno Pereira

TITLE: Manager of Engineering

AGENCY: Hydro One Brampton

ADDRESS: 175 Sandalwood Pkwy West

POSTAL CODE: L7A 1E8

PHONE: 905-840-6300 x5532

FAX: 905-840-1305

E-MAIL: BPereira@HydroOneBrampton.com

Please indicate the appropriate response:

— My group/agency is interested in providing input regarding this study.

X My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

— Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD. Date: Aug 24, 2006

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: Shari Prowse

TITLE: Archaeologist / Heritage Planner

AGENCY: Ministry of Culture

ADDRESS: 400 University Ave. 4th Fl

POSTAL CODE: M7A 2R9

PHONE: (416) 314-7143

FAX: (416) 317-7175

E-MAIL: Shari.Prowse@mcl.gov.on.ca

Please indicate the appropriate response:

✓ My group/agency is interested in providing input regarding this study.

___ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

Project may impact cultural Heritage Resources

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD.

Date: Aug 22/06

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

2 Pages

NAME: John MacTaggart

TITLE: Senior Engineering Services Officer

AGENCY: Canadian National Railway

ADDRESS: 4 Welding Way, PO Box 1000

POSTAL CODE: Concord, Ontario L4K 1B9

PHONE: 905-669-3155

FAX: 905-760-3406

E-MAIL:

Please indicate the appropriate response:

___ My group/agency is interested in providing input regarding this study.

___ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

SEE ATTACHED LETTER

Regional Engineering
Engineering Services

Canadian National Railway
1 Administration Road
P.O. Box 1000
Concord, Ontario
L4K 1B9
Tel.: 905-669-3155
Fax: 905-760-3406

August 22, 2006

Mr. Andrew Ritchie
UMA Engineering Ltd
5080 Commerce Blvd
Mississauga, Ontario L4W 4P2

Dear Mr. Ritchie:

Re: **Goreway Drive Class Environmental Assessment Study**

Thank you for your letter dated August 8, 2006, informing us of the commencement of the Class Environmental Assessment process initiated to facilitate improvements on Goreway Drive between Steeles Avenue and Brandon Gate Drive.

CNR has interest in this project due to the existing at-grade railway crossing on Goreway Drive (Mile 8.80 Halton Subdivision). CNR requests to be kept informed during the EA process and advised of the impacts to this CN railway crossing. (Please be informed that if the chosen alternative is not a grade separation and the crossing is to be widened, it may take up-to 18 months from the date the Purchase Order is received to complete any modifications to the Automatic Warning Device).

Sincerely,

Darylann Perry for
John F. MacTaggart, P.Eng.
Senior Engineering Services Officer

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD.

Date: Aug 22/06

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: N Ireland

TITLE: ADET

AGENCY: Hydro One

ADDRESS: 913 Crawford Dr Peterborough

POSTAL CODE: K9J 3X1

PHONE: 1-888-871-3514

FAX: 1-800-608-8802

E-MAIL: Zone3Ascheduling@HydroOne.com

Please indicate the appropriate response:

___ My group/agency is interested in providing input regarding this study.

___ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

X Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

Hydro One Low Voltage would like to comment that we have no plant in the area of study. If you have any further questions please contact the above. Thank-you.

Plantec Inc. – Consulting Engineers
200 Town Centre Boulevard, Suite 300
Markham, Ontario, Canada
L3R 8G5
Tel (905) 470-2112
Fax (905) 470-8956

TELUS®

Fax

Plantec

To:	**UMA Engineering**	**From:**	Plantec Inc.
Attn:	Mr. Andrew Ritchie	**Pages:**	7
Fax:	905-238-0038	**Date:**	August 21, 2006
Phone:	905-238-0007	**CC:**	
Re:	Improvements to Goreway Dr From Steeles Ave. to Brandon Gate Dr		
Your File	4020-009	Plantec File:	06-001 (1582)

☐ **Urgent** ☑ **For Review** ☐ **Please Comment** ☐ **Please Reply**

- **Comments:**

To Whom It May Concern:

Please find attached the signed New Utility Proposal form for your file.

Sincerely,
Plantec Inc. – Consulting Engineers

On behalf of Telus Communications

Hernando Martinez
TELUS Utility Markups

TELUS

TELUS Address:
2700 Matheson Boulevard East
5th floor, West Tower
Mississauga, Ontario
L4W 4V9

August 21, 2006

APPLICATION REVIEW

APPLICANT: UMA Engineering
YOUR FILE: 4020-009
LOCATION: Improvements to Goreway Dr From Steeles Ave. to Brandon Gate Dr Mississauga & Brampton , ON.

CONFLICT [ ] **CAUTION** [X]

CAUTION! TELUS has shared rail assets (owned by 360Networks/GT) along the CNR/CPR as shown on the TELUS Field View map. Refer to 360Networks/GT for their drawings. As well as, Telus has infrastructure along Goreway next to the railroad as shown on the as build plan PL-01 attached. Please incorporate this information into your design drawings. Contact TELUS for more information if required. When working near TELUS plant, please adhere to these rules:

1) TELUS standards call for a minimum clearance as follows:

   a) Open cut method of construction: maintain a minimum clearance of 600 mm horizontally on either side of our facility and a minimum clearance of 300 mm vertically below our facility, especially at crossings.
   b) Directional bore method of construction: maintain a minimum clearance of 1000 mm horizontally on either side of our facility and a minimum clearance of 600 mm vertically below our facility at crossings.
   TELUS facilities shall be exposed prior to crossing

2) You are required to contact TELUS for route locates prior to digging/construction.
   You must hand trench to expose TELUS' infrastructure at all locations, pressurized water technology (Hydro-Vacuuming) is not permitted as alternate form of hand trenching.

Please contact TELUS 72hrs prior to construction to witness hand trenching at all locations indicated (1-800-593-5558)

SIGNATURE: _____ DATE: 21 August 2006

Hernando Martinez, Plantec Inc.
Tel: 905 470 2112 ext 230
per
J. Grant Crowson
Design Technician
National Access Network Design
2700 Matheson Boulevard East
5th Floor, West Tower
Mississauga, Ontario, L4W 4V9
Office: 905-804-6090
Cell: 613-453 7014 Fax: 905 804 6143

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD. Date: 21-Aug-06

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: Hernando Martinez

TITLE: Telus Utility Markups

AGENCY: Plantec Inc.

ADDRESS: 200 Town Centre Boulevard, Suite 300

POSTAL CODE: L3R 8G5

PHONE: (905) 470-2112

FAX: (905) 470-8956

E-MAIL: telusutilitymarkups@plantec.com

Please indicate the appropriate response:

✓ My group/agency is interested in providing input regarding this study.

— My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

— Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

Telus has shared rail assets (owned by 360 Networks /6T) along CNR as shown on the Telus field View map. Refer to 360 Networks /6T for their drawings.
Telus has infrastructure along Goreway next to the railroad as shown in the as build plan BL-01 attached.

HERNANDO MARTINEZ
PLANTEC INC
PER TELUS

Plantec Inc. – Consulting Engineers
200 Town Centre Boulevard, Suite 300
Markham, Ontario, Canada
L3R 8G5
Tel (905) 470-2112
Fax (905) 470-8956

TELUS

Fax

Plantec

To:	**City of Mississauga**	**From:**	Plantec Inc.
Attn:	**Jadie Adams-Thompson**	**Pages:**	2
Fax:	905-238-0038	**Date:**	August 21, 2006
Phone:	905-896-5135	**CC:**	
Re:	6791 Hurontario St		
Your File	CTV-2006-17/ DWG# MP06-0183 VC	Plantec File: 06-001 (1583)	

☐ **Urgent** ☑ **For Review** ☐ **Please Comment** ☐ **Please Reply**

• **Comments:**

To Whom It May Concern:

Please find attached the signed New Utility Proposal form for your file.

Sincerely,
Plantec Inc. – Consulting Engineers

On behalf of Telus Communications

Hernando Martinez
TELUS Utility Markups

TORONTO AND REGION Conservation
for The Living City

August 18, 2006

CFN 37551

SENT VIA EMAIL

Mr. Andrew Ritchie
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON
L4W 4P2

Dear Mr. Ritchie:

Re: Response to Notice of Commencement
Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)
Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Creek Watershed
City of Brampton; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the Notice of Commencement for the above-noted Environmental Assessment (EA) application on August 11, 2006. It is our understanding that this undertaking involves improvements to this section of Goreway Drive to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National Rail at-grade crossing.

Staff has conducted a review of the background mapping and has identified environmental concerns within the study area. These concerns were identified in the TRCA response to the Request for Proposal, dated April 18, 2006 (attached). These environmental concerns should be identified in the EA document in both the text and on an overlay map, as appropriate. Digital versions of the current Regulation Limit mapping and available TRCA natural features mapping will follow under separate cover.

Please also note, when considering the alternative solutions, that the Regional water level just upstream of Goreway Drive is approximately 172.27 metres while the Regional water level downstream of Goreway Drive to the railroad tracks is approximately 172.26 metres.

Should you have any questions or require any additional information please contact me at 416-661-6600 extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessment Review
Planning and Development

Encl. TRCA response letter; dated April 18, 2006

cc: Khurram Tunio, City of Brampton
Greg Smith, UMA Engineering Ltd.
Beth Williston, TRCA, Manager - Environmental Assessments
Quentin Hanchard, TRCA, Senior Planner
Joshua Campbell, TRCA, Acting Senior Planner

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD. Date: Aug 16/06

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: Eve Adams

TITLE: Councillor, Ward 5, City of Mississauga

AGENCY:

ADDRESS: 300 City Centre Drive

POSTAL CODE: L5B 3C1

PHONE: 9. 896.5500

FAX: 9. 896.5463

E-MAIL:

Please indicate the appropriate response:

✓ My group/agency is interested in providing input regarding this study.

___ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

A grade sep. is long overdue at this location.

Care needs to be taken to address noise impacts

Please keep me updated on your progress and any concerns from neighbouring properties.

Eve Adams

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD.

Date: 14 Aug 06

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: MIKE GLOSZINSKI

TITLE: INSPECTOR

AGENCY: PEEL REGIONAL POLICE

ADDRESS: 7750 HURONTARIO ST BRAMPTON

POSTAL CODE: L6U-3W6

PHONE: 905 453-3311

FAX:

E-MAIL:

Please indicate the appropriate response:

___ My group/agency is interested in providing input regarding this study.

✓ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

UMA | AECOM

FAX BACK FORM

To: ANDREW RITCHIE, UMA ENGINEERING LTD. Date: 06-08-14

Fax: (905) 238-0038

RE: **Improvements to Goreway Drive**
Class Environmental Assessment Study

NAME: PAUL MOUNTFORD

TITLE: INTERMEDIATE PLANNING OFFICER

AGENCY: PEEL DISTRICT SCHOOL BOARD

ADDRESS: 5650 MAVONTARIO STREET MISSISSAUGA ON

POSTAL CODE: L5R 1C6

PHONE: 905-890-1010 x227

FAX: 905-890-5295

E-MAIL: paul.mountford@pdsb.org

Please indicate the appropriate response:

___ My group/agency is interested in providing input regarding this study.

_✓_ My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.

___ Please remove my group/agency from the Study Mailing List.

Agency's areas of interest or preliminary comments:

Kapusin, Sonya

From: Ritchie, Andrew
Sent: August 11, 2006 2:16 PM
To: Satish Korpal
Cc: Tunio, Khurram; Kapusin, Sonya; Smith, Greg
Subject: RE: your file: 4020-009

Satish,

Thank you very much for your timely response. Much appreciated. Given that TransNorthern has no plant within the Project Limits, do you still require any future project correspondence, or should we remove TransNorthern from our mailing list?

Regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

-----Original Message-----
From: Satish Korpal [mailto:SKORPAL@tnpi.ca]
Sent: August 11, 2006 1:53 PM
To: Ritchie, Andrew
Subject: your file: 4020-009

Goreway drive from Steeles Ave. to Brandon Gate Dr.-

Trans-Norther has no facilities at the above location.
tnx

Satish Kumar Korpal
Co-ordinator- Crossings & Facilities
Trans-Northern Pipelines Inc.
45 Vogell Road, Suite 310
Richmond Hill, On.
L4B 3P6
skorpal@tnpi.ca
905-770-3353 ext. 211
Fax: 905-770-8675

New Utility Proposal

Inspected and Recommended

Date Initials

City of Mississauga
Transportation and Works Department
3484 Semenyk Court
Mississauga, Ontario
L5C 4R1

905-896-5135

TELUS
Attn: Manager

Application No. CTV-2006-17

Date Aug 9 2006

Please be advised that DEERE CABLE COMMUNICATIONS INC is proposing a new plant in the City of Mississauga as shown on their drawing(s)

Numbered mp06 d83 VC DWG 01 REV

Street Name(s) 6791 HURONTARIO ST

Kindly examine the enclosed plans and if this work meets with your approval, detach and return the lower portion of this form at your earliest convenience. Should you disagree with the proposed location or have facilities that require precautionary measures, please contact the applicant.

Anticipated Construction Date ASAP

VITO CASSANO (Applicant's Name) 905 897-7963 (Phone Number)

TELUS

Transportation and Works Department
3484 Semenyk Court
Mississauga, Ontario
L5C 4R1

Applicant DEERE CABLE COMMUNICATIONS INC

Application No. CTV-2006-17

Street Name(s) 6791 HURONTARIO ST

Application Date Aug 9 2006

NO CAUTIONS!

Be advised that the works proposed by this application meet with the approval of this office.

Cable Company HERNANDO MARTINEZ PLANTEC INC

Per TELUS

Date 21-Aug-06

TORONTO AND REGION Conservation
for The Living City

April 18, 2006

CFN 37551

SENT VIA EMAIL

Khurram Tunio
City of Brampton
2 Wellington Street West
Brampton, ON
L6Y 4R2

Dear Mr. Tunio:

Re: Response to the Preliminary Review of the Request for Proposal for the Goreway Drive (Steeles Avenue to the South City Limit) Municipal Class Environmental Assessment (EA) - Schedule C
Mimico Watershed
City of Brampton; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received a copy of the draft Request for Proposal for proposed Goreway Drive Environmental Assessment (EA) on March 24, 2006. Staff understand that the above mentioned EA will examine the need for improvements to Goreway Drive from Steeles Avenue to the south city limit.

Staff has conducted a review of the background mapping and has identified environmental concerns within the study area. Concerns are as follows:

Natural Environment (*to be field verified as necessary)

- Aquatic Species and Habitat
- Aquifers
- Generic Regulation
- Regional Storm Flood Plains
- Stream Corridors
- Terrestrial Natural Heritage System (draft)
- Valley Corridors
- Watercourses

Provided in Appendix 1 is a chart of *TRCA Environmental Concerns and EA Document Requirements*. Information provided in *Appendix 2: Preliminary Technical Study Requirements* should be used in developing the alternatives and included in the EA document. Staff will confirm additional study requirements as the project progresses, if additional issues or impacts are identified.

APPENDIX 1 - TRCA ENVIRONMENTAL CONCERNS AND EA DOCUMENT REQUIREMENTS

Environmental Concerns	TRCA Programs, Policies and Guidelines	EA Document Requirements
NATURAL ENVIRONMENT		
Aquatic Species and Habitat	Please include the fisheries timing window(s) for construction. Please contact the Ministry of Natural Resources in writing and request the timing windows associated with the watercourses in the study area. Please forward a copy of the response to TRCA.	1. Please include a statement in the EA document that the TRCA has a Level 3 Agreement with the Fisheries and Oceans Canada (DFO). The appropriate wording is: *On July 24, 1998, the TRCA signed a Level 3 Agreement with Fisheries and Oceans Canada (DFO), which established a streamlined approach to addressing issues pertaining to the Federal Fisheries Act. Conservation Authorities with a Level 3 Agreement determine whether the proposal has a potential for a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. CA staff will work with the proponent to suggest ways to mitigate the HADD and if mitigatable write Letters of Advice on behalf of DFO. If the CA determines that the HADD cannot be mitigated then the CA will provide a skeleton of a Letter of Intent and a DFO application in order for the proponent to prepare a compensation package. Note that only DFO through the Minister of Fisheries and Oceans can authorize compensation regarding a HADD pursuant to Section 35 (2) of the Federal Fisheries Act.* 2. Please include a section in the EA document that indicates which aspects of the undertaking may trigger the Canadian Environmental Assessment Act (CEAA). The CEAA trigger list may be obtained from www.ceaa.gc.ca. Please note that there are two CEAA triggers which are commonly associated with the issuance of TRCA permits. These are the DFO triggers if the undertaking is a HADD and the Navigable Waterways trigger (contact Transport Canada, Sarnia at 519-383-1826). 3. If applicable, please include a statement in the EA document that the Ministry of Natural Resources (MNR) conducts the fisheries review on behalf of DFO for EA undertakings initiated by the Ministry of Transportation (MTO). Please contact the MNR in Aurora at 905-713-7400. 4. If applicable, please include a statement in the EA document that works conducted by a Provincial/Federal Ministry on Provincial/Federal lands are exempted from Ontario Regulation 158. Therefore, TRCA staff requires that all concerns be addressed in the selection of the preferred design, as TRCA clearance of the EA document is required.

APPENDIX 1 - TRCA ENVIRONMENTAL CONCERNS AND EA DOCUMENT REQUIREMENTS

Environmental Concerns	TRCA Programs; Policies and Guidelines	EA Document Requirements
Generic Regulation	In the late 1990s, the provincial government carried out a review of the *Conservation Authorities Act* and as a result the TRCA has until May 1, 2006 to bring the existing Fill, Construction and Alteration to Waterways Regulation into conformity with the amended and renamed Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. The amended regulation, referred to as the Generic Regulation, must be adopted by all conservation authorities. Under the Generic Regulation, development within a regulated area and the interference and alteration to watercourses, wetlands and shorelines require a permit from the TRCA. This project falls within the area that will become regulated under the Generic Regulation which is scheduled to come into effect May 1, 2006. As such, a permit from this office will be required in order for these works to proceed.	1. Indicate in the text and mapping what areas fall under generic regulation 2. Discuss in detail how the project design will reflect the relevant portions of the VSCMP in order that impacts to the regulated areas and areas of concern will be minimized 3. Note which portions of the project will potentially require permits from TRCA

APPENDIX 1 - TRCA ENVIRONMENTAL CONCERNS AND EA DOCUMENT REQUIREMENTS

Environmental Concerns	TRCA Programs, Policies and Guidelines	EA Document Requirements
Terrestrial Natural Heritage System (draft)	The study area is located within the draft Terrestrial Natural Heritage System. TRCA has prepared a draft Terrestrial Natural Heritage System Strategy (TNHSS) for TRCA's jurisdiction. This system recognizes the need to improve both the quantity and quality of the terrestrial habitats. A model has been used to delineate an improved or "targeted" system to meet these objectives as outlined on the maps included in the draft TNHSS. A copy of our draft Terrestrial Natural Heritage Strategy (TNHS) can be obtained from our website www.trca.on.ca. TRCA's *Valley and Stream Corridor Management Program (VSCMP)*, Section 4.3 - Infrastructure and Servicing Items 14, 16 and 19 should be followed.	3. Indicate in the text and mapping what portions of the study area are within the draft TNHS. 4. Please provide a discussion in detail how the EA document undertaking will conform to the requirements of TRCA's Valley and Stream Corridor Management Program (VSCMP) and draft TNHSS. 5. If applicable, please include a statement in the EA document on the Migratory Bird Convention Act, which is enforced by Environment Canada. Under this legislation tree cutting should not occur during the nesting phase of on-site migratory birds. 6. If applicable please include a statement in the EA document on the Species at Risk Act (SARA). The purpose of this legislation is to prevent wildlife species from being extirpated or extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened, as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened.

APPENDIX 2

Preliminary Technical Study Requirements

TRCA requires that the preferred alternative meet the following criteria:

Criteria 1: Prevent risk associated with flooding, erosion or slope instability;
Criteria 2: Protect and rehabilitate existing landforms and features and functions;
Criteria 3: Provide for aquatic, terrestrial and human access; and,
Criteria 4: Minimize water and energy consumption
Criteria 5: Minimize water and air pollution and thermal variation

In relation to this project, the following studies will be required as a minimum. Staff will confirm additional study requirements as the EA progresses, if additional issues or impacts are identified.

Required Studies and Reports		Type of Study or Report	Criteria #
Required	Not Required		
Yes		Hydraulic and hydrologic studies to delineate floodlines and flow rates, including detailed topographic mapping and modelling	1
Yes		Fluvial Geomorphology Studies ☐ 100-year toe erosion limit for slope stability ☐ Meander belt and erosion limit delineation studies ☐ Watercourse characterization study	1, 2, 3
Yes		Geotechnical studies ☐ slope stability (valley and shoreline) ☐ construction feasibility (tunnelling, footings etc.)	1, 2, 3
Yes		Hydrogeological studies ☐ report for determining dewatering requirements for watercourse crossings, or impacts on watercourses and natural features ☐ groundwater upwellings ☐ Geotechnical report for determining groundwater potential (upwelling and dewatering needs), including slug tests ☐ Local aquifer conditions study to be confirmed through step and pump tests ☐ Predicted zone of influence map using measured coefficients ☐ Hydrogeologic study which includes surficial geology; identification of shallow, deep and perched aquifers; cross-sectional drawings of identified aquifer/aquitard systems, assessment of hydrogeologic coefficients, especially hydraulic conductivity (K) based on slug pump tests or aquifer pumping tests	1, 2, 3
Yes		Legal survey of field verified natural features, including top-of- bank (staked with TRCA)	1, 2, 3

A4 – Meeting Minutes

Technical Steering Committee Meeting Minutes

RFP 2006-041-Goreway Drive
Technical Steering Committee Contact Information
Class Environmental Assessment Study

Technical Steering Committee Members from City of Brampton

Solomon Choi Senior Project Engineer, W&T	Tele: 905-874-2543 E-mail: solomon.choi@brampton.ca
Khurram Tunio Project Engineer, W&T	Tele: 905-874-2881 E-mail: khurram.tunio@brampton.ca
Brad Hale Transportation Planning Supervisor	Tele: 905-874-2573 E-mail: brad.hale@brampton.ca
Kant Chawla Policy Planner Planning and Design and Development	Tele: 905-874-2410 E-mail: kant.chawla@brampton.ca
Dave Monaghan Transportation Planning Technologist	Tele: 905-874-2540 E-mail:dave.monaghan@brampton.ca
Jeff Black Traffic Operations Supervisor	Tele: 905-874-2574 E-mail: jeff.black@brampton.ca

Technical Steering Committee Members from the Region of Peel

Kathy Cater Manager of Engineering and Infrastructure Planning	Tele: 905-791-7800, x 7824 E-mail: kathy.cater@peelregion.ca
Sabbir Saiyed Principal Transportation Planner	Tele: (905) 791-7800 x 4510 E-mail: Sabbir.Saiyed@peelregion.ca
Margie Chung Technical Analyst, Traffic and Transportation Engineering	Tele: 905-791-7800 x 7852 E-mail: margie.chung@peelregion.ca
Jim Carrick Supervisor, Systems Operations Public Works	Tele: 905-791-7800, Ext. 4558 E-mail: jim.carrick@peelregion.ca
Barry Mulcahy Public Works Project Manager	Tele: 905-791-7800, ext.7914

Technical Steering Committee Members from the City of Mississauga

Steve Barrett Manager, Transportation Asset Management	Tele: 905-615-3200 x 3017 E-mail: steve.barrett@mississauga.ca
Robert Sasaki Manager, Transportation Planning	Tele: 905-615-3200 x 5125 E-mail: robert.sasaki@mississauga.ca

Technical Steering Committee Members from UMA

Greg Smith Lead Project Manager	Tele: 905-238-0007 x 8136 E-mail: greg.smith@uma.aecom.com
Philip Rowe Project Advisor/Quality Control Leader	Tele: 905.238.0038 E-mail: Philip.rowe@uma.aecom.com
Andrew Ritchie Deputy Project Manager/Lead Environmental Planner	Tele: 905-238-0007 x 8135 E-mail: andrew.ritchie@uma.aecom.com

Note: It is anticipated that personnel will change as the Study progresses to fully address discipline-specific issues.

UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

Report of January 23, 2007 Technical Steering Committee Meeting No. 2

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: January 23, 2007 **Location:** Training Board Room-8850 McLaughlin Road

Recorded By: Andrew Ritchie, EA Lead **Date:** January 23, 2007

Attendees: Khurram Tunio, Kant Chawla, Bob Waldon, Dave Kenth, Compton Bobb, Frank Massacci, George Yip, Dave Monaghan, Loui Pastor, and Solomon Choi (City of Brampton), Steve Barrett and Abdul Shaikh (City of Mississauga), Margie Chung, and Barry Mulcahy (Region of Peel), Greg Smith, and Andrew Ritchie (UMA).

Distribution: All present and Philip Rowe.

Item	Discussion	Action By
1	**Meeting Introduction and Purpose** G. Smith welcomed all participants and stated that the purpose of the meeting was to discuss the preliminary designs for the Grade Separation Alternatives, including the Comparative Evaluation Matrix results for the two alternatives.	
2	**Update of Study Progress** A. Ritchie provided a brief status update of the Class EA Study. He noted that the City had convened Public Information Centre No. 1 in November, whereby the Preliminary Preferred Solution was presented to the public. The Preliminary Preferred Solution involves maintaining the existing four-lane cross section within the approximately 1.2 km Project Limits, coupled with intersection improvements, improvements to pedestrian/cyclist facilities where warranted, and grade separating CN's existing Halton Subdivision to avoid train-road vehicle conflicts, long queues and road delays. Andrew noted that the public clearly expressed its preference for an underpass (road under rail structure), versus an overpass (road over rail structure) due to the greater impacts associated with the former (increased noise and visual/aesthetics). However, feedback from CN preferred an overpass to avoid disruption to CN's busy rail corridor, which currently accommodates approximately 50 freight cars per day.	
3	**Grade Separation Alternative Designs** Greg laid out the plan and profile drawings for the two Grade Separation Alternatives and presented the details associated with both the underpass and overpass designs. He noted that the two options were preliminary and convey the worst case scenario with respect to their respective footprint impacts. Greg noted that the plans incorporated CN's track clearance requirements. It was agreed that UMA would provide electronic copies to TSC designates for their internal review purposes.	UMA

PLEASE NOTE: If this report does not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

Date: January 23, 2007
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Technical Steering Committee Meeting No. 2

Item	Discussion	Action By
3	**Grade Separation Alternative Designs** Greg noted that certain bridge span lengths may necessitate the use of steel girders to minimize the structure depth. K. Tunio indicated that he would confirm if steel is an acceptable bridge material type for the proposed structure. Andrew handed out copies of the Comparative Evaluation Matrix for the two Grade Separation Alternatives. He noted that the evaluation was substantially qualitative as opposed to quantitative as the design has not reached the point where quantitative input can be incorporated. He noted that the purpose of the matrix is to generate discussion and to get buy in from the Committee on the various advantages / disadvantages associated with the two options. He stated that further analysis is warranted after confirmation is obtained regarding the type and height of retaining walls to be used and/or the extent of noise mitigation to be applied, for example. Andrew noted that he has participated in many such evaluation exercises, including the recent West Toronto Diamond Grade Separation Class EA, and that a similar approach as that used for the Torbram Road Class EA was followed in completing the Matrix. He noted that UMA has expanded upon the criteria used for the Torbram Road Study. He stated that weights could be used to differentiate the importance of the various categories and/or criteria, but emphasized that it makes for a much more complicated evaluation, as it is very difficult for the lay person to replicate. Andrew recommended that weights not be applied due to the difficulty in assigning the appropriate weight to each respective category and/or criterion. **Discussion Points Raised by TSC Meeting Participants** Confirm whether access/entrance to townhouse complex northeast of Brandon Gate Drive accommodates full moves or is closed and used for emergency purposes only. Steve Barrett agreed to confirm whether it is possible to relocate the entranceway further to the south. It was noted that locating the entranceway closer to Brandon Gate Drive intersection could have an impact on existing/future intersection operations. Need to contact Parkshore Golf Club to discuss proposed/improved access plans. Dave Monaghan noted he was aware of recent Site Plan, and would look into the issue. Suggested that John Pennington (City of Brampton) be contacted regarding Golf Club. Much discussion ensued regarding the proposed cross section for Goreway Drive. It was noted that reducing the lane and median widths could reduce the property acquisition requirements. It was agreed that further internal discussions are warranted between City of Mississauga/Brampton Staff to discuss and develop mutually agreeable lane widths, shoulder requirements, as well as need for centre medians, and protection for future six lanes. Margie Chung asked whether the turning lanes at Brandon Gate Drive had sufficient sight distance, particularly the east bound right turn lane onto Goreway Drive. Greg noted that the vertical curves are designed per City standard, and have adequate sight distance.	K. Tunio S. Barrett D. Monaghan K. Tunio/S. Barrett

Date: January 23, 2007
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Technical Steering Committee Meeting No. 2

Item	Discussion	Action By
3	**Discussion Points Raised by TSC Meeting Participants (continued)**	
	Top down construction method should be examined to confirm whether it can be used to facilitate the needed rail diversion during construction of the underpass. UMA to schedule additional meeting with CN to discuss project implications on rail operations.	UMA
	Need to confirm whether road diversion is feasible or whether roadway would need to be closed during construction of the grade separation.	UMA
	Graded slopes should be 3:1 as opposed to 2:1. Much discussion ensued, as it was noted that reinforced earth retaining walls could be employed with benches to reduce property impacts. It was generally agreed that minimizing property impacts should be a top priority.	UMA
	Greg suggested that the retaining wall should be placed close to the property line, at the bottom of the slope so as to lessen the wall height and minimize the visual/aesthetic impacts. He noted that a buffer strip could be placed between the retaining wall and the property line whereby vegetative plantings could be installed to further reduce visual/aesthetic impacts.	
	Any works outside the existing road right-of-way would require completion of a Stage 2 Archaeological Assessment between Kenview Boulevard and CN's Halton Subdivision.	
	Greg noted that a meeting has been scheduled with Toronto and Region Conservation Authority (TRCA) to discuss proposed project implications on flooding. Either option would likely require the placement of fill within the regulated floodplain which in turn would necessitate the need to extend and/or possibly resize the existing Mimico Creek culvert. Greg noted that UMA would confirm whether the roadway is currently overtopped during flood events, and if so, will the proposed grade raise prevent future overtopping, which the TRCA may oppose.	UMA
	Bob Waldon noted that it may be prudent to carry out a study to confirm whether construction of an overpass could devalue the neighbouring residential properties within the City of Mississauga portion of the corridor. It was agreed that further dialogue between the cities of Brampton and Mississauga were warranted to confirm whether such a study be commissioned.	K. Tunio/S. Barrett
	Bob Waldon suggested that it may be prudent to schedule a separate Focus Group meeting with all affected (abutting) property owners to obtain their respective input regarding means to make an overpass more visually pleasing, and amenable. Though this generated much discussion, it was generally agreed that such a meeting would be of some value to the Class EA process. If it is decided to convene such a meeting, it was agreed that the TSC should develop a list of potential questions to be addressed.	K.Tunio
	Both under and overpass options will require purchase of Ontario Realty Corporation (ORC), and private lands on the west side of Goreway Drive (north side of tracks). Solomon agreed to foreward copy of ORC Application Package. It was agreed that it would be best for UMA to submit cost estimate to address ORC Class EA process, as this would be a notable change in the existing study scope.	S. Choi/UMA

Date: January 23, 2007
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Technical Steering Committee Meeting No. 2

Item	Discussion	Action By
3	**Discussion Points Raised by TSC Meeting Participants (continued)** It was generally agreed that further evaluation of the two grade separation options is warranted, as they both offer a wide range of advantages versus disadvantages. With respect to PIC No. 2, it was agreed that an artist rendering be produced for presentation at the PIC, showing proposed retaining walls and plantings to visually enhance the design as best possible. In addition, retaining wall facing/design options should be examined.	UMA UMA
4	**Steeles Avenue Intersection** Greg stated that UMA's review of Peel's Steeles Avenue intersection design indicates that the proposed intersection improvements do not achieve an acceptable level of service or volume to capacity ration in the long term. He noted that UMA would confirm whether findings suggest further storage requirements are required based on TAC standards. UMA to provide background traffic modelling data (Syncro, Sims Traffic) to Region of Peel. Proposed improvements to Steeles Avenue intersection appear to be a short to medium term improvement, as they do not improve traffic flows in the long term. Further network improvements will be required by 2021, which is consistent with UMA's Transportation Study. It was greed that this is essentially a "bigger picture" issue and further discussions between the City/Region and UMA are warranted. Peel staff to provide UMA with updated engineering drawing for Steeles Avenue intersection.	UMA City/UMA/ Region B. Mulcahy

Notes Prepared By: Andrew Ritchie, M.Pl., MCIP, RPP
EA Lead
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

Report of October 23, 2006 Technical Steering Committee Meeting No. 1

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: October 23, 2006 **Location:** UMA Mississauga Office – AECOM Board Room

Recorded By: Andrew Ritchie, EA Lead **Date:** October 23, 2006

Attendees: Khurram Tunio, Kant Chawla and Solomon Choi (City of Brampton), Steve Barrett and Bob Sasaki (City of Mississauga), Cam Johnston, Margie Chung, Barry Mulcahy and Sabbir Saiyed (Region of Peel), Sonya Kapusin, Greg Smith, Marek Trzaski and Andrew Ritchie (UMA Engineering Ltd.)

Distribution: All present, and Philip Rowe.

Item	Discussion	Action By
1	**Meeting Purpose** G. Smith stated that the purpose of the meeting was to discuss the results of the Sub Area Transportation Network Analysis, and forthcoming Public Information Centre (PIC). He noted that the Traffic Analysis was a joint effort between UMA and Peter Dalton. As Peter Dalton ran the EMME2 model, Greg noted that if needed he would be available via conference call to address any modelling questions raised by the Committee.	
2	**Overview of Sub-Area Transportation Network Analysis** M. Trzaski provided an overview of the aforementioned Transportation Network Analysis, which was a joint effort between Peter Dalton and UMA. He indicated that the purpose of the Analysis was to confirm the need and justification for the project, that is, define the scope of the proposed improvements to Goreway Drive. He emphasized that the Study was conducted to take into consideration a wider transportation/road network context so as to identify development constraints and opportunities. Following his clarification of the defined Study Area which included an area between Highway 427 (east) - Airport Road (west), and Derry Road (south) – Intermodal Drive (north), Marek provided a synopsis of the results of the Transportation Network Analysis (conducted for the 2001,2011, 2021 and 2031 year horizons). This included distributing a package detailing the results of the Alternatives Analysis, and a summary of historical traffic growth trends on Goreway Drive within the Study Area (years 1999 to 2005). He then provided details concerning the aforementioned materials. Marek indicated that seven Alternatives were taken into consideration including the Do-Nothing Alternative (base case). He noted that a number of surrounding road improvements was considered as part of the Analysis (e.g., eastern extension of Intermodal Drive, widening of Finch Avenue, grade separation of CN's Halton Subdivision on Goreway Drive). He stated that a comparison of volume-to-capacity (V/C) ratios was the key parameter used to differentiate the seven Alternatives, and that a threshold of 0.9 was used during the Analysis.	

PLEASE NOTE: If this report does not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

Date: October 23, 2006
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Technical Steering Committee Meeting

Item	Discussion	Action By
2 (cont.)	Based on the Analysis, Alternative 2B (which includes a four lane cross-section on Goreway Drive and Finch Avenue, an extension of Intermodal Drive to the Finch Avenue/Steeles Avenue intersection, and a grade separation of CN's Halton Subdivision) was recommended as the Preferred Solution. Marek confirmed that existing and future traffic volumes do not justify a road widening of Goreway Drive to 6 lanes within the 1.2 km Project Limits. He noted that a potential need for widening of Finch Avenue between Steeles Avenue and Highway 427 is foreseen by 2031. He stated that the Goreway Drive grade separation of CN's Halton Subdivision was warranted to reduce traffic delays within the Project Limits as the Exposure Index for the existing conditions significantly exceeds the threshold. Marek noted that Alternative 2B was chosen solely on the basis of transportation factors. He emphasized that other factors such as natural, social, economic and cultural, will also be taken into consideration to justify/confirm selection of Alternative 2B. Marek stated that the Analysis confirmed the importance of surrounding roadways such as Steeles Avenue, and Highway 427 to move vehicles within the area. He noted that Alternative 2B was analysed to the year 2031, and that the model was calibrated using the Region's current AADT volumes. He stated that no matter which Alternative was selected the V/C ratios on Goreway Drive within the Project Limits will not exceed 0.9 up to year 2021. Some discussion ensued whereby K. Chawla questioned the criticality of using 0.9 as the threshold measure. He stated that the results do not account for goods movement (truck volumes). S. Saiyed added that there is little difference between a threshold of 0.85 and 0.9. B. Sasaki noted that these were valid concerns, but the passenger vehicle volumes do include a factor that accounts for truck volumes. Moreover, both Bob and C. Johnston were generally accepting of the methodology used and the subsequent results, including a threshold of 0.9. Marek agreed to follow-up with P. Dalton regarding the issues raised by Kant. Bob stressed that the City of Mississauga Official Plan clearly states the need for Goreway Drive to remain a four-lane roadway within its jurisdiction. He added that a six-lane cross section through Malton would be opposed by the community, as well as local politicians, as it is not in conformance with City planning policy. Bob also noted that from a policy perspective, the Study should not encourage additional traffic on Goreway Drive, as it would lead to increased demands on Derry Road to the south. Sabbir noted that the results for Alternative 2B show a very distinct decrease in growth after year 2011 (24.6% to year 2011, followed by 1.2% between 2011 and 2021). In addition, he questioned the volumes that would be attracted to and access Highway 407, and whether tolling was incorporated into the modeling traffic assignments. Bob noted that the averaged growth rate factored over the overall study horizon is likely a reasonable estimate.	UMA

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Item	Discussion	Action By
2 (cont.)	Marek noted that the Analysis considered all current and future land use information available from the two area municipalities. He noted that Mississauga is at full build out within and in proximity to the Study Area, while very little development is confirmed to the north within the City of Brampton. Moreover, the Analysis includes future road improvements such as the future Humberwest Parkway extension connecting with Goreway Drive at Queen Street in the south, and connecting with Sandalwood Parkway at Airport Road in the north. The Analysis also accounts for the eastern extension of Intermodal Drive. He stated that much of the area to the north will be developed by 2011 and the aforementioned road improvements in place, which is the key reason for the drop in growth. Marek will confirm with Mr. Dalton that the transportation model properly simulates access/traffic assignment of trips to Highway 407. The Preferred Solution was generally accepted by those present. However, it was agreed that participants would carry out a more detailed review of the methodology used and subsequent results. Due to the tight Study schedule, ***all agreed to provide their respective feedback within a week (i.e., October 30, 2006).*** Marek, Kant and S. Choi stated that the results of the Analysis clarify the need for future improvements to the neighbouring Regional Road Network, specifically Finch Avenue. Cam acknowledged this fact, and stated that the results would serve as the impetus to examine these future improvements as part of the Region's Long Range Planning Analysis.	**UMA** **All**
3	**Overview of Traffic Operational Analysis** Marek distributed a second package detailing the results of the Traffic Operational Analysis for the Goreway Drive intersections within the Project Limits (i.e,. Steeles Avenue, Kenview Boulevard and Brandon Gate Drive) for the years 2005 and 2011. The Capacity and Level of Service Analysis indicates a current satisfactory performance at the existing intersections, however some turning movements are approaching capacity (particularly at Steeles Avenue). In addition, the intersections will require certain improvements (approach widening, turning lanes, storage extensions, traffic signal improvements). He noted that these details will be confirmed during preparation of the preliminary design. M. Chung asked whether the Traffic Operational Analysis took into account existing infrastructure or other Alternative Solutions. Marek explained that the 2005 results were based on existing roadway infrastructure, and noted that the 2011 results included proposed road improvements as identified under Alternative 2B (i.e., four-lane cross section for Goreway Drive, grade separation of CN tracks, and eastern extension of Intermodal Drive). It was agreed that this was a reasonable approach.	

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Item	Discussion	Action By
4	**Upcoming Public Information Centre** A. Ritchie handed out a Suggested List of Display Boards to be presented at the upcoming Public Information Centre (PIC), as well as a suggested PIC Activity Schedule. He noted that the purpose of the PIC would be to inform and provide PIC participants with an overview of the Study process, coupled with details concerning the need and justification for the proposed roadway improvements, that is, Phases 1 and 2 of the *Municipal Class EA* process. Andrew noted that an Open House format is proposed whereby participants will be provided an opportunity to review applicable display boards, and ask questions of UMA and municipal representatives. He indicated that a Brochure will be prepared for distribution to PIC participants, and they will be encouraged to fill out a Questionnaire geared toward gaining their respective support for the Preferred Solution. Andrew stated that PIC No. 1 is tentatively scheduled for the week of November 27, 2006, and that the City is currently securing a venue location and will therefore confirm the exact date by week's end. Andrew noted that scheduling of the PIC for the week of November 27, though tight, would provide sufficient time to confirm the venue location, post Notices and distribute the requisite Notification letters, and hold a dry run with the TSC. He indicated that the City would confirm the availability of the Lincoln M. Alexander Secondary School auditorium as the preferred venue to be held November 28, 2006. He stated that the School is centrally located on Morning Star Drive in the City of Mississauga. Though a dry run of the PIC was discussed, it was confirmed that UMA would make PDF copies of all display materials for TSC review/comment one week in advance of the PIC. With respect to the Suggested List of Display Boards, it was agreed that typical cross sections should not be displayed at the PIC. This is best suited for PIC No. 2. Cam suggested that a board(s) be prepared to present the external factors for growth (e.g., Places to Grow initiatives). Cam suggested that it may be prudent to present future Regional road improvements in the vicinity of Goreway Drive, most notably proposed intersection improvements at Steeles Avenue and Derry Road. Cam indicated he would provide requisite details. It was agreed that staff from the Cities of Brampton, Mississauga, and Region would attend the PIC. Though tentative, Solomon and K.Tunio (City of Brampton), S. Barrett (City of Mississauga), and staff of the Region's Construction and Planning Groups agreed to attend. Confirmation of specific attendees to be completed prior to the PIC.	**Region** **All**

Notes Prepared By: Andrew Ritchie, M.Pl., MCIP, RPP
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Toronto and Region Conservation Authority Meeting Minutes

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Report of Meeting

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: February 5, 2007 **Location:** TRCA Offices – Black Creek Pioneer Village

Recorded By: Greg Smith, Project Manager **Date:** February 19, 2007

Attendees:
Sharon Lingertat, TRCA
Alison MacLennan, TRCA
Andrew Taylor, TRCA
Laurian Farrell, TRCA
Tudor Botzan, TRCA
Brad Stephens, TRCA
Solomon Choi, City of Brampton
Khurram Tunio, City of Brampton
Abdul Shaikh, City of Mississauga
Andrew Ritchie, UMA Engineering
Steve Hollingworth, UMA Engineering
Greg Smith, UMA Engineering

Distribution:
All present
Steve Barrett, City of Mississauga
Sonya Kapusin, UMA

Item	Discussion	Action By
1	**Welcome and Introductions** Andrew Ritchie, UMA EA Lead welcomed and thanked everyone for attending. This was followed up with brief introductions of all meeting participants, specifically noting that Sharon Lingertat is TRCA's Planner, Khurram Tunio is City of Brampton's Project Manager, Abdul Shaikh will be City of Mississauga's main contact person (representing Steve Barrertt) and Greg Smith is UMA's Project Manager.	
2	**Overview and Current Status of this Class EA Project (including status)** G. Smith noted that the Study is being carried out in accordance with Schedule C of the Municipal Class EA process, which is a four-phase process. As a Schedule C Project, an Environmental Study Report (ESR) will be prepared to document the planning and decision-making processes and submitted for review by the public. G. Smith advised that we have completed Phases 1 and 2 of the Class EA process, namely the completion of the Needs and Justification and accompanying Traffic and Transportation Analysis. The traffic study identified that there is no need to widen Goreway Drive beyond the existing 4 lanes within the timing window of this EA study. The City convened Public Information Centre No. 1 on November 28, 2006, whereby the Preliminary Preferred Solution was presented to the public. The Preliminary Preferred Solution involves maintaining the existing 4-lane cross section within the approximately 1.2 km Project Limits and constructing a grade separation at the crossing with CN's Halton Subdivision to avoid train-	

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Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	vehicle conflicts, long queues and road delays. Other potential measures include intersection improvements and improvements to pedestrian/cyclist facilities. G. Smith noted that the public comments were solicited through the PIC process and the public clearly expressed their preference for an underpass due to greater concerns over noise and visual/aesthetic impacts. The public is concerned that their property value could be reduced as a result of an overpass and there is more impact to existing accesses. G. Smith noted the study has proceeded to Phases 3 and 4 of the Class EA process whereby the Preliminary Preferred Design is identified and their impacts and respective mitigative measures established. The two Preliminary Preferred Design solutions now under consideration are an Underpass (Road under Rail) solution versus and Overpass (Road over Rail) solution. The Study Team is now in the process of preparing preliminary designs for the Underpass and Overpass solutions and identifying the respective impacts. Once the preliminary designs are prepared and impacts identified, the Study Team will complete and Evaluation Matrix Table to assess the alternatives and select the Preliminary Preferred Design. G. Smith presented the two alternative solutions and provided a brief summary of the design requirements, issues and impacts as follows: Both options consist of an urban road section with curb & gutter and 4 – 3.75m lanes, as well as a boulevard consisting of a 1.0m splash pad, 1.5m grassed boulevard, 1.5m sidewalk on the west side and 3.0m asphalt bicycle path on the east side. <u>Overpass Option</u> ▪ CN requires a vertical clearance of 7.1m (23ft) under a rail-carrying structure. ▪ Maximum grade = 5% ▪ Profile results in 3.5m fill at the private entrance into condominiums on east side north of Brandon Gate ▪ Adjacent to residential properties backing onto Goreway Drive, the retaining walls reach heights of 5-6 metres ▪ Profile results in 6.5m fill at the field entrance into the golf course on the east side ▪ Profile results in 2.5m fill at the Mimico Creek culvert ▪ Profile creates a low point approximately 100m south of Kenview Dr <u>Underpass Option</u> ▪ CN requires a vertical clearance of 5.3m over a rail-carrying structure. ▪ Maximum grade = 5% ▪ Profile results in 1.4m cut at the private entrance into condominiums on east side north of Brandon Gate ▪ Adjacent to residential properties backing onto Goreway Drive, the retaining walls reach heights of 4-5 metres ▪ Profile results in 1.1m cut at the field entrance into the golf course on the east side ▪ Profile results in 1.2m fill at the Mimico Creek culvert G. Smith noted the underpass option will require a pump station to address stormwater	

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Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	discharge and will require diversion of the CN tracks.	
3	**Review of Hydraulic Modelling** Various issues were discussed regarding the Overpass Option as follows: S. Hollingworth provided an overview of the HEC2 modeling results ▪ Extent of flooding as a result of the raised road profile does not change significantly. There is an increase of approximately 0.3m in flood levels for the Regional event and no impact associated floods up to the 25 year event. ▪ Based on existing conditions, the depth of flooding (overtopping) on Goreway Dr. is ~0.3m for the 25 year event; 0.5m for the 50 year event; 0.9m for the 100 year event and 2.0m for the Regional event. For the overpass scenario, the depth of flooding is 0.0m; 0.35m; 0.6m; and 1.6m respectively.There is no requirement to increase the culvert size and as such any increase size would strictly be that required to address wildlife described the respective impacts from both the overpass and underpass options. ▪ The depth of flooding over Goreway Drive is not the result of an undersized culvert at Mimico Creek. The depth of flooding is primarily governed by a backwater condition behind the railway culverts and on-line pond control structure (immediately upstream of the rail lines) There are no improvements that could be made to the existing culvert to eliminate overtopping of Goreway during severe storm events. Reduction in depth of flooding could only be achieved by raising the road profile. TRCA noted that raising the road profile to reduce the depth of flooding on Goreway Dr is against their intended policy of preventing the placement of fill in a regulated flood plain. Various issues were discussed regarding the Underpass Option as follows: ▪ UMA noted that for the underpass scenario there is a rise in road profile of ~1.2m at the culvert, which is required to improve the overall road geometry. ▪ A pumping station will be required and will require consideration for back-up power supply as well as controls and gates for flood events. ▪ TRCA expressed concern regarding the flooding hazard for the underpass in terms of public safety and emergency response. TRCA suggested that alternative routes need to be established to deal with closures during flooding of the underpass.	

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Item	Discussion	Action By
4	**Matrix Evaluation of Alternative Solutions** UMA presented copies of the matrix table and explained the various evaluation criteria and respective rankings. UMA noted that although the individual criteria were not weighted based on their significance, there are specific issues that carry more negative impacts. These specific criteria include the following: CN Rail : The Underpass Option required for the diversion design for causes significant impacts to CN's freight schedule. It is also highly disruptive to the construction schedule and costs for track diversions are significant. Enbridge Consumers : The Underpass Option requires relocation of an existing 900mm dia transmission main that will be highly disruptive to the gas service, will cause significant delays to construction and has a high cost. Construction Duration : Construction duration for the underpass option will likely be double that of the overpass option due to the various relocation requirements, rail diversions and other related CN schedule impacts and delays. Higher duration also corresponds to higher costs. Groundwater : The Underpass Option may impact groundwater tables due to the depth of excavation. Safety : The Underpass Option carries higher safety risks associated with potential flooding of the underpass during storm events. This will also disrupt emergency response. Capital Costs : The estimated cost for the Underpass Option is significantly higher than for the Overpass Option On the basis of the Evaluation Matrix Assessment, the Study Team has determined that the Overpass option is the preliminary preferred alternative solution. TRCA requested that they be provided with a copy of the Matrix Evaluation Table prior to Public Information Centre #2.	

Date: February 5, 2007

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
5	**General Project Issues** S. Hollingworth noted he has the correct HEC2 model but that TRCA's flood line mapping appears incorrect. TRCA noted this is because they have not incorporated their HEC-RAS and don't expect that to be complete until June/July 2007. UMA noted this would not have an impact on our modelling results. TRCA noted that from an ecology perspective they want to minimize impacts and if the culvert is replaced, the new culvert should be sized to accommodate wildlife passage. UMA noted they are carrying out a condition assessment of the existing culvert and if it is structurally sound and with a reasonable life expectancy, the preferred solution would be to extend the existing culvert in kind. TRCA noted the culvert extension could be a HADD and if so, compensation or enhancement would be considered. UMA confirmed that a hydro-geological assessment is being undertaken as part of this study. The study will investigate existing groundwater conditions and determine if there are any impacts associated with the underpass option. TRCA advised they are concerned with the proposed height of retaining walls and would like to review the preliminary retaining wall design. UMA noted the retaining walls will likely be Retained Soil System (RSS) walls that are a proprietary design and are regularly used in applications with similar heights. UMA noted the RSS wall design will be stamped and signed by two structural Engineers and there should be no concern for the structural integrity. TRCA requested they be provided with a copy of the Draft Environmental Study Report at least 30 days prior to the report being filed for public review.	

Notes Prepared By: Greg Smith, P.Eng.
Project Manager

CN Rail Meeting Minutes

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Report of Meeting

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: September 21, 2006 **Location:** UMA Mississauga Office

Recorded By: Andrew Ritchie, EA Lead **Date:** September 21, 2006

Attendees: Khurram Tunio, Solomon Choi, Derek Currie, Jasbir Madpuri, Darylann Perry, John MacTaggart, Greg Smith, Liviu Huma, Srdjan Brasic, Traian Popivanov, Andrew Ritchie

Distribution: All present, Steve Barrett, Sonya Kapusin, Philip Rowe, Eric Smith, and Steve Donald.

Item	Discussion	Action By
1	**Welcome and Introductions** Andrew Ritchie (UMA EA Lead) welcomed and thanked everyone for attending. This was followed up with brief introductions of all meeting participants. Khurram Tunio (City of Brampton Project Manager) indicated that he and Solomon Choi will jointly serve as the key City of Brampton contacts, and that they appreciated CN's early involvement. Jasbir Madpuri (City of Mississauga) indicated that he was attending on behalf of Steve Barrett.	
2	**Purpose/Overview of the Class EA Process (including status)** Andrew Ritchie provided a brief overview of the Project and Municipal Class EA process. Andrew noted that the approximately 1.2 km section of Goreway Drive is currently a four-lane Major Arterial with a right-of-way (ROW) width of approximately 40 to 45 m within the City of Brampton. Within the City of Mississauga portion of the roadway, it is classified as a Major Collector and is believed to have a ROW width of 36 m. He indicated that due to an increase in urban growth, coupled with road vehicle delays at CN's existing at-grade crossing (Halton Subdivision), the City of Brampton, in collaboration with the City of Mississauga, proposes to make requisite improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive. Solomon Choi (City of Brampton) noted that the proposed improvements may include replacement of CN's existing three-track level crossing with a grade separation and a six lane cross section as per the Brampton Transportation and Transit Master Plan (TTMP). He noted that UMA is to conduct transportation and traffic analysis to confirm the need and timing of improvements. Andrew noted that the Study is being carried out in accordance with Schedule C of the Municipal Class EA process, which is a four-phase process. As a Schedule C Project, an Environmental Study Report (ESR) will be prepared to document the planning and decision-making processes and submitted for review by the public.	

PLEASE NOTE: If this report does not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

Date: September 21, 2006

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
2 (cont.)	He noted that through execution of Phases 1 through 4 of the process, the UMA Team will undertake the necessary geotechnical, environmental (natural, socio-economic and cultural), and engineering investigations to prepare a Preliminary Preferred Design for the Preferred Solution. He indicated that UMA is currently completing Phase 1, which entails identify the problem or opportunity. He noted that the key task of Phase 1 is to identify and justify the need for the proposed improvements. Solomon provided a brief overview of the Sub-Area Transportation Network Analysis to facilitate the need and justification for the project. He noted that the Transportation and Traffic Analysis is required to justify the widening of Goreway Drive, coupled with the need for the proposed grade separation at CN's Halton Subdivision. Solomon also noted that in accordance with the City of Mississauga Official Plan Goreway Drive is to remain a four-lane roadway through the Village of Malton. Thus, should UMA's traffic analysis recommend a six lane cross section within the 1.2 km Project Limits, the roadway will need to be tapered at an appropriate southern limit within the City of Mississuaga. Solomon noted that if the City of Mississauga does not agree with widening of Goreway Drive to six lanes through the Project Limits, there are a number of options that could be constructed including: • a four lane structure, with the requisite substructure in place to accommodate a future six lanes of through traffic; • a six lane grade separated structure, whereby the roadway is tapered down to four lanes within the City of Mississauga.	
3	**Alternatives to Problem (grade separate CN's Halton Subdivision)** Andrew reiterated that a key issue within the Project Limits is traffic delays at CN's Halton Subdivision. Thus, the key to the meeting was to discuss possible solutions to resolving the noted delays, and to solicit CN's input. He stressed that it is imperative to secure buy-in from CN, regarding the Preferred Solution for the grade separation so as to avoid a costly and timely Addendum to the ESR during the detailed design stage. He noted that with respect to the grade separation, there are essentially two key alternatives, that is, a road over rail overpass, versus a rail over road underpass. Jasbir Madpuri (City of Mississauga) indicated that the City's Local/Regional Councillor, Eve Adams, has been strongly pushing for a grade separation at this location to address the traffic delay issue. Andrew and Greg Smith (UMA Project Manager) indicated that as part of the Study Alternative Solutions would need to be examined using a multi-disciplinary approach. Andrew noted that there are differing advantages and disadvantages in comparatively evaluating an underpass versus an overpass. Greg noted that the type of grade separation, that is, road over rail, or rail over road, remains to be determined and is recommended to be implemented by 2011 according to the Brampton TTMP.	

Date: September 21, 2006

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
3 (cont.)	Greg noted that following selection of the Preferred Solution, UMA will develop a reasonable number of Alternative Structural Designs. He noted that each alternative will be reviewed for fundamental feasibility at the conceptual level based on constructability, cost, railway constraints (including disturbance to existing rail operations), disturbance to the travelling public, additional land requirements, and environmental implications. Once the analysis is completed, a preliminary design for the Preferred Solution will be developed taking into consideration input from CN. Andrew stressed the importance of obtaining CN's input. He indicated that it would maximize City's potential to proceed to the detailed design in a collaborative, rather than an adversarial, atmosphere, which in turn is in the City's best interest.	
4	**CN's Preferred Solution** Andrew noted that CN's Halton Subdivision is comprised of three in service tracks, including two main lines and a third track to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north. He noted that the Halton Subdivision is believed to accommodate approximately 50 freight trains per day. John MacTaggart (CN) noted that he would need to confirm the number of trains using the Halton Subdivision at this crossing location, but agreed that it was a busy location. He also noted that it is used exclusively for freight traffic, and that there are no immediate or long-term plans for GO trains to utilize the line. John agreed to confirm the number of trains utilizing the corridor, and to enquire about future GO initiatives. Both John and Darylann Perry (of CN) noted that the railway's preference is an overpass. They noted that construction of an overpass (road over rail) is a more feasible option than a rail over road underpass. John noted that construction of an overpass will eliminate the requirement for a rail detour, which would be extremely disruptive to existing freight rail services within CN's busy corridor. Moreover, it would minimize impacts to the existing rail switches in proximity to the crossing. He indicated that rail diversions are extremely costly, and would likely be in the order of $3 M for this particular location due to the significant number of current rail infrastructure (e.g., switches, rail cross overs). John noted that an overhead bridge structure could consist of either a single or multi-span bridge carrying Goreway Drive over the rail corridor, whereby the bridge superstructure could be either erected or formed without impacting the clearance window required to maintain rail traffic. Srdjan Brasic (UMA Structural Lead) indicated that a single span comprising a concrete girder system (such as box girders or modified I beams) would further simplify construction over the tracks. John indicated that this has not been carried out to date for CN track crossings in Ontario, but was aware of such structures throughout Europe and western Canada.	CN

Date: September 21, 2006

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
4 (cont.)	Greg indicated that for the preferred structural option, UMA will provide all required safety features (crush protection walls, barriers) and clearances to satisfy both rail and road standards. In addition, UMA's Structural personnel will work in collaboration with our Road Engineering staff to develop construction staging schemes to minimize impacts to road traffic during construction operations.	UMA
5	**Possible Construction Staging Scenarios** Solomon Choi asked how much time would be permitted to carry out the bridge works, and suggested that a top down structure could be constructed. John indicated the longest possible block of continuous time would be in the order of six (6) hours, and would be available for a single track only. He stressed that the time would be allocated at night, due to the volume of trains using the corridor during the day. Srdjan indicated that six hours would not be sufficient to construct a top down structure. He added that the driving of piles is a very timely and complex method, which in turn would increase construction costs significantly. John noted that should an underpass be selected as the preferred crossing method, CN would need to be very involved in the detailed design, so as to ensure it is designed to CN standards. Moreover, CN would require that its forces construct the structure given the complexities associated with rail carrying structures. He noted that the City would obviously be responsible for the road construction. Lastly, he indicated that regardless of the structure selected to grade separate the track, CN would require full access to its corridor throughout construction to maintain its tracks. John noted that CN was recently involved with construction of an underpass structure at Warden Avenue (immediately south of the 407 ETR), which posed some of the above-noted issues. Solomon asked how wide a corridor CN needs to protect. John indicated that it is variable, and agreed to confirm with his colleagues.	CN
6	**CN's Clearance Requirements** Srdjan noted that to accommodate the larger vertical clearances associated with an overhead structure; the approaches to the bridge would need to be longer than those required for an underpass. Andrew indicated that the latter may impact adjacent property entrances, and grading costs. Greg indicated that UMA will evaluate the existing property constraints at the bridge approaches to determine if a multi-span structure with retained soil system walls or reinforced/natural slopes can be constructed. With respect to CN's clearance requirements both John and Livu Huma (UMA Rail Designer) indicated that the current minimum standard for a road over rail structure is 7.1 m. John noted that the minimum clearance for a steel rail over road structure is 5.3 m, and 5.0 m for a concrete rail over road structure. John noted that these standards vary across Canada and are subject to change.	
7	**Provision for Future Tracks** With respect to protection for future tracks, John agreed to confirm how many additional tracks would be needed in the future.	CN

Date: September 21, 2006

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
8	**Other CN Requirements for Subsequent Design/Construction** When asked by Solomon, John indicated that CN would not likely require a maintenance road under the future bridge, but would require access to the corridor from either side of the overpass structure. Extensive discussion ensued regarding the need for flagging both during completion of the required geotechnical/engineering investigations and subsequent construction activities. John and Darylann noted that CN forces are booked solid, and that it would be best to forward a request to Darylann's attention as soon as reasonably possible. She noted that December through February are typically the slowest times of the year with respect to flagging requests, and emphasized that this would be CN's preferred time. John noted that CN flagging personnel would be required for all works/investigations within CN's Halton Subdivision right-of-way (ROW) as well as within 20 m of the ROW.	
9	**Tripartite Agreement** Khurram stated that the intent of the Study is to develop a solid Preliminary Design that is based on input received from CN. He asked whether it would be possible to commence negotiation of a Tripartite Agreement between CN, and the cities of Brampton and Mississauga. John indicated that he would forward a standard agreement to both UMA and the City, but that much of the Agreement would be deleted as CN does not have enough details regarding the proposed grade separation, at this time. Andrew indicated that the issue has now been tabled and that future discussions are warranted following further detailed design of the proposed grade separation. All agreed with this approach. When asked by Solomon, John indicated that CN's maximum contribution would be 15% of the total construction cost. He emphasized that this relates to the over- or underpass structure only, and does not pertain to the road works. Darylann noted that the City should establish a Purchase Order for CN's time and involvement with this Study. She noted that CN typically bills for its time and expenses related to document/plan reviews and utility locates within its corridor. She agreed that she would establish a Purchase Order in the order of $10,000. Greg will forward along to Khurram once received.	**CN** **CN/UMA**
10	**Other Business** There was no other business discussed.	

Notes Prepared By: Andrew Ritchie, M.Pl., MCIP, RPP
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Report of Meeting

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: February 6, 2007 **Location:** UMA Mississauga Office

Recorded By: Greg Smith, Project Manager **Date:** February 19, 2007

Attendees:
John MacTaggart, CN
Darylann Perry, CN
Solomon Choi, City of Brampton
Khurram Tunio, City of Brampton
Abdul Shaikh, City of Mississauga
Eric Smith, UMA Engineering
Liviu Huma, UMA Engineering (part time)
Greg Smith, UMA Engineering

Distribution:
All present
Steve Barrett, City of Mississauga
Andrew Ritchie, UMA
Sonya Kapusin, UMA

Item	Discussion	Action By
1	**Welcome and Introductions** Greg Smith, UMA Project Manager welcomed and thanked everyone for attending. This was followed up with brief introductions of all meeting participants. Abdul Shaikh (City of Mississauga) indicated that he was attending on behalf of Steve Barrett and would be the regular contact person from the City of Mississauga.	
2	**Overview and Current Status of this Class EA Project (including status)** G. Smith noted that the Study is being carried out in accordance with Schedule C of the Municipal Class EA process, which is a four-phase process. As a Schedule C Project, an Environmental Study Report (ESR) will be prepared to document the planning and decision-making processes and submitted for review by the public. G. Smith advised that we have completed Phases 1 and 2 of the Class EA process, namely the completion of the Needs and Justification and accompanying Traffic and Transportation Analysis. The traffic study identified that there is no need to widen Goreway Drive beyond the existing 4 lanes within the timing window of this EA study. The City convened Public Information Centre No. 1 on November 28, 2006, whereby the Preliminary Preferred Solution was presented to the public. The Preliminary Preferred Solution involves maintaining the existing 4-lane cross section within the approximately 1.2 km Project Limits and constructing a grade separation at the crossing with CN's Halton Subdivision to avoid train-vehicle conflicts, long queues and road delays. Other potential measures include intersection improvements and improvements to pedestrian/cyclist facilities. G. Smith noted that the public comments were solicited through the PIC process and the	

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Date: February 6, 2007

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	public clearly expressed their preference for an underpass due to greater concerns over noise and visual/aesthetic impacts. The public is concerned that their property value could be reduced as a result of an overpass and there is more impact to existing accesses. G. Smith noted the study has proceeded to Phases 3 and 4 of the Class EA process whereby the Preliminary Preferred Design is identified and their impacts and respective mitigative measures established. The two Preliminary Preferred Design solutions now under consideration are an Underpass (Road under Rail) solution versus and Overpass (Road over Rail) solution. The Study Team is now in the process of preparing preliminary designs for the Underpass and Overpass solutions and identifying the respective impacts. Once the preliminary designs are prepared and impacts identified, the Study Team will complete and Evaluation Matrix Table to assess the alternatives and select the Preliminary Preferred Design. A meeting was convened with TRCA staff on February 5th to review the two alternative design solutions and discuss the relative advantages/disadvantages of the two options. TRCA have expressed their preference for an overpass because of their safety concern regarding potential flooding of an underpass structure. TRCA noted the profile for the underpass is within the Regional Flood line and therefore would be flooded during a Regional storm event. This would require the road to be closed during this time and emergency response services would be impacted by the cutting off of access at this location.	
3	**Review of CN Rail Impacts** E. Smith described the respective impacts from both the overpass and underpass options. The overpass option only requires a relocation of the existing at-grade crossing signals and gates to accommodate the road detour. UMA presented a drawing of the rail corridor and a preliminary layout for the rail diversion associated with the underpass option. E. Smith noted the diversion design is very complicated due to the location of switches and the alignment of the track coming from the Brampton Intermodal Terminal. Stage 1 of the diversion shifts the tracks to the north and maintains existing number of tracks at the crossing, with the 2 main line tracks and the 1 track from the BIT. The diversion design is based on current operating track speeds of 50 Mph for both passenger and freight trains. The track diversion requires acquisition of a temporary easement of approximately 8-12 metres in order to construct enough bridge structure to carry the required tracks during Stage 2 of the diversion. CN inquired about the current planned construction commencement date, which Brampton suggested is likely to be a Spring 2010 start. CN noted it is extremely unlikely that it could start sooner due to current scheduling of CN track and signal construction gangs and personnel. CN noted there are not sufficient gangs available to start the diversion construction sooner than 2009 and a shortage of available of flagging will also impact/delay construction of the structure if the commencement date is prior to spring	

Date: February 6, 2007

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	2010. CN stated that construction of the diversions would likely take 2-3 months each and noted that because of their "Just-in-Time" delivery method for freight, they will not accept any impact to the train schedules whatsoever. This will mean that even during track blocks, any work affecting trains will be stopped to permit the train to pass. CN noted they will not provide any schedule for track blocks at the project outset and availability of track blocks will also be subject to actual train schedules. CN further advised they are unable to establish train schedules in advance so the impacts to construction could be considerable and variable. CN indicated that the diversion geometry appeared to be feasible, however, the diversion would be extremely large, complex, and costly. Also, they noted that the risk to train operations that are associated with the construction of any such diversion would be significant. CN made it clear that they strongly prefer an overpass, as no track diversions would be required, the time of construction could be reduced, the costs would be lower, and the risk to their operations would be significantly less. CN indicated that they oppose an underpass. CN advised of their new restrictions on working schedules for flagging personnel, which is 8 hours per day and 5 days per week, with a maximum of 60 hours per week. The Cities need to be aware that the 8 hours per day includes travel and set up time, therefore typically the contractor can expect approximately 6 hours of actual flagging time per shift. CN also noted a limitation that does not permit flag persons to work the next day following an evening shift. The City of Brampton inquired about the feasibility of "top down" construction for the underpass option, which would reduce the staging and diversion requirements. CN indicated the longest possible block of continuous time would be in the order of six (6) hours, would be available for a single track only and stressed that the time would be allocated at night, due to the volume of trains using the corridor during the day. UMA explained how this could be accomplished but noted the challenge would be to undertake this work within the restrictions of 6 hour night time track blocks. UMA suggested the driving of piles is a very time consuming and complex process and the restrictive track blocks would extend the construction duration and add to the construction cost considerably. UMA also noted that top down construction may pose some significant geometric challenges due to the requirement to maintain three tracks. CN noted that due to their position that an overpass is the preferred solution from their standpoint, they would only be willing to contribute their percentage of construction costs based on the estimated value of an overpass structure.	

Date: February 6, 2007

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
4	**Other Business** CN advised that the train conductors are set to go to a strike vote on February 9th and noted a strike will considerably impact CN's Engineering department. The City and UMA can expect that no review, information or direction will be provided by CN during the strike period. UMA indicated they will submit proposed diversion plans to CN for review and comments and request CN's prompt attention when they are back from the strike.	

Notes Prepared By: Greg Smith, P.Eng.
Project Manager

Property Owners Meeting Minutes

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Report of Meeting

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: April 24, 2007 **Location:** UMA Offices

Recorded By: Greg Smith, Project Manager **Date:** May 8, 2007

Attendees: Solomon Choi, City of Brampton
Khurram Tunio, City of Brampton
Bob Waldon, City of Brampton

Andrew Ritchie, UMA Engineering
Greg Smith, UMA Engineering

Item	Discussion	Action By
1	**Welcome and Introductions** Bob Waldon, City of Brampton Realty Department welcomed ' and followed with brief introductions of all meeting participants.	
2	**Overview and Current Status of this Class EA Project** A. Ritchie noted that the Study is being carried out in accordance with Schedule C of the Municipal Class EA process, which is a four-phase process. A. Ritchie advised that we have completed Phases 1 and 2 of the Class EA process, namely the completion of the Needs and Justification and accompanying Traffic and Transportation Analysis, and the Study is now proceeding to Phases 3 and 4 whereby the Preliminary Preferred Design is identified and their impacts and respective mitigative measures established. The City had already convened Public Information Centre No. 1 on November 28, 2006 and will be holding Public Information Centre No. 2 on May 1, 2007. PIC No.2 will present details of the preliminary preferred solution, namely the Road Overpass Option at the CN Rail crossing.	
3	**Review of Property Impacts** B. Waldon noted the purpose of this meeting is to review the details of the preferred Overpass Option in terms of their potential impacts to the property of property at 0 Goreway Drive (Part of Lot 14, Concession 7 ND). In particular the City would like to discuss the impacts to access as a result of the overpass profile change. G. Smith presented a drawing showing the impact to the existing property. It was noted that there is currently no driveway for this property and access is obtained by mounting the curb on Goreway Drive and entering directly onto the adjacent land which is approximately level with the existing road grade. G. Smith noted that due to the change in grade associated with the overpass profile, the access can only be maintained by providing a driveway that would enter/exit Goreway Drive just south of the existing	

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Date: April 24, 2007
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	watercourse. The driveway could either be constructed parallel to Goreway Dr. to the south or straight back into the property perpendicular to Goreway Dr. These options would require either property acquisition or a grading easement. G. Smith suggested the preferred option would probably be to grade an access lane parallel to Goreway Dr. questioned where the access point on Goreway Drive could be situated. G. Smith noted that the further south of the watercourse, the higher the grade raise and therefore the longer the access lane. However, A. Ritchie suggested that TRCA would likely comment on the proximity to Mimico Creek and would prefer it to be as far away from the watercourse as would be practically possible. inquired about locating the driveway north of the watercourse but UMA suggested TRCA would likely not support extending the existing culvert long enough to accommodate an access lane across it. G.Smith noted the project team have had meetings with TRCA to review the proposed improvements to Goreway Drive and advised that in general TRCA is in favour of a the overpass alternative and have raised no significant concerns. requested the City to support his client's application process with TRCA but S. Choi noted that the City does not get involved in a private landowner's permit approval process. noted that his client is planning on developing this site and therefore would prefer the access lane to accommodate future land use. noted that his client does not have a draft site plan developed nor any specific development information on file with the City but said he would contact his client to obtain information on the expected future land use as well as the types of vehicles the site is expected to accommodate and requested the City's consideration of the future land use. S. Choi noted that under the EA process, the City is required to maintain existing access or provide an alternate access consistent with the existing, however, the City is not obligated and will not entertain providing a driveway to support future land uses. G. Smith advised that UMA will review grading cross sections and will prepare a concept design for the access lane to allow access to this site. The City will provide this information to when they have had a chance to review with UMA. B. Waldon closed the meeting by noting that the City will need to acquire property from in order to construct the proposed overpass improvements and upon completion of the EA will begin the process for negotiating property acquisition.	

Notes Prepared By: Greg Smith, P.Eng.
Project Manager

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Report of Meeting

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: May 23, 2007 **Location:** City of Brampton Offices

Recorded By: Greg Smith, Project Manager **Date:** June 4, 2007

Attendees: Solomon Choi, City of Brampton
Khurram Tunio, City of Brampton
Bob Waldon, City of Brampton
(Owner 7797 Goreway Dr)
Greg Smith, UMA Engineering

Item	Discussion	Action By
1	**Welcome and Introductions** Bob Waldon, City of Brampton Realty Department welcomed and thanked him for attending. This was followed up with brief introductions of all meeting participants.	
2	**Overview and Current Status of this Class EA Project (including status)** G. Smith noted that the Study is being carried out in accordance with Schedule C of the Municipal Class EA process, which is a four-phase process. G. Smith advised that we have completed Phases 1 and 2 of the Class EA process, namely the completion of the Needs and Justification and accompanying Traffic and Transportation Analysis, and the Study is now proceeding to Phases 3 and 4 whereby the Preliminary Preferred Design is identified and their impacts and respective mitigative measures established. The City has already convened Public Information Centre No. 1 on November 28, 2006 and Public Information Centre No. 2 on May 1, 2007. PIC No.2 presented details of the preliminary preferred solution, namely the Road Overpass Option at the CN Rail crossing.	
3	**Review of Property Impacts** B. Waldon noted the purpose of this meeting is to review the details of the preferred Overpass Option in terms of their potential impacts to property at 7797 Goreway Drive. In particular the City would like to discuss the impacts to access as a result of the overpass profile change. G. Smith presented a drawing showing the impact to the existing driveway and noted that this driveway can be maintained at its current location but that due to the change in grade associated with the overpass profile, the driveway will need to be regraded for a distance of approximately 40-50 metres back from the edge of pavement. noted he had no objection or concern with this impact as long as access is maintained and that TRCA can be satisfied. G.Smith noted the project team have had meetings with TRCA to review the proposed	

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Date: May 23, 2007
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	improvements to Goreway Drive and advised that in general TRCA is in favour of a the overpass alternative and have raised no significant concerns. G. Smith also noted that the grading of the driveway will be carried out in such a way as to minimize impact to the flood plain. also noted there are walnut trees adjacent to the watercourse on his property and stated the City should be careful to avoid impact to these trees. G. Smith noted that the existing road Right of Way on the east side of Goreway Drive, adjacent to property is not sufficient for construction of the overpass grade separation and associated retaining wall and that the City will require acquisition of property. noted no objection to the City requiring property acquisition and will be prepared to negotiate purchase and sale based on market value for the land required. B. Waldon provided with a City of Brampton brochure outlining the City's property acquisition process associated with road improvements.	

Notes Prepared By: Greg Smith, P.Eng.
Project Manager

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Report of Meeting

Project Description: Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

File Number: 4020-009

Meeting Date: June 14, 2007 **Location:** City of Brampton Offices

Recorded By: Greg Smith, Project Manager **Date:** June 21, 2007

Attendees: Solomon Choi, City of Brampton
Khurram Tunio, City of Brampton
Bob Waldon, City of Brampton
1 Kenview Dr
35 Kenview Dr

Greg Smith, UMA Engineering

Item	Discussion	Action By
1	**Welcome and Introductions** Bob Waldon, City of Brampton Realty Department welcomed and thanked everyone for attending. This was followed up with brief introductions of all meeting participants.	
2	**Overview and Current Status of this Class EA Project (including status)** G. Smith noted that the Study is being carried out in accordance with Schedule C of the Municipal Class EA process, which is a four-phase process. G. Smith advised that we have completed Phases 1 and 2 of the Class EA process, namely the completion of the Needs and Justification and accompanying Traffic and Transportation Analysis, and the Study is now proceeding to Phases 3 and 4 whereby the Preliminary Preferred Design is identified and their impacts and respective mitigative measures established. The City has already convened Public Information Centre No. 1 on November 28, 2006 and Public Information Centre No. 2 on May 1, 2007. PIC No.2 presented details of the preliminary preferred solution, namely the Road Overpass Option at the CN Rail crossing.	
3	**Review of Property Impacts** B. Waldon noted the purpose of this meeting is to review the details of the preferred Overpass Option in terms of their potential impacts to the properties at 1 Kenview Drive and 35 Kenview Drive. In particular the City would like to discuss the impacts to access as a result of the overpass profile change and associated retaining walls. G. Smith noted that the existing road Right of Way on the east side of Goreway Drive, adjacent to 1 Kenview and 35 Kenview, is sufficient for construction of the overpass grade separation and associated retaining wall and that the City does not require acquisition of property. G. Smith noted that the overpass option does impact the existing field entrance to 35 Kenview Drive and that the height of retaining wall would preclude the possibility of construction a new access at this same location. Due to the height of retaining wall at	

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Date: June 14, 2007
Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)

Item	Discussion	Action By
	that location, maintaining the field entrance at its current location would require either a long driveway of long retaining walls. It would also require a 6% driveway grade and an unsafe entrance/exit on Goreway Drive. both agreed that maintaining the field entrance at its current location is not a preferred option and agreed they could wave rights to this access location. suggested he would prefer to either obtain access to his land either from the golf course entrance at 1 Kenview Dr. or via the property currently owned by noted that if access were to be obtained via property, they would need to utilize the existing Mimico Creek crossing but would most likely have to replace the existing crossing bridge to accommodate small golf course maintenance vehicles and small trucks. noted he would need to seek approval from TRCA to replace the existing crossing with a stronger structure. S. Choi also noted that the City may also need to obtain additional property along the back of the retaining wall to permit future wall maintenance and possibly for utility access if required. noted he had no objection to allowing maintenance access but stated he would prefer to grant an easement to the City for this access rather than dedicating the land. The City noted they had no objection to this.	

Notes Prepared By: Greg Smith, P.Eng.
Project Manager

A5 – Public Information Centre Materials

Welcome to Public Information Centre No. 1

Improvements to Goreway Drive
From Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment (EA) Study

November 28, 2006

You can participate in this Study by:

- Signing the attendance register
- Reviewing the display panels and brochure
- Asking questions and discussing your ideas with us
- Submitting your completed comment sheet by December 15, 2006
- Indicating on your comment sheet whether you would like to be added to the Study Mailing List.

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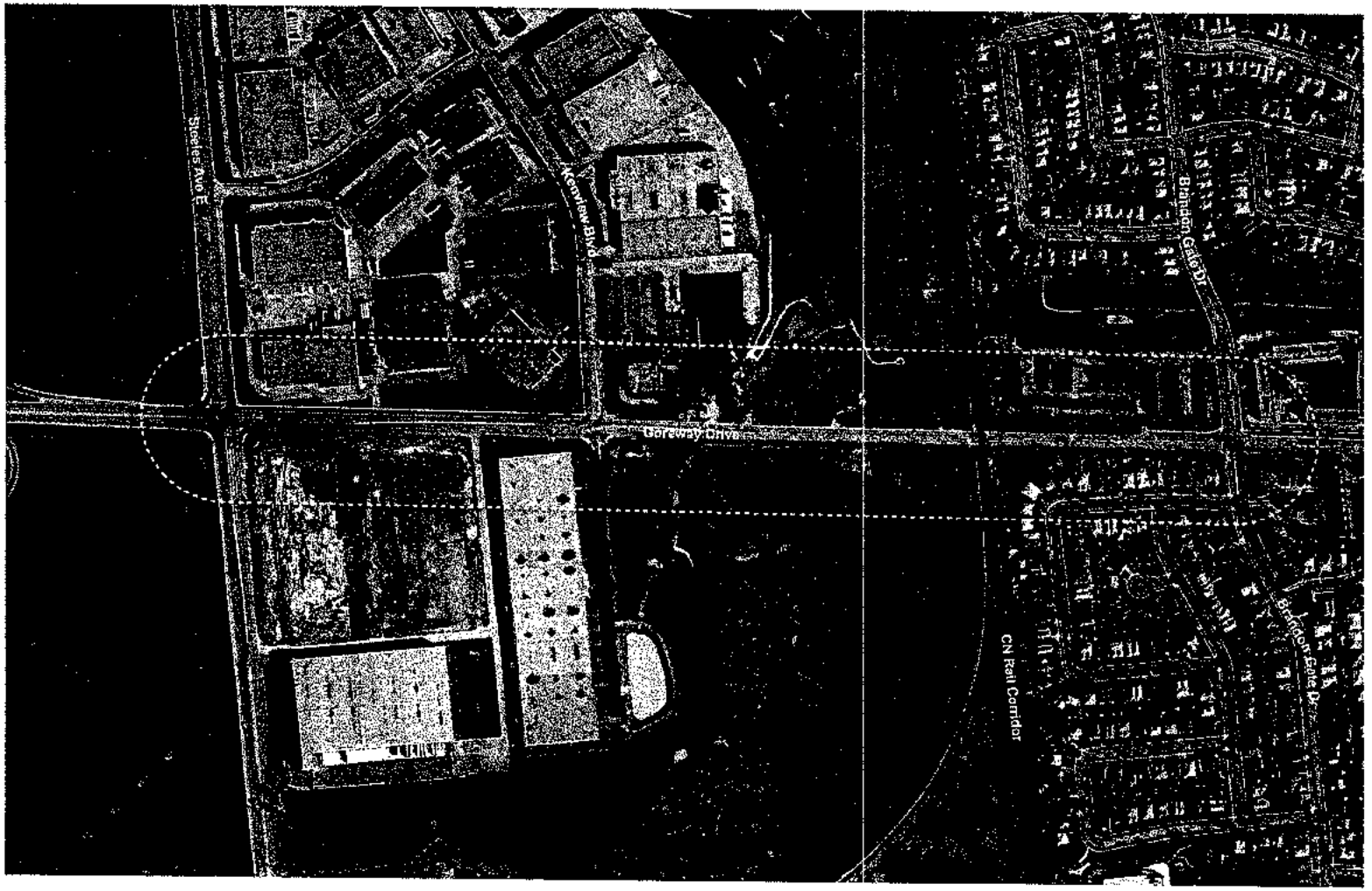
Purpose of Public Information Centre No. 1

The purpose of the Public Information Centre (PIC) is to introduce the Study and provide interested and/or potentially affected stakeholders with an opportunity to participate in the planning and decision-making processes. This PIC is being held to present and receive public input on the following:

- Need and justification (i.e. problem or opportunity identification) for considering transportation improvements to Goreway Drive
- Existing conditions within the Study Area Corridor
- Recommended Evaluation Criteria for assessing the Alternative Solutions
- Evaluation of Alternative Solutions to address the identified problem
- Selection of a Preliminary Preferred Solution
- Potential benefits/impacts associated with the Preliminary Preferred Solution
- Future scheduled EA activities.

Study Area Corridor



The Goreway Drive Study Area Corridor extends approximately 1.2 km from Steeles Avenue in the City of Brampton south to Brandon Gate Drive in the City of Mississauga.

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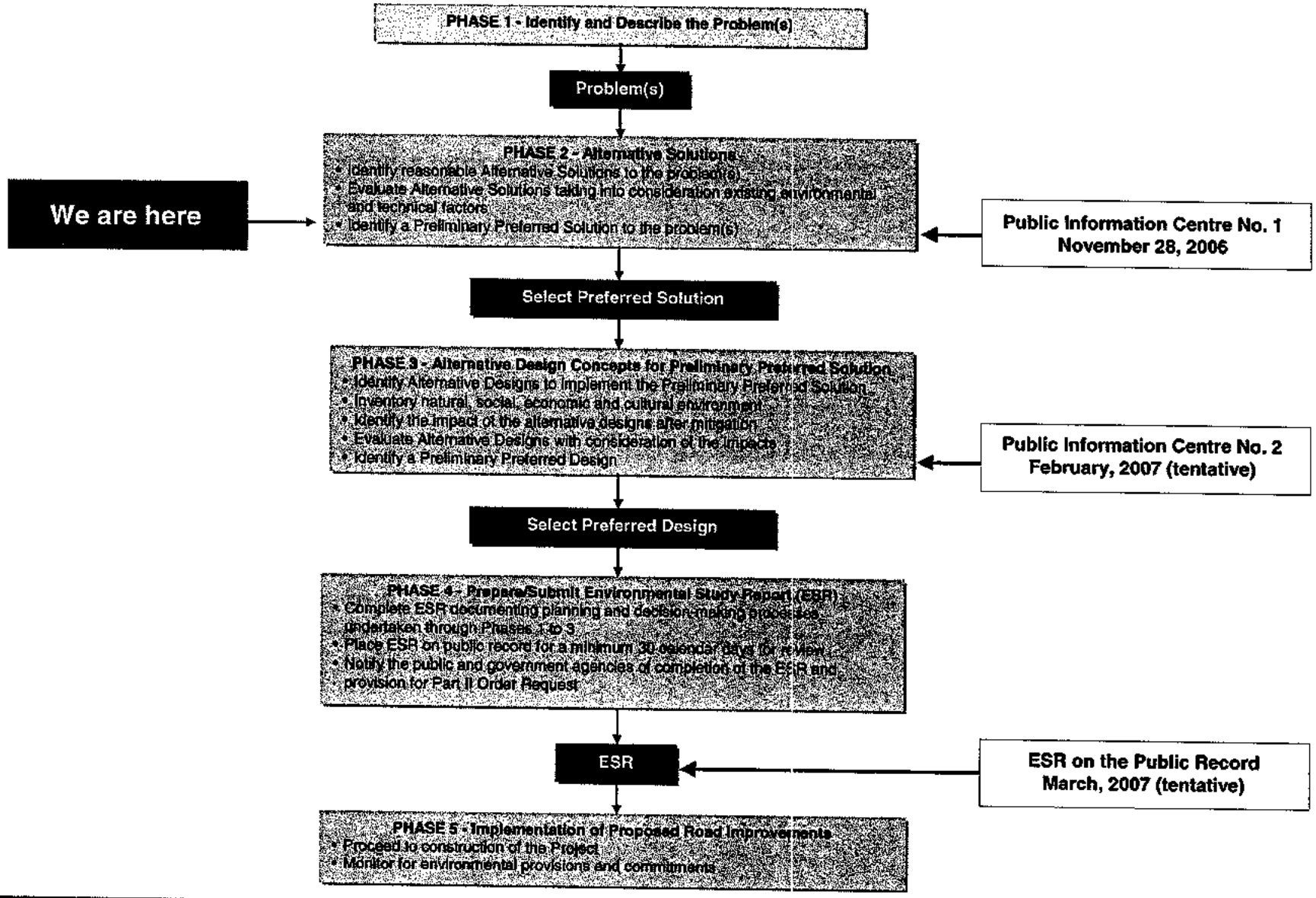
Purpose of the Study

The City of Brampton, in collaboration with the City of Mississauga, proposes to make requisite improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive. The purpose of this study is to undertake a Schedule C Class EA. Approved under the Ontario *Environmental Assessment Act*, the scope of the Study requires completion of Phases 1 through 4 of the *Municipal Class EA* process, and entails:

- Examining a range of "Alternative Solutions" to address future traffic demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing within the Study Area Corridor
- Selecting a Preliminary Preferred Solution to address the above-noted deficiencies
- Identifying/evaluating Alternative Design Concepts and selecting a Preliminary Preferred Design
- Presenting project-specific information and receiving public/agency input throughout the Study
- Preparing/filing an Environmental Study Report (ESR) for a minimum 30 day public review. The ESR will include full documentation of the Class EA process including mitigation and monitoring requirements for Phase 5, that is, implementation of the proposed improvements.

Schedule C Class EA Process



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Background to the Study

The City of Brampton Transportation and Transit Master Plan (TTMP) was completed in 2004 to develop a long-term multi-modal transportation strategy to guide future transportation decisions, taking into account the City's anticipated growth over the next 30 years. The TTMP sets out policies and programs to support the long-term transportation vision for the City, and includes an implementation strategy based on 10 year horizon intervals. The policies of the TTMP have been incorporated in the City of Brampton Official Plan (2006).

Goreway Drive crosses CN's existing Halton Subdivision approximately 300 m north of Brandon Gate Drive. Presently, there are three tracks in service to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north. The Halton Subdivision currently accommodates about 50 freight trains per day to service industry. The TTMP recommends:

- replacement of CN's existing three-track level crossing with a grade separation by 2011 to avoid train-road vehicle conflicts, long queues and road delays
- widening of Goreway Drive to six-through lanes from Steeles Avenue south to the CN crossing.

Rationale for the Study

Goreway Drive is currently functioning as a four-lane urban arterial roadway within the City of Brampton, and as a major collector roadway within the City of Mississauga. The roadway provides north-south connectivity for commuter, commercial and emergency service vehicles between the two cities. At present, traffic delays are encountered at CN's existing at-grade (level) railway crossing due to long queues as trains cross Goreway Drive. This results in reduced operational conditions and road safety, coupled with restrictions in traffic flow and driver frustration.

The cities of Brampton and Mississauga are responsible for monitoring population and employment growth to determine the anticipated impact on their respective transportation networks and implementing the required improvements in a timely manner. In keeping with this responsibility, the City of Brampton, in collaboration with the City of Mississauga, proposes to make requisite improvements to Goreway Drive within the 1.2 km Study Area Corridor to address the above-noted deficiencies.

To facilitate the proposed improvements the municipality is obligated to carry out a Class EA Study in accordance with the *Municipal Class EA* process. A Class EA is a standard process that addresses needs and options then recommends a solution.

Population/Employment Forecasts

Strategically located within the Greater Toronto Area (GTA), the Region of Peel and its constituent municipalities are expected to experience significant growth over the next two decades as demand for development shifts westerly. As noted below, the Region's population is projected to reach 1,528,263 by 2031, which represents an increase of 512,774 (or approximately 50% between 2001 and 2031). Similarly, employment is forecasted to reach 852,282 by 2031, or increase by approximately 58%.

Table – Population/Employment Forecasts, 2001 to 2031

Year	Peel	Brampton	Caledon	Mississauga	Total Employment
2001	1,015,489	325,428	52,620	637,441	540,145
2011	1,291,252	504,229	66,155	720,868	722,574
2021	1,450,428	632,923	83,978	733,527	806,550
2031	1,528,263	693,325	84,450	750,488	852,282

Source: City of Brampton Growth Management and Special Policy Section. It is noted that this data was used in the Transportation Analysis for this Study.

In keeping with Region of Peel Official Plan (2005) policy, much of the growth has occurred and will continue to occur within the 2021 Regional Urban Boundary, which includes the cities of Brampton and Mississauga.

Transportation/Road Network Analysis

- **Purpose**: To assess the capacity of the road network within the Study Area under alternative road improvement scenarios (e.g., need for road widenings, upgrade of adjacent north-south major roads, Goreway Drive/CN Grade Separation, Intermodal Drive Extension, etc.)

- **Methodology**: A sub-area Transportation Model* (computer model of the transportation system using EMME/2 software) was utilized as a tool to assess Alternatives. The modelling analysis focused on the Study Area, encompassing three north-south arterials (Airport Road, Goreway Drive and Finch Avenue) from north of Highway 407 to south of Derry Road, including connections to the freeway system

- **Transportation Forecasts**: The analysis was carried out for the 2011, 2021, and 2031 time horizons. The Transportation Model included overall land use and road network/transportation system developments anticipated for specific time horizons as per the City of Brampton, City of Mississauga and the Region of Peel Official Plans, the Brampton TTMP, and the Region of Peel Long Range Transportation Plan

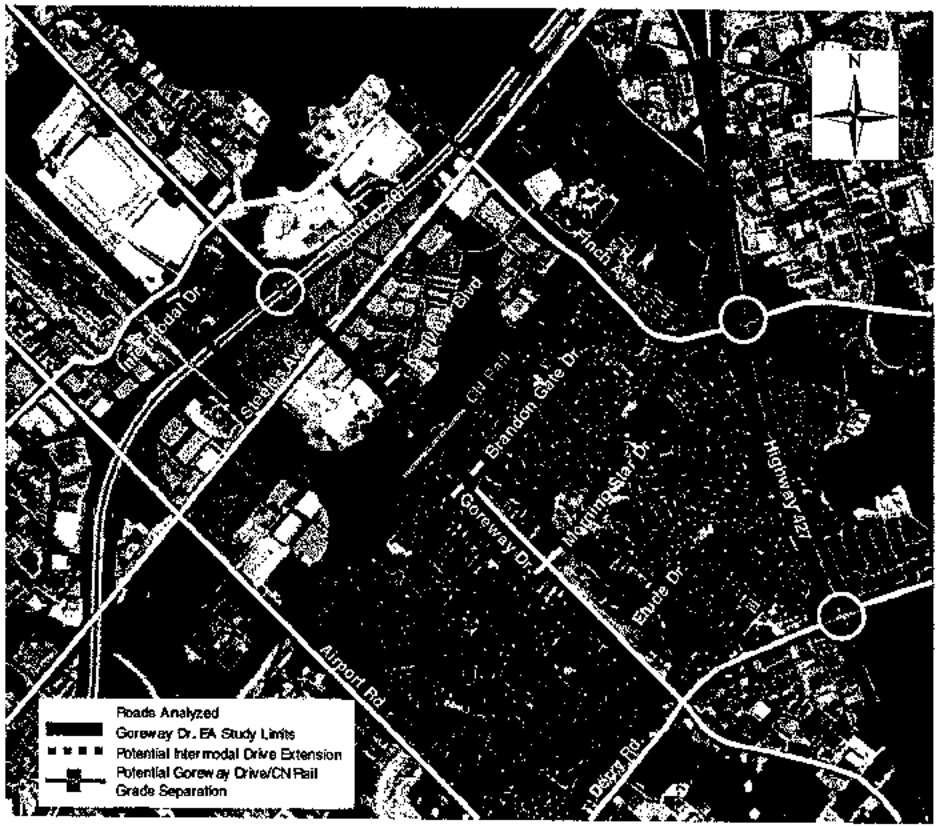
- **Evaluation Method**: Future traffic volumes were compared to future road capacity (Volume to Capacity Ratio)

- **Result**: Input to the Need and Justification for road improvements, and input to the evaluation of Alternative Road Improvements and selection of the Preferred Alternative.

** GTA Transportation Model adapted by Peter Dalton Consulting for the City of Brampton.*

Transportation/Road Network Analysis – Alternatives

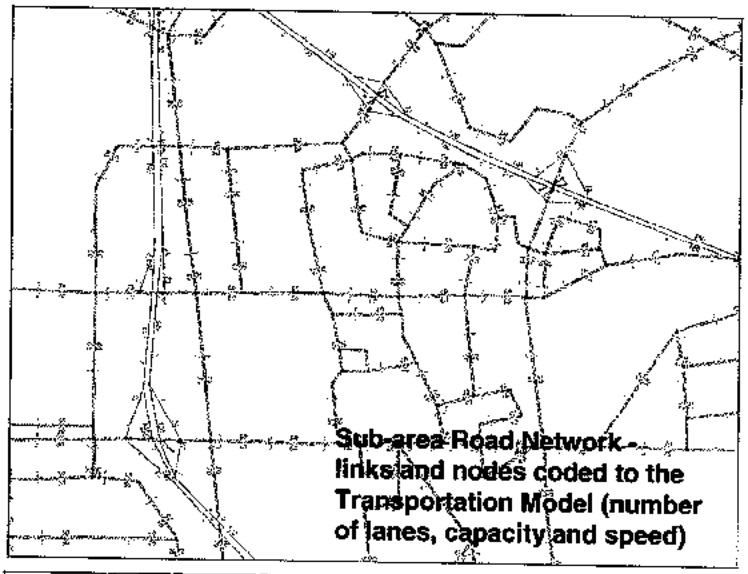
Study Area – Road Network



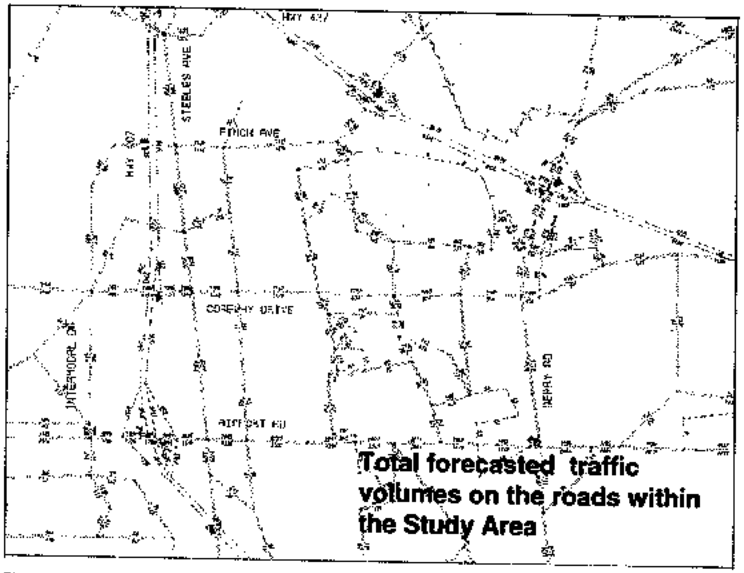
Alternatives Analyzed

Alternative	Goreway Drive Steeles Ave. to Derry Rd	Goreway Drive/CN Grade Separation	Finch Ave. Steeles Ave. to Hwy 427	Intermodal Drive Extension
1A (Do Nothing)	4 lanes	No	4 lanes	No
1B	4 lanes	No	4 lanes	Yes
2A	4 lanes	Yes	4 lanes	No
2B	4 lanes	Yes	4 lanes	Yes
3	4 lanes	Yes	6 lanes	Yes
4	6 lanes	Yes	4 lanes	Yes
5	6 lanes	Yes	6 lanes	Yes

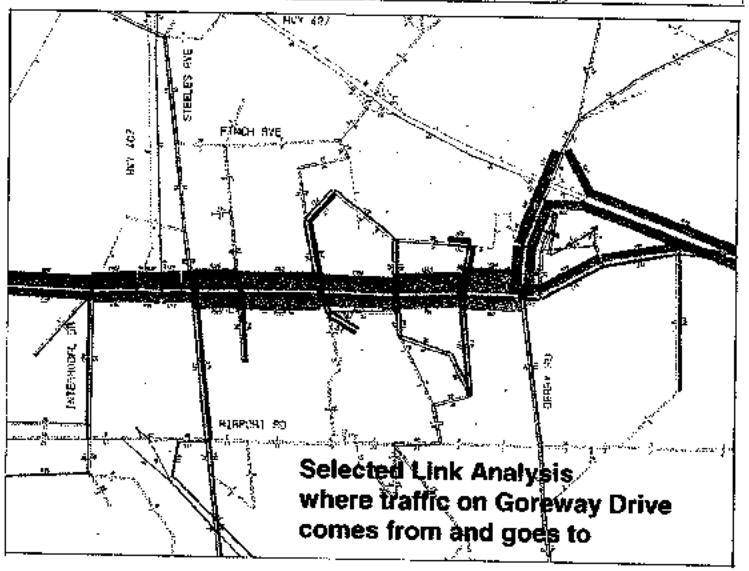
Transportation/Road Network Analysis – Results (Sample)



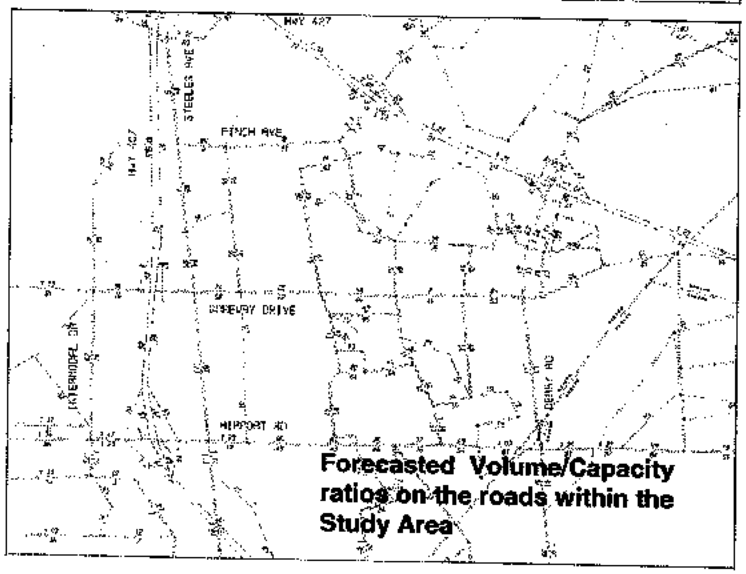
Sub-area Road Network - links and nodes coded to the Transportation Model (number of lanes, capacity and speed)



Total forecasted traffic volumes on the roads within the Study Area



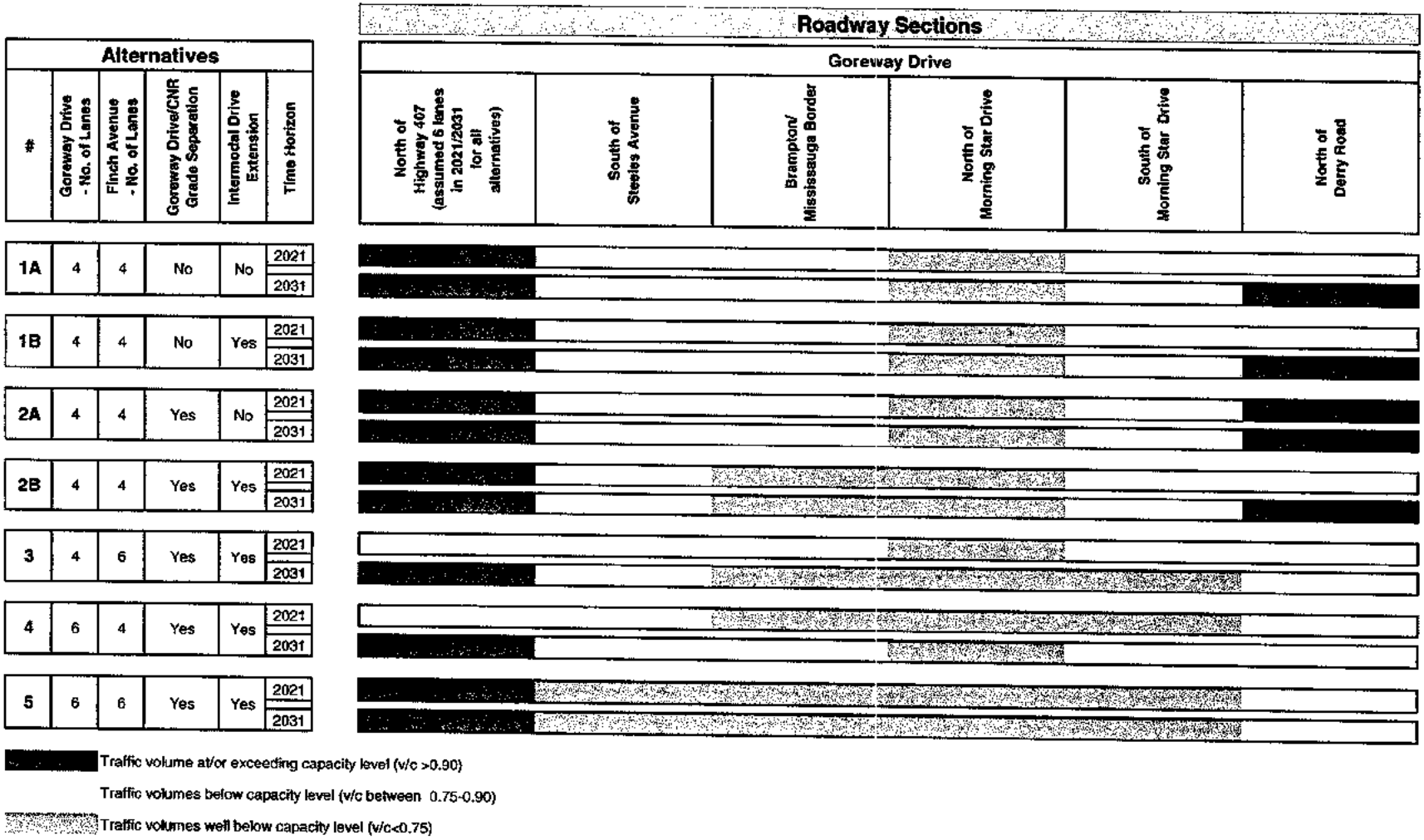
Selected Link Analysis where traffic on Goreway Drive comes from and goes to



Forecasted Volume/Capacity ratios on the roads within the Study Area

Note: This exhibit presents Transportation Modeling results for Alternative 2B (2021) only.

Transportation/Road Network Analysis
Travel Demand Forecast vs. Roadway Capacity



Note: Other improvements and developments within the overall transportation network (beyond the Study Area) are considered in the Transportation Modeling Analysis. They affect traffic assigned to the Study Area roads.

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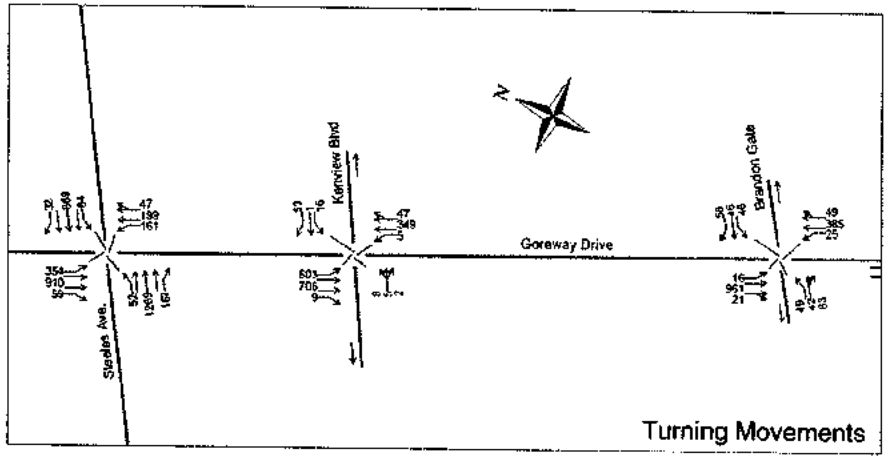
Transportation/Road Network Analysis
Summary of Findings

- Travel demand on Goreway Drive north of Highway 407 consistently approaches/exceeds capacity for all alternatives analyzed, even after widening of the section between Queen Street and Highway 407 to 6 lanes (as proposed by Brampton's TTMP). Widening of north-south arterial roads south of Highway 407 (e.g., Goreway Drive, Finch Avenue) does not alleviate this problem
- Travel demand on sections of Goreway Drive from Steeles Avenue to south of Morning Star Drive is below capacity of a 4-lane roadway for all alternatives and time horizons (2011, 2021, 2031)
- Traffic volumes increase on the Goreway Drive section north of Derry Road and approach capacity of a 4-lane roadway for the 2031 horizon year
- Forecasted traffic volumes on Finch Avenue approach the capacity level of a 4-lane roadway in 2021 (for alternatives including extension of Intermodal Drive) and in 2031 (for alternatives without the Intermodal Drive extension)
- Existing 6 lanes on Airport Road (south of Steeles Avenue) provides sufficient capacity for all alternatives and time horizons
- Extension of Intermodal Drive reduces traffic demand on Steeles Avenue east of Goreway Drive but increase traffic demand on Finch Avenue south of Steeles Avenue.

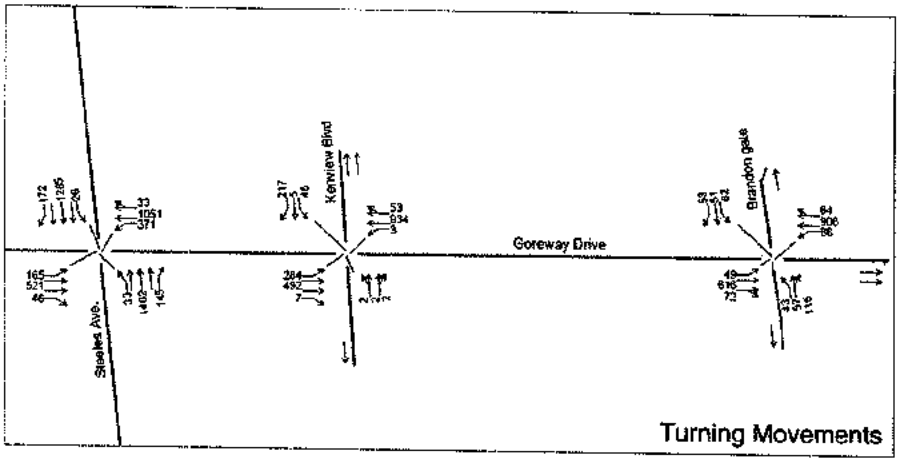
Traffic Operations Analysis - Intersections

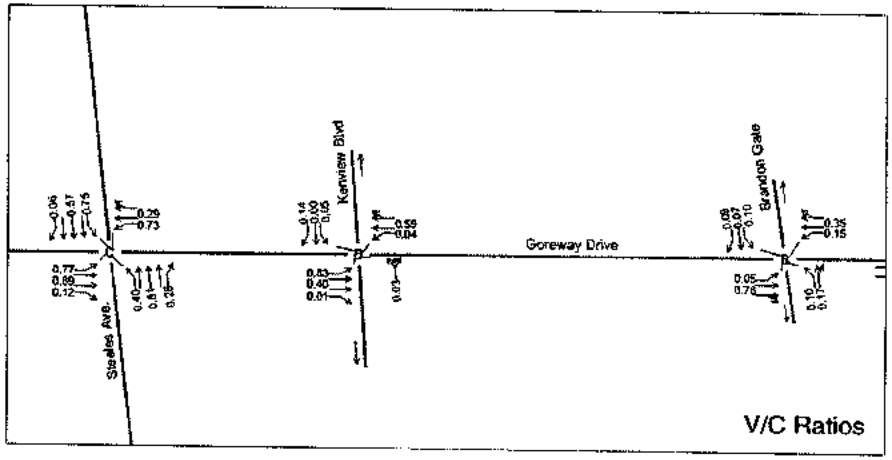
Existing Turning Movements, V/C Ratios and Level of Service

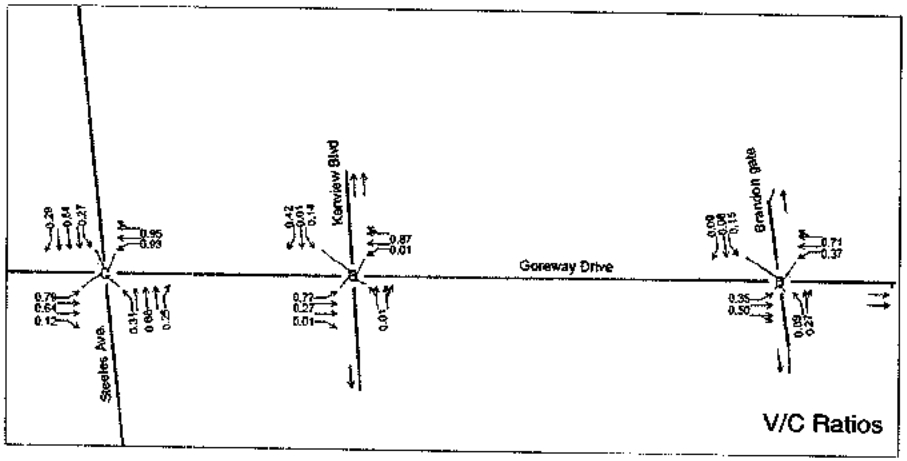
2005 AM Peak Hour



2005 PM Peak Hour







Note: 1. A V/C ratio > 0.90 indicates capacity deficiency. Consequently, additional lanes may be required.

2. The Traffic Operations Analysis confirmed the need for Intersection improvements. Specific intersection configurations will be determined during Phase 3 of the Class EA process.

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Need and Justification

- Transportation/Road Network Analysis concluded that a 4-lane cross-section on Goreway Drive from Steeles Avenue to Brandon Gate Drive is adequate to meet projected traffic demands up to 2031.
- Traffic Operations Analysis recommends improvements to the intersections at Steeles Avenue, Kenview Boulevard, and Brandon Gate Drive, including addition of auxiliary lanes and traffic signal optimization to improve traffic flow and subsequent level of service.
- The Halton Subdivision currently accommodates about 50 freight trains per day to service industry. In addition, Goreway Drive has an Average Annual Daily Traffic (AADT) volume of approximately 15,000 vehicles per day. Based on these volumes, the at-grade CN crossing has an existing Exposure Index of 750,000 (50 trains multiplied by 15,000 vehicles). It is noted that an Exposure Index above 200,000 warrants a grade separation.

Problem Statement

Due to the existing at-grade (level) crossing of CN's Halton Subdivision, traffic delays to motorists, truckers and transit riders are a frequent occurrence as trains cross Goreway Drive. If not improved, this will result in deterioration to the quality of life for area residents. This deterioration is typically accompanied by higher levels of noise and air pollution, driver frustration and decreased road safety, and will continue in the future if a grade separation is not constructed.

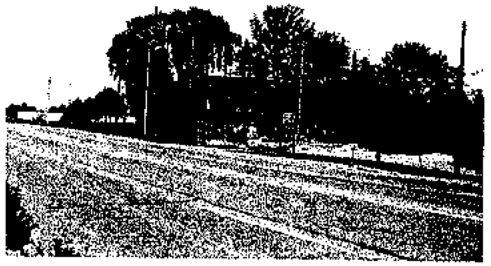
Extended periods of traffic congestion and/or delays add significantly to the cost of business through delays to the movement of goods and people. Businesses and industries relying on just-in-time delivery of goods tend to avoid congested roadways leading to the dispersion of truck traffic onto routes not designed for commercial vehicles.

To this end, a "transportation solution is required to accommodate existing and future travel demands, to resolve existing traffic delays and impacts on surrounding land uses, and to enhance overall traffic safety and flow within the Goreway Drive Study Area Corridor".

Existing Roadway Conditions

Characteristics of Goreway Drive
Between Steeles Avenue and Brandon Gate Drive

- Functions as a four-lane urban arterial/major collector roadway with a right-of-way width between 36 m to 45 m
- Includes two cross intersections (Steeles Avenue, Brandon Gate Drive) and one T-intersection (Kenview Boulevard)
- Crosses CN's existing at-grade crossing approximately 300 m north of Brandon Gate Drive
- Brampton Transit operates Route 5 along the entire Corridor and Route 11 between Steeles Avenue and Kenview Boulevard
- Mississauga Transit operates Route 16 on Goreway Drive south of Brandon Gate Drive
- Sidewalks exist intermittently along both sides of the Corridor
- Utilities located within the Corridor include a number of underground and overhead infrastructure, a hydro transmission station, and fibre-optic cable installations.



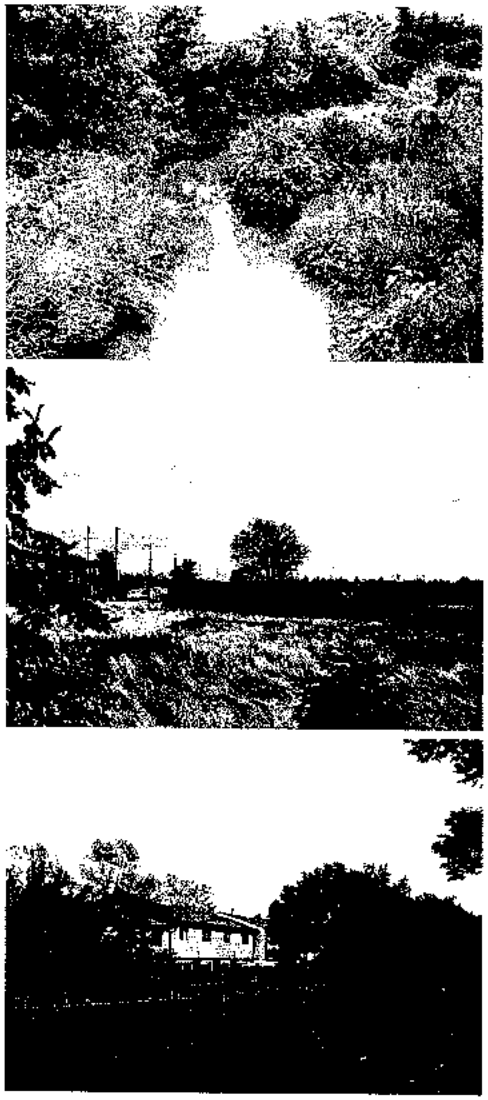
Existing Environmental Conditions

Natural Environment

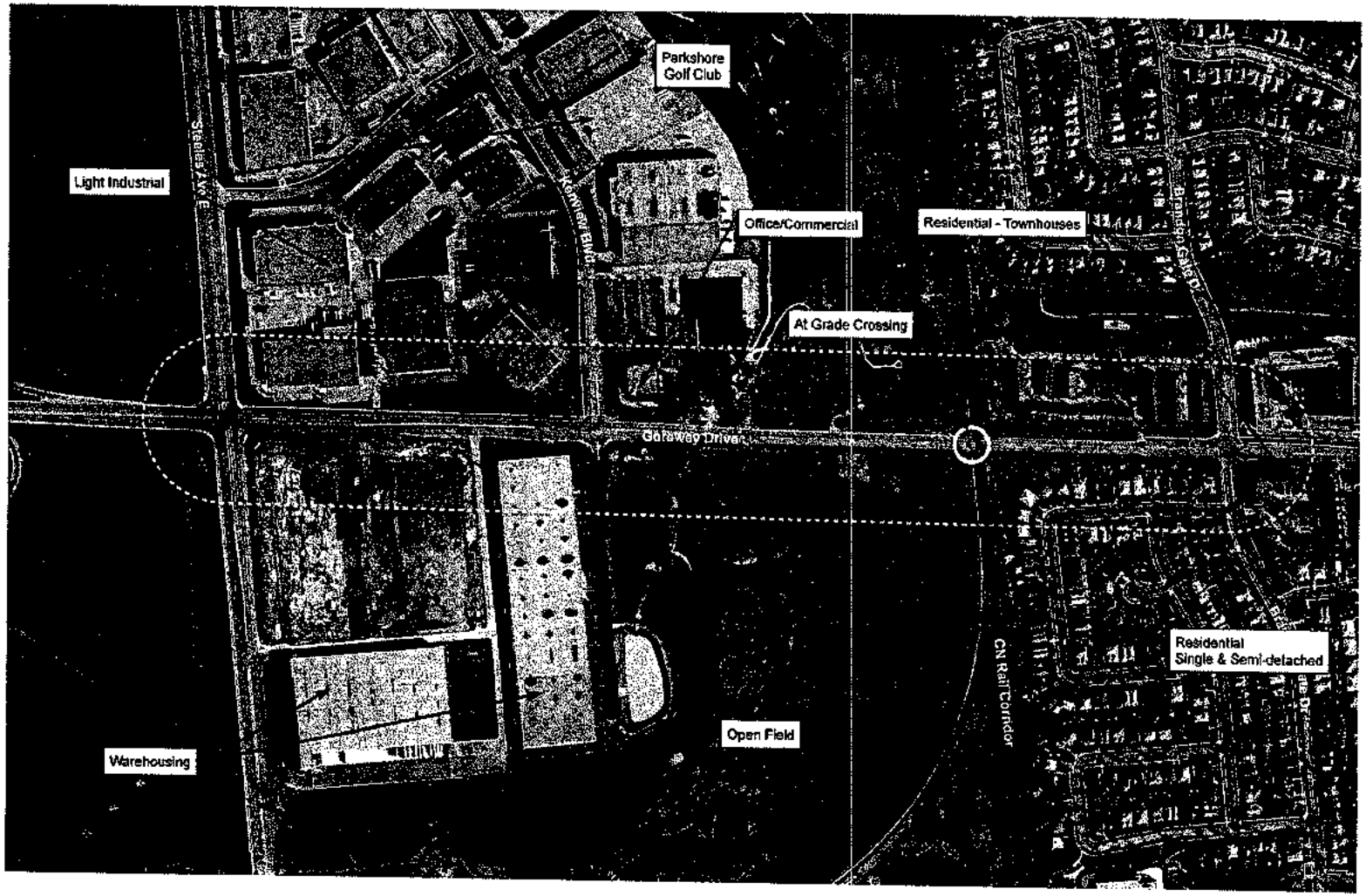
- Goreway Drive crosses the main (east) branch of Mimico Creek approximately 625 m south of Steeles Avenue
- Mimico Creek provides habitat for Bluntnose Minnow, Fathead Minnow, Creek Chub and Brook Stickleback
- Numerous roadside trees are situated within the Corridor.

Socio-Economic Environment

- Within the Study Area Corridor, Goreway Drive passes through an urbanized setting, comprised of light industrial, office commercial, recreational and residential land uses.



Existing Conditions



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Alternative Solutions

1. Do Nothing, that is, maintain four lanes on Goreway Drive with no grade separation at the CN crossing
2. Maintain four lanes on Goreway Drive with a grade separation at the CN crossing
3. Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)
4. Provide localized intersection improvements
5. Provide enhanced bus service.

Recommended Evaluation Criteria

Through the Study, a range of environmental issues will be addressed and mitigation measures considered to minimize potential impacts. The following preliminary list of Evaluation Criteria (or Factors) are recommended to evaluate the Alternative Solutions:

Transportation Factors
- Capacity and Level of Service
- Traffic Safety
- Pedestrians and Cyclists
- Access Management

Natural Environment Factors
- Roadside Vegetation
- Aquatic Habitat and Fisheries Resources

Social Environment Factors
- Property Acquisition Requirements
- Existing and Future Land Use
- Construction Disruption (e.g., Noise, Dust)

Economic Environment Factors
- Business Impacts
- Construction Costs
- Operational and Maintenance Costs

Cultural Environment Factors
- Archaeological Resources

Engineering/Technical Factors
- Construction Staging
- Utility Conflicts
- Stormwater Management

Summary Evaluation of Alternative Solutions

Alternative Solutions / Environmental Criteria	Natural	Social	Cultural	Economic	Technical	Solves Problem	Recommendation
(1) Do Nothing (i.e., Maintain status quo)	◑	◑	●	◑	●	○	**Carried forward** (For comparison purposes)
(2) Maintain 4 lanes + grade separation at CN crossing	◑	●	●	○	◑	●	**Carried forward** (Solution with least impact)
(3) Divert traffic to and/or upgrade adjacent roads	○	○	◑	○	◑	◑	**Not carried forward** (Does not solve Problem)
(4) Intersection Improvements	◑	◑	◑	◑	◑	○	**Carried forward** (As part of Alt. 2)
(5) Enhanced Bus Service	●	◑	◑	◑	◑	○	**Not carried forward** (Does not solve Problem)

Rating: ○ **Poor** ◑ **Neutral** ● **Good**

Preliminary Preferred Solution

Based on the evaluation of Alternative Solutions, **Alternative 2** was selected as the Preliminary Preferred Solution. **Alternative 2** includes:

- Maintaining the existing four-lane cross section on Goreway Drive
- Improving pedestrian and cyclist facilities
- Grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass
- Intersection improvements including the addition of turning lanes and optimization of traffic signals at the following locations:
    - Steeles Avenue and Goreway Drive (under jurisdiction of Region of Peel)
    - Kenview Boulevard and Goreway Drive (under jurisdiction of City of Brampton)
    - Brandon Gate Drive and Goreway Drive (under jurisdiction of City of Mississauga)

Preliminary Preferred Solution

The benefits and potential impacts associated with implementation of the Preliminary Preferred Solution include:

Benefits	Impacts
• Removal of CN's existing at-grade level crossing • Improved traffic flow and reduced vehicle emissions as traffic delays at the CN crossing are alleviated • Minimal impacts to Village of Malton • Enhanced traffic safety and decreased driver frustration within the Corridor • Minimal impact to Mimico Creek and aquatic habitat • Minimal need to acquire property • Low potential for archaeological impact as construction work will take place within the disturbed right-of-way.	• Removal of some roadside vegetation • Moderate to high construction costs to build grade separation • Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications • Possible relocation of utility plant within the Corridor.

Next Steps

Following this PIC, the Project Team will:

- Review your comments
- Respond to your written questions
- Confirm/select the Preferred Solution based on consideration of comments received from the public/agencies
- Complete a detailed environmental inventory of the Study Area Corridor
- Develop/evaluate Alternative Design Concepts and identify potential impacts
- Host PIC No. 2 to receive input on Alternative Design Concepts and the Preferred Solution from the public/agencies

Notices will be placed in local newspapers to announce the second PIC.

Remain Involved in the Study

Your comments are important as they will be reviewed and considered as part of the Study. Please indicate your interest to remain involved with the Study by submitting your completed comment sheet or by contacting either of the following Project Team members:

Khurram Tunio, P.Eng.
City Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881
Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

There is an opportunity at any time during the Class EA process for interested persons to provide comments and review outstanding issues with the Project Team.

Thank you for attending and offering your input.

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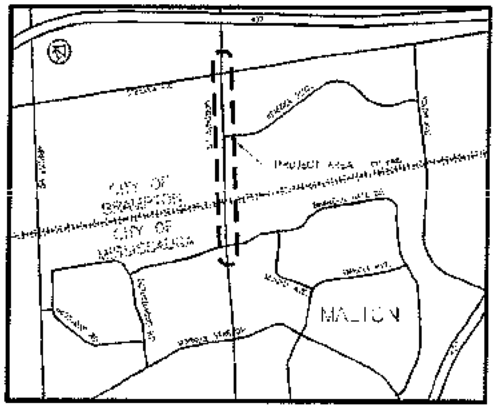
Public Information Centre – November 28, 2006

Improvements to Goreway Drive
Class Environmental Assessment Study

Introduction

The City of Brampton, in collaboration with the City of Mississauga, has initiated a Class Environmental Assessment (Class EA) Study to improve approximately 1.2 km of Goreway Drive between Steeles Avenue in the City of Brampton and Brandon Gate Drive in the City of Mississauga (see map of Project Area below). Improvements to this section of Goreway Drive are needed to accommodate future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing (Halton Subdivision).

Purpose of Public Information Centre No. 1



The purpose of the Public Information Centre (PIC) is to provide interested stakeholders with an opportunity to participate in the planning and decision-making processes. This PIC is being held to present and receive public input on the need for improvements to Goreway Drive, the existing conditions within the Study Area Corridor, the evaluation of Road Improvement Alternatives and future scheduled EA activities.

Class Environmental Assessment Process

The Study is being carried out in accordance with the planning and design process for 'Schedule C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Class EA process includes public/external agency consultation, an evaluation of alternative solutions and alternative design concepts, an assessment of potential impacts associated with the proposed improvements, and formulation of measures to mitigate identified impacts.

Rationale for the Study

Goreway Drive is currently functioning as a four-lane urban arterial/major collector roadway that provides north-south connectivity for commuter, commercial and emergency service vehicles within the cities of Brampton and Mississauga. At present, traffic delays are encountered at CN's existing at-grade (level) railway crossing due to long queues as trains cross Goreway Drive. This results in reduced operational conditions and road safety, coupled with restrictions in traffic flow and driver frustration. The City of Brampton, in collaboration with the City of Mississauga, proposes to make requisite improvements to Goreway Drive within the 1.2 km Study Area Corridor to address these deficiencies.

Problem Statement

Due to the existing at-grade (level) crossing of CN's Halton Subdivision, traffic delays to motorists, truckers and transit riders are a frequent occurrence as trains cross Goreway Drive. If not improved, this will result in deterioration to the quality of life for area residents. This deterioration is typically accompanied by higher levels of noise and air pollution, driver frustration and decreased road safety, and will continue in the future if a grade separation is not constructed.

Extended periods of traffic congestion and/or delays add significantly to the cost of business through delays to the movement of goods and people. Businesses and industries relying on just-in-time delivery of goods tend to avoid congested roadways leading to the dispersion of truck traffic to routes not designed for commercial vehicles.

To this end, a "transportation solution is required to accommodate existing and future travel demands, to resolve existing traffic delays and impacts on surrounding land uses, and to enhance overall traffic safety and flow within the Goreway Drive Study Area Corridor".

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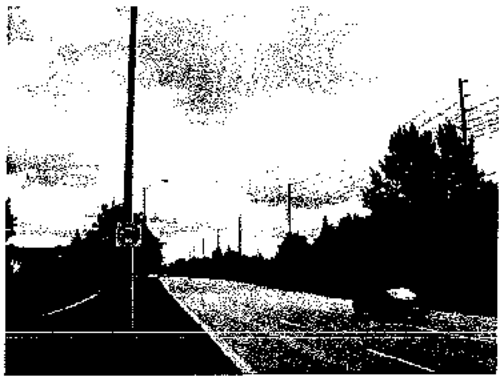
Alternative Solutions to Address the Problem

1. Do Nothing, that is, maintain four lanes on Goreway Drive with no grade separation at the CN crossing;
2. Maintain four lanes on Goreway Drive with a grade separation at the CN crossing;
3. Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue);
4. Provide localized intersection improvements; and,
5. Provide enhanced bus service.

Potential Benefits/Impacts Associated with Preliminary Preferred Solution



Based on the evaluation of Alternative Solutions, Alternative 2 was selected as the Preliminary Preferred Solution. Alternative 2 includes maintaining the existing four-lane cross section on Goreway Drive, improving pedestrian and cyclist facilities, grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass, and intersection improvements including the addition of turning lanes and optimization of traffic signals. Some of the benefits and potential impacts associated with implementation of the Preliminary Preferred Solution include:

Benefits

- Improved traffic flow and reduced vehicle emissions as traffic delays at the CN crossing are alleviated
- Enhanced traffic safety and decreased driver frustration within the Corridor
- Minimal impact to Mimico Creek and aquatic habitat
- Minimal need to acquire property

Impacts

- Removal of some roadside vegetation
- Moderate to high construction costs to build grade separation
- Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications
- Possible relocation of utility plant within the Corridor.

Future Activities

Following the PIC we will:

- Review your comments
- Confirm/select the Preferred Solution
- Develop and evaluate Alternative Design Concepts
- Host PIC No. 2 in early 2007 to receive input on Alternative Design Concepts and the Preferred Design.

We Want to Hear from You!

Your comments are welcome to determine public ideas and opinions concerning the proposed improvements to Goreway Drive. Please provide your comments on the Comment Sheet available and place in the Comment Drop Box, or mail/fax by December 15, 2006. Should you have any additional questions or require further information regarding improvements to Goreway Drive, please contact either:

Khurram Tunio, P.Eng. City Project Engineer City of Brampton 8850 McLaughlin Road Brampton, ON L6Y 5T1 Tel: 905-874-2881 Fax: 905-874-2599 Email: khurram.tunio@brampton.ca	OR	Greg Smith, P.Eng. Consultant Project Manager UMA Engineering Ltd. 5080 Commerce Boulevard Mississauga, ON L4W 4P2 Tel: 905-238-0007 Fax: 905-238-0038 Email: greg.smith@uma.aecom.com

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.

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

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PUBLIC QUESTIONNAIRE
Public Information Centre No. 1, November 28, 2006

The City of Brampton, in partnership with the City of Mississauga, has retained UMA Engineering Ltd. to undertake a Class Environmental Assessment (EA) Study to consider options to satisfy travel demand and address existing traffic delays on Goreway Drive from Steeles Avenue southerly to Brandon Gate Drive (see Study Area Corridor below). This questionnaire is your opportunity to comment on this Study and indicate your concerns and preferences. ***Given that your views are important to us, please take a moment to complete this questionnaire (please print) and deposit it in the "Comment Sheets" box provided. Thank you.***

1. **My property/interest is:** ***(Please check all that apply)***

[ ] back/front onto Goreway Drive
[ ] located east of Goreway Drive
[ ] located west of Goreway Drive
[ ] general interest
[ ] commercial/industrial property
[ ] residential property
[ ] user of Goreway Drive but not a local resident
[ ] recreational property

2. **Are there problems with Goreway Drive at present?**

[ ] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

[ ] Congestion
[ ] Vehicle Delays
[ ] Turning at intersection(s)
[ ] Pedestrian/Bicycle Safety
[ ] Pavement Condition
[ ] Auto/Train Conflict
[ ] Operating Speed
[ ] Insufficient public transit
[ ] Through traffic volumes
[ ] Poor entrance/exit to driveways
[ ] Other *(please explain)* _____

_____
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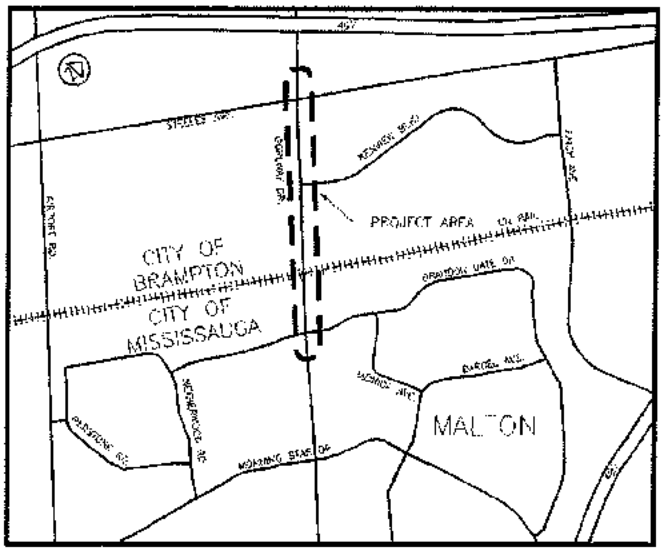

Study Area Corridor

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

November 28, 2006

4. **What comments or suggestions do you have about the PIC brochure and information provided?**

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[ ] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[ ] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[ ] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

[ ] Provide localized intersection improvements

[ ] Provide enhanced bus service

[ ] Other *(Please explain)*

Rationale

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

November 28, 2006

7. **Solutions to the identified problem will be evaluated using the Evaluation Criteria listed below. Please tell us which of these you feel are more important and which are less important by rating them in order of importance with a high of "1" for the factors that are very important to a low of "5" for the factors of little importance.**

Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	
Traffic safety	
Pedestrians and cyclists	
Access management	
Natural Environment Factors	
Roadside Vegetation	
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	
Social Environment Factors	
Property acquisition requirements	
Existing and future land use	
Construction disruption (e.g., noise, dust, traffic)	
Economic Environment Factors	
Business impacts	
Construction costs	
Operational and maintenance costs	
Cultural Environment Factors	
Archaeological resources	
Engineering/Technical Considerations	
Construction staging	
Utility conflicts	
Stormwater management	
Other Considerations *(Please describe)*	

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

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Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

8. How did you hear about this public meeting?

[ ] Newspaper ad [ ] Notice in mail [ ] Other

9. Please indicate your satisfaction with the following:

	Satisfied (Y/N)	**If Not Satisfied, Please Specify Your Preference Here**
Location of Meeting	_____	_____
Time of Meeting	_____	_____
Day of the Week	_____	_____

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very		*Somewhat*		*Not at all*
1	2	3	4	5

b) How helpful were the staff and consultants in attendance?

Very		*Somewhat*		*Not at all*
1	2	3	4	5

10. Were all your questions answered satisfactorily?

[ ] Yes [ ] No

Other Comments: _____

_____

_____

_____

_____

_____

_____

_____

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

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Please provide your contact information below should you wish to receive a response to your comments and/or to be added to the Study Mailing List (please print).

Your Name: _____

Your Address: _____

_____

Your Postal Code: _____

Your Telephone No.: _____

Please mail or fax your completed questionnaire by December 15, 2006, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

November 28, 2006

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Improvements to Goreway Drive
Class Environmental Assessment

SIGN-IN SHEET

PLEASE PRINT:

#	Name	Affiliation	Address	Phone #

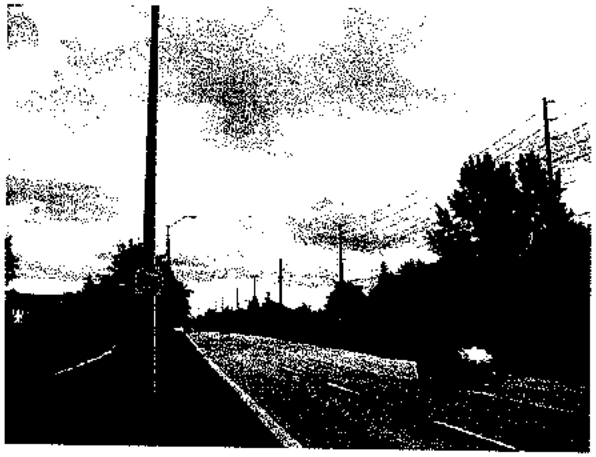
Welcome to Public Information Centre No. 2

Improvements to Goreway Drive
From Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment (EA) Study

May 1, 2007

You can participate in this Study by:

- Signing the attendance register
- Reviewing the display panels and brochure
- Asking questions and discussing your ideas with us
- Submitting your completed comment sheet by May 16, 2007
- Indicating on your comment sheet whether you would like to be added to the Study Mailing List.



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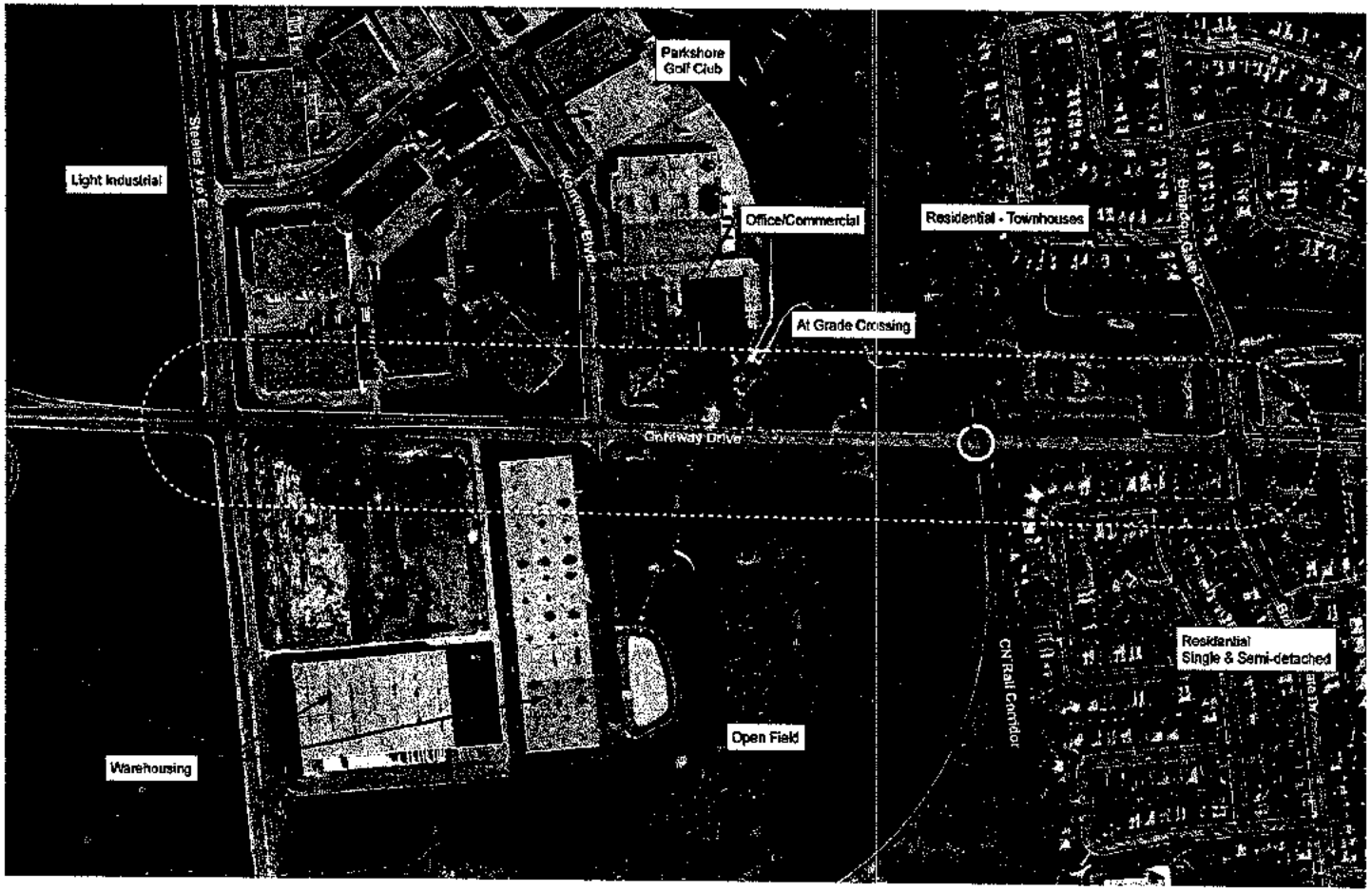
Purpose of Public Information Centre No. 2

The purpose of the Public Information Centre (PIC) is to provide interested and/or potentially affected stakeholders with an opportunity to participate in the planning process. Two PICs are being held during this Study. The first PIC was held on November 28, 2006, to present and receive public input on the Need and Justification (i.e. problem or opportunity identification) for considering transportation improvements to Goreway Drive, the existing conditions within the Study Area Corridor, the Evaluation of Alternative Solutions, and the Preliminary Preferred Solution to address the identified problem.

This PIC is being held to present and receive public input on the following:

- Evaluation of Alternative Design Concepts for the Preferred Solution
- Selection of a Preliminary Preferred Design Concept
- Potential benefits and impacts associated with the Preliminary Preferred Design Concept
- Future scheduled EA activities.

Study Area Corridor



The Goreway Drive Study Area Corridor extends approximately 1.2 km from Steeles Avenue in the City of Brampton south to Brandon Gate Drive in the City of Mississauga.

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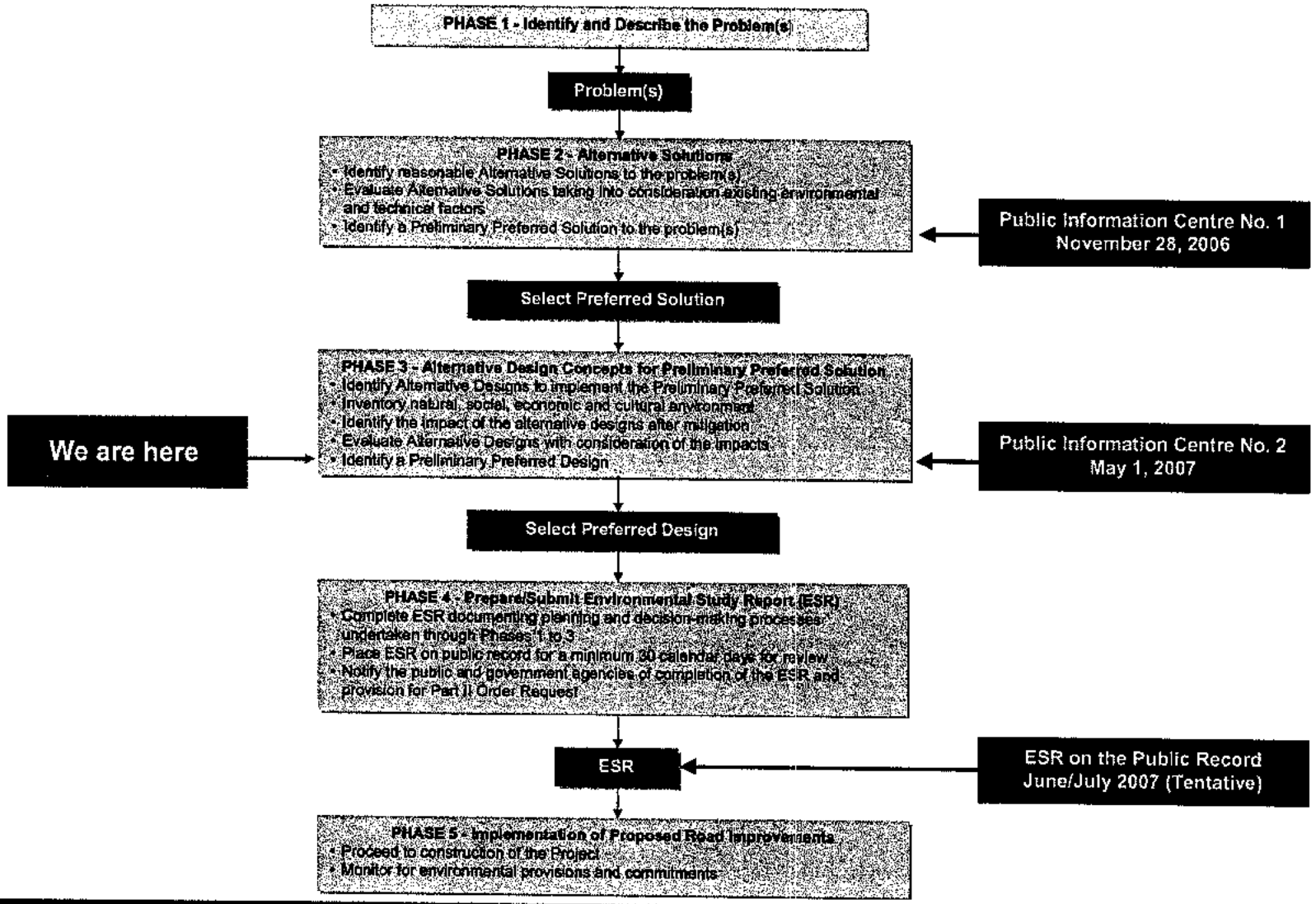
Schedule C Class EA Process



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Summary of PIC No. 1
Problem Statement

Due to the existing at-grade (level) crossing of CN's Halton Subdivision, traffic delays to motorists, truckers and transit riders are a frequent occurrence as trains cross Goreway Drive. If not improved, this will result in deterioration to the quality of life for area residents. This deterioration is typically accompanied by higher levels of noise and air pollution, driver frustration and decreased road safety, and will continue in the future if a grade separation is not constructed.

Extended periods of traffic congestion and/or delays add significantly to the cost of business through delays to the movement of goods and people. Businesses and industries relying on just-in-time delivery of goods tend to avoid congested roadways leading to the dispersion of truck traffic onto routes not designed for commercial vehicles.

A transportation solution is required to accommodate existing and future travel demands, to resolve existing traffic delays and impacts on surrounding land uses, and to enhance overall traffic safety and flow within the Goreway Drive Study Area Corridor.

Summary of PIC No. 1
Preliminary Preferred Solution

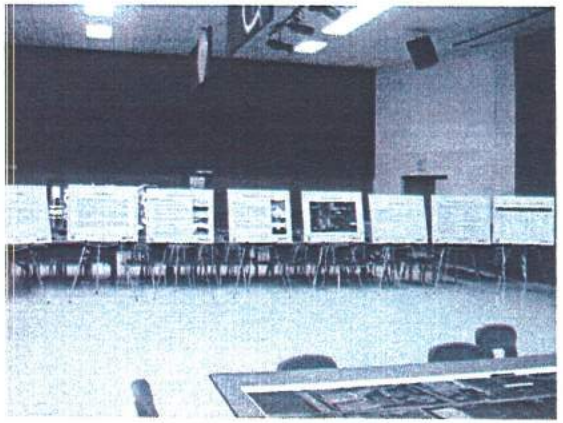
Based on the evaluation of Alternative Solutions, the Preliminary Preferred Solution was selected and includes:

- Maintaining the existing four-lane cross section on Goreway Drive
- Improving pedestrian and cyclist facilities
- Grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass
- Intersection improvements including the addition of turning lanes and optimization of traffic signals at the following locations:
    - Steeles Avenue and Goreway Drive (under jurisdiction of Region of Peel)
    - Kenview Boulevard and Goreway Drive (under jurisdiction of City of Brampton)
    - Brandon Gate Drive and Goreway Drive (under jurisdiction of City of Mississauga).

Summary of PIC No. 1
Comments Received

Based on the input received, most of those in attendance at the first PIC were in general agreement that improvements are needed on Goreway Drive. Participants indicated the nature of current problems on Goreway Drive to be:

- congestion and through traffic volumes
- vehicle delays and auto/train conflicts
- turning at intersections
- infiltration of traffic (including trucks) into surrounding residential areas.



Many participants were supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the CN rail crossing. Key concerns raised include:

- noise pollution
- property implications (i.e., impact on private property and private property entrances)
- visual impacts associated with construction of an overpass structure (i.e., road over rail structure)
- Drainage impacts (e.g., ponding has been observed along Goreway Drive near the Mimico Creek crossing, particularly during the spring and winter seasons).

Alternative Design Concept (1)

Road over Rail (Overpass) Structure

- Vertical clearance of 7.01 m
- Maximum grade of 5%
- 3.5 m of fill required at the private entrance into condominium complex located on the east side of Goreway Drive, north of Brandon Gate Drive
- Maximum 6 m high retaining walls adjacent to residential properties backing onto Goreway Drive
- 6.5 m of fill required at the field entrance into the Parkshore Golf Club located on the east side of Goreway Drive
- Relocation/closure of six entrances
- 2.5 m of fill required at the Mimico Creek culvert
- Profile creates a low point approximately 100 m south of Kenview Drive
- Urban road cross-section with curb and gutter and four lanes, including a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive.

Alternative Design Concept (2)

Rail over Road (Underpass) Structure

- Vertical clearance of 5.3 m
- Maximum grade of 5%
- 1.4 m cut at the private entrance into condominium complex located on the east side of Goreway Drive, north of Brandon Gate Drive
- Maximum 5 m high retaining walls adjacent to properties backing onto Goreway Drive (north side of CN's Halton Subdivision)
- 1.1 m cut at the field entrance into the Parkshore Golf Club located on the east side of Goreway Drive
- Relocation/closure of six entrances
- 1.2 m of fill required at the Mimico Creek culvert
- Urban road cross-section with curb and gutter and four lanes, including a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive and an asphalt multi-use trail on the east side of Goreway Drive.

Comparative Evaluation of Alternative Grade Separation Design Concepts

Evaluation Categories/Criteria	Grade Separation Alternative Design Concepts		
	Do-Nothing	Rail over Road Structure (Underpass)	Road over Rail Structure (Overpass)
Natural Environment			
Surface water impacts	Low, as no impacts anticipated.	High, as underpass would be subjected to potential flooding during major storm events. Design will need to include pumping station located in a wet well. Less acceptable to Toronto and Region Conservation Authority.	Moderate to high, due to need to place additional fill within the regulatory floodplain, and need to extend/widen existing Mimico Creek culvert. More acceptable to Toronto and Region Conservation Authority, as not prone to potential flooding during major storm events.
Groundwater impacts	Low, as no impacts anticipated.	High, as dewatering will be required during construction. Could result in groundwater draw effects during road operations.	Low, as minimal impacts anticipated.
Fisheries impacts	Low, as no impacts anticipated.	Moderate, as requires culvert replacement, extension, and widening, which will impact fisheries resources.	Moderate, as requires culvert replacement, extension, and widening, which will impact fisheries resources.
Terrestrial impacts	Low, as no impacts anticipated.	Low, as construction will result in removal of existing roadside trees within right-of-way only.	Low, as construction will result in removal of existing roadside trees within right-of-way only.
Socio-Economic Environment			
Property impacts	Low, as no impacts anticipated.	Moderate, as four (4) individual properties affected (partial acquisition), in addition to need for temporary easements during construction of rail diversion.	Low to moderate, as four (4) individual properties affected (partial acquisition).
Noise and visual impacts (operations)	Moderate, as no change/improvement to existing conditions.	Low, as minor improvement to existing conditions due to lowering of roadway.	Moderate, as embankment and structure is perceived to be intrusive to adjoining residences on south side of CN corridor. However, the actual impact is not anticipated to be as great as the perceived impact with mitigation. With respect to noise, an insignificant increase is predicted.
Entrance impacts	Low, as no impacts anticipated.	High, due to marked change in entrance grades. Six (6) entrances to be relocated/closed (2 residential, 4 field entrances).	High, due to marked change in entrance grades. Six (6) entrances to be relocated/closed (2 residential, 4 field entrances).
Construction disruption (increased noise, dust, traffic)	Low, as no impacts anticipated.	High, as construction requires significant pile driving activities, more road detours, as well as increased level of construction work in off-peak periods (night time, weekends) to minimize impacts to CN freight operations. In addition, disruption to occur over two construction seasons.	Moderate, due to the need for pile driving activities, road detours, increased noise, dust, traffic and entrance closures.
Road safety (operations)	High, as no improvement to existing delays at CN crossing.	Low, as significant improvement to existing conditions, including improved sight lines during operation.	Low to moderate, as significant improvement to existing condition.
Public safety (operations)	Low, as no impacts anticipated.	High, due to potential flooding during major storm events, which could result in road closure. Alternative route required during road closure.	Low, as overpass is not prone to potential flooding during major storm events.
Capital cost	Low, as no change/improvement to existing conditions.	High (approximately $22.8 M), due to need for track diversions, road detours, rail flagging personnel, temporary shoring, pumping station, significant underground utility relocates, and off peak construction force over two (2) construction seasons.	Moderate (approximately $14.2 M), as no need for track diversions, pumping station, significant underground utility relocates, and off peak construction force during single construction season.
Operating and maintenance costs	Low, as no change/improvement to existing conditions.	High, due to need to maintain pumping station and more expensive structure.	Low, as no need for pumping station and less expensive structure.
Cultural Environment			
Archaeological resources	Low, as no impacts anticipated.	Moderate, due to the potential to disturb yet to be discovered archaeological resources during earth excavation and displacement.	Moderate, due to the potential to disturb yet to be discovered archaeological resources during earth excavation and displacement.
Construction Complexity			
Utility impacts	Low, as no impacts anticipated.	High, as significant earth excavation will result in relocation of existing utilities, both within Goreway Drive right-of-way and CN corridor.	Low to moderate, as less utility relocation requirements, specifically within CN corridor.
Rail operations impacts	Low, as no impacts anticipated.	High, given need for temporary rail diversions during construction. Less acceptable to CN as extremely disruptive to existing freight rail services.	Low to moderate, as construction will not require need for rail diversions and therefore more acceptable to CN. Less disruptive to existing freight rail services.
Contaminated soils	Low, as no impacts anticipated.	Low to moderate, given volume of potentially contaminated soils that will need to be excavated.	Low, as limited disturbance to existing grades.
Adequacy of construction space	Low, as no impacts anticipated.	High, as limited options for rail diversion (i.e., north side of CN corridor only).	Moderate, due to the need to place significant volume of fill within existing road right-of-way.
Construction timing	Low, as no impacts anticipated.	High, as construction will occur over two (2) construction seasons.	Moderate, as construction can be completed within a single construction season.
Overall Results	**Included for comparison purposes only.**	**Least Preferred Alternative.**	**Preferred Alternative.**

Impacts are measured as low, moderate or high based on the anticipated net environmental effects (following inclusion of mitigative measures). In this regard, a rating of low has the least impact, while a rating of high has the greatest anticipated negative impact. It is noted that the evaluation criteria have not been weighted.

Preliminary Preferred Design – Road over Rail Structure (Alternative 1)

The benefits associated with implementation of the Preliminary Preferred Design include:

- Significant improvement to road safety as a result of alleviating road vehicle delays at the CN rail crossing
- Minimal risk of potential flooding during major storm events
- Minimal impact to roadside vegetation and groundwater resources
- Moderate construction costs and low operating and maintenance costs compared to Alternative 2 - Underpass
- Significantly less disruptive to existing CN freight rail services than Alternative 2 and does not require track diversions during construction
- No need for a pumping station, significant underground utility relocates, and off peak construction force during construction
- Less time required to construct than Alternative 2 (single construction season).

Preliminary Preferred Design – Road over Rail Structure (Alternative 1)

The potential impacts and proposed mitigation associated with implementation of the Preliminary Preferred Design include:

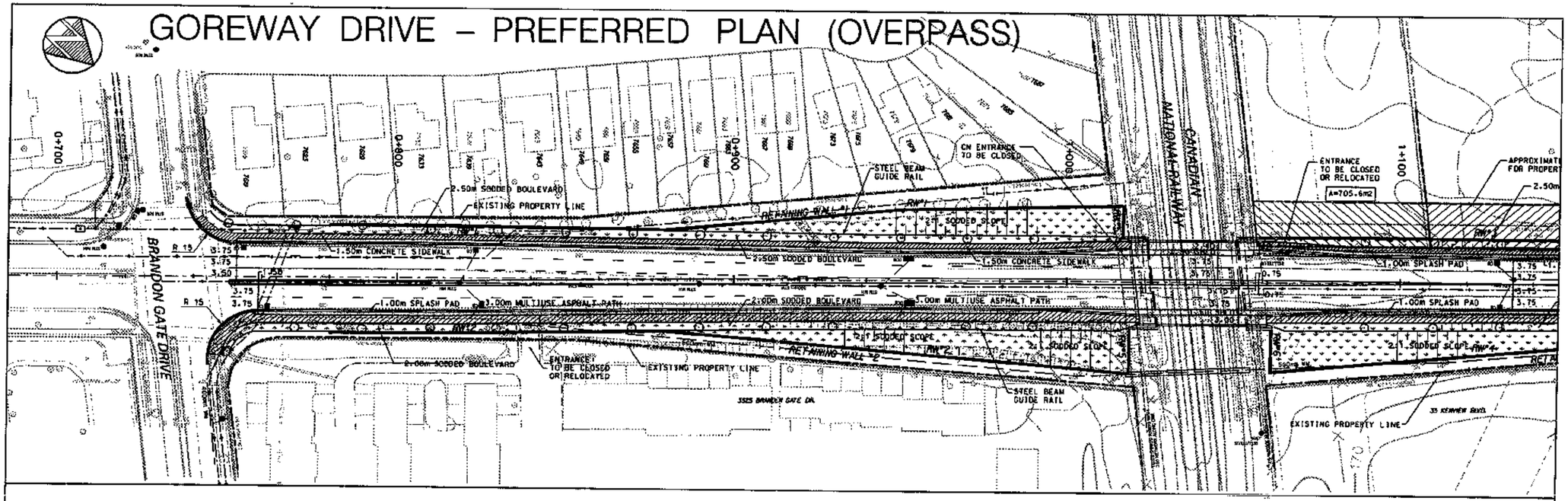
Natural Environmental Impacts	Mitigation
Replacement, extension, and widening of the Mimico Creek culvert to accommodate additional fill materials, which will require in-stream works. Will have an impact on fisheries resources.	• Contractor shall ensure applicable erosion and sediment control measures are in place prior to commencement of any construction activities and remain in place until all disturbed areas are fully stabilized. Erosion and sediment control measures shall be inspected on a regular basis to ensure they are functioning properly and are maintained and/or upgraded as required. • All in-stream works are to abide by the conditions of approval received from the Ministry of Natural Resources (MNR). • All construction activities, including maintenance procedures, will be controlled to prevent the entry of deleterious substances into the watercourse. • All disturbed areas will be rehabilitated, re-stabilized and re-vegetated immediately upon completion of the construction works.
Relocation/Removal of roadside trees within the right-of-way.	• Limit right-of-way clearing to required area of construction. • All areas disturbed during construction will be reseeded and revegetated immediately with native (non-invasive) species. • Re-establish vegetation to maintain habitat typical of opportunistic wildlife species.

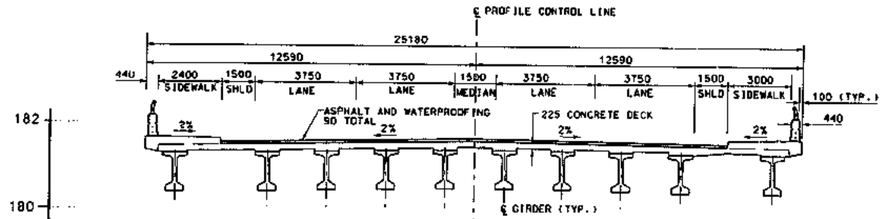
Preliminary Preferred Design – Road over Rail Structure (Alternative 1)

Socio-economic Impacts	Mitigation
Partial acquisition of four (4) individual properties.	• Market value for land and/or compensation for damages due to acquisition.
Relocation/closure of six (6) existing entrances (2 residential, 4 field entrances).	• During the EA process, property/business owners will be contacted to discuss their respective entrance impacts. Potential mitigation strategies will be developed in consultation with property/business owners.
Visual impact due to intrusive embankment, which carries new roadway facilities.	• Trees or shrubs will be planted to reinstate removed growth, and to augment vegetation at visually sensitive locations. • Following construction, lands disturbed as a result of construction activities will be restored to their original use and condition to the extent possible.
Negligible increase in local noise levels during road operations.	• Noise mitigative measures are not required as future (predicted) noise levels are expected to increase by less than 5 decibels.
Construction disruption due to increased noise, dust, traffic and entrance closures.	• Contractor shall adhere to all applicable municipal by-laws. • Prior to commencing construction activities, the public, regulatory agencies and property/business owners will be notified regarding the scheduling of construction activities. • Water and/or commercial dust suppressants approved by the Ministry of Environment (MOE) will be used during construction to reduce dust.

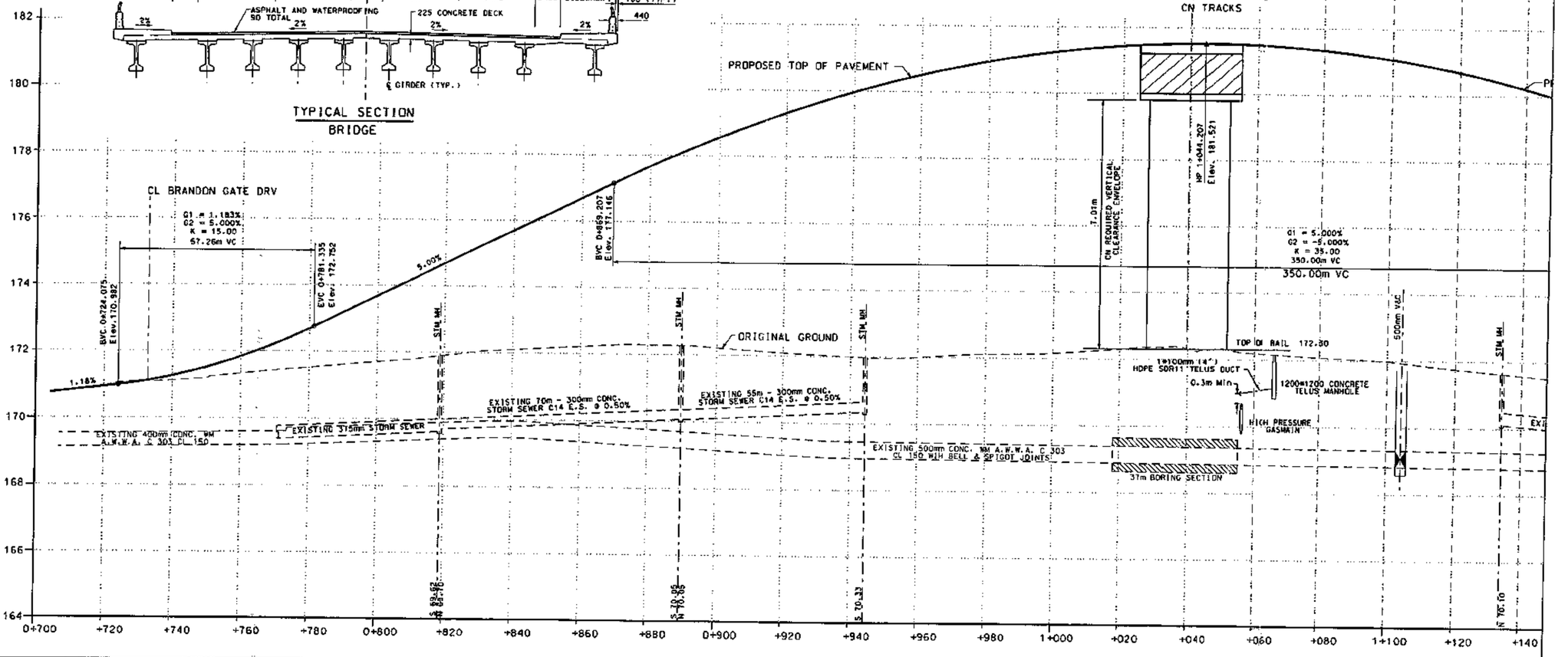
Overpass Design

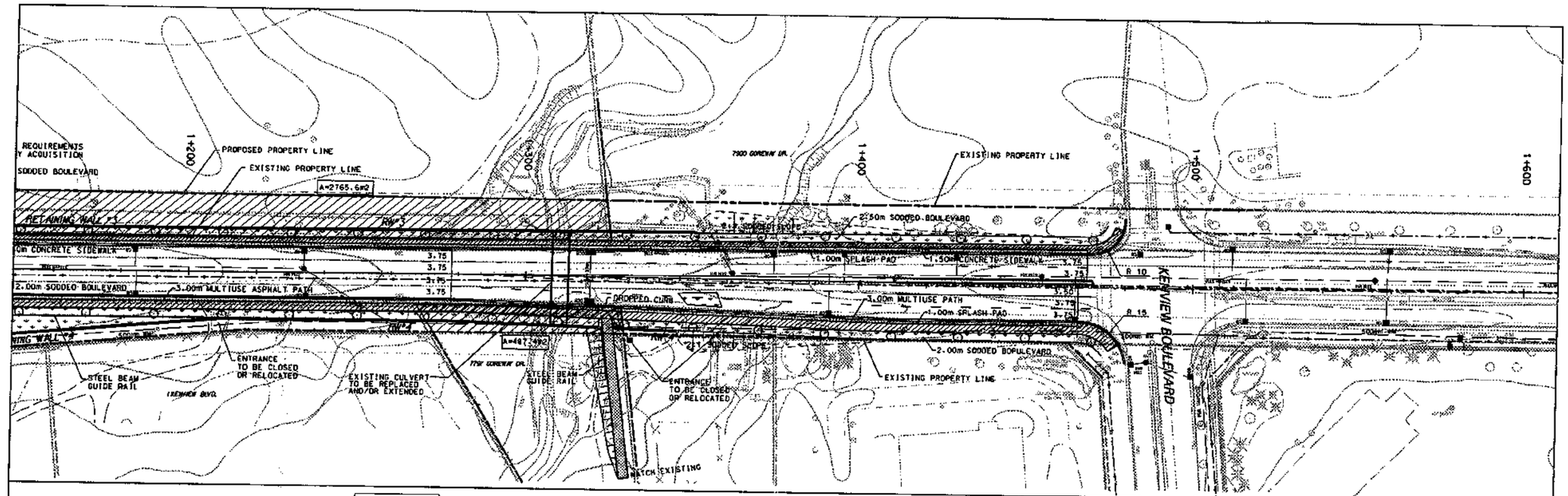
GOREWAY DRIVE – PREFERRED PLAN (OVERPASS)

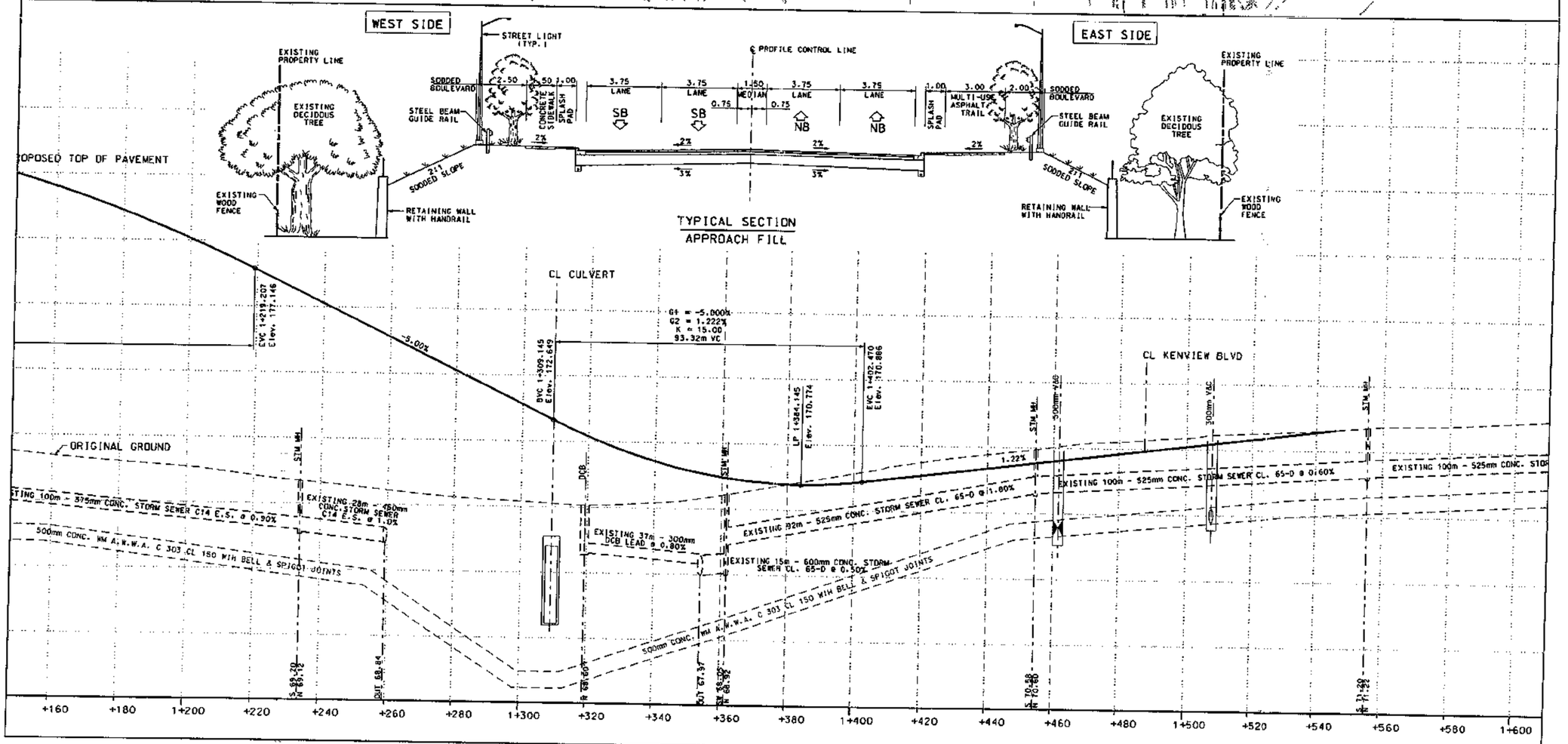




TYPICAL SECTION
BRIDGE




REQUIREMENTS
Y ACQUISITION
SODDED BOULEVARD
PROPOSED PROPERTY LINE
EXISTING PROPERTY LINE
A=2765.6m2
RETAINING WALL #3
1+200
1+300
1+400
1+500
1+600
7300 GOREWAY DR.
2.50m SODDED BOULEVARD
1.00m SPLASH PAD
1.50m CONCRETE SIDEWALK
3.00m MULTIUSE ASPHALT PATH
2.00m SODDED BOULEVARD
DROPPED CURB
3.00m MULTIUSE PATH
1.00m SPLASH PAD
KENVIEW BOULEVARD
A=497.4m2
2:1 SODDED SLOPE
ENTRANCE TO BE CLOSED OR RELOCATED
EXISTING CULVERT TO BE REPLACED AND/OR EXTENDED
STEEL BEAM GUIDE RAIL
IRENMOR BLVD.
7700 GOREWAY DR.
MATCH EXISTING


WEST SIDE
EAST SIDE
STREET LIGHT (TYP.)
℄ PROFILE CONTROL LINE
EXISTING PROPERTY LINE
EXISTING DECIDUOUS TREE
SODDED BOULEVARD
2.50
0.50
1.00 CONCRETE SIDEWALK
SPLASH PAD
3.75 LANE
SB
NB
1.50 MEDIAN
0.75
2%
3%
STEEL BEAM GUIDE RAIL
2:1 SODDED SLOPE
RETAINING WALL WITH HANDRAIL
EXISTING WOOD FENCE
1.00 SPLASH PAD
3.00 MULTI-USE ASPHALT TRAIL
2.00
TYPICAL SECTION
APPROACH FILL
PROPOSED TOP OF PAVEMENT
CL CULVERT
G1 = -5.000%
G2 = 1.222%
K = 15.00
93.32m VC
-5.00%
1.22%
EVC 1+219.207
Elev. 177.146
BVC 1+309.145
Elev. 172.649
LP 1+384.145
Elev. 170.774
EVC 1+402.470
Elev. 170.866
CL KENVIEW BLVD
ORIGINAL GROUND
STM MH
DCB
300mm VSC
EXISTING 100m - 375mm CONC. STORM SEWER C14 E.S. @ 0.90%
EXISTING 28m - 450mm CONC. STORM SEWER C14 E.S. @ 1.0%
500mm CONC. WM A.W.W.A. C 303 CL 150 WITH BELL & SPIGOT JOINTS
EXISTING 37m - 300mm DCB LEAD @ 0.80%
EXISTING 82m - 525mm CONC. STORM SEWER CL. 65-D @ 11.80%
EXISTING 15m - 600mm CONC. STORM SEWER CL. 65-D @ 0.50%
EXISTING 100m - 525mm CONC. STORM SEWER CL. 65-D @ 0.60%
EXISTING 100m - 525mm CONC. STOR
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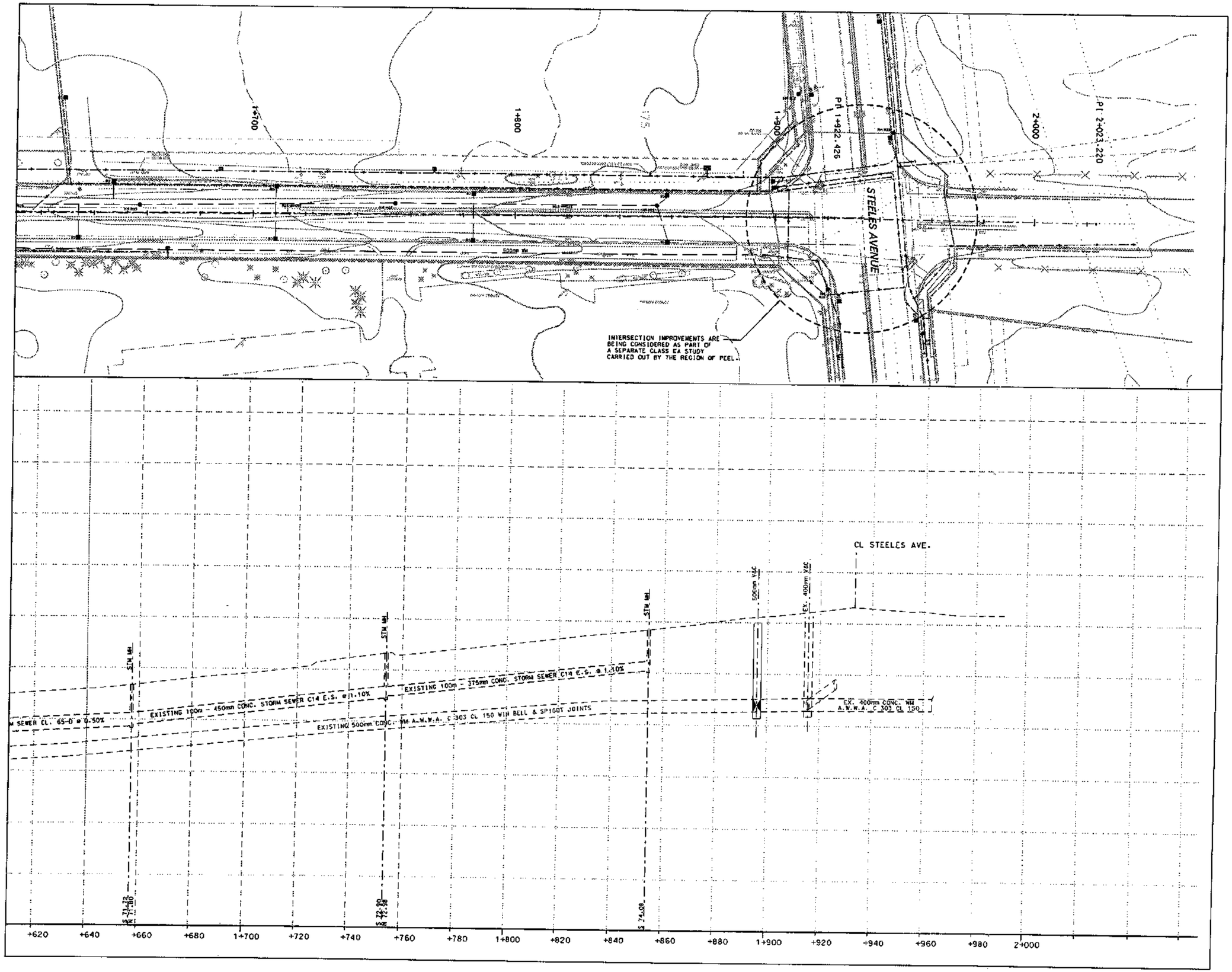
1+700
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2+000
PI 1+932.426
PI 2+023.220
STEELES AVENUE
INTERSECTION IMPROVEMENTS ARE BEING CONSIDERED AS PART OF A SEPARATE CLASS EA STUDY CARRIED OUT BY THE REGION OF PEEL
CL STEELES AVE.
STM MH
500mm VAC
EX. 400mm VAC
EXISTING 100m - 450mm CONC. STORM SEWER C14 E.S. @1.10%
EXISTING 100m - 375mm CONC. STORM SEWER C14 E.S. @1.10%
EXISTING 500mm CONC. WM A.W.W.A. C 303 CL 150 WITH BELL & SPIGOT JOINTS
EX. 400mm CONC. WM A.W.W.A. C 303 CL 150
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Landscape Rendering

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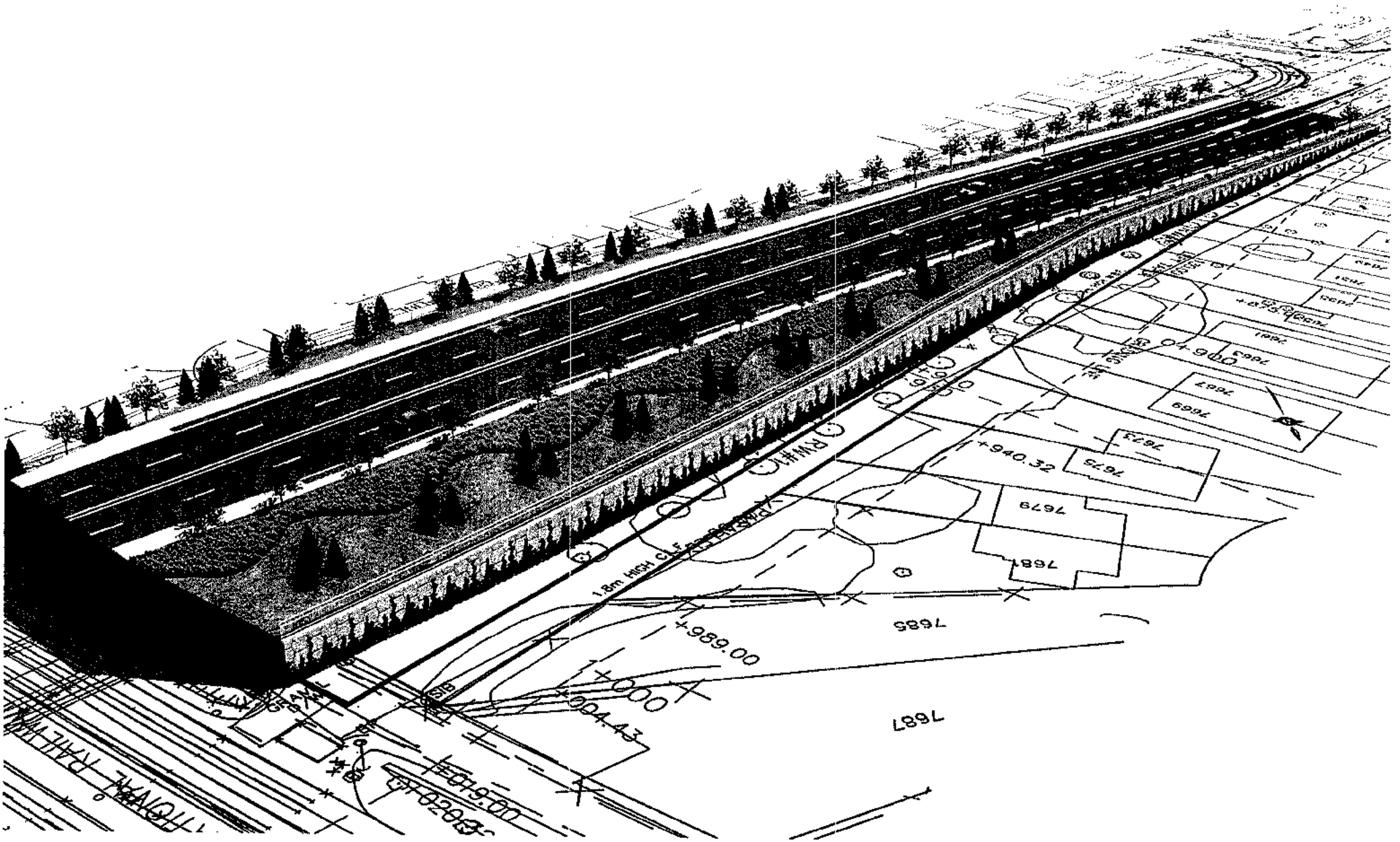
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+904.43
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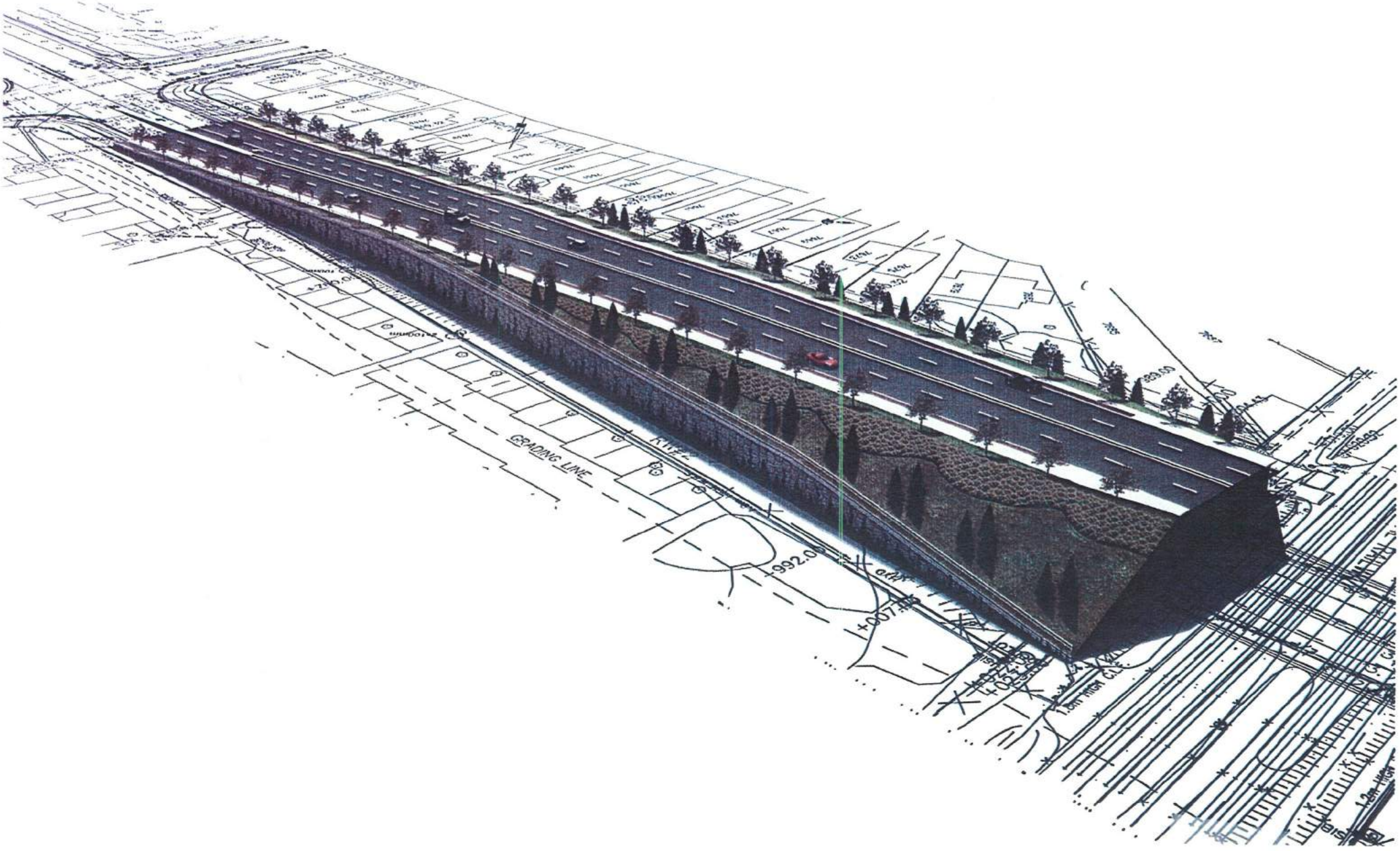
GRADING LINE
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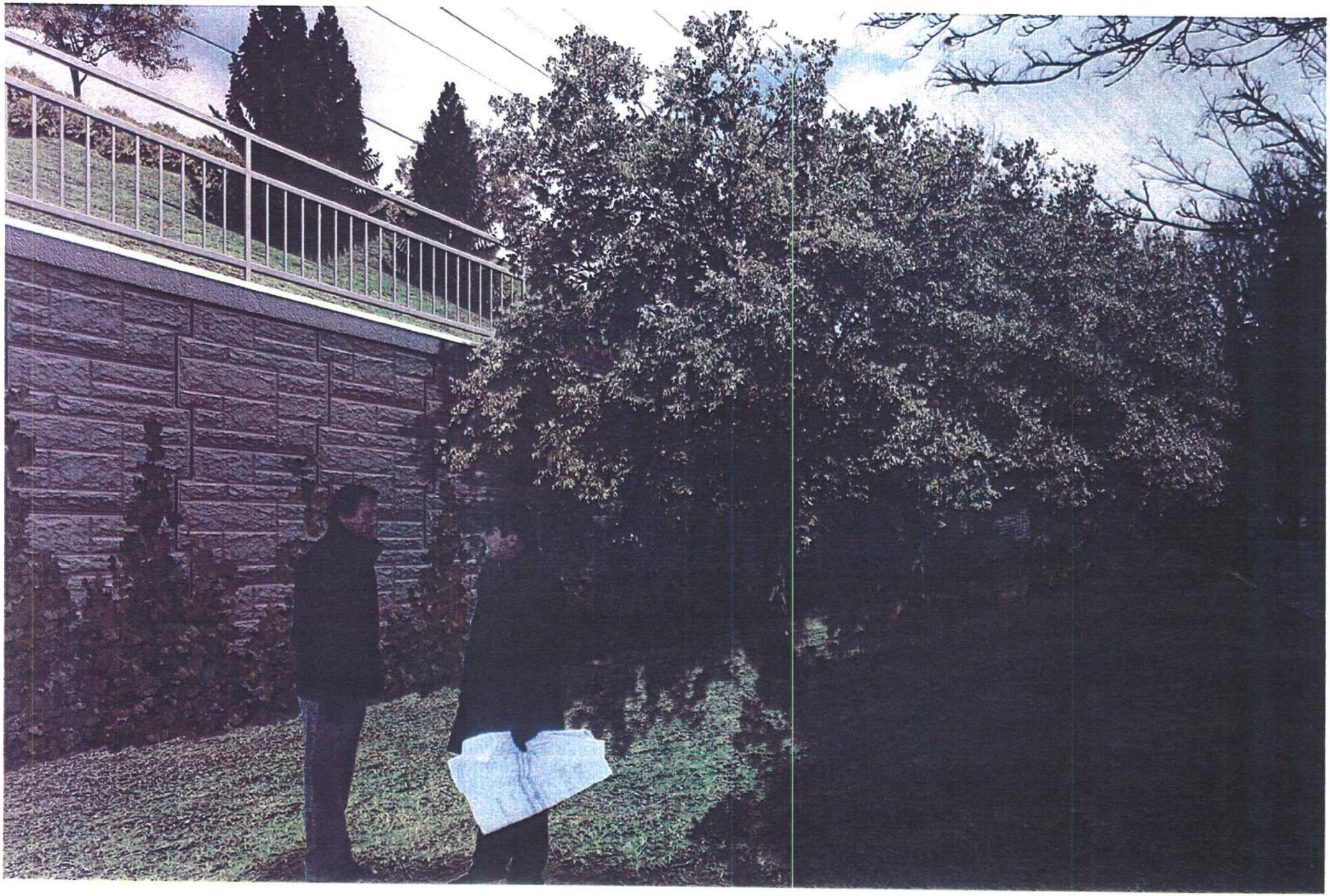
1+007.00



Detour Plan

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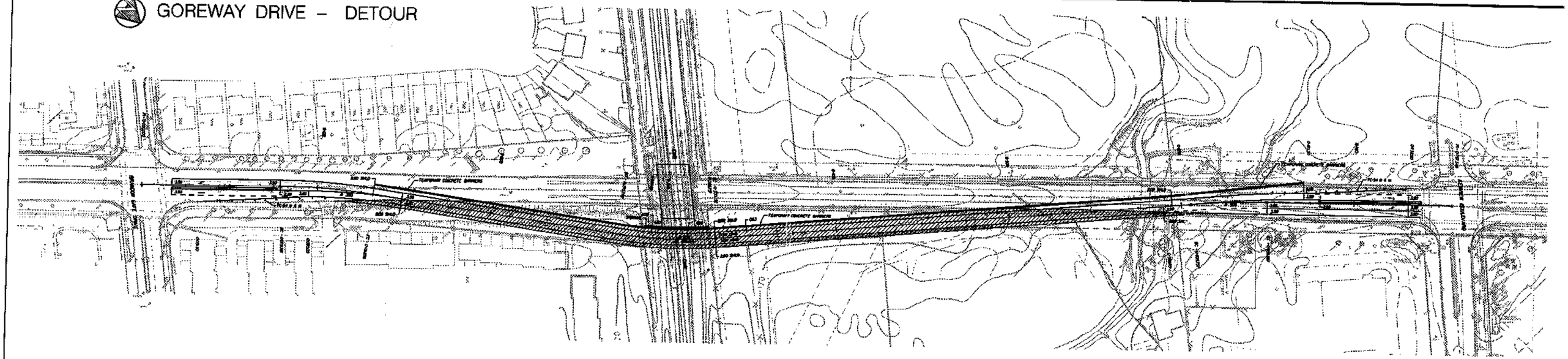
GOREWAY DRIVE – DETOUR



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Next Steps

Following this PIC, the Project Team will:

- Review your comments and respond to your written questions
- Confirm/select the Preferred Design Concept based on consideration of comments received from the public/agencies
- Finalize the description of potential impacts and mitigation measures for the Preferred Design Concept
- Document the Class EA study in an Environmental Study Report (ESR) and place on the Public Record for a minimum 30-day public review period.

Notices will be placed in local newspapers to announce where the public can review the ESR.

Remain Involved in the Study

Your comments are important as they will be reviewed and considered as part of the Study. Please indicate your interest to remain involved with the Study by submitting your completed comment sheet or by contacting any of the following Project Team members:

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Fax: 905-874-2599
Email:
khurram.tunio@brampton.ca

Abdul Shaikh, P.Eng.
City Project Engineer
City of Mississauga
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Fax: 905-615-3173
Email:
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Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007
Fax: 905-238-0038
Email:
greg.smith@uma.aecom.com

There is an opportunity at any time during the Class EA process for interested persons to provide comments and review outstanding issues with the Project Team.

Thank you for attending and offering your input.

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Public Information Centre – May 1, 2007

Improvements to Goreway Drive: Steeles Avenue to Brandon Gate Drive

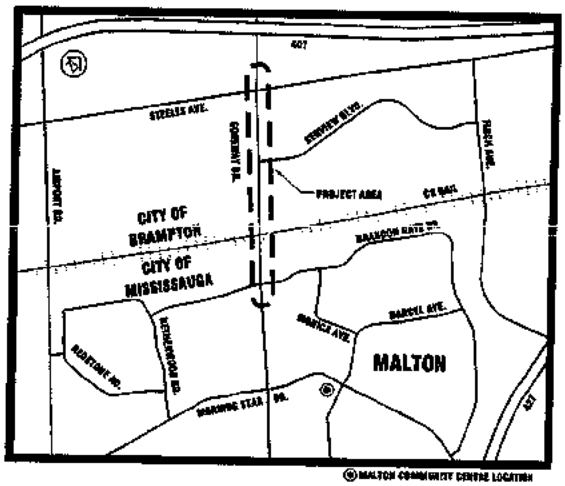
Introduction

The City of Brampton, in collaboration with the City of Mississauga, has initiated a Class Environmental Assessment (Class EA) Study to improve approximately 1.2 km of Goreway Drive between Steeles Avenue in the City of Brampton and Brandon Gate Drive in the City of Mississauga (see map of Project Area below). Improvements to this section of Goreway Drive are needed to accommodate future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing (Halton Subdivision).

Rationale for the Study

Goreway Drive is currently functioning as a four-lane urban arterial/major collector roadway that provides north-south connectivity for commuter, commercial and emergency service vehicles within the cities of Brampton and Mississauga. At present, traffic delays are encountered at CN's existing at-grade (level) railway crossing due to long queues as trains cross Goreway Drive.

This results in reduced operational conditions and road safety, coupled with restrictions in traffic flow and driver frustration. The City of Brampton, in collaboration with the City of Mississauga, proposes to make requisite improvements to Goreway Drive within the 1.2 km Study Area Corridor to address these deficiencies.



Class Environmental Assessment Process

The Study is being carried out in accordance with the planning and design process for 'Schedule C' projects as outlined in the Municipal Engineers Association *Municipal Class Environmental Assessment* document (June 2000). The Class Environmental Assessment (Class EA) process includes public/external agency consultation, an evaluation of Alternative Solutions and Alternative Design Concepts, an assessment of potential impacts associated with the proposed improvements, and formulation of measures to mitigate identified impacts.

The Municipal Class EA process includes five phases to ensure potential effects on the environment are taken into consideration, and that municipal road projects are carried out with the involvement of the public and regulatory agencies in the planning and decision-making processes. To summarize, the five-phase Class EA process is as follows:

Phase 1	Identification and description of the problem (deficiencies).
Phase 2	Identification of Alternative Solutions to address the problem and select a Preliminary Preferred Solution by taking into account input solicited and received from the public and regulatory agencies.
Phase 3	Examination of alternative methods of implementing the Preliminary Preferred Solution based on the existing Study Area environment, consideration of public and regulatory agency input, and determination of the anticipated (or predicted) impacts. *We are here.*
Phase 4	Preparation of an Environmental Study Report (ESR) documenting the rationale for the Project, the planning and decision-making processes which led to the identification of the Preferred Solution, and the public and regulatory agency consultation activities that have occurred throughout the Study.
Phase 5	Completion of contract drawings and documents, and proceed to construction and operation.

As a Schedule C Project, the Project has the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Municipal Class EA, that is, Phase 1 through Phase 4 of the planning and design process. During Phase 4, an ESR will be prepared and filed for review by the public and any technical review agencies that have expressed an interest in the Study. If the Minister of the Environment has not received a Request for a Part II Order within the 30-day review period, the Region has complied with Section 13(3) of the *Environmental Assessment Act* (EAA) and may proceed to Phase 5 and implementation of the Project.

Problem Statement

Due to the existing at-grade (level) crossing of CN's Halton Subdivision, traffic delays to motorists, truckers and transit riders are a frequent occurrence as trains cross Goreway Drive. If not improved, this will result in deterioration to the quality of life for area residents. This deterioration is typically accompanied by higher levels of noise and air pollution, driver frustration and decreased road safety, and will continue in the future if a grade separation is not constructed.

Extended periods of traffic congestion and/or delays add significantly to the cost of business through delays to the movement of goods and people. Businesses and industries relying on just-in-time delivery of goods tend to avoid congested roadways leading to the dispersion of truck traffic to routes not designed for commercial vehicles.

A transportation solution is required to accommodate existing and future travel demands, to resolve existing traffic delays and impacts on surrounding land uses, and to enhance overall traffic safety and flow within the Goreway Drive Study Area Corridor.

Alternative Solutions to Address the Problem

1. Do Nothing, that is, maintain four lanes on Goreway Drive with no grade separation at the CN crossing;
2. Maintain four lanes on Goreway Drive with a grade separation at the CN crossing;
3. Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue);
4. Provide localized intersection improvements; and,
5. Provide enhanced bus service.

Potential Benefits/Impacts Associated with the Preliminary Preferred Solution

Based on the evaluation of Alternative Solutions, Alternative 2 was selected as the Preliminary Preferred Solution. Alternative 2 includes maintaining the existing four-lane cross section on Goreway Drive, improving pedestrian and cyclist facilities, grade separating CN's existing at-grade (level) crossing by constructing either an overpass or underpass, and intersection improvements including the addition of turning lanes and optimization of traffic signals. Some of the benefits and potential impacts associated with implementation of the Preliminary Preferred Solution include:

Benefits

- Improved traffic flow and reduced vehicle emissions as traffic delays at the CN crossing are alleviated
- Enhanced traffic safety and decreased driver frustration within the Corridor
- Reduced infiltration through neighbouring residential areas

Impacts

- Removal of some roadside vegetation
- Moderate to high construction costs to build grade separation
- Temporary disruption to residents, businesses, and road users during construction due to increased noise, dust, traffic delays, and access modifications
- Relocation of utility plant within the Corridor
- Partial acquisition of properties.

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Public Information Centre – May 1, 2007

Public Information Centre

The purpose of the Public Information Centre (PIC) is to provide interested stakeholders with an opportunity to participate in the planning process. Two PICs are being held during this Study.

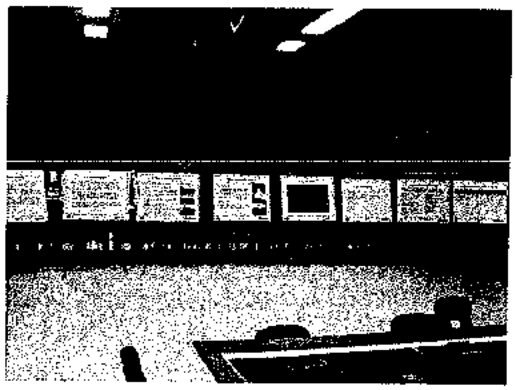
The first PIC was held on November 28, 2006, to present and receive public input on the need for improvements to Goreway Drive, the existing conditions within the Study Area Corridor, the evaluation of Road Improvement Alternatives and future scheduled EA activities.

PIC No. 2 is being held to present and receive public input on the:

- Evaluation of Alternative Design Concepts for the Preferred Solution
- Selection of the Preliminary Preferred Design Concept
- Potential benefits and impacts associated with the Preliminary Preferred Design Concept
- Future scheduled EA activities.

Comments from the First PIC

Based on the input received, most of those in attendance at the first PIC were in general agreement that improvements are needed on Goreway Drive. Many participants were supportive of the preliminary preferred solution to maintain four lanes on Goreway Drive and provide a grade separation at the CN rail crossing. Most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to noise pollution, property implications, and visual impacts associated with construction of an overpass structure (road over rail structure).



Alternative Design Concepts for the Preferred Solution

1. Road over Rail (Overpass) Structure
2. Rail over Road (Underpass) Structure

The following evaluation criteria were used to evaluate the Alternative Designs Concepts:

Natural Environment

Surface Water Impacts
Fisheries Impacts
Groundwater Impacts
Terrestrial Impacts

Socio-economic and Cultural Environment

Property and Entrance Impacts
Noise and Visual Impacts
Construction Disruption
Public and Road Safety

Capital Cost
Operating and Maintenance Cost
Archaeological Resources

Construction Complexity

Utility Impacts
Rail Operations Impacts
Contaminated Soils
Adequacy of Construction Space
Construction Timing

Potential Benefits Associated with the Preliminary Preferred Design Concept

Based on the evaluation of Alternative Design Concepts, Alternative 1 was selected as the Preliminary Preferred Design Concept. Alternative 1 includes an urban road cross-section with curb and gutter and four lanes, including a splash pad, grassed boulevard, and sidewalk on the west side of Goreway Drive, and an asphalt multi-use trail on the east side of Goreway Drive.

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Public Information Centre – May 1, 2007

Some of the benefits/impacts associated with implementation of the Preliminary Preferred Design include:

- Significant improvement to road safety as a result of alleviating road vehicle delays at the CN rail crossing
- Minimal risk of potential flooding during major storm events
- Minimal impact to roadside vegetation and groundwater resources
- Moderate construction costs and low operating and maintenance costs compared to Alternative 2 - Underpass
- Significantly less disruptive to existing CN freight rail services than Alternative 2 and does not require track diversions during construction
- No need for a pumping station, significant underground utility relocates, and off peak construction force
- Less time required to construct than Alternative 2 (single construction season)
- Partial acquisition of four (4) properties and relocation/closure of six (6) property entrances.

Future Activities

Following the PIC we will:

- Review your comments and respond to your written questions
- Confirm/select the Preferred Design Concept based on consideration of comments received from the public/agencies
- Finalize the description of potential impacts and mitigation measures for the Preferred Design Concept
- Document the Class EA study in an Environmental Study Report (ESR) and place on the Public Record for a minimum 30-day public review period. Notices will be placed in local newspapers to announce where the public can review the ESR.

We Want to Hear from You!

Your comments are welcome to determine public ideas and opinions concerning the proposed improvements to Goreway Drive. Please provide your comments on the Comment Sheet available and place in the Comment Drop Box, or mail/fax by May 16, 2007. Should you have any additional questions or require further information regarding improvements to Goreway Drive, please contact either:

Khurram Tunio, P.Eng.
City Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Tel: 905-874-2881 Fax: 905-874-2599
Email: khurram.tunio@brampton.ca

Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Tel: 905-238-0007 Fax: 905-238-0038
Email: greg.smith@uma.aecom.com

Abdul Shaikh. P.Eng.
City Project Engineer
City of Mississauga
3484 Semenyk Court
Mississauga, ON L5C 4R1
Tel: 905-615-3200 (3734)
Fax: 905-615-3173
Email: abdul.shaikh@mississauga.ca

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.

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IMPROVEMENTS TO GOREWAY DRIVE: CLASS ENVIRONMENTAL ASSESSMENT STUDY FROM STEELES AVENUE TO BRANDON GATE DRIVE

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PUBLIC QUESTIONNAIRE
Public Information Centre No. 2, May 1, 2007

The City of Brampton, in partnership with the City of Mississauga, has retained UMA Engineering Ltd. (UMA) to undertake a Class Environmental Assessment (EA) Study to consider options to satisfy travel demand and address existing traffic delays on Goreway Drive from Steeles Avenue southerly to Brandon Gate Drive. This questionnaire is your opportunity to comment on this Study and indicate your concerns and preferences. ***Given that your views are important to us, please take a moment to complete this questionnaire (please print) and deposit it in the "Comment Sheets" box provided or mail/fax to the address provided on the back page. Thank you.***

1. **My property/interest is:** ***(Please check all that apply)***

[ ] back/front onto Goreway Drive
[ ] located east of Goreway Drive
[ ] located west of Goreway Drive
[ ] general interest
[ ] commercial/industrial property
[ ] residential property
[ ] recreational property
[ ] user of Goreway Drive but not a local resident

2. **Do you agree with the Preliminary Preferred Design as presented?**

[ ] Yes [ ] No [ ] Don't know

If you answered YES or NO, please explain why you do or do not agree with the Preliminary Preferred Design as presented.

3. **Please comment on the Evaluation Criteria used to compare the Alternative Designs.**

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

4. **Do you think additional Evaluation Criteria are needed to comparatively evaluate the Alternative Designs? If so, please indicate what they are and why.**

_____

_____

_____

_____

_____

_____

_____

_____

Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

5. **How did you hear about this public meeting?**

[ ] Newspaper ad [ ] Notice in mail [ ] Other

6. **Please indicate your satisfaction with the following:**

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	_____	_____
Time of Meeting	_____	_____
Day of the Week	_____	_____

7. **On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:**

a) How informative were the display materials?

Very		*Somewhat*		*Not at all*
1	2	3	4	5

b) How helpful were the staff and consultants in attendance?

Very		*Somewhat*		*Not at all*
1	2	3	4	5

8. **Were all your questions answered satisfactorily?**

[ ] Yes [ ] No [ ] If No, can someone contact you?

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

Other Comments: _____

_____

_____

_____

_____

_____

_____

_____

Please provide your contact information below should you wish to receive a written response to your comments and/or to be added to the Study Mailing List (please print).

Your Name: _____

Your Address: _____

_____

Your Postal Code: _____

Your Telephone No.: _____

Do you require a written response? [ ] Yes [ ] No

Please mail or fax your completed questionnaire by May 16, 2007, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

Additional Comments:

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

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Improvements to Goreway Drive
Class Environmental Assessment
Public Information Centre No. 2
May 1, 2007

In partnership with the City of Mississauga, the City of Brampton is undertaking a Class Environmental Assessment (EA) Study to facilitate the improvement of Goreway Drive from Steeles Avenue to Brandon Gate Drive. Improvements to this section of Goreway Drive are needed to accommodate existing and future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) crossing (Halton Subdivision).

SIGN-IN SHEET

PLEASE PRINT:

#	Name	Affiliation	Address	Phone #

A6 – Public Correspondence

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905-238-0007 F 905.238.0038 www.uma.aecom.com

April 29, 2008

File Name: 4020-009

Dear

Re: Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive
Class Environmental Assessment Study

Thank you for your comments of March 23, 2008, regarding the above project. This letter is written in response to your comments, which request a minimum width of 12 m for the proposed access road and provision of full municipal services to the subject property (i.e., Property Identification Number 140220133).

As you may know, the subject property is situated within Secondary Plan Area 32. Policies of the Secondary Plan restrict access from individual properties to Arterial Roads, including Goreway Drive. However, access at this location can be provided through an internal road network that is shared between the subject property and that of the immediately to the south. As discussed during our meeting in April, 2007, the City has agreed to propose a shared access road as part of the above Class EA Study to maintain current access from the subject property to Goreway Drive. The proposed access road will be designed to accommodate vehicles that service the current land use.

As the subject property consists primarily of old field (or abandoned farmland), we have proposed a 5.0 m access road to accommodate a single entrance suitable for farm vehicles. Based on the existing land use, we cannot justify the need for an access road as wide as 12 m at this location. Access modifications to service future land use can be considered for approval through the site plan development and rezoning application process. That is, any access requested in support of future development must be submitted as part of a development application, which in turn will require formal planning approval from the City of Brampton. Requests for future access cannot be approved as part of the Class EA process; however, opportunities to modify the access lane as proposed in the Class EA Study can be reviewed in coordination with the development review process during the detailed design phase and property negotiation process.

We have also maintained a level of municipal service throughout the corridor that is comparable to existing conditions. Improvements to underground infrastructure (i.e., municipal services or utilities) are outside the scope of the Class EA Study for improvements to Goreway Drive.

We trust that the above response addresses your comments, particularly in relation to the proposed access road on the west side of Goreway Drive. An Environmental Study Report (ESR) documenting the proposed improvements to Goreway Drive will be made available for public review in the coming weeks. Additional details regarding when and where the report is available will be provided to you in advance of the review period.

Sincerely,

UMA Engineering Ltd.

ORIGINAL SIGNED BY

Greg Smith, P. Eng.
Consultant Project Manager
Greg.Smith@uma.aecom.com

GS:sk

cc: J. Perdue, Legends Consulting
K. Tunio, Senior Project Engineer, City of Brampton
S. Choi, Senior Project Engineer, City of Brampton
S. Barrett, Manager, Transportation Asset Management, City of Mississauga
A. Shaikh, Transportation Project Engineer, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Consultant Environmental Planner, UMA Engineering Ltd.

Kapusin, Sonya

Subject: FW: Goreway Drive Class Environmental Assessment (EA)
Attachments: 4019_0001.pdf

From:
Sent: March 23, 2008 8:10 PM
To: Smith, Greg
Cc:
Subject: Re: Goreway Drive Class Environmental Assessment (EA)

GREG
AS PER MY PREVIOUS EMAIL
PLEASE CALL ME IF YOU HAVE ANY QUESTIONS

On 3/18/08, **Smith, Greg** <Greg.Smith@uma.aecom.com> wrote:

Thanks for confirming your receipt and intent to provide a response to us by early next week.

Regards,

Greg

From:
Sent: March 18, 2008 4:53 PM
To: Smith, Greg
Subject: Re: Goreway Drive Class Environmental Assessment (EA)

GREGI
WILL GET THE ANSWER FROM MY CLEINT BY FRIDAY, SO I WILL GET BACK TO YOU BY TUESDAY
THANKS

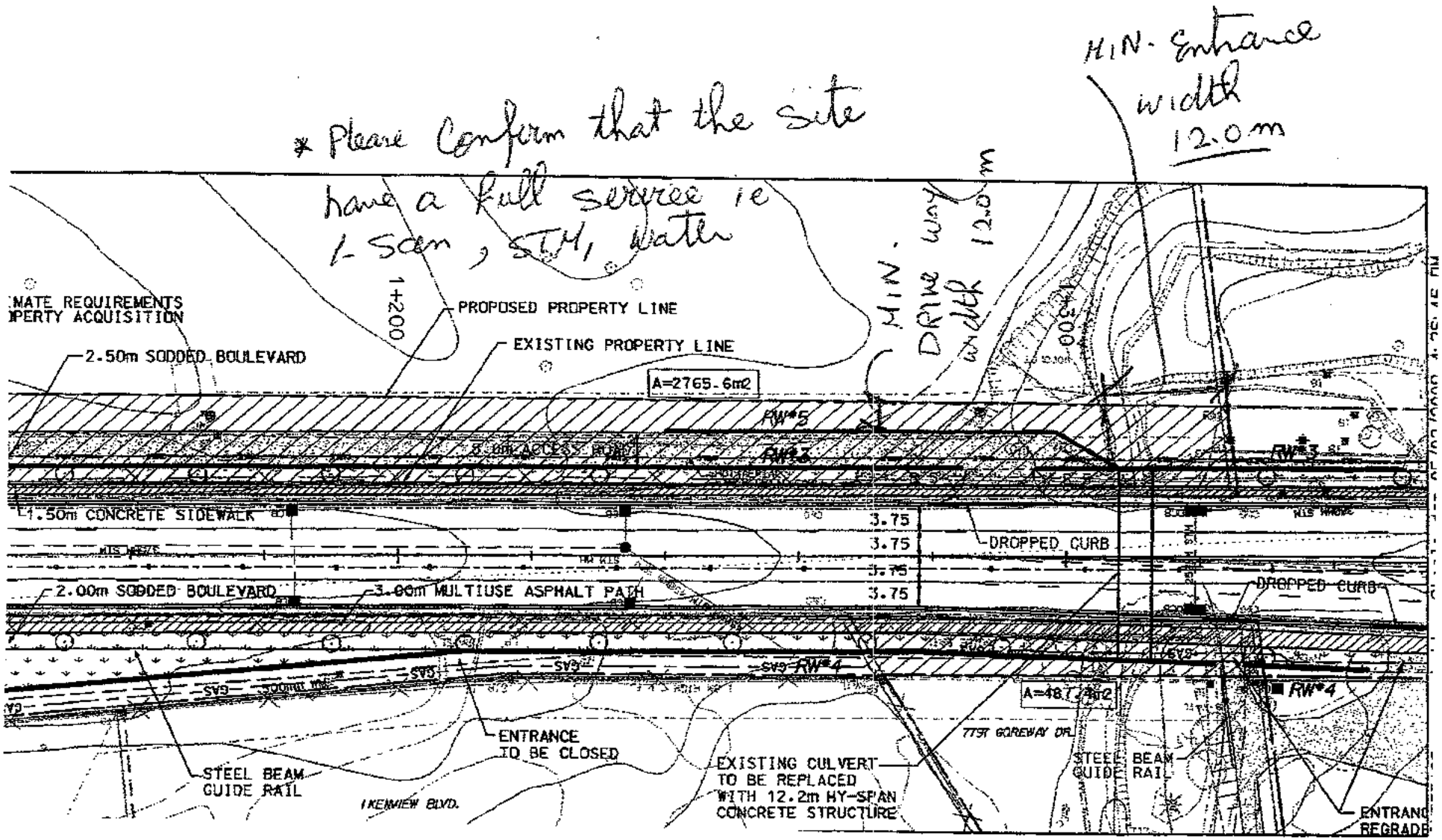
On 3/18/08, **Smith, Greg** <Greg.Smith@uma.aecom.com> wrote:

Good morning
I'm just following up to confirm that you received my March 5th email. If so, can you please advise when you will be able to provide comments or response to the plan and cross sections at your property.

Thanks for your cooperation and if you have any questions, please advise.

Regards,

Greg Smith, P.Eng.


* Please Confirm that the site have a full service ie 1-San, STM, Water
MIN. Entrance width 12.0m
MIN. DRIVE WAY width 12.0m
MATE REQUIREMENTS
PERTY ACQUISITION
PROPOSED PROPERTY LINE
EXISTING PROPERTY LINE
2.50m SODDED BOULEVARD
1+200
A=2765.6m2
5.00m ACCESS ROAD
1.50m CONCRETE SIDEWALK
3.75
3.75
3.75
3.75
DROPPED CURB
DROPPED CURB
2.00m SODDED BOULEVARD
3.00m MULTIUSE ASPHALT PATH
RW#5
RW#3
RW#4
RW#4
A=48.7.4m2
ENTRANCE TO BE CLOSED
STEEL BEAM GUIDE RAIL
IKENVIEW BLVD.
EXISTING CULVERT TO BE REPLACED WITH 12.2m HY-SPAN CONCRETE STRUCTURE
77ST GOREWAY DR.
STEEL BEAM GUIDE RAIL
ENTRANCE REGRADE

Kapusin, Sonya

From: Smith, Greg
Sent: March 5, 2008 5:14 PM
To:
Subject: RE: Goreway Drive Class Environmental Assessment (EA)

Attachments: Goreway Access Lane Xsections.pdf; Goreway Access Lane Plan.pdf

Good afternoon

Further to your request to Mr. Khurram Tunio of the City of Brampton, we hereby provide you with pdf copies of the plan and cross sections in the vicinity of your property on Goreway Drive.


Goreway Access Lane Xsections....


Goreway Access Lane Plan.pdf (...

The plan drawing shows the general layout of the access lane and retaining walls adjacent to Goreway Drive. The cross sections show the general layout and height of the retaining walls needed to suit this access provision. Please note the dashed line extending from the outside retaining wall represents the fill line (2:1 slope) beyond the access lane that would be required without this retaining wall.

In consideration of the City of Brampton's interest in filing the Environmental Study Report for this project in a timely manner, we request that you provide any comments that you may have by no later than Wednesday, March 12th.

I trust this provides you the information you require at this time.

Regards,

Greg Smith, P.Eng.
Manager, Municipal Road Design
UMA Engineering Ltd

5080 Commerce Blvd
Mississauaga, ON L4W 4P2
Phone : (905) 238-0007
Direct Line : (905) 206-8136
Fax : (905) 238-0038
Email : greg.smith@uma.aecom.com

From: Kapusin, Sonya
Sent: January 16, 2008 4:36 PM
To:
Cc: Tunio, Khurram; Waldon, Robert; Smith, Greg; Ritchie, Andrew
Subject: Goreway Drive Class Environmental Assessment (EA)

Dear

As per your request to the City of Brampton, please find attached the preliminary plan and profile drawings for the proposed grade separation at Goreway Drive and the CN rail crossing. Please note that the attachment is Draft and subject to completion of the Class EA.

Regards,

Sonya Kapusin, MCIP, RPP
Environmental Planner

Flower City

brampton.ca

Brampton

Management & Administrative Services Department

January 21, 2008

Dear

Subject: **Proposed Goreway Drive Grade Separation at CN Railway Crossing**
Our File: AR-06-301 and 303

Thank you for meeting me January 15, 2008 to discuss this project.

I was able to confirm with our senior project engineer that the Brampton HydroOne service off the existing wood pole should not be interrupted by the grade separation. The plan is to relocate the service at the time of construction, but maintain power for your pump house.

You explained the club needs access (about 12 times a year) from the existing gate and curb cut on Goreway Drive to a sand and soil mix storage area. From the aerial photography of the property (enclosed), it appears this access is actually on the 1 Kenview Drive property, over which Parkshore Golf Club has a lease. As we discussed, this access will not be useable after the grade separation is completed.

Please advise if you have been able to find alternate storage area off your frontage on Kenview Drive. The aerial photo does appear to indicate some vacant areas may be available for this purpose. Site-specific issues such as this will be part of our program for detailed design and property negotiations. Those phases follow the filing of the Environmental Study Report, which we plan to do this month.

I trust the foregoing will be satisfactory, but please feel free to contact me with any questions.

Yours truly,

R. D. (Bob) Waldon
Senior Real Estate Coordinator
Office: (905) 874-3465
Fax: (905) 874-2883

c.c.

Info. c.c. Greg Smith, UMA Engineering Limited
Khurram Tunio, Works & Transportation, City of Brampton

Parkshore GC - 35 Kenview

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MAJOR STREETS
MINOR STREETS
PARCEL FABRIC
AIR PHOTO

1 km

1 : 8028

This plan is suitable for information only.
The City of Brampton accepts no liability for any error whatsoever.
This is not a plan of survey.

Produced by 172.30.219.8 13:44 1/21/2008

Kapusin, Sonya

From: Kapusin, Sonya
Sent: January 16, 2008 4:36 PM
To:
Cc: Tunio, Khurram; 'Waldon, Robert'; Smith, Greg; Ritchie, Andrew
Subject: Goreway Drive Class Environmental Assessment (EA)

Attachments: DWG-proposed overpass-080116.pdf

As per your request to the City of Brampton, please find attached the preliminary plan and profile drawings for the proposed grade separation at Goreway Drive and the CN rail crossing. Please note that the attachment is Draft and subject to completion of the Class EA.

Regards,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

DWG-proposed
overpass-080116.p..

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Management & Administrative Services Department

DELIVERED BY COURIER

December 6, 2007

General Manager, Acquisition
Real Estate Marketing and Sales Division
Ontario Realty Corporation
11th Floor, Ferguson Block
77 Wellesley Street West
Toronto, Ontario
M7A 1N3

Dear

Subject: Proposed Goreway Drive Grade Separation at CN Railway Crossing
Our File: AR-06-303

I have previously discussed this project with of your office and . As you also know, our consultant UMA Engineering Limited ("UMA") is completing the required Consultation and Documentation Record and ESA in collaboration with Brian Agensky at ORC.

Please find a plan and profile drawing enclosed showing the proposed grade separation titled, "Goreway Drive – Preferred Plan (Overpass)". The province's land is immediately north of CN, on the west side of Goreway Drive. Land is required from the province for the road improvements. A revised entrance is also proposed, including shared access with the abutting property to the north. Please see the enclosed plan for more detail.

It is planned that UMA will complete the Environmental Study Report for the Municipal Class Environmental Assessment of this project and file it for the required public review in January 2008. Consequently, we would appreciate receiving any comments or questions that you may have on the enclosed materials by December 31, 2007.

After the ESR's public review period is complete, and assuming no request for a Part II Order is made, I will prepare the usual ORC application for land with supporting materials.

Please feel free to contact Khurram Tunio at (905) 874-2881, or myself with any questions or comments about the enclosed materials.

Yours truly,

R. D. (Bob) Waldon
Senior Real Estate Coordinator
Office: (905) 874-3465
Fax: (905) 874-2883

Info. c.c. Greg Smith, UMA Engineering Limited
Khurram Tunio, Works & Transportation, City of Brampton

Flower City
brampton.ca

Brampton

Management & Administrative Services Department

DELIVERED BY COURIER

December 6, 2007

Dear

Subject: Proposed Goreway Drive Grade Separation at CN Railway Crossing
Our File: AR-06-302

Staff from the City of Brampton and our consultant UMA Engineering Limited ("UMA") met with you to review this project. I enclose notes of that meeting prepared by UMA, together with a plan and profile drawing of the proposed grade separation titled, "Goreway Drive – Preferred Plan (Overpass)".

It is planned to complete the Environmental Study Report for the Municipal Class Environmental Assessment of this project and file it for the required public review in January 2008. Consequently, we would appreciate receiving any comments or questions that you may have on the enclosed materials by December 31, 2007.

After the public review period is complete, and assuming no request for a Part II Order is made, a City representative will contact landowners to further discuss the project. No additional lands are proposed to be acquired from your property, but there will be some grade change and other improvements along Goreway Drive, as shown on the enclosed plan.

Please feel free to contact Khurram Tunio at (905) 874-2881, or myself with any questions or comments about the enclosed materials.

Yours truly,

R. D. (Bob) Waldon
Senior Real Estate Coordinator
Office: (905) 874-3465
Fax: (905) 874-2883

Info. c.c. Greg Smith, UMA Engineering Limited
Khurram Tunio, Works & Transportation, City of Brampton

Flower City

brampton.ca

Brampton

Management & Administrative Services Department

DELIVERED BY COURIER

December 6, 2007

Dear .

Subject: Proposed Goreway Drive Grade Separation at CN Railway Crossing
Our File: AR-06-303

Staff from the City of Brampton and our consultant UMA Engineering Limited ("UMA") met with you to review this project. I enclose notes of that meeting prepared by UMA, together with a plan and profile drawing of the proposed grade separation titled, "Goreway Drive – Preferred Plan (Overpass)".

It is planned to complete the Environmental Study Report for the Municipal Class Environmental Assessment of this project and file it for the required public review in January 2008. Consequently, we would appreciate receiving any comments or questions that you may have on the enclosed materials by December 31, 2007.

After the public review period is complete, and assuming no request for a Part II Order is made, a City representative will contact landowners to further discuss land acquisition for this the project. As discussed with you, land is required for the road improvements. Grade change and driveway re-grading is also proposed, all as shown on the enclosed plan.

Please feel free to contact Khurram Tunio at (905) 874-2881, or myself with any questions or comments about the enclosed materials.

Yours truly,

R. D. (Bob) Waldon
Senior Real Estate Coordinator
Office: (905) 874-3465
Fax: (905) 874-2883

Info. c.c. Greg Smith, UMA Engineering Limited
Khurram Tunio, Works & Transportation, City of Brampton

Flower City

brampton.ca

Brampton

Management & Administrative Services Department

DELIVERED BY COURIER

December 6, 2007

Dear

Subject: Proposed Goreway Drive Grade Separation at CN Railway Crossing
Our File: AR-06-301

Staff from the City of Brampton and our consultant UMA Engineering Limited ("UMA") met with you to review this project. I enclose notes of that meeting prepared by UMA, together with a plan and profile drawing of the proposed grade separation titled, "Goreway Drive – Preferred Plan (Overpass)".

It is planned to complete the Environmental Study Report for the Municipal Class Environmental Assessment of this project and file it for the required public review in January 2008. Consequently, we would appreciate receiving any comments or questions that you may have on the enclosed materials by December 31, 2007.

After the public review period is complete, and assuming no request for a Part II Order is made, a City representative will contact landowners to further discuss the project. No additional lands are proposed to be acquired on your property, but there will be a significant grade change along Goreway Drive.

You recently advised the golf club lands have been sold, however, your company still shows as the registered owner on the Geowarehouse system (registry office records). I would therefore appreciate if you would pass this information on to the purchaser or let me know how to contact them.

Please feel free to contact Khurram Tunio at (905) 874-2881, or myself with any questions or comments about the enclosed materials.

Yours truly,

R. D. (Bob) Waldon
Senior Real Estate Coordinator
Office: (905) 874-3465
Fax: (905) 874-2883

Info. c.c. Greg Smith, UMA Engineering Limited
Khurram Tunio, Works & Transportation, City of Brampton

Brampton

Management & Administrative Services Department

DELIVERED BY COURIER

December 10, 2007

Dear Sir:

Subject: **Proposed Goreway Drive Grade Separation at CN Railway Crossing**
Our File: AR-06-303

Staff from the City of Brampton and our consultant UMA Engineering Limited ("UMA") met with you to review this project. I enclose notes of that meeting prepared by UMA, together with a plan and profile drawing of the proposed grade separation titled, "Goreway Drive – Preferred Plan (Overpass)".

It is planned to complete the Environmental Study Report for the Municipal Class Environmental Assessment of this project and file it for the required public review in January 2008. Consequently, we would appreciate receiving any comments or questions that you may have on the enclosed materials by December 31, 2007.

After the public review period is complete, and assuming no request for a Part II Order is made, a City representative will contact landowners to further discuss land acquisition for this the project. As discussed with you, land is required for the road improvements. A revised entrance is also proposed, including shared access with the abutting property to the south. Please see the enclosed plan for more detail.

Please feel free to contact Khurram Tunio at (905) 874-2881, or myself with any questions or comments about the enclosed materials.

Yours truly,

R. D. (Bob) Waldon
Senior Real Estate Coordinator
Office: (905) 874-3465
Fax: (905) 874-2883

Info. c.c. Greg Smith, UMA Engineering Limited
Khurram Tunio, Works & Transportation, City of Brampton

Kapusin, Sonya

Subject: FW: Goreway-Steeles/Brandongate Bridge

Sent: October 31, 2007 11:36 AM
Subject: RE: Goreway-Steeles/Brandongate Bridge

RE: GOREWAY DRIVE EA06003 (STEELES AVE. TO BRANDON GATE DR.)

Dear ,

As you are aware, the City of Brampton in partnership with the City of Mississauga is currently conducting Environmental Assessment (EA) Study for Goreway Drive improvements from Steeles Ave. to Brandon Gate Drive. As part of EA study, second Public Information Centre was held on May 1, 2007 to provide project progress status and solicit feedback from public on preliminary alternative designs (overpass and underpass) and preliminary preferred alternative (overpass - Road with 4-lane cross-section over Rail). At present, UMA Engineering Limited (EA consultant) is refining various technical studies and designs based on input received from public as well as agencies. The next step is to file the Goreway Drive Environmental Assessment Report for 30-day review period by the end of this year or early next year. The notice of filing of ESR will be advertise in the local newspapers as well as mailed to adjacent/affected/interested property owners. Through this email, I request UMA Engineering Limited to add you in the study mailing list, if not already done. If the above mentioned contact information is incorrect, please let us know. As per City's 10-year Capital programme, the construction schedule for grade separation is tentatively scheduled for 2012 subject to availability of funds from the City of Brampton as well as from the City of Mississauga. The tentative construction schedule will be revisited and maybe revised to earlier date based on recommendations of Goreway Drive EA study, once approved.

If you have any questions, please do not hesitate to contact the undersigned or Greg Smith (UMA Engineering Limited at 905 238 0007).

Regards,

KHURRAM TUNIO, M.ENG, P.ENG.
SENIOR PROJECT ENGINEER, CITY OF BRAMPTON
ENGINEERING & CONSTRUCTION DIVISION
WORKS AND TRANSPORTATION DEPARTMENT
8850 McLAUGHLIN ROAD BRAMPTON, ON L6Y 5T1
905 874-2881, Cell 416 795-1028
Fax: 905-874-2599
khurram.tunio@brampton.ca

-----Original Message-----
Sent: 2007/10/30 11:29 PM
Subject: Goreway-Steeles/Brandongate Bridge

Good Morning,

I would like to know the progress on the proposals of the rail overpass/underpass on Goreway Drive north of Brandon Gate, south of Steeles. I received an email from Peel Regional stating there was a derailment there today. Also going over the tracks is very bad in the right-hand lanes.

If you could kindly let me know the status on the proposals I would appreciate it.

Thank you, and have a nice day.

UMA | AECOM

UMA Engineering Ltd.
5060 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

August 15, 2007

File Name: 4020-009

Dear

**Re: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment Study**

Thank you for attending the Public Information Centre (PIC) on May 1, 2007 regarding improvements to Goreway Drive from Steeles Avenue south to Brandon Gate Drive. We have received your written comments, which will be taken into consideration during the Class Environmental Assessment (EA) Study.

To summarize, approximately 20 to 25 people attended the PIC. Based on the input received, most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to property access, safety concerns, and construction timing for the overpass structure (road over rail structure).

A summary of the key issues raised in your comment sheet and their corresponding responses are provided in the table below.

[illegible]	[illegible]
Access to the condominium on the northeast corner of Goreway Drive and Brandon Gate Drive	
There is 15 hour parking on the east side of Brandon Gate Drive. Could the parking duration be reduced from 15 hours or extended east on Brandon Gate Drive? There is a median that extends almost to the entrance way of said property [on Brandon Gate Drive], making it difficult to enter and exit. Could the median be reduced and a left-turn lane implemented? The east side of Brandon Gate Drive also serves as a school bus drop/pick up zone.	Your comments pertaining to parking, the extended median, and school busing have been forwarded to the City of Mississauga Transportation and Works Department for further review and will be addressed by the City prior to the construction of this project.
Would like to have a right-turn from the property going north on Goreway Drive.	The grade change would require the entrance to be located too close to the intersection resulting in an unsafe condition. It is therefore not feasible to accommodate a right-turn from the condominium property onto Goreway Drive.

[illegible]	[illegible]
Gap between the retaining wall and the property fence	
Need a chain link fence to prevent people using the area as a hang out and to reduce garbage build up.	A hand rail is currently shown on our proposed plans to be installed at the top of the retaining wall for safety purposes. Measures will also be incorporated at the ends of the retaining walls to prevent unauthorized/unwanted access to the area between the retaining wall and the private fence. Additional details will be finalized during the Detailed Design phase of this project and preferred measure(s) will be identified based on further evaluation of chain link fence and handrail options.
Consider a terra cotta wall similar to the wall at the Toronto International Centre.	The type of wall proposed for this project is a textured RECO wall that is the same as the wall used at the Toronto International Centre and throughout the Pearson Airport roadways. The pattern, texture and colour can be chosen for appearance. The proposed wall was illustrated in the Landscape Renderings presented at PIC No. 2.
Safety	
Concern for the safety of children under 10 years; Would appreciate the bridge constructed sooner rather than later.	Subject to environmental and council approvals, construction is proposed to be initiated in 2010.

As there were no issues raised during the PIC that could not be addressed, the City of Brampton and the City of Mississauga have continued with the Preferred Design Concept and completion of Phase 4 of the Class EA process. Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared for public/agency review and comment. Notices announcing when and where the public can access the report will be published in the local newspapers. Should you have any questions or concerns regarding the Class EA Study, please do not hesitate to contact me at (905) 238-0007, extension 8135, or via email at Andrew.Ritchie@uma.aecom.com. Your comments and continued participation in this Study are welcomed.

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
Andrew.Ritchie@uma.aecom.com

cc: Solomon Choi, Senior Project Engineer, City of Brampton
Khurram Tunio, Project Engineer, City of Brampton
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Greg Smith, Consultant Project Manager, UMA Engineering Ltd.
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To summarize, approximately 20 to 25 people attended the PIC. Based on the input received, most of the issues and concerns raised during the PIC related to potential impacts on private properties and private property entrances. Key concerns raised related to property access, safety concerns, and construction timing for the overpass structure (road over rail structure).

A summary of the key issues raised in your comment sheet and their corresponding responses are provided in the table below.

Key Issue	Response
Noise	
Propose high canopy trees together with evergreens to repair from wind and noise.	The project design will include a landscape component that will be developed for both aesthetics and functionality (minimizes visual impacts). Landscape design typically utilizes both deciduous and evergreen trees to achieve both variety and contrast. As part of the Study, the Project Team completed a Noise Assessment for the Study Area Corridor. Based on the findings of this Study, no noise impact is anticipated as a result of the proposed road improvements. Therefore, no mitigation is required to address noise impacts.
More truck traffic will occur. How can the noise be minimized?	Future growth in all types of traffic is anticipated regardless of the planned road network improvements. The improvements proposed under this Study do not include widening for additional lanes so these improvements would not increase traffic volumes beyond typical growth. The City's by-laws currently prohibit large trucks on Goreway Drive. Your comments have been directed to the City of Mississauga Transportation and Works Department for consideration aimed

	at enforcement of the current by-law. As part of the Study, the Project Team completed a Noise Assessment for the Study Area Corridor. The objectives of the Study were to determine the potential changes to the road traffic sound levels due to the proposed improvements, to assess the significance of the predicted changes to the road traffic sound levels, and to recommend measures to mitigate the road traffic noise impact where warranted. Based on the findings of this Study, no noise impact is anticipated as a result of the proposed road improvements.
Ditch between the retaining wall and the property fence	
Nothing will grow in the space between my back fence and the grade reinforcement wall. It will attract garbage and will become a haven for debris as well as people to gather to smoke and drink/use drugs.	This concern has been identified during this Environmental Assessment phase and further attention will be given to this issue during the Detail Design phase of this project. As part of the Detail Design, measures will be developed to prevent debris build-up in the area between the retaining wall and the private fence. Measures will also be incorporated at the ends of the retaining walls to prevent unauthorized/unwanted access to this area. Further details will be finalized during the Detail Design phase of this project.
Who will maintain the ditch that will be created? Recreation and Parks only cut the grass two times in one season. Can we expect more inspections and clean ups in the future? Perhaps making this a stipulation can help ward off misdeeds.	Drainage requirements for the area between the retaining wall and the private fence will be addressed during the Detail Design phase. Consideration will also be given to alternative low-maintenance surface treatments to avoid the need for inspection and grass cutting.
Grading and Utilities	
Of further concern, is the grade within the ditch that will be created between the retaining wall and my back fence? Melting snow and heavy rain with little or no vegetation along the bottom, where will the drainage be? The overage will end up in our yards. We have a large veggie patch along our back fence. As well, stagnant water will increase bugs and sickness as well as kill the trees there.	During the Detail Design phase, attention will be given to the drainage requirements for the area between the retaining wall and the private fence to incorporate measures that will prevent water retention and reduce the likelihood of standing water (ponding).
Will the high tension wire remain on the current post (which will be within the "ditch") or are new poles to be strung along the overpass?	The proposed grade changes identified under this Environmental Assessment process will necessitate the relocation of various aerial utilities and associated poles. Utility companies will determine whether they will remain aerial on poles or if they will be relocated underground.

As there were no issues raised during the PIC that could not be addressed, the City of Brampton and the City of Mississauga have continued with the Preferred Design Concept and completion of Phase 4 of the Class EA process. Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared for public/agency review and comment. Notices announcing when and where the public can access the report will be published in the local newspapers. Should you have any questions or concerns regarding the Class EA Study, please do not hesitate to contact me at (905) 238-0007, extension 8135, or via email at Andrew.Ritchie@uma.aecom.com. Your comments and continued participation in this Study are welcomed.

Sincerely,

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August 15, 2007

File Name: 4020-009

Dear .

Re: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment Study

We understand that you were unable to attend the Public Information Centre (PIC) for this project held on May 1, 2007. We have enclosed a copy of the PIC brochure for your information. To summarize, approximately 20 to 25 people attended the PIC. Based on the input received, most of the issues and concerns raised during the PIC related to property access, safety concerns, and construction timing for the overpass structure (road over rail structure).

As there were no issues raised during the PIC that could not be addressed, the City of Brampton and the City of Mississauga have continued with the Preferred Design Concept and completion of Phase 4 of the Class EA process. Upon completion of the Study, an Environmental Study Report (ESR) documenting the proposed improvements will be prepared for public/agency review and comment. Notices announcing when and where the public can access the report will be published in the local newspapers.

Should you have any questions or concerns regarding the Class EA Study, please do not hesitate to contact me at (905) 238-0007, extension 8135, or via email at Andrew.Ritchie@uma.aecom.com. Your comments and continued participation in this Study are welcomed.

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IMPROVEMENTS TO GOREWAY DRIVE: CLASS ENVIRONMENTAL ASSESSMENT STUDY FROM STEELES AVENUE TO BRANDON GATE DRIVE

MISSISSAUGA
Leading today for tomorrow

PUBLIC QUESTIONNAIRE
Public Information Centre No. 2, May 1, 2007

The City of Brampton, in partnership with the City of Mississauga, has retained UMA Engineering Ltd. (UMA) to undertake a Class Environmental Assessment (EA) Study to consider options to satisfy travel demand and address existing traffic delays on Goreway Drive from Steeles Avenue southerly to Brandon Gate Drive. This questionnaire is your opportunity to comment on this Study and indicate your concerns and preferences. ***Given that your views are important to us, please take a moment to complete this questionnaire (please print) and deposit it in the "Comment Sheets" box provided or mail/fax to the address provided on the back page. Thank you.***

1. **My property/interest is:** ***(Please check all that apply)***

[ ] back/front onto Goreway Drive
[X] located east of Goreway Drive
[ ] located west of Goreway Drive
[ ] general interest
[ ] commercial/industrial property
[X] residential property
[ ] recreational property
[ ] user of Goreway Drive but not a local resident

2. **Do you agree with the Preliminary Preferred Design as presented?**

[X] Yes [ ] No [ ] Don't know

If you answered YES or NO, please explain why you do or do not agree with the Preliminary Preferred Design as presented.

PRELIMINARY PREFERRED DESIGN AS presented ARE GREAT. IT WOULD / WILL CERTAINLY ADD TO THE VALUE OF THE AREA. NOT TO MENTION BEING ABLE TO BREATH "A LITTLE" FRESHER" AIR.

3. **Please comment on the Evaluation Criteria used to compare the Alternative Designs.**

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May 1, 2007

4. Do you think additional Evaluation Criteria are needed to comparatively evaluate the Alternative Designs? If so, please indicate what they are and why.

TVO

Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

5. How did you hear about this public meeting?

[ ] Newspaper ad [X] Notice in mail [ ] Other

6. Please indicate your satisfaction with the following:

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	Y	
Time of Meeting	Y	
Day of the Week	Y	

7. On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very 1 — 2 — *Somewhat* 3 — 4 — *Not at all* 5

b) How helpful were the staff and consultants in attendance?

Very 1 — 2 — *Somewhat* 3 — 4 — *Not at all* 5

8. Were all your questions answered satisfactorily?

[X] Yes [ ] No [ ] If No, can someone contact you?

SOMEWHAT - SEE BACK.

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May 1, 2007

Other Comments: _____

Please provide your contact information below should you wish to receive a written response to your comments and/or to be added to the Study Mailing List (please print).

Your Name:

Your Address:

Your Postal Code:

Your Telephone No.

Do you require a written response? [x] Yes [ ] No

Please mail or fax your completed questionnaire by May 16, 2007, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

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May 1, 2007

Additional Comments:

CONDO ON THE NORTH EAST CORNER OF GOREWAY DR. - CONCERN ABOUT ACCESS:

(1) TO THE PROPERTY AS THERE IS 15 HOUR PARKING ON THE EAST SIDE OF BRANDONGATE DR.

(2) THERE IS A MEDIAN THAT EXTENDS ALMOST TO THE ENTRANCE WAY OF ~~SAID~~ SAID PROPERTY - Difficulty to enter, exit.

(3) THE EAST SIDE OF BRANDONGATE DR ALSO SERVES AS A SCHOOL BUS DROP/PICK-UP ZONE.

Could the median be reduced and a left-turn lane implemented. Also could the parking duration be reduced from 15 Hrs or extended EAST ON BRANDONGATE.

CONCERNED ABOUT THE GAP THAT WILL BE left between the WALL and the property fence. - Need a chain link fence (eg) to prevent Kids / Gangs using the AREA AS A HANG OUT. - ALSO to reduce GARBAGE Build-up

NEED A CHOICE FOR WALL COLOUR. - TERRA-COTTA WALL like AT INTERNATIONAL CENTRE WOULD BE GREAT.

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May 1, 2007

Additional Comments:

2

SAFETY CONCERN

- I NOW APPRECIATE THE BRIDGE BEEN DONE SOONER.

May 1, 2007

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IMPROVEMENTS TO GOREWAY DRIVE:
CLASS ENVIRONMENTAL ASSESSMENT STUDY
FROM STEELES AVENUE TO BRANDON GATE DRIVE

PUBLIC QUESTIONNAIRE
Public Information Centre No. 2, May 1, 2007

The City of Brampton, in partnership with the City of Mississauga, has retained UMA Engineering Ltd. (UMA) to undertake a Class Environmental Assessment (EA) Study to consider options to satisfy travel demand and address existing traffic delays on Goreway Drive from Steeles Avenue southerly to Brandon Gate Drive. This questionnaire is your opportunity to comment on this Study and indicate your concerns and preferences. ***Given that your views are important to us, please take a moment to complete this questionnaire (please print) and deposit it in the "Comment Sheets" box provided or mail/fax to the address provided on the back page. Thank you.***

1. **My property/interest is:** ***(Please check all that apply)***

- [✓] back/front onto Goreway Drive
- [ ] located east of Goreway Drive
- [✓] located west of Goreway Drive
- [✓] general interest
- [ ] commercial/industrial property
- [✓] residential property
- [ ] recreational property
- [ ] user of Goreway Drive but not a local resident

2. **Do you agree with the Preliminary Preferred Design as presented?**

[✓] Yes [✓] No [ ] Don't know

If you answered YES or NO, please explain why you do or do not agree with the Preliminary Preferred Design as presented.

LOWER COST FOR OVERPASS IS UNDERSTOOD - BUT - I PROPOSE BOTH HIGH CANOPY TREES TOGETHER WITH EVERGREENS TO REPAIR FROM WIND & NOISE. WHEN WE ARE OUTSIDE IN CLEMENT WEATHER, MORE TREES WILL HELP W/ NOISE RE THE "DITCH" WHICH WILL GRADE REINFORCEMENT WALL - NOTHING WILL GROW IN THAT SPACE BUT IT WILL ATTRACT GARBAGE & WILL BECOME A HAVEN FOR DEBRIE AS WELL AS "KIDS" TEENS - TO GATHER & SMOKE & DRINK &/OR DRUG USE - AS THEY WILL BE OUT OF SIGHT.

3. **Please comment on the Evaluation Criteria used to compare the Alternative Designs.**

WHO WILL MAINTAINE THE "DITCH" THAT WILL BE CREATED? AS IT NOW STANDS - REGY PARKS ONLY CUT THE GRASS 2 TIMES IN ONE SEASON - CAN WE EXPECT MORE INSPECTIONS &/OR CLEAN UPS IN FUTURE? PERHAPS MAKING THIS A STIPULATION CAN HELP WARD OFF MISDEEDS

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May 1, 2007

4. Do you think additional Evaluation Criteria are needed to comparatively evaluate the Alternative Designs? If so, please indicate what they are and why.

Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

5. How did you hear about this public meeting?

[ ] Newspaper ad [✓] Notice in mail [ ] Other

6. Please indicate your satisfaction with the following:

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	✓	
Time of Meeting	✓	
Day of the Week	✓	

7. On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very 1 (2) *Somewhat* 3 4 *Not at all* 5

b) How helpful were the staff and consultants in attendance?

Very 1 (2) *Somewhat* 3 4 *Not at all* 5

8. Were all your questions answered satisfactorily?

[ ] Yes [✓] No [ ] If No, can someone contact you? IF YOU WISH.

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May 1, 2007

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IMPROVEMENTS TO GOREWAY DRIVE:
CLASS ENVIRONMENTAL ASSESSMENT STUDY
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Other Comments: MORE TRUCK TRAFFIC WILL OCCUR! HOW CAN THE NOISE BE MINIMIZED? ESPECIALLY DURING SUMMER MONTHS WHEN WE ARE OUTSIDE. WHILE THE TRAINS ARE NOISY, THEY CURRENTLY DO NOT PASS CONTINUOUSLY - WHILE TRUCKS & CARS WILL BE ABLE TO, SINCE TRUCKS DO NOT PAY ATTENTION TO THE SIGN(S) PROHIBITING THEM NOW. WHAT ABOUT THE FUTURE!

Please provide your contact information below should you wish to receive a written response to your comments and/or to be added to the Study Mailing List (please print).

Your Name:

Your Address:

Your Postal Code:

Your Telephone No.:

Do you require a written response? [✓] Yes [ ] No

Please mail or fax your completed questionnaire by May 16, 2007, to:

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Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

Additional Comments:

OF FURTHER CONCERN IS THE GRADING WITHIN THE "DITCH" THAT WILL BE CREATED

MEETING SNOW &/OR HEAVY RAIN - WITH LITTLE OR NO VEGITATION ALONG THE BOTTOM, WHERE WILL THE DRAINAGE BE?

THE OVERAGE WILL END UP IN OUR YARDS AS WELL, STAGNANT WATER WILL INCREASE BUGS & SICKNESS. AS WELL AS KILL THE TREES THERE NOW.

WILL THE HIGH TENSION WIRES REMAIN ON THE CURRENT POST (WHICH WILL BE WITHIN THE "DITCH") OR ARE NEW POLES TO BE STRUNG ALONG THE OVERPASS?

THATS ALL I CAN THINK OF FOR NOW, BUT THERE MAY BE MORE AT THE NEXT MTG.

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IMPROVEMENTS TO GOREWAY DRIVE: CLASS ENVIRONMENTAL ASSESSMENT STUDY FROM STEELES AVENUE TO BRANDON GATE DRIVE

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2. **Do you agree with the Preliminary Preferred Design as presented?**

[x] Yes [ ] No [ ] Don't know

If you answered YES or NO, please explain why you do or do not agree with the Preliminary Preferred Design as presented.

LIVING ON A LOT OF CARS & TRUCKS TRAVEL FROM GOREWAY DR. ACROSS BRANDONGATE DR. TO AIRPORT RD. BECAUSE OF TRAINS CAUSING A HALT TO TRAFFIC

3. **Please comment on the Evaluation Criteria used to compare the Alternative Designs.**

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May 1, 2007

UMA | AECOM

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	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	Y	
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Additional Comments:

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IMPROVEMENTS TO GOREWAY DRIVE: CLASS ENVIRONMENTAL ASSESSMENT STUDY FROM STEELES AVENUE TO BRANDON GATE DRIVE

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	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	Y	
Time of Meeting	Y	
Day of the Week	Y	

7. **On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:**

a) How informative were the display materials?

Very		*Somewhat*		*Not at all*
(1)	2	3	4	5

b) How helpful were the staff and consultants in attendance?

Very		*Somewhat*		*Not at all*
(1)	2	3	4	5

8. **Were all your questions answered satisfactorily?**

[ ] Yes [ ] No [✓] If No, can someone contact you?

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May 1, 2007

FLOWER CITY
BRAMPTON.CA

IMPROVEMENTS TO GOREWAY DRIVE:
CLASS ENVIRONMENTAL ASSESSMENT STUDY
FROM STEELES AVENUE TO BRANDON GATE DRIVE

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Other Comments: TOWNHOUSE COMPLEX AT 3525 BRANDON GATE DR REQUIRES MORE THAN ONE ENTRY/EXIT DRIVEWAYS FOR "101" HOUSES. IT CURRENTLY HAS 2 DRIVEWAYS IN/OUT

Please provide your contact information below should you wish to receive a written response to your comments and/or to be added to the Study Mailing List (please print).

Your Name:

Your Address:

Your Postal Code: _____

Your Telephone No.: _____

Do you require a written response? [ ] Yes [✓] No

Please mail or fax your completed questionnaire by May 16, 2007, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

The information on this Comment Sheet is collected under the authority of the *Environmental Assessment Act* and will become public information. All comments will be included in the Environmental Study Report to be prepared and made public at the conclusion of the Study. Please note that personal information including addresses and phone numbers will not be disclosed.

May 1, 2007

Additional Comments:

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May 1, 2007

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COMMENT SHEET

GOREWAY DRIVE IMPROVEMENTS
STEELES AVENUE TO BRANDON GATE DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

Stakeholders Meeting
Tuesday March 27, 2007

Understanding the views and opinions of residents and affected stakeholders will assist in fine tuning the Preliminary Preferred Design for the Preferred Solution. We welcome and appreciate your comments. Please take some time to comment on any aspect of the Preliminary Preferred Design that you consider important, and hand your comment sheet in to Project Team Staff. Alternatively, you may mail/fax/e-mail your comment sheet to either of the following Project Team members by **April 11, 2007**:

Khurram Tunio, P.Eng.
City Project Engineer
City of Brampton
8850 McLaughlin Road
Brampton, ON L6Y 5T1
Phone: (905) 874-2881
Fax: (905) 874-2599
Email: khurram.tunio@brampton.ca

OR Greg Smith, P.Eng.
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
Phone: (905) 238-0007
Fax: (905) 238-0038
email: Greg.Smith@uma.aecom.com

COMMENTS (if you need additional space, please use the reverse side of this comment sheet):

What kind of safety barrier to stop vehicles from crashing into the rear of units

will city remove and, if required, replace western perimeter fence.

Kapusin, Sonya

From: Darylann.Perry@cn.ca
Sent: April 3, 2007 2:07 PM
To: Tunio, Khurram
Cc: Kapusin, Sonya
Subject: Re: FW: Goreway Drive Mile 8.80 Halton-Complaint from Resident(s)

Khurram
The complaint email was forwarded to the CN Public Affairs Office the same day I received it, on March 6, 2007.
We placed a call to the Public affairs Office again today and they will be in contact with the complainant soon.
Thanks
Darylann Perry
Engineering Services

"Tunio, Khurram"
<khurram.tunio@city.brampton.on.ca>

2007/04/03 10:15

To "Darylann.Perry@cn.ca" <Darylann.Perry@cn.ca>
cc "Sonya Kapusin (E-mail)" <sonya.kapusin@uma.aecom.com>
Subject FW: Goreway Drive Mile 8.80 Halton-Complaint from Resident(s)

Hi Darylann Perry,

Refer to attached email and please advice.

Regards,

Khurram

From: Tunio, Khurram [mailto:khurram.tunio@city.brampton.on.ca]
Sent: March 6, 2007 2:18 PM
To: 'Darylann.Perry@cn.ca'
Cc: Choi, Solomon; Smith, Greg
Subject: RE: Goreway Drive Mile 8.80 Halton-Complaint from Resident(s)

Hi Darylann Perry,

We are in the receipt of complain from a resident pertaining to delays at Goreway Drive & CN crossing. During my phone conversation mentioned that as interim solution, would like to see CN rescheduling the freight trains to avoid Goreway Drive to close during rush hours, failing to do so and as a last resort, will contact the media specifically the CTV.

I have already informed about our ongoing EA study that identified the need for grade separation which is tentatively scheduled for construction in 2009/2010 subject to City of Mississauga and City of Brampton Council approvals. Can you forward this complaint to your PR section and provide us the contact information that we can forward

Regards,

KHURRAM TUNIO, M.ENG, P.ENG.
PROJECT ENGINEER, CITY OF BRAMPTON

ENGINEERING & CONSTRUCTION DIVISION
WORKS AND TRANSPORTATION DEPARTMENT
8850 McLAUGHLIN ROAD BRAMPTON, ON L6Y 5T1
905 874-2881, Cell 416 795-1028
Fax: 905-874-2599

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

January 10, 2007

File Name: 4020-009

Dear

Re: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment Study

This letter is written to provide you with an update of the Class Environmental Assessment (EA) Study for improvements to Goreway Drive from Steeles Avenue south to Brandon Gate Drive. All of the public comments received to date will be taken into consideration during the Class Environmental Assessment (EA) Study.

As you are aware, the City of Brampton held a Public Information Centre (PIC) for this Study on November 28, 2006. Approximately 15 to 20 people attended the PIC. Based on the input received, most of the participants were in general agreement that improvements are needed on Goreway Drive. In addition, many participants were supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the Canadian National (CN) at-grade (level) railway crossing. The enclosed brochure provides a summary of the information presented at the first PIC.

At this time, we have completed Phases 1 and 2 of the *Municipal Class EA* process. To this end, we have examined a range of "Alternative Solutions" to address future traffic demands and to alleviate road vehicle delays at the existing CN at-grade (level) railway crossing. As a result, we have selected and presented a Preliminary Preferred Solution to address the above-noted deficiencies.

During the next phase of the Study, we will identify and evaluate Alternative Design Concepts for the Preferred Solution, including the potential impacts and advantages/disadvantages associated with construction of an overpass versus underpass structure at CN's existing at-grade crossing. Key factors to be taken into consideration during the evaluation of Alternative Design Concepts include Natural Environment (e.g., surface water, groundwater, terrestrial impacts), Socio-economic Environment (e.g., property impacts, noise, safety, capital cost), and constructability or construction complexity (which includes assessing length of the approaches).

A second PIC is tentatively scheduled for February 2007 to solicit feedback on the Alternative Design Concepts, including their respective potential impacts and advantages versus disadvantages. Your email of August 27, 2006 indicates your interest in the potential impacts on Goreway Drive between the rail tracks and Steeles Avenue. Impacts to this section of Goreway Drive will be assessed as part of the evaluation of Alternative Design Concepts. In addition, we will present applicable mitigative measures to alleviate or minimize all identified impacts. Notices announcing the date and location of the PIC will be placed in the *Brampton Guardian* and the *Mississauga News*, as well as mailed to individuals on the Study Mailing List in advance of the PIC.

Should you have any questions or concerns regarding the Class EA Study prior to the second PIC, please do not hesitate to contact me at (905) 238-0007, extension 8135, or via email at Andrew.Ritchie@uma.aecom.com. Your comments and continued participation in this Study are welcomed.

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
Andrew.Ritchie@uma.aecom.com

AR:sk

Encl.

cc: Solomon Choi, Senior Project Engineer, City of Brampton
Khurram Tunio, Project Engineer, City of Brampton
Steve Barrett, Transportation Asset Management, City of Mississauga
Greg Smith, Consultant Project Manager, UMA Engineering Ltd.
Sonya Kapusin, Environmental Planner, UMA Engineering Ltd.

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

January 10, 2007

File Name: 4020-009

Re: Improvements to Goreway Drive (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment Study

Thank you for attending the Public Information Centre (PIC) on November 28, 2006 regarding improvements to Goreway Drive from Steeles Avenue south to Brandon Gate Drive. We have received your written comments, which will be taken into consideration during the Class Environmental Assessment (EA) Study.

Approximately 15 to 20 people attended the PIC. Based on the input received, most of the participants were in general agreement that improvements are needed on Goreway Drive. In addition, many participants were supportive of the Preliminary Preferred Solution to maintain four lanes on Goreway Drive and provide a grade separation at the Canadian National (CN) at-grade (level) railway crossing. A summary of the key issues raised during the PIC and their corresponding responses are provided in the table below.

Key Issues	Response
Traffic Problems	
Current problems on Goreway Drive include: • congestion • vehicle delays • turning at intersections(s) • auto/train conflicts • through traffic volumes • u-turns before the CN at-grade (level) railway crossing • infiltration of traffic (including trucks) into surrounding residential areas.	The problems noted by the public confirm and support the need for improvements within the Goreway Drive Project Limits. To facilitate the proposed improvements the municipality is obligated to carry out a Class EA Study in accordance with the *Municipal Class EA* process. A Class EA is a standard process that addresses needs and options then recommends a solution. At this time, we have completed Phases 1 and 2 of the *Municipal Class EA* process. To this end, we have: • Examined a range of "Alternative Solutions" to address future traffic demands and to alleviate road vehicle delays at the existing CN at-grade (level) railway crossing • Selected and presented a Preliminary Preferred Solution to address the above-noted deficiencies. During the next phase of the Study, we will identify and evaluate Alternative Design Concepts and select a Preliminary Preferred Design. The results of these activities will be presented to the public and government agencies at the second PIC tentatively scheduled for February 2007.

Key Issues	Response
Problems in the vicinity of Goreway Drive include: • no speeding or parking signs on Brandon Gate Drive and Redstone Road.	Speeding and parking issues on Brandon Gate Drive and Redstone Road are outside the scope of this Class EA Study for Goreway Drive. However, these comments have been forwarded to the City of Mississauga for further consideration.
Preliminary Preferred Solution	
Will the grade separation be an overpass (road over rail) or an underpass (rail over road) structure?	As noted above, during the next phase of the Study, we will identify and evaluate Alternative Design Concepts and select a Preliminary Preferred Design. The results of these activities will be presented to the public and government agencies at the second PIC tentatively scheduled for February 2007. At the second PIC, the public and government agencies will have an opportunity to review and provide their respective feedback on the Alternative Design Concepts including the potential impacts, and advantages/disadvantages associated with construction of an overpass versus underpass structure.
Related impacts include: • Noise • Property • Length of approaches.	An Alternatives Evaluation Matrix will be developed and used to identify the advantages/disadvantages associated with the Alternative Design Concepts, that is, overpass versus underpass during the next phase of the Class EA Study. Key factors to be taken into consideration include Natural Environment (e.g., surface water, groundwater, terrestrial impacts), Socio-economic (e.g., property impacts, noise, safety, capital cost), and constructability or construction complexity (which includes assessing length of the approaches). A second PIC is tentatively scheduled for February 2007 to solicit feedback on the Alternative Design Concepts, including their respective potential impacts and advantages versus disadvantages. In addition, we will present applicable mitigative measures to alleviate or minimize all identified impacts.
Property Impacts	
How much property would be required to build a structure over the CN rail crossing? Is there sufficient space between Brandon Gate Drive and the tracks for required elevation over the tracks? If not, how will this intersection be affected?	As noted above, property impacts as well as constructability or construction complexity are two factors to be assessed as part of the evaluation of Alternative Design Concepts. Potential impacts on the Brandon Gate Drive intersection will be taken into consideration as part of the assessment under the constructability factor. Further information regarding the potential impacts will be provided at the second PIC tentatively scheduled for February 2007.

Key Issues	Response
Drainage Impacts	
Will there be an assessment of the drainage channel to the east of Goreway Drive (i.e. Mimico Creek)? Ponding has been observed along Goreway Drive near the Mimico Creek crossing.	A Stormwater Management study will be undertaken in parallel with the evaluation of Alternative Design Concepts to determine the potential impacts to the existing and proposed drainage system in the area.

Overall, the information presented at the PIC, including identification of the Preliminary Preferred Solution was met with little concern, questioning and/or opposition. As there were no issues raised that could not be addressed, it was recommended that the City of Brampton and the City of Mississauga proceed to Phase 3 of the Class EA process, that is, the identification and assessment of Alternative Design Concepts.

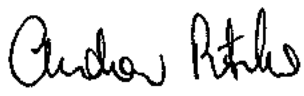
Based on the feedback received from participants at PIC No. 1, it is noted that most in attendance preferred an underpass (rail over road structure) versus an overpass (rail over road structure) as they were of the opinion it was more compatible with the surrounding residential land uses. During the next phase of the Study, the Project Team will assess Alternative Design Concepts for the Preferred Solution, including the potential impacts, and advantages/disadvantages associated with construction of an overpass versus underpass structure at CN's existing at-grade crossing.

A second PIC to solicit feedback on the Alternative Design Concepts is tentatively scheduled for February 2007. Notices announcing the date and location of the PIC will be placed in the *Brampton Guardian* and the *Mississauga News*, as well as mailed to individuals on the Study Mailing List in advance of the PIC.

Should you have any questions or concerns regarding the Class EA Study prior to the second PIC, please do not hesitate to contact me at (905) 238-0007, extension 8135, or via email at Andrew.Ritchie@uma.aecom.com. Your comments and continued participation in this Study are welcomed.

Sincerely,

UMA Engineering Ltd.



Andrew Ritchie, M.Pl., MCIP, RPP
Consultant Environmental Planner
Andrew.Ritchie@uma.aecom.com

AR:sk

cc: S. Choi, Senior Project Engineer, City of Brampton
K. Tunio, Project Engineer, City of Brampton
S. Barrett, Transportation Asset Management, City of Mississauga
G. Smith, Consultant Project Manager, UMA Engineering Ltd.
S. Kapusin, Environmental Planner, UMA Engineering Ltd.

From: Ritchie, Andrew
Sent: November 30, 2006 10:03 PM
To: khurram.tunio@city.brampton.on.ca
Cc: Kapusin, Sonya; Smith, Greg
Subject: FW: Goreway Drive Class EA

Attachments: RN-4020-009-03-PIC Brochure-061128.pdf; RPT-4020-009-03-Public Questionnaire-061128.pdf

---

From: Kapusin, Sonya
Sent: November 30, 2006 9:42 AM
To:
Cc: Smith, Greg; Ritchie, Andrew
Subject: Goreway Drive Class EA

I am writing on behalf of Mr. Smith to confirm receipt of your voice mail message regarding improvements to Goreway Drive. Your contact information is on our study mailing list so you will receive future updates and notices regarding this Study. I have attached a brochure with some of the information presented at the PIC on Tuesday. Also attached is a comment form should you wish to send us your comments.

Feel free to contact Greg or myself if you have any further questions.

Thank you,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com


RN-4020-009-03-PIC Brochure-06...


RPT-4020-009-03-Public Questio...

FLOWER CITY
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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
Leading Today for Tomorrow

PUBLIC QUESTIONNAIRE
Public Information Centre No. 1, November 28, 2006

The City of Brampton, in partnership with the City of Mississauga, has retained UMA Engineering Ltd. to undertake a Class Environmental Assessment (EA) Study to consider options to satisfy travel demand and address existing traffic delays on Goreway Drive from Steeles Avenue southerly to Brandon Gate Drive (see Study Area Corridor below). This questionnaire is your opportunity to comment on this Study and indicate your concerns and preferences. ***Given that your views are important to us, please take a moment to complete this questionnaire (please print) and deposit it in the "Comment Sheets" box provided. Thank you.***

1. **My property/interest is:** ***(Please check all that apply)***

- [ ] back/front onto Goreway Drive
- [ ] located east of Goreway Drive
- [✓] located west of Goreway Drive
- [ ] general interest
- [✓] commercial/industrial property
- [ ] residential property
- [ ] user of Goreway Drive but not a local resident
- [ ] recreational property

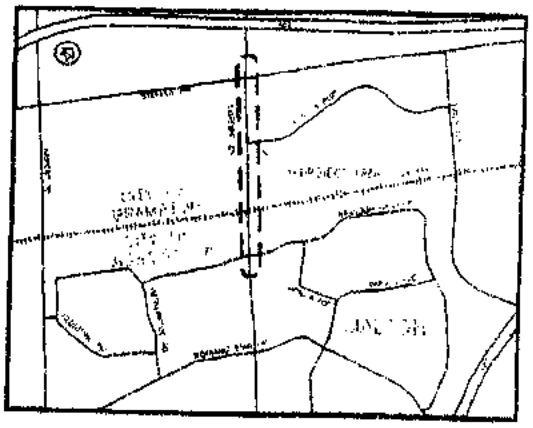
2. **Are there problems with Goreway Drive at present?**

[✓] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

- [ ] Congestion
- [ ] Vehicle Delays
- [ ] Turning at intersection(s)
- [ ] Pedestrian/Bicycle Safety
- [ ] Pavement Condition
- [ ] Auto/Train Conflict
- [ ] Operating Speed
- [ ] Insufficient public transit
- [ ] Through traffic volumes
- [✓] Poor entrance/exit to driveways
- [ ] Other *(please explain)* _____

NATURE OF ISSUES:
ACCESS TO SITE AFFECTED
BY FLOODING ISSUES.
NEED OPTIONS RE: ACCESS.



Study Area Corridor

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November 28, 2006

4. **What comments or suggestions do you have about the PIC brochure and information provided?**

INFORMATION USEFUL.

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**

FLOODING WEST & EAST OF GORE ROAD

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[ ] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[ ] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[ ] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

[ ] Provide localized intersection improvements

[ ] Provide enhanced bus service

[ ] Other *(Please explain)*

Rationale

THE SOLUTION THAT RESULTS IN REDUCED FLOODING IN THE AREA AND IMPROVES ACCESS WOULD BE THE #1 CHOICE WITH A '1' RANKING.

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November 28, 2006

7. **Solutions to the identified problem will be evaluated using the Evaluation Criteria listed below. Please tell us which of these you feel are more important and which are less important by rating them in order of importance with a high of "1" for the factors that are very important to a low of "E" for the factors of little importance.**

Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	
Traffic safety	
Pedestrians and cyclists	
Access management	
Natural Environment Factors	
Roadside Vegetation	
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	
Social Environment Factors	
Property acquisition requirements	
Existing and future land use	
Construction disruption (e.g., noise, dust, traffic)	
Economic Environment Factors	
Business impacts	
Construction costs	
Operational and maintenance costs	
Cultural Environment Factors	
Archaeological resources	
Engineering/Technical Considerations	
Construction staging	
Utility conflicts	
Stormwater management	
Other Considerations *(Please describe)*	

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November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
Leading today for tomorrow

Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

8. **How did you hear about this public meeting?**

[ ] Newspaper ad [✓] Notice in mail [ ] Other

9. **Please indicate your satisfaction with the following:**

	Satisfied (Y/N)	**If Not Satisfied, Please Specify Your Preference Here**
Location of Meeting	Y	
Time of Meeting	Y	
Day of the Week	Y	

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very 1 (2) *Somewhat* 3 4 *Not at all* 5

b) How helpful were the staff and consultants in attendance?

(1) *Very* 2 *Somewhat* 3 4 *Not at all* 5

10. **Were all your questions answered satisfactorily?**

[✓] Yes [ ] No

Other Comments: _____

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November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
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Please provide your contact information below should you wish to receive a response to your comments and/or to be added to the Study Mailing List (please print).

Your Name:

Your Address:

Your Postal Code:

Your Telephone No.:

Please mail or fax your completed questionnaire by December 15, 2006, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA

PUBLIC QUESTIONNAIRE
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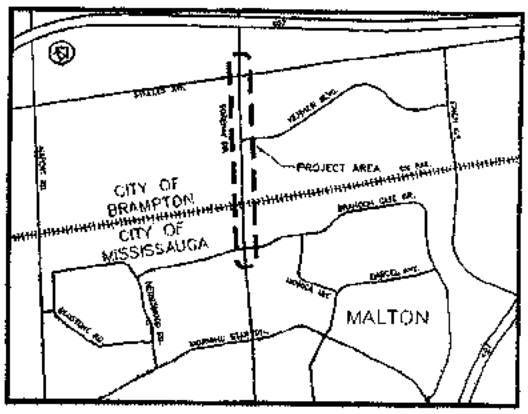
- [ ] back/front onto Goreway Drive
- [X] located east of Goreway Drive
- [ ] located west of Goreway Drive
- [X] general interest
- [ ] commercial/industrial property
- [X] residential property
- [ ] user of Goreway Drive but not a local resident
- [ ] recreational property

2. **Are there problems with Goreway Drive at present?**

[X] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

- [X] Congestion
- [X] Vehicle Delays
- [ ] Turning at intersection(s)
- [ ] Pedestrian/Bicycle Safety
- [ ] Pavement Condition
- [X] Auto/Train Conflict
- [ ] Operating Speed
- [ ] Insufficient public transit
- [X] Through traffic volumes
- [ ] Poor entrance/exit to driveways
- [ ] Other *(please explain)* _____



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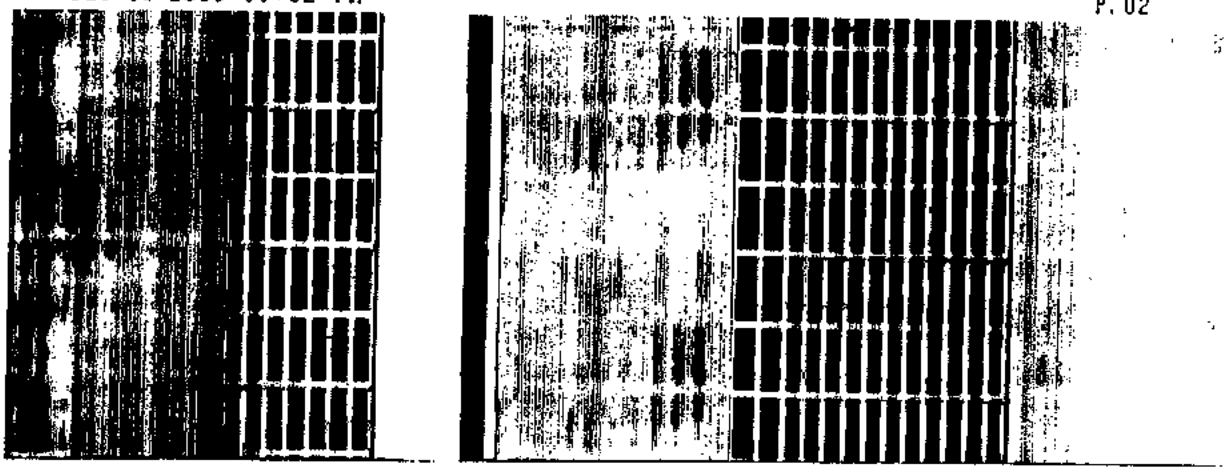
November 28, 2006



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IMPROVEMENTS TO GOREWAY DRIVE CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA Leading today for tomorrow

7. **Solutions to the identified problem will be evaluated using the Evaluation Criteria listed below. Please tell us which of these you feel are more important and which are less important by rating them in order of importance with a high of "1" for the factors that are very important to a low of "5" for the factors of little importance.**

Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	
Traffic safety	/
Pedestrians and cyclists	
Access management	/
Natural Environment Factors	
Roadside Vegetation	
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	
Social Environment Factors	
Property acquisition requirements	
Existing and future land use	
Construction disruption (e.g., noise, dust, traffic)	
Economic Environment Factors	
Business impacts	
Construction costs	
Operational and maintenance costs	
Cultural Environment Factors	
Archaeological resources	
Engineering/Technical Considerations	
Construction staging	
Utility conflicts	
Stormwater management	
Other Considerations *(Please describe)*	

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November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

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4. **What comments or suggestions do you have about the PIC brochure and information provided?**

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[ ] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[1] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[ ] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

[ ] Provide localized intersection improvements

[ ] Provide enhanced bus service

[ ] Other *(Please explain)*

Rationale

Will allow road traffic to continue when trains are passing through or standing.

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November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

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7. **Solutions to the identified problem will be evaluated using the Evaluation Criteria listed below. Please tell us which of these you feel are more important and which are less important by rating them in order of importance with a high of "1" for the factors that are very important to a low of "5" for the factors of little importance.**

Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	
Traffic safety	
Pedestrians and cyclists	
Access management	
Natural Environment Factors	
Roadside Vegetation	
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	
Social Environment Factors	
Property acquisition requirements	
Existing and future land use	
Construction disruption (e.g., noise, dust, traffic)	
Economic Environment Factors	
Business impacts	
Construction costs	
Operational and maintenance costs	
Cultural Environment Factors	
Archaeological resources	
Engineering/Technical Considerations	
Construction staging	
Utility conflicts	
Stormwater management	
Other Considerations *(Please describe)*	

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1. **My property/interest is:** ***(Please check all that apply)***

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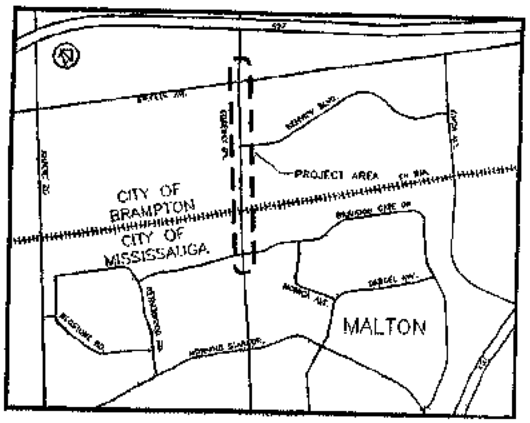
- [ ] located east of Goreway Drive
- [x] located west of Goreway Drive
- [ ] general interest
- [ ] commercial/industrial property
- [x] residential property
- [ ] user of Goreway Drive but not a local resident
- [ ] recreational property

2. **Are there problems with Goreway Drive at present?**

[x] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

- [ ] Congestion
- [x] Vehicle Delays
- [x] Turning at intersection(s)
- [ ] Pedestrian/Bicycle Safety
- [ ] Pavement Condition
- [x] Auto/Train Conflict
- [ ] Operating Speed
- [ ] Insufficient public transit
- [x] Through traffic volumes
- [ ] Poor entrance/exit to driveways
- [ ] Other *(please explain)* _____



Study Area Corridor

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Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	1
Traffic safety	1
Pedestrians and cyclists	1
Access management	1
Natural Environment Factors	
Roadside Vegetation	3
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	1
Social Environment Factors	
Property acquisition requirements	2
Existing and future land use	4
Construction disruption (e.g., noise, dust, traffic)	3
Economic Environment Factors	
Business impacts	2
Construction costs	1
Operational and maintenance costs	3
Cultural Environment Factors	
Archaeological resources	4
Engineering/Technical Considerations	
Construction staging	2
Utility conflicts	5
Stormwater management	1
Other Considerations *(Please describe)*	

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4. **What comments or suggestions do you have about the PIC brochure and information provided?**

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**

Is there sufficient space between Brandon Gate + tracks for required degree of elevation over tracks? If not, how will this intersection be affected?

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[5] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[1] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[2] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

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[ ] Other *(Please explain)*_____

*Rationale*_____

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8. How did you hear about this public meeting?

[ ] Newspaper ad [✓] Notice in mail [ ] Other

9. Please indicate your satisfaction with the following:

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	Y	
Time of Meeting	N	7:00 PM to 7:30 PM
Day of the Week	Y	

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very (1) 2 *Somewhat* 3 4 *Not at all* 5

b) How helpful were the staff and consultants in attendance?

Very (1) 2 *Somewhat* 3 4 *Not at all* 5

10. Were all your questions answered satisfactorily?

[✓] Yes [ ] No

Other Comments:

Meeting attendance would increase if held 7:00 - 7:30 PM.

An overpass is favourable as this area is known for flooding in the park (between Ketteridge & Kennedy Blvd). This would also cut the volume of traffic along Bramalea North, heading for Airport Road & to get to Steeles Avenue.

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Please mail or fax your completed questionnaire by December 15, 2006, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

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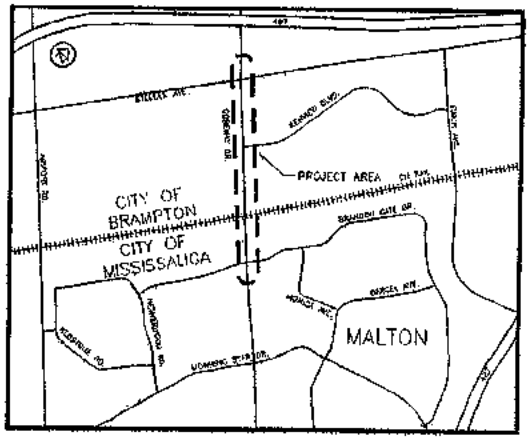
[ ] located west of Goreway Drive
[ ] general interest
[ ] commercial/industrial property
[ ] residential property
[ ] user of Goreway Drive but not a local resident
[ ] recreational property

2. **Are there problems with Goreway Drive at present?**

[✓] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

[✓] Congestion
[✓] Vehicle Delays
[ ] Turning at intersection(s)
[ ] Pedestrian/Bicycle Safety
[ ] Pavement Condition
[✓] Auto/Train Conflict
[ ] Operating Speed
[ ] Insufficient public transit
[ ] Through traffic volumes
[ ] Poor entrance/exit to driveways
[ ] Other *(phase explain)* _____



Study Area Corridor

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4. **What comments or suggestions do you have about the PIC brochure and information provided?**
BROCHURE IS GOOD

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**
AN OVERPASS ON GOREWAY WOULD BE A HUGE IMPACT TO PEOPLE LIVING ON GOREWAY; I.E. VIEWS FROM WINDOWS & BACKYARD.

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[3] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[1] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[2] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

[4] Provide localized intersection improvements

[5] Provide enhanced bus service

[ ] Other *(Please explain)*

Rationale AN UNDER PASS WOULD BE MY PREFERRED SOLUTION AS IT WOULD HAVE A MINIMAL IMPACT ON PEOPLES HOMES CURRENTLY ON GOREWAY, A HUGE BRIDGE STRUCTURE WOULD HAVE A SEVERE IMPACT ON PROPERTIES, PLUS VIEW FROM WINDOWS & BACKYARDS.
IF YOU CHOOSE TO BUILD AN OVERPASS THEN MY PREFERENCE WOULD BE TO LOOK AT ALTERNATIVES TO SOLVE THE TRAFFIC PROBLEMS.

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Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	
Traffic safety	
Pedestrians and cyclists	
Access management	
Natural Environment Factors	
Roadside Vegetation	
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	
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Construction costs	
Operational and maintenance costs	
Cultural Environment Factors	
Archaeological resources	
Engineering/Technical Considerations	
Construction staging	
Utility conflicts	
Stormwater management	
Other Considerations *(Please describe)*	

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8. How did you hear about this public meeting?

[ ] Newspaper ad [✓] Notice in mail [ ] Other

9. Please indicate your satisfaction with the following:

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	Y	
Time of Meeting	Y	
Day of the Week	Y	

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

(Very) 1 2 *Somewhat* 3 4 *Not at all* 5

b) How helpful were the staff and consultants in attendance?

(Very) 1 2 *Somewhat* 3 4 *Not at all* 5

10. Were all your questions answered satisfactorily?

[✓] Yes [ ] No

Other Comments: _____

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- [X] residential property
- [ ] user of Goreway Drive but not a local resident
- [ ] recreational property

2. **Are there problems with Goreway Drive at present?**

[X] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

- [X] Congestion
- [X] Vehicle Delays
- [X] Turning at intersection(s)
- [ ] Pedestrian/Bicycle Safety
- [ ] Pavement Condition
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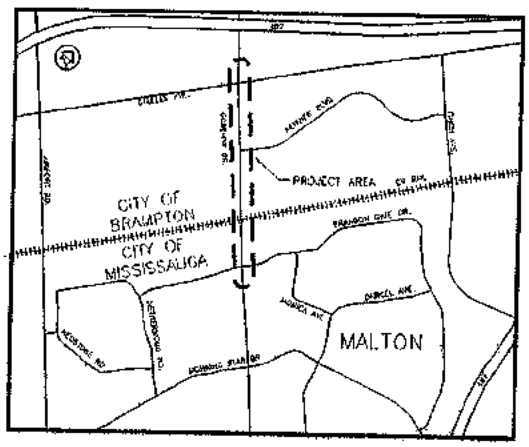

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4. **What comments or suggestions do you have about the PIC brochure and information provided?**

RESIDENTS SHOULD BE GIVEN THE SAME INFO AS DISPLAY CHARTS

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**

PUDDLING ON GOREWAY AT THE CREEK. DRIVE WAY ENTRANCE ON EAST SIDE OF GOREWAY JUST NORTH OF BRANDON GATE.

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[4] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[5] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[1] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

[2] Provide localized intersection improvements

[3] Provide enhanced bus service

[ ] Other *(Please explain)*

Rationale GRADE SEPARATION RESOLVES MORE OF THE ISSUES AND HAS LEAST NEGATIVE IMPACT.

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8. **How did you hear about this public meeting?**

[ ] Newspaper ad [ ] Notice in mail [ ] Other

9. **Please indicate your satisfaction with the following:**

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	_____	_____
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Day of the Week	_____	_____

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very		*Somewhat*		*Not at all*
1	2	3	4	5

b) How helpful were the staff and consultants in attendance?

Very		*Somewhat*		*Not at all*
1	2	3	4	5

10. **Were all your questions answered satisfactorily?**

[ ] Yes [ ] No

Other Comments: _____

_____

_____

_____

_____

_____

_____

_____

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[X] Yes [ ] No [ ] Don't know

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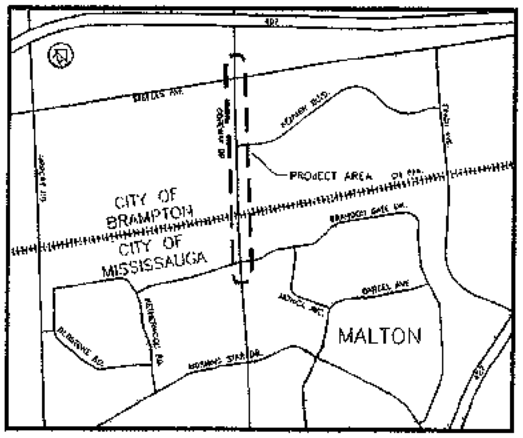
[X] Congestion
[X] Vehicle Delays
[ ] Turning at intersection(s)
[ ] Pedestrian/Bicycle Safety
[ ] Pavement Condition
[X] Auto/Train Conflict
[ ] Operating Speed
[ ] Insufficient public transit
[ ] Through traffic volumes
[ ] Poor entrance/exit to driveways
[ ] Other *(phase explain)* TRAFFIC GOING NORTH ON GOREWAY DR. WHEN TRAIN IS CROSSING WILL MAKE U-TURN, RIGHT ON BRANDON GATE, WEST ON REDSTONE RD., TO AIRPORT RD.



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7. **Solutions to the identified problem will be evaluated using the Evaluation Criteria listed below. Please tell us which of these you feel are more important and which are less important by rating them in order of importance with a high of "1" for the factors that are very important to a low of "5" for the factors of little importance.**

Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	
Traffic safety	
Pedestrians and cyclists	
Access management	
Natural Environment Factors	
Roadside Vegetation	
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	
Social Environment Factors	
Property acquisition requirements	
Existing and future land use	
Construction disruption (e.g., noise, dust, traffic)	
Economic Environment Factors	
Business impacts	
Construction costs	
Operational and maintenance costs	
Cultural Environment Factors	
Archaeological resources	
Engineering/Technical Considerations	
Construction staging	
Utility conflicts	
Stormwater management	
Other Considerations *(Please describe)*	

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November 28, 2006

FLOWER CITY
BRAMPTON.CA

IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
Leading today for tomorrow

Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

8. How did you hear about this public meeting?

[ ] Newspaper ad [ ] Notice in mail [✓] Other

9. Please indicate your satisfaction with the following:

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	_____	_____
Time of Meeting	_____	_____
Day of the Week	_____	_____

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very		*Somewhat*		*Not at all*
1	2	(3)	4	5

b) How helpful were the staff and consultants in attendance?

Very		*Somewhat*		*Not at all*
(1)	2	3	4	5

10. Were all your questions answered satisfactorily?

[✓] Yes [ ] No

Other Comments: _____

_____

_____

_____

_____

_____

_____

_____

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November 28, 2006

FLOWER CITY
BRAMPTON.CA

IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
Leading today for tomorrow

Please provide your contact information below should you wish to receive a response to your comments and/or to be added to the Study Mailing List (please print).

Your Name:

Your Address:

Your Postal Code:

Your Telephone No.

Please mail or fax your completed questionnaire by December 15, 2006, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

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Leading today for tomorrow

PUBLIC QUESTIONNAIRE
Public Information Centre No. 1, November 28, 2006

The City of Brampton, in partnership with the City of Mississauga, has retained UMA Engineering Ltd. to undertake a Class Environmental Assessment (EA) Study to consider options to satisfy travel demand and address existing traffic delays on Goreway Drive from Steeles Avenue southerly to Brandon Gate Drive (see Study Area Corridor below). This questionnaire is your opportunity to comment on this Study and indicate your concerns and preferences. ***Given that your views are important to us, please take a moment to complete this questionnaire (please print) and deposit it in the "Comment Sheets" box provided. Thank you.***

1. **My property/interest is:** ***(Please check all that apply)***

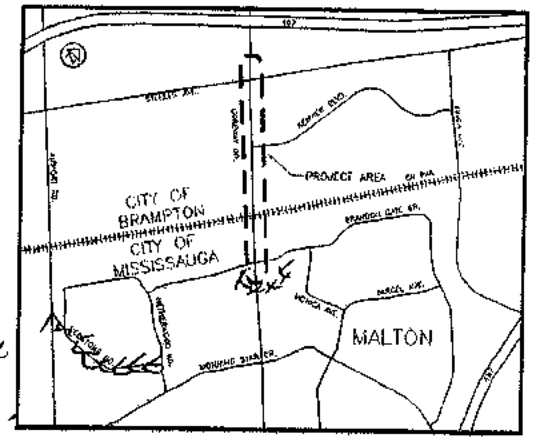
- [ ] back/front onto Goreway Drive
- [ ] located east of Goreway Drive
- [X] located west of Goreway Drive
- [ ] general interest
- [ ] commercial/industrial property
- [X] residential property
- [ ] user of Goreway Drive but not a local resident
- [ ] recreational property

2. **Are there problems with Goreway Drive at present?**

[X] Yes [ ] No [ ] Don't know

3. **If you answered YES to Question 2, please indicate the nature of these problems** ***(Please check all that apply and show where the problem occurs on the Study Area map to the right).***

- [X] Congestion
- [ ] Vehicle Delays
- [ ] Turning at intersection(s)
- [ ] Pedestrian/Bicycle Safety
- [ ] Pavement Condition
- [ ] Auto/Train Conflict
- [ ] Operating Speed
- [ ] Insufficient public transit
- [X] Through traffic volumes
- [ ] Poor entrance/exit to driveways
- [ ] Other *(please explain)* Traffic waiting at CNR makes it turns hard to Brandon Gate to Netherwood and then Redstone Rd. to Aerobat Rd.



Study Area Corridor

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November 28, 2006

UMA | AECOM

4. **What comments or suggestions do you have about the PIC brochure and information provided?**
The PIC brochure is very well done and covers the problem well. The displays and Video very informative -

5. **Based on the presentation of the Study issues we have identified, are there other issues that we should be aware of?**
No traffic signs on Brandon Gate and Redstone Rd eg. speeding signs and no parking signs

6. **Please rank the following Alternative Solutions from 1 to 5 (1 being best or highest rank) and provide a rationale for your ranking.**

[ ] Do nothing; Maintain four lanes on Goreway Drive with no grade separation at the CN rail crossing

[X] Maintain four lanes on Goreway Drive with a grade separation at the CN rail crossing

[ ] Divert traffic to and/or upgrade adjacent north-south arterial roads (e.g., Airport Road and/or Finch Avenue)

[ ] Provide localized intersection improvements

[ ] Provide enhanced bus service

[ ] Other *(Please explain)*_____

*Rationale*_____

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November 28, 2006

7. **Solutions to the identified problem will be evaluated using the Evaluation Criteria listed below. Please tell us which of these you feel are more important and which are less important by rating them in order of importance with a high of "1" for the factors that are very important to a low of "5" for the factors of little importance.**

Evaluation Criteria	Rank
Transportation Factors	
Capacity and level of service	4
Traffic safety	4
Pedestrians and cyclists	5
Access management	4
Natural Environment Factors	
Roadside Vegetation	5
Aquatic habitat and fisheries resources (e.g., Mimico Creek)	5
Social Environment Factors	
Property acquisition requirements	5
Existing and future land use	5
Construction disruption (e.g., noise, dust, traffic)	2
Economic Environment Factors	
Business impacts	5
Construction costs	5
Operational and maintenance costs	5
Cultural Environment Factors	
Archaeological resources	5
Engineering/Technical Considerations	
Construction staging	5
Utility conflicts	5
Stormwater management	5
Other Considerations *(Please describe)*	

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November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE
CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
Leading today for tomorrow

Your answers to the following questions will help us ensure future meetings take into account any concerns you may have.

8. **How did you hear about this public meeting?**

[ ] Newspaper ad [ ] Notice in mail [X] Other

9. **Please indicate your satisfaction with the following:**

	Satisfied (Y/N)	If Not Satisfied, Please Specify Your Preference Here
Location of Meeting	Y	
Time of Meeting	Y	
Day of the Week	Y	

On a scale from 1 to 5, where "1" is "very" and "5" is "not at all", please rate the following by circling the appropriate number:

a) How informative were the display materials?

Very 1 (2) *Somewhat* 3 4 *Not at all* 5

b) How helpful were the staff and consultants in attendance?

(*Very* 1) 2 *Somewhat* 3 4 *Not at all* 5

10. **Were all your questions answered satisfactorily?**

[X] Yes [ ] No

Other Comments: _____

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November 28, 2006

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IMPROVEMENTS TO GOREWAY DRIVE CLASS ENVIRONMENTAL ASSESSMENT STUDY

MISSISSAUGA
Leading today for tomorrow

Please provide your contact information below should you wish to receive a response to your comments and/or to be added to the Study Mailing List (please print).

Your Name: _____

Your Address: _____

_____

Your Postal Code: _____

Your Telephone No.: _____

Please mail or fax your completed questionnaire by December 15, 2006, to:

Mr. Greg Smith
Consultant Project Manager
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON L4W 4P2

Phone: 905-238-0007
Fax: 905-238-0038
E-mail: Greg.Smith@uma.aecom.com

Thank you for your time.

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November 28, 2006

From: Ritchie, Andrew
Sent: September 18, 2006 8:48 AM
To:
Cc: khurram.tunio@brampton.ca; Smith, Greg; Choi, Solomon; Kapusin, Sonya
Subject: RE: 4020-009 - Goreway Drive

Thank you very much for your input. You have identified a key issue that needs to be addressed as part of this Study. To this end we will carry out a Transportation/Traffic Study to clearly identify the existing problems encountered within the Project Limits and the need justification for the proposed improvements. In carrying out this task, existing and anticipated roadway conditions will be analyzed, among other parameters, to develop an appropriate solution to the identified problem(s).

We will be convening two Public Information Centres (PICs) during the Study, to present and receive public input on the identified solutions. Notification of these upcoming events will be placed within the local newspapers (i.e., Brampton Guardian and Mississauga News). In addition, notification letters will be forwarded to those on our Study Mailing List. For both PICs, a "drop-in" public meeting format will be employed whereby the public/agencies can attend at their leisure to review the display boards, and fill out a questionnaire and/or comment form. Both City Staff and UMA Team members will be on hand to explain the display materials and/or answer and record any questions/concerns that may arise.

If I may, could you please identify how you were made aware of this Study? Did you see the Notice in the Brampton Guardian or the Mississauga News, or did you receive a hand delivered notification letter? We would appreciate if you could provide us with your mailing address, so we may add you to our Mailing List.

Your continued input is greatly appreciated.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

From:
Sent: September 17, 2006 7:52 AM
To: khurram.tunio@brampton.ca; Smith, Greg; Ritchie, Andrew
Subject: 4020-009

Ladies/Gentlemen/Stakeholders:
I am glad to see finally that the cities of Mississauga, and brampton has decide to

do something about this long outstanding bottle neck.

I have lived in this area for a long time and often wonder why this proble has gone un-noticed for such a long time. Personally, I think the original design was flawed from the outset when this area was first developed in the 1970's.

You may keep me informed of your progress if you so wish. I am just please to see that at least government has seen that there is a problem...at last.

From: Ritchie, Andrew
Sent: September 13, 2006 2:50 PM
To:
Cc: khurram.tunio@city.brampton.on.ca; Choi, Solomon; Kapusin, Sonya; Smith, Greg
Subject: RE: Traffic operations on Goreway Drive/Steeles Ave &Brandon Gate Drv

Thanks for your feedback. We will continue to keep you apprised of the Project as the Study progresses. In the interim, should you have any additional questions and/or concerns please send me an email or give me a call at the number provided below.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

From:
Sent: September 13, 2006 2:43 PM
To: Ritchie, Andrew
Subject: RE: Traffic operations on Goreway Drive/Steeles Ave &Brandon Gate Drv

I received a hand delivered notification letter.

Thanks,

> -----Original Message-----
> **From:** Ritchie, Andrew [mailto:Andrew.Ritchie@uma.aecom.com]
> **Sent:** September 12, 2006 1:09 PM
> **To:**
> **Cc:** khurram.tunio@city.brampton.on.ca; Choi, Solomon; Smith, Greg; Kapusin, Sonya
> **Subject:** RE: Traffic operations on Goreway Drive/Steeles Ave &Brandon Gate Drv
>
> Thank you very much for your input. You have identified a key issue that needs to be addressed as part of this Study. To this end we will carry out a Transportation/Traffic Study to clearly identify the

existing problems encountered within the Project Limits and the need justification for the proposed improvements. In carrying out this task, existing and anticipated roadway conditions will be analysed, among other parameters, to develop an appropriate solution to the identified problem(s).

We will be convening two Public Information Centres (PICs) during the Study, to present and receive public input on the identified solutions. Notification of these upcoming events will be placed within the local newspapers (i.e., Brampton Guardian and Mississauga News). In addition, notification letters will be forwarded to those on our Study Mailing List. For both PICs, a "drop-in" public meeting format will be employed whereby the public/agencies can attend at their leisure to review the display boards, and fill out a questionnaire and/or comment form. Both City Staff and UMA Team members will be on hand to explain the display materials and/or answer and record any questions/concerns that may arise.

If I may, could you please identify how you were made aware of this Study? Did you see the Notice in the Brampton Guardian or the Mississauga News, or did you receive a hand delivered notification letter?

Your continued input is greatly appreciated.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

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Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

From:
Sent: September 11, 2006 5:26 PM
To: Smith, Greg
Subject: Traffic operations on Goreway Drive/Steeles Ave &Brandon Gate Drv

With regards to the above I had a personal experiencing of a 30minutes wait sitting in traffic from Morning Star
drive to Brandongate due to the CN train operation. The train sometimes stops on that track not realizing that
there are people who needs to get home to their families.

I personally suggests that these tracks should definitely be diverted through another area as Goreway drive
experiences a heavy flow of traffic throughout the day and personally speaking it can be very annoying to hear

them passing.

Hope my suggestion will help to make the best decision for this.

Thanks,

Brampton

Works & Transportation Department

August 29, 2006

RECEIVED
AUG 3 1 2006
UMA

Re: Environmental Assessment Study for the Improvements of Goreway Drive (Steeles Avenue to Brandon Gate Drive) (RFP2006-041) File No.: EA06003

We are in receipt of your fax dated August 28, 2006. First of all, I would like to thank you for expressing a keen interest in the above captioned project and will be looking forward to working with you on this project.

As you are aware, the City of Brampton in partnership with the City of Mississauga has retained UMA Engineering to conduct the class environmental assessment for the Goreway Drive improvements. The project was initiated in mid July 2006 and the notices for study commencement were advertised in newspapers as well as mailed to property owners in the first week of August 2006. UMA is still in the process of compiling and reviewing background information and it may be another couple of months before we arrange our first public information centre (PIC).

The notices for first PIC will be advertised in the local newspaper as well as mailed to property owners and other stakeholders.

Should you require further information or have any questions/comments please do not hesitate to contact me.

Regards,

Khurram Tunio, M. Eng., P. Eng.
Project Engineer, Engineering and Construction Division
Works and Transportation, City of Brampton
Tel: 905-874-2881, Fax: 905-874-2599
TTY: 905-874-2130
khurram.tunio@brampton.ca

KT/la

c.c. Solomon Choi, P. Eng. – City of Brampton
Andrew Ritchie, P. Eng. – UMA Engineering Ltd.

Attachment

LEGENDS CONSULTING

FAX TRANSMITTAL

DATE: August 28, 2006

TO: Khurram Tunio, P. Eng.,
Project Engineer,
City of Brampton

NUMBER OF PAGES (including transmittal): 1

SUBJECT: Improvements to Goreway Drive,
Class Environmental Assessment

Dear Mr. Tunio:

They are most interested in the EA Study outlined in Mr. Ritchie's letter of August 9 .

Accordingly, please advise me of the time and location of the upcoming Public Information Centres.

I look forward to working with you on this project.

From:
Sent: August 27, 2006 6:18 PM
To: Smith, Greg
Subject: Goreway Dr

I received a letter from you company in regards to a bridge at the rail way crossing. Appearance wise I would like to see cars go under the tracks, but I think the rail way would like the cars over the tracks as it is probably cheaper for them. What are the changes north of the tracks to Steels?

From: Ritchie, Andrew
Sent: August 16, 2006 3:03 PM
To:
Cc: 'Tunio, Khurram'; Choi, Solomon; Kapusin, Sonya; Smith, Greg
Subject: RE: Goreway Drive Class EA Study

Thank you for your input. Much appreciated.

Please note that your input will be taken into consideration as part of the Study. As per the Notification letter, we will be convening a Public Information Centre in the near future to discuss the proposed improvements to Goreway Drive. You will be notified in advance of the Meeting, which will provide you with an opportunity to review display materials pertaining to the Study and to discuss project-specific issues/details with Project Team personnel.

Could you provide us with a list of tenants and their respective contact information so we can add them to our public mailing list.

Your assistance and cooperation in this Study is greatly appreciated. Please give me a call at the number provided below should require additional information.

Best regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

-----Original Message-----
From: Michael Boyes [mailto:Mboyes@hr-dev.com]
Sent: August 14, 2006 4:08 PM
To: Ritchie, Andrew
Subject: 1 Kenview Dr EA

Good day Andrew,

As most Landlords, the concerns are how will potential changes effect the Tenants and the property in areas such as day-to-day operations, appearances and/or property values.

Please ensure to keep me updated as to the EA and any other related developments.

Yours sincerely,

-----Original Message-----
From:
Sent: 2006/08/11 11:44 AM
To: Tunio, Khurram
Subject: RE: Goreway Drive Improvements in Brampton & Mississauga
Importance: High

Tunio:
I use Goreway road to commute to work everyday.
I experience:
1. traffic congestion during rush hours at Queen St E
2. single up or down traffic lanes from Countryside Dr to Queen Street E add to the congestion.
3. CN railroad crossings on this road are not a smooth ride.

Thanks & Best Wishes

From: Tunio, Khurram [mailto:khurram.tunio@city.brampton.on.ca]
Sent: Friday, August 11, 2006 11:36 AM
To:
Subject: RE: Goreway Drive Improvements in Brampton & Mississauga

Hi '

Can you please provide briefly the reason(s) for your interest in the two Goreway Drive EA projects. Once identified, we can add your name in appropriate mailing list.

Regards,

Khurram

-----Original Message-----
From:
Sent: 2006/08/11 9:55 AM
To: khurram.tunio@brampton.ca
Subject: Goreway Drive Improvements in Brampton & Mississauga
Importance: High

Hi Tunio:
I would like to be added to the study mailing list for the 'Goreway Drive Improvements' for both Countryside Drive to Queen St E in Brampton & Steeles Ave E to Brandon Gate in Mississauga/Brampton area

Kindly confirm.

Thanks & Best Wishes

From:
Sent: August 11, 2006 7:43 AM
To: Smith, Greg
Subject: Goreway Drive EA

Good morning Greg, I read in my local paper on Wednesday that you are carrying out an EA for Goreway Drive from Steeles Avenue to Brandon Gate Drive.

It's getting busier as the development increases in that part of the city however still bearable, that is except for the 200 car trains that tend to cross over during the peak periods, I'm hoping that a grade separation is part of this road improvement project. Can you please add me to your study mailing list.

thanks

-----Original Message-----
From:
Sent: 2006/08/10 4:56 PM
To: khurram.tunio@brampton.ca
Cc: greg.smith@uma.aecom.com
Subject: add myself to study list

Good day,
I am pleased to hear that a study is finally being initiated in order to determine how to improve Goreway Drive, particularly at the railroad crossing. This is long overdue; , and the situation on Goreway Dr. has gotten progressively worse. . I would be happy to be on the study mailing list in order to keep myself informed.

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Agency Comments Tracking Form

Name/Contact	Agency/Company	Address	Correspondence	Comments	Reply/Response
Ms. Sharon Lingertat Environmental Assessment Review	Toronto and Region Conservation Planning and Development	5 Shoreham Drive Downsview, Ontario M3N 1S4	Letter December 6, 2007 November 27, 2007 April 23, 2007 January 29, 2007 August 18, 2006 Transmittal August 31, 2006	▪ Comments on the Draft Environmental Study Report (Engineering Comments) ▪ Comments on the Draft Environmental Study Report (Ecology, Hydrogeology and Geotechnical) ▪ Goreway Drive currently overtops at Mimico Creek during storm events. Please ensure that a hydraulic analysis is prepared for each of the alternative crossings. If the culvert crossing at Mimico Creek will be replaced please ensure that a meander belt width analysis and 100 year erosion limit analysis is also prepared. ▪ Prior to meeting in February, TRCA recommends providing the following reports: stormwater, natural features, geotechnical, archeology, and hydrogeology. ▪ Staff has conducted a review of the background mapping and has identified environmental concerns within the Study Area. These concerns were identified in the TRCA response to the Request for Proposal, dated April 18, 2006. These environmental concerns should be identified in the EA document in both the text and on an overlay map, as appropriate. When considering the alternative solutions, [note that] the Regional water level just upstream of Goreway Drive is approximately 172.27 metres while the regional water level downstream of Goreway Drive to the railroad tracks is approximately 172.26 metres. ▪ Information provided includes fish monitoring data, natural features data, current regulation limits and flood lines.	▪ Comments addressed in Report and Appendices. ▪ Provided Draft copies of Surface Water Management Report. ▪ Two Meetings held with TRCA ▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List
Ms. Angela Johnson Councillor	Mississaugas of Scugog Island First Nation	22521 Island Road Port Perry, ON L9L 1B6	Letter June 18, 2007	▪ Lands involved in the proposed undertaking are within the treaty lands of the Mississaugas of Scugog Island First Nation, and are within the lands claimed by the First Nation in an unresolved specific land claim presently before the Canada Indian Claims Commission. The First Nation has several rights that are applicable within the subject lands, such as the right to have Aboriginal burials not disturbed.	▪ Comments considered as part of EA Study.
Mr. Ted Lagakos Project Manager	Ministry of Transportation Corridor Management Section	1201 Wilson Avenue Building D, 7th Floor Downsview, Ontario M3M 1J8	Email June 4, 2007 May 14, 2007	▪ The MTO has no objections with the proposed improvements on Goreway Drive. ▪ The Ministry does not object to the City's plans to improve the operation and capacity of Goreway Drive. The Project Team should be aware of the 407 Transitway and the station in the northwest quadrant of the intersection. Please note the Transitway's station right-in right-out access on Goreway Drive and the fully signalized access on Steeles Avenue. Any proposed improvements within the vicinity of the Highway 407 will require Ministry review, approval and permits. The Ministry's limit of "permit control" extends 395 m from the centre point of the intersection of Goreway Drive and the Highway 407.	▪ Comments considered as part of EA Study.
Mr. Craig White Director, Highway Operations	407 ETR Concession Company Ltd.	6300 Steeles Avenue West Woodbridge, Ontario L4H 1J1	Email June 1, 2007 November 29, 2006 Fax Back Form August 31, 2006	▪ 407 ETR has reviewed the drawing for the Class EA and have no comments or concerns. ▪ 407 ETR under our Concession Ground Lease Agreement with the Province of Ontario is responsible to manage and operate Highway 407 corridor lands which include Goreway Drive from Steeles Avenue northerly to Hydro One Transmission corridor. As a result 407 ETR would like to request that 407 ETR and the Ministry of Transportation be included for review and comments	▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List.

Name/Contact	Agency/Company	Address	Correspondence	Comments	Reply/Response
3A/Zone 8		K9J 3X1			• Removed from Study Mailing List.
Mr. Satish Kumar Korpal Co-ordinator-Crossings & Facilities	Trans-northern Pipelines Inc.	45 Vogell Road Suite 310 Richmond Hill, Ontario L4B 3P6	Email February 8, 2007 August 11, 2006	• Trans-Northern Pipelines Inc. has no facilities at the above location. • Trans-Northern has no facilities at [this] location.	• Comments considered as part of EA Study. • Replied to confirm receipt - August 11, 2006 • Remained on Study Mailing List.
Ms. Cora Sheppard EA and Planning Coordinator	Ministry of Environment Air, Pesticides and Environmental Planning	5775 Yonge Street 8th Floor North York, Ontario M2M 2J1	Letter February 7, 2007	• The following general comments were made in response to the Notice of Commencement. The comments pertain to areas of Groundwater/Surfacewater, Dust and Noise, Mitigation and Monitoring, and the Class EA process.	• Comments considered as part of EA Study. • Remained on Study Mailing List.
Mr. Mark Warract Heritage Coordinator	Mississauga Heritage Features	Mississauga Civic Centre 300 City Centre Dr Mississauga, Ontario L5B 3C1	Email February 5, 2007	• There are no known heritage resources within the Study Area	• Comments considered as part of EA Study.
Mr. Ali Sabouri Network Administrator	City of Brampton Information Technology	2 Wellington Street West Brampton, Ontario L6Y 4R2	Letter February 2, 2007	• Informed that PSN has no fibre in this area	• Comments considered as part of EA Study.
Mr. Richard Roberts Trails Coordinator	Corporation of the City of Mississauga	300 City Centre Dr Mississauga, ON L5B 3C5	Email January 23, 2007 January 10, 2007	• Mississauga Cycling Advisory Committee member who lives in the Malton area indicated that if at all possible having a bike facility as part of that work would be a good thing to have.	• Comments considered as part of EA Study.
Gail Mitchell Director	Policy and Coordination Directorate Comprehensive Claims Branch Indian and Northern Affairs		Letter November 28, 2006	• Confirm that there are no comprehensive claims in the City of Brampton and the City of Mississauga. We cannot make comments regarding potential or future claims filed under other departmental policies.	• Comments considered as part of EA Study. • Remained on Study Mailing List.
Mr. Alan Sawyer Environmental Assessment Facilitator	Portfolio Strategy and Asset Management Ontario Realty Corporation	Ferguson Block Edifice Ferguson Queen's Park Toronto, Ontario M7A 2G3	Letter November 22, 2006	• Our preliminary review of your notice and supporting information indicates that ORC managed lands are present in your Study Area • Negative environmental impacts associated with the project design and construction, such as the potential for dewatering, dust, noise vibration impacts, and impacts to natural heritage features/habitat and functions, should be avoided and/or appropriately mitigated in accordance with applicable regulations best practices and MNR and MOE standards. • Negative impacts to land holdings, such as taking of developable parcels of ORC managed land or fragmentation of utility or transportation corridors, should be avoided. • If takings are suggested as part of any alternative these should be appropriately mapped and quantified within EA report documentation. In addition, details of appropriate mitigation and or next steps related to compensation for any required takings should be present. ORC requests circulation of the draft EA report prior to finalization if potential impacts to ORC managed lands are present as part of this study. • If proposed alternatives may impact cultural heritage features on ORC managed lands, we would request that the examination of cultural heritage features be enhanced. • The ORC Class EA applies to a range of realty and planning activities that may be triggered as part of EA undertakings. The range of activities includes leasing or letting, planning approvals, selling, demolition and property maintenance/repair, all of which could be triggered if an EA undertaking involves land takings or work on ORC managed lands. If the potential to trigger the ORC Class EA is present as part of this undertaking you should	• Comments considered as part of EA Study. • Remained on Study Mailing List. • ORC Class EA completed.

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Utility Contact Summary List

Submission No. 1 (January 14, 2007)

Date Updated: March 14, 2007

	First Name	Last Name	Title	Company	Address	Contact	Date Response Received	Submissions	Comments
1	Philip	Bauslaugh		Bell Canada	West Tower – F3 5115 Creekbank Road Mississauga, Ontario L4W 5R1	Kathy Li	March 13/07		
2	Ali	Sabouri	Network Administrator	City of Brampton Public Service Network	2 Wellington Street West Brampton, Ontario L6Y 4R2	Tel: 905-874-2022 Fax: 905-874-2019	Feb 9/07	Drawings Attached	No Fibre in the area
3	Rosemary	Sawczyszyn	GIS and Records Analyst	Enersource Hydro Mississauga	3240 Mavis Road Mississauga, Ontario L5C 3K1	Tel.: 905-273-9050	Mar 7/07	Drawings: Distribution Area Map, Streetlighting Area Map, Fibre Area Map and map showing overhead conductors and underground cables and Detailed Construction Drawings	Aerial and underground
4	Amanda	Sexton	Supervisor, Planning and Design	Enbridge Gas Distribution Inc.	500 Consumers Road North York, Ontario M2J 1P8	Jamie Delaney Tel: 416-495-6321 Fax: 416-758-4374	Jan 30, 2007	Drawings attached	Drawings – General location of proposed gas plant. **Requested detailed drawings for sign-off**
5	Gord	Barclay		FCI Broadband	280 Hillmount Road, Unit 9 Markham, Ontario L6C 3A1	Tel: 416-987-4700 Fax: 416-987-4701	Feb 12, 2007	Drawings attached	Aerial on existing hydro poles only. (Steeles Avenue).
6	Ian	Mitchell	OPS Manager	Hydro One Telecom Inc.	65 Kelfield Street Rexdale, Ontario M9W 5A3	Barbara Kolodziej Outside Plant Engineering Tel: 416-240-6842 Fax: 416-240-6790	Feb 1, 2007	Mark-ups attached	Underground aerial fibre optic cable - markups attached
7	Jim	Washburn	System Planner	Rogers Cable	OPE-GTA West 3573 Wolfedale Road Mississauga, Ontario L5C 3T6		Jan 14, 2007	Mark-ups attached	Aerial Plant in the area
8	Bruno	Pereira	Engineering Supervisor – East	Hydro One Brampton	175 Sandalwood Parkway West Brampton, Ontario L7A 1E8	Greg Mather Drafting & Records Supervisor	Feb 28, 2007	Drawings of HOB underground plant and poles/Construction drawing for Installation of New Facilities under construction	Underground Plant in area
9	Grant	Crowson		Telus Communication	2700 Matheson Blvd. East 5th Floor, West Tower Mississauga, Ontario L4W 4V9	Hernando Martinez Plantec Inc. 200 Town Centre Blvd Suite 300 Markham, Ontario L3R 8G5 Tel: 905-470-2112 Ext. 230 Fax 905-470-8956	Jan 24, 2007	Application Review/Field View Map/As-Built PL-01	Shared Infrastructure with 360 Network along CNR
10	Anthony	Segreto		Telus Network	11 King Street West, 11th Floor Toronto, Ontario M5H 4C7	Tel.. 1-403-920-2000			
11	Terry	Ardelli		Trans Canada Pipelines	450 First Street S.W. Calgary, Alberta T2T 5H1	Tel: 1-800-400-2255			

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Response from Utility Companies – Utility Impacts

Utility Contact Summary List

Submission No. 2 (May 22, 2007)

Date Updated May 29, 2007

	First Name	Last Name	Title	Company	Address	Contact	Date Response Received	Submissions	Comments
1	Philip	Bauslaugh		Bell Canada	West Tower – F3 5115 Creekbank Road Mississauga, Ontario L4W 5R1	Kathy Li Sharmila Krishna – Kumar		Electronic Drawings attached.	
3	Rosemary	Sawczyszyn	GIS and Records Analyst	Enersource Hydro Mississauga	3240 Mavis Road Mississauga, Ontario L5C 3K1	Tel : 905-273-9050	July 13, 2007	Drawings: Distribution Area Map, Streetlighting Area Map, Fibre Area Map and map shoing overhead conductors and underground cables and Detailed Construction Drawings	Aerial and underground
4	Amanda	Sexton	Supervisor, Planning and Design	Enbridge Gas Distribution Inc.	500 Consumers Road North York, Ontario M2J 1P8	Diana Beauline Tel: 416-495-6321 Fax: 416-758-4374	Jun 20, 2007	Drawings attached	Drawings – General location of proposed gas plant.
5	Gord	Barclay		FCI Broadband	280 Hillmount Road, Unit 9 Markham, Ontario L6C 3A1	Tel. 416-987-4700 Fax: 416-987-4701		Drawings attached	
6	Ian	Mitchell	OPS Manager	Hydro One Telecom Inc.	65 Kelfield Street Rexdale, Ontario M9W 5A3	Barbara Kolodziej Outside Plant Engineering Tel: 416-240-6842 Fax: 416-240-6790		Mark-ups attached	
7	Jim	Washburn	System Planner	Rogers Cable	OPE-GTA West 3573 Wolfedale Road Mississauga, Ontario L5C 3T6		Jul 10, 2007	Mark-ups attached	Aerial and underground plant in the area.
8	Bruno	Pereira	Engineering Supervisor – East	Hydro One Brampton	175 Sandalwood Parkway West Brampton, Ontario L7A 1E8	R. Evangelista Engineering Supervisor, Development	June 20, 2007	Drawings of HOB underground plant and poles/Construction drawing for Installation of New Facilities under construction	Underground plant in the area.
9	Grant	Crowson		Telus Communication	2700 Matheson Blvd East 5th Floor, West Tower Mississauga, Ontario L4W 4V9	Hernando Martinez Plantec Inc. 200 Town Centre Blvd. Suite 300 Markham, Ontario L3R 8G5 Tel: 905-470-2112 Ext. 230 Fax: 905-470-8956		Application Review/Field View Map/As-Built PL-01	

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Utility Contact Summary List

Submission No. 3 (October 5, 2007)

	First Name	Last Name	Title	Company	Address	Contact	Date Drawings Sent Out	Submissions	Comments
3	Bob	Koskocky		Enersource Hydro Mississauga	3240 Mavis Road Mississauga, Ontario L5C 3K1	Tel.: 905-273-9050	October 9, 2007	Drawings	
8	Robert	Evangelista		Hydro One Brampton	175 Sandalwood Parkway West Brampton, Ontario L7A 1E8		October 9, 2007 November 16, 2007	Drawings Meeting with Project Team	
	Wayne	Vorano		Enersource Hydro Mississauga		Tel.: 905-283-4154	November 16, 2007	Meeting with Project Team	

A7 – Summary of Comments

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Agency Comments Tracking Form

Name/Contact	Agency/Company	Address	Correspondence	Comments	Reply/Response
Ms. Sharon Lingertat Environmental Assessment Review	Toronto and Region Conservation Planning and Development	5 Shoreham Drive Downsview, Ontario M3N 1S4	Letter December 6, 2007 November 27, 2007 April 23, 2007 January 29, 2007 August 18, 2006 Transmittal August 31, 2006	▪ Comments on the Draft Environmental Study Report (Engineering Comments) ▪ Comments on the Draft Environmental Study Report (Ecology, Hydrogeology and Geotechnical) ▪ Goreway Drive currently overtops at Mimico Creek during storm events. Please ensure that a hydraulic analysis is prepared for each of the alternative crossings. If the culvert crossing at Mimico Creek will be replaced please ensure that a meander belt width analysis and 100 year erosion limit analysis is also prepared. ▪ Prior to meeting in February, TRCA recommends providing the following reports: stormwater, natural features, geotechnical, archeology, and hydrogeology. ▪ Staff has conducted a review of the background mapping and has identified environmental concerns within the Study Area. These concerns were identified in the TRCA response to the Request for Proposal, dated April 18, 2006. These environmental concerns should be identified in the EA document in both the text and on an overlay map, as appropriate. When considering the alternative solutions, [note that] the Regional water level just upstream of Goreway Drive is approximately 172.27 metres while the regional water level downstream of Goreway Drive to the railroad tracks is approximately 172.26 metres. ▪ Information provided includes fish monitoring data, natural features data, current regulation limits and flood lines.	▪ Comments addressed in Report and Appendices. ▪ Provided Draft copies of Surface Water Management Report. ▪ Two Meetings held with TRCA ▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List
Ms. Angela Johnson Councillor	Mississaugas of Scugog Island First Nation	22521 Island Road Port Perry, ON L9L 1B6	Letter June 18, 2007	▪ Lands involved in the proposed undertaking are within the treaty lands of the Mississaugas of Scugog Island First Nation, and are within the lands claimed by the First Nation in an unresolved specific land claim presently before the Canada Indian Claims Commission. The First Nation has several rights that are applicable within the subject lands, such as the right to have Aboriginal burials not disturbed.	▪ Comments considered as part of EA Study.
Mr. Ted Lagakos Project Manager	Ministry of Transportation Corridor Management Section	1201 Wilson Avenue Building D, 7th Floor Downsview, Ontario M3M 1J8	Email June 4, 2007 May 14, 2007	▪ The MTO has no objections with the proposed improvements on Goreway Drive. ▪ The Ministry does not object to the City's plans to improve the operation and capacity of Goreway Drive. The Project Team should be aware of the 407 Transitway and the station in the northwest quadrant of the intersection. Please note the Transitway's station right-in right-out access on Goreway Drive and the fully signalized access on Steeles Avenue. Any proposed improvements within the vicinity of the Highway 407 will require Ministry review, approval and permits. The Ministry's limit of "permit control" extends 395 m from the centre point of the intersection of Goreway Drive and the Highway 407.	▪ Comments considered as part of EA Study.
Mr. Craig White Director, Highway Operations	407 ETR Concession Company Ltd.	6300 Steeles Avenue West Woodbridge, Ontario L4H 1J1	Email June 1, 2007 November 29, 2006 Fax Back Form August 31, 2006	▪ 407 ETR has reviewed the drawing for the Class EA and have no comments or concerns. ▪ 407 ETR under our Concession Ground Lease Agreement with the Province of Ontario is responsible to manage and operate Highway 407 corridor lands which include Goreway Drive from Steeles Avenue northerly to Hydro One Transmission corridor. As a result 407 ETR would like to request that 407 ETR and the Ministry of Transportation be included for review and comments	▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List.

Name/Contact	Agency/Company	Address	Correspondence	Comments	Reply/Response
				on this Environmental Assessment (EA). Our concern is any possible changes or impact that may occur to Goreway Drive north of Steeles that may result from this EA which would affect the 407 ETR corridor. ▪ My group/agency is interested in providing input regarding this study. ▪ Impacts to 407 ETR right of way and interchange.	
Mr. Gord Barclay Service Provisioning Manager	FCI Broadband	280 Hillmount Road Unit 9 Markham, Ontario L6C 3A1	Letter May 28, 2007 February 8, 2007	▪ FCI Broadband does not have any underground facilities within the parameters of the mentioned project. ▪ FCI Broadband drawings identified the facilities in the aforementioned area. The only facility FCI has in the area is aerial on existing hydro poles along the north side of Steeles Avenue.	▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List.
Mr. John MacTaggart Senior Engineering Services Officer	Canadian National Railway	1 Administration Road P.O. Box 1000 Concord, Ontario L4K 1B9	Letter May 28, 2007 Fax Back Form August 22, 2006 Transmittal September 22, 2006	▪ CN has no objection in-principal to the proposed preliminary design. ▪ CNR has interest in this project due to the existing at-grade crossing on Goreway Drive (Mile 8.80 Halton Subdivision). CNR requests to be kept informed during the EA process and advised of the impacts to this CN railway crossing. Please be informed that if the chosen alternative is not a grade separation and the crossing is to be widened, it may take up-to 18 months from the date the Purchase Order is received to compete any modifications to the Automatic Warning Device. ▪ For your use, Daily Train Movement Graphs for Halton Subdivision.	▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List. ▪ Two Meetings held with CN.
Mr. Hernando Martinez Utility Markups	Plantec Inc. Consulting Engineers on behalf of Telus communications	200 Town Centre Blvd. Suite 300 Markham, Ontario L3R 8G5	Fax May 7, 2007 Transmittal January 24, 2007 Fax Back Form August 21, 2006	▪ Telus has no infrastructure along the proposed construction routes or areas. ▪ Caution: Telus has shared infrastructure with 360Network along CNR. Refer to 360Network for their plan. Telus has infrastructure along Goreway Drive at the West side of CNR. Please incorporate this information and contact Telus for more information. ▪ My group/agency is interested in providing input regarding this study. Telus has shared rail assets (owned by 360 networks/GT) along CNR as shown on the Telus field View map. Refer to 360 Networks/GT for their drawings. Telus has infrastructure along Goreway next to the railroad as shown in the as build plan PL-01 attached.	▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List.
Mr. Allan Dokis Intergovernmental Affairs Director	Union of Ontario Indians	Nipissing First Nation P.O. Box 711 North Bay, Ontario P1B 8J8	Letter April 24, 2007	▪ Maintain that Aboriginal and treaty rights and any First Nations' interest in its traditional territory, including its resources, cannot be abrogated, derogated or infringed in any way by any government legislation, regulation, policy or initiative. Section 35 of the Constitution Act, 1982 affirms treaty rights. ▪ Recommend meeting with all Anishinabek First Nation communities whose traditional territory may be affected by this initiative.	▪ Comments considered as part of EA Study.
Mr. Jim Leonard Heritage Coordinator	City of Brampton Urban Design and Public Buildings Section	2 Wellington Street West 3rd Floor Brampton, Ontario L6Y 4R2	Email March 1, 2007	▪ There are no listed designated heritage resources in the Area. Cannot comment on registered archaeological sites or areas of archeological potential. Also, cannot comment on environmentally sensitive areas.	▪ Comments considered as part of EA Study.
Mr. Greg Mather Drafting and Records Supervisor	Hydro One Brampton (HOB)	175 Sandalwood Parkway West Brampton, Ontario	Letter February 23, 2007	▪ Base plan drawings show the approximate location of HOB underground plant and poles in the affected work area. A copy of the construction drawing M5-11-11 detailing the installation of new facilities currently under construction is also included.	▪ Comments considered as part of EA Study.
Ms. Amanda Sexton Supervisor, Planning and Design	Enbridge Gas Distribution	500 Consumers Road North York, Ontario M2J 1P8	Email February 15, 2007	▪ Relocating (lowering) a 36" pipe running parallel to the CN tracks would cost over a million dollars and would take approximately 3 months.	▪ Comments considered as part of EA Study. ▪ Remained on Study Mailing List.
B. Jamie Bignell ADET Zone	Hydro One Networks	913 Crawford Drive Peterborough, Ontario	Email February 8, 2007	▪ If the project limits fall South of Steeles, no further comment is required.	▪ Comments considered as part of EA Study.

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Name/Contact	Agency/Company	Address	Correspondance	Comments	Reply/Response
3A/Zone 8		K9J 3X1			• Removed from Study Mailing List.
Mr. Satish Kumar Korpal Co-ordinator-Crossings & Facilities	Trans-northern Pipelines Inc.	45 Vogell Road Suite 310 Richmond Hill, Ontario L4B 3P6	Email February 8, 2007 August 11, 2006	• Trans-Northern Pipelines Inc. has no facilities at the above location. • Trans-Northern has no facilities at [this] location.	• Comments considered as part of EA Study. • Replied to confirm receipt - August 11, 2006 • Remained on Study Mailing List.
Ms. Cora Sheppard EA and Planning Coordinator	Ministry of Environment Air, Pesticides and Environmental Planning	5775 Yonge Street 8th Floor North York, Ontario M2M 2J1	Letter February 7, 2007	• The following general comments were made in response to the Notice of Commencement. The comments pertain to areas of Groundwater/Surfacewater, Dust and Noise, Mitigation and Monitoring, and the Class EA process.	• Comments considered as part of EA Study. • Remained on Study Mailing List.
Mr. Mark Warrack Heritage Coordinator	Mississauga Heritage Features	Mississauga Civic Centre 300 City Centre Dr Mississauga, Ontario L5B 3C1	Email February 5, 2007	• There are no known heritage resources within the Study Area.	• Comments considered as part of EA Study.
Mr. Ali Sabouri Network Administrator	City of Brampton Information Technology	2 Wellington Street West Brampton, Ontario L6Y 4R2	Letter February 2, 2007	• Informed that PSN has no fibre in this area.	• Comments considered as part of EA Study.
Mr. Richard Roberts Trails Coordinator	Corporation of the City of Mississauga	300 City Centre Dr Mississauga, ON L5B 3C5	Email January 23, 2007 January 10, 2007	• Mississauga Cycling Advisory Committee member who lives in the Malton area indicated that if at all possible having a bike facility as part of that work would be a good thing to have.	• Comments considered as part of EA Study.
Gail Mitchell Director	Policy and Coordination Directorate Comprehensive Claims Branch Indian and Northern Affairs		Letter November 28, 2006	• Confirm that there are no comprehensive claims in the City of Brampton and the City of Mississauga. We cannot make comments regarding potential or future claims filed under other departmental policies.	• Comments considered as part of EA Study. • Remained on Study Mailing List.
Mr. Alan Sawyer Environmental Assessment Facilitator	Portfolio Strategy and Asset Management Ontario Realty Corporation	Ferguson Block Edifice Ferguson Queen's Park Toronto, Ontario M7A 2G3	Letter November 22, 2006	• Our preliminary review of your notice and supporting information indicates that ORC managed lands are present in your Study Area. • Negative environmental impacts associated with the project design and construction, such as the potential for dewatering, dust, noise vibration impacts, and impacts to natural heritage features/habitat and functions, should be avoided and/or appropriately mitigated in accordance with applicable regulations best practices and MNR and MOE standards. • Negative impacts to land holdings, such as taking of developable parcels of ORC managed land or fragmentation of utility or transportation corridors, should be avoided. • If takings are suggested as part of any alternative these should be appropriately mapped and quantified within EA report documentation. In addition, details of appropriate mitigation and or next steps related to compensation for any required takings should be present. ORC requests circulation of the draft EA report prior to finalization if potential impacts to ORC managed lands are present as part of this study. • If proposed alternatives may impact cultural heritage features on ORC managed lands, we would request that the examination of cultural heritage features be enhanced. • The ORC Class EA applies to a range of realty and planning activities that may be triggered as part of EA undertakings. The range of activities includes leasing or letting, planning approvals, selling, demolition and property maintenance/repair, all of which could be triggered if an EA undertaking involves land takings or work on ORC managed lands. If the potential to trigger the ORC Class EA is present as part of this undertaking you should	• Comments considered as part of EA Study. • Remained on Study Mailing List. • ORC Class EA completed.

Name/Contact	Agency/Company	Address	Correspondence	Comments	Reply/Response
				contact ORC's General Manager of Environment and Heritage. For details on the ORC Class EA please visit the Environment and Heritage page of our website found at http://www.orc.on.ca/Page133.aspx. • The ORC managed land identified within your study area is a stretch of the Parkway Belt. If land takings or easements in the Parkway Belt are required you should contact ORC's Real Estate and Sales Division. For Planning implications in the Parkway Belt questions can be referred to our Planning Department.	
Mr. Robb Minnes Project Manager	Ministry of Transportation	1201 Wilson Avenue Toronto, Ontario M3M 1J8	Fax Back Form October 6, 2006	• 407 Transitway and Station North of Steeles Avenue. • My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.	• Comments considered as part of EA Study. • Remained on Study Mailing List.
Mr. Bruno Pereira Manager of Engineering	Hydro One Brampton	175 Sandalwood Pkwy West L7A 1E8	Fax Back Form August 30, 2006	• My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this project.	• Comments considered as part of EA Study. • Remained on Study Mailing List.
Ms. Shari Prowse Archaeologist/ Heritage Planner	Ministry of Culture	400 University Avenue 4th Floor M7A 2R9	Fax Back Form August 24, 2006	• My group/agency is interested in providing input regarding this study. • Project may impact cultural Heritage Resources.	• Stage 1 Archaeological Assessment completed. Local heritage planners contacted. • Comments considered as part of EA Study. • Remained on Study Mailing List.
N. Ireland ADET	Hydro One	913 Crawford Drive Peterborough, ON K9J 3X1	Fax Back Form August 22, 2006	• Please remove my group/agency from the Study Mailing List. • Hydro One Low Voltage would like to comment that we have no plant in the area of study. If you have any further questions please contact [N. Ireland]	• Comments considered as part of EA Study. • Removed from Study Mailing List.
Ms. Eve Adams Councilor, Ward 5	City of Mississauga	300 City Centre Drive 3rd Floor L5B 3C1	Fax Back Form August 16, 2006 Phone August 8, 2006	• My group/agency is interested in providing input regarding this study. • A grade separation is long overdue at this location. Care needs to be taken to address noise impacts. Please keep me updated on your progress and any concerns from neighboring properties.	• Comments considered as part of EA Study. • Remained on Study Mailing List
Mr. Paul Mountford Intermediate Planning Officer	Peel District School Board	5650 Hurontario Street Mississauga, ON L5R 1C6	Fax Back Form August 14, 2006	• My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this Project.	• Remained on Study Mailing List
Mr. Mike Grodzwski Inspector	Peel Regional Police	7750 Hurontario Street Brampton, ON L6O 3W6	Fax Back Form August 14, 2006	• My group/agency is not interested in providing input regarding this study but would like to be kept informed. Please leave my group/agency on the Study Mailing List for this Project.	• Remained on Study Mailing List

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Date Updated: March 14, 2007

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3	Rosemary	Sawczyszyn	GIS and Records Analyst	Enersource Hydro Mississauga	3240 Mavis Road Mississauga, Ontario L5C 3K1	Tel.: 905-273-9050	Mar 7/07	Drawings: Distribution Area Map, Streetlighting Area Map, Fibre Area Map and map showing overhead conductors and underground cables and Detailed Construction Drawings	Aerial and underground
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5	Gord	Barclay		FCI Broadband	280 Hillmount Road, Unit 9 Markham, Ontario L6C 3A1	Tel: 416-987-4700 Fax: 416-987-4701	Feb 12, 2007	Drawings attached	Aerial on existing hydro poles only. (Steeles Avenue).
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7	Jim	Washburn	System Planner	Rogers Cable	OPE-GTA West 3573 Wolfedale Road Mississauga, Ontario L5C 3T6		Jan 14, 2007	Mark-ups attached	Aerial Plant in the area
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9	Grant	Crowson		Telus Communication	2700 Matheson Blvd. East 5th Floor, West Tower Mississauga, Ontario L4W 4V9	Hernando Martinez Plantec Inc. 200 Town Centre Blvd. Suite 300 Markham, Ontario L3R 8G5 Tel: 905-470-2112 Ext. 230 Fax: 905-470-8956	Jan 24, 2007	Application Review/Field View Map/As-Built PL-01	Shared Infrastructure with 360 Network along CNR
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11	Terry	Ardelli		Trans Canada Pipelines	450 First Street S.W. Calgary, Alberta T2T 5H1	Tel: 1-800-400-2255			

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Utility Contact Summary List

Submission No. 1 (January 14, 2007)

	First Name	Last Name	Title	Company	Address	Contact	Date Response Received	Submissions	Comments
12	Satish	Kumar	Coordinator	Trans Northern Pipelines	45 Vogell Road, Suite 310 Richmond Hill, Ontario L4B 3P6	Tel: 905-770-3353 Ext 211 Fax: 905-770-8675	Jan 22, 2007		No facilities at location
13	Christine	Anderson		Allstream	50 Worchester road Etobicoke, Ontario M9W 5X2		Jan 26, 2007	No mark-ups	No existing plant in the area
14	Jamie	Bignell	Engineering Technician	Hydro One Networks Inc.	913 Crawford Drive Peterborough, Ontario K9J 3X1	Tel: 1-888-871-3514 Fax: 1-705-743-9890	Jan 10, 2007		No existing plant in the area

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
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Response from Utility Companies – Utility Impacts

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Submission No. 2 (May 22, 2007)

Date Updated: May 29, 2007

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1	Phillip	Bauslaugh		Bell Canada	West Tower – F3 5115 Creekbank Road Mississauga, Ontario L4W 5R1	Kathy Li Sharmila Krishna – Kumar		Electronic Drawings attached.	
3	Rosemary	Sawczyszyn	GIS and Records Analyst	Enersource Hydro Mississauga	3240 Mavis Road Mississauga, Ontario L5C 3K1	Tel.: 905-273-9050	July 13, 2007	Drawings: Distribution Area Map, Streetlighting Area Map, Fibre Area Map and map shoing overhead conductors and underground cables and Detailed Construction Drawings	Aerial and underground
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5	Gord	Barclay		FCI Broadband	280 Hillmount Road, Unit 9 Markham, Ontario L6C 3A1	Tel: 416-987-4700 Fax: 416-987-4701		Drawings attached	
6	Ian	Mitchell	OPS Manager	Hydro One Telecom Inc.	65 Kelfield Street Rexdale, Ontario M9W 5A3	Barbara Kolodziej Outside Plant Engineering Tel: 416-240-6842 Fax: 416-240-6790		Mark-ups attached	
7	Jim	Washburn	System Planner	Rogers Cable	OPE-GTA West 3573 Wolfedale Road Mississauga, Ontario L5C 3T6		Jul 10, 2007	Mark-ups attached	Aerial and underground plant in the area.
8	Bruno	Pereira	Engineering Supervisor – East	Hydro One Brampton	175 Sandalwood Parkway West Brampton, Ontario L7A 1E8	R. Evangelista Engineering Supervisor, Development	June 20, 2007	Drawings of HOB underground plant and poles/Construction drawing for Installation of New Facilities under construction	Underground plant in the area.
9	Grant	Crowson		Telus Communication	2700 Matheson Blvd. East 5th Floor, West Tower Mississauga, Ontario L4W 4V9	Hernando Martinez Plantec Inc. 200 Town Centre Blvd. Suite 300 Markham, Ontario L3R 8G5 Tel: 905-470-2112 Ext. 230 Fax: 905-470-8956		Application Review/Field View Map/As-Built PL-01	

Goreway Drive Improvements (Steeles Avenue to Brandon Gate Drive)
Class Environmental Assessment
City of Brampton

Utility Contact Summary List

Submission No. 3 (October 5, 2007)

	First Name	Last Name	Title	Company	Address	Contact	Date Drawings Sent Out	Submissions	Comments
3	Bob	Koskocky		Enersource Hydro Mississauga	3240 Mavis Road Mississauga, Ontario L5C 3K1	Tel.: 905-273-9050	October 9, 2007	Drawings	
8	Robert	Evangelista		Hydro One Brampton	175 Sandalwood Parkway West Brampton, Ontario L7A 1E8		October 9, 2007 November 16, 2007	Drawings Meeting with Project Team	
	Wayne	Vorano		Enersource Hydro Mississauga		Tel.: 905-283-4154	November 16, 2007	Meeting with Project Team	

Appendix B – Background Reports

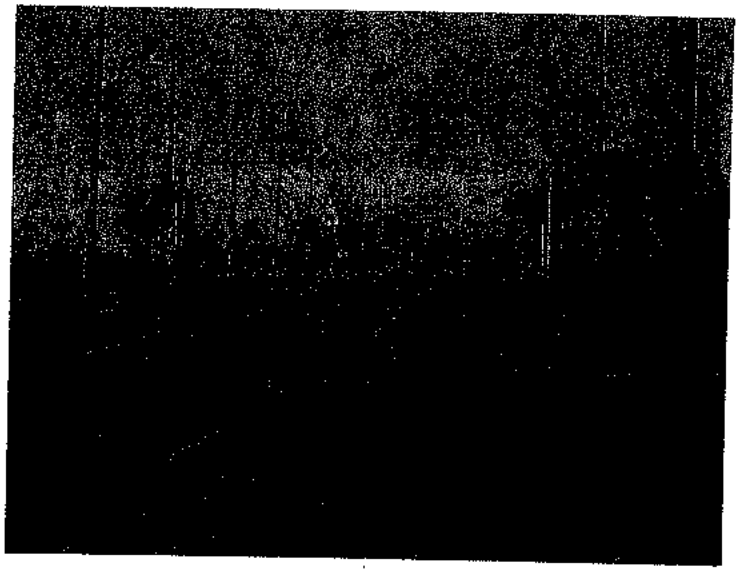
UMA | AECOM

The Corporations of the Cities of Brampton and Mississauga

Class Environmental Assessment

Improvements to Goreway Drive From Steeles Avenue to Brandon Gate Drive

Surface Water Management Report



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January 31, 2008

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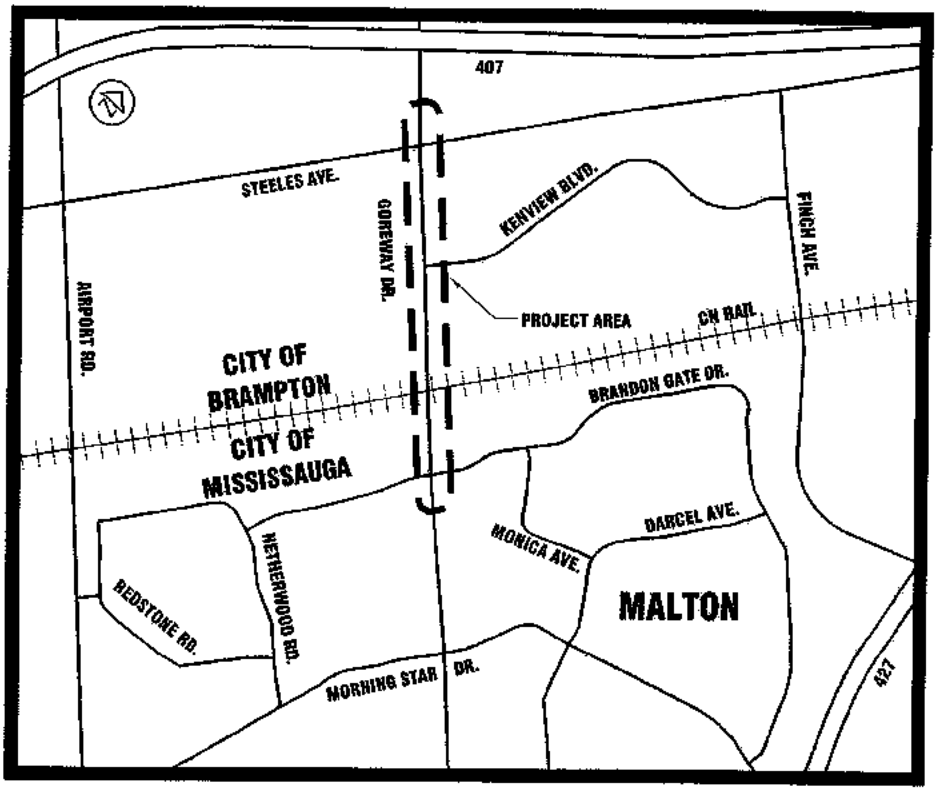
1.0 Introduction

The City of Brampton, in collaboration with the City of Mississauga, retained UMA Engineering Ltd. (UMA) to undertake a Class Environmental Assessment (Class EA) Study for improvements to Goreway Drive. Figure 1.1 shows the Study Area Corridor for Goreway Drive stretching approximately 1.2 kilometres (km) southerly from Steeles Avenue in the City of Brampton to Brandon Gate Drive in the City of Mississauga. Improvements to this section of Goreway Drive are needed to accommodate future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing (8.80 Mile Halton Subdivision).

This Surface Water Management Report documents the existing drainage and flooding conditions through the study area, evaluates the relative impacts of the alternative solutions on the to the receiving surface water systems, and recommends measures to mitigate the impacts of the preferred solution on receiving surface water systems.

Figure 1.1: Study Area



2.0 Existing Conditions

2.1 Goreway Drive Storm Drainage

Through the study area, Goreway Drive has an urban cross section, with storm drainage collected by a curb and gutter drainage system. Storm drainage from Goreway Drive between Steeles Avenue and the Mimico Creek culvert is collected in a storm sewer system, discharging on the west side of Goreway Drive approximately 45 m north of Mimico Creek. A vegetated swale connects the storm sewer outfall to Mimico Creek.

The storm sewer draining Goreway Drive between Mimico Creek and the CN rail lines discharges on the east side of Goreway Drive, approximately 45 m south of Mimico Creek. As is the case on the west side, a grassed swale connects the storm sewer outfall to Mimico Creek.

South of the CN rail lines, runoff from Goreway Drive and a small external area to the west of Goreway Drive is collected in a storm sewer system draining south to Brandon Gate Drive. Flow then enters a larger storm sewer under Brandon Gate Drive, which discharges to Mimico Creek through the existing 2.74 m x 4.88 m concrete box culvert under Brandon Gate Drive.

Other than the short lengths of grassed swale north of the CN rail lines, there do not appear to be any formal measures currently in place to control the quantity or quality of storm runoff from Goreway Drive.

2.2 Mimico Creek Flood Plain

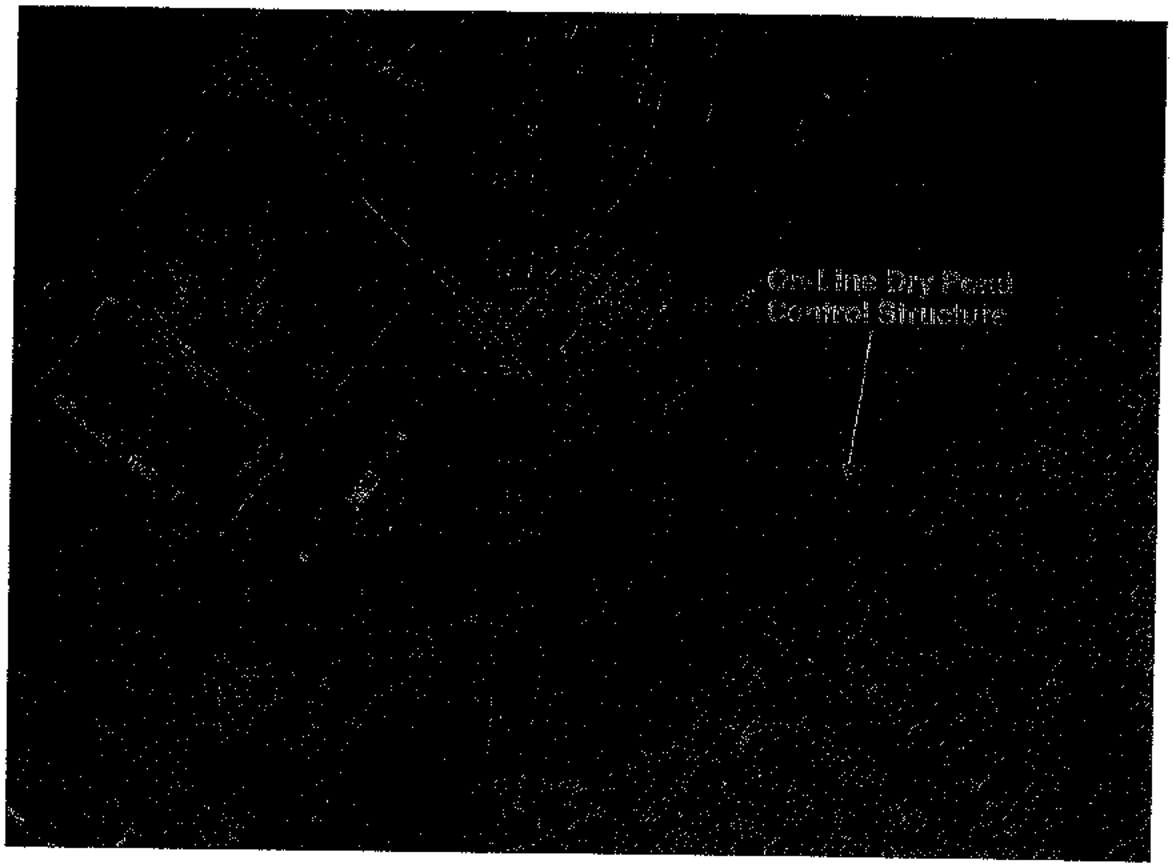
The study area is located entirely within the Mimico Creek watershed. Mimico Creek flows in a southerly direction from Steeles Avenue, and then turns eastward, crossing under Goreway Drive approximately 250 m north of the CN rail lines (See Figure 2.1). The total drainage area to Mimico Creek at Goreway Drive is more than 1500 hectares.

A 4.9 m wide by 1.8 m high by 19.5 m long open foot concrete box culvert was constructed over Mimico Creek at Goreway Drive in the late 1950's. Goreway Drive was subsequently upgraded in the mid-1990's, at which time the existing bridge was extended by approximately 1.9 m on both the upstream and downstream ends. The existing culvert span and depth were maintained for the extensions.

From Goreway Drive, Mimico Creek flows in a south-easterly direction through the Parkshore Golf Course towards the CN rail lines. In the late 1980's, a control structure was constructed on Mimico Creek immediately upstream of the CN rail lines to transform the majority of the existing golf course property into a large on-line dry flood control pond for the upstream industrial development (GM Sernas, 1987). The control structure takes the form of a 850 mm wide by 2000 mm high concrete box culvert for low flows and a 9.6 m wide weir for higher flows.

Downstream of the control structure, Mimico Creek crosses under the CN rail lines through a combination of a 1350 mm diameter corrugated steel pipe (CSP) for low flows, and a 3000 mm diameter CSP for higher flows. The invert of the 3000 mm diameter CSP is approximately 0.5 m above that of the smaller pipe. Both culverts are perched significantly above the stream bed on the downstream side of the CN crossing.

Figure 2.1: Mimico Creek



source: http://maps.brampton.ca/

To determine the extent of flooding through the study area, the HEC-2 hydraulic model of Mimico Creek was obtained from the Toronto and Region Conservation Authority on January 16, 2007. The HEC-2 model was reviewed, and it was confirmed that the coding of the culvert span, depth, opening area and invert elevations were consistent with the existing culvert at Goreway Drive. However, the culvert length and top-of-road profile did not appear to have been updated to reflect the reconstruction of Goreway Drive in the mid 1990's. The following changes were made to the Mimico Creek HEC-2 model by UMA staff to better reflect current conditions.

- The top-of-road profile (BT lines) was revised to match the design drawings provided by the City of Brampton (EGA Consulting Engineers, 1993). Additional ground points (GR lines) were also added to correspond to key points along the road profile (i.e. crests and sags).
- The sections immediately upstream and downstream of Goreway Drive were shifted to represent the 1.9 m extensions to each side of the culvert. The reach lengths to the next sections upstream and downstream were adjusted to maintain the same overall stream length through the reach.

Table 2.1 below provides a summary comparison of the HEC-2 output from the model provided by the TRCA and the revised model of existing conditions. Cross section 7.28 is located approximately 50 m upstream of Goreway Drive, and cross section 7.29 is located approximately mid-way between Goreway Drive and Steeles Avenue. As can be seen from the table, for most events, the difference between the original and corrected model is negligible. There is an increase of 8 to 15 cm for the 10 year through 50 year return period events, but a difference of 1 cm or less for the 100 year and Regional storm events.

Reduced copies of the drawings for Goreway Drive can be found in Appendix A, and the HEC-2 model input and output and a plan illustrating the (original) cross section locations are included in Appendix B.

Table 2.1: Impacts of the HEC-2 Model Corrections

Storm Event	Flow (m^3/s)	Section 7.28		Section 7.29	
		TRCA Model	Corrected Model	TRCA Model	Corrected Model
2 year	8	169.40	169.39	169.42	169.41
5 year	12	169.74	169.78	169.75	169.79
10 year	17	170.02	170.17	170.03	170.17
25 year	25	170.42	170.54	170.43	170.54
50 year	32	170.55	170.63	170.56	170.64
100 year	40	171.10	171.11	171.11	171.11
Regional	137	172.27	172.27	172.28	172.29

Under existing conditions, the lowest point on the Goreway Drive profile, located a short distance north of the Mimico Creek culvert, is at an elevation of approximately 170.2 m. The HEC-2 modelling predicts that Goreway Drive will be overtopped by storm greater than the 10 year return period event, with a maximum depth of flooding of more than 2 m during the Regional storm event. Based on the maximum depths provided in the provincial technical guidelines (MNR, 2002), Goreway Drive would be passable only by emergency vehicles (fire, ambulance) during a 100 year return period event, and the road would be impassable for any vehicle during the Regional storm event.

The significant depth of flooding over Goreway Drive during severe storm events is not due to an inadequate culvert at Goreway Drive. In fact, there is a negligible increase in flood elevations between the downstream and upstream faces of the Goreway Drive culvert. Flood depths through Mimico Creek are governed almost entirely by the relatively undersized culverts under the CN rail lines and / or the control structure for the on-line flood control facility immediately upstream of the rail lines.

3.0 Alternative Solutions

The subject Environmental Assessment addresses proposed reconstruction of Goreway Drive between Steeles Avenue and Brandon Gate Drive. The most significant improvement contemplated is a grade separation at the CN railway crossing. Two alternative solutions for the grade separation are under consideration: an overpass and an underpass. A comparison of the two alternative solution from a water management perspective was completed as part of the subject study.

3.1 Stormwater Management

There are no significant differences between the overpass and underpass in terms of the quantity and quality of runoff delivered to Mimico Creek. The total paved area of Goreway Drive is the same for both alternatives, and neither has a significant impact on the available alternatives to treat the quality and quantity of runoff from Goreway Drive. The overpass option could allow runoff from a slightly greater area of Goreway Drive to discharge through grassed swales before reaching Mimico Creek. Vegetated swales have some capacity to infiltrate and filter the runoff through vegetation.

With the underpass option, the low point on Goreway Drive would be lower than the invert of Mimico Creek, and it would therefore be required to pump all storm drainage delivered to the underpass. A pump is not required for the overpass option, and therefore an overpass is clearly preferred over an underpass in this regard. The need to pump storm drainage from an underpass has greater implications on flood safety, and is discussed in further detail in Section 3.2.2.

3.2 Flooding

3.2.1 Overpass Alternative

A preliminary profile for Goreway Drive has been prepared for the overpass option. To determine the impacts of the proposed overpass on flooding in Mimico Creek, the corrected HEC-2 model was revised to reflect the preliminary road profile associated with the overpass. For the evaluation of alternative profiles, the existing culvert was maintained. Table 3.1 below summarizes the predicted flood levels associated with the overpass option.

Table 3.1: Flood Levels at Mimico Creek Crossing

Storm Event	Existing Conditions (m)	Proposed Conditions (m)	Change (m)
2 year	169.39	169.39	0.00
5 year	169.78	169.78	0.00
10 year	170.17	170.17	0.00
25 year	170.54	170.76	0.22
50 year	170.63	170.96	0.33
100 year	171.11	171.26	0.15
Regional	172.27	172.28	0.01

As can be seen from the above table, the proposed revised Goreway Drive profile will not impact flooding for most storm events. For the Regional event, an insignificant increase of 1 cm is predicted. The predicted increase in the 100 year flood level of 15 cm is considered relatively minor, and would not be expected to impact existing or potential upstream development. The recent development on the west

side of Goreway between Steeles Avenue and Mimico Creek is protected from flooding up to an elevation of 172.45, and therefore the slight increase in flood levels would not pose any additional risk to the development during the Regional storm event. The preliminary profile for the overpass option would raise the low point on Goreway Drive by more than 0.5 m, reducing the depth of flooding over Goreway Drive during severe storm events considerably. Unfortunately, the reduced flood depths would still render Goreway Drive impassable to passenger vehicles during the 100 year event and impassable to all vehicles during the Regional storm event. Potential opportunities to mitigate the small increases in flood levels for the 25 through 100 year events and to improve emergency access during severe flood events are discussed in Section 4.0.

3.2.2 Underpass

The underpass option is associated with many significant flooding concerns. Paramount among these is the impact of an underpass on safe passage along Goreway Drive during severe storm events.

A preliminary road profile has been prepared for the underpass alternative, with the low point under the CN rail tracks at an elevation of approximately 162.6 m. This is much lower than the existing invert of Mimico Creek at the CN rail crossing, at an elevation of approximately 165.5 m. Thus, all runoff from Goreway Drive would need to be collected and pumped up to existing ground. Typically, it is not feasible to provide a pump with sufficient capacity to maintain safe passage for severe storm events. Thus, with the underpass option, safe passage along Goreway will be reduced, and will be reliant upon the mechanical condition of the pump and the reliability of the electrical supply. At a meeting with representatives of Toronto and Region Conservation, it was made clear that such impacts on flood safety were not acceptable.

The underpass alternative was not incorporated into the HEC-2 model to determine the impacts on upstream flooding. With the road profile lowered for the underpass, the depth of flooding upstream of Goreway Drive should not be impacted significantly. There are, however, potentially significant impacts on downstream flooding. During severe storm events that overtop Goreway Drive, flood water from Mimico Creek will flow southward to the underpass. South of the underpass, the high point on the Goreway Drive profile will be at an elevation of approximately 171.3 m, almost a metre lower than railway tracks which currently govern flood levels during severe storm events. Under existing conditions, the majority if not all of the flood water that spills over the railway tracks would be directed back into the Mimico Creek corridor immediately south of the rail lines. An underpass would direct Mimico Creek flood water southward along Goreway Drive and through the residential area to the south, overwhelming the major system drainage routes and potentially resulting in significant flood damage. There are few, if any, measures that could be implemented to reduce or eliminate the impact of the underpass on downstream flooding.

From a flood management perspective, an overpass is strongly recommended over an underpass for the CN rail grade separation.

4.0 Mitigation Measures

For the reasons documented in the previous section and in other studies supporting the subject Environmental Assessment, the overpass has been selected as the preferred solution to separate rail and road traffic along Goreway Drive. While the overpass alleviates many of the potential flooding issues discussed in the previous section and stormwater management impacts are considered negligible, potential measures to improve storm drainage and flooding conditions through the study area were explored as part of the Environmental Assessment.

4.1 Stormwater Management

Storm drainage from road surfaces, if untreated, has the potential to impact the receiving watercourse. Road runoff is also associated with a number of pollutants including suspended solids, hydrocarbons, metals, chloride and nutrients, all of which can impair aquatic habitat in the receiving system. Road surfaces also generate a greater volume of runoff and deliver it to the receiving watercourse much quicker than natural, pervious surfaces. The increase in the rate and volume of runoff has the potential to increase flooding and streambank erosion through the downstream receiving system.

Note that the proposed grade separation and other improvements to Goreway Drive result in a negligible increase in impervious surface area over current conditions. It can therefore be argued that the proposed improvements will have a negligible impact on the quality, quantity and rate of runoff delivered to Mimico Creek. However, the reconstruction of an existing roadway is often seen as an opportunity to implement stormwater management controls to meet current standards.

From the CN rail lines to Brandon Gate, there do not appear to be any feasible measures to address storm runoff from Goreway Drive directly. The existing storm sewer will be maintained, and will continue to discharge to Mimico Creek via the Brandon Gate Drive storm sewer. There is no area available to implement a stormwater management facility upstream of the outfall to Mimico Creek. An oil-grit separator is the only practice that could feasibly be implemented to treat the quality of runoff from Goreway Drive, but the City of Mississauga does not accept oil-grit separator devices.

Note that the City of Mississauga administers stormwater management in a manner different from other municipalities in the Greater Toronto area. Instead of applicants implementing their own stormwater management practices on-site, the City imposes a development charge for stormwater management. Funds collected through this charge are used to construct of new services as well as the upgrading (retrofit) of existing services (Aquafor Beech, 2004). Thus, while specific stormwater management measures will not be incorporated into the reconstruction of Goreway Drive between the CN rail lines and Brandon Gate, impacts to the receiving system will be mitigated through future stormwater management retrofits elsewhere in the TRCA watersheds within the City of Mississauga.

North of the rail lines, within the City of Brampton, there are few additional alternatives available to manage the quantity and quality of runoff delivered from Goreway Drive. A small stormwater management pond is evident in Figure 2.1, located upstream of Goreway Drive on the north side of the Mimico Creek valley corridor. Unfortunately, this is a privately owned stormwater management facility treating runoff from the industrial development south of Steeles Avenue and west of Goreway Drive (Trow, 2004). Even if it were technically feasible to direct some runoff from Goreway Drive to the stormwater management pond, there are a number of legal and administrative obstacles that do not allow storm drainage from municipal roadways to be directed to privately owned and maintained stormwater management facilities. However, recent development upstream in the Mimico Creek watershed in an area north of Queen Street and east of Airport Road resulted in a special stormwater management charge for new development in the area. Rather than implement a number of small privately owned

stormwater management ponds, funds collected from the special charge will be allocated towards a significant retrofit stormwater management pond in the Parkshore Golf Course property between Goreway Drive and the rail lines. The pond is to be designed as a semi-offline facility, allowing low flows in Mimico Creek to pass unimpeded while capturing and providing partial treatment of elevated storm flows from the entire upstream drainage area, including the subject length of Goreway Drive. Thus, similar to the City of Mississauga portion of the study area, runoff from Goreway Drive within the City of Brampton will be treated through a future stormwater management facility to be funded from current and future development in the upstream watershed.

Should the proposed retrofit pond not be constructed in advance of the Goreway Drive improvements or not have sufficient capacity to provide full treatment for the upstream area, enhanced vegetated swales should be provided to connect the storm sewer outfalls to Mimico Creek on both the east and west sides of the road north of the CN rail lines. The length of the vegetated swales should be maximized to the extent feasible.

4.2 Flooding

The analysis of alternatives presented in Section 3 demonstrated that, with the existing culvert over Mimico Creek maintained, the overpass option would not have a significant impact on Regional storm flood levels upstream. However, it was recognized that the improved Goreway Drive would still not be passable during a Regional storm event.

A structural assessment of the existing Goreway Drive culvert over Mimico Creek was completed in early 2007. It concluded that the central section of the culvert, constructed in the 1950's, was nearing the end of its serviceable life and would not be able to bear the additional load associated with the elevated road platform for the overpass option. The culvert will therefore be replaced as part of the overall improvements to Goreway Drive.

As the proposed improvements to Goreway Drive will not influence flood levels through Mimico Creek, it could be argued that the existing structure could be replaced with a new structure with the same dimensions and configuration with no impact on flooding. However, bridge and culvert replacements are typically viewed as opportunities to bring the structures closer to conformity with current best practices and regulations. In evaluating a replacement structure for the Mimico Creek crossing of Goreway Drive, factors such as fluvial geomorphology and wildlife passage were also examined. Staff from the Toronto and Region Conservation Authority provided direction on the type of analyses required to support a replacement structure at a meeting held on February 5, 2007 and through subsequent telephone conversations.

4.2.1 Meander Belt and Erosion Rate Determination

To ensure that the natural movement of the Mimico Creek channel will not impact the replacement structure over its design life, a preliminary fluvial geomorphologic assessment of Mimico Creek was completed to predict its movement over time.

Soil and land use conditions are important factors influencing the size, shape and movement of natural stream channels. The study area is located on the Peel Plain, with clay till as the predominant soil type. Channels incised in clay till soils are generally considered more stable compared to those formed in more granular, non-cohesive soils.

Land use through the upstream Mimico Creek watershed has undergone considerable change over the past several decades. Air photos from 1978 were obtained from the Ministry of Natural Resources, and air photos from 1994, 2000 and 2006 were obtained from the City of Brampton. These photos show

lands in Mississauga immediately south of the rail lines fully developed in 1978 with the majority of the watershed within the City of Brampton still used for agriculture. In the late 1980's, a master drainage plan was prepared to support the development of the majority of the upstream Mimico Creek watershed in the City of Brampton, which included the construction of the large on-line dry flood control facility downstream of Goreway Drive, north of the rail lines. The 1994 air photo shows stormwater management ponds constructed downstream of Goreway and a second pond upstream of Highway 7. By 1994, a portion of the lands north of Highway 7 were developed for industrial uses (the largest being the Chrysler assembly plan), and the majority of Mimico Creek watershed south of Highway 7 and west of the rail lines developed for industrial use. By 2000 much of the watershed had been developed, and few greenfield parcels remain in the 2006 air photos.

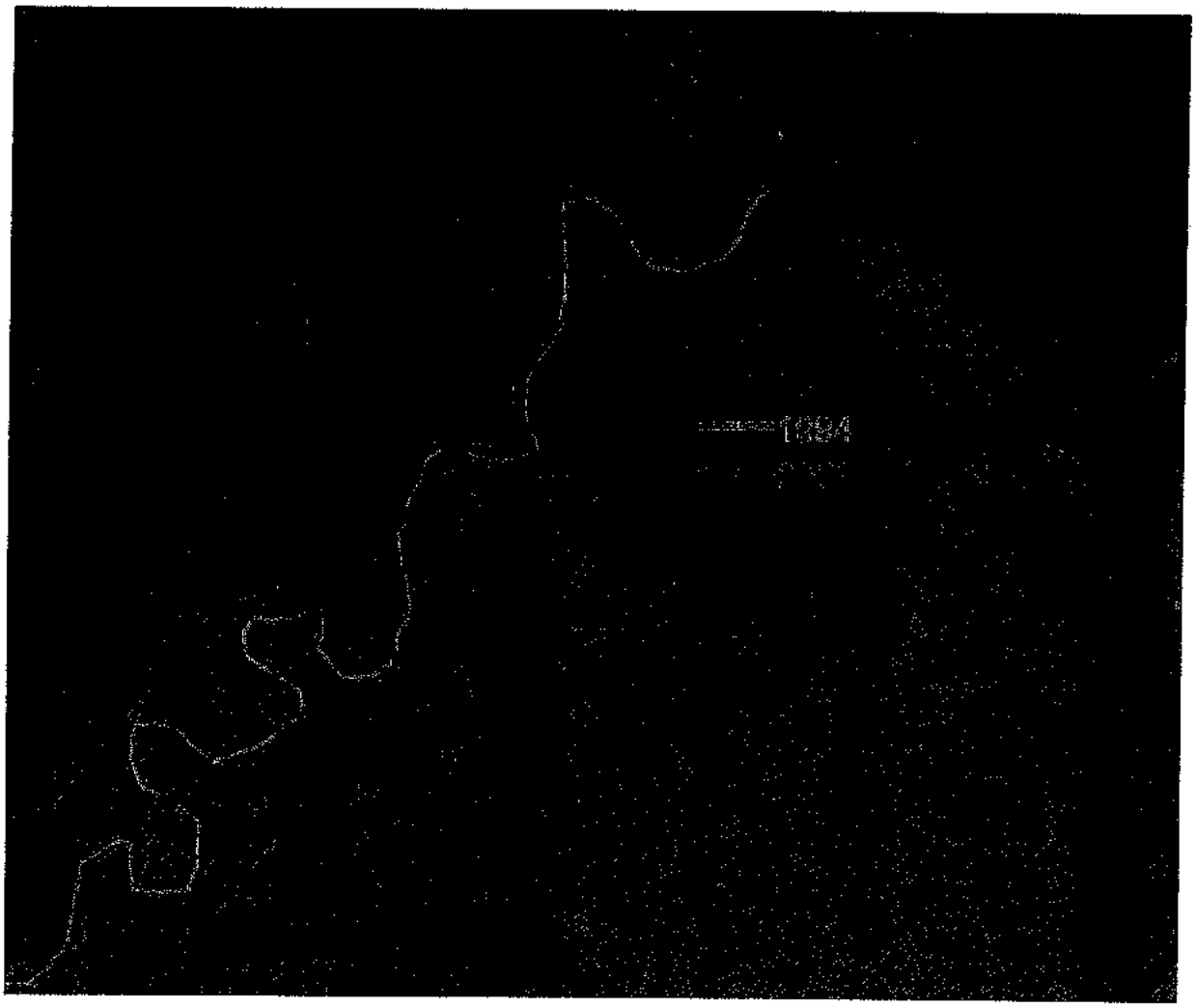
At the same time, the riparian cover along Mimico Creek upstream of Goreway Drive has been regenerating. The 1978 air photo shows active agricultural use of the lands immediately adjacent the Mimico Creek channel, with only a few trees along the creek banks. By 2006, a greater buffer is provided between the creek and the adjacent uses through several sections of the upstream reach, and the lands adjacent the creek have regenerated with many shrubs and small trees present.

A site visit was completed on May 18, 2007 to further characterize Mimico Creek. While shrubs and small trees are prevalent through the valley upstream of Goreway Drive, the creek banks are held in place by grasses for much of the length investigated. Exposed banks were composed entirely of clay or silt, with occasional slumping of the banks noted in both riffle and bend locations. Water levels remained elevated from a storm event on May 15-16, and turbidity did not allow a detailed examination of the creek bed. The creek bed appears to be primarily composed of exposed clay or silt with occasional cobbles present. For much of the reach examined upstream of Goreway Drive, the Mimico Creek channel was approximately 4 m wide. The observations from the site visit would suggest that the Mimico Creek channel is undergoing some widening, with limited downcutting or downstream migration.

The series of historical air photos were also used to estimate the rate of movement of the Mimico Creek channel. A natural meander pattern is evident upstream of Goreway Drive as far back as 1978, suggesting that the channel has not been straightened in the past to increase arable land. The stream alignment has a typical meander amplitude of 30 m to 40 m, within an overall meander belt width of approximately 60 m. The meander belt and axis are illustrated on Figure 4.1.

The stream centrelines evident on the various air photos were traced in AutoCAD and scaled appropriately to allow them to be overlaid in a single drawing. The stream centrelines from 1978, 1994 and 2006 are shown on Figure 4.1, presented on the air photo from spring 2006. The air photo analysis demonstrated that the range of stream movement upstream of Goreway Drive is generally limited to 3 m to 4 m, but is not consistent over time. In many areas, the direction of migration from 1978 to 1994 is opposite the direction of movement from 1994 to 2006. After a considerable amount of effort to further refine air photo scales and stream positions without success, it is concluded that the Mimico Creek channel has remained relatively static since 1978, and any stream movement since that time is smaller in magnitude than the error inherent in historical air photo analysis.

Figure 4.1: Mimico Creek Erosion Analysis



Given the small and inconsistent rate and direction of stream movement relative to the accuracy of the approach, a 100 year erosion limit could not be determined with any accuracy. The results of the air photo analysis were taken into account in a more qualitative analysis of the crossing. The following points were considered in concluding that a **12.2 m Hy-Span pre-cast span** is most appropriate to replace the existing 4.9 m wide culvert.

- The Mimico Creek channel alignment has remained generally unchanged since 1978.
- The channel is located near the south limit of the Mimico Creek valley base, and any stream movement over the life of the structure will be limited to a northerly direction.
- The replacement span would be more than 2.4 times the size of the current structure.
- The replacement span would be more than 3 times the channel width upstream and downstream of Goreway Drive, providing considerable room for any future stream movement and wildlife passage.
- The City of Brampton Trails Master Plan does not contemplate any trails through this reach of the Mimico Creek Valley Corridor, and therefore the effective span will not be reduced in the future for a pedestrian underpass.

- Future stream movement will be greatly diminished by the presence of the downstream dry flood control pond, governed by a 0.85 m wide concrete box culvert. During severe storm events that typically result in significant stream movement, the channel in the area of Goreway Drive will be in a backwater condition behind the control structure. The backwater condition will raise flood depths and reduce the flow velocity in Mimico Creek through and upstream of the crossing during severe storm events, and therefore erosion potential will be significantly reduced. This backwater effect was clearly evident during a site visit on May 18, 2007. There was considerable evidence (silt on vegetation) of significantly elevated water levels through the golf course upstream of the flood control structure due to a large storm event on May 15-16, 2007. The elevated water level extended upstream of Goreway Drive, where it was evident that the depth of ponding had been well above the channel banks.

4.2.2 Hydraulic Analysis

The recommended 12.2 m wide Hy-Span structure was incorporated into the HEC-2 hydraulic model of Mimico Creek to assess the impacts of the culvert replacement on upstream flooding and the depth of flooding over Goreway Drive during severe storm events.

Note that, to accommodate the fill embankments associated with the proposed overpass, the replacement culvert will need to be longer than the existing culvert. Thus, the cross section and bridge data in the HEC-2 model of Mimico Creek were further revised to reflect the 12.2 m Hy-Span opening, and reach lengths upstream (2.1 m) and downstream (3.9 m) of Goreway Drive were adjusted to accurately reflect the length of the replacement structure. The resulting HEC-2 model output is presented in Table 4.1, and the detailed modelling can be found in Appendix B.

Table 4.1: Flood Levels at Mimico Creek Crossing with a 12.2 m Hy-Span Bridge

Storm Event	Existing Conditions (m)	Proposed Conditions (m)	Change (m)
2 year	169.39	169.37	-0.02
5 year	169.78	169.72	-0.06
10 year	170.17	170.05	-0.12
25 year	170.54	170.49	-0.05
50 year	170.63	170.65	0.02
100 year	171.11	171.17	0.06
Regional	172.27	172.28	0.01

As can be seen from the above table, flood depths will be reduced from current conditions for most design storm events. The exceptions are a very small increase of 6 cm for the 100 year event, and increases of 2 cm or less for the 50 year and Regional storm events. All of these increases are considered insignificant, as they are comparable to or less than error inherent in HEC-2 analyses. It is therefore concluded that the 12.2 m Hy-Span culvert will effectively mitigate any upstream flooding impacts associated with the proposed overpass. No downstream flooding impacts are anticipated. As Goreway Drive is in a backwater condition behind the downstream rail embankment and on-line flood control structure, the existing culvert provides no informal control of upstream flood storage. Replacing the existing culvert with the much larger recommended structure will simply result in a greater fraction of the flow passing through the bridge rather than over the road during severe storm events.

The depth of flooding over Goreway Drive, measured at the lowest point on the profile, is presented in Table 4.2 for both existing and proposed conditions. While there is little difference in flood elevations for existing and proposed conditions, there is a significant reduction in the depth of flooding over Goreway

Drive due to the revised profile associated with the proposed overpass, which raises the lowest point along Goreway Drive from 170.20 m to 170.77 m.

For the 100 year event, the maximum depth of flooding is reduced from 0.91 m, which would be passable only by emergency vehicles, down to 0.4 m, which is potentially passable by most passenger vehicles. While a similar reduction results for the Regional storm event, Goreway Drive would remain impassable during the Regional storm event. The MNR suggests a maximum flood depth of 1.2 m for emergency vehicle passage.

Table 4.2: Flood Depths over Goreway Drive

Storm Event	Existing Conditions (m)	Proposed Conditions (m)	Change (m)
2 year	0.00	0.00	0.00
5 year	0.00	0.00	0.00
10 year	0.00	0.00	0.00
25 year	0.34	0.00	-0.34
50 year	0.43	0.00	-0.43
100 year	0.91	0.40	-0.51
Regional	2.07	1.50	-0.57

The significant reconstruction of an existing roadway is generally viewed as an opportunity to ensure that safe passage is provided along the roadway for storm events up to and including the Regional storm event. As discussed in Sections 2.0 and 3.0, the current and proposed depths of flooding over Goreway Drive during severe storm events are not related to an undersized culvert under Goreway Drive, but are instead due to a significant backwater condition behind the railway embankment and the on-line dry flood control structure. To provide safe passage along Goreway Drive during a Regional storm event would require the low point on Goreway Drive to be raised by more than 1.5 m. Raising the profile of Goreway Drive would impact the intersection with Kenview Boulevard and the site entrance to the west, requiring significant grade alterations to both which may or may not be feasible. Further, to eliminate relief flow over Goreway Drive with such a high downstream water level would require an extremely large waterway opening to prevent increases in upstream flood levels. It is clearly not reasonable to design the roadway and replacement bridge to eliminate overtopping of Goreway Drive during the Regional storm event.

Alternatively, safe passage could be provided along Goreway Drive during a Regional storm event if the existing culverts under the rail lines downstream were replaced with new culverts or a bridge with much greater hydraulic capacity. An additional HEC-2 model scenario has been developed to verify that with the CN culverts replaced with a much larger bridge structure, there would be safe passage along Goreway Drive during a Regional storm event. Unfortunately, the replacement of the existing culverts under the CN rail lines is beyond the scope of the subject EA and outside the jurisdiction of the Cities of Brampton and Mississauga.

Finally, it is noted that the TRCA is currently in the process of updating their flood plain mapping for Mimico Creek, including an update of the hydrologic model of the Mimico Creek watershed. While completion of the hydraulic modelling and flood plain mapping is reported to be imminent, the information is not available to support the current study. At the detailed design stage, the TRCA's hydraulic model and flood plain mapping for Mimico Creek must be updated to reflect the final road profile as well as any modifications to the culvert.

5.0 Summary

The City of Brampton, in collaboration with the City of Mississauga, retained UMA to undertake a Class Environmental Assessment for improvements to Goreway Drive between Steeles Avenue and Brandon Gate Drive. Paramount among the improvements required is the elimination of the current CN at-grade crossing of Goreway Drive.

The study area is entirely within the Mimico Creek watershed. Goreway Drive is currently constructed with a fully urban cross section. A storm sewer south of the CN crossing eventually discharges directly to Mimico Creek at Brandon Gate Drive, and road runoff between the rail lines and Steeles Avenue are collected in storm sewer systems which discharge to vegetated swales leading to Mimico Creek.

Goreway Drive crosses Mimico Creek between the CN lines and Kenview Boulevard by means of a 23.3 m long by 4.9 m wide by 1.8 m high open footed concrete box culvert. Due to hydraulic constrictions downstream ceased by the small culverts under the CN rail lines and the control structure for an on-line dry flood control facility immediately upstream of the rail lines, Goreway Drive is predicted to be overtopped by flood water during the 25 year return period and greater storm events. The corrected HEC-2 hydraulic model of Mimico Creek indicates that Goreway Drive would by impassable by passenger vehicles for events greater than the 50 year return period storm, and would not be passable by emergency vehicles for events greater than the 100 year return period storm. Under the Regional (Hurricane Hazel) storm event, flood depths over Goreway Drive would be greater than 2 m.

Two alternative solutions were examined to eliminate the current at-grade crossing of the CN lines – an overpass and an underpass. It was concluded that an overpass could reduce the risk of overtopping, thereby improving emergency access along Goreway Drive, with minimal impact on upstream and downstream flooding. With the underpass option emergency access along Goreway Drive during storm events would be greatly compromised, and there would be an increased potential for storm damages downstream during severe storm events. For the above reasons and conclusions from other supporting studies, an overpass was selected as the preferred solution to eliminate the current at-grade CN crossing on Goreway Drive.

The proposed improvements to Goreway Drive will have a negligible impact on the quality and quantity of storm runoff delivered to Mimico Creek. Eventually, the existing impacts of Goreway Drive on the quality and quantity of runoff delivered to Mimico Creek will be mitigated through future stormwater management retrofit projects. Funds are currently being collected in both a general stormwater management retrofit plan in the City of Mississauga, and through a plan specific to a future retrofit facility on Mimico Creek immediately downstream of Goreway Drive in the City of Brampton. In the interim, it is recommended that the length of vegetated swales connecting the storm sewer outlets north of the CN lines to Mimico Creek be maintained to the extent feasible.

A structural assessment of the current culvert over Mimico Creek indicated that it would not be sufficient to support the additional depth of cover associated with the overpass option. A required replacement is viewed by Toronto and Region Conservation as an opportunity to bring the creek crossing closer into conformity with current regulations and best environmental practices. A site visit and air photo analysis were conducted to determine an appropriate span for a replacement structure. Existing mapping was examined, and it was concluded that upstream of Goreway Drive Mimico Creek is contained within an approximately 60 m wide meander belt. Unfortunately, a migration rate and 100 year erosion limit could not be extracted from the air photo analysis with any confidence, as the extent of stream movement over the past 28 years is less than the error inherent in such an analysis. Considering the existing condition of Mimico Creek, the current location of the creek channel adjacent the south valley wall immediately north of Goreway Drive, and the effect of the downstream flood control structure on water levels and flow

energy in Mimico Creek at Goreway Drive, a 12.2 m Hy-Span pre-cast bridge span was recommended for the replacement structure. The recommended 12.2 m Hy-Span replacement structure will mitigate the minor increases in upstream flood levels due to the raised road profile for the overpass option, and will significantly improve access along Goreway Drive for both passenger vehicles and emergency vehicles during severe storm events.

6.0 References

Aquafor Beech Limited. 2004. *City of Mississauga 2004 Development Charges Background Report: Storm Drainage Component.*

G.M. Sernas & Associates Limited. 1987. *Final Stormwater Management Report, Kenfask Subdivision 21T-84039B*, City of Brampton.

Marshall Macklin Monaghan Limited and Entra Consultants (MMM/Entra). June 2004. *Brampton Transportation and Transit Master Plan Final Report.* Prepared for the City of Brampton.

Ontario Ministry of Natural Resources. 2002. *Technical Guide, River & Stream Systems: Flooding Hazard Limit.*

Trow Associates Inc. 2004. *Goreway & Steeles Business Campus Stormwater Management Plan 3rd Revision.*

Appendix A
Goreway Drive Design Drawings

Appendix B
Mimico Creek HEC-2 Model Input and Output

Mimico Creek HEC-2
Existing Conditions

```
T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3        REGIONAL STORM HYMO FLOWS

J1      0       2       0       0       0       1       0       0  164.71       0
J2      1       0      -1
J3     38      43       1       2       3      26       4       8      42      39
J3     40      41       0      38       1      13      14      15      55      26
J3     56      39      16      17      18      25
QT      7     309     123      96      72      47      32      22
NC   0.06    0.06    0.03     0.1     0.6

X1 3.450      15     496     504      95     135     130
GR 166.0    285.   165.0    360.  161.0    485.  159.4    496.  159.2    496.
GR 159.2    500.   159.2    504.  159.4    504.  163.0    544.  166.0    585.
GR 166.5    605.   173.5    605.  173.5    645.  166.5    645.  165.0    670.
NC  0.05    0.05    0.03     0.1     0.6
QT     7     202      68      54      41      27      19      13

X1   7.1     14.    498.    502.    130.     70.    105.      0.      0.      0.
GR 164.1    462.   163.0    482.  159.6    498.  159.4    498.  159.4    500.
GR 159.4    502.   159.6    502.  163.0    525.  165.0    582.  165.5    615.
GR 172.5    615.   172.5    653.  165.5    653.  165.5    685.

X1   7.2    7.0   495.3   504.7     30.     30.     30.
X3   10.                                            163.2   163.2
GR 163.8  430.0   159.5   495.3   159.5   495.4   159.5   500.0   159.5   504.6
GR 159.5  504.7   165.8   750.0
SB          1.5     1.4             9.2              36.     1.5

X1   7.3      0.      0.      0.     11.     11.     11.
X2                    1   163.2   164.1
X3   10.                                            164.1   164.1
BT    7.   430.0   163.8   163.8   495.3   164.1   159.5   495.3   164.1   163.2
BT 500.0   164.1   163.5   504.6   164.1   163.2   504.7   164.1   159.5   750.0
BT 165.8   165.8

X1   7.4     17.    498.    502.     40.     40.     30.      0.      0.      0.
GR 164.0    380.   164.0    450.  162.0    494.  159.8    498.  159.6    498.
GR 159.6    500.   159.6    502.  159.8    502.  161.0    510.  164.0    527.
GR 165.0    545.   165.5    580.  165.5    587.  172.5    587.  172.5    625.
GR 165.5    625.   165.0    690.

X1   7.5     14.    498.    502.    350.    120.    222.      0.      0.      0.
GR 165.0    398.   165.0    411.  172.0    411.  172.0    461.  165.0    461.
GR 163.0    485.   160.0    498.  159.8    498.  159.8    500.  159.8    502.
GR 160.0    502.   162.0    515.  165.0    542.  165.5    640.

X1   7.6      9.   495.3   504.7     25.     25.     25.
X3   10.                                            162.2   162.2
GR 164.1    400.   162.8    488.  159.9   495.3   159.9   495.4   159.9   500.0
GR 159.9  504.6   159.9   504.7   162.8   512.0   165.0   600.0
SB          1.5     1.4             9.2              22.5     2.5

X1   7.7      0.      0.      0.     32.     32.     32.
X2                    1   162.2   162.8
X3   10.                                            162.8   162.8
BT    9.   400.   164.1   164.1    488.  162.8   162.8   495.3   162.8   159.9
BT 495.4   162.8   162.2   500.0   162.8   162.5   504.6   162.8   162.2   504.7
BT 162.8   159.9   512.0   162.8   162.8   600.0   165.0   165.0
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X1   7.8     15.    498.    502.     32.     50.     45.      0.      0.      0.
GR 166.0    340.  165.0    420.  163.0    485.  160.2    498.  160.0    498.
GR 160.0    500.  160.0    502.  160.2    502.  162.0    522.  165.0    535.
GR 166.0    580.  173.0    580.  173.0    630.  166.0    630.  167.0    638.

X1   7.9     20.    498.    502.    325.    465.    390.      0.      0.      0.
GR 166.5    344.  166.5    358.  173.5    358.  173.5    410.  166.5    410.
GR 165.0    417.  163.0    432.  163.0    491.  160.5    498.  160.3    498.
GR 160.3    500.  160.3    502.  160.5    502.  165.0    512.  167.0    525.
GR 167.0    565.  174.0    565.  174.0    585.  167.0    585.  167.0    600.

X1  7.10      9.  492.7   507.4     40.     40.     40.
X3    10.                                          162.8   162.8
GR 166.0    375.  165.1   478.6   160.4   492.7   160.4   492.8   160.4   500.
GR 160.4   507.3  160.4   507.4   165.1   521.5   166.3    600.
SB           1.5    1.4             6.1            14.6      3.

X1  7.11      0.      0.      0.     39.     39.     39.
X2                    1   162.8   165.1
X3    10.                                          165.1   165.1
BT     8.    375.    166.    166.   478.6   165.1   165.1   492.7   165.1   160.4
BT 492.8   165.1   162.8   507.3   165.1   162.8   507.4   165.1   160.4   521.5
BT 165.1   165.1   600.0   166.3   166.3

X1  7.12     14.    498.    502.     55.     80.     80.      0.      0.      0.
GR 166.0    385.  165.0    437.  163.0    490.  160.7    498.  160.5    498.
GR 160.5    500.  160.5    502.  160.7    502.  165.0    522.  167.0    540.
GR 174.0    540.  174.0    560.  167.0    560.  167.0    578.

X1  7.13     16.    498.    502.    250.    260.    270.      0.      0.      0.
GR 167.0    280.  167.0    370.  174.0    370.  174.0    435.  167.0    435.
GR 165.0    466.  163.0    492.  161.2    498.  161.0    498.  161.0    500.
GR 161.0    502.  161.2    502.  165.0    530.  167.0    583.  167.0    632.
GR 167.0    650.

X1 100.0     15.    498.    503.    290.    260.    290.      0.      0.      0.
GR 169.0    430.  166.0    465.  165.0    485.  162.0    495.  161.5    498.
GR 161.3    498.  161.3    500.  161.3    503.  161.5    503.  162.0    505.
GR 163.0    508.  163.5    550.  164.0    583.  165.0    625.  167.0    635.

X1  7.14     16.    498.    502.    110.    150.    130.      0.      0.      0.
GR 168.0    400.  168.0    445.  171.0    450.  171.0    464.  165.0    487.
GR 161.6    498.  161.4    498.  161.4    500.  161.4    502.  161.6    502.
GR 165.0    557.  166.0    582.  166.0    626.  173.0    626.  173.0    666.
GR 166.0    690.  166.5
NC  0.05    0.05   0.03     0.1     0.6

X1  7.15      8.  497.1   502.9     50.     50.     50.
X3    10.                                          164.0   164.0
GR 167.5    420.  161.5   497.1   161.5   497.2   161.5    500.   161.5   502.8
GR 161.5   502.9  165.9   585.0   167.0    810.
SB           1.5    1.4             5.5            14.2      13.

X1  7.16      0.      0.      0.     38.4    38.4    38.4
X2                    1   164.0   166.2
X3    10.                                          166.2   166.2
BT     7.    420.  167.5   167.5   497.1   166.2   161.5   497.2   166.2   164.0
BT 502.8   166.2  164.0   502.9   166.2   161.5   585.0   165.9   165.9    810.
BT 167.0   167.0
NC  .050    .050   .030     .1      .3
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X1  7.17      16.     498.     502.      60.      50.      55.       0.       0.       0.
GR 168.0      390.    166.0    455.     164.0    480.     163.0     496.     161.8    498.
GR 161.6      498.    161.6    500.     161.6    502.     161.8     502.     163.0    508.
GR 167.0      521.    165.0    625.     165.0    650.     172.0     650.     172.0    775.
GR 167.0      775.
QT      7     137       40       32       25       17       12        8

X1  7.18      16.     498.     502.     235.     290.     280.       0.       0.       0.
GR 169.0      330.    169.0    350.     176.0    350.     176.0     460.     168.0    460.
GR 165.0      485.    169.0    496.     162.8    498.     162.6     498.     162.6    500.
GR 162.6      502.    162.8    502.     164.0    506.     165.0     520.     168.0    590.
GR 169.0      670.

X1  7.19      17.     496.     504.     340.     235.     320.       0.       0.       0.
GR 170.0      340.    169.0    345.     176.0    345.     176.0     432.     169.0    432.
GR 168.0      485.    164.1    496.     163.9    496.     163.9     500.     163.9    504.
GR 166.0      514.    168.0    550.     169.0    565.     176.0     565.     176.0    575.
GR 169.0      575.    169.0    605.

X1 7.191       9.     495.     505.      35.      35.      35.
X3   10.                                                          166.7    166.7
GR 169.0      440.    164.5    495.     164.0    497.3    164.0     497.4    164.0    500.0
GR 164.0    502.6     164.0    502.7    164.5    505.0    169.0     550.0
SB            1.5       1.4              5.2              14.2      10.

X1 7.192       0.        0.       0.     31.4     31.4     31.4
X2                       1      166.7    167.7
X3   10.                                                          167.7    167.7
BT    8.      440.    169.0      169.    495.0    167.7    164.5     497.3    167.7    164.0
BT 497.4    167.7    166.7    502.6     167.7    166.7    502.7     167.7    164.0    505.0
BT 167.7    164.5    550.0    169.0     169.0

X1  7.20      19.     497.     503.      30.      25.      35.       0.       0.       0.
GR 171.0      340.    170.0    365.     168.0    419.     175.0     419.     175.0    432.
GR 168.0      432.    168.0    460.     167.0    483.     164.3     497.     164.1    497.
GR 164.1      500.    164.1    503.     164.3    503.     169.0     515.     169.0    570.
GR 176.0      570.    176.0    666.     169.0    666.     169.0     680.

X1 7.201      19.     498.     503.     160.     140.     150.       0.       0.       0.
GR 172.0      330.    171.0    350.     178.0    350.     178.0     410.     170.0    410.
GR 168.0      458.    167.0    485.     165.0    495.     164.8     498.     164.6    498.
GR 164.6      500.    164.6    503.     164.8    503.     165.0     505.     167.0    508.
GR 169.0      530.    176.0    530.     176.0    545.     169.0     545.

X1  7.21        7    183.2    185.6       75       75       75
X3    10                                                          168.3    168.3
X4     2    165.5   183.19    165.5   185.59
GR 172.4        0      172      160      167      170    165.5     183.2    165.5    185.6
GR   172      219      172      590
SB            1.5       1.4              2.4              6.7

X1  7.22       9.    183.2    185.6     32.4     32.4     32.4
X2                       1    168.3    171.8
X3   10.                                                          171.8    171.8
BT    9.        0    172.4    172.4     160.     172.     172.      170.    171.8    167.0
BT183.19    171.8    165.5   183.20    171.8    168.3   185.59     171.8    168.3    185.6
BT 172.0    165.5    219.0    172.0     172.0    590.0    172.0     172.0
GR 172.4        0      172      160      167      170    165.5    183.19    165.5    183.2
GR 165.5   185.59    165.5    185.6      172      219      172       590
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REVISION FILE

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      81018DHA.DAT - START
      ***************
NC.05    .05      .03      .1       .3

X17.231 21.      368.     385.     25.      25.      25.
X310.    0.      0.       0.       0.       0.       0.       168.23   168.23
GR173.   0.      173.     135.     172.     188.     172.     205.     171.     257.
GR171.   268.    169.     275.     168.     285.     167.5    310.     167.     368.
GR165.61380.     167.     385.     167.5    435.     167.5    447.     167.5    555.
GR168.   560.    169.     566.     170.     571.     171.     582.     171.     598.
GR170.4  625.
NC0.     0.      .015     .3       .5
SB0.     2.37    1.5      1.4      .85      0.       1.7      0.       165.83   166.

X17.232 9.       127.6    128.45   30.      30.      30.
X20.     0.      1.       168.     169.2
X310.    0.      0.       0.       0.       0.       0.       169.2    169.2
BT10.    0.      170.5    170.5    115.     170.5    170.5    115.     169.2    169.2
BT124.6  169.2   169.2    124.6    170.5    170.5    127.6    170.5    170.5    127.6
BT170.5  168.0   128.45   170.5    168.0    128.45   170.5    170.5    354.     170.5
BT170.5
GR170.5  0.      167.8    30.      166.40   115.0    166.25   124.6    166.2    127.6
GR166.   127.6   166.     128.45   166.3    128.45   170.5    354.
NC.05    .05     .03      .1       .3

X17.25   8.      54.      118.     150.     300.     200.
GR171.   0.      170.     20.      169.     35.      168.     54.      166.25   60.
GR166.25110.     168.     118.     172.     140.

      *# Start of Revisions by Steve Hollingworth, UMA Engineering, May 2007
      *# Goreway Drive culvert coding revised to reflect current conditions
      *# Information taken from design drawings by EGA Consulting Engineers for the
      *# City of Brampton, revised June 1993


* Section 7.26 - reach length adjusted and ground elevations updated based on
* topographic mapping provided by the City of Brampton
X1  7.26      21   497.6   502.5    63.2    63.2    63.2
X3    10.                                          170.25   170.20
GR 172.4   230.0   171.0   290.0   170.0   344.0   170.0    384.0    169.0    424.0
GR 168.0   471.0   168.0   484.0   166.5   497.6   166.5   497.61   166.45    500.0
GR 166.5  502.49   166.5   502.5   167.5   508.0   168.5    511.0    169.0    530.0
GR 170.0   550.0   170.5   575.0   171.0   600.0   172.0    680.0    173.0    790.0
GR 174.0   905.0

SB           1.5     1.4             4.8             11.1

* Section 7.27 - reach length adjusted and ground elevations updated based on
* topographic mapping provided by the City of Brampton.  Road profile on BT
* cards updated based on EGA design drawings
X1  7.27      21   497.6   502.5    23.5    23.5    23.5
X2                   1    168.8   170.2
X3    10.                                          170.25   170.20

BT   -21   230.0   172.4   172.4   290.0   172.0   172.0    344.0    171.6    171.6
BT         384.0   171.2   171.2   424.0  170.86  170.86    471.0   170.38    169.0
BT         484.0   170.3   169.0   497.6   170.25   166.5   497.61   170.25    168.8
BT         500.0  170.23   168.8  502.49   170.22   168.8    502.5   170.22    166.5
BT         508.0   170.2   167.0   511.0   170.25   168.0    530.0   170.37    168.5
BT         550.0  170.57   169.0   575.0   170.94   170.0    600.0   171.34    171.0
BT         680.0   172.4   172.0   790.0    173.1   173.0    905.0    174.0    174.0
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GR 172.4   230.0   172.0   290.0   172.0   344.0   172.0   384.0  170.86   424.0
GR 169.0   471.0   169.0   484.0   166.5   497.6   166.5  497.61  166.45   500.0
GR 166.5  502.49   166.5   502.5   167.0   508.0   168.0   511.0   168.5   530.0
GR 169.0   550.0   170.0   575.0   171.0   600.0   172.0   680.0   173.0   790.0
GR 174.0   905.0

NC  0.06    0.06    0.03     0.1     0.6

    MODIFIED CROSS-SECTIONS - START
    Topographic data taken from detailed site survey
    ****************************

* Section 7.28 - reach length adjusted to reflecte extended culvert.  Ground
* elevations maintained from Trow update
X1  7.28    26.    225.28  239.17   48.     28.     58.
GR 173.5     0.     172.0  110.14  171.0   158.95  170.0  187.69  169.0   196.39
GR 168.0  204.03    168.0  225.28  167.35  232.71  168.0  239.17  168.0   260.62
GR 168.5  262.06    169.0  263.11  169.0   263.24  169.0  264.34  170.06  275.68
GR170.01  281.32    170.33 295.79  170.75  303.81  171.15 322.49  171.12  324.23
GR171.35  335.68    171.58 348.25  171.77  350.27  171.88 357.54  172.3   359.23
GR 172.6  360.43

      *# End of Revisions by Steve Hollingworth, UMA Engineering, May 2007

NC                          0.1     0.3

X1 7.281    27.    133.03  144.0    44.     32.     63.
GR 173.5     0.     172.0   22.24  171.58   27.42  171.57   31.77  171.0    46.44
GR 170.0   65.55    169.86  68.69  170.18   77.92  170.16   81.77  170.35   90.06
GR 170.0  110.0     169.41 121.49  169.39  123.87  169.0   128.11  168.74  129.05
GR168.45  131.02    168.0  133.03  167.32  137.69  168.0   144.0   168.24  189.45
GR168.36  195.87    168.5  199.44  169.0   206.94  170.79  291.79  170.76  293.51
GR 172.3  299.67    172.6  300.87

X1 7.282    23.    228.83  243.77   30.     64.     53.
GR 173.5     0.     172.0   93.1   172.0   119.22  169.0   141.78  168.5   148.84
GR 168.0  225.36    168.0  228.83  167.32  235.0   168.0   243.77  168.22  245.57
GR 168.2  247.21    168.5  275.17  168.5   280.35  168.66  283.78  168.69  288.51
GR168.71  302.16    169.0  308.22  169.0   326.62  169.5   335.81  169.5   368.4
GR169.63  373.1     172.3  383.84  172.6   385.04

X1 7.283    22.    212.8   222.0    42.     50.     47.
GR 173.5     0.     172.5    2.0   172.0    91.0   171.19  122.0   171.0   128.71
GR 170.0  140.19    169.0  148.61  168.5   158.07  168.0   204.6   168.0   212.8
GR167.32  217.46    168.0  222.0   168.0   224.7   169.0   245.54  170.0   278.6
GR170.24  303.34    170.5  323.14  171.0   356.73  171.5   382.37  171.66  390.71
GR 172.3  393.49    172.6  394.69

X1 7.284    29.    211.45  220.81   75.     60.    130.0
GR 173.5    35.     172.5   39.0   171.27   69.07  170.0   107.65  170.09  114.0
GR170.09  114.33    169.5  135.8   169.0   147.54  168.5   205.79  168.0   211.45
GR167.32  216.11    168.0  220.81  168.0   238.97  169.0   247.43  169.17  250.38
GR169.24  253.6     169.37 255.66  169.93  260.4   170.13  264.81  170.11  283.03
GR170.49  297.59    170.5  299.13  170.67  300.33  170.77  319.59  171.03  322.15
GR 171.5  362.49    171.5  379.73  172.3   382.05  172.6   383.25

X1 7.285    23.     179.0  188.35   33.     68.    102.0
GR 173.5    27.     172.5   32.66  172.4    42.1   171.97   88.21  170.75   88.21
GR170.55   95.89    170.0  121.27  170.0   134.99  169.81  139.11  169.81  140.22
GR169.79  142.76    169.0  154.91  168.5   170.43  168.0   179.0   167.32  181.62
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GR 168.0  188.35  168.0   207.99  169.0   243.2   169.59  272.41  171.5   279.92
GR 171.5  340.43  172.3   343.5   172.6   344.7

X1 7.286   24.    177.62  183.97  110.     67.    115.0
GR 173.5    1.2   172.5     4.22  172.5    53.8   172.15   65.07  172.0    73.34
GR 172.0   75.19  171.02  111.41  170.8   121.43  170.78  131.71  170.5   132.64
GR170.21  150.35  169.5   159.46  169.0   174.5   168.0   177.62  167.32  181.17
GR 168.0  183.97  169.0   234.71  169.26  236.97  169.61  257.49  170.27  271.08
GR 171.5  281.49  171.5   335.55  172.3   338.58  172.6   339.78

X1 7.287   27.    168.58  173.24   53.     46.    70.0
GR176.04    5.39  172.49   22.79  171.75   24.86  171.19   37.63  170.42   83.71
GR170.32   86.50  170.17   92.79  170.07   94.71  169.96   99.63  169.84  101.71
GR169.07  115.42  169.09  143.61  169.16  148.07  169.0   164.64  168.0   168.58
GR 167.4  172.02  168.0   173.24  169.0   189.21  169.5   211.56  169.54  220.08
GR170.32  256.09  170.70  275.27  171.21  283.20  171.5   284.91  171.50  301.94
GR 172.3  304.92  172.6   306.12

X1  7.29   31.    149.15  162.11   75.     75.    132.0
GR176.12    4.36  172.34   21.87  172.33   22.31  171.34   25.24 170.87   51.2
GR170.76   63.38  170.63   68.24  170.54   73.53  169.72  113.29 169.5   116.43
GR169.34  118.39  169.34  118.89  169.21  124.59  169.18  127.84 169.29  143.12
GR169.31  145.24  169.16  148.8   169.11  149.04  169.0   149.15 167.4   158.05
GR 169.0  162.11  169.5   177.41  169.52  178.72  170.0   209.07 170.5   231.89
GR170.58  254.5   171.49  278.23  171.51  286.76  171.68  294.93 172.3   297.47
GR 172.6  298.67

X1 7.291   24.    112.6   120.64   59.     55.    56.0
GR 173.5    6.5   171.37   14.93  170.38   17.54  170.0    33.36  169.33   72.62
GR169.13   89.42  169.68  103.27  169.67  104.11  169.46  108.08  169.47  109.56
GR169.16  111.93  169.0   112.6   167.5   116.41  169.04  120.64  169.5   135.26
GR 169.5  140.48  170.0   166.13  170.5   187.25  170.63  195.22  171.0   217.29
GR 172.0  260.18  172.13  268.2   172.3   268.96  172.6   270.16

X1 7.292   26.     94.91  101.4    81.     81.    81.0
GR 173.5    0.0   172.44   62.34  172.44   62.59  172.32   72.14  171.64   86.78
GR169.47   94.91  167.96   99.7   169.5   101.4   169.52  103.3   169.52  103.56
GR169.08  109.13  169.08  109.2   169.5   127.34  169.5   128.96  170.0   168.63
GR 170.0  171.07  170.5   193.81  170.65  200.32  171.0   214.21  172.0   259.29
GR172.21  268.85  172.27  273.6   173.0   319.79  173.0   321.41  173.5   344.26
GR 173.5  347.86

X1 7.293   33.     89.0    96.6    71.     71.    73.0
GR 173.5    0.0   172.5    62.07  172.35   62.8   172.13   63.88  171.89   70.67
GR171.63   75.71  170.45   84.0  169.324   89.0   168.43   92.97  168.32   94.15
GR169.56   96.6   169.6   101.5   169.73  113.69  170.0   135.09  170.0   148.22
GR 170.2  160.94  170.27  164.14  170.5   174.47  170.88  182.78  171.0   185.16
GR 171.0  188.83  171.42  206.49  171.5   211.75  171.5   219.03  171.9   236.18
GR 172.0  242.5   172.0   246.79  172.49  269.13  172.5   270.04  173.0   304.66
GR 173.0  312.89  173.02  313.82  173.5   450.0
```

MODIFIED CROSS-SECTIONS - END
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X1 7.294    20.    557.    561.    107.     23.    136.     0.      0.      0.
GR 174.5   240.   174.0    283.   173.5    319.   173.     444.   172.     476.
GR 171.    481.   170.5    490.   170.     554.   169.2    557.   169.2    561.
GR 170.    564.   170.5    566.   171.     601.   171.5   616.9   171.6   628.3
GR 171.6   638.   171.9   661.2  172.26   675.8   172.3   677.7   172.6   678.9
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```
X1 7.295      22.     556.     558.      62.      62.      62.       0.       0.       0.
GR 174.5     240.    174.0     285.    173.5     339.     173.     429.     172.     481.
GR 171.      491.     170.     553.    169.2     556.    169.2     558.     170.     561.
GR 170.5     572.     171.     581.     171.     582.    171.2    594.8    171.3    605.2
GR 171.8    628.1    171.8    633.7    171.9    639.5     172.    654.5    172.1     655.
GR 172.3    656.1    172.6    657.3

X1 7.296      16.     520.     525.      70.      70       70.       0.       0.       0.
GR 174.5     240.     174.     282.    173.5     338.     173.     388.     173.     426.
GR 172.      473.     171.     489.     170.     517.    169.3     520.    169.3     525.
GR 170.      527.    170.1    589.1    170.5    591.4     171.    616.2    172.3    621.7
GR 172.6    622.9

X1 7.297      16.     507.     512.      50.      50.      50.       0.       0.       0.
GR 174.5     240.     174.     280.    173.5     337.     173.     370.     172.     410.
GR 171.      503.     170.     504.    169.4     507.    169.4     512.     170.     514.
GR 170.5     517.    170.5     575.    170.7    585.2    171.2     619.    172.3    623.7
GR 172.6    624.9

    ADDED CROSS-SECTIONS - END
    **************************

X1  7.30      15.     498.     502.      50.      50.      50.       0.       0.       0.
GR 174.5     240.    173.5     325.    173.0     390.    172.0     445.    173.0     467.
GR 172.0     492.    169.8     498.    169.6     498.    169.6     500.    169.6     502.
GR 169.8     502.    170.5     568.    171.2     601.    172.3     605.    172.8     607.

    ADDED CROSS-SECTION - START
    Topographic data taken from both existing floodplain mapping and detailed
    site survey
    ***************************

X1 7.301      18.     595.     603.      32.      32.      32.       0.       0.       0.
GR 174.      400.    173.5     406.    173.5     500.     173.     511.     173.     588.
GR 172.      592.     171.     593.     170.     594.    169.6     595.    169.6     603.
GR 170.      605.    170.5     638.    170.5     654.    171.3    667.7    171.4    676.7
GR 171.4    692.5    172.3    696.1    172.6    697.3

    ADDED CROSS-SECTION - END
    *************************

X1  7.31       9.    495.3    504.7      20.      20.      20.
X3   10.                                                       172.8    172.8
GR 174.0     400.    173.8    489.3    169.7    495.3    169.7    495.4    169.7    500.0
GR 169.7    504.6    169.7    504.7    173.8    510.7    174.0    550.0
SB             1.5      1.4              9.2              29.3

X1  7.32       0.       0.       0.      32.      32.      32.
X2                       1    172.8    173.7
X3   10.                                                       173.7    173.7
BT    9.     400.    174.0    174.0    489.3    173.8    173.8    495.3    173.7    169.7
BT 495.4    174.2    172.8    500.0    174.2    173.1    504.6    174.2    172.8    504.7
BT 173.7    169.7    510.7    173.8    173.8    550.0    174.0    174.0
EJ

T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3       100 YR STORM HYMO FLOWS
J1       0        3        0        0        0        1        0        0   162.90        0
J2       2        0       -1
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T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3       50 YR STORM HYMO FLOWS
J1     0       4       0       0       0       1       0       0   162.47       0
J2     3       0      -1

T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3       25 YR STORM HYMO FLOWS
J1     0       5       0       0       0       1       0       0   162.05       0
J2     4       0      -1

T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3       10 YR STORM HYMO FLOWS
J1     0       6       0       0       0       1       0       0   161.52       0
J2     5       0      -1

T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3       5 YR STORM HYMO FLOWS
J1     0       7       0       0       0       1       0       0   161.05       0
J2     6       0      -1

T1  MTRCA-MIMICO CREEK
T2  Slough Estate Hydraulic Analysis
T3       2 YR STORM HYMO FLOWS
J1     0       8       0       0       0       1       0       0   160.37       0
J2    15       0      -1
ER
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*-----------------------------------*
|            S U M P O             |
|                                   |
|   Interactive Summary Printout    |
|   for MS/PC-DOS micro computers   |
|             May 1991              |
*-----------------------------------*
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NOTE - Asterisk (*) at left of profile number indicates message in summary of errors list

REGIONAL STORM HYMO FLO

Summary Printout

	SECNO	CWSEL	Q	VLOB	VCH	VROB	XLCH	CUMDS
	7.26	172.27	137.00	.14	.36	.12	63.20	3159.40
*	7.26	171.10	40.00	.07	.20	.07	63.20	3159.40
*	7.26	170.55	32.00	.08	.23	.08	63.20	3159.40
*	7.26	170.42	25.00	.07	.19	.07	63.20	3159.40
*	7.26	169.98	17.00	.00	.99	.00	63.20	3159.40
*	7.26	169.69	12.00	.00	.76	.00	63.20	3159.40
*	7.26	169.35	8.00	.00	.57	.00	63.20	3159.40
*	7.27	172.27	137.00	.18	.53	.20	23.50	3182.90
	7.27	171.11	40.00	.10	.28	.11	23.50	3182.90
	7.27	170.63	32.00	.10	.29	.11	23.50	3182.90
	7.27	170.54	25.00	.08	.24	.09	23.50	3182.90
	7.27	170.12	17.00	.00	.95	.00	23.50	3182.90
	7.27	169.75	12.00	.00	.75	.00	23.50	3182.90
	7.27	169.37	8.00	.00	.56	.00	23.50	3182.90
	7.28	172.27	137.00	.21	.58	.21	58.00	3240.90
	7.28	171.11	40.00	.11	.29	.11	58.00	3240.90
	7.28	170.63	32.00	.12	.29	.11	58.00	3240.90
	7.28	170.54	25.00	.10	.24	.09	58.00	3240.90
*	7.28	170.17	17.00	.08	.20	.08	58.00	3240.90
*	7.28	169.78	12.00	.07	.17	.07	58.00	3240.90
*	7.28	169.39	8.00	.06	.15	.06	58.00	3240.90
	7.29	172.29	137.00	.21	.60	.20	132.00	3952.90
	7.29	171.11	40.00	.12	.38	.11	132.00	3952.90
	7.29	170.64	32.00	.14	.47	.13	132.00	3952.90
	7.29	170.54	25.00	.12	.40	.11	132.00	3952.90
	7.29	170.17	17.00	.11	.40	.10	132.00	3952.90
	7.29	169.79	12.00	.11	.44	.09	132.00	3952.90
	7.29	169.41	8.00	.06	.48	.07	132.00	3952.90
	7.30	172.41	137.00	.29	1.33	.58	50.00	4530.90
	7.30	171.30	40.00	.28	.94	.36	50.00	4530.90
*	7.30	171.09	32.00	.29	.98	.36	50.00	4530.90
*	7.30	170.98	25.00	.26	.90	.32	50.00	4530.90
*	7.30	170.84	17.00	.22	.77	.27	50.00	4530.90
*	7.30	170.71	12.00	.20	.70	.23	50.00	4530.90
*	7.30	170.53	8.00	.20	.71	.21	50.00	4530.90

Mimico Creek HEC-2
Proposed Conditions

```
X17.232 9.      127.6   128.45  30.     30.     30.
X20.    0.      1.      168.    169.2
X310.   0.      0.      0.      0.      0.      0.      169.2   169.2
BT10.   0.      170.5   170.5   115.    170.5   170.5   115.    169.2   169.2
BT124.6 169.2   169.2   124.6   170.5   170.5   127.6   170.5   170.5   127.6
BT170.5 168.0   128.45  170.5   168.0   128.45  170.5   170.5   354.    170.5
BT170.5
GR170.5 0.      167.8   30.     166.40  115.0   166.25  124.6   166.2   127.6
GR166.  127.6   166.    128.45  166.3   128.45  170.5   354.
NC.05   .05     .03     .1      .3

X17.25  8.      54.     118.    150.    300.    200.
GR171.  0.      170.    20.     169.    35.     168.    54.     166.25  60.
GR166.25110.    168.    118.    172.    140.
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      *# Start of Revisions by Steve Hollingworth, UMA Engineering, May 2007
      *# Proposed 12.2 m x 2.4 m Hy-Span replacement culvert at Goreway Drive
      *# Goreway Drive profile revised to reflect proposed overpass over the
      *# CN rail lines, as per preferred alternative from the UMA Environmental
      *# Study Report

* Section 7.26 - ground elevations updated based on topographic mapping
* provided by the City of Brampton, reach lengths adjusted to reflect proposed
* extension to accomodate additional fill required for overpass option

X1  7.26      21    495.5   507.7    59.3    59.3    59.3
X3    10.                                             170.77  170.77
GR 172.4   230.0   171.0   290.0   170.0   344.0   170.0   384.0   169.0   424.0
GR 168.0   471.0   168.0   484.0   166.8   495.5   166.8  495.51  166.45  499.77
GR 166.8  503.42   167.0  507.69   167.0   507.7   168.5   511.0   169.0   530.0
GR 170.0   550.0   170.5   575.0   171.0   600.0   172.0   680.0   173.0   790.0
GR 174.0   905.0

SB           1.5     1.4            12.2            25.7

* Section 7.27 - Ground elevations updated based on topographic mapping provided
* by the City of Brampton.  Reach lengths adjusted to reflect extended repalcement
* culvert.  Road profile on BT cards updated based on preliminary design for
* proposed overpass

X1  7.27      21    495.5   507.7    29.5    29.5    29.5
X2                     1  168.94  170.77
X3    10.                                             172.77  170.77

BT   -21   230.0   181.5   172.4   290.0   181.0   172.0   344.0   179.8   172.0
BT         384.0   178.3   172.0   424.0   177.0   171.0   471.0   174.1   169.0
BT         484.0   173.4   169.0   495.5  172.86   166.8  495.51  172.86  168.63
BT        499.77  172.66  168.94  503.42  172.48  168.94  507.69  172.25  168.63
BT         507.7  172.25   167.0   511.0   172.1   168.0   530.0   171.4   168.5
BT         550.0   170.9   169.0   575.0  170.77   170.0   600.0   170.9   170.9
BT         680.0   172.0   172.0   790.0   172.9   172.9   905.0   174.0   174.0

GR 172.4   230.0   172.0   290.0   172.0   344.0   172.0   384.0   171.0   424.0
GR 169.0   471.0   169.0   484.0   166.8   495.5   166.8  495.51  166.45  499.77
GR 166.8  503.42   167.0  507.69   167.0   507.7   168.0   511.0   168.5   530.0
GR 169.0   550.0   170.0   575.0   170.9   600.0   172.0   680.0   173.0   790.0
GR 174.0   905.0

NC  0.06    0.06    0.03     0.1     0.6

    MODIFIED CROSS-SECTIONS - START
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Topographic data taken from detailed site survey
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* Section 7.28 - reach length adjusted to reflect extended replacement culvert.
* Ground elevations maintained from Trow update
X1  7.28    26.     225.28  239.17   45.9     25.9     55.9
GR 173.5     0.     172.0   110.14  171.0    158.95   170.0   187.69  169.0   196.39
GR 168.0   204.03   168.0   225.28  167.35   232.71   168.0   239.17  168.0   260.62
GR 168.5   262.06   169.0   263.11  169.0    263.24   169.0   264.34  170.06  275.68
GR170.01   281.32   170.33  295.79  170.75   303.81   171.15  322.49  171.12  324.23
GR171.35   335.68   171.58  348.25  171.77   350.27   171.88  357.54  172.3   359.23
GR 172.6   360.43

      *# End of Revisions by Steve Hollingworth, UMA Engineering, May 2007

NC                          0.1      0.3

X1 7.281    27.     133.03  144.0    44.      32.      63.
GR 173.5     0.     172.0    22.24  171.58    27.42   171.57   31.77  171.0    46.44
GR 170.0   65.55    169.86   68.69  170.18    77.92   170.16   81.77  170.35   90.06
GR 170.0   110.0    169.41  121.49  169.39   123.87   169.0   128.11  168.74  129.05
GR168.45   131.02   168.0   133.03  167.32   137.69   168.0   144.0   168.24  189.45
GR168.36   195.87   168.5   199.44  169.0    206.94   170.79  291.79  170.76  293.51
GR 172.3   299.67   172.6   300.87
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*-----------------------------------*
|            S U M P O              |
|                                   |
|  Interactive Summary Printout     |
|  for MS/PC-DOS micro computers    |
|            May 1991              |
*-----------------------------------*
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NOTE - Asterisk (*) at left of profile number indicates message in summary of errors list

REGIONAL STORM HYMO FLO

Summary Printout

	SECNO	CWSEL	Q	VLOB	VCH	VROB	XLCH	CUMDS
	7.26	172.27	137.00	.13	.34	.11	59.30	3155.50
*	7.26	171.10	40.00	.07	.18	.06	59.30	3155.50
*	7.26	170.53	32.00	.00	.69	.00	59.30	3155.50
*	7.26	170.41	25.00	.00	.55	.00	59.30	3155.50
*	7.26	170.01	17.00	.00	.42	.00	59.30	3155.50
*	7.26	169.70	12.00	.00	.33	.00	59.30	3155.50
*	7.26	169.36	8.00	.00	.25	.00	59.30	3155.50
*	7.27	172.27	137.00	.00	.70	.26	29.50	3185.00
*	7.27	171.17	40.00	.00	.33	.12	29.50	3185.00
	7.27	170.63	32.00	.00	.67	.00	29.50	3185.00
	7.27	170.47	25.00	.00	.55	.00	29.50	3185.00
	7.27	170.04	17.00	.00	.42	.00	29.50	3185.00
	7.27	169.71	12.00	.00	.33	.00	29.50	3185.00
	7.27	169.36	8.00	.00	.25	.00	29.50	3185.00
	7.28	172.28	137.00	.21	.58	.21	55.90	3240.90
	7.28	171.17	40.00	.11	.28	.10	55.90	3240.90
*	7.28	170.65	32.00	.12	.29	.11	55.90	3240.90
*	7.28	170.49	25.00	.10	.24	.10	55.90	3240.90
*	7.28	170.05	17.00	.09	.21	.09	55.90	3240.90
*	7.28	169.72	12.00	.08	.18	.08	55.90	3240.90
	7.28	169.37	8.00	.06	.15	.06	55.90	3240.90
	7.29	172.30	137.00	.21	.60	.20	132.00	3952.90
	7.29	171.18	40.00	.11	.36	.11	132.00	3952.90
	7.29	170.66	32.00	.14	.46	.12	132.00	3952.90
	7.29	170.49	25.00	.12	.42	.11	132.00	3952.90
	7.29	170.06	17.00	.12	.45	.11	132.00	3952.90
	7.29	169.73	12.00	.11	.47	.10	132.00	3952.90
	7.29	169.38	8.00	.06	.50	.08	132.00	3952.90
	7.30	172.42	137.00	.29	1.33	.57	50.00	4530.90
	7.30	171.34	40.00	.27	.91	.35	50.00	4530.90
*	7.30	171.09	32.00	.29	.98	.36	50.00	4530.90
*	7.30	170.99	25.00	.26	.89	.32	50.00	4530.90
*	7.30	170.84	17.00	.22	.77	.27	50.00	4530.90
*	7.30	170.71	12.00	.20	.70	.23	50.00	4530.90
*	7.30	170.53	8.00	.20	.71	.21	50.00	4530.90

ARCHEOWORKS INC.

Stage 1 Archaeological Assessment (AA) of:
Goreway Drive
Between Steeles Avenue and Brandon Gate Drive
Cities of Brampton and Mississauga
Regional Municipality of Peel
Class EA
Ontario

Project Number: 041-2187-06
Licence#: P029-288-2006

June 2007

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CONTENTS

INTRODUCTION

This report involves the Stage 1 archaeological assessment of Goreway Drive, from Steeles Avenue southerly to Brandon Gate Drive, located in the Cities of Brampton and Mississauga, Regional Municipality of Peel, Ontario. A Stage 1 review corresponding to the study corridor illustrated in ***Figure 1*** was conducted. Archaeological potential was identified by conducting background research and undertaking a non-intrusive field review of the study corridor area, to accommodate any required widening and construction activities.

UMA Engineering Ltd., of Mississauga, Ontario, retained *Archeoworks Inc*. to conduct a Stage 1 archaeological assessment of the study corridor area. The Stage 1 research, reported herein, was conducted under the project direction of Ms. Kim Slocki. This study was conducted in accordance with the Ontario Heritage Act (1990) under an archaeological consulting licence (P029) issued to Kim Slocki and is being carried out as part of a Class Environmental Assessment for Goreway Drive improvements from Steeles Avenue to Brandon Gate Drive.

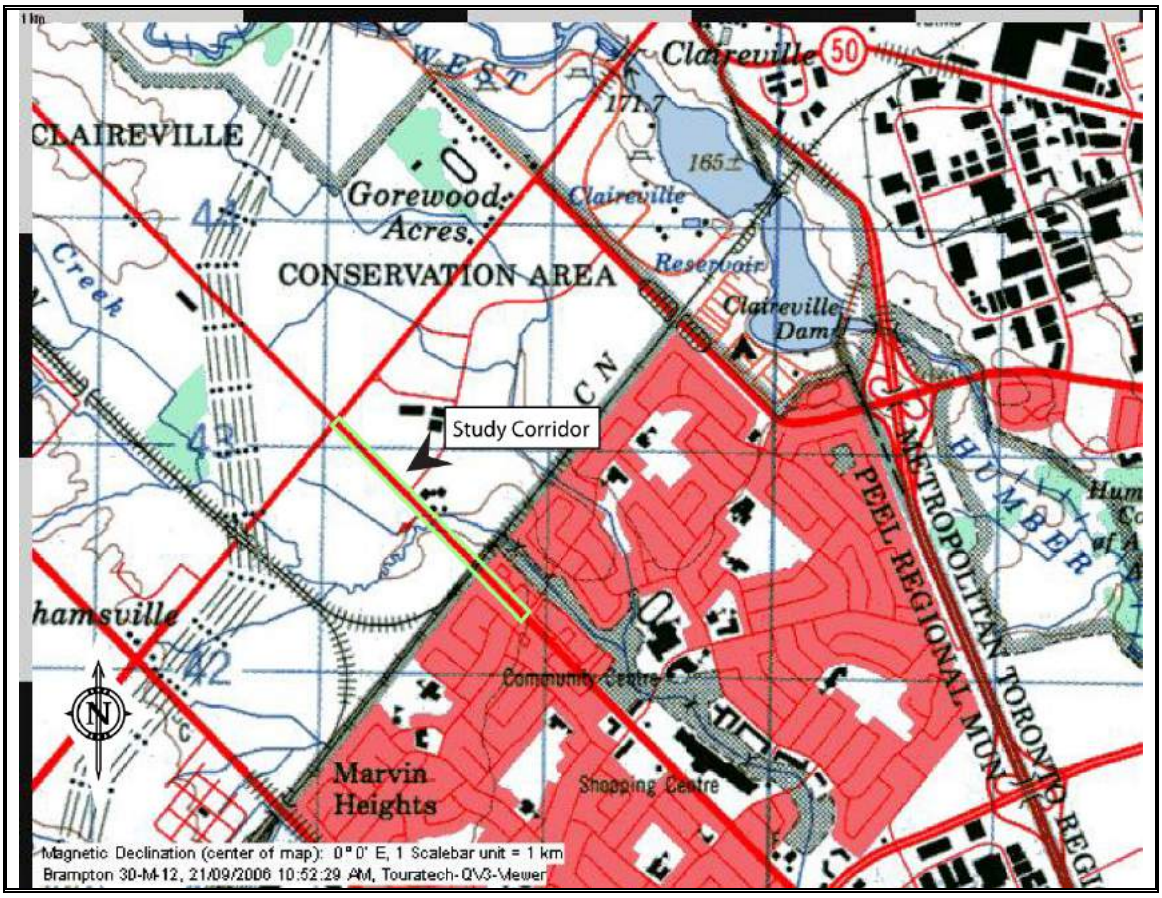

***Figure 1**: 1:50,000 Map Illustrating Location of Study Area (Brampton 30M/12)*

1) Registered Archaeological Sites

In order that an inventory of archaeological resources could be compiled for this study corridor, the site record forms for registered sites housed at the *Ministry of Culture (MCL)* were consulted. The study corridor under review is located within Borden Block AkGv. According to the *Ministry of Culture* site record files, 12 archaeological sites are registered within a 2000-metre radius of the study corridor. These sites are listed below in ***Table 1***.

Table 1: Sites within Two Kilometres of the Study Area

Borden #	Name	Cultural Affiliation	Type
AkGv-118	Tegis	Precontact - Archaic	Campsite
AkGv-121	ROW	Precontact - Archaic	Lithic Scatter
AkGv-174	CCA-20-1	Precontact & Euro-Canadian	Findspot and Homestead
AkGv-75	Familiaris	Precontact – Late Paleoindian	Extraction Station
AkGv-76	Inner	Precontact	Findspot
AkGw-18	Flicka	Euro-Canadian	Homestead
AkGw-19	Connery	Precontact	Findspot
AkGw-4	Grahamsville	Euro-Canadian	Homestead
AkGw-48	Airport Road	Euro-Canadian	Homestead
AkGw-72		Precontact – Middle Archaic	Campsite
AkGw-73		Precontact – Middle Woodland	Findspot
AkGw-74		Precontact	Findspot

Having noted the presence of these sites in relation to the study corridor area, it might be useful to place them in the proper context by reviewing the cultural history of occupation in Southern Ontario provided in ***Table 2*** below.

Table 2 History of Occupation in Southern Ontario

Period	Archaeological Culture	Date Range	Attributes
PALEO-INDIAN			
Early	Gainey, Barnes, Crowfield	11,000 - 10,400 BP	Small nomadic hunter-gatherer bands. Fluted projectile points
Late	Holcombe, Hi-Lo, Lanceolate	10,400 - 9,500 BP	Small nomadic hunter-gatherer bands. Lanceolate projectile points
ARCHAIC			
Early	Side-notched, corner notched, bifurcate-base	9,500 – 8,000 BP	Small nomadic hunter-gatherer bands; first notched and stemmed points, and ground stone celts
Middle	Otter Creek, Brewerton	8,000 – 4,500 BP	Small territorial hunter-gatherer bands; wider variety of ground stone tools; first copper tools; bone tools
Late	Narrow, Broad and Small Points Normanskill, Lamoka, Genesee, Adder Orchard etc.	4,500 – 2,800 BP	More numerous territorial hunter-gatherer bands; increasing use of exotic materials and artistic items for grave offerings; regional trade networks
WOODLAND			
Early	Meadowood, Middlesex	2,800 – 2,000 BP	Introduction of pottery, burial ceremonialism; panregional trade networks

Middle	Point Peninsula	2,000 – 1,200 BP	Cultural and ideological influences from Ohio Valley complex societies; incipient horticulture
Late	Algonquian, Iroquoian	1,200 - 700 BP	Transition to larger settlements and agriculture
	Algonquian, Iroquoian	700 - 600 BP	Establishment of large palisaded villages (Iroquoian)
	Algonquian, Iroquoian	600 - 400 BP	Tribal differentiation and warfare (Iroquoian)
HISTORIC			
Early	Huron, Odawa, Algonquin	AD 1600-1650	Tribal displacements
Late	Six Nations Iroquois, Ojibway, Algonquin	AD 1650 - 1800s	Migrations and resettlement
	Euro-Canadian	AD 1800 – present	European immigrant settlements

2) Physiographic Description and Precontact Potential

An investigation of the study corridor's physiography was conducted by reviewing *The Physiography of Southern Ontario (3rd Edition)*, a volume published by the *Ministry of Natural Resources* and authored by L.J. Chapman and D.F. Putnam. This investigation is conducted to aid the researcher in developing an argument for archaeological potential based on the environmental conditions of each subject property. Environmental factors such as close proximity to water, soil type, and nature of the terrain, for example, can be used as predictors to determine where human occupation may have occurred in the past.

The study corridor is situated within the Peel Plain physiographic region of Southern Ontario. The Peel Plain is a mildly undulating to level tract of land that covers large portions of the Regional municipalities of York, Peel, and Halton. The Credit, Humber, Don, and Rouge Rivers have cut deep valleys into this plain giving it quite regular drainage and few wetlands. Limestone and shale make up a large portion of the geological material that underlies this region (Credit Valley Conservation, 2004). Although now almost completely deforested there is evidence that this plain carried a hardwood forest of high quality and great wealth of species (Chapman & Putnam, 1984).

Settled during the early part of the 19th century, the fertile clay soils were cleared rapidly. Once the pioneer stage was passed the plain became a noted wheat growing area. Later, a mixed type of crop and livestock farming developed with its chief market in Toronto. Until 1940, practically all of the land was used for agriculture. Now, a good deal of this land has been bought for urban development. Being close to Toronto, the villages and towns have grown rapidly in the last 35 years, such as Brampton, which was once the centre of a large greenhouse industry. Both the cities of Mississauga and Brampton have overrun all but a few farms in the Peel County part of the plain (Chapman & Putnam, 1984).

In terms of archaeological potential, potable water is arguably the single most important resource necessary for any extended human occupation or settlement. As water sources have remained relatively stable in southern Ontario since post-glacial times, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential.

Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location. In fact, the *Ministry of Tourism, Culture and Recreation* (now the *Ministry of Culture*) primer on archaeology, land use planning and development in Ontario stipulates that undisturbed lands within 300 metres of a primary water source, and undisturbed lands within 200 metres of a secondary water source, are considered to be of high archaeological potential (1997: pp.12-13). With a tributary of Mimico Creek bisecting the study corridor, we find high potential for the location and recovery of prehistoric Aboriginal archaeological resources within undisturbed portions of the study corridor, within close proximity to this water source (***see Figure 2***).

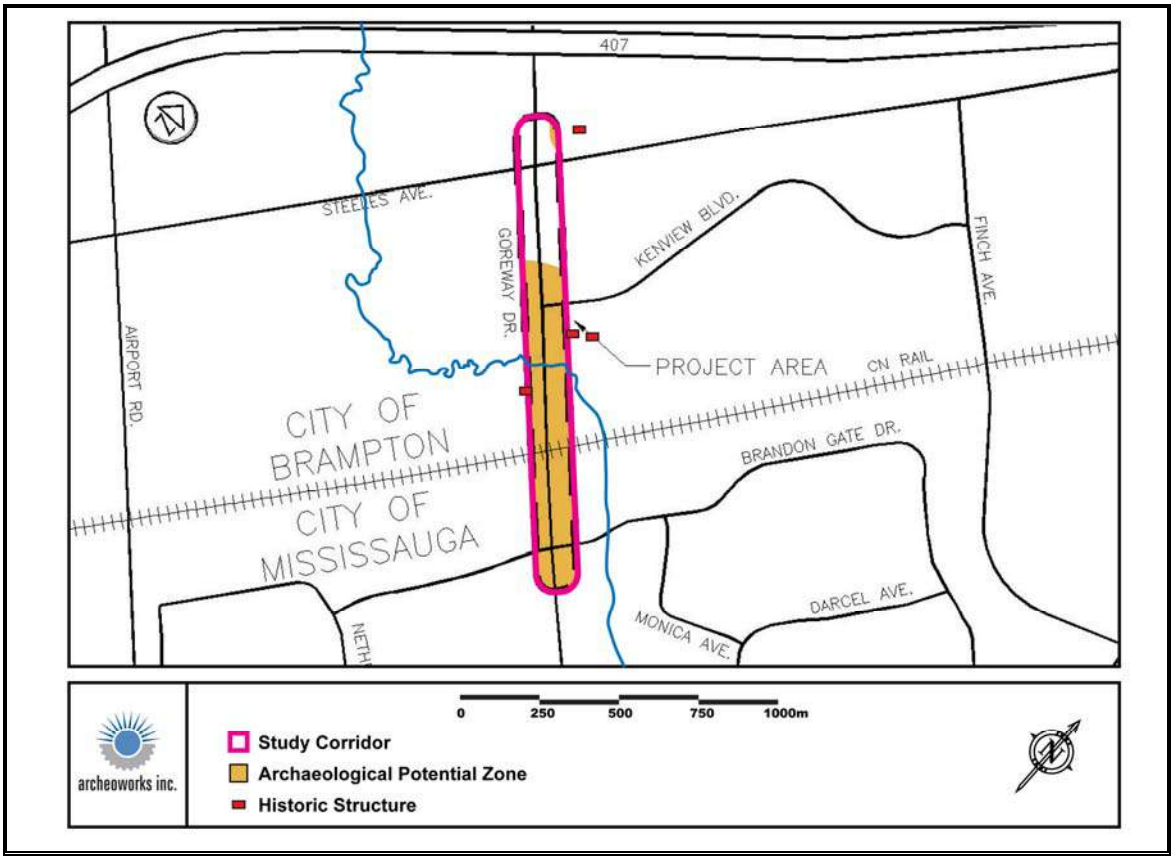

Figure 2: ***Archaeological Potential Zones* within the Study Corridor***
****Archaeological Potential Zones are defined as lands within 300 metres of a primary water source, within 200 metres of a secondary water source and within close proximity (ie: 100 metres or less) to a former or existing 18th or 19th century structure and/or historic cultural village***

3) Review of Historical Land Use and Potential

To assess a study corridor's potential for the recovery of historic remains, several documents are reviewed in order to gain an understanding of the land-use history. These specifically include the *Illustrated Historical Atlases* for the Counties of Ontario.

The Goreway Drive study corridor currently extends from Steeles Avenue southerly to Brandon Gate Drive, within part of Lots 14 and 15, between Concessions 7 and 8, formerly in the Township of Toronto Gore, Peel County, now in the Cities of Brampton and Mississauga, Regional Municipality of Peel (***see Figure 3***). A review of the *1877*

Illustrated Historical Atlas of Peel County indicates that the Lot area impacted by the study corridor limits within Lot 15, Concessions 7 and 8 was inhabited by Jonathon Sims and James Piercey. Two homestead structures are illustrated in close proximity to the study corridor on the east side of Goreway Drive in Lot 15, associated with James Piercey. The Lot area impacted by the study corridor limits within Lot 14, Concessions 7 and 8 was inhabited by Adam Duncan, Mrs. Vickers and George Dawson. One homestead structure is illustrated in close proximity to the study corridor on the west side of Goreway Drive in Lot 14, associated with Adam Duncan. While these three structures fall outside the study corridor boundaries, their close proximity contributes to the possibility of encountering historical remains associated with their former inhabitants. Thus, taking into account this information, moderate to high potential for encountering historical remains in close proximity to these structures can be established, within undisturbed portions of the study corridor.

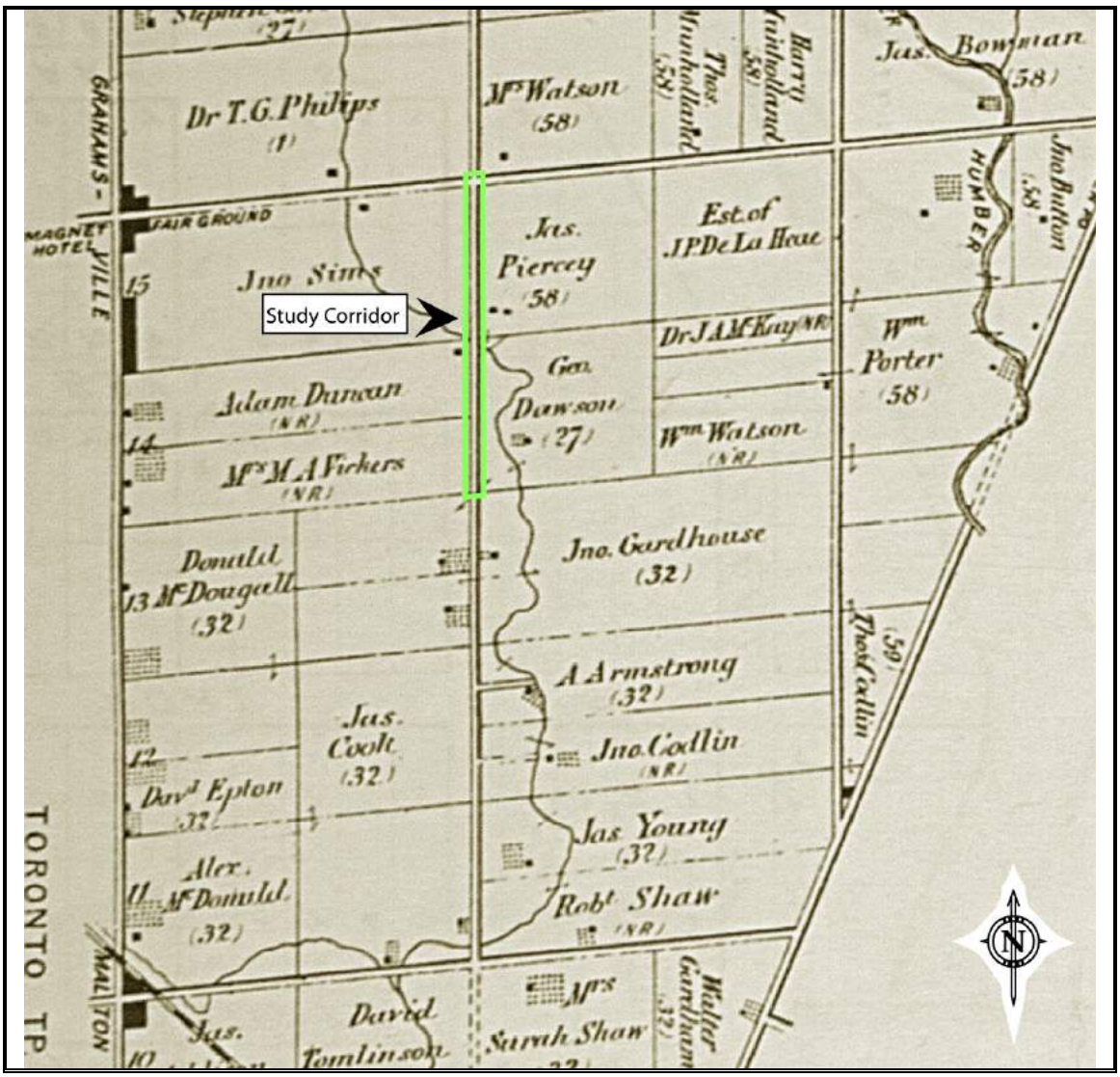

***Figure 3**: 1877 Historical Map of Study Corridor*

4) Field Review

A non-intrusive field review of the study corridor was conducted on October 11th, 2006. The purpose of the field review was to identify and describe high potential areas requiring additional archaeological research and low potential areas not warranting further archaeological concern. The weather was overcast and rainy, with temperatures averaging 17°. The entire study corridor was visually inspected and photo-documented.

The north and south sections of the study corridor can be classified as predominantly urban in nature and, therefore, disturbed. Disturbances include sidewalks, driveways, utilities, the CN rail line crossing, industrial and residential development and associated grading activities (***Plates 1-5***). Physiographic factors affecting potential include the crossing of Mimico Creek; the creek itself being classified as low in archaeological potential (***Plate 6***). Due to the low archaeological potential these areas represent, further archaeological concern within these areas of the study corridor is unwarranted. The primary area of archaeological concern are the lands located centrally within the study corridor limits, these lands located immediately north and south of Mimico Creek and having retained their rural qualities. This central segment is comprised of agricultural fields on the west side and fallow fields along with one rural residential property on the east side of Goreway Drive (***see Figure 4, Plate 6***). Thus, should construction activities impact this central area, both within and especially outside the right-of-way boundaries, further Stage 2 investigations will be required.

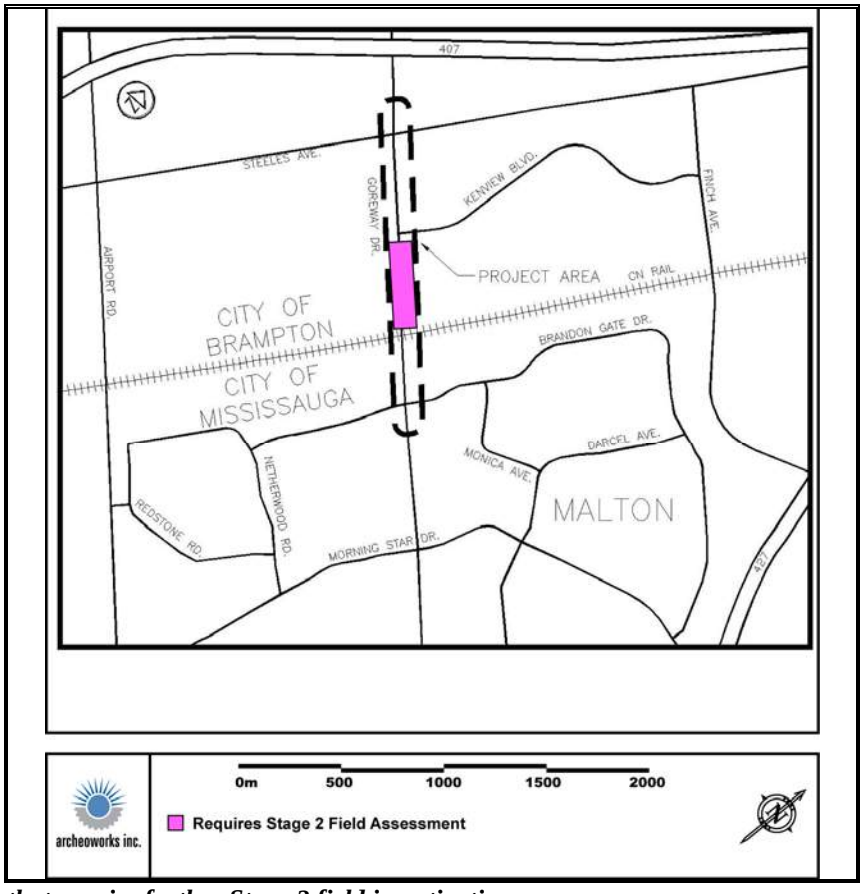

***Figure 4**: Areas that require further Stage 2 field investigations*

5) Conclusions & Recommendations

The Stage 1 archaeological assessment of Goreway Drive, from Steeles Avenue southerly to Brandon Gate Drive, in the Cities of Brampton and Mississauga, Regional Municipality of Peel, has indicated that despite extensive disturbances to the north and south sections of the study corridor, the central section, as a result of its predominately undisturbed condition, can be classified as moderate to high in archaeological potential for locating historic Euro-Canadian remains due to the close proximity of three historic homesteads, and high in archaeological potential for locating Aboriginal remains due to the crossing of Mimico Creek. In light of these results, it is, therefore, recommended that:

1. A Stage 2 archaeological field assessment of the undisturbed areas listed above be undertaken prior to construction activities, to minimize impacts to heritage resources. Should significant archaeological resources be encountered, additional background research or fieldwork may be required by the *Ministry of Culture.*

2. In the event that deeply buried archaeological remains are encountered during construction activities, the office of the Regulatory & Operations Group, *Ministry of Culture* (416-314-7143) should be contacted immediately.

3. In the event that human remains are encountered during construction activities, both the *Ministry of Culture* (416-314-7143) and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the *Ministry of Consumer and Business Services* (416-326-8404) should be contacted immediately.

Under Section 6 of Regulation 881 of the Ontario Heritage Act, *Archeoworks Inc*. will, "keep in safekeeping all objects of archaeological significance that are found and all field records that are made."

6) Bibliography

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APPENDIX: Plates

Plate 1: *Looking east along CN tracks, from west side of Goreway Dr.*

Plate 2: *Looking north along west side of Goreway Dr., north of Kenview Dr., at graded lands*

Plate 3: *Looking south along east side of Goreway Dr, north of Kenview Dr., at disturbances including sidewalks, utilities and graded grass margins*

Plate 4: *Looking north towards Steeles Avenue along east side of Goreway Drive at graded lands*

Plate 5: *Looking south along west side of Goreway Drive towards Kenview Drive at graded lands*

Plate 6: *Looking south at Mimico Creek tributary, from east side of Goreway Drive, and rural residential frontage*

Peto MacCallum Ltd.
CONSULTING ENGINEERS

GEOTECHNICAL INVESTIGATION
GOREWAY DRIVE IMPROVEMENTS
STEELES AVENUE TO BRANDON GATE DRIVE
CITY OF BRAMPTON, ONTARIO

for

UMA ENGINEERING LTD.

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1 cc: PML Toronto

PML Ref.: 07TF007
August 22, 2007

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Peto MacCallum Ltd.
CONSULTING ENGINEERS

August 22, 2007

PML Ref.: 07TF007

Mr. Greg Smith, P.Eng.
Project Manager
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario
L4W 4P2

Dear Mr. Smith

Geotechnical Investigation
Goreway Drive Improvements
Steeles Avenue to Brandon Gate Drive
City of Brampton

We are pleased to present the results of the geotechnical investigation recently carried out for the above-referenced project. The work was requested by Mr. Greg Smith, P. Eng. of UMA Engineering Ltd. An Engineering Services Agreement dated May 23, 2007 was signed and returned.

The purpose of this investigation was to assess the subsurface conditions at the subject site, and based on the available information, to prepare a geotechnical report presenting the factual data with discussions and recommendations pertaining to the Goreway Drive Improvements. Please note that the deep foundation recommendation will require additional geotechnical investigation to provide information for the final detail design. We have discussed with you the issue during the course of field work investigations.

We thank you for the opportunity to have been of service to you on this assignment and trust that this report completes within the term of reference. Please contact this office should you have any questions and comments on this report.

Sincerely

Peto MacCallum Ltd.

Robert Ng, PhD, MBA, P.Eng.
Manager, Geotechnical Engineering Services

TX/RN:mm

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BARRIE, BRAMPTON, HAMILTON, KITCHENER, TORONTO

1. INTRODUCTION

UMA Engineering Ltd. (UMA) retained Peto MacCallum Ltd. (PML) to carry out a geotechnical investigation (PML Ref.: 07TF007) and a hydrogeological investigation (PML Ref.: 07TX014) for the proposed Goreway Drive Improvements from Steeles Avenue to Brandon Gate Drive.

Goreway Drive currently comprises four lane urban cross-section from Steeles Avenue to Brandon Gate Drive. The City of Brampton's TTMP recommended six lane cross-section and also the replacement of the three level crossings with a grade separation at CN Halton crossing on Goreway Drive. The total distance of the subject alignment is about 1.25 km.

The purpose of this investigation is to determine the subsurface conditions along the road alignment and at the locations of the crossing structures and, based on the information obtained, prepare a report presenting the factual data together with engineering discussions and recommendations pertaining to the design and construction of the subject project from a geotechnical prospective. The hydrogeological results will be presented in a separate report.

2. INVESTIGATION PROCEDURES

The field work for this investigation comprised nineteen (19) boreholes and the drilling work was carried out from May 8 to 11, 2007. The boreholes were located in the field by the geotechnical staff from PML and cleared for underground services by Ontario-One-Call. The as-drilled borehole locations are shown on the attached Borehole Location Plan, Drawings 1 to 4.

The boreholes were advanced using continuous flight solid and/or hollow stem augers powered by a truck-mounted drill rig, supplied and operated by a specialist-drilling contractor, working under the full time supervision of a member of our engineering staff. Proper traffic control measures during drilling were provided by a traffic control subcontractor.

Representative samples of the granular sub-base material and subgrade soils were recovered at frequent depth intervals using a conventional split spoon sampler in conjunction with standard penetration tests. Dynamic Cone Penetration Tests (DCPT) were carried out at boreholes 14 and 15 to cone penetration refusal.

The groundwater conditions in the open boreholes were closely monitored during the course of field work. Upon completion of drilling, five (5) monitor wells were installed at boreholes 5, 6, 11, 15 and 22 to monitor groundwater conditions.

The recovered samples were returned to our geotechnical laboratory for detailed visual examination, laboratory testing and classifications. The laboratory testing programs comprise natural moisture determination, grain size analyses and Atterberg limits tests of the recovered samples.

A total of nineteen (19) boreholes had been drilled and five (5) monitor wells had been installed. A summary of the as drilled boreholes is presented in the following table.

SUMMARY OF AS DRILLED BOREHOLES				
BOREHOLE NO.	ELEVATION**	PLANNED DEPTH (m)	DRILLED DEPTH (m)	REMARKS
BH 1	175.4	2 to 5	3.65	On Boulevard
BH 2	174.4	2 to 5	3.65	On Boulevard
BH 3	173.5	2 to 5	3.65	On Pavement
BH 4	172.7	2 to 5	3.65	On Pavement
BH 5	171.6	2 to 5	5.05	On Pavement 50 mm Monitor Well
BH 6	170.2	10	8.10	On Sidewalk 50 mm Monitor Well
BH 7	170.3	10	9.75	On Sidewalk
BH 8	171.1	2 to 5	3.50	On Boulevard
BH 9	171.2	2 to 5	3.65	On Pavement
BH 10	171.7	2 to 5	3.65	On Pavement
BH 11	172.0	2 to 5	5.05	On Boulevard 50 mm Monitor Well
BH 12	172.2	10 to 15	15.70	On Boulevard

SUMMARY OF AS DRILLED BOREHOLES				
BOREHOLE NO.	ELEVATION**	PLANNED DEPTH (m)	DRILLED DEPTH (m)	REMARKS
BH 13	171.4	10 to 15	NA	BH cancelled recommend to be done in detail design phase
BH 14	172.2	10 to 15	21.60	On Pavement
BH 15	172.2	10 to 15	13.70	On Boulevard 50 mm Monitor Well
BH 16	172.2	10 to 15	NA	BH cancelled recommend to be done in detail design phase
BH 17	172.2	10 to 15	30.95	On Boulevard
BH 18	172.2	2 to 5	3.65	On Boulevard
BH 19	172.1	2 to 5	5.05	On Boulevard
BH 20	172.1	2 to 5	NA	BH cancelled recommend to be done in detail design phase
BH 21	172.2	2 to 5	5.05	On Boulevard
BH 22	171.4	2 to 5	5.05	On Boulevard 50 mm Monitor Well

Note: *The elevations of the boreholes was interpolated from the Design Drawing provided by UMA and these data has been reviewed by UMA. All locations are approximate.

**The elevations of the borehole locations are deemed to be approximate, contractors performing the work should do the survey for their own purpose.

3. SUBSURFACE CONDITIONS

References are made to the appended Log of Borehole sheets, the Grain Size Distribution Chart (Figures GS-1 to GS-3) and the Plasticity Chart (Figures AL-1 to AL-3) for details of the subsurface conditions including soil classifications, inferred stratigraphy, standard penetration test data, groundwater table, particle size distribution and moisture content. A general description of the subsurface conditions encountered during the investigation will be given in the following sections.

3.1 Subsurface Conditions for Road Widening

A total of thirteen (13) boreholes, numbered Boreholes 1 to 5, 8 to 11, 18, 19, 21 and 22, were advanced along Goreway Drive from Steeles Avenue to Brandon Gate Drive to the depths of 3.65 to 5.05 m from the existing grade for the purpose of road widening.

The subsurface stratigraphy revealed generally comprised topsoil/fill/pavement structures over clayey silt underlain by sandy silt, which is in turn underlain by silty sand/sand deposit. Table 2 shows the thickness of topsoil, fill and pavement structures.

3.1.1 Topsoil

Topsoil of dark brown sandy or clayey silt with rootlets and organic inclusion is present in boreholes 1 and 2. The thickness of the topsoil ranges from 0.45 to 0.80 m.

3.1.2 Fill

Fill of mixed dark brown to brown clayey silt, silty clay and sandy silt trace gravel with rootlets and organic inclusion is present in Boreholes 1 to 3, 8, 11, 18, 19, 21 and 22. The thickness of the fill varies from 0.2 to 2.0 m. The N values of the standard penetration test of the fill range from 6 to 23 blows per 300 mm penetration. The moisture content varies from 9.1 to 29.1 percent.

In general, unless records were kept during the placement of the fill and are available for review, the condition of the fill placement should be considered as variable and uncontrolled.

3.1.3 Pavement Structures

Boreholes 3 to 5, 9 and 10 were advanced from the existing pavement. The pavement structures revealed during the drilling comprise 150 mm asphaltic concrete over 450 to 650 mm granular sub-base materials of brown sand and gravel. The N values of the standard penetration test of the granular materials vary from 29 to 57 blows per 300 mm penetrations, indicating a compact to dense condition. The moisture content of the granular materials varies from 2.7 to 6.3 percent, indicating a dry to damp condition.

3.1.4 Clayey Silt/Silty Clay

Greyish brown clayey silt/sity clay are present below the pavement structures and the fill units in boreholes 1 to 5, 8 to 11, 18, 19, 21 and 22, and extends to the depths of 1.5 to 2.9 m below the existing grade, elevations 168.7 to 171.8.

The N values of the standard penetration test vary from 6 to 34, typically 10 to 20 blows per 300mm penetration, indicating consistency of firm to hard, typically stiff to very stiff condition. The moisture content of the clayey silt varies from 12.0 to 32.7, typically 20.0 to 30.0 percent, a moist to wet condition.

Atterberg limits tests were carried out on sample 3 of boreholes 3 and sample 2 of borehole 21, the test results were presented in Figures AL-1 and AL-3. According to the test results, the liquid limit of the clayey silt/silty clay varies from 30 to 46%, the plastic limit varies from 19 to 23 % and the plastic index varies from 11 to 23 %.

3.1.5 Sandy Silt/Silt

Greyish or brown sandy silt/silt is present below the clayey silt/silty clay in boreholes 2, 3, 5, 8 to 11, 18, 19, 21 and 22, and extends to the depths of 2.9 to 4.6 m, elevations 167.3 to 170.8.

The N values of the standard penetration test vary from 5 to 42, typically 20 to 30 blows per 300 mm penetration, a loose to dense, typically compact condition. The moisture content of the sandy silt varies from 9.8 to 29.3 percent, a moist to saturated condition.

3.1.6 Silty Sand/Sand/Sandy Silt

Grey silty sand/sand/sandy silt are present below the sandy silt/silt deposit in boreholes 11, 21 and 22, and extends to the depths of 4.6 to 5.05 m from the existing grade, elevations 166.3 to 167.3.

The N values of standard penetration test vary from 16 to 24 blows per 300 mm penetration, indicating a compact condition. The moisture content of this deposit varies from 20.7 to 21.7 percent, a saturated condition.

3.1.7 Groundwater

Groundwater was encountered during drilling in boreholes 2, 3, 5, 8 to 10, 21 and 22. The groundwater levels observed upon completion of drilling and measured from monitor wells installed at boreholes 5 and 22 on June 19, 2007 (after 40 days of drilling) are summarized in the following table.

SUMMARIZED GROUNDWATER LEVELS AT BOREHOLE LOCATIONS FOR PAVMENT WIDENING

BOREHOLE NO.	GROUND SURFACE ELEVATION (m)	BOREHOLE DEPTH (m)	GROUNDWATER ELEVATION (m)		GROUNDWATER DEPTH (m)	
			*FREE WATER	**MEASURED IN MW	*FREE WATER	**MEASURED IN MW
BH 2	174.4	3.65	170.9	N.A.	3.5	N.A.
BH 3	173.5	3.65	170.5	N.A.	3.0	N.A.
BH5	171.6	5.05	169.1	169.1	4.0	2.5
BH 8	171.1	3.50	168.2	N.A.	2.9	N.A.
BH 9	171.2	3.65	168.6	N.A.	2.6	N.A.
BH 10	171.7	3.65	168.6	N.A.	3.1	N.A.
BH 21	172.2	5.05	167.4	N.A.	4.6	N.A.
BH 22	171.4	5.05	N.A.	167.5	N.A.	3.9

*Free water levels observed upon completion of augering

**Groundwater levels measured in monitor wells on June 19, 2007 (40 days after installation)

MW = 50 mm Monitor Wells

N.A. = Not applicable

It is anticipated that the groundwater levels are subject to the seasonal fluctuations and rainfall patterns, and are influenced by the nearby watercourse.

3.2 Subsurface Conditions for Crossing Structures

A total of six (6) boreholes were advanced at the locations of two crossing structures, namely, the culvert over Mimico Creek and the proposed overpass over CN Rails. Boreholes 6 and 7 were drilled to the depths of 8.1 and 9.75 m from the existing grade on the North and South sides of Mimico Creek, respectively. Boreholes 12, 14 and boreholes 15, 17 were drilled on the North and the South sides of CN Rails, respectively, to the depths of 13.70 to 30.95 m from the existing grade.

The subsurface stratigraphy encountered at the borehole locations generally comprises fill and/or pavement structures over clayey silt underlain by sandy silt/silty sand which are in turn underlain clayey silt till over sandy silt/silt till underlain by clayey silt till over sandy silt till underlain by sand and gravel. Bedrock was not encountered at this investigation. The deepest borehole was advanced to 30.95 m from the existing grade, and this depth is considerably deeper than the referenced bedrock depths according to the study of water well records and bedrock geology of the subject site.

3.2.1 Fill

Fill of mixed dark brown to brown clayey silt, silty clay and sandy silt trace gravel with rootlets and organic inclusion is present in Boreholes 6, 7, 12, 14, 15 and 17. The thickness of the fill varies from 0.75 to 3.5 m. The N values of the standard penetration test of the fill range from 6 to 15 blows per 300 mm penetration. The moisture content varies from 9.1 to 29.1 percent.

In general, unless records were kept during the placement of the fill and are available for review, the condition of the fill placement should be considered as variable and uncontrolled.

3.2.2 Pavement Structures

Borehole 14 was advanced from the existing pavement. The pavement structures revealed during the drilling comprise 150 mm asphaltic concrete over 450 mm granular sub-base materials of brown sand and gravel.

The N value of the standard penetration test of the granular materials is 37 blows per 300 mm penetrations. The moisture content of the granular material is about 3.1 percent.

3.2.3 Clayey Silt

Greyish brown clayey silt is present below the pavement structures and the fill units in boreholes 6, 7, 12, 14, 15 and 17, and extends to the depths of 2.45 to 4.5 m below the existing grade, elevations 165.7 to 169.8.

The N values of the standard penetration test vary from 7 to 35, typically 14 to 22 blows per 300 mm penetration, indicating firm to very stiff consistency, typically stiff to very stiff condition. The moisture content of the clayey silt varies from 12.0 to 29.1 percent, typically 15.0 to 23.0 percent, a moist to wet condition.

Atterberg limits tests were carried out on sample 5 of borehole 6, the test results were presented in Figures AL-2. According to the test results, the liquid limit of the clayey silt is about 24%, the plastic limit is about 16% and the plastic index is about 8%.

3.2.4 Sandy Silt/Silty Sand

Greyish or brown sandy silt/silty sand is present below clayey silt in boreholes 6, 12, 14, 15 and 17, and extends to the depths of 6.25 to 11.0 m, elevations 161.2 to 165.9.

The N values of the standard penetration test vary from 3 to 37, typically 12 to 18 blows per 300 mm penetration, a loose to dense, typically compact condition. The moisture content of the silty sand/sandy silt varies from 12.8 to 23.0 percent, a moist to wet condition.

Particle size analyses were carried out on sample 8 of borehole 14, and the test results are presented In Figure GS-1. The deposit contains 3% of gravel, 24% of sand, 56% of silt and 17% of clay size materials.

3.2.5 Clayey Silt Till

Greyish clayey silt till is present below silty sand/sandy silt in boreholes 6, 7, 12, 14, 15 and 17, and extends to the depths of 7.9 to 16.75 m, elevations 155.5 to 162.3.

The N values of the standard penetration test vary from 8 to 36, typically 16 to 24, a consistency of firm to hard, typically very stiff condition. The moisture content of the deposit varies from 12.6 to 28.1 percent, a moist to wet condition.

3.2.6 Sandy Silt Till/Silt

Grey sandy silt till/silt is present in boreholes 6, 7, 14, and 17, and extends to the depths of 8.1 to 21.3 m, elevations 150.9 to 162.1.

The N values of standard penetration test vary from 13 to 36, typically 15 to 22, indicating a compact to dense condition, typically compact condition. The moisture content of the deposit varies from 9.3 to 26.2 percent, typically 10 to 12 percent, a moist to wet condition.

Particle size analyses were carried out on sample 14 of borehole 17, and the test results are presented In Figure GS-2. The deposit contains 17% of sand, 79% of silt and 4% of clay size materials.

3.2.7 Clayey Silt Till

Grey silt/silt till is present below silty clay or clayey silt till in borehole 17, and extends to the depths of 22.85 m, elevations 149.4.

The N value of the standard penetration test is about 24, a very stiff consistency. The moisture of the deposit is moist.

3.2.8 Sandy Silt Till

Grey sandy silt till is present below the clayey sit silt deposit in borehole 17, and extends to the depth of 24.4 m, elevation 147.8.

The N value of the standard penetration test is around 23, indicating a compact condition. The moisture of the deposit is moist to wet.

3.2.9 Sand and Gravel

Grey sand and gravel is present below sandy silt till in borehole 17, and extends to the depth of 30.95 m, the termination depth of borehole 17, elevation 141.3.

The N values of the standard penetration test vary from 18 to 51, a compact to very dense condition. The sand and gravel deposit is in a saturated condition.

Particle size analyses were carried out on sample 20 of borehole 17 and the test results are presented in Figure GS-3 attached. Based on the test results, the sand and gravel comprises 42% of gravel, 41% of sand and 17% of silt and clay sized materials.

3.2.10 Groundwater

Groundwater was encountered during drilling in boreholes 6, 11, 12, 14, 15, 17 and 19. The groundwater levels measured upon completion of drilling and the piezometric groundwater levels measured at boreholes 6, 11 and 15 on June 19, 2007 (after 40 days of drilling) are summarized in the following table.

SUMMARIZED GROUNDWATER LEVELS AT BOREHOLE LOCATIONS FOR CROSSING STRUCTURES						
BORHOLE NO.	GROUND SURFACE ELEVATION (m)	BOREHOLE DEPTH (m)	GROUNDWATER ELEVATION (m)		GROUNDWATER DEPTH (m)	
			*FREE WATER	**MEASURED IN MW	*FREE WATER	**MEASURED IN MW
BH 6	170.2	8.10	164.2	167.5	6.0	2.7
BH 11	172.0	5.05	168.1	168.4	3.9	3.6
BH 12	172.2	15.70	168.4	N.A.	3.8	N.A.
BH 14	172.2	21.60	167.7	N.A.	4.5	N.A.
BH 15	172.2	13.70	168.3	167.7	3.9	4.5
BH 17	172.2	30.95	168.5	N.A.	3.7	N.A.
BH 19	172.1	5.05	168.1	N.A.	4.0	N.A.

*Free water levels observed upon completion of augering

**Groundwater levels measured in monitor wells on June 19, 2007 (40 days after installation)

MW = 50 mm Monitor Wells

N.A. = Not applicable

It is anticipated that the groundwater levels are subject to the seasonal fluctuation and rainfall patterns, and are influenced by the nearby watercourses.

4. ENGINEERING DISCUSSION AND RECOMMENDATIONS ON PAVEMENT WIDENING

The subject project comprises the proposed widening of a 1.25 km section of the Goreway Drive from Steeles Avenue to Brandon Gate Drive, in the City of Brampton, Ontario.

The subsurface stratigraphy along the alignment of the existing road is relatively consistent and typically comprises topsoils/pavement/ fills extending to the depth of 2.9 m (typically 1.5 to 2.0 m) from the existing grade overlying firm to very stiff clayey silt underlain by compact sandy silt that is in turn underlain by silty sand and sand deposit. The fill is generally made up of materials similar to the native soils with rootlets and organic inclusions.

Groundwater level was about 2.5 to 4.6 m below the existing grade at the time of this investigation. It is anticipated that groundwater will not influence the pavement significantly since the groundwater table is below the frost zone. Adequate drainage of potential surface water infiltration into the road structure should however be provided in the design and construction specifications, in view of the relatively impervious subgrade.

4.1 Pavement

In general, it is recommended to maintain the existing grade of the existing roads. The anticipated pavement subgrade material along the alignment of the road consists of firm to stiff clayey silt overlying compact sandy silt. The following recommended pavement design for the proposed road widening is based on the typical strength and the frost susceptibility of the anticipated subgrade materials, assuming adequate drainage.

RECOMMENDED MINIMUM PAVEMENT STRUCTURE THICKNESS	
MATERIAL	**THICKNESS (mm)**
Asphaltic Concrete DFC	50
Asphaltic Concrete HDBC	100
Granular A Base Course/ 19 mm Crusher-run Limestone	150
Granular B Type 2 Sub-base Course/ 50 mm Crusher-run Limestone	550
Total	**850**

Other pavement thickness combinations can be used, provided that the Granular Base Equivalency is maintained, subject to review by the geotechnical engineer. The pavement structure should comply with the minimum standards set by City of Brampton. Reference should also be given to City of Mississauga's Standard Drawing No. 2220.010 in determine the minimum thickness of asphalt and granular materials.

HL-3 or Superpave 12.5 and HL-8 or Superpave 19.0 may replace the DFC and HDBC, respectively. It is recommended that the pavement thickness be made uniformly across the road to improve the subgrade drainage and the pavement performance.

The asphaltic courses should satisfy Ontario Provincial Standard Specification (OPSS), OPSS 1150 for conventional mixes and OPSS 1151 dated November 2004 for Superpave mixes.

The granular base and subbase courses should conform to the OPSS 1010 for selection of granular materials and should be compacted to 98% of the Standard Proctor maximum dry density determined according to ASTM D-698.

Hot mix asphaltic concrete should conform to the OPSS 310 and be placed and compacted to at least 97% of the Marshall density. The asphaltic concrete of the lower courses of the binder courses should be designed with PG 58-28 asphaltic cement. The surface course of the pavement structure should be designed with PG 64-28 asphaltic cement to allow for anticipated relatively high volume of traffic.

4.2 Construction Considerations

4.2.1 Subgrade Preparation and Construction Considerations

The existing road grade may be raised in the fill sections using the excess on-site excavated native materials if available. Otherwise, approved imported materials should be used. These materials should be provided at moisture content within 2% of the optimum and should be capable of being compacted to the required degree of compaction.

The following procedure for the preparation of the road subgrade is recommended:

- All the topsoil, organic or deleterious material encountered after grading to the design subgrade levels should be stripped.

- The exposed subgrade surface should be proof-rolled with a tandem truck or equivalent and inspected by geotechnical personnel from Peto MacCallum Ltd. Any frost susceptible materials and/or soft/ loose spots encountered during the process should be excavated and replaced with approved on-site or imported materials compacted to at least 95% of standard Proctor maximum dry density.

- The area can then be brought up to final subgrade level with approved on-site or imported material placed in lifts not exceeding 200 mm and compacted to at least 95% standard Proctor maximum dry density with 2% of the optimum moisture content.

All backfilling and compaction operation must be supervised on a full-time basis by geotechnical personnel to examine and approve backfill materials, to evaluate placement operations and to verify that the specified degree of compaction is achieved uniformly throughout the fill.

It is recommended that the road structure and asphaltic concrete be constructed during the drier time of the year. The pavement design considers that the subgrade will be stable, not heaving under construction equipment traffic. If the subgrade is found to be wet and unstable during inspection, additional thickness of the subbase course material may be required.

The backfill behind the curbs should comprise a layer of OPSS granular A carefully compacted to 95% of the standard Proctor maximum dry density to enhance the lateral restriction and minimize the movement of the curbs after construction.

The clayey subgrade is susceptible to disturbance from the construction traffic during wet weather condition. Therefore, care should be taken to reconstruct the road in limited sections and provide positive storm water drainage during construction.

4.2.2 Drainage Considerations

For the pavement to function properly, provision should be made for water to be drained out of the granular base courses by proper ways. Continuous perforated corrugated steel or plastic longitudinal subdrains should be installed below the curbs to prevent the build-up of water in the pavement granular courses. The subdrains should be at least 300 mm below the subgrade level and drain into the roadside catchbasins.

The subdrain pipes of minimum 100 mm in diameter should be surrounded by a 150 mm thick of pea gravel or 12 mm clear stone and this system should be wrapped with a geo-textile filter fabric. The fabric should be Terrafix 270 R or an equivalent product to prevent the ingress of fines from the subgrade into the voids of the pea gravel or clear stone with subsequent loss of ground and clogging of the pipes. The backfill above the subdrains should comprise of free draining OPSS Granular B Type I or equivalent granular filter material. The subdrains should be installed on a positive grade leading to frost-free outlets. The drainage and preparation of the subgrade at the widening portion should allow water to drain out, not collect in the existing pavement granular courses.

4.2.3 Excavation and Groundwater Control

It is considered that conventional equipment will be used to carry out the excavation for the proposed road widening construction.

All construction work must be carried out in accordance with the Occupational Health and Safety Act (OHSA) O. Reg. 213/91 and related local regulations. With respect to the OHSA, soils below groundwater and area of persistent seepage are considered type 4 soils. The fill is considered as Type 3 soil. The very stiff clayey silt or silty clay soils are considered as Type 2 soils. In the case of an excavation containing more than one soil type, the highest numbered soil type shall govern the trench excavation and slope geometry. The OHSA requires that an excavation be cut at a predetermined inclination, based on the soil type. For example, excavation entirely in Type 2 soils, side slopes should be cut vertically in the lower 1.2 m from the base of the excavation and at an inclination of 1 horizontal to 1 vertical above the height of 1.2 m; in Type 3 soil, side slopes for

excavation should be cut at an inclination of 1 horizontal to 1 vertical from the base of excavation; in Type 4 soils, side slopes should be cut at an inclination of 3 horizontal to 1 vertical from the base of the excavation. Trench boxes may be used to reduce the horizontal extent of the open cut excavation. For deep trenches, the basal stability should be checked by the designer or the contractor in accordance with the Canadian Foundation Manual, latest edition.

Trench slopes should be continually inspected, particularly following periods of heavy rainfall, spring thaw, and when the trench has been left open for extended period of time.

No major groundwater problems are anticipated during the road widening construction based on the groundwater observation at the time of this investigation. Conventional sump pumping may be used to control seepage that may occur from precipitation, perched water in the fill or from more pervious seams in the native deposits.

4.2.4 Backfill Considerations

The existing fill and native clayey silt and silty clay soils which are not mixed with topsoil or other obviously unsuitable materials may be re-used as backfill, if their moisture contents are within 2% of their optimum moisture contents from the standard Proctor moisture-density relationship tests. Based on the results of the moisture content determinations the existing fill and native soils are presently at or near their optimum moisture contents and would be suitable for re-use.

Organic, excessively wet, frozen or otherwise deleterious materials should not be used for backfilling purposes. Any shortfall of suitable on-site excavated materials can be made up with imported and approved materials.

Native soils should not be used in confined areas since these soils are not fee draining. Imported granular material conforming to OPSS Granular B Type I would be suitable for these purposes.

Heavy compactors, which generate large lateral stress, should be kept at a safe distance from sewer head walls or pipes within the road allowance to avoid structural damage.

Backfilling and compaction operation should be monitored by geotechnical personnel in order to approve the backfill material, to evaluate the placement operations and to verify that the specified degree of compaction had been achieved uniformly through the fill.

5. ENGINEERING DISCUSSION AND RECOMMENDATIONS FOR CROSSING STRUCTURES

This part of the report provides discussion and recommendations regarding to the preliminary design of the foundations and the abutments of the crossing structures as well as the replacement or extension of crossing structure at Mimico Creek.

It is understood that the proposed Goreway Drive Improvements require three level crossings with a grade separation at CN Halton crossing Goreway Dive and overpass is the preferred crossing structure.

Since the Goreway Drive also crosses the East branch of the Mimico Creek, crossing structure will also have to be replaced or extended.

A total of six (6) boreholes were advanced at the locations of two crossing structures, namely, the culvert over Mimico Creek and the proposed overpass over CN Rails. Boreholes 6 and 7 were drilled to the depths of 8.1 and 9.75 m from the existing grade on the North and South sides of Mimico Creek, respectively. Boreholes 12, 14 and boreholes 15, 17 were drilled on the North and the South sides of CN Rails, respectively, to the depths of 13.70 to 30.95 m from the existing grade.

The subsurface stratigraphy encountered at the borehole locations generally comprises fill and/or pavement structures over clayey silt underlain by sandy silt/silty sand which are in turn underlain clayey silt till over sandy silt/silt till underlain by clayey silt till over sandy silt till underlain by sand and gravel. Bedrock was not encountered at this investigation. The deepest borehole was advanced to 30.95 m from the existing grade, and this depth is considerably deeper than the referenced bedrock depths according to the study of water well records and bedrock geology of the subject site.

Groundwater was encountered during the drilling in boreholes 6, 7, 12, 14, 15 and 17. The groundwater levels vary from 2.7 to 6.0 m from the existing grade, elevations 164.2 to 168.5. It is anticipated that the groundwater levels are subject to the seasonal fluctuation and rainfall patterns.

5.1 Foundations

5.1.1 Shallow Foundations

Based on our brief summary of the subsurface and groundwater conditions at the borehole locations, conventional strip and spread footings may be used as shallow foundations. Table 1 provides reference founding levels and factored bearing resistance at ULS and bearing pressure at SLS at each borehole locations, subjected to adequate groundwater control and inspections by geotechnical personnel.

TABLE 1
SPREAD FOOTING REFERENCE FOUNDING LEVELS *

BOREHOLE NO.	ELEVATION (m)	DEPTH (m)	FOOTING BEARING LAYER	FACTORED BEARING RESISTANCE AT ULS (kPa)	BEARING PRESUURE AT SLS (kPa)
BH 12	Below 169.30	2.90	Compact silty sand above groundwater	350	200
BH 14	Below 169.10	3.10	Compact silty sand above groundwater	350	200
BH 15	Below 169.10	3.10	Compact silty sand above groundwater	275	150
BH 17	Below 169.20	3.10	Compact silty sand above groundwater	275	150

Note: * Elevations noted above are interpolated from the preliminary design drawing and therefore deem to be approximate. Contractors performing work should carry out their own survey for their own purpose.

* The reference founding levels are based on borehole locations only.

The bearing pressure at SLS normally allows for 25 mm of compression of the founding medium. Differential settlement is expected to be less than 75% of this value, provided the subgrade is not loosened or softened by construction activity or prolonged exposure to the elements. It is recommended that following excavation to the footing founding level, the subgrade should be inspected and approved, and immediately covered with a 50 mm working mat of lean concrete.

Stepped footings should be constructed at a slope no steeper than 10 horizontal to 7 vertical. A maximum vertical step 600 mm should be maintained.

All founding subgrade should be inspected by geotechnical personnel from Peto MacCallum Ltd. to ensure that the founding soils are similar to those identified in the boreholes and are competent to provide the design bearing resistance.

Footings must be located above an imaginary line extending down from the edges of adjacent footings at an inclination of 7 vertical to 10 horizontal. Where footings are stepped down, a maximum level difference of 600 mm should be maintained.

Prior to placement of concrete, all founding surfaces must be inspected by geotechnical personnel from Peto MacCallum Ltd. to ensure that the founding soils area similar to those identified in the boreholes and are capable of supporting the design bearing pressure.

It should be note that based on the soil conditions near the ground surface and structural loads, the footing size might be considerably great if shallow foundations are being used to support the proposed overpass structure.

5.1.2 Deep Foundations

Deep foundations are recommended for the proposed overpass structure, taking into account the potential excessive settlement of shallow foundations that may be incurred due to the structural loads and the embankment fill surcharge load, the groundwater depth from the existing grade and the bearing pressure of the foundation soils. Special considerations had been given to Caissons and Steel H-piles for the recommended deep foundations.

Please note that further investigations had been recommended to the Project Structural Engineer regarding the detail foundation design for the proposed overpass structure. The purposes of the borehole investigation are to obtain more information regarding to the founding elevations and the nature of founding medium needed for the detail deep foundation designs.

5.1.2.1 Caissons

Straight shaft caissons founded on stiff to very stiff clayey silt till can be used to support the proposed overpass structure. Caissons founded on very stiff clayey silt till may be designed for the ultimate and serviceability limit states bearing resistance (ULS and SLS) as follows, subject to adequate groundwater control and inspection of geotechnical personnel.

Factored Bearing Resistance at ULS = 1,500 kPa
Bearing Pressure at SLS = 850 kPa

For the preliminary design purpose, the following table provides the reference founding levels and the anticipated funding materials.

REFERENCE FOUNDING LEVELS AND ANTICIPATED FOUNDING MATERIAL				
BOREHOLE NO.	**GROUND SURFACE ELEVATION**	**FOUNDING DEPTH (m)**	**FOUNDING ELEVATION**	**ANTICIPATED FOUNDING MATERIAL**
BH 12	172.2	9.3	163.9	Very stiff clayey silt till
NH 14	172.2	12.5	159.7	Very stiff clayey silt till
BH 15	172.2	9.5	162.7	Very stiff clayey silt till
BH 17	172.2	10.5	161.7	Very stiff clayey silt till

Note: Elevations noted above are approximate. Contractors performing the job should carry out survey for their own purpose.

The bearing pressures at SLS normally allow 25 mm of compression of the founding medium.

For the uplift resistance of the caissons, average unfactored skin friction of 75 kPa for native soil may be considered in the design. Geotechnical resistance factor for axial reaction should be taken as 0.4.

The minimum center-to-center spacing between caissons should be at least three times the diameter and the minimum length of caissons should be at least three times their diameter. The minimum diameter of the caissons should be above 940 mm to allow down the holes inspection.

The groundwater level observed upon completion of drilling and measured on June 19, 2007 varied between 3.7 to 4.5 m from the existing grade at this investigation. It is anticipated that caissons will be installed below the groundwater table. Temporary steel liner or equivalent should be provided during the caisson installation. Groundwater control and/or dewatering during the caisson construction is necessary. The contractors performing the work should summit the drilling procedures, techniques and sequences to be used for the review and approval of the project Engineer and/or the Owner.

The caisson installation operations should be inspected on a full-time base by qualified geotechnical personnel who will verify the founding stratum, the founding elevations, and the alignment and the plumbness of the installed shafts.

5.1.2.2 Piles

Compared to caissons, H-piles have the advantages from the perspective of construction schedule and environmental impact, which include no dewatering measures required, less environmental impact and less installation time. Thus, Steel H-piles are most likely the recommended deep foundations for the proposed overpass structure.

It should be note that the deepest borehole was terminated at 30.95 m from the existing grade and founding stratum exhibiting practical spoon refusal (i.e. three continuous spoon refusal) or augering refusal has not been reached.

In general, Piles should be driven to refusal on very dense or hard founding medium or on the bedrock and be designed as end bearing piles, otherwise, friction piles might be the alternative.

The preliminary recommendations for pile foundation are discussed below.

The recommended factored axial resistance for HP 310 x 110 designed as end bearing pile is as follows, subject to additional investigations for final design.

Factored Axial Resistance at (Ultimate Limit States) = 2000 kN

Axial Resistance at (Serviceability Limit States) = 1200 kN

It must be noted that additional investigation is required to confirm the founding medium and elevations.

The resistance at SLS normally allows for 25 mm of compression of the pile and the founding medium. The axial resistance should be confirmed by Hiley Formula based on an Ultimate capacity of 3600 KN.

Based on limited borehole information, the recommended axial resistance for HP 310 x 110 designed as friction piles might be taken according to the following table, subject to additional investigation for final design and the confirmation by dynamic monitoring during pile driving.

PILE LENGTH (m)	SOIL STRATUM PENETRATED	BEARING STRATUM AT PILE TIP	*FACTORED AXIAL RESISTANCE AT ULS (kN)	AXIAL RESISTANCE AT SLS (kN)
25.0	Fill, firm to stiff Clayey Silt, compact Silty Sand, stiff to very stiff Clayey Silt Till, compact to dense Silt/Sandy Silt	Compact to Dense Sandy Silt	650	400
30.0	Fill, firm to stiff Clayey Silt, compact Silty Sand, stiff to very stiff Clayey Silt Till, compact to dense Silt/Sandy Silt, compact to dense Sand and Gravel	Dense Sand and Gravel	750	500

*The geotechnical axial capacity of a single pile at ULS is estimated using the Mayerhof method presented in Chapter 18 in Canadian Foundation Engineering Manual (4th edition, 2006). The geotechnical resistance factor used is 0.4.

The approach fill embankments within the limits of the pile foundation should comprise Granular A material to enable driving and minimize the potential for damage during pile installation.

The piles will be driven to an adequate set taking account of the driving equipment. It is considered that a set of about 20 blows (and rising) for 25 mm of the last 75 mm of penetration should be appropriate. This should be confirmed by dynamic formula in the process of pile installation. It is also recommended that piles be monitored after pile driving and restriked on the following day to evaluate the potential for relaxation. Additional restrikes may be necessary if relaxation occurs.

Although cobbles and bouiders were not encountered in the boreholes, their presence is likely in the glacial soils present at the site. Accordingly, driving shoes should be provided to minimize the potential damage to the pile toe when driving through the native strata.

The installation operations should be inspected on a full-time basis by experienced geotechnical personnel to confirm the founding stratum, the elevations, the alignment, the plumbness, the uniformity of set and the quality of splices.

Pile caps should be provided with at least 1.2 m of each cover or equivalent thermal insulation as protection against frost action. A 25 mm thick layer of polystyrene insulation is thermally equivalent to 600 mm of soil cover.

Resistance to lateral loads may be provided in part by mobilization of passive resistance along the pile below the annular space. The recommended lateral resistance is as follows:

Factored Lateral Resistance at ULS	= 120 kN
Lateral Resistance at SLS	= 50 kN

If greater resistance is required, batter piles should be installed.

The coefficient of horizontal subgrade reaction k_s (MN/m^3) for the cohesionless soils may be computed using the following equations:

$k_s = n_h z/b$

where n_h = coefficient related to soil density

= 10 MN/m³ for granular backfill, dense silty sand, sand and gravel below groundwater table.

= 4 MN/m³ for compacted silty sand, sand and gravel below the groundwater table.

Z = depth, m

B = pile width, m

The coefficient of horizontal subgrade reaction for cohesive soil should be computed using the following equation:

$k_s = 67c_u/b$

where c_u = undrained shear strength

= 100 kPa for stiff to very stiff clayey silt below groundwater

b = pile width, m

Group action for lateral loading should be considered when the pile spacing in the direction of the loading is less than six to eight pile diameters/widths. Group action can be evaluated by reducing the coefficient of horizontal subgrade reaction in the direction of loading by a reduction factor, R, as follows:

Pile Spacing in Direction of Loading d = Pile Diameter or Width	Subgrade Reaction Reduction Factor, R
8d	1.00
6d	0.70
4d	0.40
3d	0.25

Further geotechnical investigation is recommended to obtain information during the detail design phase to determine the founding elevations and the nature of the founding medium.

5.2 Retaining and Abutment Walls

5.2.1 Conventional Abutment Considerations

It is anticipated that the maximum height of the retaining wall will be around 9.5 m at the abutments and will decrease along the approach embankments.

Rigid abutment walls supported by caissons or H-plies foundations are considered feasible for the proposed overpass structure. Recommendations regarding to the constructions and designs of caissons and H-piles given in the previous sections should be followed if conventional abutments are chosen.

5.2.2 RSS Walls

As an alternative, RSS wall may be chosen as the abutments and the approach embankment walls.

For the RSS wall constructed on the native firm to stiff clayey silt/silty clay, the recommended bearing pressure will be as follows:

Factored Bearing Resistance at ULS = 150 kPa
Bearing Pressure at SLS = 75 kPa

The parameters to be employed for the design of RSS walls will depend upon the type of the backfills employed to construct the walls.

	Granular A	Granular B	Native Soil
Friction Angle, degrees	35	35	28
Cohesion, kPa	0	0	0
Unit Weight, kN/m³	22.4	22.4	18.5

The RSS walls supplier should be responsible for specifying the type of backfill material employed taking into consideration of the engineering properties of the proprietary product, the design life of the structure, the pullout resistance required, drainage requirements and the predicted settlements. The RSS supplier should also be responsible for the design of the structure, such as the selection of the backfill and reinforcement elements, checking up the internal and external stability, and providing the detail design drawings showing the pertinent information such as location, length, height, elevation, performance level, appearance etc.

5.2.3 Integral Abutment on Piles

Integral Abutment on piles is another choice for the proposed overpass structure.

To accommodate movement of the integral abutment system, two concentric Corrugate Steel Pipes (CSP) that extend at least 3 m (subject to structure design requirement) below the bottom of the abutment should be placed around the pile to create an annular space. The inner CSP should be fill with granular material meeting the gradation requirements of Granular B Type I. Alternatively, a single CSP or auger hole filled with loose uniform sand meeting the requirements shown in the attached Table 1 may be used (Refer to MTO Report S0-96-01). The design of the integral abutments should allow for the required 5.0 m free length between the founding soil and the base of the abutment.

Recommendations regarding to the installation of piles, the axial and lateral geotechnical resistances provided in the previous section should be followed.

5.2.4 Lateral Earth Pressure

Retaining and abutment walls should be designed to resist the unbalanced lateral earth pressure, p, in addition to the lateral pressure due to surcharge loads and compaction efforts. The following equation can be used for calculating the earth pressure on the retaining wall:

$$P = K(\gamma h + q) + Cp + Cs$$

where K = coefficient of lateral earth pressure (dimensionless)

γ = unit weight of backfill for free-drain granular material, kN/m≥

h = depth below exterior grade, m

q = surcharge loads, if present, kPa

Cp = compaction pressure, kPa (refer to clause 6.9.3 of CHBDC)

Cs = earth pressure induced by seismic events, kPa (refer to clause 4.6.4 of CHBDC)

where ϕ = angle of internal friction of the retained soil (35° for Granular A and Granular B Type II)

δ = angle of friction between the soil and the wall (23.5° for Granular A and Granular B Type II)

The seismic site coefficient for the stratigraphic conditions at the subject site is given in section 5.5.

The above equation assumes that an effective drainage system will be incorporated in the design to prevent the build-up of hydrostatic pressure behind the walls. If drainage is not provided, the walls must be designed to withstand the full hydrostatic head. In case the Free-draining material should be used as backfill behind the wall, the following parameters are recommended for design:

	Granular A	Granular B Type II
Angle of Internal Friction , degrees, Ø	35	35
Unit Weight, kN/m³	22.4	22.4
Coefficient of Active Earth Pressure, Ka	0.27	0.27
Coefficient of Earth Pressure at Rest, Ko	0.43	0.43
Coefficient of Passive Earth Pressure, Kp	3.69	3.69

Refer to MTO Report S0-96-11, or equivalent, for the procedures to determine the earth pressure coefficient to be used in design of integral abutments. The coefficient of earth pressure at rest should be used for design of the rigid and unyielding walls, the active earth pressure coefficient for unrestrained structure. The earth pressure coefficients should be reviewed if the slope of the

backfill exceeds 5° to the horizontal. Alternatively, the material above the top of the wall could be treated as a surcharge load.

A weeping tile system and/or weeping holes should be installed to minimize the build-up of hydrostatic pressure behind the walls. The weeping tiles should be surrounded by properly designed granular filter or geotextile to prevent the migration of fines into the system. The drainage pipe should be placed on a positive grade and lead to a frost-free outlet. Backfilling adjacent to the structure should be performed in conformance with Ontario Provincial Standards Specifications for granular backfill at abutments (OPSD-3101.150, 3121.150). As noted previously, Granular A should be applied within the limits of driven piles.

5.3 Approach Embankments

It is anticipated that the approach embankment will be constructed with earth borrow and/or suitable free-draining granular materials. The maximum height of the approach embankments is around 8.0 to 9.0 m after the removal of topsoil and fills.

Based on the information revealed in the boreholes, anticipated subgrade comprises firm to stiff clayey silt over compact sandy silt and silty sand. Construction of the fill on the native soils is considered feasible subject to the comments provided in the following paragraphs.

The embankments should be constructed in accordance with OPSS 501, 538, 902, OPSD 200.010, 202.010, 208.010 and/or SP 105S10, 105S19, 206S03, 902S01 or equivalent. The side slopes of the approach embankments should be inclined no steeper than 2H:1V. Where the height of the embankment is greater than 8.0 or 10.0 m for earth or rock embankments respectively, a 2.0 m mid-height will be required.

The embankment should be placed in 200 mm lifts and compacted to minimum 98% of the standard Proctor maximum dry density (SPMDD). The embankment 1 m below the pavement should be placed in 200 mm lifts and compacted to minimum 100% of the SPMDD.

Compaction of backfill behind the abutment walls should be carried out using lightweight equipment to prevent possible damage to the walls. The structures should be checked for the need of bracing or lateral support during compaction.

All backfilling and compaction operations should be monitored by qualified geotechnical personnel to approve material, evaluate placement operations and verify that the specified degree of compaction is being achieved uniformly throughout the fill.

It is recommended that the work be carried out in the late summer months when the groundwater level is normally lowest.

The approach embankments constructed in accordance with these recommendations should be stable. No settlement or bearing capacity problems due to placing approach fill on the inorganic native soils are anticipated, providing the soft and deleterious materials are excavated.

Some settlement of the road surface should be anticipated, however, and will result from two mechanisms – consolidation of the soil below the recently placed fill and self-compaction of the newly placed fill.

- Settlement of the embankment due to consolidation of the subgrade soil is expected to be some 15 to 20 mm and completed within one month following placement of the fill at north and south embankment.
- Settlement of the embankment due to self-compaction of the granular backfill is computed to be some 15 and 25 mm at north and south abutment, respectively.

Consequently, the total settlement of the approach fill surface near the abutments should be in the order of 30 to 45 mm at north and south embankments.

Settlement of the road surface due to self-compaction of the granular backfill placed adjacent to the abutments will be primarily dictated by the height of the embankment, the quality of workmanship employed by the contractor and the diligence of the quality control program. The magnitude of settlement for the granular backfill is assessed to be about 0.25% of the embankment height, provided that strict placement and compaction controls are implemented.

Where slope flattening is proposed, a drainage gap should be provided in accordance with OPSD 202.020. OPSS granular Type II should be used for the drainage gaps.

Fill slopes should be protected against surface erosion by sodding and suitable vegetation. Refer to OPSS 571 or 572 for time constraints and the type of seed and mulch required.

5.4 Culvert Extension

The founding type, elevation and the as-built dimensions of the existing culvert at Mimico Creek are not available at the time of this investigation. Based on the subsurface conditions revealed in boreholes 6 and 7, it appeared that the existing culvert was founded on dense sandy silt till.

Spread footings constructed on the sandy silt till is considered feasible. The following geotechnical resistance values are recommended for the foundation design of the culvert extension:

Factored Bearing Resistance at ULS = 250 kPa
Bearing Pressure at SLS = 150 kPa

The culvert must be designed to support the stress imposed by the overlying fill as well as to resist the unbalanced lateral earth pressure and compaction pressure imposed by the backfill adjacent to the culvert wall. The lateral earth and water pressure, p, should be computed using the method presented in Section 6.9 of the Canadian Highway Bridge Design Code. The parameters or the coefficient of earth pressure of the granular material should be the same as recommended for retaining wall design.

All excessively loose, soft, organic or otherwise deleterious materials along the alignment of the culvert extension must be removed prior to the construction of the extension.

Preparation of the subgrade should be performed and monitored in accordance with the SP 902S01 and should be approved by geotechnical personnel before placement and compaction of the engineered fill if required.

Backfill adjacent to the culvert should be placed in general accordance with the OPSD 800 series of drawings. Backfill should be brought up simultaneously on each side of the culvert and the operation of heavy equipment within half of the culvert height is restricted to minimize the potential movement or damage of the culvert caused by the lateral earth pressure induced by compaction.

A weeping tile system and/or weep holes should be installed to minimize the build-up of hydrostatic pressure behind the culvert. The weeping tiles should be surrounded by a properly designed granular filter or geotextile to prevent the migration of fines to the system. The drainage pipe should be placed on a positive grade and led to a frost-free outlet.

Excavation for the construction of the culvert is expected to extend through fill and firm to stiff native clayey silt and compact to dense sandy silt. Fill is classified ad Type 4 soils and native clayey silt or sandy silt is classified as Type 3 soil according to Occupational Health and Safety Act (Ontario Regulation 213/91).

Subject to season/precipitation, it is expected that conventional sump pumping will be the main measure to handle the groundwater seepage or surface water entering the excavation area. It may be necessary to implement more elaborate measures to control the water flow during construction in the event of a major storm and/or flooding at the culvert.

5.5 Site Seismic Response Coefficient

Based on the soil profiles revealed during the geotechnical investigation, the seismic response coefficient at the subject site can be taken as 1.0 [soil profile Type I, Canadian Highway Bridge Design Code (CHBDC) clause 4.4.6, CAN/CSA-S6-00].

6. CLOSURE

The investigation was based on a modified program, which was reviewed and approved by the Client. The recommendations in this report have been based on the findings in the as-drilled borehole locations. Soil conditions may vary between and beyond boreholes, especially with respect to topsoil and fill conditions and the presence and the thickness of water bearing deposits. Variations in conditions identified during construction may necessitate redesign consideration.

Further investigation was recommended in the detail design phase of the proposed overpass structure and to complete the borehole investigation program and to obtain information regarding to the founding elevations and the nature of founding medium for deep foundations.

The hydrogeological results are addressed in our Phase I Environmental Site Assessment (ESA) report (PML Ref.: 07TX014).

Sincerely

Peto MacCallum Ltd.

Tao Xue, MEng, P.Eng.
Project Engineer

Robert Ng, PhD, MBA, P. Eng.
Manager, Geotechnical Engineering Services

TX/RN:mm

LIST OF ABBREVIATIONS

PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

CONSISTENCY	N (blows/0.3 m)	c (kPa)	DENSENESS	N (blows/0.3 m)
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		

WTPL	Wetter Than Plastic Limit
APL	About Plastic Limit
DTPL	Drier Than Plastic Limit

TYPE OF SAMPLE

SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oesterberg Sample
AS	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample		

- PH Sample Advanced Hydraulically
- PM Sample Advanced Manually

SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

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LOG OF BOREHOLE NO. 1

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 175.4

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0	TOPSOIL: dark brown sandy silt mixed with gravel topsoil inclusions, rootlets	174.60	1	SS	10
0.80	FILL: brown silty clay trace gravel topsoil, rootlets inclusions	174.00	2	SS	9
1.40	CLAYEY SILT: stiff brown clayey silt trace gravel, DTPL to APL	173.20	3	SS	21
2.20	oxidized along partitions	172.40	4	SS	21
3.00	grey, APL to WTPL	171.75	5	SS	10
3.65	BOREHOLE TERMINATED AT 3.65 m				

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.K.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 2

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES: NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 174.4					
0.45	TOPSOIL: dark brown clayey silt trace sand trace gravel topsoil, rootlets inclusions		173.95	1	SS	8
0.90	FILL: brown clayey silt mixed with gravel		173.50	2	SS	21
2.20	CLAYEY SILT: very stiff brown clayey silt trace sand trace gravel, DTPL		172.20	3	SS	27
3.66	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partitions, moist to saturated		170.75	4	SS	28
	BOREHOLE TERMINATED AT 3.66 m			5	SS	17

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 3.5m, cave-in at 3.35m

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊕ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

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LOG OF BOREHOLE NO. 3

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION (GROUND ELEVATION 173.5)	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N - VALUES
0.14	PAVEMENT STRUCTURE: 140mm asphaltic concrete over 650mm thick brown sand and gravel		173.36	1	SS	52
0.80			172.70			
1.00	FILL: dark brown clayey silt trace gravel, organic inclusions		172.50	2	SS	12
1.40	CLAYEY SILT: stiff mottled grey/brown clayey silt trace sand trace gravel, moist		172.10	3	SS	27
2.50	very stiff brown, moist to damp		171.00	4	SS	28
	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partings, moist to saturated			5	SS	11
3.65	BOREHOLE TERMINATED AT 3.65 m		169.86			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 3.0m, no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 4

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 172.7					
0.0						
0.15	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 650mm thick brown sand and gravel		172.55	1	SS	57
0.80			171.90			
1.0	CLAYEY SILT: firm brown clayey silt trace to some gravel organic inclusions, DTPL			2	SS	8
1.40			171.30			
	stiff mottled grey/brown, trace gravel			3	SS	12
2.0						
2.20			170.50			
	very stiff, trace sand			4	SS	34
3.0						
3.10			169.60			
3.35	firm, oxidized along partings		169.35	5	SS	8
3.65	grey, APL to WTPL		169.05			
	BOREHOLE TERMINATED AT 3.65 m					
4.0						
5.0						
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						
13.0						
14.0						
15.0						

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ..... W_L
PLASTIC LIMIT ..... W_P
WATER CONTENT ..... W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 5

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

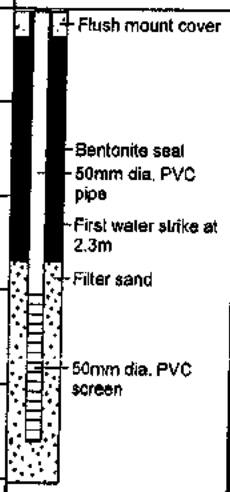
GROUND ELEVATION 171.6

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0					
0.14	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 650mm thick brown sand and gravel	171.46	1	SS	29
0.80		170.80			
	CLAYEY SILT: very stiff brown clayey silt trace sand trace gravel, DTPL		2	SS	20
			3	SS	18
2.30		169.30			
	SANDY SILT: compact brown sandy silt trace gravel, moist		4	SS	24
2.90		166.70			
	SILTY CLAY: stiff to very stiff brown silty clay trace gravel, APL		5	SS	12
			6	SS	19
5.05	BOREHOLE TERMINATED AT 5.05 m	166.55			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS



Upon completion of augering, free water at 4.0m, cave-in at 4.3m

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	2.5	169.1

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 6

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 170.2

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.25	FILL: dark brown sandy silt mixed with gravel, organic inclusions		169.95	1	SS	8
	brown clayey silt trace gravel oxidized, topsoil inclusions			2	SS	8
1.40			168.80			
	brown sandy gravel, trace silt			3	SS	19
2.45			167.75			
	mottled grey/ brown clayey silt trace gravel , rootlets, APL			4	SS	9
3.30			166.90			
	CLAYEY SILT: firm mottled brown/ grey clayey silt trace gravel, APL			5	SS	6
4.80			165.70			
	SANDY SILT: compact grey sandy silt trace to some gravel, saturated			6	SS	18
6.00			164.20			
	dense, trace clay			7	SS	37
6.80			163.40			
	CLAYEY SILT TILL: hard grey clayey silt trace sand trace gravel, DTPL					
7.90			162.30			
8.10	SANDY SILT: dense grey sandy silt trace gravel, wet		162.10	8	SS	35
	BOREHOLE TERMINATED AT 8.10 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

- Flush mount concrete
- Bentonite seal
- 19mm dia. PVC pipe
- Filter sand
- First water strike at 4.6m
- 19mm dia. PVC screen

Upon completion of augering, free water at 6.0m, no cave-in

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	2.72	167.48

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 7

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 170.3

DEPTH in METRES	DESCRIPTION	ELEVATION	SAMPLE NUMBER	SAMPLE TYPE	BLOWS/0.3m N-VALUES
0.0	FILL: dark brown sandy silt trace gravel topsoil inclusions, rootlets		1	SS	9
0.85		169.46			
	brown silty clay trace gravel, topsoil inclusions		2	SS	14
1.40		168.90			
	brown sandy silt some gravel topsoil and organic inclusions		3	SS	11
2.20		168.10			
	dark grey silty clay topsoil rootlets, wood pieces		4	SS	10
3.50		166.80	5	SS	8
	CLAYEY SILT: firm mottled grey/brown clayey silt trace gravel, APL to WTPL				
4.40		165.90			
	very stiff grey, DTPL		6	SS	22
			7	SS	21
			8	SS	24
			9	SS	14
9.50		160.70			
9.75	SANDY SILT TILL: compact grey sandy silt trace clay trace gravel, wet	160.55			
	BOREHOLE TERMINATED AT 9.75 m				

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 8

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 171.1					
0.15	FILL: dark brown silty clay trace sand trace gravel topsoil inclusions, rootlets		170.95	1	SS	18
0.65	dark brown sandy silt trace clay trace gravel, organic inclusions		170.45			
0.90	brown clayey silt trace gravel with silty sand layers		170.20	2	SS	11
1.40	brown silty clay trace gravel, organic inclusions		169.70	3	SS	23
2.20	CLAYEY SILT: very stiff brown clayey silt trace gravel, oxidized inclusions, DTPL		168.90	4	SS	21
2.90	SANDY SILT: compact brown sandy silt trace clay trace gravel, wet to saturated		168.20	5	SS	16
3.50	25cm layer of compact brown silty sand trace gravel, saturated		167.60			
	BOREHOLE TERMINATED AT 3.50 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 2.9m, cave-in at 3.15m

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
❄ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 9

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE May 10, 2007

OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 171.2

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0						
0.14	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 450mm thick brown sand and gravel		171.06	1	SS	37
0.60			170.60			
1.0	CLAYEY SILT: stiff mottled grey/brown clayey silt trace sand trace gravel, moist			2	SS	19
1.40			169.80			
2.0	very stiff brown, moist to damp			3	SS	21
2.50			168.70			
3.0	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partings, moist to saturated			4	SS	24
3.65			167.55	5	SS	42
4.0	BOREHOLE TERMINATED AT 3.65 m					
5.0						
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						
13.0						
14.0						
15.0						

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 2.6m, cave-in at 2.8m

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 10

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 171.7					
0.14	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 450mm thick brown sand and gravel		171.58	1	SS	47
0.60	CLAYEY SILT: stiff mottled grey/brown clayey silt trace sand trace gravel, moist		171.10	2	SS	14
1.40	very stiff brown, moist to damp		170.30	3	SS	25
2.50	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partings, moist to saturated		169.20	4	SS	29
3.65	BOREHOLE TERMINATED AT 3.50 m		168.05	5	SS	31

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 3.1m, no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 11

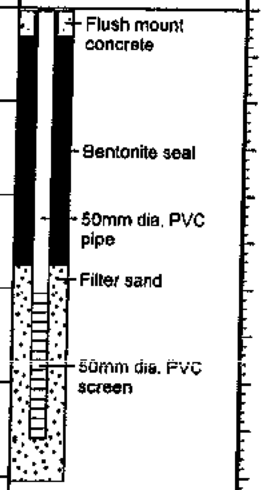
PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 172.0					
0.45	FILL: dark brown clayey silt trace sand topsoil, rootlets		171.55	1	SS	18
1.15	dark brown silty clay trace sand trace gravel topsoil inclusions, rootlets		170.85	2	SS	14
1.40	CLAYEY SILT: very stiff brown clayey silt trace gravel, DTPL hard, trace sand		170.60	3	SS	35
2.90			169.10	4	SS	29
3.20	SILT: compact brown silt trace clay trace gravel, wet to saturated grey		168.80	5	SS	25
4.00	SILTY SAND: compact grey silty sand trace gravel, saturated		168.00			
4.70	SANDY SILT: compact grey sandy silt trace gravel, saturated		167.30	6	SS	20
5.05	BOREHOLE TERMINATED AT 5.05 m		166.95			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS



Upon completion of augering, free water at 3.9m, cave-in at 4.3m

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	3.6	168.4

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 12

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TP007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.2

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N-VALUES
0.90	FILL: brown sandy silt trace gravel trace topsoil, rootlets	171.30	1	SS	15
1.40	CLAYEY SILT: stiff brown clayey silt trace gravel, DTPL	170.80	2	SS	14
2.20	very stiff, APL	170.00	3	SS	23
2.90	hard	169.30	4	SS	35
4.90	SILTY SAND: compact grey silty sand trace gravel, wet	167.30	5	SS	17
5.85	saturated	166.35	6	SS	13
6.30	brown	165.90	7	SS	21
13.70	CLAYEY SILT TILL: very stiff grey clayey silt some sand trace gravel, APL	156.50	8	SS	21
15.00	WTPL	157.20	9	SS	17
			10	SS	27
			11	SS	20
			12	SS	13

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80
LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 12

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m N - VALUES	SHEAR STRENGTH C_u (kPa) 20 40 60 80; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST ●; BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L; PLASTIC LIMIT W_P; WATER CONTENT W; W_P W W_L; WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS
	CONTINUED FROM PREVIOUS PAGE								
15.70			156.50	13	SS	12	●	⊕	
	BOREHOLE TERMINATED AT 15.70 m								Upon completion of augering, free water at 3.8m, cave-in at 4.0m

16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. Y.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 14

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.2

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.15	PAVEMENT STRUCTURE: 150mm asphaltic concrete over brown sand and gravel	172.05			
	FILL: brown silty clay trace gravel	171.80	1	SS	37
			2	SS	15
			3	SS	7
2.50	CLAYEY SILT: very stiff mottled grey/brown clayey silt trace gravel, APL	169.70	4	SS	22
3.10	SILTY SAND: compact grey silty sand trace gravel, saturated	169.10	5	SS	18
			6	SS	16
6.25	compact grey sandy silt some clay trace gravel, moist	165.95	7	SS	9
			8	SS	14
			9	SS	21
10.20	seams of grey silty sand trace sand trace gravel, saturated	162.00			
11.00	CLAYEY SILT TILL: very stiff grey silty clay trace sand trace gravel, APL to WTPL	161.20	10	SS	33
			11	SS	27
			12	SS	16
15.00		157.20			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION X
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT W_L
PLASTIC LIMIT W_P
WATER CONTENT W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

First water strike at 4.5m

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL
3 24 56 17

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY TX

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 14

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	GROUND WATER OBSERVATIONS AND REMARKS
	CONTINUED FROM PREVIOUS PAGE						
				13	SS	13	
			156.20				
16.0	SILT: compact grey silt trace gravel, saturated						
17.0				14	SS	21	
18.0							
				15	SS	22	
18.90			153.30				
19.0	Dynamic cone penetration test started Probable sandy silt: dense grey sandy silt trace gravel, saturated						
20.0							
21.0							
21.60			150.60				
22.0	BOREHOLE TERMINATED AT 21.60 m						Upon completion of augering, no free water, cave-in at 3.05m
23.0							
24.0							
25.0							
26.0							
27.0							
28.0							
29.0							
30.0							

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80
175

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY TX.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 15

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.2

DEPTH In METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.70	FILL: dark brown sandy silt trace clay trace gravel topsoil inclusions, rootlets	171.50	1	SS	7
1.40	dark brown clayey silt trace sand topsoil inclusions, rootlets	170.80	2	SS	9
2.45	CLAYEY SILT: loose mottled grey/brown clayey silt oxidized inclusions, APL	169.75	3	SS	7
3.10	SILTY SAND: compact brown silty sand trace gravel, wet to saturated	169.10	4	SS	12
4.50	loose	167.70	5	SS	3
6.25	compact, grey	165.95	6	SS	21
7.50	brown	164.70	7	SS	16
12.60	CLAYEY SILT: stiff grey clayey silt trace sand trace gravel, WTPL	159.60	8	SS	16
13.70	Dynamic cone penetration test started	158.50	9	SS	16
	BOREHOLE TERMINATED AT 13.70 m		10	SS	23
			11	SS	27

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80
120×

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Flush mount concrete
Bentonite seal
19mm dia. PVC pipe
First water strike at 4.6m
Filter sand
19mm dia. PVC screen
Bentonite seal

Upon completion of augering, free water at 3.85m, cave-in at 12.2m

Water Level Readings:

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 15

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

SOIL PROFILE				SAMPLES			SHEAR STRENGTH C_u (kPa) 20 40 60 80 / DYNAMIC CONE PENETRATION × / STANDARD PENETRATION TEST ● BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L / PLASTIC LIMIT W_P / WATER CONTENT W (W_P — W — W_L) WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH In METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES			
	CONTINUED FROM PREVIOUS PAGE								Date / Depth (m) / Elev. 06/19/07 4.54 167.66
16.0									
17.0									
18.0									
19.0									
20.0									
21.0									
22.0									
23.0									
24.0									
25.0									
26.0									
27.0									
28.0									
29.0									
30.0									

NOTES:

\+ *UNDISTURBED FIELD VANE*
⊕ *REMOLDED FIELD VANE*
⊗ *LAB SHEAR TEST*
▲ *POCKET PENETROMETER*

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 17

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE May 11, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.2

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0	FILL: dark brown clayey silt trace sand trace gravel topsoils inclusions, rootlets		1	SS	9
0.75	CLAYEY SILT: very stiff brown clayey silt trace sand trace gravel, moist	171.45	2	SS	25
2.30	stiff fine sandy silt layers, moist	169.90	3	SS	14
3.05	SILTY SAND: compact brown silty sand trace gravel oxidized, saturated	169.15	4	SS	15
4.60	seams of compact brown silt, saturated	167.60	5	SS	12
6.25	CLAYEY SILT TILL: very stiff grey clayey silt trace sand trace gravel, DTPL	165.95	6	SS	16
7.70	seams of dense grey sandy silt trace gravel, wet	164.50	7	SS	32
9.15	very stiff	163.05	8	SS	20
10.65	with silty clay layers, APL	161.55	9	SS	24
			10	SS	21
13.70	APL	158.50	11	SS	15
15.0					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

First water strike at 3.7m

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 17

PROJECT Goreway Drive Improvements — **OUR PROJECT NO.** 07TF007
LOCATION Goreway Drive, Brampton, Ontario — **BORING DATE** May 11, 2007 — **ENGINEER** M.M.R.
BORING METHOD Continuous Flight Hollow Stem Augers — **TECHNICIAN** R.S.

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
15.20	CONTINUED FROM PREVIOUS PAGE	157.00				
	stiff, APL to WTPL		12	SS	8	
16.75		155.45				
	SILT: compact grey silt some sand trace clay, wet		13	SS	14	
18.30		153.90				
	dense trace gravel, saturated		14	SS	30	0 17 79 4
19.80		152.40				
	compact, wet to saturated		15	SS	26	
21.30		150.90				
	CLAYEY SILT: compact grey clayey silt trace gravel, APL to WTPL		16	SS	24	
22.85		149.35				
	SANDY SILT: compact grey sandy silt trace gravel, wet		17	SS	23	
24.40		147.80				
	SAND AND GRAVEL: dense grey sand and gravel some silt, saturated		18	SS	40	
			19	SS	44	
27.40		144.80				
	seam of compact grey sand, saturated		20	SS	22	42 41 (17)
28.95		143.25				
	trace to some sand		21	SS	18	

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P — W — W_L
WATER CONTENT % 10 20 30

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 17

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE May 11, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m N - VALUES	GROUND WATER OBSERVATIONS AND REMARKS
	CONTINUED FROM PREVIOUS PAGE						
30.50	trace to some sand *(continued)*		141.70				
30.95	very dense		141.25	22	SS	51	
	BOREHOLE TERMINATED AT 30.95 m						Upon completion of augering, no free water no cave-in

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

31.0 32.0 33.0 34.0 35.0 36.0 37.0 38.0 39.0 40.0 41.0 42.0 43.0 44.0 45.0

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 18

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE May 7, 2007

OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH In METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 172.2					
0.0	FILL: compact dark brown sandy silt trace gravel topsoil inclusions roots, moist			1	SS	14
0.75	clayey silt, trace sand		171.45	2	SS	6
1.65	CLAYEY SILT: stiff brown clayey silt trace gravel, moist		170.55	3	SS	16
2.30	fine grey silty clay layers		169.90	4	SS	25
3.05	SANDY SILT: compact brown sandy silt trace gravel, saturated to wet		169.15	5	SS	22
3.65	BOREHOLE TERMINATED AT 3.65 m		168.55			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊖ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. Y.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 19

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 11, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.1

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0	FILL: dark brown clayey silt trace gravel topsoil organics roots, pieces of grass		1	SS	14
1.0			2	SS	9
2.00		170.10	3	SS	7
2.50	CLAYEY SILT: firm dark brown clayey silt trace gravel, APL	169.60	4	SS	5
3.0	SANDY SILT: compact brown sandy silt trace gravel, wet				
3.35		168.75	5	SS	12
4.0	CLAYEY SILT: stiff brown clayey silt trace sand trace gravel, wet				
5.0	5.05	167.05	6	SS	26
	BOREHOLE TERMINATED AT 5.05 m				
6.0					
7.0					
8.0					
9.0					
10.0					
11.0					
12.0					
13.0					
14.0					
15.0					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

First water strike at 4.5m

Upon completion of augering, free water at 4.0m, cave-in at 4.15m

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 21

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION 172.2						
0.80	FILL: dark brown sandy silt trace gravel topsoil inclusions, rootlets		171.40	1	SS	12	
1.50	SILTY CLAY: stiff brown silty clay trace sand trace gravel, moist		170.70	2	SS	11	
2.30	CLAYEY SILT: stiff brown clayey silt trace sand trace gravel, moist		169.90	3	SS	10	
3.20	grey silty sand/sandy silt layers, wet		169.00	4	SS	10	
4.60	SANDY SILT: compact brown sandy silt trace gravel sandy seams, wet to saturated		167.60	5	SS	6	Upon completion of augering, free water at 0.40m, no cave-in
5.05	SILTY SAND: compact brown silty sand trace gravel, saturated		167.15	6	SS	16	
	BOREHOLE TERMINATED AT 5.05 m						

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION X
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

46

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 22

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION (GROUND ELEVATION 171.4)	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0	FILL: dark brown clayey silt trace sand trace gravel topsoil inclusions, rootlets			1	SS	9
0.95			170.45			
1.0	CLAYEY SILT: soft brown clayey silt trace gravel, OTPL			2	SS	10
1.50			169.90			
2.0	SANDY SILT: compact brown sandy silt trace gravel, moist			3	SS	21
2.30			169.10			
3.0	oxidized, wet			4	SS	20
3.05			168.35			
4.0	SILTY SAND: compact brown silty sand trace gravel layer of grey silt, wet			5	SS	24
4.60			166.80			
5.0	SAND: compact grey sand trace silt trace gravel, saturated			6	SS	19
5.05			166.35			
	BOREHOLE TERMINATED AT 5.05 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Upon completion of augering, no free water no cave-in

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	3.90	167.50

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Table 1

LIST OF STANDARD SPECIFICATIONS REFERENCED IN REPORT

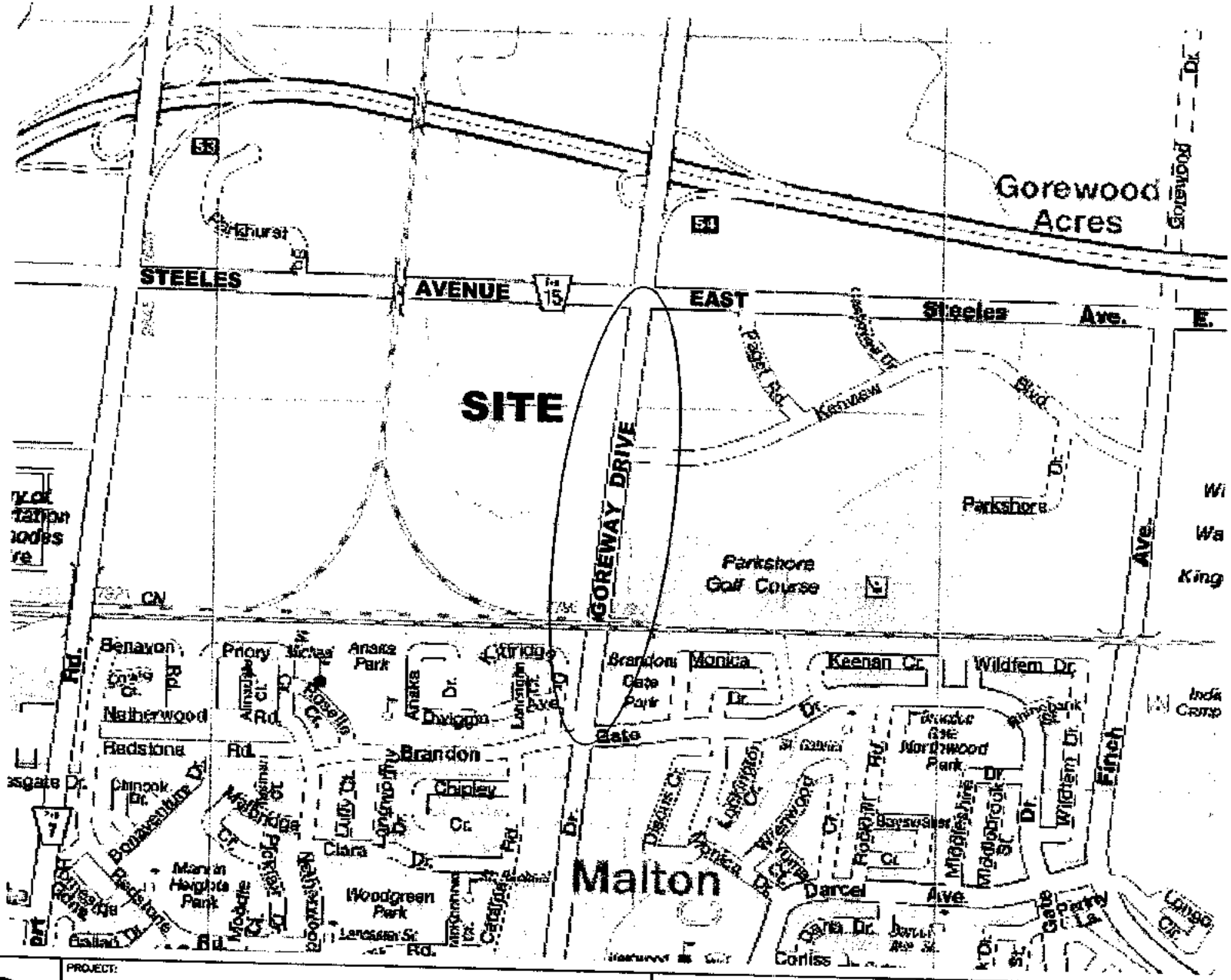
DOCUMENT	TITLE	DATE
OPSS 501	Construction Specification for Compacting	November 2005
OPSS 511	Construction Specification for Rip-Rap, Rock Protection and Granular Sheeting	November 2004
OPSS 538	Construction Specification for Support Systems	November 2005
OPSS 571	Construction Specification for Sodding	November 2001
OPSS 572	Construction Specification for Seed and Cover	November 2003
OPSS 902	Excavation and Backfilling of Structures	November 2002
OPSD 200.010	Earth/Shale Grading – Undivided Rural	November 2005
OPSD 202.010	Slope Flattening Using Excess Material on Earth or Rock Embankment	November 2005
OPSD 208.010	Benching of Earth Slopes	November 2003
OPSD 3101.150	Walls Abutment, Backfill Minimum Granular Requirement	November 2005
OPSD 3121.150	Walls Retaining, Backfill Minimum Granular Requirement	November 2005
SP 105S10	Construction Specification for Compaction	November 2004
SP 105S19	Construction Specification for Protection Systems	November 2006
SP 206S03	Construction Specification for Grading	November 2006
SP 405F03	Construction Specification for Pipe Sub-drains	November 2006
SP 902S01	Excavation and Backfilling of Structures	June 2006
SP 903S01	Construction Specification for Piling	November 2006

Table 2

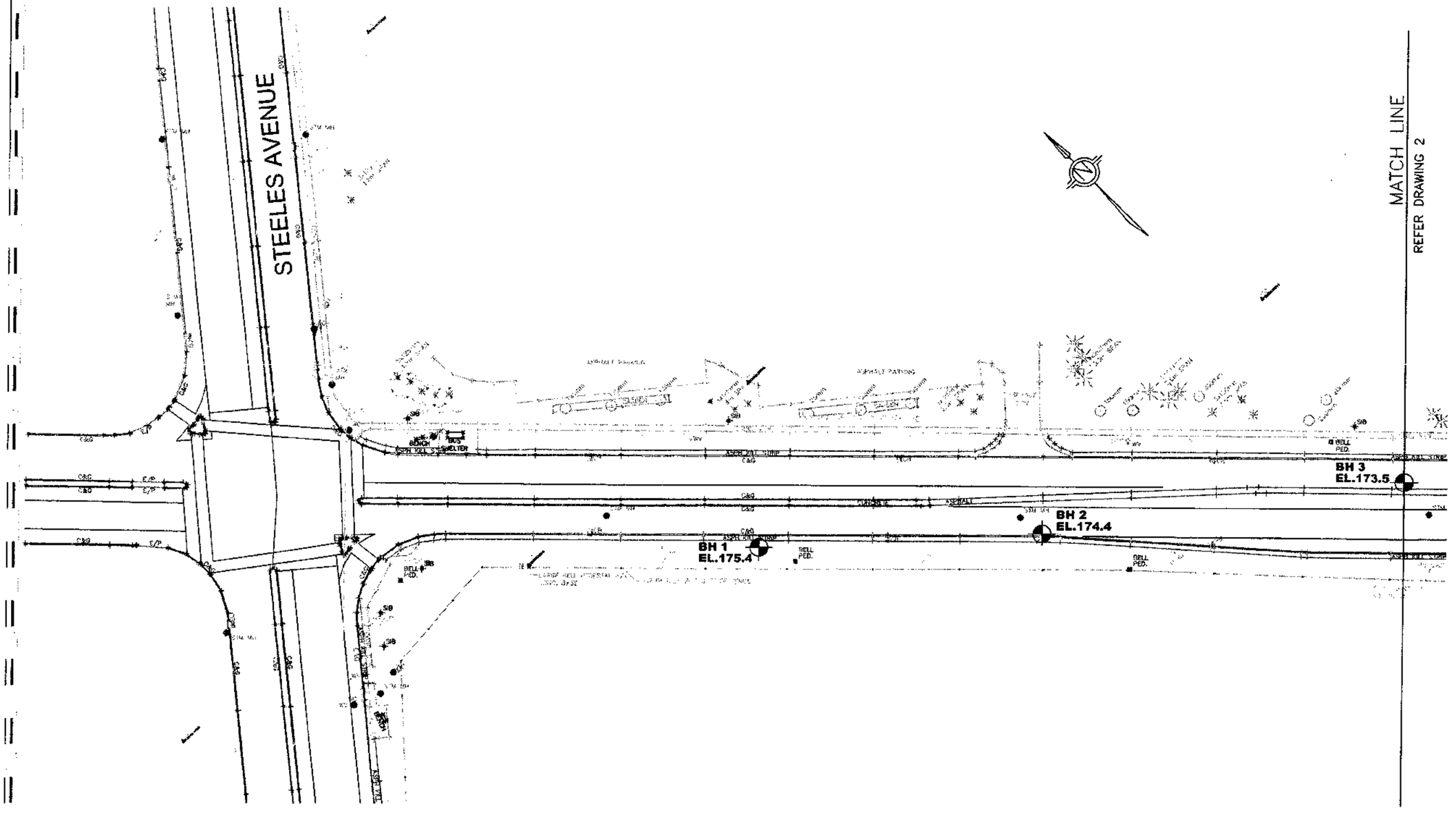
SUMMARIZED TOPSOIL/FILL THICKNESS AND PAVEMENT STRUCTURES AT BOREHOLE LOCATIONS

BOREHOLE No.	TOPSOIL THICKNESS (m)	FILL THICKNESS	PAVEMENT STRUCTURE
BH 1	0.80	0.60	N.E.
BH 2	0.45	0.45	N.E.
BH 3	N.E.	0.20	150 mm Asphaltic Concrete
			650 mm Granular
BH 4	N.E.	N.E.	150 mm Asphaltic Concrete
			650 mm Granular
BH 5	N.E.	N.E.	150 mm Asphaltic Concrete
			650 mm Granular
BH 6	N.E.	2.45	N.E.
BH 7	N.E.	3.50	N.E.
BH 8	N.E.	1.40	N.E.
BH 9	N.E.	N.E.	150 mm Asphaltic Concrete
			450 mm Granular
BH 10	N.E.	N.E.	150 mm Asphaltic Concrete
			450 mm Granular
BH 11	N.E.	1.15	N.E.
BH 12	N.E.	0.90	N.E.
BH 14	N.E.	2.50	150 mm Asphaltic Concrete
			450 mm Granular
BH 15	N.E.	1.40	N.E.
BH 17	N.E.	0.75	N.E.
BH 18	N.E.	1.65	N.E.
BH 19	N.E.	2.00	N.E.
BH 21	N.E.	0.80	N.E.
BH 22	N.E.	0.95	N.E.

Note: N.E. = Not Encountered during borehole drilling



PML	PROJECT: GOREWAY DRIVE WIDENING GOREWAY DRIVE BRAMPTON, ONTARIO	TITLE: KEY MAP	DRAWN BY: N.A.	DATE: JUNE 2007	PROJECT NUMBER: 07TF007
	CLIENT: UMA ENGINEERING LTD.		CHECKED BY: T.X.	SCALE: 1 : 8,000	FIGURE NO: 1
			APPROVED BY:		



LEGEND:

BH 3
EL.173.5 — BOREHOLE

NOTES:

1. THE INFERRED STRATIGRAPHY REFERRED TO IN THIS REPORT IS BASED ON DATA FROM THESE BOREHOLES, SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY AT OTHER POINTS BETWEEN THE BORINGS MAY VARY FROM THAT SHOWN.
2. THIS DRAWING WAS REPRODUCED FROM A PLAN DRAWING "GOREWAYS" PROVIDED BY CLIENT.
3. THE STATIONS AND ELEVATION OF THE BOREHOLE WERE INTERPOLATED FROM DESIGN DRAWINGS PROVIDED BY UMA. THESE DATA HAVE BEEN REVIEWED BY UMA ENGINEERING LTD.
4. THE GROUND SURFACE ELEVATIONS AT THE BOREHOLES ARE DEEMED TO BE APPROXIMATE AND SHOULD BE SURVEYED IN DETAIL DESIGN PHASE AND/OR BY CONTRACTOR PERFORMING THE WORK.
5. BOREHOLES BH13, BH19 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

No.	REVISIONS	DATE	BY

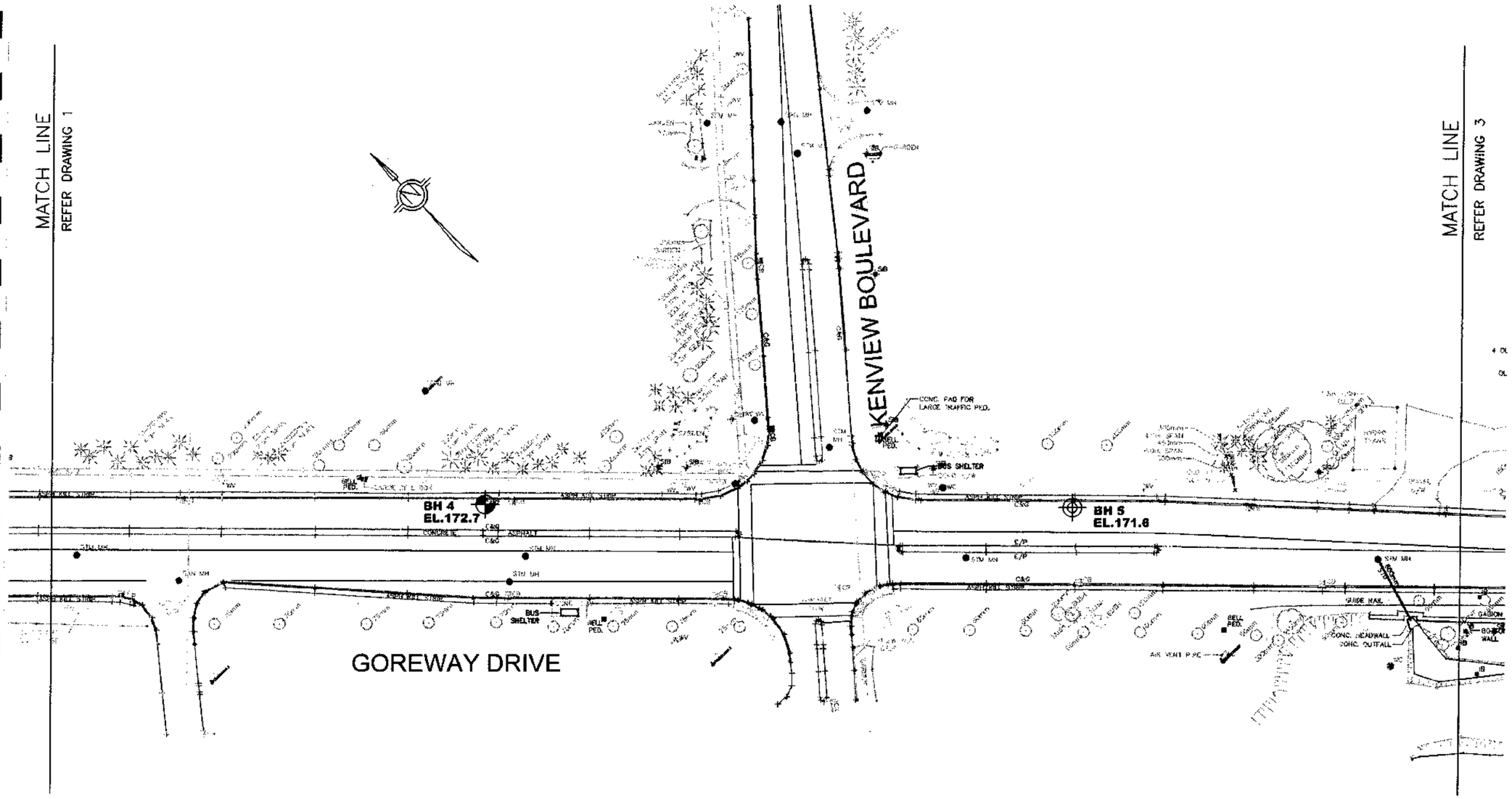
UMA ENGINEERING LTD.

GOREWAY DRIVE WIDENING
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE LOCATION PLAN

Peto MacCallum Ltd.

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.M.R./T.K.	JULY 2007	1:1,000	07TF007	1
APPROVED:				



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4. THE GROUND SURFACE ELEVATIONS AT THE BOREHOLES ARE DEEMED TO BE APPROXIMATE AND SHOULD BE SURVEYED IN DETAIL DESIGN PHASE AND/OR BY CONTRACTOR PERFORMING THE WORK.
5. BOREHOLES BH13, BH16 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

No.	REVISIONS	DATE	BY

LEGEND:

BH 4
EL.172.7
BOREHOLE

BH 5
EL.171.6
BOREHOLE WITH 50mm DIA. MONITORING WELL

UMA ENGINEERING LTD.

GOREWAY DRIVE WIDENING
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE LOCATION PLAN

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.M.R./T.K.	JULY 2007	1 : 1,000	07TF007	2
APPROVED:				

MATCH LINE
REFER DRAWING 2

MATCH LINE
REFER DRAWING 4

MIMICO CREEK

CP RAIL

4 OLD CONC. PILLARS

OLD CONC. FOOTING

OLD CONC. FOOTING

BRIDGE STRUCTURE

CONC. HEADWALL

GUIDE RAIL

ASPH. MULTI STRIP

BH 6
EL.170.2

BH 7
EL.170.3

BH 8
EL.171.1

BH 9
EL.171.2

BH 10
EL.171.7

BH 11
EL.172.0

BH 12
EL.172.2

BH 13
EL.172.2

BH 14
EL.172.2

GABION WALL

TOE OF GABION WALL

GUIDE RAIL

BRIDGE STRUCTURE

ROCKSLOT

AIR VENT PIPE

GOREWAY DRIVE

LEGEND:

BH 14
EL.172.2
BOREHOLE

BH 11
EL.172.0
BOREHOLE WITH 50mm DIA. MONITORING WELL

NOTES:

1. THE INFERRED STRATIGRAPHY REFERRED TO IN THIS REPORT IS BASED ON DATA FROM THESE BOREHOLES, SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY AT OTHER POINTS BETWEEN THE BORINGS MAY VARY FROM THAT SHOWN.
2. THIS DRAWING WAS REPRODUCED FROM A PLAN DRAWING "GOREWAY5" PROVIDED BY CLIENT.
3. THE STATIONS AND ELEVATION OF THE BOREHOLE WERE INTERPOLATED FROM DESIGN DRAWINGS PROVIDED BY UMA. THESE DATA HAVE BEEN REVIEWED BY UMA ENGINEERING LTD.
4. THE GROUND SURFACE ELEVATIONS AT THE BOREHOLES ARE DEEMED TO BE APPROXIMATE AND SHOULD BE SURVEYED IN DETAIL DESIGN PHASE AND/OR BY CONTRACTOR PERFORMING THE WORK.
5. BOREHOLES BH13, BH16 AND BH20 WERE CANCELLED AS DISCUSSED WITH THE ENGINEER.

No.	REVISIONS	DATE	BY

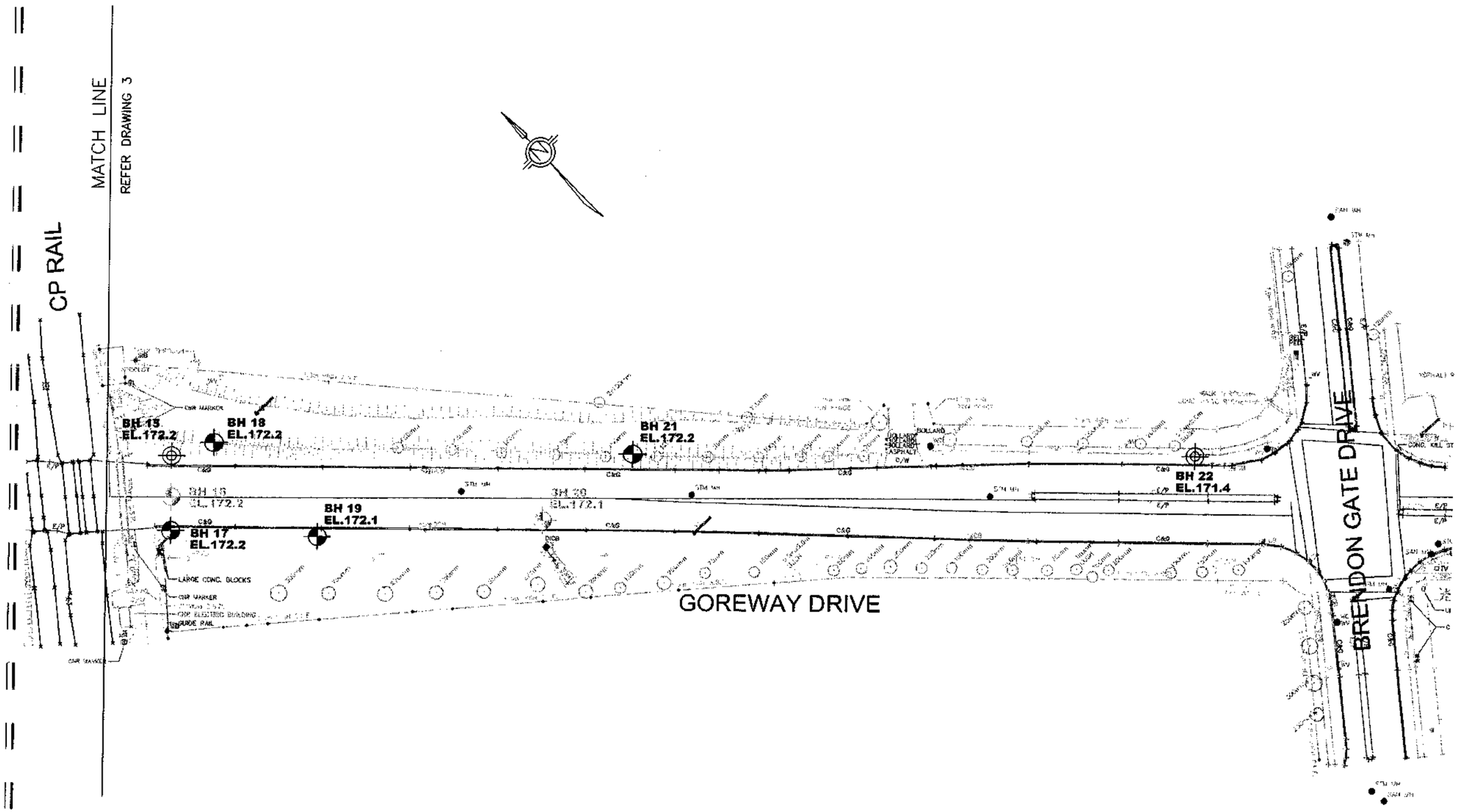
UMA ENGINEERING LTD.

GOREWAY DRIVE WIDENING
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE LOCATION PLAN

Peto MacCallum Ltd.

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.M.R./T.K.	JULY 2007	1 : 1,000	07TF007	3
APPROVED:				



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4. THE GROUND SURFACE ELEVATIONS AT THE BOREHOLES ARE DEEMED TO BE APPROXIMATE AND SHOULD BE SURVEYED IN DETAIL DESIGN PHASE AND/OR BY CONTRACTOR PERFORMING THE WORK.
5. BOREHOLES BH13, BH16 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

LEGEND:

BH 21
EL.172.2
BOREHOLE

BH 22
EL.171.4
BOREHOLE WITH 50mm DIA. MONITORING WELL

No.	REVISIONS	DATE	BY

UMA ENGINEERING LTD.

GOREWAY DRIVE WIDENING
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE LOCATION PLAN

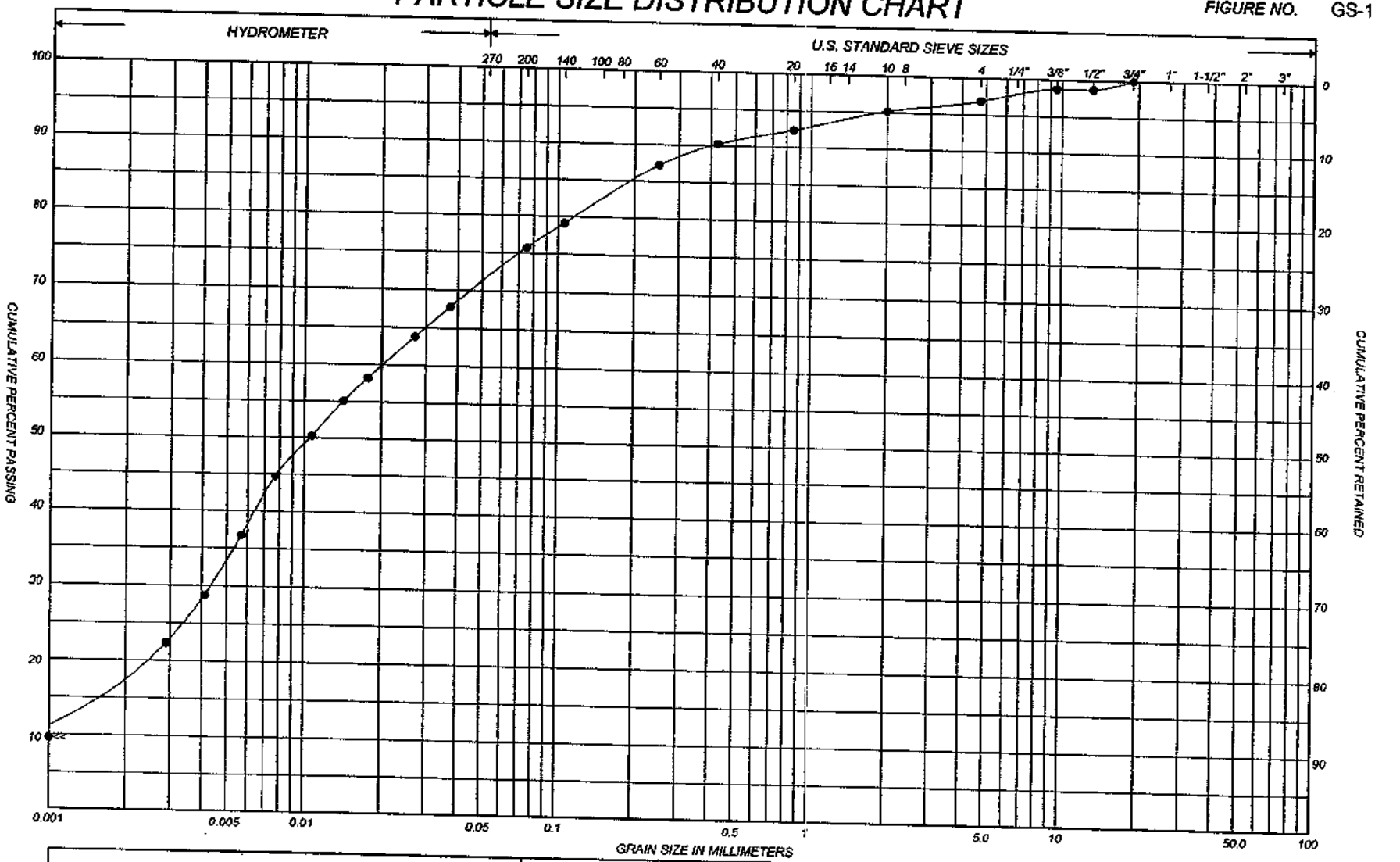
Peto MacCallum Ltd.

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.M.R./T.K.	JULY 2007	1 : 1,000	07YF007	4
APPROVED:				

Peto MacCallum Ltd.
CONSULTING ENGINEERS

PROJECT NO. 07TF007
FIGURE NO. GS-1

PARTICLE SIZE DISTRIBUTION CHART



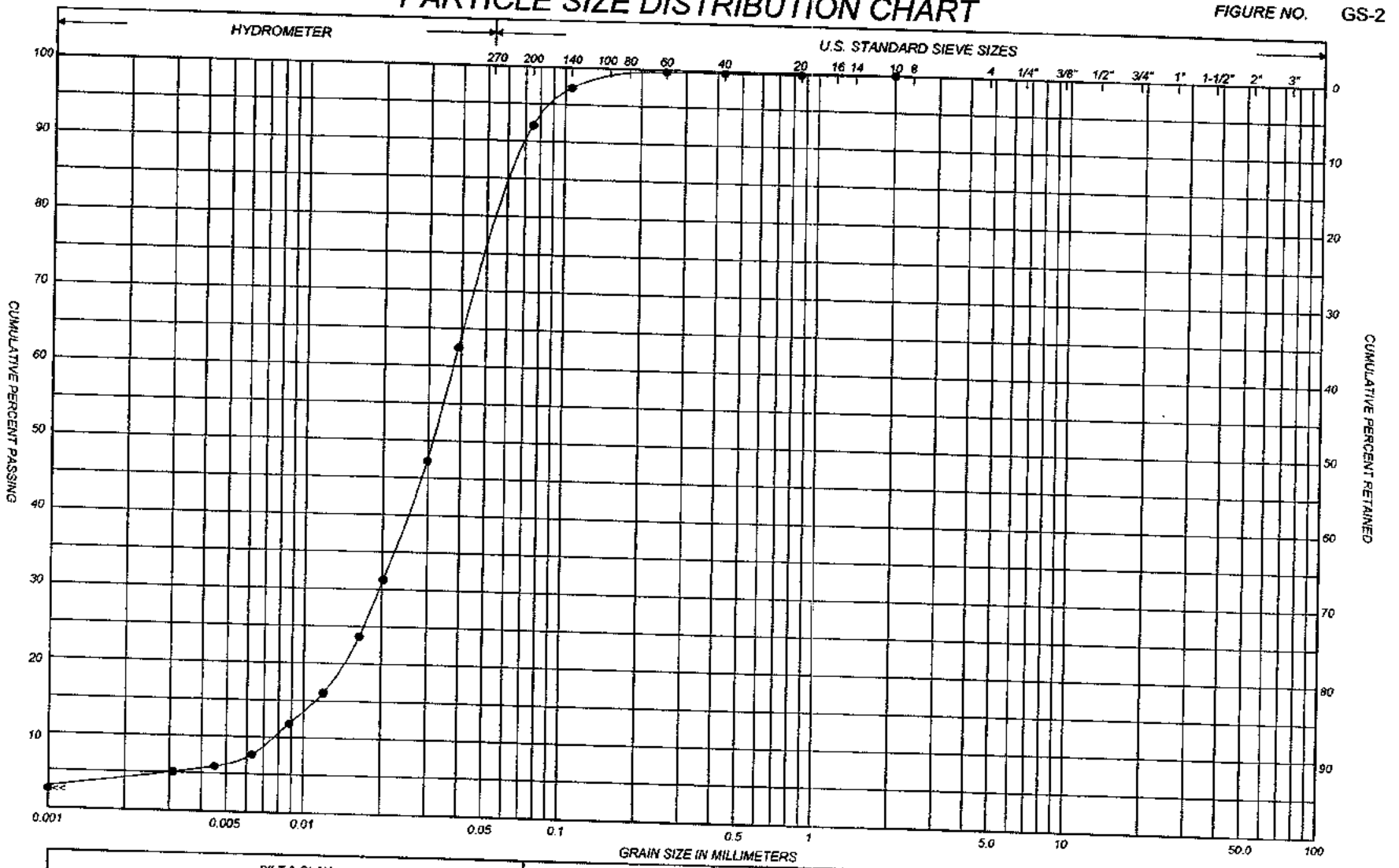
REMARKS: SILT TILL: Silt with sand, some clay, trace gravel

Borehole 14, Sample 8, Depth : 7.5 to 7.95m

PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

PARTICLE SIZE DISTRIBUTION CHART

PROJECT NO. 07TF007
FIGURE NO. GS-2



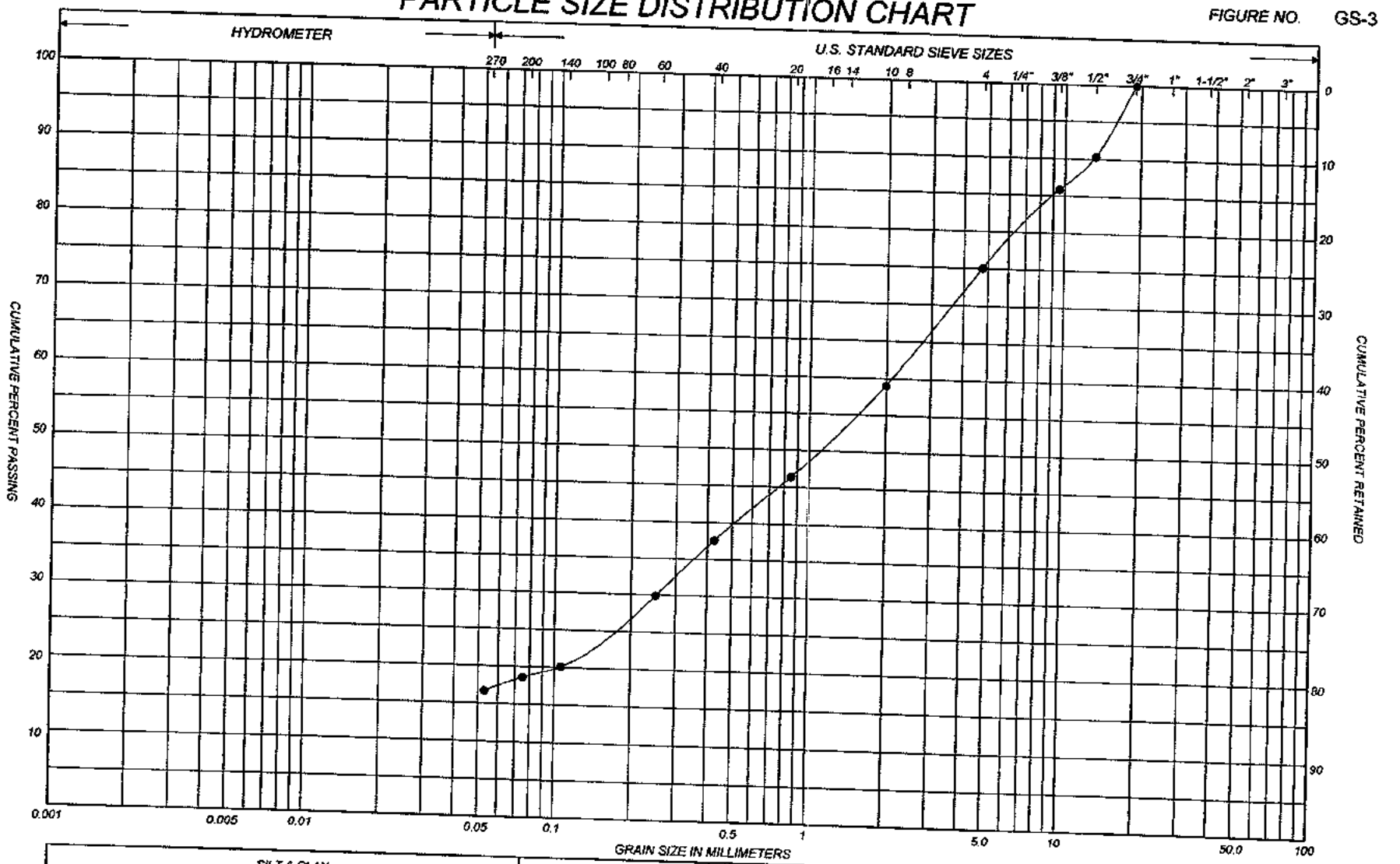
REMARKS: SILT: Silt, some sand, trace clay

Borehole 17, Sample 14, Depth: 18.3 to 18.75m

PML Petto MacCallum Ltd.
CONSULTING ENGINEERS

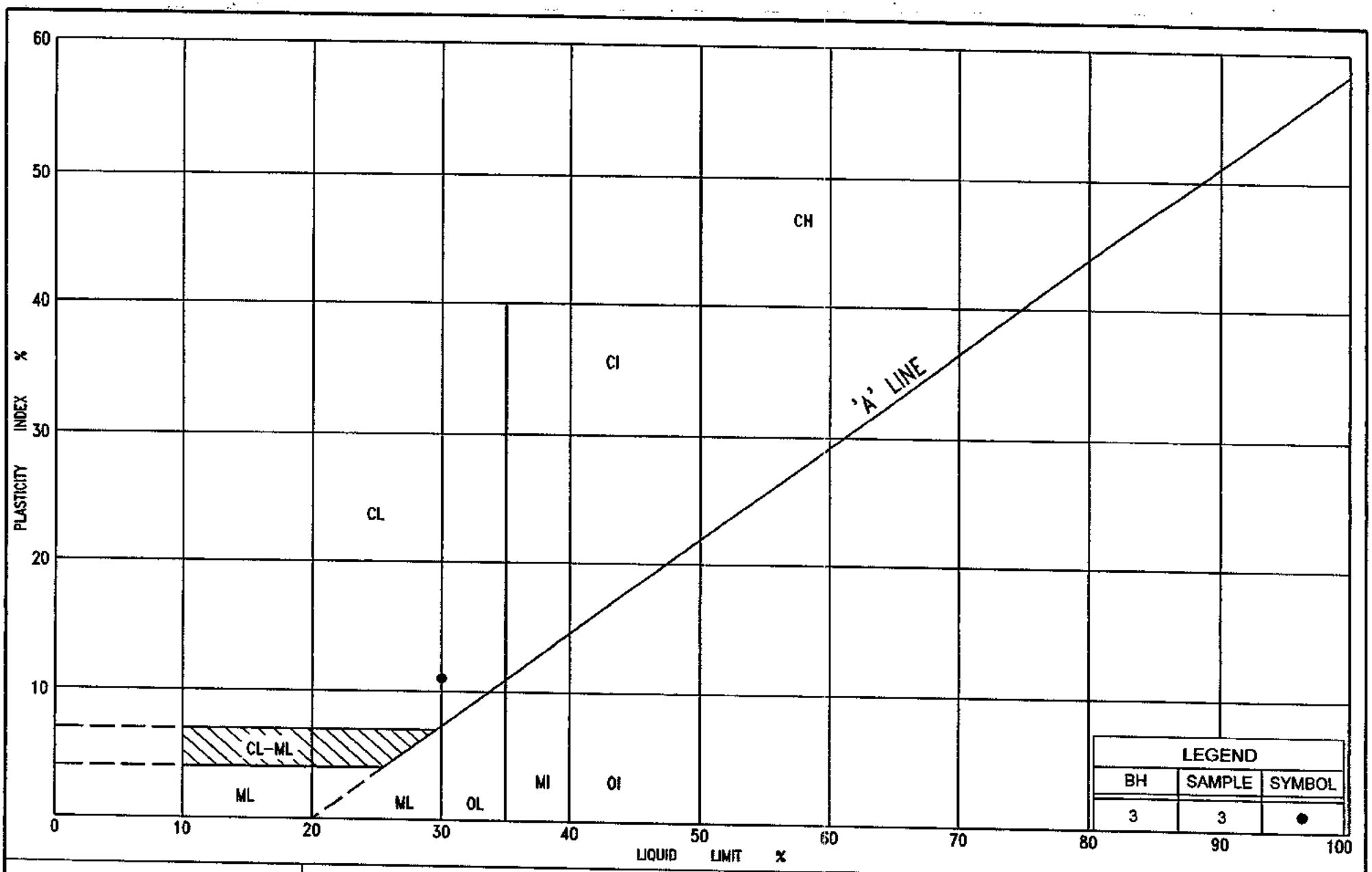
PARTICLE SIZE DISTRIBUTION CHART

PROJECT NO. 07TF007
FIGURE NO. GS-3



REMARKS: SAND AND GRAVEL: Sand and gravel, some silt

Borehole 17, Sample 20, Depth: 27.0 to 27.45m

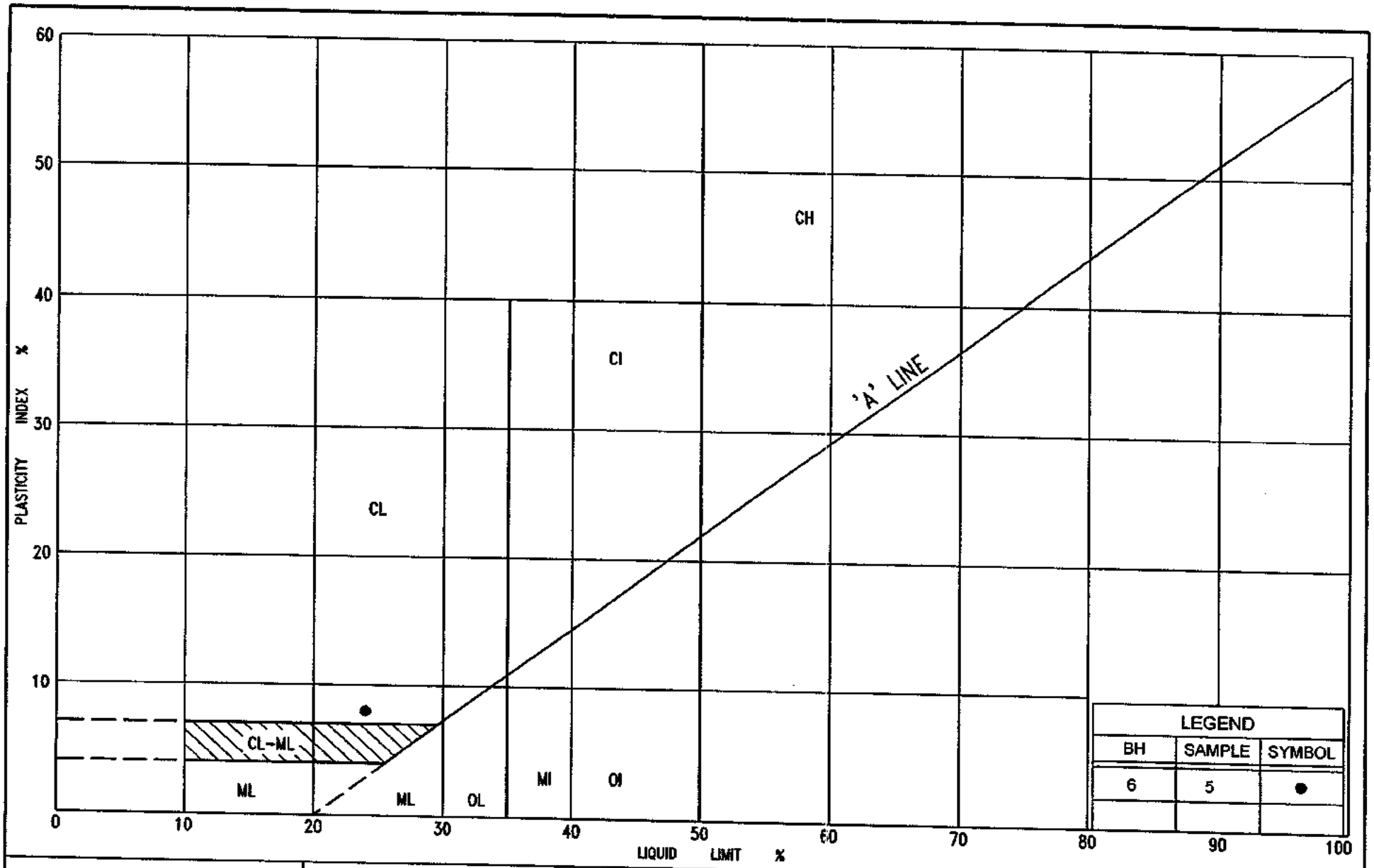


Peto MacCallum Ltd.
CONSULTING ENGINEERS

PLASTICITY CHART
CLAYEY SILT

FIG No. AL-1

Project No. 07TF007

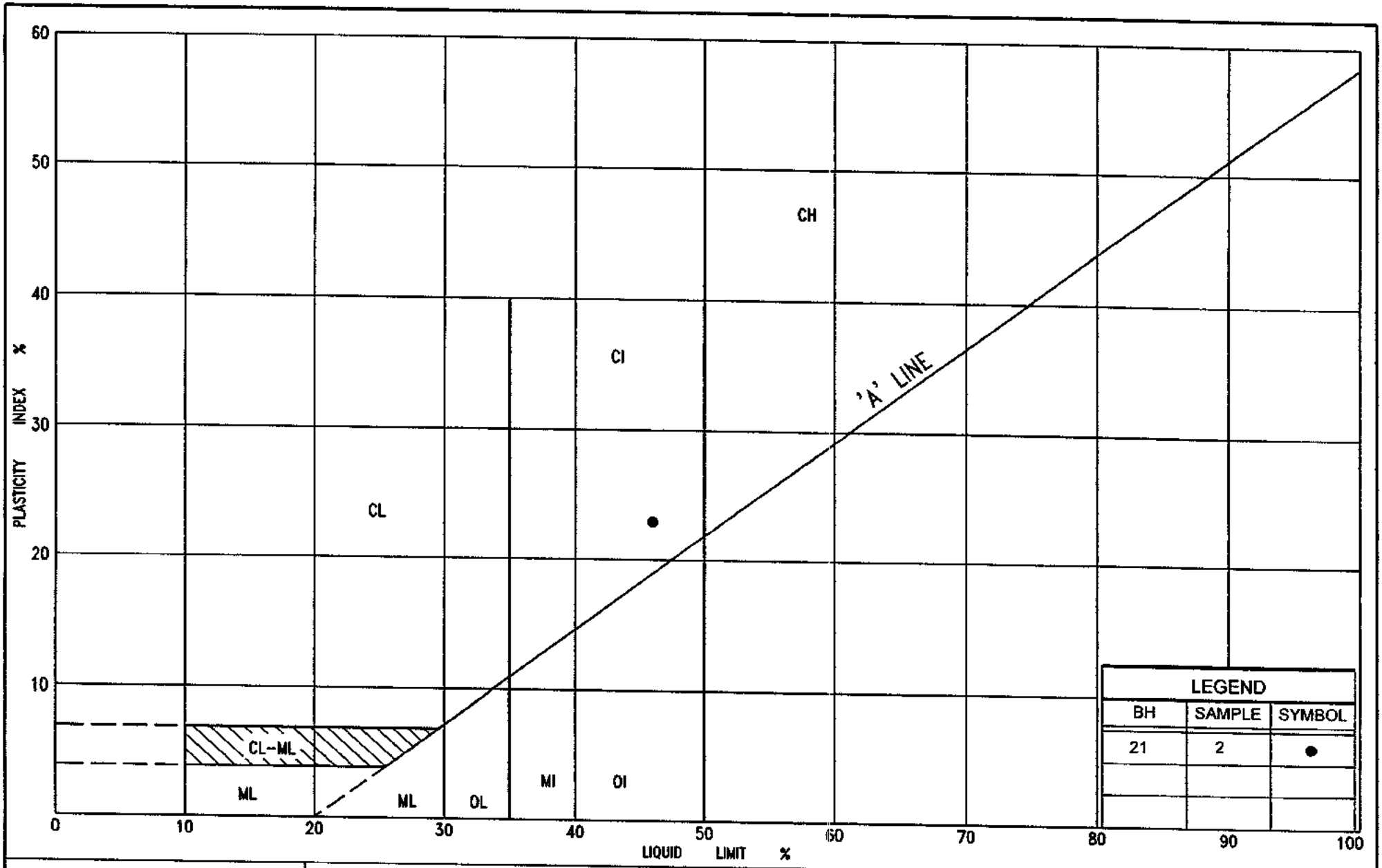


Peto MacCallum Ltd.
CONSULTING ENGINEERS

PLASTICITY CHART
CLAYEY SILT

FIG No. AL-2

Project No. 07TF007



Ministry of Transportation Ontario

PLASTICITY CHART

SILTY CLAY

FIG No. AL-3

Project No. 07TF007

ENGINEERED FILL

The information presented in this appendix is intended for general guidance only. Site-specific conditions and prevailing weather may require modification of compaction standards, backfill type or procedures. Each site must be discussed, and procedures agreed with Peto MacCallum Ltd. prior to the start of the earthworks and must be subject to ongoing review during construction. This appendix is not intended to apply to embankments. Steeply sloping ravine residential lots require special consideration.

For fill to be classified as engineered fill suitable for supporting structural loads, a number of conditions must be satisfied, including but not necessarily limited to the following:

1. Purpose

The site-specific purpose of the engineered fill must be recognized. In advance of construction, all parties should discuss the project and its requirements and agree on an appropriate set of standards and procedures.

2. Minimum Extent

The engineered fill envelope must extend beyond the footprint of the structure to be supported. The minimum extent of the envelope should be defined from a geotechnical perspective by:

- at founding level, extend a minimum 1.0 m beyond the outer edge of the foundations, greater if adequate layout has not yet been completed as noted below; and
- extend downward and outward at a slope no greater than 45° to meet the subgrade

All fill within the envelope established above must meet the requirements of engineered fill in order to support the structure safely. Other considerations such as survey control, or construction methods may require an envelope that is larger, as noted in the following sections.

Once the minimum envelope has been established, structures must not be moved or extended without consultation with Peto MacCallum Ltd. Similarly, Peto MacCallum Ltd. should be consulted prior to any excavation within the minimum envelope.

3. Survey Control

Accurate survey control is essential to the success of an engineered fill project. The boundaries of the engineered fill must be laid out by a surveyor in consultation with engineering staff from Peto MacCallum Ltd. Careful consideration of the maximum building envelope is required.

During construction it is necessary to have a qualified surveyor provide total station control on the three dimensional extent of filling.

APPENDIX A

ENGINEERED FILL

4. Subsurface Preparation

Prior to placement of fill, the subgrade must be prepared to the satisfaction of Peto MacCallum Ltd. All deleterious material must be removed and in some cases, excavation of native mineral soils may be required.

Particular attention must be paid to wet sub-grades and possible additional measures required to achieve sufficient compaction. Where fill is placed against a slope, benching may be necessary and natural drainage paths must not be blocked.

5. Suitable Fill Materials

All material to be used as fill must be approved by Peto MacCallum Ltd. Such approval will be influenced by many factors and must be site and project specific. External fill sources must be sampled, tested and approved prior to material being hauled to site.

6. Test Section

In advance of the start of construction of the engineered fill pad, the Contractor should conduct a test section. The compaction criterion will be assessed in consultation with Peto MacCallum Ltd. for the various fill material types using different lift thicknesses and number of passes for the compaction equipment proposed by the Contractor.

Additional test sections may be required throughout the course of the project to reflect changes in fill sources, natural moisture content of the material and weather conditions.

The Contractor should be particularly aware of changes in the moisture content of fill material. Site review by Peto MacCallum Ltd. is required to ensure the desired lift thickness is maintained and that each lift is systematically compacted, tested and approved before a subsequent lift is commenced.

7. Inspection and Testing

Uniform, thorough compaction is crucial to the performance of the engineered fill and the supported structure. Hence, all subgrade preparation, filling and compacting must be carried out under the full time inspection by Peto MacCallum Ltd.

All founding surfaces must be inspected and approved by Peto MacCallum Ltd. prior to placement of structural concrete.

8. Protection of Fill

Fill is generally more susceptible to the effects of weather than natural soil. Fill placed and approved to the level at which structural support is required must be protected from excessive wetting, drying, erosion or freezing. Where adequate protection has not been provided, it may be necessary to provide deeper footings or to strip and recompact some of the fill.

9. Construction Delay Time Considerations

The integrity of the fill pad can deteriorate due to the harsh effects of our Canadian weather. Hence, particular care must be taken if the fill pad is constructed over a long time period.

It is necessary therefore, that all fill sources are tested to ensure the material compactability prior to the soil arriving at site. When there has been a lengthy delay between construction periods of the fill pad, it is necessary to conduct subgrade proof rolling, test pits or boreholes to verify the adequacy of the exposed subgrade to accept new fill material.

When the fill pad will be constructed over a lengthy period of time, a field survey should be completed at the end of each construction season to verify the aerial extent and the level at which the compacted fill has been brought up to, tested and approved.

In the following spring, subexcavation may be necessary if the fill pad has been softened attributable to pounded surface water or freeze/thaw cycles.

A new survey is required at the beginning of the next construction season to verify that random dumping and/or spreading of fill has not been carried out at the site.

10. Approved Fill Pad Surveillance

It should be appreciated that once the fill pad has been brought to final grade and documented by field survey, there must be ongoing surveillance to ensure that the integrity of the fill pad is not threatened.

Grading operations adjacent to fill pads can often take place several months or years after completion of the fill pad.

It is imperative that all site management and supervision staff, the staff of Contractors and earthwork operators be fully aware of the boundaries of all approved engineered fill pads.

Excavation into an approved engineered fill pad should never be contemplated without the full knowledge, approval and documentation by the geotechnical consultant.

If the fill pad is knowingly built several years in advance of ultimate construction, the aerial limits of the fill pad should be substantially overbuilt laterally to allow for changes in possible structure location and elevation and other earthwork operations and competing interests on the site. The overbuilt distance required is project and/or site specified.

Iron bars should be placed at the corner,/intermediate points of the fill pad as a permanent record of the approved limits of the work for record keeping purposes.

11. Unusual Working Conditions

Construction of fill pads may at times take place at night and/or during periods of freezing weather conditions because of the requirements of the project schedule. It should be appreciated therefore, that both situations present more difficult working conditions. The Owner, Contractor, Design Consultant and Geotechnical Engineer must be willing to work together to revise site construction procedures, enhance field testing and surveillance, and incorporate design modifications as necessary to suit site conditions.

When working at night there must be sufficient artificial light to properly illuminate the fill pad and borrow areas.

Placement of material to form an engineered fill pad during winter and freezing temperatures has its own special conditions that must be addressed. It is imperative that each day prior to placement of new fill, the exposed subgrade must be inspected and any overnight snow or frozen material removed. Particular attention should be given to the borrow source inspection to ensure only non frozen fill is brought to the site.

The Contractor must continually assess the work program and have the necessary spreading and compacting equipment to ensure that densification of the fill material takes place in a minimum amount of time. Changes may be required to the spreading methods, lift thickness, and compaction techniques to ensure the desired compaction is achieved uniformly throughout each fill lift.

The Contractor should adequately protect the subgrade at the end of each shift to minimize frost penetration overnight. Since water cannot be added to the fill material to facilitate compaction, it is imperative that densification of the fill be achieved by additional compaction effort and an appropriate reduced lift thickness. Once the fill pad has been completed, it must be properly protected from freezing temperatures and ponding of water during the spring thaw period.

If the pad is unusually thick or if the fill thickness varies dramatically across the width or length of the fill pad, Peto MacCallum Ltd. should be consulted for additional recommendations. In this case, alternative special provisions may be recommended, such as providing a surcharge preload for a limited time or increase the degree of compaction of the fill.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

GEOENVIRONMENTAL AND HYDROGEOLOGICAL SITE INVESTIGATIONS GOREWAY DRIVE IMPROVEMENT BETWEEN BRANDON DRIVE AND STEELES AVENUE MISSISSAUGA AND BRAMPTON, ONTARIO

for

UMA ENGINEERING LIMITED

PETO MacCALLUM LTD.
165 CARTWRIGHT AVENUE
TORONTO, ONTARIO
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PML Ref.: 07TX014
July 19, 2007

Peto MacCallum Ltd.
CONSULTING ENGINEERS

July 19, 2007

PML Ref.: 07TX014

Mr. Greg Smith, P.Eng.
UMA Engineering Limited
5080 Commerce Boulevard
Mississauga, Ontario
L4W 2P2

Dear Mr. Greg

Draft Report
Geoenvironmental and Hydrogeological Site Investigations
Goreway Drive between Brandon Gate Drive and Steeles Avenue East
Mississauga/Brampton, Ontario

We are pleased to present our report of geoenvironmental and hydrogeological site investigations recently carried out for the above-referenced alignment. Mr. Greg Smith of UMA Engineering Limited authorized the work in a Subconsultant Agreement signed on February 14, 2007.

The subject site, approximately 1.25 km in length, is located on Goreway Drive between Brandon Gate Drive (in the City of Mississauga), Ontario and Steeles Avenue East in the City of Brampton, Ontario.

Our report of Phase I Environmental Site Assessment (Phase I ESA) was issued separately (Report 07TX014 dated May 25, 2007) under the same Subconsultant Agreement, and our report of geotechnical investigation (Report 07TF007 dated July 11, 2007) was also issued separately. Reference is made to these reports for details of the site historical background information and land use activities and exploratory boreholes and monitoring well installation.

For ease of reference the report's concluding remarks are reproduced as follows:

Site Geoenvironmental and Hydrogeological Conditions

Based on the findings of the current investigations and analyses, the geoenvironmental and hydrogeological conditions of the subject alignment are summarised as follows:

i) The soil stratigraphy underlying the subject alignment, as revealed in the boreholes, mainly comprised fine-grained deposits, including silty clay, clayey silt, sandy silt and silty sand, at shallow depths, and relatively coarse-grained deposits in deeper levels;

ii) Ground water levels in the monitoring wells were recorded between 2.54 and 4.54 m below ground surface and about elevations 169.0 m to 167.5 m;

iii) The ground water flows nearly southeasterly; and locally to the Mimico Creek tributary which influences the recharge and discharge and other ground water conditions;

iv) Except some elevated Sodium Adsorption Ratios (SARs), the environmental quality of the analyzed soil samples met the Ontario Standards for industrial/commercial/community land uses. The elevated levels of SAR in soils underlying the subject site are most likely indicative of the past use of deicing salt;

v) The environmental quality of the ground water samples taken from the selected monitoring wells and analyzed did not meet the applicable Standards.

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BARRIE, BRAMPTON, HAMILTON, KITCHENER, TORONTO

Construction Dewatering and Potential Impacts

Water takings in Ontario are governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation (O.Reg.387/04).

The Ministry of the Environment (MOE) Permit-To-Take-Water (PTTW) is classified using a risk based approach since all water takings do not pose the same level of risk in terms of causing adverse environmental impact or interference.

In accordance with the above-noted regulatory requirements and in compliance with the MOE's policy and PTTW Manual (April 2005), an application should be filed to the MOE for the subject project construction dewatering PTTW, if the dewatering discharge is greater than 50,000 l/day or about 0.6 l/s.

It is understood that the subject alignment will include a six-lane roadway construction and involve the widening of the roadway namely Goreway Drive. The culvert for Mimico Creek crossing the Goreway Drive will have to be extended. The design for culvert extension was not completed for construction dewatering considerations when this report was prepared.

However, according to the information provided by the Client, the footing elevation of the existing culvert is at 164.7 m; and the founding depth for the proposed overpass bridge foundation (caissons or piles may vary from 9.3 m to 12.5 m below the existing grade, deeper than the ground water level ranging from 3.62 m to 4.54 m below the existing grades.

Based on the above-noted proposed culvert extension and overpass foundation, construction may require ground water control measures by the contractor in compliance with the currently applicable regulatory requirements for construction dewatering discharge such as a PTTW if the flow rate is to be greater than 0.6 l/s and quality compliance with the Provincial Water Quality Objectives (PWQO) and sewer use by-law criteria.

It was considered in our geotechnical investigation report that conventional sump pumping may be adequate to manage the surface water in the Mimico Creek tributary and ground water seeping into the excavation areas.

According to a water well survey, no water well existed within 500 m radius of the subject alignment. Therefore, the construction dewatering will not have an adverse effect in this regard.

Based on the chemical analyses of ground water samples taken from the selected monitoring wells, the quality of ground water underlying the subject site did not meet the PWQO. However, if the contractor's construction dewatering scheme is associated with a sediment control measure by provision of a desilting pond, the quality of the ground water may improve significantly. This can be verified by a filtered ground water sample analysis.

It should be noted that new Peel Region Storm Sewer Use By-law and Sanitary Sewer Use By-law have gone into effect since July 1, 2007. The water discharged into the sanitary or storm sewer systems shall meet the requirements of the relevant revised by-law criteria. A sampling and testing program of the construction dewatering discharge should be conducted for such compliance.

Excess Excavated Soil

Based on the recent PML's geotechnical report, the existing fill and native clayey silt and silty clay soils can be re-used as backfill except the topsoil or other obviously unsuitable materials. Therefore, a soil management plan should be considered for the excavated unsuitable soils. Based on the soil sample testing results, the soils underlying the subject alignment may have been impacted by the past use of deicing salt. The excavated excess soils cannot be disposed of on lands that would involve crop production because the soils with elevated SAR will inhibit growth. It is recommended that the excess soil be hauled to commercial or industrial site; and before disposal, a composite sampling and testing program be conducted to verify the actual soil environmental quality.

This report should be read in conjunction with a Statement of Limitations enclosed.

We trust you will find this report complete within our terms of reference. Should you have any questions or when we may be of further service during the next phases of the project, please do not hesitate to contact this office.

Sincerely

Peto MacCallum Ltd.

Mori H. Mortazavi, MEng, P.Eng., P.Geo.
Manager and Chief Engineer
Geoenvironmental and
Hydrogeological Services

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ENCLOSURES

1. INTRODUCTION

Peto MacCallum Ltd. was retained by UMA Engineering Limited (the Client) on behalf of the City of Brampton, Ontario to carry out a program of geoenvironmental and hydrogeological site investigations and analyses to address excess soils disposal and ground water discharge during construction as well as permanent dewatering subdrain installation at the CN and Mimico Creek crossings and storm sewer reconstruction in compliance with the Ontario Site Condition Standards and Permit-To-Take-Water requirements for the site located at Goreway Drive between Brandon Gate Drive (Mississauga, Ontario) and Steeles Avenue East (Brampton, Ontario).

Moreover, as requested separately by UMA, a Phase I Environmental Site Assessment (Phase I ESA) was conducted for the subject alignment right-of-way and a report of Phase I ESA was separately issued (Report 07TX014 dated May 25. 2007); and our report of geotechnical investigation (Report 07TF007 dated July 11, 2007) was also issued separately. Reference is made to these reports for details of the site historical background information and land use activities and exploratory boreholes and monitoring well installation.

1.1 Site Location and Project Description

The subject site is an approximately 1.25 km alignment of Goreway Drive between Brandon Gate Drive and Steeles Avenue and is located at the boundary of the Cities of Brampton and Mississauga in Ontario, where the Canadian National (CN) railway tracks and a Mimico Creek East Branch tributary cross the subject alignment.

The City of Brampton contemplates a six-lane cross section roadway reconstruction and the replacement of the existing crossing with an over-pass grade separation at CN railway/Goreway Drive. Since the Goreway Drive also crosses a tributary of Mimico Creek, the crossing structure would have to be replaced or extended. For the construction of the extended crossing, and the associated permanent dewatering and storm sewer facilities, a Class Environmental Assessment Study and Detailed Design are required to be supported by geotechnical and hydrogeological data.

1.2 Purpose and Scope of Work

It is understood that geoenvironmental and hydrogeological site conditions should be assessed for the following concerns:

- Existing (baseline) environmental quality of soils and ground water underlying the subject alignment and proposed grade separation location based on site background/historical review and a program of sampling and chemical analyses;
- Ground water conditions, construction and permanent dewatering needs particularly at the grade separation and creek crossing locations;
- Potential short-term and long-term impacts of the proposed improvements on the existing and functional water wells identified through a review of the Ministry of the Environment (MOE) water well records and a field water well survey, and
- Potential impact of the proposed improvements on the Mimico Creek baseflow.

Based on our experience with similar assignments and in compliance with the applicable regulatory requirements, the geoenvironmental and hydrogeological site investigations involved the following tasks:

Task 1: Conduct a site background/historical review of the site information, reports and documents compiled to date to identify potential sources of contamination which may have impacted soils and ground water underlying the subject site,

Task 2: Review the proposed improvement conceptual drawings to estimate the scope of earthwork operations,

Task 3: Review the site setting drawings, and the MOE's records of water wells in the vicinity of the project area and conduct a field survey of the existing and functional wells within 500m of the proposed improvements,

Task 4: Review the geotechnical borehole locations to select among them five hydrogeological boreholes and install 50 mm diameter clean screened pipes for ground water sampling, and ground water level monitoring,

Task 5: Conduct chemical analyses on representative soil and ground water samples for parameters/substances related to the Task 1 findings,

Task 6: Evaluate the site setting and background information, field and laboratory data, prepare a hydrogeological site conceptual model consisting of a ground water level contour map, and assess potential impacts on the existing and functional water wells and Mimico Creek baseflow, and

Task 7: Prepare a geoenvironmental and hydrogeological site assessment report including factual data, our interpretation of the site conditions and recommendations on dewatering needs and potential impacts, if any, and remedial measures, if required.

During the course of conducting the above-noted tasks, the selection of CN railway/Goreway Drive grade separation alternatives namely an overpass or an underpass were evaluated by UMA and the City, and an overpass was selected. As a result, some of the tasks relating to hydrogeological site investigation were modified since the construction dewatering needs were consequently reduced.

The following sections describe the tasks we completed in accordance with the modified scope of our assignment.

2. SITE BACKGROUND REVIEW AND WATER WELL SURVEY

To assess the site physiographic, geologic and hydrogeologic settings of the subject alignment, the following documents were reviewed:

i) Ontario Base Map of 1982 air-photography, published in 1983 by the Ministry of Natural Resources

ii) Toronto and Region Conservation Authority Jurisdiction Watersheds Map issued by Toronto and Region Conservation Authority (TRCA)

iii) The MOE water well records in the vicinity of the subject alignment

iv) The Physiography of Southern Ontario Map, published in 1984 by the Ministry of Natural Resources

v) The Bedrock Geology of Ontario Map, published in 1991 by the Ministry of Northern Development and Mines

vi) The Quaternary Geology of Toronto and Surrounding Area Map, published in 1980 by the Ministry of Natural Resources

vii) Previous geotechnical reports prepared by Peto MacCallum in 1997

The findings of our review are outlined in the following sections:

2.1 Site Physiographic, Geologic and Hydrogeologic Settings

The study site is located within a physiographic region of Peel Plain which is a level-to-undulating tract of clay soils (Chapman, L.J. and Putnam, D.F.1984, The Physiography of Southern Ontario, Ministry of Natural Resources). The underlying geological material of the plain is a till containing large amounts of shale and limestone.

The bedrock geology of Ontario revealed that the bedrock in this area comprises Upper Ordovician Queenston Formation of shale, limestone, dolostone and siltstone (Bedrock Geology of Ontario, 1991 Ministry of Northern Development and Mines, Map 2544). According to the MOE water well records in the vicinity of the subject alignment, three wells were drilled into shale bedrock in depths ranging from 74 to 89 feet (22.6 to 27.1 m) below ground surface.

According to Quaternary Geology of Toronto and Surrounding Area Map, (Ministry of Natural Resources, Preliminary Map 2204 dated 1980), the overburden (unconsolidated deposits) primarily consist of clayey silt till.

A geotechnical investigation was conducted near the subject site in 1997 by Peto MacCallum and ten boreholes, 5 to 6.5 m deep, revealed the overburden comprised 0.1 to 0.15 m surficial topsoil, silty clay till that extended to an average depth of 2.3 m, and cohesionless soils that included sandy silt, silty sand, gravelly sand and sandy silt till. Ground water was found in the cohesionless soil layer in all the boreholes at depths ranging from 1.5 to 2.4 m.

The subject site is located within the Mimico Creek watershed. The Mimico Creek meanders southeasterly and drains eventually into Lake Ontario.

2.2 MOE Water Well Records and Water Well Survey Information

The MOE water well records in the vicinity of the subject alignment revealed that ground water was found in both unconsolidated deposits and bedrock, and the water levels ranged from 0.9 m to 10.8 m below grades. The pump rates for the wells constructed in the overburden were tested to be less than 5 gallon per minute (0.3 l/s).

A water well survey was conducted within 500 m radius of the subject alignment and no water wells existed.

2.2.1 Ground Water Hydrostatic Level Contour Map

A ground water hydrostatic level contour map as shown on Figure 1 was produced based on the MOE's water well records; and accordingly the ground water flow direction was interpreted easterly and controlled by Mimico Creek. A copy of the MOE's water well records, with our designated numbers, is included in Appendix 1.

2.3 Summary of Phase I ESA Findings

A Phase I Environmental Site Assessment (ESA) was conducted by PML, and the findings that were separately reported (Report 07TX014 dated May 25, 2007) are summarised as follows:

The subject alignment was historically used as a traffic road since 1940s. The possibility of the contamination of soils and ground water underlying the subject site may not be excluded however due to the vehicular traffic and railway for a few decades.

The soils and ground water underlying the subject alignment may likely have been impacted locally by the elevated concentrations of heavy metals, petroleum products, PAHs, creosote and salt. Considering that the subject site will still be used for traffic purposes, the environmental concerns are considered insignificant.

It was also mentioned in the Phase I ESA report that for due diligence purposes, a program of limited sampling and chemical testing would be required for appropriate management of excess excavated soils prior to the construction and disposal/reuse.

3. SUMMARISED SUBSURFACE CONDITIONS

Together with the geoenvironmental and hydrogeological site investigations, a geotechnical investigation was also conducted by PML on the subject alignment, and a report (Report 07TF007 dated July 11, 2007) was issued separately. Nineteen boreholes were drilled and soil samples were taken at regular intervals for geotechnical visual observation and analyses. A total of five monitoring wells, each with 50 mm diameter screened PVC pipes, were installed for ground water level measurement and ground water sampling.

Reference is made to the above-noted report of geotechnical investigation for details of the field work, including borehole locations, log sheets, soil classification, inferred stratigraphy, standard penetration test N-values and ground water observations recorded during drilling.

3.1 Soil Stratigraphy

The soil stratigraphy as revealed in different boreholes generally comprised fine-grained deposits, including silty clay, clayey silt, sandy silt and silty sand, at shallow depths, and relatively coarse-grained deposits at deeper levels. Borehole 17, which was the deepest borehole (drilled down to 30.95 m), exposed relatively coarse-grained deposits comprising sand and gravel from 24.40 m to 30.95 m, whereas borehole 14 terminated in silt at 21.6 m below existing grades.

3.2 Ground Water Conditions

3.2.1 Ground Water Strike

The ground water strike namely the first ground water level encountered during drilling of the boreholes and ground level measured after drilling are summarised in the appended Table 1. The water strike occurred at depths ranging from 2.3 m to 4.9 m below the existing grades, and primarily in sandy silt soil, and some in silt, silty sand, sand and clayey silt soils.

3.2.2 Ground Water Level in Boreholes After Drilling

The free water, namely the hydrostatic ground water level, was observed in boreholes after drilling at depths which varied from 0.4 m in borehole 21 to 6.0 m in borehole 6. Although a water strike was observed in boreholes 14, 17 and 22, no free water was observed in those boreholes due to insufficient ground water seepage into the boreholes.

3.2.3 Ground Water in Monitoring Wells

Five monitoring wells screened at selected depths were installed in boreholes 5, 6, 11, 15 and 22 for water level monitoring and ground water sampling. Ground water level was measured in the monitoring wells on June 19, 2007. The well construction and ground water levels are summarised in the appended Log of Borehole Sheets and Table 2, respectively.

The measured ground water level ranged from 2.54 m to 4.54 m below the existing grades or in elevation from 169.0 m to 167.5 m. As the well screens in boreholes 6, 11, 15 and 22 were extended above and below the water strike, the measured water levels were considered to be representative of the screened aquifers. For borehole 5, the screen was installed just beneath the water strike, and thus the measured water level represents the deep aquifer.

Considering the soil stratigraphy, the depths of the screened zones and the measured ground water levels, the ground water in boreholes 5, 6 and 11 was interpreted to be pressurised.

As discussed in Section 2.2.1, ground water was interpreted to flow easterly according to the MOE water well records. As the monitoring wells were located linearly along the subject alignment, no accurate flow direction could be interpreted. However, based on the observed ground water levels in the monitoring wells, ground water level appeared to drop from northwest to southeast along the subject alignment, with the exception observed in borehole 6. The exception could be due to the existence of a tributary of Mimico Creek as borehole 6 is located very close to the tributary. The southeaster direction of the ground water flow roughly inferred is similar to the direction of the Creek flow, draining into Lake Ontario.

Generally, an aquifer, which produces water in subsurface, is formed when it is recharged by sources of water, such as rainfall or other form of precipitation, rivers, pond or other water bodies

and from other adjacent aquifers. Ground water conditions are very much related to the aquifer recharge and discharge conditions.

As shown on Figure 1, a tributary of Mimico Creek crosses the subject alignment and consequently influences the recharge and discharge of the shallow aquifer and thus the ground water conditions. Considering the topographic landscape, the bottom elevation of the creek valley (167.1 m), and the observed water levels in the monitoring wells, it is believed that the ground water is discharged locally into the creek, especially in the area close to the creek. Moreover, ground water may be replenished (recharged) by the creek in flooding seasons.

4. CHEMICAL TESTING

4.1 Chemical Testing Protocol

During drilling for geotechnical investigation, soil samples were taken and stored in PML's laboratories Based on the Phase I ESA findings and considering the scope of excavation for the proposed overpass construction, representative soil samples were selected for chemical analyses. Two monitoring wells were selected for sampling and chemical testing of ground water. The soil samples and ground water samples were submitted to AGAT for chemical analysis. AGAT is accredited by The Canadian Association of Environmental Analytical Laboratories. Copies of Chain of Custody Record for soil and ground water samples are attached in Appendix B.

Soil Samples

Soil samples were selected from boreholes 8, 9, 12, 14, 15, 17 and 21 for chemical analyses:

- Seven soil samples were analyzed for selected trace metals, sodium adsorption ratio (SAR) and electrical conductivity (EC) and pH listed in the Ontario Regulation 153 /04 Table 3.
- Three soil samples were analyzed for petroleum hydrocarbon fractions F1 through F4 (F1 – F4), PAHs and PCBs listed in the Ontario Regulation 153/04 Table 3.

Ground Water Samples

Ground water samples were taken from boreholes 6 and 15 on June 25, 2007 for selected Provincial Water Quality Objectives (PWQO) and Peel Region Storm Sewer Use By-law criteria.

- Two ground water samples taken from boreholes 6 and 11 were analyzed for water quality assessment including selected trace metals, pH, EC, Langelier Index, total dissolved solids (TDS), total hardness, alkalinity, hydroxide, anions, total organic carbon, total phosphorous, reactive silica, colour, and turbidity.
- One ground water sample taken from borehole 6 was analyzed for the parameters specified in the applicable Peel Region Storm Sewer Use By-law. The tested parameters, excluding organic parameters, include pH, total suspended solid (TSS), fecal coliforms, and trace metals.

Quality Assurance and Quality Control (QA/QC)

Soil and ground water samples were analysed by using standard reference methods and the testing methods were referenced in AGAT Certificate of Analysis as required by the MOE protocol. The lab QA/QC methods including method blank, matrix spike, duplicate and reference material measures were applied for chemical analysis of the soil samples.

All the chemical test data for the QA/AC samples were within the relevant statistically determined control limits. The QA/QC data are included in the AGAT Certificate of Analysis.

4.2 Findings of Chemical Test Results

Soil Samples

The analytical results for soil samples were compared with the applicable Site Condition Standards: Ontario Regulation 153/04, Generic Site Condition Standards for industrial/commercial/community land uses in a non-potable ground water condition for medium to fine textured soils.

Based on the analytical data and the MOE Standards, the measured concentrations of trace metals, EC, F1-F4, PAHs and PCBs for all the measured samples were either undetectable or below the levels of concentrations for the parameters specified in the applicable MOE's Standards, indicating that the quality of analyzed soil samples met the Standards.

Elevated levels of Sodium Adsorption Ratio (SAR) were identified in three soil samples. The samples taken from 1.5 to 1.95 m from boreholes 12 and 17, and 0 to 0.6 m from borehole 21 contained SARs of 12.9, 32.7 and 17.9 respectively, exceeding the Standard value of 12.0.

Ground Water Samples

The analytical results of ground water samples were compared with the PWQO and the applicable Peel Region Storm Sewer Use By-law criteria, as summarized on Table 3 and in appendix B.

Based on the above-noted comparison, both samples from boreholes 6 and 15 contained elevated levels of Boron (B), Chromium (Cr), Iron (Fe) and Vanadium (V), and the sample from borehole 6 had elevated levels of Copper (Cu), Lead (Pb) and Uranium (U).

The analytical data for applicable Peel Region Storm Sewer Use By-law criteria indicated that the sample from borehole 6 contained elevated levels of total suspended solids (TSS), total copper (Cu) and total zinc (Zn).

5. CONCLUDING REMARKS

5.1 Site Geoenvironmental and Hydrogeological Conditions

Based on the findings of the current investigations and analyses, the geoenvironmental and hydrogeological conditions of the subject alignment are summarised as follows:

vi) The soil stratigraphy underlying the subject alignment, as revealed in the boreholes, mainly comprised fine-grained deposits, including silty clay, clayey silt, sandy silt and silty sand, at shallow depths, and relatively coarse-grained deposits in deeper levels;

vii) Ground water levels in the monitoring wells were recorded between 2.54 and 4.54 m below ground surface and about elevations 169.0 m to 167.5 m;

viii) The ground water flows nearly southeasterly; and locally to the Mimico Creek tributary which influences the recharge and discharge and other ground water conditions;

ix) Except some elevated Sodium Adsorption Ratios (SARs), the environmental quality of the analyzed soil samples met the Ontario Standards for industrial/commercial/community land uses. The elevated levels of SAR in soils underlying the subject site are most likely indicative of the past use of deicing salt;

x) The environmental quality of the ground water samples taken from the selected monitoring wells and analyzed did not meet the applicable Standards.

5.2 Construction Dewatering and Impacts

Water takings in Ontario are governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation (O.Reg.387/04).

The Ministry of the Environment (MOE) Permit-To-Take-Water (PTTW) is classified using a risk based approach since all water takings do not pose the same level of risk in terms of causing adverse environmental impact or interference.

In accordance with the above-noted regulatory requirements and in compliance with the MOE's policy and PTTW Manual (April 2005), an application should be filed to the MOE for the subject project construction dewatering PTTW, if the dewatering discharge is greater than 50,000 l/day or about 0.6 l/s.

It is understood that the subject alignment will include a six-lane roadway construction and involve the widening of the roadway namely Goreway Drive. The culvert for Mimico Creek crossing the Goreway Drive will have to be extended. The design for culvert extension was not completed for construction dewatering considerations when this report was prepared.

However, according to the information provided by the Client, the footing elevation of the existing culvert is at 164.7 m; and the founding depth for the proposed overpass bridge foundation

(caissons or piles may vary from 9.3 m to 12.5 m below the existing grade, deeper than the ground water level ranging from 3.62 m to 4.54 m below the existing grades.

Based on the above-noted proposed culvert extension and overpass foundation, construction may require ground water control measures by the contractor in compliance with the currently applicable regulatory requirements for construction dewatering discharge such as a PTTW if the flow rate is to be greater than 0.6 l/s and quality compliance with the Provincial Water Quality Objectives (PWQO) and sewer use by-law criteria.

It was considered in our geotechnical investigation report that conventional sump pumping may be adequate to manage the surface water in the Mimico Creek tributary and ground water seeping into the excavation areas.

According to a water well survey, no water well existed within 500 m radius of the subject alignment. Therefore, the construction dewatering will not have an adverse effect in this regard.

Based on the chemical analyses of ground water samples taken from the selected monitoring wells, the quality of ground water underlying the subject site did not meet the PWQO. However, if the contractor's construction dewatering scheme is associated with a sediment control measure by provision of a desilting pond, the quality of the ground water may improve significantly. This can be verified by a filtered ground water sample analysis.

It should be noted that new Peel Region Storm Sewer Use By-law and Sanitary Sewer Use By-law have gone into effect since July 1, 2007. The water discharged into the sanitary or storm sewer systems shall meet the requirements of the relevant revised by-law criteria. A sampling and testing program of the construction dewatering discharge should be conducted for such compliance.

5.3 Excess Excavated Soil

Based on the recent PML's geotechnical report, the existing fill and native clayey silt and silty clay soils can be re-used as backfill except the topsoil or other obviously unsuitable materials. Therefore, a soil management plan should be considered for the excavated unsuitable soils.

Based on the soil sample testing results, the soils underlying the subject alignment may have been impacted by the past use of deicing salt. The excavated excess soils cannot be disposed of on lands that would involve crop production because the soils with elevated SAR will inhibit growth. It is recommended that the excess soil be hauled to commercial or industrial site; and before disposal, a composite sampling and testing program be conducted to verify the actual soil environmental quality.

6. STATEMENT OF LIMITATIONS

A Statement of Limitations is included in Appendix C that should be read in conjunction with this report.

Sincerely

Peto MacCallum Ltd.

Bujing Guan, MASc, P.Geo.
Project Geoscientist

Mori H. Mortazavi, MEng, P.Eng., P.Geo.
Manager and Chief Engineer
Geoenvironmental and
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TABLE 1

SUMMARY OF GROUND WATER STRIKE AND FREE WATER OBSERVATIONS DURING AND AFTER DRILLING BOREHOLES

BOREHOLE NO.	GROUND ELEVATION (m)	GROUND WATER STRIKE (m)*			FREE WATER (m)	
		SOIL TYPE	ELEVATION	DEPTH	ELEVATION	DEPTH
BH1	175.4	-	-	-	No free water	
BH2	174.4	Sandy silt	171.5	2.9	170.9	3.5
BH3	173.5	Sandy silt	170.7	2.8	170.3	3.0
BH4	172.7	-	-	-	No free water	
BH5	171.6	Sandy silt	169.3	2.3	167.6	4.0
BH6	170.2	Sandy silt	165.6	4.6	164.2	6.0
BH7	170.3	-	-	-	No free water	
BH8	171.1	Sandy silt	168.5	2.6	168.2	2.9
BH9	171.2	Sandy silt	168.6	2.6	168.6	2.6
BH10	171.7	Sandy silt	168.9	2.8	168.6	3.1
BH11	172.0	Silt	168.6	3.4	168.1	3.9
BH12	172.2	Silt	167.8	4.4	168.4	3.8
BH14	172.2	Silty sand	167.7	4.5	No free water	
BH15	172.2	Sandy silt	167.6	4.6	168.3	3.9
BH17	172.2	Silty sand	168.5	3.7	No free water	
BH18	172.2	Sandy silt	168.8	3.4	No free water	
BH19	172.1	Clayey silt	167.6	4.5	168.1	4.0
BH21	172.2	Sand	167.4	4.8	171.8	0.4
BH22	171.4	Silty sand	166.5	4.9	No free water	

Note:

* The ground water strike was interpreted according to the moisture of soil samples.

\- The observed and recorded data were not sufficient to interpret the ground water strike.

TABLE 2

SUMMARY OF GROUND WATER LEVEL MEASURED IN MONITORING WELLS

BOREHOLE NO.	GROUND SURFACE ELEVATION (m)	WELL TYPE	MONITORING WELL CONSTRUCTION			GROUND WATER STRIKE (m)		GROUND WATER LEVEL (m) MEASURED ON JUNE 19, 2007	
			Screen Depth (m)	Soil Type	Elevation	Depth	Depth	Elevation	Depth
BH5	171.6	50 mm PVC	3.0 ~ 4.5 m	Silty clay	167.85	169.06	2.54	169.06	2.54
BH6	170.2	50 mm PVC	4.5 ~ 7.5 m	Sandy silt and clayey silt	164.2	167.48	2.72	167.48	2.72
BH11	172.0	50 mm PVC	3.0 ~ 4.5 m	Silt and silty sand	168.25	168.38	3.62	168.38	3.62
BH15	172.2	50 mm PVC	6.0 ~ 9.0 m	Sandy silt and clayey silt	164.7	167.66	4.54	167.66	4.54
BH22	171.4	50 mm PVC	3.0 ~ 4.5 m	Silty sand	167.65	167.50	3.9	167.50	3.9

TABLE 3

SUMMARY OF GROUND WATER SAMPLE ANALYTICAL RESULTS

PARAMETER	UNIT	PWQO [1]	BH6	BH15
Electrical Conductivity (EC)	µS/cm	N/A	13800	9990
pH	N/A [2]	N/A	7.10	7.42
Saturation pH	N/A	N/A	5.92	6.22
Langelier Index	N/A	N/A	1.18	1.20
Total Dissolved Solids	mg/L	N/A	9670	6750
Total Hardness (as $CaCO_3$)	mg/L	N/A	2500	1310
% difference/ion balance	%	N/A	2.7	1.3
Alkalinity (as $CaCO_3$)	mg/L	N/A	385	364
Bicarbonate (as $CaCO_3$)	mg/L	N/A	385	364
Carbonate (as $CaCO_3$)	mg/L	N/A	< 10	< 10
Hydroxide	mg/L	N/A	< 10	< 10
Fluoride	mg/L	N/A	<5.0	<5.0
Chloride	mg/L	N/A	5000	3190
Bromide	mg/L	N/A	<5.0	<5.0
Nitrate as N	mg/L	N/A	<5.0	<5.0
Nitrite as N	mg/L	N/A	<5.0	<5.0
Sulphate	mg/L	N/A	493	462
Orthophosphate as P	mg/L	N/A	<10	<10
Total Phosphorous	mg/L	N/A	1.69	0.14

TABLE 3

SUMMARY OF GROUND WATER SAMPLE ANALYTICAL RESULTS

PARAMETER	UNIT	PWQO [1]	BH6	BH15
Ammonia (as N)	mg/L	N/A	1.48	0.11
Total Organic Carbon	mg/L	N/A	13.1	4.6
Reactive Silica	mg/L	N/A	20.5	10.8
Colour	Colour Units	N/A	<5	<5
Turbidity	NTU	N/A	12	10
Calcium	mg/L	N/A	755	419
Magnesium	mg/L	N/A	149	63
Sodium	mg/L	N/A	2310	1790
Potassium	mg/L	N/A	9.8	8.29
Aluminum	mg/L	N/A	1.33	0.421
Arsenic	mg/L	0.005	< 0.003	< 0.003
Barium	mg/L	N/A	0.333	0.342
Boron	mg/L	0.2	**0.09** [3]	**0.05**
Cadmium	mg/L	0.0005 (when hardness as $CaCO_3$ (mg/L) > 100)	< 0.002	< 0.002
Chromium	mg/L	0.001 for Cr^{4+}; 0.0089 for Cr^{3+}	**0.012**	**0.008**
Copper	mg/L	0.005 (when hardness as $CaCO_3$ (mg/L) > 20)	**0.009**	0.003
Iron	mg/L	0.3	**10.4**	**1.78**

TABLE 3

SUMMARY OF GROUND WATER SAMPLE ANALYTICAL RESULTS

PARAMETER	UNIT	PWQO [1]	BH6	BH15
Lead	mg/L	0.005 (when hardness as $CaCO_3$ (mg/L) > 80)	**0.006**	< 0.002
Manganese	mg/L	N/A	3.06	1.56
Mercury	mg/L	0.0002	< 0.0001	< 0.0001
Molybdenum	mg/L	0.04	0.008	< 0.002
Nickel	mg/L	0.025	< 0.003	< 0.003
Selenium	mg/L	0.1	< 0.004	< 0.004
Silver	mg/L	0.0001	< 0.002	< 0.002
Strontium	mg/L	N/A	4.83	1.80
Thallium	mg/L	0.0003	< 0.006	< 0.006
Titanium	mg/L	N/A	0.03	0.019
Uranium	mg/L	0.005	**0.005**	0.003
Vanadium	mg/L	0.006	**0.028**	**0.023**
Zinc	mg/L	0.	0.015	< 0.005

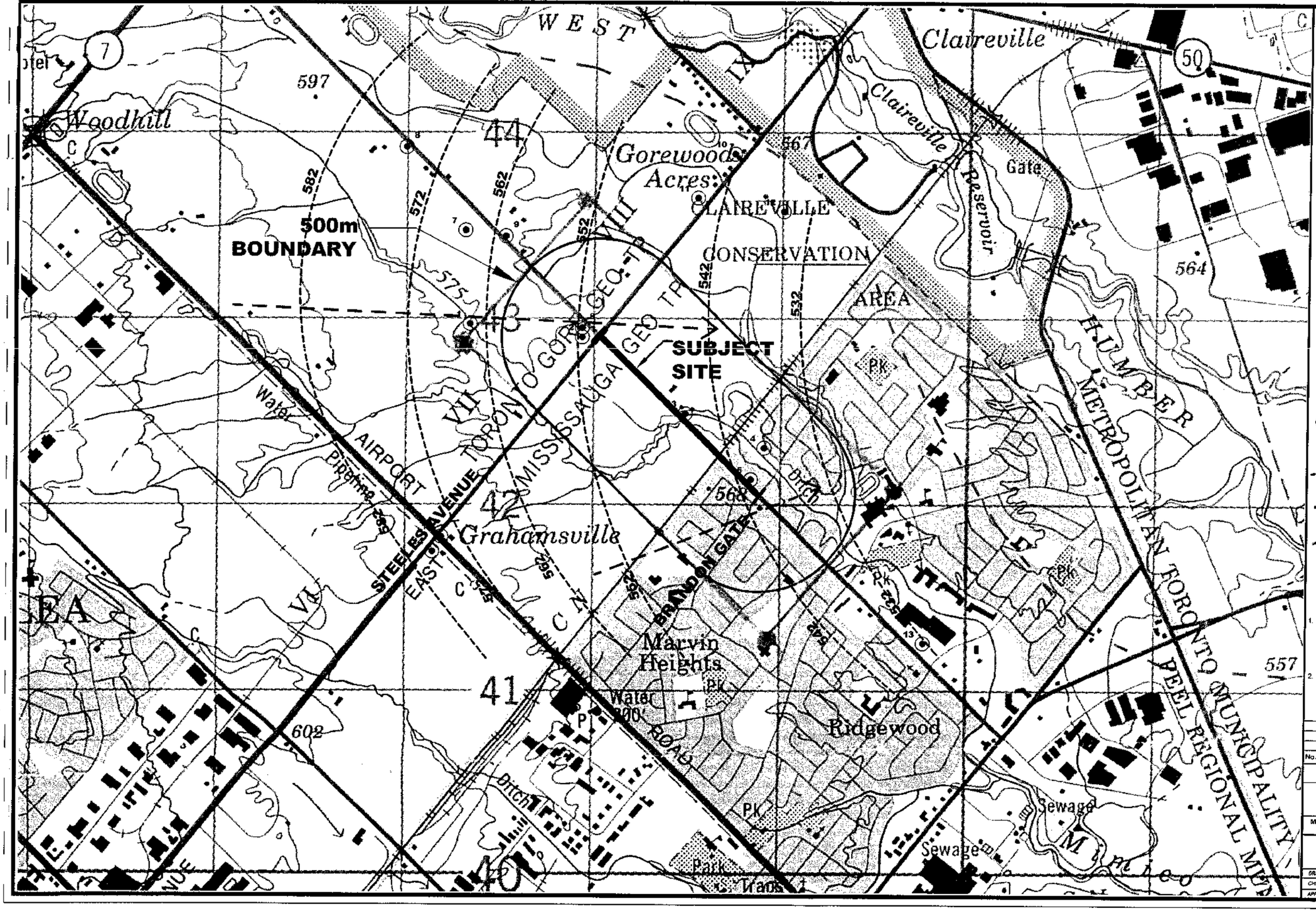
Note:
(1) PWQO: Provincial Water Quality Objectives
(2) N/A : not available
(3) **0.9** : Values in bold font exceed the PWQO

CLIENT: **UMA ENGINEERING LTD.**

KEY MAP

PROJECT: **GOREWAY DRIVE IMPROVEMENT**
BETWEEN BRANDON GATE AND STEELES AVENUE EAST
BRAMPTON, ONTARIO

DRAWN BY: N.A.	DATE: JULY 2007	PROJECT NUMBER: 07TX014
CHECKED BY: B.G.	SCALE: 1 : 16,000	FIGURE NO: 1
APPROVED BY: M.H.M.		



NOTES:

1. THIS DRAWING WAS PREPARED FROM DRAWING No. 30 M12, EDITION 5 "BRAMPTON - ONTARIO", PRODUCED BY THE SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES, FROM AERIAL PHOTOGRAPHS TAKEN IN 1976. CULTURE CHECK 1976, PUBLISHED IN 1979. (GEODETIC ELEVATIONS ARE IN FEET).
2. SEE APPENDIX 'A' FOR THE MOE WELL RECORDS AND THEIR DESIGNATED NUMBERS.

No.	REVISIONS	DATE	BY

THE CORPORATION OF THE CITY OF BRAMPTON
C/O UMA ENGINEERING LIMITED

HYDROGEOLOGICAL SITE ASSESSMENT
GOREWAY DRIVE IMPROVEMENT
BRAMPTON, ONTARIO

MOE WELL LOCATION PLAN, GROUNDWATER LEVEL CONTOURS AND FLOW DIRECTION

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: N.A.	DATE	SCALE	JOB NO.	FIGURE NO.
CHECKED: JBO/BG	JULY 2007	1 : 20,000	07TX014	2
APPROVED: M.H.M.				

STEELES AVENUE

GOREWAY DRIVE

MATCH LINE
REFER DRAWING 2

BH 1
EL.175.4

BH 2
EL.174.4

BH 3
EL.173.5

LEGEND:

BH 3
EL.173.5
BOREHOLE

NOTES:

1. THE INFERRED STRATIGRAPHY REFERRED TO IN THIS REPORT IS BASED ON DATA FROM THESE BOREHOLES, SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY AT OTHER POINTS BETWEEN THE BORINGS MAY VARY FROM THAT SHOWN.
2. THIS DRAWING WAS REPRODUCED FROM A PLAN DRAWING "GOREWAYS" PROVIDED BY CLIENT.
3. THE STATIONS AND ELEVATION OF THE BOREHOLE WERE INTERPOLATED FROM DESIGN DRAWINGS PROVIDED BY UMA. THESE DATA HAVE BEEN REVIEWED BY UMA ENGINEERING LTD.
4. THE GROUND SURFACE ELEVATIONS AT THE BOREHOLES ARE DEEMED TO BE APPROXIMATE AND SHOULD BE SURVEYED IN DETAIL DESIGN PHASE AND/OR BY CONTRACTOR PERFORMING THE WORK.
5. BOREHOLES BH13, BH16 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

No.	REVISIONS	DATE	BY

UMA ENGINEERING LTD.

GOREWAY DRIVE IMPROVEMENT
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE AND MONITORING WELL LOCATION PLAN

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: NA	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: MMR/BG	JULY 2007	1 : 1,000	07TX914	1
APPROVED:				

MATCH LINE
REFER DRAWING 1

MATCH LINE
REFER DRAWING 3

KENVIEW BOULEVARD

GOREWAY DRIVE

BH 4
EL.172.7

BH 5
EL.171.6

BUS SHELTER

CONC. PAD FOR LARGE TRAFFIC PED.

BELL PED.

GABION

CONC. HEADWALL

CONC. OUTFALL

NOTES:

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5. BOREHOLES BH13, BH16 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

LEGEND:

BH 4
EL.172.7
BOREHOLE

BH 5
EL.171.6
BOREHOLE WITH 50mm DIA. MONITORING WELL

No.	REVISIONS	DATE	BY

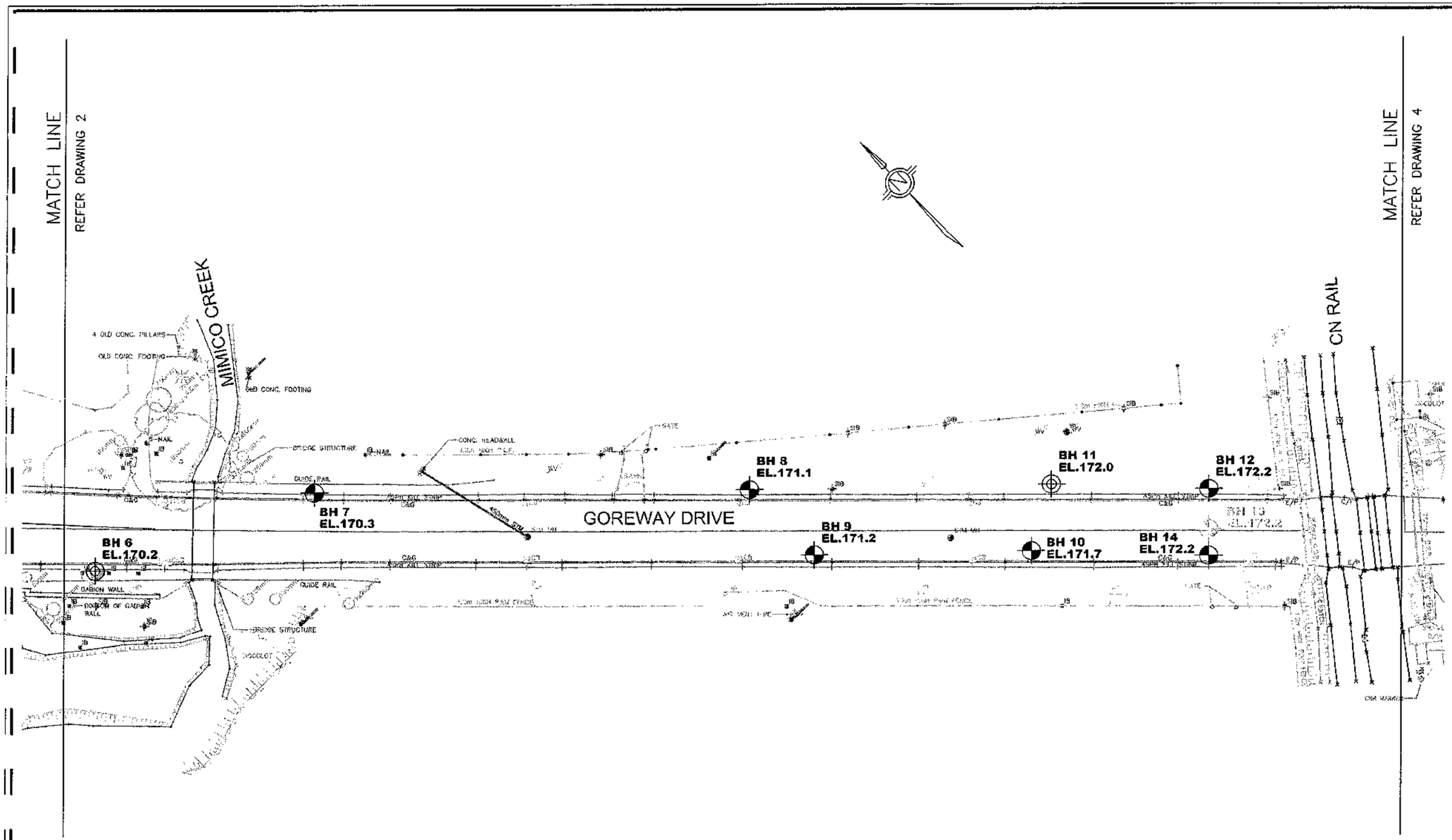
UMA ENGINEERING LTD.

GOREWAY DRIVE IMPROVEMENT
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE AND MONITORING WELL LOCATION PLAN

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: NA	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: MMR/BG	JULY 2007	1 : 1,000	07TX014	2
APPROVED:				



NOTES:

1. THE INFERRED STRATIGRAPHY REFERRED TO IN THIS REPORT IS BASED ON DATA FROM THESE BOREHOLES, SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY AT OTHER POINTS BETWEEN THE BORINGS MAY VARY FROM THAT SHOWN.
2. THIS DRAWING WAS REPRODUCED FROM A PLAN DRAWING "GOREWAY5" PROVIDED BY CLIENT.
3. THE STATIONS AND ELEVATION OF THE BOREHOLE WERE INTERPOLATED FROM DESIGN DRAWINGS PROVIDED BY UMA. THESE DATA HAVE BEEN REVIEWED BY UMA ENGINEERING LTD.
4. THE GROUND SURFACE ELEVATIONS AT THE BOREHOLES ARE DEEMED TO BE APPROXIMATE AND SHOULD BE SURVEYED IN DETAIL DESIGN PHASE AND/OR BY CONTRACTOR PERFORMING THE WORK.
5. BOREHOLES BH13, BH16 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

No.	REVISIONS	DATE	BY

LEGEND:

BH 14
EL.172.2 — BOREHOLE

BH 11
EL.172.0 — BOREHOLE WITH 50mm DIA. MONITORING WELL

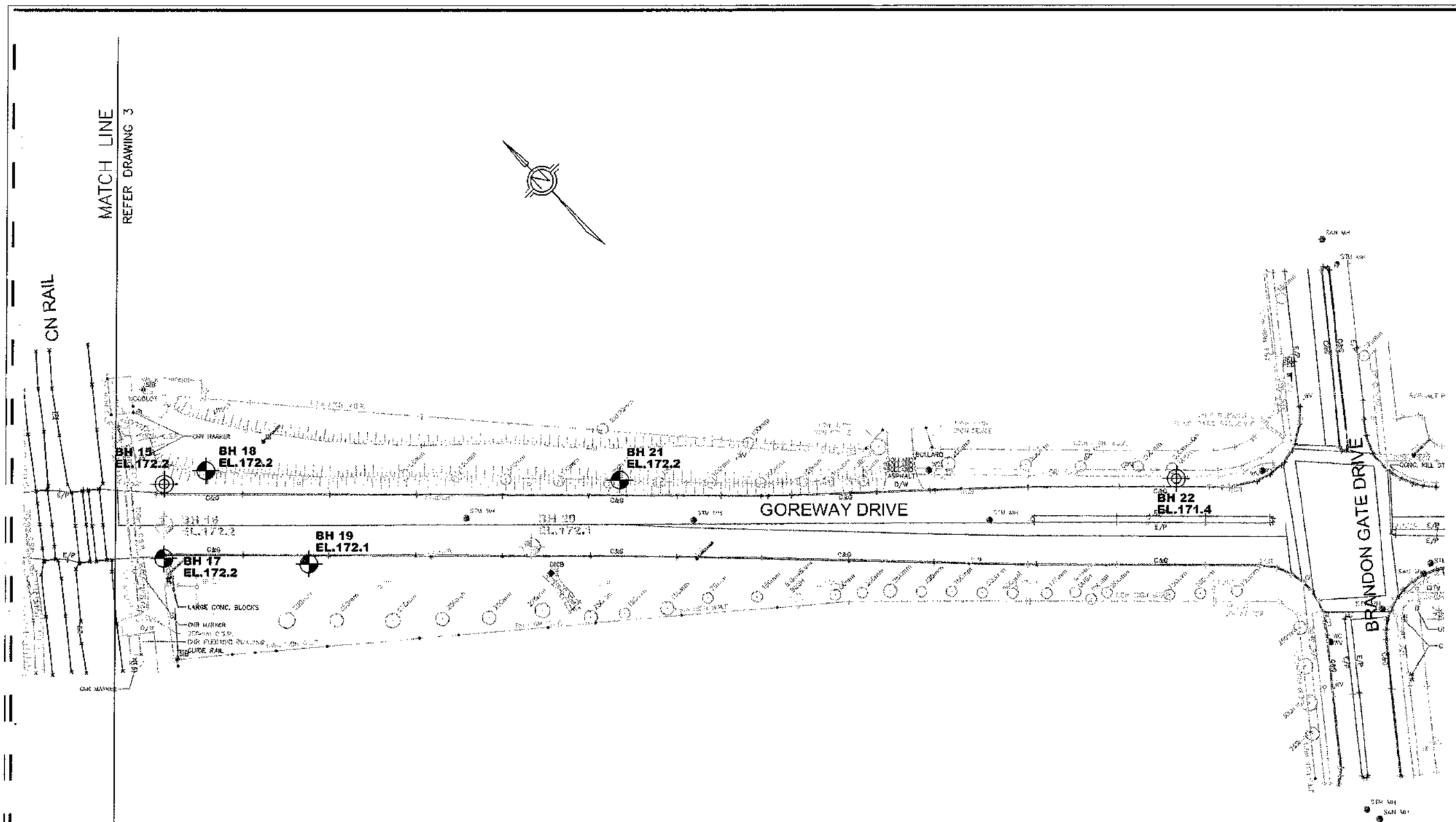
UMA ENGINEERING LTD.

GOREWAY DRIVE IMPROVEMENT
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE AND MONITORING WELL LOCATION PLAN

Pato MacCallum Ltd. CONSULTING ENGINEERS

DRAWN: NA	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: MMR/BG	JULY 2007	1 : 1,000	07TX014	3
APPROVED:				



NOTES:

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5. BOREHOLES BH13, BH16 AND BH20 WERE CANCALLED AS DISCUSSED WITH THE ENGINEER.

LEGEND:

BH 21
EL.172.2
BOREHOLE

BH 22
EL.171.4
BOREHOLE WITH 50mm DIA. MONITORING WELL

No.	REVISIONS	DATE	BY

UMA ENGINEERING LTD.

GOREWAY DRIVE IMPROVEMENT
GOREWAY DRIVE
BRAMPTON, ONTARIO

BOREHOLE AND MONITORING WELL LOCATION PLAN

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: NA	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: MMR/BG	JULY 2007	1 : 1,000	07TX014	4
APPROVED:				

LIST OF ABBREVIATIONS

PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

CONSISTENCY	N (blows/0.3 m)	c (kPa)	DENSENESS	N (blows/0.3 m)
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		

WTPL	Wetter Than Plastic Limit
APL	About Plastic Limit
DTPL	Drier Than Plastic Limit

TYPE OF SAMPLE

SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oesterberg Sample
AS	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample		

PH	Sample Advanced Hydraulically
PM	Sample Advanced Manually

SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

Peto MacCallum Ltd
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 1

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE May 9, 2007

OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N - VALUES	SHEAR STRENGTH C_u (kPa) 20 40 60 80; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST •; BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L; PLASTIC LIMIT W_P; WATER CONTENT W; W_P W W_L; WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION 175.4								
0.80	TOPSOIL: dark brown sandy silt mixed with gravel topsoil inclusions, rootlets		174.60	1	SS	10			
1.40	FILL: brown silty clay trace gravel topsoil, rootlets inclusions		174.00	2	SS	9			
2.20	CLAYEY SILT: stiff brown clayey silt trace gravel, DTPL to APL		173.20	3	SS	21			
3.00	oxidized along partitions		172.40	4	SS	21			
3.65	grey, APL to WTPL		171.75	5	SS	10			Upon completion of augering, no free water no cave-in
	BOREHOLE TERMINATED AT 3.65 m								

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.K.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 2

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE May 9, 2007

OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m N-VALUES
	GROUND ELEVATION 174.4					
0.0						
0.45	TOPSOIL: dark brown clayey silt trace sand trace gravel topsoil, rootlets inclusions		173.95	1	SS	8
0.90	FILL: brown clayey silt mixed with gravel		173.50	2	SS	21
1.0						
2.0	CLAYEY SILT: very stiff brown clayey silt trace sand trace gravel, DTPL			3	SS	27
2.20			172.20			
3.0	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partitions, moist to saturated			4	SS	28
3.65			170.75	5	SS	17
4.0	BOREHOLE TERMINATED AT 3.65 m					
5.0						
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						
13.0						
14.0						
15.0						

SHEAR STRENGTH C_u (kPa)
20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M
20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT %
10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 3.5m, cave-in at 3.35m

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.K.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 3

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 173.5					
0.44	PAVEMENT STRUCTURE: 140mm asphaltic concrete over 650mm thick brown sand and gravel		173.36	1	SS	52
0.80			172.70			
1.00	FILL: dark brown clayey silt trace gravel, organic inclusions		172.50	2	SS	12
1.40	CLAYEY SILT: stiff mottled grey/brown clayey silt trace sand trace gravel, moist		172.10	3	SS	27
	very stiff brown, moist to damp					
2.50	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partings, moist to saturated		171.00	4	SS	28
3.65	BOREHOLE TERMINATED AT 3.65 m		169.85	5	SS	11

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 3.0m, no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 4

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION (GROUND ELEVATION 172.7)	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N-VALUES
0.15	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 650mm thick brown sand and gravel		172.55	1	SS	57
0.80	CLAYEY SILT: firm brown clayey silt trace to some gravel organic inclusions, DTPL		171.90	2	SS	8
1.40	stiff mottled grey/brown, trace gravel		171.30	3	SS	12
2.20	very stiff, trace sand		170.50	4	SS	34
3.10			169.60			
3.35	firm, oxidized along partings		169.35	5	SS	8
3.65	grey, APL to WTPL		169.05			
	BOREHOLE TERMINATED AT 3.65 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 5

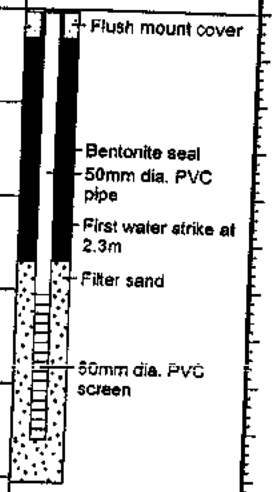
PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N-VALUES
	GROUND ELEVATION 171.6					
0.14	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 650mm thick brown sand and gravel		171.46	1	SS	29
0.80	CLAYEY SILT: very stiff brown clayey silt trace sand trace gravel, DTPL		170.80	2	SS	20
				3	SS	18
2.30	SANDY SILT: compact brown sandy silt trace gravel, moist		169.30	4	SS	24
2.90	SILTY CLAY: stiff to very stiff brown silty clay trace gravel, APL		168.70	5	SS	12
				6	SS	19
5.05	BOREHOLE TERMINATED AT 5.05 m		166.55			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS



Upon completion of augering, free water at 4.0m, cave-in at 4.3m

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	2.5	169.1

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 6

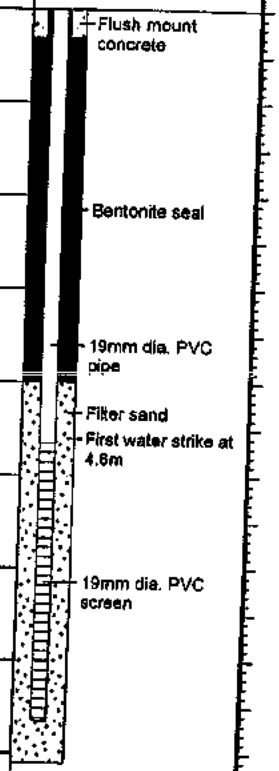
PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH In METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 170.2					
0.25	FILL: dark brown sandy silt mixed with gravel, organic inclusions		169.95	1	SS	8
	brown clayey silt trace gravel oxidized, topsoil inclusions			2	SS	8
1.40			168.80			
	brown sandy gravel, trace silt			3	SS	19
2.45			167.75			
	mottled grey/ brown clayey silt trace gravel , rootlets, APL			4	SS	9
3.30			166.90			
	CLAYEY SILT: firm mottled brown/ grey clayey silt trace gravel, APL			5	SS	6
4.50			165.70			
	SANDY SILT: compact grey sandy silt trace to some gravel, saturated			6	SS	18
6.00			164.20			
	dense, trace clay			7	SS	37
6.80			163.40			
	CLAYEY SILT TILL: hard grey clayey silt trace sand trace gravel, DTPL					
7.90			162.30			
8.10	SANDY SILT: dense grey sandy silt trace gravel, wet		162.10	8	SS	36
	BOREHOLE TERMINATED AT 8.10 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS



Upon completion of augering, free water at 6.0m, no cave-in

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	2.72	167.48

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 7

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 170.3					
0.0	FILL: dark brown sandy silt trace gravel topsoil inclusions, rootlets			1	SS	9
0.85			169.45			
1.0	brown silty clay trace gravel, topsoil inclusions			2	SS	14
1.40			168.90			
	brown sandy silt some gravel topsoil and organic inclusions			3	SS	11
2.0						
2.20	dark grey silty clay topsoil rootlets, wood pieces		168.10	4	SS	10
3.0						
3.60	CLAYEY SILT: firm mottled grey/brown clayey silt trace gravel, APL to WTPL		166.80	5	SS	6
4.0						
4.40	very stiff grey, DTPL		165.90			
5.0				6	SS	22
6.0						
				7	SS	21
7.0						
8.0				8	SS	24
9.0						
9.60			160.70	9	SS	14
9.75	SANDY SILT TILL: compact grey sandy silt trace clay trace gravel, wet		160.55			
10.0	BOREHOLE TERMINATED AT 9.75 m					
11.0						
12.0						
13.0						
14.0						
15.0						

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT W_L
PLASTIC LIMIT W_P
WATER CONTENT W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.Y.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 8

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 171.1					
0.15	FILL: dark brown silty clay trace sand trace gravel topsoil inclusions, rootlets		170.95	1	SS	18
0.65	dark brown sandy silt trace clay trace gravel, organic inclusions		170.45			
0.90	brown clayey silt trace gravel with silty sand layers		170.20	2	SS	11
1.40	brown silty clay trace gravel, organic inclusions		169.70	3	SS	23
2.20	CLAYEY SILT: very stiff brown clayey silt trace gravel, oxidized inclusions, DTPL		168.90	4	SS	21
2.90	SANDY SILT: compact brown sandy silt trace clay trace gravel, wet to saturated		169.20	5	SS	16
3.50	25cm layer of compact brown silty sand trace gravel, saturated		167.60			
	BOREHOLE TERMINATED AT 3.50 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 2.9m, cave-in at 3.15m

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 9

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N - VALUES
	GROUND ELEVATION 171.2					
0.14	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 450mm thick brown sand and gravel		171.06	1	SS	37
0.60	CLAYEY SILT: stiff mottled grey/brown clayey silt trace sand trace gravel, moist		170.60	2	SS	19
1.40	very stiff brown, moist to damp		169.80	3	SS	21
2.50	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partings, moist to saturated		168.70	4	SS	24
3.65	BOREHOLE TERMINATED AT 3.65 m		167.55	5	SS	42

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 2.6m, cave-in at 2.8m

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.Y.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 10

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N - VALUES
	GROUND ELEVATION 171.7					
0.14	PAVEMENT STRUCTURE: 150mm asphaltic concrete over 450mm thick brown sand and gravel		171.56			
0.60	CLAYEY SILT: stiff mottled grey/brown clayey silt trace sand trace gravel, moist		171.10	1	SS	47
				2	SS	14
1.40	very stiff brown, moist to damp		170.30			
				3	SS	25
2.50	SANDY SILT: compact brown sandy silt trace gravel, oxidized along partings, moist to saturated		169.20	4	SS	29
				5	SS	31
3.65	BOREHOLE TERMINATED AT 3.50 m		168.05			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 3.1m, no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 11

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 9, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
	GROUND ELEVATION 172.0					
0.45	FILL: dark brown clayey silt trace sand topsoil, rootlets		171.55	1	SS	16
1.15	dark brown silty clay trace sand trace gravel topsoil inclusions, rootlets		170.85	2	SS	14
1.40	CLAYEY SILT: very stiff brown clayey silt trace gravel, DTPL hard, trace sand		170.60	3	SS	35
2.90			169.10	4	SS	29
3.20	SILT: compact brown silt trace clay trace gravel, wet to saturated grey		168.80	5	SS	25
4.00			168.00			
4.70	SILTY SAND: compact grey silty sand trace gravel, saturated		167.30			
5.05	SANDY SILT: compact grey sandy silt trace gravel, saturated		166.95	6	SS	20
	BOREHOLE TERMINATED AT 5.05 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

- Flush mount concrete
- Bentonite seal
- 50mm dia. PVC pipe
- Filter sand
- 50mm dia. PVC screen

Upon completion of augering, free water at 3.9m, cave-in at 4.3m

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	3.6	168.4

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 12

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.2

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0	FILL: brown sandy silt trace gravel trace topsoil, rootlets		1	SS	15
0.90		171.30			
1.0	CLAYEY SILT: stiff brown clayey silt trace gravel, DTPL		2	SS	14
1.40	very stiff, APL	170.80			
2.0			3	SS	23
2.20	hard	170.00			
			4	SS	35
2.90		169.30			
3.0	SILTY SAND: compact grey silty sand trace gravel, wet		5	SS	17
4.0					
4.90		167.30	6	SS	13
5.0	saturated				
5.85		166.35			
6.0	brown				
6.30		165.90	7	SS	21
	CLAYEY SILT TILL: very stiff grey clayey silt some sand trace gravel, APL				
7.0					
8.0			8	SS	21
9.0			9	SS	17
10.0					
11.0			10	SS	27
12.0			11	SS	20
13.0					
13.70	WTPL	158.50			
14.0			12	SS	13
15.0					
15.00		157.20			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION X
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 12

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m N - VALUES	SHEAR STRENGTH C_u (kPa) 20 40 60 80; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST ●; BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L; PLASTIC LIMIT W_P; WATER CONTENT W; W_P — W — W_L; WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS
	CONTINUED FROM PREVIOUS PAGE								
15.70	BOREHOLE TERMINATED AT 15.70 m		156.50	13	SS	12			Upon completion of augering, free water at 3.8m, cave-in at 4.0m

16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. Y.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 14

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 10, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 172.2

DEPTH in METRES	DESCRIPTION	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N-VALUES	GROUND WATER OBSERVATIONS AND REMARKS
0.15	PAVEMENT STRUCTURE: 150mm asphaltic concrete over brown sand and gravel	172.05				
	FILL: brown silty clay trace gravel	171.60	1	SS	37	
			2	SS	15	
			3	SS	7	
2.50	CLAYEY SILT: very stiff mottled grey/brown clayey silt trace gravel, APL	169.70	4	SS	22	
3.10	SILTY SAND: compact grey silty sand trace gravel, saturated	169.10	5	SS	18	
			6	SS	16	First water strike at 4.5m
6.25	compact grey sandy silt some clay trace gravel, moist	165.95	7	SS	9	
			8	SS	14	
			9	SS	21	
10.20	seams of grey silty sand trace sand trace gravel, saturated	162.00				
11.00	CLAYEY SILT TILL: very stiff grey silty clay trace sand trace gravel, APL to WTPL	161.20	10	SS	33	
			11	SS	27	
			12	SS	16	
15.00		157.20				

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL
3 24 58 17

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY TK

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 14

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE May 10, 2007

OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

SOIL PROFILE				SAMPLES			SHEAR STRENGTH C_u (kPa) 20 40 60 80	LIQUID LIMIT ___ W_L / PLASTIC LIMIT ___ W_P / WATER CONTENT ___ W	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● BLOWS/0.3M 20 40 60 80	W_P W W_L WATER CONTENT % 10 20 30	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	CONTINUED FROM PREVIOUS PAGE								
				13	SS	13			
16.0	SILT: compact grey silt trace gravel, saturated		156.20						
				14	SS	21			
18.0									
18.90				15	SS	22			
19.0	Dynamic cone penetration test started		153.30						
	Probable sandy silt: dense grey sandy silt trace gravel, saturated						175×		
21.0									
21.60	BOREHOLE TERMINATED AT 21.60 m		150.60						Upon completion of augering, no free water, cave-in at 3.05m
22.0									
23.0									
24.0									
25.0									
26.0									
27.0									
28.0									
29.0									
30.0									

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

PML Peto MacCallum Ltd
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 15

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION (GROUND ELEVATION 172.2)	LEGEND	ELEVATION	SAMPLES NUMBER	TYPE	BLOWS/0.3m N-VALUES
0.0	FILL: dark brown sandy silt trace clay trace gravel topsoil inclusions, rootlets			1	SS	7
0.70			171.50			
	dark brown clayey silt trace sand topsoil inclusions, rootlets			2	SS	9
1.40			170.80			
	CLAYEY SILT: loose mottled grey/brown clayey silt oxidized inclusions, APL			3	SS	7
2.45			169.75			
	SILTY SAND: compact brown silty sand trace gravel, wet to saturated			4	SS	12
3.10	loose		169.10			
				5	SS	3
4.50	compact, grey		167.70			
				6	SS	21
6.25	brown		165.95			
				7	SS	16
7.50	CLAYEY SILT: stiff grey clayey silt trace sand trace gravel, WTPL		164.70			
				8	SS	16
				9	SS	16
				10	SS	23
12.60	Dynamic cone penetration test started		159.60	11	SS	27
13.70	BOREHOLE TERMINATED AT 13.70 m		158.50			

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Flush mount concrete
Bentonite seal
19mm dia. PVC pipe
First water strike at 4.6m
Filter sand
19mm dia. PVC screen
Bentonite seal

120×

Upon completion of augering, free water at 3.85m, cave-in at 12.2m

Water Level Readings:

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.K.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 15

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

SOIL PROFILE				SAMPLES			SHEAR STRENGTH C_u (kPa) 20 40 60 80; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST ●; BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L; PLASTIC LIMIT W_P; WATER CONTENT W; W_P W W_L; WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES			
	CONTINUED FROM PREVIOUS PAGE								Date / Depth (m) / Elev.: 06/19/07 / 4.54 / 167.66
15.0									
17.0									
18.0									
19.0									
20.0									
21.0									
22.0									
23.0									
24.0									
25.0									
26.0									
27.0									
28.0									
29.0									
30.0									

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. K

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 17

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE May 11, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH In METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m H - VALUES
	GROUND ELEVATION 172.2					
0.0	FILL: dark brown clayey silt trace sand trace gravel topsoils inclusions, rootlets			1	SS	9
0.75			171.45			
1.0	CLAYEY SILT: very stiff brown clayey silt trace sand trace gravel, moist			2	SS	25
2.30			169.90			
2.0	stiff fine sandy silt layers, moist			3	SS	14
3.05			169.15			
3.0	SILTY SAND: compact brown silty sand trace gravel oxidized, saturated			4	SS	15
4.60			167.60			
4.0	seams of compact brown silt, saturated			5	SS	12
6.25			165.95			
6.0	CLAYEY SILT TILL: very stiff grey clayey silt trace sand trace gravel, DTPL			6	SS	16
7.70			164.50			
7.0	seams of dense grey sandy silt trace gravel, wet			7	SS	32
9.15			163.05			
9.0	very stiff			8	SS	20
10.65			161.55			
10.0	with silty clay layers, APL			9	SS	24
11.0				10	SS	21
12.0						
13.0						
13.70			158.50			
14.0	APL			11	SS	15
15.0						

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P — W — W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS

First water strike at 3.7m

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊛ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 17

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE May 11, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m N-VALUES	SHEAR STRENGTH C_u (kPa) 20 40 60 80 / DYNAMIC CONE PENETRATION × / STANDARD PENETRATION TEST ● BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L / PLASTIC LIMIT W_P / WATER CONTENT W (W_P — W — W_L) WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	CONTINUED FROM PREVIOUS PAGE								
15.20	stiff, APL to WTPL		157.00	12	SS	8			
16.75	SILT: compact grey silt some sand trace clay, wet		155.45	13	SS	14			
18.30	dense trace gravel, saturated		153.90	14	SS	30			0 17 79 4
19.80	compact, wet to saturated		152.40	15	SS	26			
21.30	CLAYEY SILT: compact grey clayey silt trace gravel, APL to WTPL		150.90	16	SS	24			
22.85	SANDY SILT: compact grey sandy silt trace gravel, wet		149.35	17	SS	23			
24.40	SAND AND GRAVEL: dense grey sand and gravel some silt, saturated		147.80	18	SS	40			
				19	SS	44			
27.40	seam of compact grey sand, saturated		144.80	20	SS	22			42 41 (17)
28.96	trace to some sand		143.25	21	SS	18			

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 17

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE May 11, 2007

OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m N - VALUES	SHEAR STRENGTH C_u (kPa) 20 40 60 80; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST ●; BLOWS/0.3M 20 40 60 80	LIQUID LIMIT W_L; PLASTIC LIMIT W_P; WATER CONTENT W; W_P W W_L; WATER CONTENT % 10 20 30	GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	CONTINUED FROM PREVIOUS PAGE								
	trace to some sand *(continued)*								
30.50	very dense		141.70						
30.95	BOREHOLE TERMINATED AT 30.95 m		141.25	22	SS	51			Upon completion of augering, no free water no cave-in

31.0 32.0 33.0 34.0 35.0 36.0 37.0 38.0 39.0 40.0 41.0 42.0 43.0 44.0 45.0

NOTES:

⊕ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊕ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 18

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 7, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH In METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m N - VALUES	GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION 172.2						
0.75	FILL: compact dark brown sandy silt trace gravel topsoil inclusions roots, moist		171.45	1	SS	14	
	clayey silt, trace sand			2	SS	6	
1.65	CLAYEY SILT: stiff brown clayey silt trace gravel, moist		170.55	3	SS	16	
2.30	fine grey silty clay layers		169.90	4	SS	25	
3.05	SANDY SILT: compact brown sandy silt trace gravel, saturated to wet		169.15	5	SS	22	
3.65	BOREHOLE TERMINATED AT 3.65 m		168.55				

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

Upon completion of augering, no free water no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. V.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 19

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 11, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES: NUMBER	TYPE	BLOWS/0.3m N-VALUES	GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION 172.1						
0.0	FILL: dark brown clayey silt trace gravel topsoil organics roots, pieces of glass			1	SS	14	
1.0				2	SS	9	
2.00			170.10	3	SS	7	
2.0							
2.50	CLAYEY SILT: firm dark brown clayey silt trace gravel, APL		169.60	4	SS	5	
3.0	SANDY SILT: compact brown sandy silt trace gravel, wet						
3.35	CLAYEY SILT: stiff brown clayey silt trace sand trace gravel, wet		168.75	5	SS	12	
4.0							
5.0				6	SS	26	First water strike at 4.5m
5.05	BOREHOLE TERMINATED AT 5.05 m		167.05				Upon completion of augering, free water at 4.0m, cave-in at 4.15m
6.0							
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T.X.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 21

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	SAMPLES: NUMBER	TYPE	BLOWS/0.3m N-VALUES
	GROUND ELEVATION 172.2					
0.60	FILL: dark brown sandy silt trace gravel topsoil inclusions, rootlets		171.40	1	SS	12
1.50	SILTY CLAY: stiff brown silty clay trace sand trace gravel, moist		170.70	2	SS	11
2.30	CLAYEY SILT: stiff brown clayey silt trace sand trace gravel, moist		169.90	3	SS	10
3.20	grey silty sand/sandy silt layers, wet		169.00	4	SS	10
4.60	SANDY SILT: compact brown sandy silt trace gravel sandy seams, wet to saturated		167.60	5	SS	6
5.05	SILTY SAND: compact brown silty sand trace gravel, saturated		167.15	6	SS	16
	BOREHOLE TERMINATED AT 5.05 m					

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT ____ W_L
PLASTIC LIMIT ____ W_P
WATER CONTENT ____ W
W_P W W_L
WATER CONTENT % 10 20 30

46

GROUND WATER OBSERVATIONS AND REMARKS

Upon completion of augering, free water at 0.40m, no cave-in

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. Y.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 22

PROJECT Goreway Drive Improvements
LOCATION Goreway Drive, Brampton, Ontario
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 8, 2007
OUR PROJECT NO. 07TF007
ENGINEER M.M.R.
TECHNICIAN R.S.

GROUND ELEVATION 171.4

DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES
0.0	FILL: dark brown clayey silt trace sand trace gravel topsoil inclusions, rootlets			1	SS	9
0.95			170.45			
1.0	CLAYEY SILT: soft brown clayey silt trace gravel, DTPL			2	SS	10
1.50			169.90			
2.0	SANDY SILT: compact brown sandy silt trace gravel, moist			3	SS	21
2.30	oxidized, wet		169.10			
3.0				4	SS	20
3.05	SILTY SAND: compact brown silty sand trace gravel layer of grey silt, wet		168.35			
4.0				5	SS	24
4.60			166.80			
5.0	SAND: compact grey sand trace silt trace gravel, saturated			6	SS	19
5.05	BOREHOLE TERMINATED AT 5.05 m		166.35			
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						
13.0						
14.0						
15.0						

SHEAR STRENGTH C_u (kPa) 20 40 60 80
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
BLOWS/0.3M 20 40 60 80

LIQUID LIMIT W_L
PLASTIC LIMIT W_P
WATER CONTENT W
W_P W W_L
WATER CONTENT % 10 20 30

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Flush mount concrete
Bentonite seal
50mm dia. PVC pipe
Filter sand
50mm dia. PVC screen

Upon completion of augering, no free water no cave-in

Water Level Readings:

Date	Depth (m)	Elev.
06/19/07	3.90	167.50

NOTES:

+ UNDISTURBED FIELD VANE
⊕ REMOLDED FIELD VANE
⊗ LAB SHEAR TEST
▲ POCKET PENETROMETER

CHECKED BY T. K.

APPENDIX A

MOE's Water Well Records and PML's Designated Well Number

WATER WELL DATA SYSTEM Mar 07 2007 PAGE: 1 COUNTY: PEEL

GROUND WATER BULLETIN REPORT

PML's Number	MUNICIPALITY CONCESSION ETC	LOT	WELL NO	UTM EASTING NORTHING	ELEV FEET	DATE	DRILLER	CSG DIA INS	KIND OF WATER	WATER FOUND FEET	STAT LVL FEET	PUMP LVL FEET	TEST RATE GPM	TEST TIME HR:MN	WATER USE	SCREEN DEPTH FEET	SCREEN LENGTH FEET	OWNER DEPTHS IN FEET TO WHICH FORMATIONS EXTEND
1			49- 09752	607372 4842960		2005/03	6607	02						:		0040	10	--- BRWN FILL SAND GRVL 0020 BRWN CLAY SLTY DRY 0036 BRWN SAND MSND CSND 0040
2	CON	07	001 49- 06156	607970 4842890		1983/12	5459							:	MU			---
3	HS E	08	014 49- 02471	608517~ 4842481	550	1957/05	4823	04	FR	0047	0013	0017	0004	12:0	DO	0052	05	BLCK LOAM 0001 BRWN CLAY SNDY 0013 BLUE CLAY SNDY 0018 BRWN SAND 0023 BLUE CLAY SNDS 0089 SHLE 0094 ---
4	HS E	08	014 49- 02473	608939 4842298	550	1964/07	5203	07	FR	0066	0017	0060	0005	5 :0	ST DO	0062	08	LOAM 0001 YLLW CLAY 0005 GREY CLAY MSND 0012 BLUE CLAY MSND 0032 BLDR 0034 BLUE CLAY 0047 SILT 0052 CSND GRVL 0057 ---
5	HS E	08	014 49- 02472	608870~ 4842129	560	1954/09	2613	05	FR	0087	0018	0045	0005	4 :0	DO			LOAM 0001 BRWN CLAY 0023 BLUE CLAY 0066 MSND GRVL 0070 BLUE CLAY GRVL 0073 SHLE 0074 ---
6	CON	07	001 49- 06157	607820 4842940		1983/11	5459							:	MU			BRWN CLAY 0032 BLUE CLAY 0050 GREY FSND CLAY 0079 GREY MSND GRVL 0084 GRVL 0087 ---
7	CON	07	003 49- 07186	607344 4843461		1989/08	4868	36	FR	0027	0015	0030	0005	3 :0	IN			BLCK LOAM 0002 BRWN CLAY SNDY 0009 BRWN SNDS 0014 GREY SNDS 0018 BLUE CLAY SNDS 0037 BRWN SAND SILT 0046 BLUE CLAY SNDS 0087 SHLE 0092 ---
8	CON	07	003 49- 02703	607030 4843905	592	1971/05	1307	30	FR	0015	0015			:	DO			BRWN SAND GRVL 0002 BRWN CLAY STNS 0008 BRWN SAND SILT 0010 BRWN SAND LOOS 0011 BRWN CLAY STNS 0013 GREY CLAY STNS 0022 GREY SILT CLAY 0027 GREY SILT FSND SOFT 0040 ---
9	CON	08	002 49- 02764	607560 4843430	566	1959/04	1308	30	FR	0022	0009			:	DO			BRWN LOAM 0015 BRWN SAND 0018 GREY CLAY 0045 ---
10	CON	08	001 49- 04089	608770 4843870	565	1972/11	4610	05	FR	0110	0025	0112	0001	3 :0	DO			CLAY SAND 0010 BLUE CLAY 0033 ---
11	CON	08	001 49- 02786	608575 4843635	566	1954/07	2906	06	FR	0080	0019	0077	0001	5 :0	DO			PRDG 0047 BLUE CLAY SAND STNS 0096 BLUE SHLE 0117 ---
12			004 49- 08517	609031 4843563		1999/10	1413							:				BRWN CLAY GRVL 0015 GREY CLAY GRVL 0075 SAND GRVL 0078 GREY SHLE 0082 ---
13	HS E	08	012 49- 02470	609794~ 4841254	550	1951/10	4823	06	FR	0052	0010		5	:0	DO	0048	04	GREY UNKN 0024 GREY CLAY LYRD 0024 ---
14	HS E	06	015 49- 02954	607180 4841740	592	1968/09	4813	05	FR	0062	0010	0060	0002	3 :0	DO			PRDG 0025 BLUE CLAY 0035 BLUE CLAY GRVL 0048 BLCK FSND GRVL 0052 CLAY 0053 ---
15	HS E	07	015 49- 02468	607227~ 4841820	593	1957/04	2904	06	FR	0082	0017	0075	0020	7 :0	PS			BRWN CLAY 0012 BLUE CLAY 0028 GRVL 0033 BLUE SHLE 0065 --- BRWN CLAY FILL 0004 BRWN CLAY STNS 0018 BRWN CLAY 0022 GREY SPAR STNS 0032 BLUE CLAY 0045 BLUE SHLE 0093

APPENDIX B

Soil and Ground Water Sample Laboratory Certificates of Analyses, and Copies of Chain of Custody

CHAIN OF CUSTODY RECORD

AGAT Laboratories Limited
5623 McAdam Road
Mississauga, Ontario L4Z 1N9
http://webearth.agatlabs.com

Phone: 905-501-9998
Fax: 905-501-0589
Toll free: 800-856-6261
www.agatlabs.com

LABORATORY USE ONLY
Arrival Condition: ☐ Good ☐ Poor (complete "notes")
Arrival Temperature: 30 °C
AGAT Job Number:
Notes:

Client Information
Company: PETO MACCALLUM LTD
Contact: MORI MORTAZAVI
Address: 165 CARTWRIGHT AVE TORONTO ONT M6A 1V5
Phone: 416-785-5110 Fax: 416-785-5120
PO #: 07TX014
Client Project #:
AGAT Quotation #:

Report Information - reports to be sent to:
1. Name:
Email:
2. Name:
Email:
3. Name:
Email:
Notes (i.e. billing, sub-sampling requirements etc.)

Report Format
☑ Single Sample per page
☐ Multiple Samples per page
☐ Results by Fax

Turnaround Time (TAT) Required*
Regular TAT:
☑ 5 to 7 Working Days
Rush TAT: (please provide prior notification)
Rush Surcharges Apply
☐ 3 to 5 days
☐ 48 to 72 Hours
☐ 24 to 48 hours
OR
DATE REQUIRED (Rush surcharges may apply):

Regulatory Guideline Required
☑ Reg 153 Table 3 (Indicate one)
☐ Ind/Com
☐ Res/Park
☐ Ag
☐ Med/Fine ☐ Coarse
☐ Sewer Use
Region (Indicate one)
☐ Sanitary
☐ Storm
☐ PWQO
☐ Reg 558
☐ CCME
☐ Other (indicate)

Is this a drinking water sample (potable water intended for human consumption)?
☐ Yes ☐ No
If "Yes" please use the Drinking Water Chain of Custody Record

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/ Sample Information	Metals and Inorganics	Metals Scan (excl. Hg, & CrVI)	CCME Fractions 1 to 4	VOCs	PAHs	PCBs	TCLP Metals/Inorganics	TCLP	Storm Sewer Use	Sanitary Sewer Use	EC/PH	SAR	METALS
BH12-SS3	MAY		Soil	2	5~6.5'											✓	✓	✓
BH15-SS1				2	0~2'			✓		✓	✓							
BH17-SS2				2	5~6.5'													
BH14-SS2				2	2.5~4'			✓		✓	✓							
BH21-SS1				2	0~2'			✓		✓	✓							
BH9-SS2				2	2.5~4'													
BH8-SS1				2	0~2'			✓		✓	✓					↓	↓	↓
TOTAL # OF CONTAINERS				14														

*Samples received after 2:00 PM will be logged in for the next business day. TAT is exclusive of weekends and statutory holidays

Samples Relinquished By (print name & sign)	Date/Time	Samples Received By (print name & sign)	Date/Time
Fatima Ghani			
Samples Relinquished By (print name & sign)	Date/Time	Samples Received By (print name & sign)	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

PAGE 1 of 1
NO: 43627

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9

AGAT® Laboratories

TEL: (905) 501-9998
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RECEIVED
JUN 8 2007
PETO MACCALLUM LTD

CLIENT NAME: PETO MACCALLUM LIMITED
165 CARTWRIGHT AVENUE
TORONTO, ON M6A1V5

ATTENTION TO: Mori H. Mortazavi

PROJECT NO: 07TX014

AGAT WORK ORDER: 07T227188

SOIL ANALYSIS REVIEWED BY: Elizabeth Pofakowska, Analyst

TRACE ORGANICS REVIEWED BY: Jacky Takeuchi, BSc.H(Chem. Eng), BSc (Biology), C. Chem

DATE REPORTED: Jun 06, 2007

PAGES (INCLUDING COVER): 9

Should you require any information regarding this analysis please contact your client services representative at (905) 501 9998, or at 1-800-856-6261, or by email at env@agatlabs.com

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT® Laboratories

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CANADA L4Z 1N9

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FAX: (905) 501-0589
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Certificate of Analysis

AGAT WORK ORDER: 07T227188

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

O. Reg 153 - Metals, pH, EC & SAR in Soil

DATE SAMPLED: | DATE RECEIVED: May 30, 2007 | DATE REPORTED: Jun 06, 2007 | SAMPLE TYPE: Soil

	Unit	G / S	M.D.L	BH12-SS3 719538	BH15-SS1 719539	BH17-SS2 719540	BH14-SS2 719542	BH21-SS1 719544	BH9-SS2 719546	BH8-SS1 719548
Antimony	µg/g	40	1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Arsenic	µg/g	40	0.6	3.1	3.3	2.9	4.5	3.6	2.8	2.7
Barium	µg/g	1500	0.3	91.7	69.4	113	65	72.9	97.4	73.5
Beryllium	µg/g	1.2	0.4	0.7	0.6	0.9	<0.4	0.6	0.6	0.4
Cadmium	µg/g	12	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	µg/g	750	0.6	17.1	16.9	22.0	2.0	16.7	18.2	20.2
Cobalt	µg/g	80	0.3	10.0	8.5	11.2	1.9	10.5	9.4	7.5
Copper	µg/g	225	0.3	20.4	26.6	20.5	5.8	22.3	18.9	33.9
Lead	µg/g	1000	0.5	10.4	30.0	10.8	1.23	10.3	11.3	22.6
Molybdenum	µg/g	40	0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	0.6
Nickel	µg/g	150	0.6	22.5	18.5	26.4	4.5	24.4	21.9	16.8
Selenium	µg/g	10	0.8	<0.8	<0.8	<0.8	1.0	<0.8	<0.8	<0.8
Silver	µg/g	40	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Thallium	µg/g	32	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vanadium	µg/g	200	0.4	24.0	23.2	30.1	2.5	23.3	24.2	19.8
Zinc	µg/g	600	0.4	54.2	75.7	55.9	98.4	54.0	55.4	77.4
Electrical Conductivity (2:1)	mS/cm		0.002	0.753	0.599	4.24	1.84	3.38	0.320	0.566
Sodium Adsorption Ratio	N/A	12	N/A	12.9	5.07	32.7	11.6	17.9	3.13	5.83
pH 2:1 Water:Soil Extraction			N/A	9.14	8.74	7.69	8.88	8.41	8.50	8.36

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC)

Certified By: Elizabeth Polakowska

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MISSISSAUGA, ONTARIO
CANADA L4Z 1N9

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Certificate of Analysis

AGAT WORK ORDER: 07T227188

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

O. Reg. 153 - Petroleum Hydrocarbons F1 - F4 (C6 - C50) in Soil

DATE SAMPLED: | DATE RECEIVED: May 30, 2007 | DATE REPORTED: Jun 06, 2007 | SAMPLE TYPE: Soil

	Unit	G / S	M.D.L.	BH15-SS1 719539	BH14-SS2 719542	BH8-SS1 719548
Benzene	µg/g	5.3	0.10	<0.10	<0.10	<0.10
Toluene	µg/g	34	0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g	290	0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g	34	0.07	<0.07	<0.07	<0.07
C6 - C10 (F1)	µg/g		5	<5	<5	<5
C6 - C10 (F1 minus BTEX)	µg/g	230	5	<5	<5	<5
C>10 - C16 (F2)	µg/g	150	10	<10	<10	<10
C>10 - C16 (F2 minus Naphthalene)	µg/g	150	10	<10	<10	<10
C>16 - C34 (F3)	µg/g	1700	50	<50	<50	88
C>16 - C34 (F3 minus PAHs)	µg/g	1700	50	<50	<50	
C>34 - C50 (F4)	µg/g	3300	50	66	55	310
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA	NA
Moisture Content	%		0.1	5.1	3.5	10.8

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC)

719539-719548 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By: Jacky Takeuchi

AGAT® Laboratories

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CANADA L4Z 1N9

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Certificate of Analysis

AGAT WORK ORDER: 07T227188

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

O. Reg. 153 PAHs in Soil

DATE SAMPLED: | DATE RECEIVED: May 30, 2007 | DATE REPORTED: Jun 06, 2007 | SAMPLE TYPE: Soil

	Unit	G / S	M.D.L	BH15-SS1 719539	BH14-SS2 719542	BH8-SS1 719548
Naphthalene	µg/g	40	0.03	<0.03	<0.03	<0.03
Acenaphthylene	µg/g	840	0.02	<0.02	<0.02	<0.02
Acenaphthene	µg/g	1300	0.03	<0.03	<0.03	<0.03
Fluorene	µg/g	350	0.02	<0.02	<0.02	<0.02
Phenanthrene	µg/g	40	0.02	0.02	<0.02	0.03
Anthracene	µg/g	28	0.02	<0.02	<0.02	<0.02
Fluoranthene	µg/g	40	0.02	<0.02	<0.02	0.02
Pyrene	µg/g	250	0.02	<0.02	<0.02	0.02
Benzo(a)anthracene	µg/g	40	0.02	<0.02	<0.02	<0.02
Chrysene	µg/g	19	0.02	<0.02	<0.02	0.02
Benzo(b)fluoranthene	µg/g	19	0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	µg/g	19	0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene	µg/g	1.9	0.02	<0.02	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	µg/g	19	0.02	<0.02	<0.02	<0.02
Dibenzo(a,h)anthracene	µg/g	1.9	0.02	<0.02	<0.02	<0.02
Benzo(g,h,i)perylene	µg/g	40	0.02	<0.02	<0.02	<0.02

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC)

719539
Results are based on the dry weight of the soil.
Surrogate Recovery of Chrysene-d12: 89%.
Percent moisture: 5.1%.
Results relate only to the items tested.

719542
Results are based on the dry weight of the soil.
Surrogate Recovery of Chrysene-d12: 97%.
Percent moisture: 3.5%.
Results relate only to the items tested.

719548
Results are based on the dry weight of the soil.
Surrogate Recovery of Chrysene-d12: 96%.
Percent moisture: 10.8%.
Results relate only to the items tested.

Certified By: Jordy Takewaki

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Certificate of Analysis

AGAT WORK ORDER: 07T227188

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

PCB's [soil]

DATE SAMPLED: | DATE RECEIVED: May 30, 2007 | DATE REPORTED: Jun 06, 2007 | SAMPLE TYPE: Soil

	Unit	G / S	M.D.L	BH15-SS1 719539	BH14-SS2 719542	BH8-SS1 719548
PCB's	µg/g	25	0.05	<0.05	<0.05	<0.05

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC)

719539
Results are based on the dry weight of soil extracted.
Decachlorobiphenyl surrogate recovery: 83 %.
Percent moisture= 5.1 %.
Results relate only to the items tested.

719542
Results are based on the dry weight of soil extracted.
Decachlorobiphenyl surrogate recovery: 80 %.
Percent moisture= 3.5 %.
Results relate only to the items tested.

719548
Results are based on the dry weight of soil extracted.
Decachlorobiphenyl surrogate recovery: 80 %.
Percent moisture= 10.8 %.
Results relate only to the items tested.

Certified By: Jacky Takeuchi

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

PROJECT NO: 07TX014

AGAT WORK ORDER: 07T227188

ATTENTION TO: Mori H. Mortazavi

Soil Analysis

RPT Date: Jun 06, 2007

PARAMETER	Batch	Sample Id	DUPLICATE			REFERENCE MATERIAL				METHOD BLANK			MATRIX SPIKE		
			Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg 153 - Metals, pH, EC & SAR in Soil															
Antimony (µg/g)	1		< 1.6	< 1.6	0.0%	< 1.6	106%	90%	110%	101%	90%	110%	98%	70%	130%
Arsenic (µg/g)	1		3.7	3.7	0.0%	< 0.6	100%	90%	110%	111%	80%	120%	103%	70%	130%
Barium (µg/g)	1		45.8	44.9	2.0%	< 0.3	102%	90%	110%	108%	90%	110%	104%	70%	130%
Beryllium (µg/g)	1		0.5	0.5	0.0%	< 0.4	102%	90%	110%	95%	90%	110%	84%	70%	130%
Cadmium (µg/g)	1		< 0.4	< 0.4	0.0%	< 0.4	94%	90%	110%	101%	90%	110%	94%	70%	130%
Chromium (µg/g)	1		12.8	12.7	0.8%	< 0.6	96%	90%	110%	100%	90%	110%	96%	70%	130%
Cobalt (µg/g)	1		7.4	7.4	0.0%	< 0.3	103%	90%	110%	106%	90%	110%	99%	70%	130%
Copper (µg/g)	1		28.4	28.0	1.4%	< 0.3	100%	90%	110%	107%	90%	110%	95%	70%	130%
Lead (µg/g)	1		8.8	8.6	2.3%	< 0.5	90%	90%	110%	110%	90%	110%	102%	70%	130%
Molybdenum (µg/g)	1		< 0.5	< 0.5	0.0%	< 0.5	104%	90%	110%	111%	80%	120%	107%	70%	130%
Nickel (µg/g)	1		15.6	15.5	0.6%	< 0.6	106%	90%	110%	105%	90%	110%	95%	70%	130%
Selenium (µg/g)	1		< 0.8	< 0.8	0.0%	< 0.8	98%	90%	110%	114%	80%	120%	104%	70%	130%
Silver (µg/g)	1		< 0.4	< 0.4	0.0%	< 0.4	101%	90%	110%	99%	90%	110%	95%	70%	130%
Thallium (µg/g)	1		< 0.4	< 0.4	0.0%	< 0.4	105%	90%	110%	101%	90%	110%	105%	70%	130%
Vanadium (µg/g)	1		18.3	18.5	1.1%	< 0.4	99%	90%	110%	100%	90%	110%	96%	70%	130%
Zinc (µg/g)	1		49.6	49.3	0.6%	< 0.4	106%	90%	110%	120%	80%	120%	97%	70%	130%
Electrical Conductivity (2:1) (mS/cm)	1		0.143	0.143	0.0%	< 0.002	100%	90%	110%		90%	110%		90%	110%
pH 2:1 Water:Soil Extraction	1		8.54	8.55	0.1%	N/A	100%	90%	110%						

Certified By: Elizabeth Rotakowska

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

PROJECT NO: 07TX014

AGAT WORK ORDER: 07T227188

ATTENTION TO: Mori H. Mortazavi

Trace Organics Analysis

RPT Date: Jun 06, 2007

PARAMETER	Batch	Sample Id	DUPLICATE			REFERENCE MATERIAL				METHOD BLANK			MATRIX SPIKE		
			Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153 PAHs in Soil															
Naphthalene (µg/g)	1					< 0.03	96%	60%	140%	102%	60%	140%		60%	140%
Acenaphthylene (µg/g)	1					< 0.02	106%	60%	140%	107%	60%	140%		60%	140%
Acenaphthene (µg/g)	1					< 0.03	106%	60%	140%	107%	60%	140%		60%	140%
Fluorene (µg/g)	1					< 0.02	108%	60%	140%	105%	60%	140%		60%	140%
Phenanthrene (µg/g)	1					< 0.02	109%	60%	140%	107%	60%	140%		60%	140%
Anthracene (µg/g)	1					< 0.02	102%	60%	140%	106%	60%	140%		60%	140%
Fluoranthene (µg/g)	1					< 0.02	105%	60%	140%	99%	60%	140%		60%	140%
Pyrene (µg/g)	1					< 0.02	107%	60%	140%	106%	60%	140%		60%	140%
Benzo(a)anthracene (µg/g)	1					< 0.02	90%	60%	140%	88%	60%	140%		60%	140%
Chrysene (µg/g)	1					< 0.02	118%	60%	140%	102%	60%	140%		60%	140%
Benzo(b)fluoranthene (µg/g)	1					< 0.02	95%	60%	140%	105%	60%	140%		60%	140%
Benzo(k)fluoranthene (µg/g)	1					< 0.02	99%	60%	140%	124%	60%	140%		60%	140%
Benzo(a)pyrene (µg/g)	1					< 0.02	107%	60%	140%	117%	60%	140%		60%	140%
Indeno(1,2,3-cd)pyrene (µg/g)	1					< 0.02	86%	60%	140%	98%	60%	140%		60%	140%
Dibenzo(a,h)anthracene (µg/g)	1					< 0.02	82%	60%	140%	94%	60%	140%		60%	140%
Benzo(g,h,i)perylene (µg/g)	1					< 0.02	93%	60%	140%	94%	60%	140%		60%	140%
O. Reg. 153 - Petroleum Hydrocarbons F1 - F4 (C6 - C50) in Soil															
Benzene (µg/g)	1	719548	< 0.10	< 0.10	0.0%	< 0.10	105%	60%	140%	100%	60%	140%	112%	60%	140%
Toluene (µg/g)	1	719548	< 0.08	< 0.08	0.0%	< 0.08	110%	60%	140%	87%	60%	140%	102%	60%	140%
Ethylbenzene (µg/g)	1	719548	< 0.05	< 0.05	0.0%	< 0.05	106%	60%	140%	91%	60%	140%	99%	60%	140%
Xylenes (Total) (µg/g)	1	719548	< 0.07	< 0.07	0.0%	< 0.07	105%	60%	140%	97%	60%	140%	105%	60%	140%
C6 - C10 (F1) (µg/g)	1	719548	< 5	< 5	0.0%	< 5	74%	60%	140%	67%	60%	140%	75%	60%	140%
C>10 - C16 (F2) (µg/g)	1	718642	< 10	< 10	0.0%	< 10	103%	60%	140%	97%	60%	140%	106%	50%	140%
C>16 - C34 (F3) (µg/g)	1	718642	< 50	< 50	0.0%	< 50	104%	60%	140%	104%	60%	140%	123%	60%	140%
C>34 - C50 (F4) (µg/g)	1	718642	< 50	< 50	0.0%	< 50	105%	60%	140%	103%	60%	140%	96%	60%	140%
PCB's [soil]															
PCB's (µg/g)	1					< 0.05	108%	60%	140%	73%	60%	140%		60%	140%

Certified By: Jody Takenaka

AGAT QUALITY ASSURANCE REPORT

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 07T227188

PROJECT NO: 07TX014

ATTENTION TO: Mori H. Mortazavi

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Arsenic	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Barium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Beryllium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Cadmium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Chromium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Cobalt	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Copper	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Lead	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Molybdenum	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Nickel	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Selenium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Silver	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Thallium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Vanadium	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Zinc	MET 1003	EPA SW 846 3050B & 6020	ICPMS
Electrical Conductivity (2:1)	INOR 1036		EC METER
Sodium Adsorption Ratio	SOIL 200	McKeague 3.26	CALCULATION
pH 2:1 Water:Soil Extraction	INOR 1031	McKeague 3.13, SM4500 H+	PH METER

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 07T227188

PROJECT NO: 07TX014

ATTENTION TO: Mori H. Mortazavi

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL 5002	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL 5002	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL 5002	EPA SW-846 5035 & 8260	P & T GC/MS
Xylenes (Total)	VOL 5008	EPA SW-846 5030B & 8015	GC/FID (P & T)
C6 - C10 (F1)	VOL - 5009	CCME Tier 1 Method	GC / FID
C6 - C10 (F1 minus BTEX)	VOL - 5009	CCME Tier 1 Method	GC / FID
C>10 - C16 (F2)	VOL - 5009	CCME Tier 1 Method	GC / FID
C>10 - C16 (F2 minus Naphthalene)	VOL - 5009	CCME Tier 1 Method	GC / FID
C>16 - C34 (F3)	VOL - 5009	CCME Tier 1 Method	GC / FID
C>16 - C34 (F3 minus PAHs)	VOL - 5009	CCME Tier 1 Method	GC / FID
C>34 - C50 (F4)	VOL - 5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL - 5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL - 5009	CCME Tier 1 Method	GRAVIMETRIC
Naphthalene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Acenaphthylene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Acenaphthene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Fluorene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Phenanthrene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Anthracene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Fluoranthene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Pyrene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Benzo(a)anthracene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Chrysene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Benzo(b)fluoranthene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Benzo(k)fluoranthene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Benzo(a)pyrene	TO 0500	EPA SW-846 3540 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Dibenzo(a,h)anthracene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
Benzo(g,h,i)perylene	Org 5506	EPA SW-846 3540 & 8270	GC/MS
PCB's	ORG 5009	EPA SW-846 3550 & 8081	GC/ECD

CHAIN OF CUSTODY RECORD

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LABORATORY USE ONLY

Arrival Condition: ☐ Good ☐ Poor (complete "notes")
Arrival Temperature: _____
AGAT Job Number: _____
Notes: _____

Client Information

Company:
Contact:
Address:
Phone: Fax:
PO #:
Client Project #:
AGAT Quotation #:

Report Information - reports to be sent to:

1. Name:
   Email:
2. Name:
   Email:
3. Name:
   Email:
4. Name:
   Email:

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required

Regular TAT:
☐ 5 to 7 Working Days

Rush TAT: (please provide prior notification)
☐ 3 to 5 days
☐ 48 to 72 Hours
☐ 24 to 48 hours

DATE REQUIRED: _____

Regulatory Guideline Required:

☐ Reg 153 Table ____ (Indicate one) ☐ Ind/Com ☐ Res/Park ☐ Ag
☐ Sewer Use Region ____ (Indicate one) ☐ Sanitary ☐ Storm
☐ PWQO ☐ Reg 558 ☐ CCME ☐ Other (indicate)

Is this a drinking water sample (potable water intended for human consumption)?
☐ Yes ☐ No
If "Yes" please use the Drinking Water Chain of Custody Record

Sample Identification	Date/Time Sampled	Sample Matrix	# of Containers	Comments- Site/ Sample Info. Sample Containment	Metals and Inorganics	Metals Scan (not Incl. Hg, B, Cr6)	TCLP Metals/Inorganics	TCLP	Storm Sewer Use	Sanitary Sewer Use	CCME Fractions 1 to 4	VOCs	PAHs	PCBs

Samples Relinquished By (print name & sign) | Date/Time | Samples Received By (print name & sign) | Date/Time

Samples Relinquished By (print name & sign) | Date/Time | Samples Received By (print name & sign) | Date/Time

Pink Copy – Client
Yellow Copy - AGAT
White Copy - AGAT

PAGE ____ of ____

NO: 25395

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Certificate of Analysis

AGAT WORK ORDER: 07T230394

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

Peel Storm Sewer Bylaw

DATE SAMPLED: Jun 25, 2007 **DATE RECEIVED: Jun 25, 2007** **DATE REPORTED: Jul 03, 2007** **SAMPLE TYPE: Water**

	Unit	G / S	M.D.L	BH6 740982
Fecal Coliform	CFU/100ml	200	1	<1
pH	NA	6.0-9.0	NA	7.10
Total Suspended Solids	mg/L	15	10	**1490**
Total Cadmium	mg/L	0.001	0.001	<0.001
Total Chromium	mg/L	0.2	0.015	0.030
Total Copper	mg/L	0.01	0.010	**0.011**
Total Lead	mg/L	0.05	0.020	<0.020
Total Mercury	mg/L	0.001	0.0002	<0.0002
Total Nickel	mg/L	0.05	0.015	0.026
Total Zinc	mg/L	0.05	0.020	**0.059**

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard: Refers to Peel Storm

Certified By: Elizabeth Potakowska

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Certificate of Analysis

AGAT WORK ORDER: 07T230394

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

Water Quality Assessment

DATE SAMPLED: Jun 25, 2007 | **DATE RECEIVED: Jun 25, 2007** | **DATE REPORTED: Jul 03, 2007** | **SAMPLE TYPE: Water**

	Unit	G / S	M.D.L	BH6 740982	BH15 740986
Electrical Conductivity	uS/cm		2	13800	9990
pH	N/A		N/A	7.10	7.42
Saturation pH	N/A			5.92	6.22
Langelier Index	N/A			1.18	1.20
Total Dissolved Solids	mg/L		20	9670	6750
Total Hardness (as CaCO3)	mg/L		10	2500	1310
% Difference/Ion Balance	%			2.7	1.3
Alkalinity (as CaCO3)	mg/L		10	385	364
Bicarbonate (as CaCO3)	mg/L		10	385	364
Carbonate (as CaCO3)	mg/L		10	<10	<10
Hydroxide	mg/L		10	<10	<10
Fluoride	mg/L		5.00	<5.00	<5.00
Chloride	mg/L		10.0	5000	3190
Bromide	mg/L		5.00	<5.00	<5.00
Nitrate as N	mg/L		5.00	<5.00	<5.00
Nitrite as N	mg/L		5.00	<5.00	<5.00
Sulphate	mg/L		10.0	493	462
Orthophosphate as P	mg/L		10.0	<10.0	<10.0
Total Phosphorus	mg/L		0.05	1.69	0.14
Ammonia (as N)	mg/L		0.02	1.48	0.11
Total Organic Carbon	mg/L		0.5	13.1	4.6
Reactive Silica	mg/L		0.05	20.5	10.8
Colour	Colour Units		5	<5	<5
Turbidity	NTU		0.5	12	10
Calcium	mg/L		0.05	755	419
Magnesium	mg/L		0.05	149	63.0
Sodium	mg/L		0.05	2310	1790
Potassium	mg/L		0.05	9.80	8.29
Aluminum	mg/L		0.004	1.33	0.421
Arsenic	mg/L		0.003	<0.003	<0.003
Barium	mg/L		0.002	0.333	0.342

Certified By: Elizabeth Potakowska

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Certificate of Analysis

AGAT WORK ORDER: 07T230394

PROJECT NO: 07TX014

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Mori H. Mortazavi

Water Quality Assessment

DATE SAMPLED: Jun 25, 2007 | **DATE RECEIVED: Jun 25, 2007** | **DATE REPORTED: Jul 03, 2007** | **SAMPLE TYPE: Water**

	Unit	G / S	M.D.L	BH6 740982	BH15 740986
Boron	mg/L		0.010	0.090	0.050
Cadmium	mg/L		0.002	<0.002	<0.002
Chromium	mg/L		0.003	0.012	0.008
Copper	mg/L		0.003	0.009	0.003
Iron	mg/L		0.005	10.4	1.78
Lead	mg/L		0.002	0.006	<0.002
Manganese	mg/L		0.002	3.06	1.56
Mercury	mg/L		0.0001	<0.0001	<0.0001
Molybdenum	mg/L		0.002	0.008	<0.002
Nickel	mg/L		0.003	<0.003	<0.003
Selenium	mg/L		0.004	<0.004	<0.004
Silver	mg/L		0.002	<0.002	<0.002
Strontium	mg/L		0.005	4.83	1.80
Thallium	mg/L		0.006	<0.006	<0.006
Titanium	mg/L		0.002	0.030	0.019
Uranium	mg/L		0.002	0.005	0.003
Vanadium	mg/L		0.002	0.028	0.023
Zinc	mg/L		0.005	0.015	<0.005

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard

Certified By: Elizabeth Rolakowska

CERTIFICATE OF ANALYSIS

AGAT WORK ORDER: 07T230394
PROJECT NO: 07TX014
CLIENT NAME: PETO MACCALLUM LIMITED
ATTENTION TO: Mori H. Mortazavi
DATE RECEIVED: Jun 25, 2007
DATE SAMPLED: Jun 25, 2007
DATE REPORTED: Jul 03, 2007

PACKAGE INFORMATION:

Work Sheet Name	Sample Ty	Guideline / Standard	Package Name
X01	Water	Peel Storm	Peel Storm Sewer Bylaw
X02	Water		Water Quality Assessment

APPENDIX C

Statement of Limitations

STATEMENT OF LIMITATIONS

This report is prepared for and made available for the sole use of the client named. Peto MacCallum Ltd. (PML) hereby disclaims any liability or responsibility to any person or entity, other than those for whom this report is specifically issued, for any loss, damage, expenses, or penalties that may arise or result from the use of any information or recommendations contained in this report. The contents of this report may not be used or relied upon by any other person without the express written consent and authorization of PML.

This report shall not be relied upon for any purpose other than as agreed with the client named without the written consent of PML. It shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. A portion of this report may not be used as a separate entity: that is to say the report is to be read in its entirety at all times.

The report is based solely on the scope of services which are specifically referred to in this report. No physical or intrusive testing has been performed, except as specifically referenced in this report. This report is not a certification of compliance with past or present regulations, codes, guidelines and policies.

Environmental site assessment studies are performed in different phases by the application of different levels of effort and expense. The phase or phases in this report and the level of effort proposed for this assignment were based solely on PML's understanding of the client's needs as described in the scope of services contained in this report.

This assessment does not wholly eliminate uncertainty regarding the potential for existing or future costs, hazards or losses in connection with the subject property and must be viewed as a mechanism to reduce risk rather than eliminate the risk of contamination concerns.

The scope of services carried out by PML is based on details of the proposed development and land use to address certain issues, purposes and objectives with respect to the specific site as identified by the client. Services not expressly set forth in writing are expressly excluded from the services provided by PML. In other words, PML has not performed any observations, investigations, study analysis, engineering evaluation or testing that is not specifically listed in the scope of services in this report. PML assumes no responsibility or duty to the client for any such services and shall not be liable for failing to discover any condition, whose discovery would require the performance of services not specifically referred to in this report.

STATEMENT OF LIMITATIONS (Cont'd)

The findings and comments made by PML in this report are based on the conditions observed at the time of PML's site reconnaissance. No assurances can be made and no assurances are given with respect to any potential changes in site conditions following the time of completion of PML's field work. Furthermore, regulations, codes and guidelines may change at any time subsequent to the date of this report and these changes may effect the validity of the findings and recommendations given in this report.

The results and conclusions with respect to site conditions are therefore in no way intended to be taken as a guarantee or representation, expressed or implied, that the site is free from any contaminants from past or current land use activities or that the conditions in all areas of the site and beneath or within structures are the same as those areas specifically sampled.

Any investigation, examination, measurements or sampling explorations at a particular location may not be representative of conditions between sampled locations. Soil, groundwater, surface water, or building material conditions between and beyond the sampled locations may differ from those encountered at the sampling locations and conditions may become apparent during construction which could not be detected or anticipated at the time of the intrusive sampling investigation.

Budget estimates contained in this report are to be viewed as an engineering estimate of probable costs and provided solely for the purposes of assisting the client in its budgeting process. It is understood and agreed that PML will not in any way be held liable as a result of any budget figures provided by it.

The Client expressly waives its right to withhold PML's fees, either in whole or in part, or to make any claim or commence an action or bring any other proceedings, whether in contract, tort, or otherwise against PML in anyway connected with advice or information given by PML relating to the cost estimate or Environmental Remediation/Cleanup and Restoration or Soil and Groundwater Management Plan Cost Estimate.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

PHASE I ENVIRONMENTAL SITE ASSESSMENT
GOREWAY DRIVE IMPROVEMENT
BETWEEN BRANDON DRIVE AND STEELES AVENUE
MISSISSAUGA AND BRAMPTON, ONTARIO
for
UMA ENGINEERING LIMITED

PETO MacCALLUM LTD.
165 CARTWRIGHT AVENUE
TORONTO, ONTARIO
M6A 1V5
Phone: (416) 785-5110
Fax: (416) 785-5120
Email: toronto@petomaccallum.com

Distribution:
3 cc: UMA Engineering Limited
1 cc: PML Toronto

PML Ref.: 07TX014
May 25, 2007

Peto MacCallum Ltd.
CONSULTING ENGINEERS

May 25, 2007

PML Ref.: 07TX014

Mr. Greg Smith, P.Eng.
UMA Engineering Limited
5080 Commerce Boulevard
Mississauga, Ontario
L4W 2P2

Dear Mr. Greg

Executive Summary
Phase I Environmental Site Assessment (ESA)
Goreway Drive between Brandon Gate Drive and Steeles Avenue East
Mississauga/Brampton, Ontario

We are pleased to present our report of a Phase I Environmental Site Assessment (ESA) recently carried out for the above-referenced alignment. Mr. Greg Smith of UMA Engineering Limited authorized the work included in a Subconsultant Agreement signed on February 14, 2006.

A Phase I ESA was required to assess and document the past and present site geoenvironmental conditions; and to identify any actual or potential on-site and off-site sources of contamination for due diligence purposes. The Phase I ESA was carried out in accordance with the Canadian Standard Association (CSA) Standard Z768-01, dated November 2001.

The results of our Phase I ESA indicate that:

i) The subject site, approximately 1.25 km in length, is located on Goreway Drive between Brandon Gate Drive (in the City of Mississauga), Ontario and Steeles Avenue East in the City of Brampton, Ontario,

ii) As early as 1940, a traffic road existed on the subject alignment. Since then, the subject site has not been used for any other purposes. The CN railway, which crosses the Goreway Drive, was constructed between 1961 and 1976. Probably due to inadequate maintenance, cracks were noted in many places of the road. Garbage including plastic, rubber and other debris, was seen near the intersection of Goreway Drive and CN railway.

iii) To the north of CN railway, the buildings adjoining to the subject site are mainly used for industrial/commercial or entertainment businesses. The businesses include golf entertainment, image and graphic design, aircraft systems design and training, mechanical and electronics design, distribution of metallic products, and warehouse management and transportation. To the south of CN railway, the buildings are primarily used for residential dwelling, and

iv) A transformer was identified and fenced off on the roadside of Goreway Drive, about 80 m north of the Mimico Creek culvert.

165 Cartwright Avenue, Toronto, Ontario, Canada M6A 1V5
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BARRIE, BRAMPTON, HAMILTON, KITCHENER, TORONTO

Evaluation of Findings

Based on our evaluation of the above-listed findings as well as our experience from numerous similar assignments, the following environmental issues were identified:

- The deposition of heavy metals and petroleum products from the vehicles,
- The use of salt for the ice/snow melting on the road,
- The use of chemically-treated railway track ties and ballasts, and
- The accumulation of garbage.

Conclusions and Recommendations

The subject site, approximately 1.25 km in length, is located along Goreway Drive between Brandon Gate Drive (in the City of Mississauga, Ontario) and Steeles Avenue in the City of Brampton, Ontario.

Our Phase I ESA findings revealed that the subject site has been used as a traffic road since 1940's. The CN railway, which crosses the Goreway Drive, was constructed between 1961 and 1976. The existing buildings adjoining to the subject site were constructed after 1981 to the north of CN railway, and before 1976 to the south of CN railway.

No hazardous materials or designated substances were observed on the subject site. Probably due to maintenance inefficiency, cracks were noted on many locations of the road surface.

Based on the Phase I ESA findings outlined above, in our professional opinion, the possibility of the contamination of soils and ground water underlying the subject site due to the operation of the traffic road and railway in many years can not be excluded. The soils and ground water may have likely been impacted locally by the elevated concentrations of heavy metals, petroleum products, PAHs, creosote and salt. Considering that the subject site will still be used for traffic purposes, the above-mentioned environmental concerns are considered insignificant.

However, for due diligence purpose, a program of limited sampling and chemical testing of soil and ground water prior to the construction will be required for appropriate management of excess excavated soil and construction dewatering discharge.

This report should be read in conjunction with a Statement of Limitations enclosed.

We trust that you will find this report complete within our terms of reference. Should you have any questions or if we can be of further assistance in the upcoming stages of the project, please do not hesitate to contact this office.

Sincerely

Peto MacCallum Ltd.

Mori H. Mortazavi, MEng, P.Eng., P.Geo.
Manager and Chief Engineer
Geoenvironmental and
Hydrogeological Services

MHM-bg:lr

TABLE OF CONTENTS

1. INTRODUCTION

Peto MacCallum Ltd. (PML) was retained by UMA Engineering Limited (the Client) to conduct a Phase I Environmental Site Assessment (ESA) for the subject site located along Goreway Drive between Brandon Gate Drive (in Mississauga, Ontario) and Steeles Avenue (in Brampton, Ontario).

The Goreway Drive Improvement is understood to include roadway widening, and CN Halton crossing, Mimico Creek East Branch crossing (culvert) improvement and storm sewer reconstruction activities.

1.1 Purpose of Work

A Phase I ESA was required to assess and document the past and present site geoenvironmental conditions; and to identify any actual or potential on-site and off-site sources of contamination for due diligence purposes.

1.2 Scope of Work

The scope of services provided by Peto MacCallum Ltd. in the course of the assessment involved the following tasks:

- A review of available documents including aerial photographs, topographic, geologic and hydrogeologic maps, city directories, reports of previous geotechnical investigations for the subject site and the vicinity, land registry records, Ministry of Environment (MOE) water well records, and fire insurance plans to evaluate the site physical setting and to document past and present land use activities,
- A site reconnaissance for visual identification of potential environmental concerns,
- Interviews with the current property owners and/or knowledgeable people regarding the site and surrounding conditions associated with the historical and current land use activities,
- Scientific evaluation of the information compiled on the site historical/background and current conditions, and

- Preparation of this report, including our findings and recommendations, together with the pertinent illustrations.

The Phase I ESA was conducted in accordance with the Canadian Standards Association (CSA) Standard Z768-01, dated November 2001.

2. SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject site is an approximately 1.25 km alignment of Goreway Drive between Brandon Gate Drive and Steeles Avenue; and located at the boundary of the Brampton and Mississauga Cities in Ontario, where the Canadian National (CN) railway and Mimico Creek East Branch tributary cross the subject alignment. It is also the boundary between Concession 7 and 8 for the Part Lots 13,14 and 15 in Brampton and Mississauga (see Figures 1 and 2 and Drawing 1).

3. RECORDS REVIEW

3.1 Aerial Photographs

3.1.1 1978 Aerial Photograph

The 1978 Aerial photograph (approximately 1:10,000) showed the CN railway crossing on Goreway Drive. To the south of CN railway were well developed residential areas, and to the north, were dominantly the agricultural lands near Steeles Avenue and uncultivated lands near Mimico Creek. Some houses were noted on the east side of Goreway Drive and to the north of the Mimico Creek.

3.1.2 2005 Aerial Photograph

The 2005 aerial photograph (1:10,000) indicated that great changes had occurred to the north part of the subject site and its neighbouring areas. Two of railway tracks were found about 600 m west from Goreway Drive, one of which was connected to the Goreway/CN railway intersection. A big

house noted to north of the Mimico Creek on the 1978 aerial photograph, which was also marked on 1983 OBM topographic map (1:10,000), was replaced by a bigger building compound. A number of big structured buildings were noted on the south side of Steeles Avenue except on the southwest corner of the Steeles-Goreway intersection where a patch of vacant land still existed; and to the north of Steeles Avenue, Highway 407 was developed. To the south of the building area or north of CN railway, Golf courses were clearly recognisable.

Due to the land development for commercial or industrial use, the small tributaries of the Mimico Creek disappeared, and the Mimico Creek became more confined, flowing in the main channel. A copy of 2005 aerial photograph is enclosed as Figure 2.

3.2 Toronto and Region Conservation Authority (TRCA) Watershed Map

A review of TRCA Watershed Map indicated that the subject site is located within the Mimico Creek watershed. The subject alignment crosses a tributary of Mimico Creek above which a new overpass bridge is to be built. The Mimico Creek meanders southeasterly and finally flows into Ontario Lake.

3.3 Property Records

3.3.1 Insurance Records

According to the 1:50,000 topographic map based on 1940 aerial photography, a roadway used to exist historically along the current Goreway Drive. Therefore, the subject site has been used as a traffic road since 1940's. No insurance records were available for the subject site.

3.3.2 Property Use Directories

As mentioned above, the subject site has been used as a city road, and no records of other land uses are available.

3.4 Title Search and Land Registry Records

According to the 1:50,000 topographic map noted above, Goreway Drive alignment has been historically a traffic road since 1940's and therefore title search was considered necessary for the subject alignment.

3.5 Previous Phase I ESA Reports

No previous Phase I ESA reports were available for the subject site.

3.6 Geological and Geotechnical Reports

The report of a preliminary geotechnical investigation undertaken by PML in 1997 within the study site was available in the office and reviewed. Our review findings are summarised as follows:

- A preliminary geotechnical investigation (Report 97TF060 dated July 29, 1997) was undertaken by PML for a site located on the southwest corner of the Steeles Avenue East and Goreway Drive intersection, namely the west of the north part of subject site. The report indicated that site, proposed for a Class "A" metal stamping plant development, was used for corn planting. The geotechnical investigation included ten boreholes drilled down to 5 to 6.5 m, and revealed the stratigraphy of the site comprising of surficial topsoil 10 to 15 cm thick overlying the strata of stiff to very stiff silty clay till that extended to an average of 2.3 m in depth, overlying compact to dense cohesionless soils sandy silt, silty sand, gravelly sand and sandy silt till. The ground water was found in the cohesionless soil layer in all the boreholes with the measured water levels ranging from 1.5 to 2.4 m below existing grades indicating confined aquifer according with a slightly pressurised ground water condition.

No other geological or geotechnical reports are available for the subject site and the vicinity.

The MOE water well record revealed that five wells were historically drilled within the study area, and three of them were advanced through the overburden deposits and down into shale bedrock. The surface of bedrock ranged from 74 to 89 feet (22 to 27 m) below ground surface. The water levels in the overburden deposit aquifers, were measured and ranged about 17 feet (5 m) below the ground surface.

3.7 Regulatory Information

An inquiry letter was made to the Ministry of Environment's (MOE's) Freedom of Information Office in Toronto, for documented environmental concerns and citation, if any, on the subject property and the past land use activities. It was advised by phone that no records could be searched without a specific street number because the subject site is a traffic road.

The following MOE documents were consulted and no listings were noted for the subject site.

- Inventory of Coal Gasification Plant Waste Sites in Ontario, April 1987
- Disposal Site Inventory, June 1991 (ISBN 0-7729-8409-3)
- Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario, November 1988
- Ontario Inventory of PCB Storage Sites, January 1993

A request was sent to the Technical Standards and Safety Authority (TSSA) of the Ministry of Consumers and Commercial Relations to review the records for registered aboveground and underground storage tanks on the subject site. A follow-up call was made and we were advised that no records existed for the subject site and the neighbouring properties.

3.8 Geological and Hydrogeological Maps

The study site is located within a physiographic region of Peel Plain which is a level-to-undulating tract of clay soils (Chapman, L.J. and Putnam, D.F.,1984. The Physiography of Southern Ontario, Ministry of Natural Resources). The underlying geological materials of the plain are till deposits and shale and limestone. The bedrock in this area comprises Upper Ordovician Queenston Formation of shale, limestone, dolostone and siltstone (Bedrock Geology of Ontario, 1991 Ministry of Northern Development and Mines, Map 2544).

According to Quaternary Geology of Toronto and Surrounding Area, (Ministry of Natural Resources, Preliminary Map 2204, 1980), the overburden primarily consists of clayey silt till.

3.9 Water Well Records

An inquiry letter was made to the MOE's Water Well Records Office in Toronto, for documented water well records of the subject site and its surrounding areas. Five wells were located within the study site. Two of those wells located in Brampton were drilled in 1983 and not in use any longer according to the record; and the other three in Mississauga were drilled in 1950 to 1960's revealed that the water was found between 52 (16 m) and 87 feet (27 m) below the ground surface in the overburden deposits and the water levels were around 17 feet (5 m) below the ground surface.

3.10 Topographic Maps

A review of 1:50,000 topographic map based on 1940 aerial photography revealed that a roadway was already existing on the subject site, namely Goreway Drive, and the previously existing roadway on the Steeles Avenue alignment was a loose, graded and drained roadway with about 3 lanes.

A review of 1:25,000 topographic map compiled in 1960-61 revealed that the study site was a rural, undeveloped area with three houses and one compound house located on the east of Goreway Drive; and the CN railway, over which the proposed overpass is to be built was not noted on this map.

The topographic map (1:50,000) based on 1976 data indicated the existence of CN railway, which extended from northeast to southwest and crossed Goreway Drive. To the south of CN railway, the lands were developed as residential areas, except the area between Goreway Drive and Mimico Creek; and Brandon Gate Drive was constructed. To the north, however, no change in land use was identified on the map.

The 1:10,000 OBM topographic map based on 1982 data (shown on Figure 3) displayed the completion of land development on the area surrounded by CN railway, Brandon Gate Drive, Goreway Drive and the Mimico Creek. Besides, to the west of Goreway Drive, more CN railways were constructed. Highway 407, which is now about 500 m north of Steeles Avenue, was not shown on the topographic map published in 2000.

According to the topographic maps, the elevation for the subject site and the vicinity decreases from the north to the south generally from 176.5 to 173.0 m. The Mimico Creek running across the Goreway Drive forms a relatively depressed landscape as the river valley at elevations lower than 170.0 m.

4. SITE VISIT

A member of our technical staff conducted a site reconnaissance visit on March 28, 2007. The site observations and features recorded are shown on Drawing 1, and Plates 1 through 6, enclosed. The site visit comprised a walkover visual inspection of the subject site and the adjoining properties.

4.1 General Site Observations

The subject site is a four-lane two-way city road paved with asphalt connecting the cities of Brampton and Mississauga. On both sides of Goreway Drive sodded lands of various sizes were noted. Concrete side-walks existed discontinuously on east side of Goreway Drive. The high-voltage electricity lines on the poles were located mainly on the west side of Goreway Drive, except an area on the east where a transformer was noted.

A tributary of the Mimico Creek crossed Goreway Drive through a culvert nearly at the central part of the subject alignment, causing a lowered landscape on the road. The CN railway crossing forms an at-grade intersection with discrete asphalt pavement or gaps on the road. During the site visit, some distress crackings were noted on the road of present as shown on the attached site photographs.

4.1.1 Observation of Adjoining Properties

The subject alignment is located in areas that have not been completely developed. Relatively, it is more developed on the east. On the west, however, a patch of land to the north of CN railway was still undeveloped probably due to the existence of the Mimico Creek tributary; and at the southwest corner of the Steeles-Goreway intersection, a construction was apparently underway as the building foundation was observed.

The land use of the adjoining properties included the residential areas to the south of CN railway, namely in the City of Mississauga. To the north of CN railway, in the City of Brampton, there were properties used for industrial/business purposes. The business companies identified during the site visit included Parkshore Golf Club, Atlantis Engineering Centre, Siemens Automation Technology, Unalloy-IWRC, Southern Graphic Systems Canada, ISG Group, Excel Transportation and US Consolidators Corporation. The businesses of those companies covered golf entertainment, image and graphic design, aircraft systems design and training, mechanical and electronics design, distribution of metallic products, and warehouse management and transportation.

A hydro-power transformer was also noted about 50 meters north of the Mimico Creek on the east side of Goreway Drive.

4.1.2 Topographic, Geologic, and Hydrogeologic Observations

The subject site was gently sloping down to the south, except for the depressed portion at the culvert for the Mimico Creek crossing. The rainwater was collected in the road catch basins connected to the city stormwater system. During our site visit, the ditches were noted but without water by the side of railway at the CN railway/Goreway Drive intersection.

4.1.3 Water Wells

No water well was noted on the subject site in our water well survey along the subject alignment that we conducted by interviewing the property owners for their use of water wells, if any. According to the MOE water well records, five wells were recorded within the study area. Two wells, not in use any longer, are located within a fenced-out area at the southwest corner of the Highway 407-Goreway Drive intersection, and therefore were not noted. Two other wells, located in the residential areas to the southeast of CN railway-Goreway Drive, were not noted either. An interview with a likely well owner, revealed that the residential area was serviced with the City piped water system, and he had never heard of anybody's use of well water in this area. Another well, located at the site of Parkshore Golf Club, was not identified either. confirmed that they did

not use well water because they use the City water for the building, and use the Mimico Creek water for the golf course irrigation.

4.1.4 Sewage Disposal

Since the subject site is a city road, no sanitary sewer exists.

4.1.5 Pits and Lagoons

No pits or lagoons were known to exist or were observed on the subject site.

4.1.6 Stained Materials

No visible stains were found on the subject site during our site reconnaissance visit.

4.1.7 Stressed Vegetation

Since the subject site is an asphalt road, no vegetation was expected. No evidence of stressed vegetation was observed on the sodded lands beside the road during the site visit.

4.1.8 Fill and Debris Materials

Fill materials and debris were not observed during our site visit. However, it was noted that some garbage was accumulated in the ditches near the intersection of Goreway Drive and CN railway.

4.1.9 Wastewater

No public and/or municipal wastewater treatment facilities were observed on the subject site.

4.1.10 Hazardous Materials/Designated Substances

No hazardous materials or designated substances were observed on the subject site.

4.1.11 Storage Tanks and Containers

No above ground or underground storage tanks were noted at the subject site.

4.1.12 Heating System

No heating system was applied in the subject site.

4.1.13 Odour

No unusual odours were detected during the site visit.

5. INTERVIEWS

An interview was planned with a staff of the City of Brampton, as suggested by the Client. However, no response was received to the message request for the interview. Besides, a questionnaire fax was sent to the City regarding the historical and current development on and along Goreway Drive (see Appendix B). However, at the time of preparing this report, we were not in receipt of any responses. Once received, the response will be forwarded to the client.

In addition, a call was made to who indicated the following:

- He has worked with Parkshore Golf Club for about 20 years, a property located on Goreway Drive about 500 m north from the Goreway Drive-CN railway intersection
- He has never heard of any accidents of chemical spillage on the Goreway Drive.
- There was no underground storage tank or above round storage tank in his managed property.
- No well water was used, water was pumped from the Mimico Creek for the golf course irrigation and the City piped water was used for the building.

6. FINDINGS

The results of our Phase I ESA indicate that:

i) The subject site, approximately 1.25 km in length, is located on Goreway Drive between Brandon Gate Drive (in the City of Mississauga, Ontario) and Steeles Avenue East (in the City of Brampton, Ontario),

ii) As early as 1940, a traffic road existed on the subject alignment. Since then, the subject site has not been used for any other purposes. The CN railway, which crosses the Goreway Drive, was constructed between the 1961 and 1976. Probably due to inadequate maintenance, cracks were noted in many places of the road. Garbage including plastic, rubber and other debris, was seen near the intersection of Goreway Drive and CN railway.

iii) To the north of CN railway, the buildings adjoining to the subject site are mainly used for industrial/commercial or entertainment businesses. The businesses include golf entertainment, image and graphic design, aircraft systems training design and training, mechanical and electronics design, distribution of metallic products, and warehouse management and transportation. To the south of CN railway, the buildings are primarily used for residential dwelling, and

iv) A transformer was identified and fenced off on the roadside of Goreway Drive, about 80 m north of the Mimico Creek culvert.

7. EVALUATION OF FINDINGS

Based on our evaluation of the above-listed findings as well as our experience from numerous similar assignments, the following environmental issues were identified:

- The deposition of heavy metals and petroleum products from the vehicles,
- The use of salt for the ice/snow melting on the road,
- The use of chemically-treated railway track ties and ballasts, and
- The accumulation of garbage.

8. CONCLUSIONS AND RECOMMENDATIONS

The subject site, approximately 1.25 km in length, is located on Goreway Drive between Brandon Gate Drive (in the City of Mississauga, Ontario) and Steeles Avenue in the City of Brampton, Ontario.

Our Phase I ESA findings revealed that the subject site has been used as a traffic road since 1940's. The CN railway, which crosses the Goreway Drive, was constructed between 1961 and 1976. The existing buildings adjoining to the subject site were constructed after 1981 to the north of CN railway, and before 1976 to the south of CN railway.

No hazardous materials or designated substances were observed on the subject site. Probably due to maintenance inefficiency, cracks were noted on many locations of the road surface.

Based on the Phase I ESA findings outlined above, in our professional opinion, the possibility of the contamination of soils and ground water underlying the subject site due to the operation of the traffic road and railway in many years can not be excluded. The soils and ground water may have likely been impacted locally by the elevated concentrations of heavy metals, petroleum products, PAHs, creosote and salt. Considering that the subject site will still be used for traffic purposes, the above-mentioned environmental concerns are considered insignificant.

However, for due diligence purpose, a program of limited sampling and chemical testing of soil and ground water is recommended prior to the construction will be required for appropriate management of excess excavated soil and construction dewatering discharge.

9. QUALIFICATIONS OF ASSESSOR

The qualifications of Peto MacCallum Ltd and the project personnel resumes are enclosed in Appendix C.

10. STATEMENT OF LIMITATIONS

A Statement of Limitations is included in Appendix C that should be read in conjunction with this report.

Sincerely

Peto MacCallum Ltd.

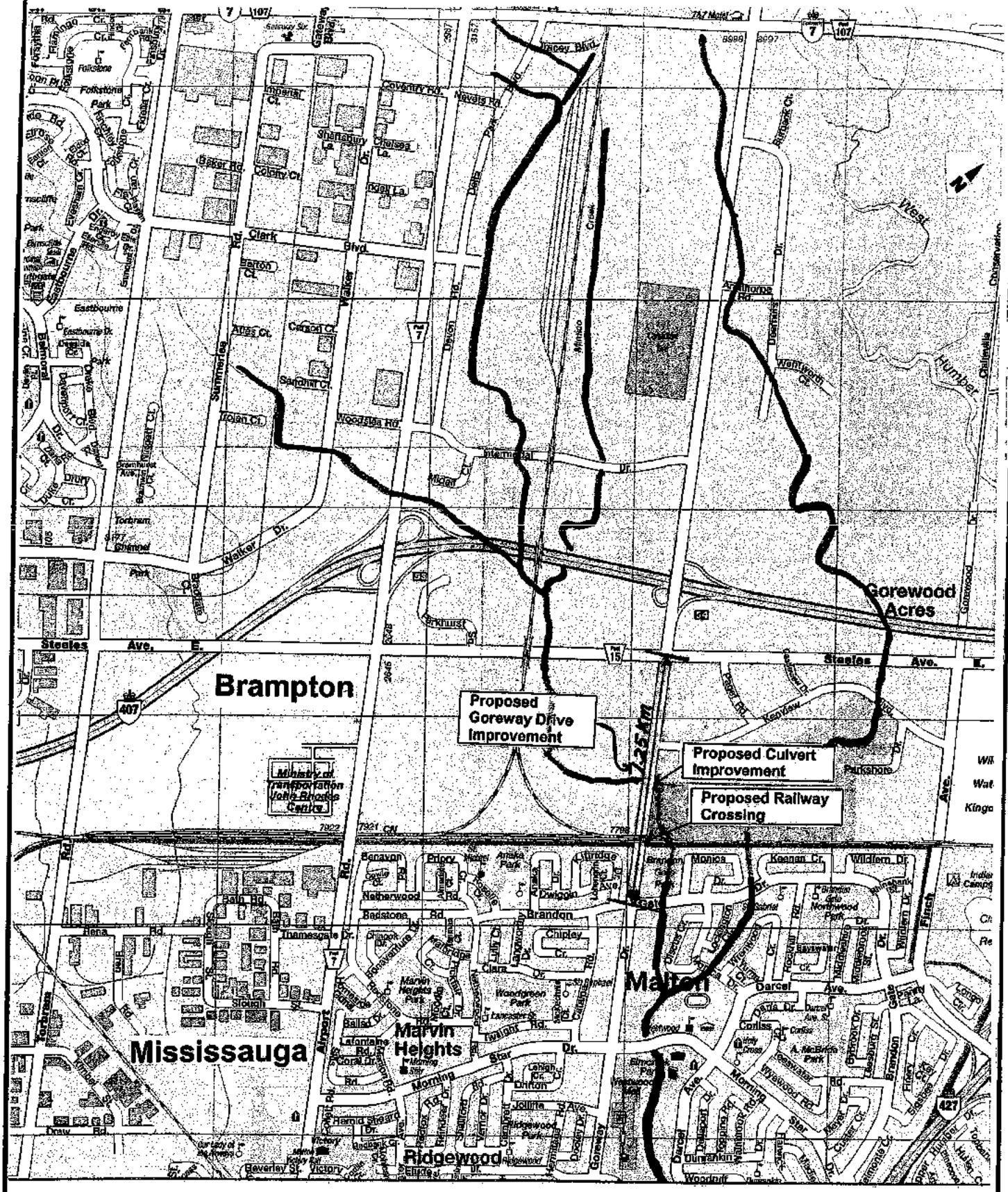
Bujing Guan, MASc, P.Geo.
Project Geoscientist

PROFESSIONAL GEOSCIENTIST
BUJING GUAN
PRACTISING MEMBER
1442
ONTARIO

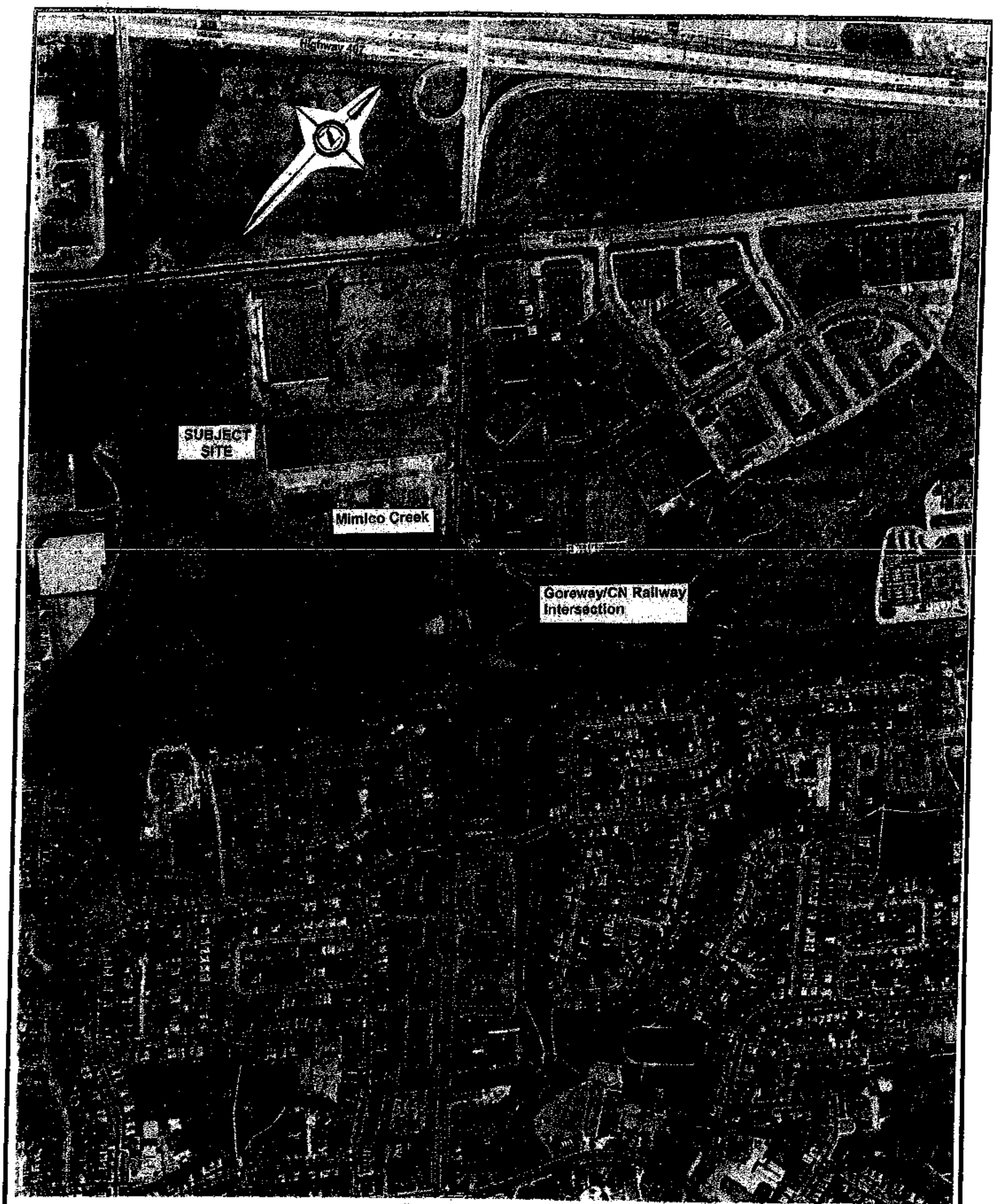
Mori H. Mortazavi, MEng, P.Eng., P.Geo.
Manager and Chief Engineer
Geoenvironmental and
Hydrogeological Services

LICENSED PROFESSIONAL ENGINEER
H. S. MORTAZAVI
PROVINCE OF ONTARIO

MHM/BG-bg:lr



UMA ENGINEERING LIMITED,		Peto MacCallum Ltd. CONSULTING ENGINEERS		
SITE KEY MAP				
GOREWAY DRIVE, between Brandon Gate Drive and Steeles Ave.,E.	DATE	SCALE	JOB NO.	FIGURE NO.
	MAY 2007	1:25,000	07TX014	1



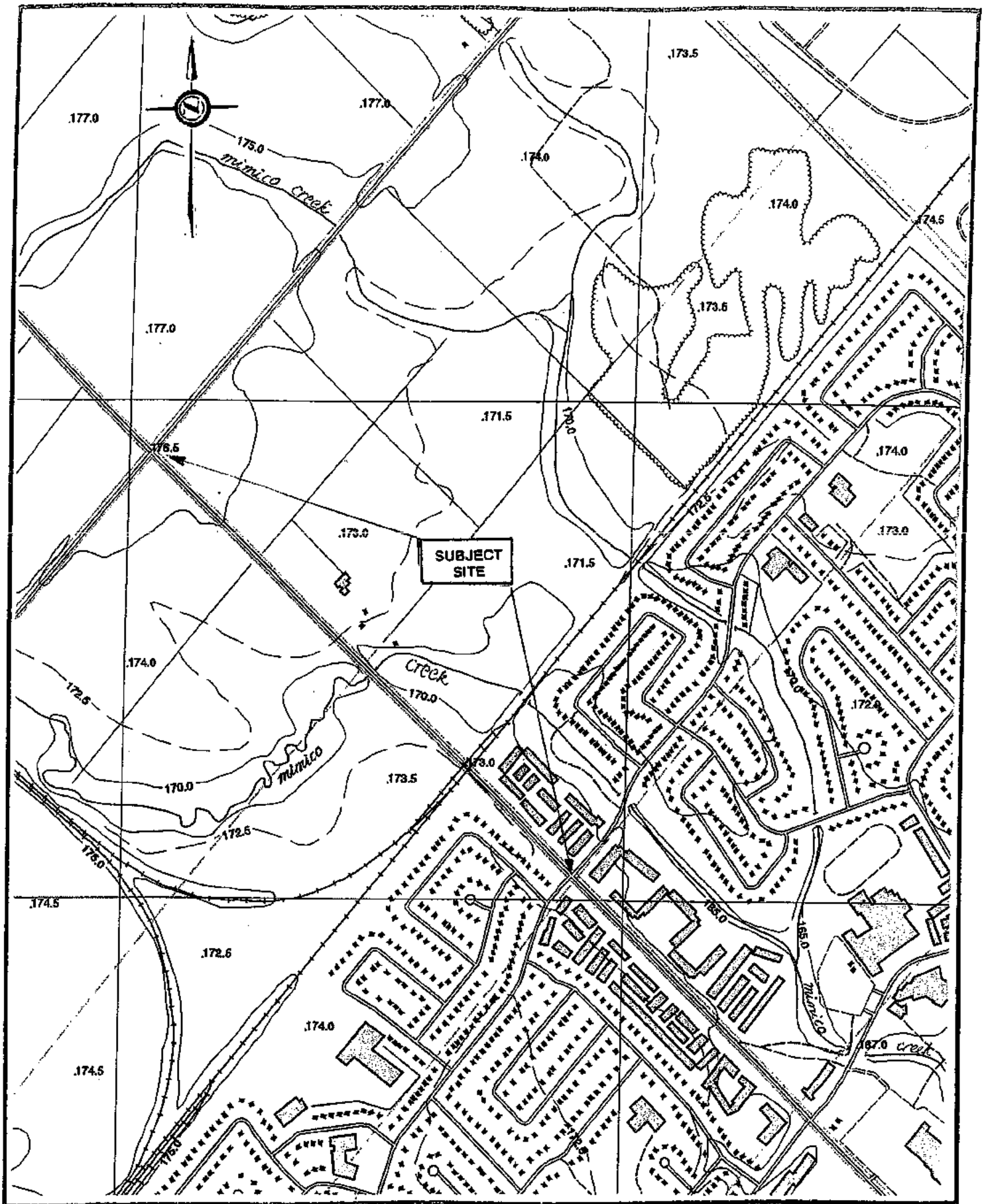
UMA ENGINEERING LIMITED

2005 AERIAL PHOTOGRAPH

GOREWAY DRIVE,
between Brandon Gate Drive and Steeles Ave.,E.

PetoMacCallum Ltd.
CONSULTING ENGINEERS

DATE	SCALE	JOB NO.	FIGURE NO.
MAY 2007	1:10,000	07TX014	2



UMA ENGINEERING LIMITED

1983 ONTARIO BASE MAP

GOREWAY DRIVE,
between Brandon Gate Drive and Steeles Ave.,E.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DATE	SCALE	JOB NO.	FIGURE NO.
MAY 2007	1:10,000	07TX014	3

Plate 1: Goreway Drive looking from the southeast corner of the Steeles-Goreway intersection.

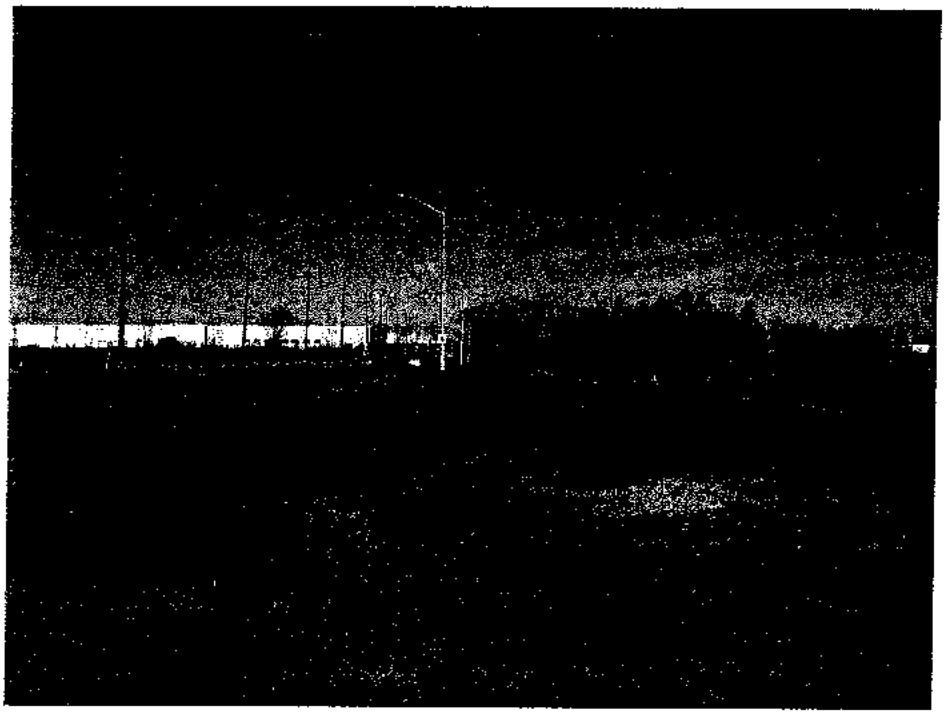


Plate 2: Goreway Drive looking from the northeast corner of the CN railway-Goreway Drive intersection.

Plate 3: Goreway-Brandon Gate intersection looking from the southwest corner of the intersection. Cracks or gaps are seen on the road.

Plate 4: Culvert on Goreway Drive for a tributary of Mimico Creek East Branch looking from east side of Goreway Drive near the culvert. Cracks are seen on the AC pavement.

Plate 5: CN railway-Goreway Drive intersection looking from northeast of the intersection. Discarded garbage is seen in the ditch, and cracks on the pavement.

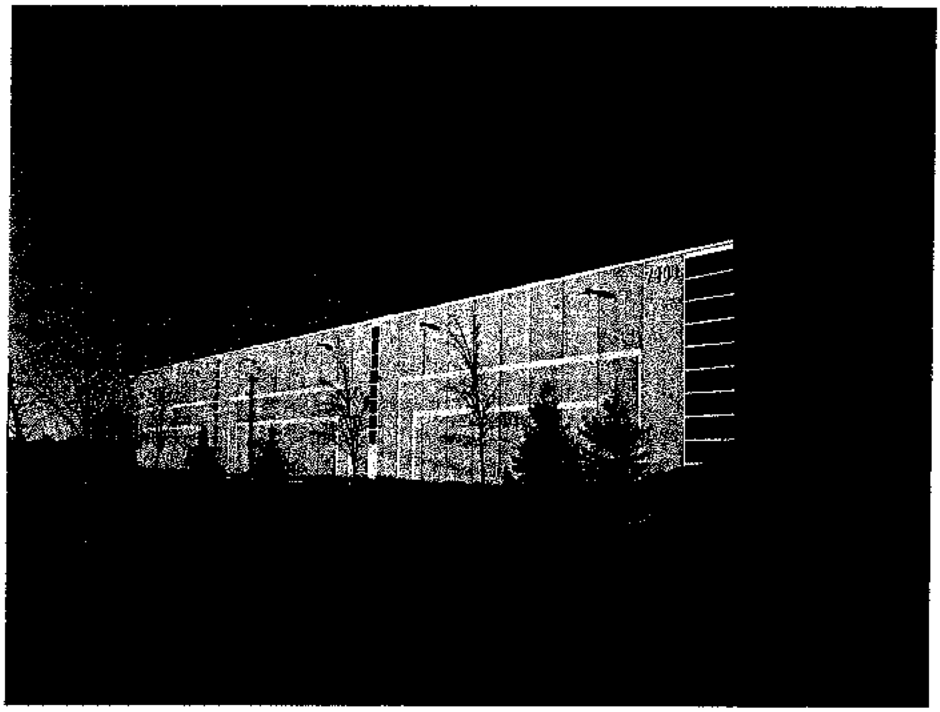
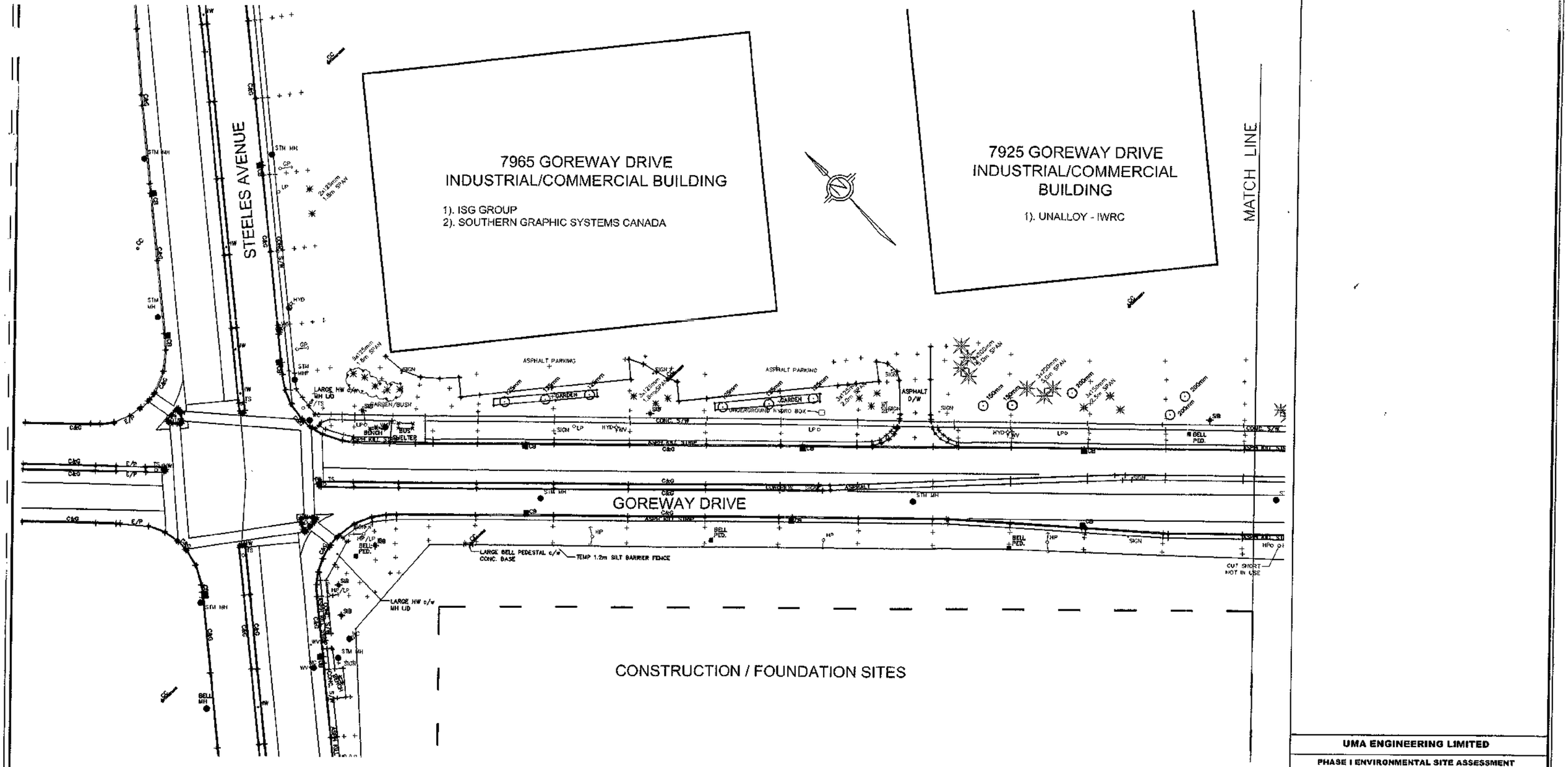


Plate 6: An industrial building seen by the side of Goreway Drive.



NOTES:

THE INFERRED STRATIGRAPHY REFERRED TO IN THIS REPORT IS BASED ON DATA FROM THESE BOREHOLES, SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY AT OTHER POINTS BETWEEN THE BORINGS MAY VARY FROM THAT SHOWN.

THIS DRAWING WAS REPRODUCED FROM A PLAN DRAWING "GOREWAYS" PROVIDED BY CLIENT.

No.	REVISIONS	DATE	BY

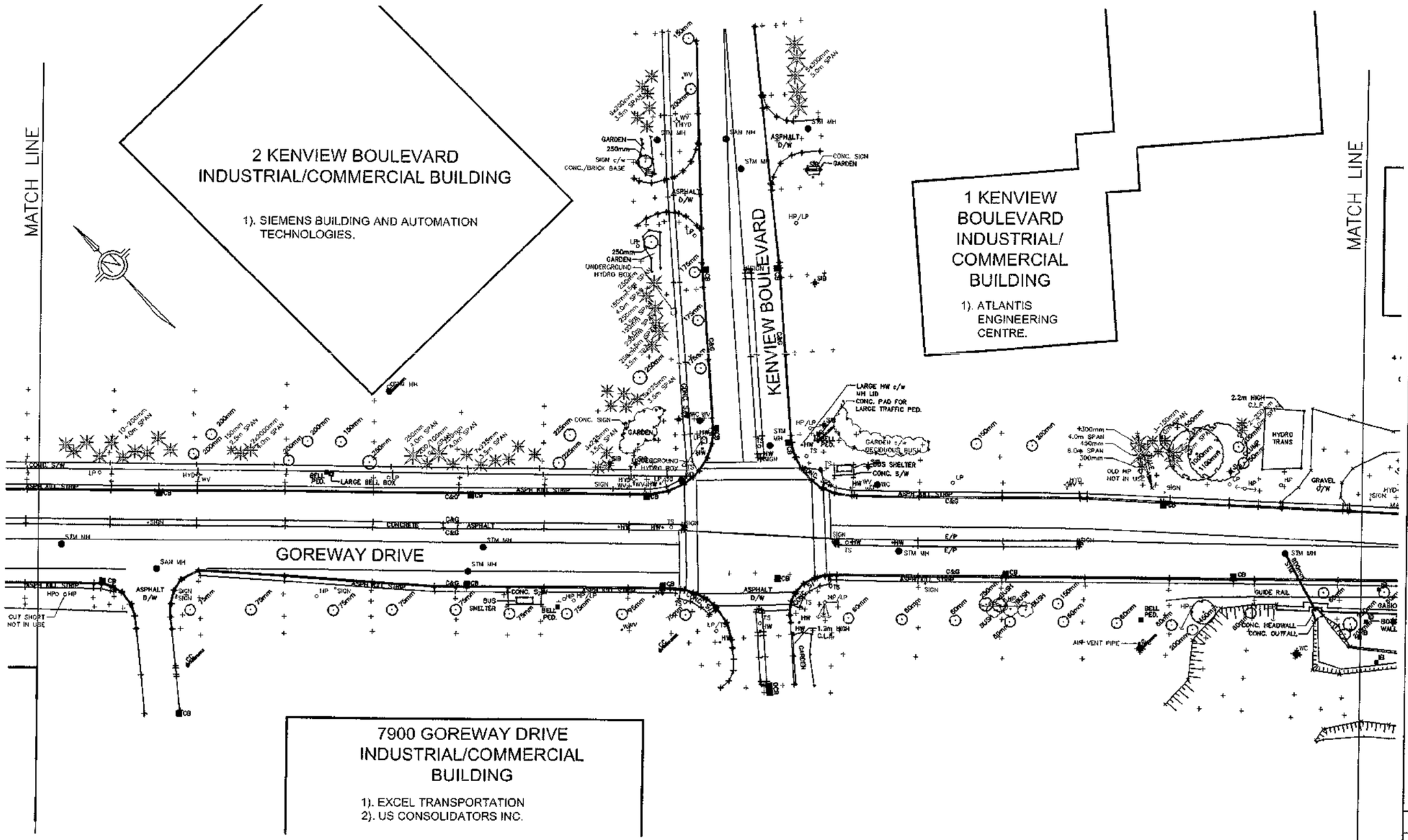
UMA ENGINEERING LIMITED

PHASE I ENVIRONMENTAL SITE ASSESSMENT
GOREWAY DRIVE
BRAMPTON/MISSISSAUGA, ONTARIO

KEY MAP AND SITE FEATURES OBSERVED ON MARCH 28, 2007

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.A.	MAY 2007	1 : 1,000	07TX014	1
APPROVED: M.M.M.				



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2. THIS DRAWING WAS REPRODUCED FROM A PLAN DRAWING "GOREWAY5" PROVIDED BY CLIENT.

No.	REVISIONS	DATE	BY

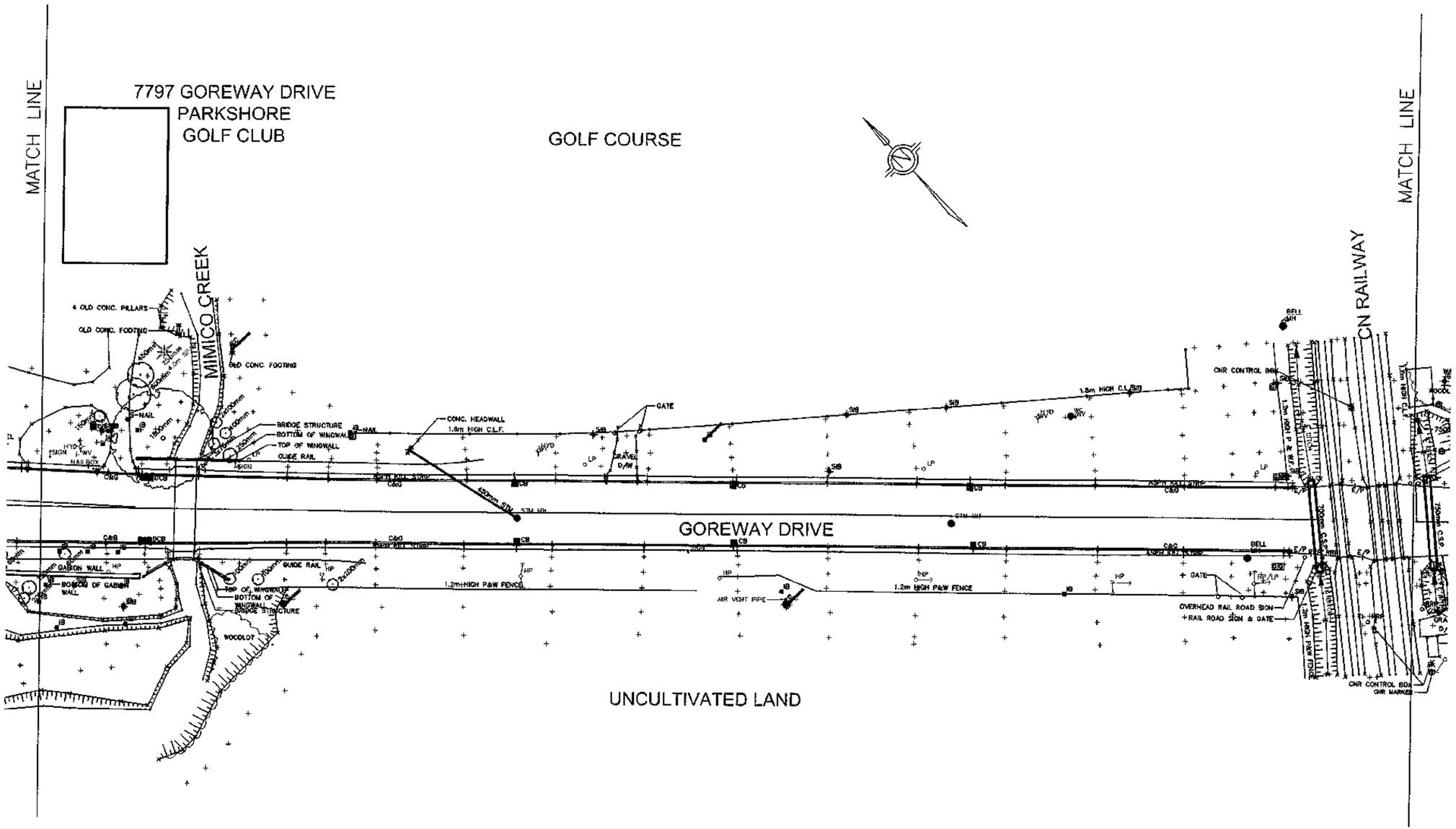
UMA ENGINEERING LIMITED

PHASE I ENVIRONMENTAL SITE ASSESSMENT
GOREWAY DRIVE
BRAMPTON/MISSISSAUGA, ONTARIO

KEY MAP AND SITE FEATURES OBSERVED ON MARCH 28, 2007

Peto MacCallum Ltd.
EARTH-TING ENGINEERS

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.A.	MAY 2007	1 : 1,000	07TX014	2
APPROVED: M.H.M.				



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GOREWAY DRIVE
BRAMPTON/MISSISSAUGA, ONTARIO

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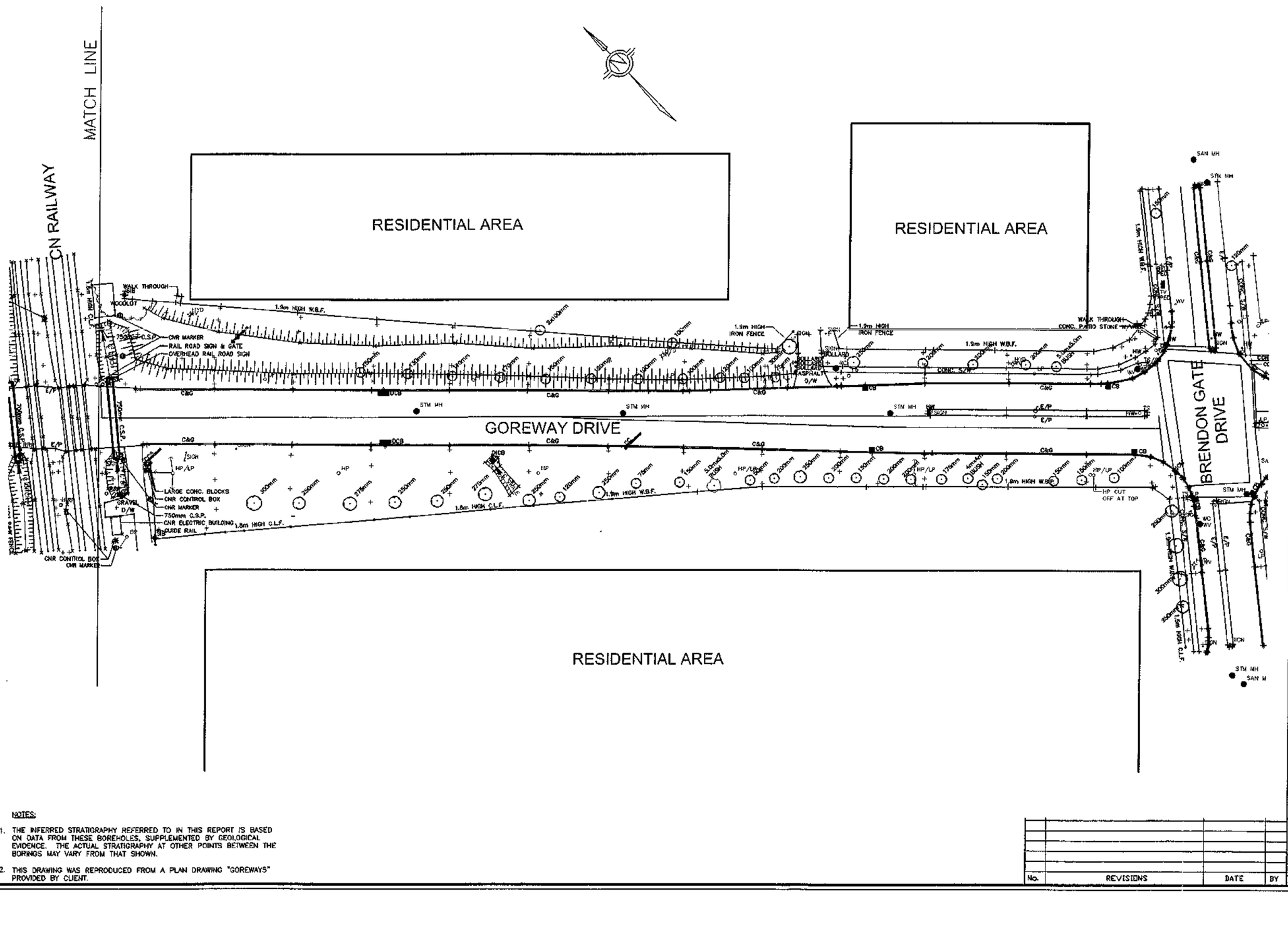

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UMA ENGINEERING LIMITED

PHASE I ENVIRONMENTAL SITE ASSESSMENT
GOREWAY DRIVE
BRAMPTON/MISSISSAUGA, ONTARIO

KEY MAP AND SITE FEATURES OBSERVED ON MARCH 28, 2007

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN: N.A.	DATE	SCALE	JOB NO.	DRAWING NO.
CHECKED: M.A.	MAY 2007	1 : 1,000	07TX014	4
APPROVED: M.H.M.				

APPENDIX A

Copies of the letter issued to the MOE's Freedom of Information Office
Dated April 2, 2007 and to the City of Brampton dated April 24,2007

FAX

Peto MacCallum Ltd.
CONSULTING ENGINEERS

FAX

ATTENTION	**Freedom of Information and Protection of Privacy Act Office**	DATE	April 2, 2007
COMPANY	*Ministry of Environment & Energy*	TEL NO.	416-314-4273
FROM	*Bujing Guan M.A.Sc, P.Geo.*	Fax No.	**416-314-4285**
COPY TO		PML REF.	**07TX014**
		NO. OF PAGES (including cover page)	2
SUBJECT	**Freedom of Information and Protection of Privacy Act Request**		
	Goreway Drive between Brandon Gate Drive and Steeles Avenue East, Brampton, Ontario	☐	HARD COPY TO FOLLOW

Gentlemen:

Referring to your letter dated on March 15, 2007, I am resubmitting the Freedom of Information Request. For the above mentioned area located at Goreway Drive between Brandon Gate Drive and Steeles Avenue East, Brampton, Ontario, please search the areas with the following Lot and Concession numbers:

Lot 1 Con 8 ND; Lot 1 Con 7 ND; Lots 15, 14 and 13 Con 8 SD; Lots 15, 14 and 13 Con 7 SD

If you have any questions, or need more information, please do not hesitate to call me.

Please call me for the methods of payment.

Yours truly,

Peto MacCallum Ltd.

Bujing Guan, M.A.Sc., P.Geo.
Environmental Geoscientist

165 Cartwright Ave. Toronto, Ontario M6A 1V5
Tel: (416) 785-5110 Fax: (416) 785-5120
E-mail: toronto@petomaccallum.com
BARRIE, BRAMPTON, HAMILTON, KITCHENER, TORONTO

FAX

Peto MacCallum Ltd.

CONSULTING ENGINEERS

FAX

ATTENTION	**Mr. Ken Lauppe**	DATE	April 24, 2007
COMPANY	*City of Brampton, Works and transportation Department*	TEL NO.	905 874-2000
FROM	*Bujing Guan M.A.Sc, P.Geo.*	**Fax No.**	**905-874 2599**
COPY TO		PML REF.	**07TX014**
SUBJECT	Enquiries on Goreway Drive property	NO. OF PAGES (including cover page)	1
		☐	HARD COPY TO FOLLOW

Ken,

We are conducting a Phase I environmental site assessment (ESA) study on the site mentioned above due to the project of Goreway Drive Improvement between Steeles Ave. and Brandon Gate Drive.

The purpose of the study is to assess and document the past and present site geoenvironmental conditions, and to identify any actual or potential on-site and off-site sources of contamination. Generally, interviewing with the persons who are knowledgeable to the site is important for the Phase I ESA study. We have been suggested to contact you on this matter.

We will appreciate if you can respond to us on the following questions by fax or email (toronto@petomaccallum.com):
1) When was the road (Goreway Drive between Steeles and Brandon Gate Drive) built?
2) Is salt used for deicing in the winter?
3) Are there any accidents that occurred on the road causing chemical spills?
4) What business companies are housed in the properties adjacent to the road? Do they have any fuel storage tanks (USTs or ASTs)?
5) Are there any reports on the chemical spills on the adjacent properties?

Yours truly,

Peto MacCallum Ltd.

Bujing Guan, M.A.Sc., P.Geo.
Environmental Geoscientist

lr

165 Cartwright Ave. Toronto, Ontario M6A 1V5
Tel: (416) 785-5110 Fax: (416) 785-5120
E-mail: toronto@petomaccallum.com
BARRIE, BRAMPTON, HAMILTON, KITCHENER, TORONTO

APPENDIX B

Peto MacCallum Ltd. "Corporate Experiences: Geoenvironmental and Hydrogeological Services" and Project Personnel Resumes

APPENDIX C

Statement of Limitations

STATEMENT OF LIMITATIONS

This report is prepared for and made available for the sole use of the client named. Peto MacCallum Ltd. (PML) hereby disclaims any liability or responsibility to any person or entity, other than those for whom this report is specifically issued, for any loss, damage, expenses, or penalties that may arise or result from the use of any information or recommendations contained in this report. The contents of this report may not be used or relied upon by any other person without the express written consent and authorization of PML.

This report shall not be relied upon for any purpose other than as agreed with the client named without the written consent of PML. It shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. A portion of this report may not be used as a separate entity: that is to say the report is to be read in its entirety at all times.

The report is based solely on the scope of services which are specifically referred to in this report. No physical or intrusive testing has been performed, except as specifically referenced in this report. This report is not a certification of compliance with past or present regulations, codes, guidelines and policies.

Environmental site assessment studies are performed in different phases by the application of different levels of effort and expense. The phase or phases in this report and the level of effort proposed for this assignment were based solely on PML's understanding of the client's needs as described in the scope of services contained in this report.

This assessment does not wholly eliminate uncertainty regarding the potential for existing or future costs, hazards or losses in connection with the subject property and must be viewed as a mechanism to reduce risk rather than eliminate the risk of contamination concerns.

The scope of services carried out by PML is based on details of the proposed development and land use to address certain issues, purposes and objectives with respect to the specific site as identified by the client. Services not expressly set forth in writing are expressly excluded from the services provided by PML. In other words, PML has not performed any observations, investigations, study analysis, engineering evaluation or testing that is not specifically listed in the scope of services in this report. PML assumes no responsibility or duty to the client for any such services and shall not be liable for failing to discover any condition, whose discovery would require the performance of services not specifically referred to in this report.

STATEMENT OF LIMITATIONS (Cont'd)

The findings and comments made by PML in this report are based on the conditions observed at the time of PML's site reconnaissance. No assurances can be made and no assurances are given with respect to any potential changes in site conditions following the time of completion of PML's field work. Furthermore, regulations, codes and guidelines may change at any time subsequent to the date of this report and these changes may effect the validity of the findings and recommendations given in this report.

The results and conclusions with respect to site conditions are therefore in no way intended to be taken as a guarantee or representation, expressed or implied, that the site is free from any contaminants from past or current land use activities or that the conditions in all areas of the site and beneath or within structures are the same as those areas specifically sampled.

Any investigation, examination, measurements or sampling explorations at a particular location may not be representative of conditions between sampled locations. Soil, groundwater, surface water, or building material conditions between and beyond the sampled locations may differ from those encountered at the sampling locations and conditions may become apparent during construction which could not be detected or anticipated at the time of the intrusive sampling investigation.

Budget estimates contained in this report are to be viewed as an engineering estimate of probable costs and provided solely for the purposes of assisting the client in its budgeting process. It is understood and agreed that PML will not in any way be held liable as a result of any budget figures provided by it.

The Client expressly waives its right to withhold PML's fees, either in whole or in part, or to make any claim or commence an action or bring any other proceedings, whether in contract, tort, or otherwise against PML in anyway connected with advice or information given by PML relating to the cost estimate or Environmental Remediation/Cleanup and Restoration or Soil and Groundwater Management Plan Cost Estimate.

SS WILSON ASSOCIATES
Consulting Engineers

REPORT NO. WA07-018
REVISION 2

ENVIRONMENTAL NOISE ASSESSMENT STUDY
CLASS ENVIRONMENTAL ASSESSMENT
GOREWAY DRIVE IMPROVEMENTS
FROM BRANDON GATE DRIVE TO STEELES AVENUE
CITIES OF BRAMPTON AND MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL
ONTARIO

SUBMITTED TO:

UMA ENGINEERING LTD.
5080 COMMERCE BOULEVARD
MISSISSAUGA, ONTARIO
L4W 4P2

PREPARED BY:

TAREK ZAYED, P. ENG.
SENIOR PROJECT ENGINEER

APPROVED BY:

HAZEM GIDAMY, P.ENG.
PRINCIPAL

August 20, 2007

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ENVIRONMENTAL NOISE ASSESSMENT STUDY
CLASS ENVIRONMENTAL ASSESSMENT
GOREWAY DRIVE IMPROVEMENTS
FROM BRANDON GATE DRIVE TO STEELES AVENUE
CITIES OF BRAMPTON AND MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL
ONTARIO

INDEX PAGE

1.0 INTRODUCTION

1.1 The services of SS Wilson Associates were retained by UMA Engineering Ltd. to prepare an Environmental Noise Study as part of the Class Environmental Assessment Study for the proposed Goreway Drive Improvements from Brandon Gate Drive to Steels Avenue in the Cities of Brampton and Mississauga, Regional Municipality of Peel, Ontario.

1.2 The report analyzes the existing and the future project road traffic sound levels as a result of the proposed Goreway Drive Improvements.

Figure 1 illustrates the limits of the study area.

1.3 The objectives of this study are:

- To determine the potential changes to the road traffic sound levels due to the proposed undertaking.

- To assess the significance of the predicted changes to the road traffic sound levels and to recommend measures to mitigate the road traffic noise impact; where warranted.

1.4 The proposed undertaking entails the construction of a grade separated overpass of Goreway Drive over the CNR rail line known as the " Halton Subdivision" with other associated improvements to the Goreway Drive vertical and horizontal alignments within the study area limits.

1.5 This study represents a joint effort with the Consulting Engineering Firm, UMA Engineering Ltd., who provided the necessary road and traffic data and overall project direction.

1.6 Revision 1 addressed the comments made by the City of Mississauga staff in the e-mail dated April 4, 2007. The City's comments pertained to the following:

- The use of both Cities of Mississauga and Brampton to describe the study area
- The use of the future horizon year 2031 instead of the future horizon year 2021
- Reason behind increase in sound levels on the west side and decrease in sound levels on the east side
- The need to carry out additional analysis for second floor area (sleeping area) during the night-time
- Making a reference to the City of Mississauga's Noise Control By-Law No. 360.79

1.7 Revision 2 addresses questions regarding the earlier comments received from the Cities of Brampton and Mississauga. The questions include the following:

- The use of the future horizon year 2031 instead of the future horizon year 2021
- Input parameters regarding the sound level calculations at receptor R5
- Input parameters regarding the sound level calculations at receptor s R1, R2, R3 and R5
- The use of both Cities of Mississauga and Brampton in the Title of Table 1
- Reference to the City of Brampton Noise By-Law

2.0 SOUND LEVEL CRITERIA

2.1 MOE/MTO NOISE PROTOCOL

The MOE/MTO Noise Protocol is a joint effort of both Ministry of the Environment (MOE) and Ministry of Transportation (MTO) as outlined in the document titled "A Protocol for Dealing with Noise Concerns During the Preparation, Review and Evaluation of Provincial Highways Environmental Assessments", February 1986. It primarily applies to Provincial Highway undertakings such as Freeways and King's Highways.

The MOE has informally extended the use of the MOE/MTO Noise Protocol criteria to also embrace other roadways, such as Regional and Local Municipal roads subject to the provisions of the Environmental Assessment Act (EAA) administered by the MOE. Since there is no formal direction published by the MOE on the Noise Protocol application, it is recommended that the same direction with regards to mitigation that applies to the MTO projects be applied also for this municipal project. The criteria apply to mitigation within the road R.O.W. and also consider noise impact assessment primarily in Outdoor Living (amenity) Areas alone. While the Noise Protocol does not specify whether the Leq sound levels should be 24-hr based or some other time frame, the MOE extended the appropriate technical logic to municipal roads by requesting calculations to be done on the basis of daytime Leq (16 hrs) from 7 a.m. to 11 p.m taken at the Outdoor Living Areas (OLA's) (i.e. at ground levels 3.0m from the centre of the rear building façade).

There are no criteria for nighttime or for 2nd storey bedrooms used for capital work projects. The latter criteria are only applicable for the planning of new residential subdivisions.

The other point worth noting is that despite the presence of a Provincial objective for outdoor levels of Leq 55 dBA[*1], the decision for mitigation depends primarily on the significance of relative noise increases attributable to the future road expansion above the ambient situation when dealing with urban roads.

With regards to the specific sound level criteria, the following statements are quoted from the Protocol:

1. The objective for outdoor sound levels is the higher of the Leq 55 dBA or the existing ambient. The significance of a noise impact will be quantified by using this objective in addition to the change in noise level above the ambient.

[*1] Leq is an energy averaging concept adopted by the MOE to sum the time-varying noise generated by vehicular traffic. The resulting levels are expressed in dBA; i.e. a logarithmic scale that approximates the response of human ears to noise.

2. Mitigation will attempt to achieve levels as close to, or lower than, the objective level as is technically, economically, and administratively feasible.

3. The following Table summarizes the degree of mitigation effort to be applied for various noise level increases."

SUMMARY OF MITIGATION EFFORT

CHANGE IN NOISE LEVEL ABOVE AMBIENT	MITIGATION EFFORT
0 - 5 dBA	- None
> 5 dBA	- Investigate noise control measures on R.O.W. - If project cost is not significantly affected introduce noise control measure within R.O.W. - Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row receivers. - Mitigate to ambient, as administratively, economically and technically feasible.

The noise mitigation effort included in the MOE/MTO Noise Protocol can be summarized as follows:

If the difference between the Future with the undertaking and the F-D-N sound levels is equal to or less than 5 dBA, then noise mitigation measures need not be considered.
If the difference between the Future with the undertaking and the F-D-N levels is greater than 5 dBA, then the following is considered:

a) If the Future with the undertaking sound levels are at or below the Government Objective for urban areas of Leq 55 dBA, then mitigation measures need not be considered.

b) If the Future with the undertaking sound levels are over Leq 55 dBA, then these levels should be mitigated as close as technically, economically and administratively possible to the higher of the ambient levels or Leq 55 dBA.

2.2 APPLICABLE SOUND LEVEL CRITERIA

The sound level criteria used in this study are based on the MOE/MTO Noise Protocol. The noise impact assessment is based on the following comparisons:

(i) The future project sound levels versus the existing ambient levels. When the excesses are over 5 dBA, then the feasibility of noise control measures should be investigated.

(ii) The future project sound levels versus the Provincial Objective of Leq (16h) 55 dBA. Excesses greater than 5 dBA represent a significant noise impact and may also warrant the investigation of feasible noise control measures.

3.0 ANALYSIS AND RESULTS

3.1 METHODOLOGY

Road traffic sound levels in this study have been predicted using the technique developed by the U.S. Federal Highway Administration (FHWA) enhanced by the Ministry of Transportation and the Ministry of the Environment.

The U.S. FHWA model was jointly revised by the MTO and the MOE to incorporate procedures for the calculation of additional attenuation due to ground (the additional attenuation is due to the type of ground cover; for example hard, soft, ...etc and also due to the terrain configuration or topographic features). The computerized version of the ORNAMENT model, STAMSON Version 5.04 (2000) was used for calculating the sound levels in all sections of the proposed undertaking.

The calculations are primarily based on the average daily traffic volumes (AADT), percentages of medium and heavy trucks, posted speed limits, day/night and directional split of traffic volumes, road to receptor distance, elevation differential between the road and the receptor, roadway gradient, pavement type and the type of ground cover between the road and the receptor in question.

Based on the MOE directions, the equivalent daytime sound level in dBA, Leq corresponding to the average hourly volume of the 16 hours traffic was used, i.e. Leq_{16} in dBA.

For impact assessment purposes, the future sound level with a proposed undertaking is normally compared with the future-do-nothing (F-D-N) alternative (i.e. without the undertaking). In the absence of information on the future-do-nothing traffic data, the existing traffic data may be used instead.

For the purpose of this study, the environmental noise impact assessment is based on the excess of the future sound levels with the undertaking above the existing sound levels.

3.2 ROAD AND TRAFFIC DATA

All road traffic data have been provided by UMA Engineering Ltd. The AADT volumes for the existing conditions are based on the year 2006 while the future project conditions are based on the future horizon year 2031.

3.3 SELECTED RECEPTORS

For the purpose of this study, five receptor locations (denoted R1 to R5) are selected to represent the residential areas along Goreway Drive, which may be potentially affected by road traffic noise.

The following provides a brief description of the selected receptors:

- R1: Reverse frontage house west of Goreway Drive and south of the CNR rail line (#7685 Kittridge Drive)
- R2: Reverse frontage house west of Goreway Drive and south of the CNR rail line (#7655 Kittridge Drive)
- R3: Reverse frontage house west of Goreway Drive and south of the CNR rail line (#7629 Kittridge Drive)
- R4: Reverse frontage townhouse unit east of Goreway Drive and south of the CNR rail line
- R5: Reverse frontage townhouse unit east of Goreway Drive and south of the CNR rail line (between Goreway Drive and Brandon Gate Park).

Figures 2.1 and 2.2 show the locations of the selected receptors (R1 to R5) described above.

3.4 SOURCES OF AMBIENT NOISE

Ambient noise used in the context of this report refers to the traffic sound levels at the selected receptor locations without the possible additional noise generated by the proposed improvements to the noted Goreway Drive corridor.

The dominant source of ambient noise in the study area is vehicular traffic on the existing Goreway Drive corridor and the intersecting roadways.

The ambient sound levels are calculated based on traffic data, which include daily traffic volumes for cars and trucks, posted speed limits, day/night split of traffic volume, directional split of traffic movements and roadway gradient.

Table 1 lists the predicted existing sound levels. The predicted existing ambient sound levels are in the range of Leq (16h) 55 to 59 BA.

Appendix B includes the ambient sound level calculations.

3.5 PREDICTED FUTURE PROJECT SOUND LEVELS

The future project sound levels are based on traffic data, which include similar parameters similar to that of the ambient data plus the forecasted increase/change in the traffic volumes as a result of the proposed undertaking.

Table 1 also lists the predicted future project sound levels. The future project sound levels are predicted to be in the range of Leq (16h) 52 to 61 BA.

Appendix B also includes the future project sound level calculations.

3.6 NOISE IMPACT ASSESSMENT

The noise impact is assessed primarily for Outdoor Living Areas (OLA's) and is based on the following comparisons:

- The relative change in the predicted future sound levels with the undertaking above or below the existing ambient sound levels.
- The relative change in the predicted future sound levels with the undertaking above or below the outdoor objective sound level of Leq(16h) 55dBA.

All the predicted sound levels are expressed as Leq (16h) dBA.

Table 1 shows the predicted existing ambient and the future with the undertaking sound levels, as well as the excesses of the future with undertaking levels above the existing ambient for the entire study area.

With reference to Table 1, the following conclusions could be made:

(i) The future project sound levels at the west side of Goreway Drive (i.e. at the single family homes represented by receptors R1, R2 and R3) are predicted to have excesses over the existing levels in the range of 4 to 5 dBA. Such excesses are considered to be acoustically noticeable and are mainly attributed to the forecasted increase in Goreway Drive future traffic volume from the existing conditions.

(ii) The future project sound levels at the east side of Goreway Drive (i.e. the townhouse units represented by receptors R4 and R5) are predicted to be significantly lower than the existing levels due to the anticipated shielding effect from the edge of pavement of the elevated overpass structure. The shielding effect accounts for up to 6 dBA reduction in the projected traffic sound levels and is considered acoustically significant.

In general, dwelling units located along a roadway are exposed to all road sections (or segments) when the roadway, the joint property line with the roadway and the roadway grade elevations are all, more-or-less, equal (or flat). This situation results in the highest exposure to all vehicles on the road from two directions and the highest possible sound levels.

Where the roadway grade elevations are noticeably higher than the house elevations, certain sections/segments of the road may become acoustically shielded (i.e. the direct view to the vehicles becomes obstructed) and thus sound level reductions take place as a result of the sound barrier effect due to the road profile only. This situation is more pronounced for homes located very close to an elevated road alignment or to remote road segments that are also shielded by the resulting road-house geometrical relationships.

This situation has been tested mathematically and the configurations tested clearly demonstrated the presence of additional reduction due to the resulting

acoustic shielding. The sound levels on the east side (i.e. at receptors R4 and R5) will be reduced because of shielding effect from the edge of the proposed overpass structure, while the sound levels on the west side (i.e. receptors R1, R2 and R3) will increase because of the lack of shielding effect from the edge of the proposed overpass structure. The shielding effect of the proposed overpass structure depends on two interconnected parameters, namely the elevations at the houses, at the edge of the bridge and at the centerline of pavement as well as on the distance between the houses and the edge of the bridge and between the edge of the bridge and the centerline of pavement. In order to have an acoustic shielding effect, the elevations and the distances must produce a favourable cross section where the direct line of sight between the houses and the roadway is interrupted by the edge of the proposed overpass structure.

The attached Figures 3 and 4 illustrate the concept of acoustic shielding by the edge of the proposed overpass structure.

(iii) According to the MOE/MTO Noise Protocol, since the predicted future sound level excesses do not exceed 5 dBA, consideration of noise control measures are not warranted.

3.7 NOISE MITIGATION

Noise mitigation is warranted, according to the MOE/MTO Noise Protocol if the excess above the future-do-nothing ambient noise level is predicted to be greater than 5 decibels and the future project noise level is predicted to be in excess of 55 dBA. The purpose of mitigation is to reduce (as close as technically, economically and administratively possible) the predicted future project noise level to the objective level. The objective level is the higher of the ambient level or Leq (16h) 55 dBA.

The excesses of the future project noise levels above the existing ambient levels at all the residences within the study area are predicted to be acoustically insignificant (i.e. less than 5 dBA). Therefore, as per the MOE/MTO Noise Protocol, noise mitigation measures need not be considered for the subject study area as a result of the proposed undertaking.

4.0 SUMMARY AND RECOMMENDATIONS

4.1 SUMMARY

This study has been carried out to investigate the potential noise impact of the proposed improvements of Goreway Drive between Brandon Gate Drive and Steeles Avenue in the City of Brampton and City of Mississauga on the noise sensitive areas adjacent to the noted roadway corridor. Figure 1 shows the limits of the study area.

The study dealt with the existing ambient as well as the future project sound levels associated with the road improvements and their noise impacts on the selected receptors within the study area.

The applicable criteria for this study are based on the MOE/MTO Noise Protocol.

Five receptor locations are selected to represent all the residential areas along Goreway Drive within the study area. Figures 2.1 and 2.2 show the selected receptor locations used in the noise analysis.

The existing ambient sound levels are predicted to be in the ranges of 55 to 59 dBA, while the future project sound levels are predicted to be in the range of 52 to 61 dBA. Table 1 lists the existing and the future project sound levels at all receptor locations.

Based on the findings of this study and if the proposed improvements of the noted Goreway Drive corridor are to take place, no noise impact is anticipated and therefore, no noise mitigation measures need to be considered for all the residences within the study area.

4.2 RECOMMENDATIONS

1. Noise Controls During Construction

In addition to the noise emitted by the operation of vehicles on the proposed undertaking, noise during the construction phase is an issue that should also be addressed.

Unlike operational noise, construction noise is temporary in nature depending on the type of work required and its location relative to the noise-sensitive receptors.

The significance of the construction noise impact depends on the number of pieces of equipment, their types, time of operation and their proximity to the receptors in question.

The following is a brief outline of the procedures to be followed in handling construction noise during the Detail Design and Construction phases:

a. Noise sensitive areas will be identified. These include the residential locations shown in Figures 2.1 and 2.2
b. Applicable local municipal noise control by-laws will be identified and obeyed. The by-laws include those enacted under the authority of the Municipal Act, the Environmental Protection Act or any other Provincial Legislation. Where timing constraints or any other provisions of the municipal by-law may cause hardship to the proponent, an explanation of this will be outlined in a submission to the MOE and an exemption from such by-law will be sought directly from the area municipality in question. Reference should be made to the City of Mississauga Noise Control By-Law No.: 360-79.
c. "General noise control measures" (not sound level criteria) will be referred to or placed into the contract documents.
d. Should the municipality receive any complaint from the public, the municipality staff will verify that the "general noise control measures" agreed to, are in effect. The municipality will investigate any noise concerns, warn the contractor of any problems and enforce its contract.
e. If the "general noise control measures" are complied with, but the public still complain about noise, the municipality will require the contractor to comply with the MOE sound level criteria for construction equipment contained in the MOE's Model Municipal Noise Control By-Law. Subject to the results of field investigation, alternative noise control measures will be required, where these are reasonably available.
f. In selecting the appropriate construction noise control and mitigation measures, the municipality will give consideration to the technical, administrative, and economic feasibility of the various alternatives.

The above noted procedures are based on the construction noise provisions included in Section 8 of the MOE/MTO Noise Protocol.

2. Future Development and Re-Development Plans

It is recommended that future development and re-development proposals for planning of new residential developments along the noted Goreway Drive corridor be examined for their noise compatibility. The Provincial and Municipal guidelines should, therefore, be consulted concerning implementation of any required noise control measures at the municipal planning levels.

Noise mitigation for new residential developments should be provided by the developers/builders of these developments as part of their planning approval agreements with the Cities of Brampton and Mississauga.

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TABLE.

TABLE 1
ROADWAY ENVIRONMENTAL NOISE IMPACT ASSESSMENT
GOREWAY DRIVE IMPOROVEMENTS
FROM BRANDON GATE DRIVE TO STEELES AVENUE
CITES OF BRAMPTON AND MISSISSAUGA

Receptor Code	Receptor Name	Existing Ambient Leq dBA	Future Undertaking Leq dBA	Government Leq Sound Level Objective dBA	Excess Criteria for mitigation dBA	Future Undertaking Leq Minus Existing Ambient Leq	Significance of the Change due to the Future Undertaking Leq Minus Existing Ambient Leq	Future Undertaking Leq Minus Government Leq Sound Level Objective	Noise Control measures As per Protocol
R1	# 7685 KITTRIDGE DRIVE	55.0	59.8	***55***	***5***	**4.80**	Noticeable	**4.8**	Not required
R2	# 7655 KITTRIDGE DRIVE	57.1	60.8	***55***	***5***	**3.70**	Noticeable	**5.8**	Not required
R3	# 7629 KITTRIDGE DRIVE	57.1	60.8	***55***	***5***	**3.70**	Noticeable	**5.8**	Not required
R4	TOWNHOUSE UNIT	59.2	53.8	***55***	***5***	**-5.40**	Reduction	**-1.2**	Not required
R5	TOWNHOUSES UNIT	58.6	52.4	***55***	***5***	**-6.20**	Reduction	**-2.6**	Not required

Impact Assessment Rating :

0 to < 3 dB change : Insignificant
=>3 to < 5 dB change : Noticeable
=> 5 to < 10 dB change: Significant
=> 10 dB change : Very Significant

FIGURES

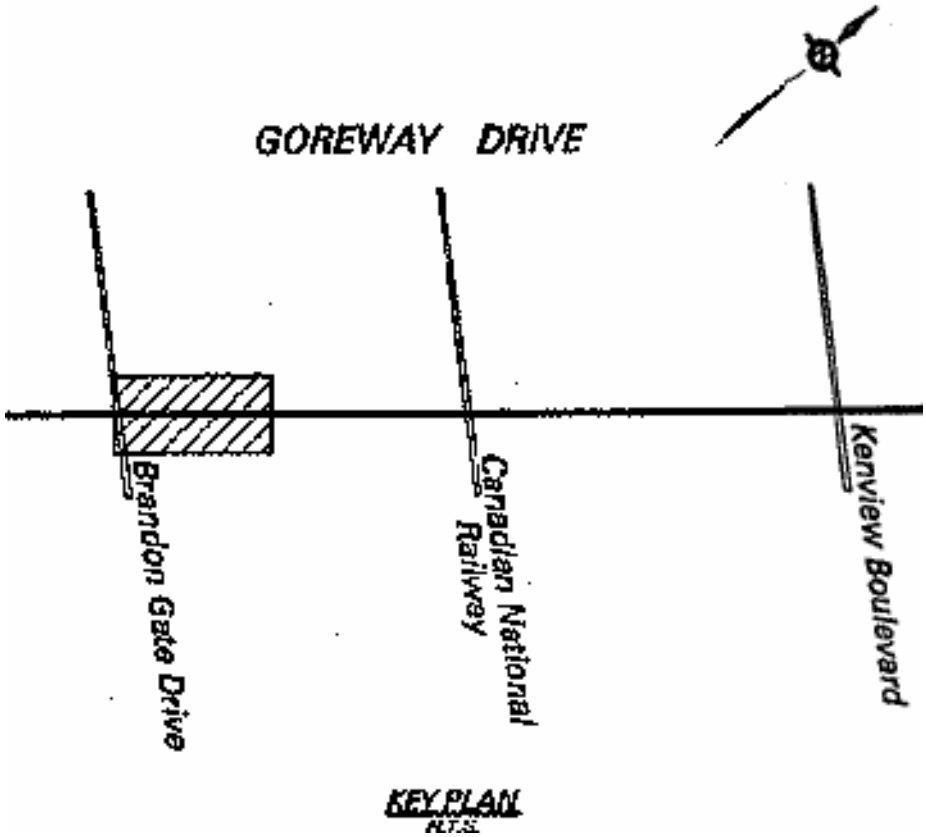


FIGURE 1
STUDY AREA

FIGURE 2
RECEPTOR LOCATIONS

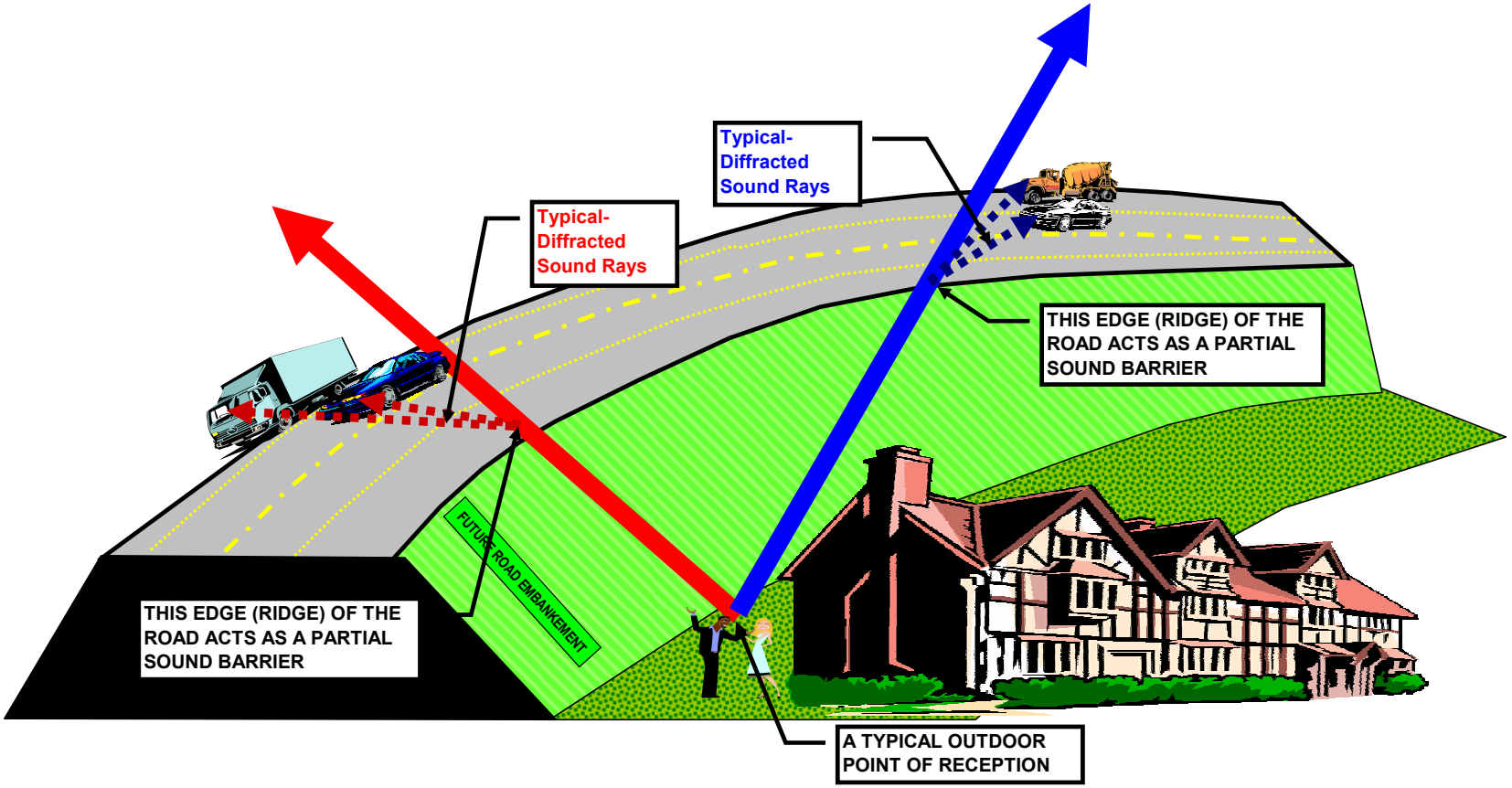
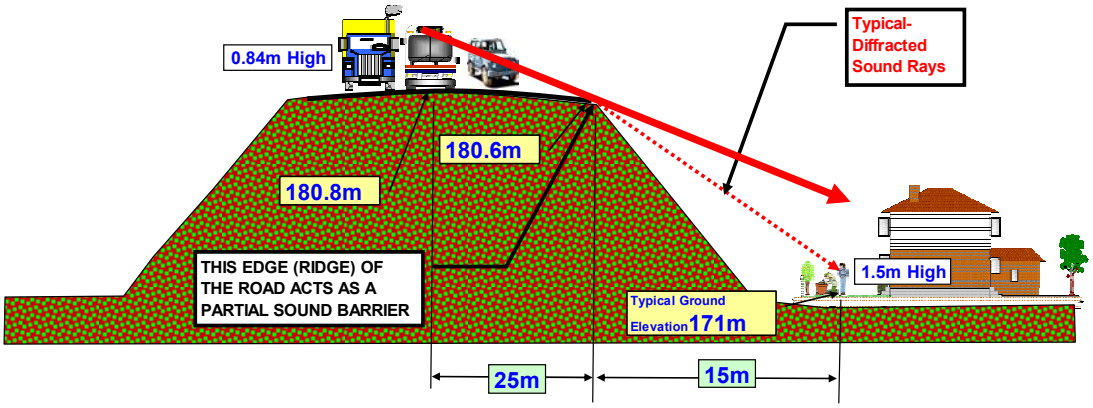


FIGURE 3
TYPICAL SOUND DIFFRACTION (REDUCTION) DUE TO ELEVATED ROADWAYS – CROSS-SECTION



SOURCE DATA		RECEIVER DATA		BARRIER DATA	
.....		.....		.....	
.....		.....		.....	
.....		.....		.....	
SOURCE HEIGHT	0.84	RECEIVER HEIGHT	1.50	MINIMUM BARR. HEIGHT	0.00
SOURCE GND.ELEV	180.80	RECEIVER GND.ELEV.	171.00	BARRIER GND. ELEV.	180.80
SOURCE-BARRIER DISTANCE	10.00	RECEIVER-BARRIER DIST.	15.00	BARRIER THICKNESS	0.00

Speed of Sound 344 m/s

BARRIER HEIGHT INCREMENT 1 m

Barrier Height	BTE m	PLD	Acoust. Zone	Frequency, Hz. 32	63	125	250	500	1,000	2,000	4,000	8,000
0.00	180.80	0.56	shadow	6.0	6.9	8.1	9.8	12.1	14.4	16.7	19.0	25.0
1.00	181.80	1.03	shadow	6.8	8.0	9.5	11.8	14.1	16.4	18.7	25.0	25.0
2.00	182.80	1.64	shadow	7.5	9.0	11.0	13.3	15.7	18.0	25.0	25.0	25.0
3.00	183.80	2.39	shadow	8.3	10.0	12.3	14.6	16.9	19.2	25.0	25.0	20.0
4.00	184.80	3.27	shadow	9.0	11.0	13.3	15.6	18.0	25.0	25.0	25.0	25.0
5.00	185.80	4.26	shadow	9.6	11.9	14.2	16.5	18.8	25.0	25.0	25.0	25.0
6.00	186.80	5.36	shadow	10.4	12.7	15.0	17.3	19.6	25.0	25.0	25.0	25.0
7.00	187.80	6.55	shadow	11.0	13.4	15.7	18.0	25.0	25.0	25.0	25.0	25.0
8.00	188.80	7.83	shadow	11.6	14.0	16.2	18.6	25.0	25.0	25.0	25.0	25.0
9.00	189.80	9.19	shadow	12.2	14.5	16.8	19.1	25.0	25.0	25.0	25.0	25.0
10.00	190.80	10.60	shadow	12.7	15.0	17.3	19.6	25.0	25.0	25.0	25.0	25.0
11.00	191.80	12.08	shadow	13.1	15.4	17.7	25.0	25.0	25.0	25.0	25.0	25.0
12.00	192.80	13.61	shadow	13.5	15.8	18.1	25.0	25.0	25.0	25.0	25.0	25.0
13.00	193.80	15.18	shadow	13.9	16.2	18.5	25.0	25.0	25.0	25.0	25.0	25.0
14.00	194.80	16.79	shadow	14.2	16.5	18.8	25.0	25.0	25.0	25.0	25.0	25.0
15.00	195.80	18.43	shadow	14.5	16.8	19.1	25.0	25.0	25.0	25.0	25.0	25.0
16.00	196.80	20.10	shadow	14.8	17.1	19.4	25.0	25.0	25.0	25.0	25.0	25.0
17.00	197.80	21.80	shadow	15.1	17.4	19.7	25.0	25.0	25.0	25.0	25.0	25.0
18.00	198.80	23.52	shadow	15.3	17.6	19.9	25.0	25.0	25.0	25.0	25.0	25.0
19.00	199.80	25.26	shadow	15.6	17.9	25.0	25.0	25.0	25.0	25.0	25.0	25.0

FIGURE 4
TYPICAL SOUND DIFFRACTION (REDUCTION) DUE TO ELEVATED ROADWAYS – BARRIER CALCULATIONS

APPENDIX A

ROAD TRAFFIC DATA

LOCATION: Goreway Drive from Steeles Avenue to Brandon Gate Drive

TRAFFIC DATA	EXISTING CONDITIONS	F-D-N CONDITIONS (YEAR……..)	FUTURE CONDITIONS (YEAR.2031
AADT	17,000		30,700
No. Of Lanes	4		4
% Of Trucks	2%		Assume as existing
Ratio Of Medium to Heavy Trucks	3:1		Assume as existing
Day/Night Traffic Split (%day/%night)	8:1		Assume as existing
Directional Split (% NBL/%SBL)	54/46		Assume as existing
Posted Speed Limit	60 km/hr		Assume as existing
Gradient Of Road	0		6% assumed on grade separation approaches
R.O.W.			

APPENDIX B

SOUND LEVEL CALCULATIONS

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 16:44:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 1ext.te Time Period: Day/Night 16/8 hours
Description: RECEPTOR R1, EXISTING SOUND LEVELS (2006)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 14827/1833 veh/TimePeriod *
Medium truck volume : 227/28 veh/TimePeriod *
Heavy truck volume : 76/9 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 / 53.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.84	54.95	54.95
Total			54.95 dBA

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.83	49.34	49.34
Total			49.34 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.95
(NIGHT): 49.34

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:02:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 1fut.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R1, FUTURE SOUND LEVELS (2031)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 / 53.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 75.00 deg
Barrier height : 0.00 m
Elevation : 9.50 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 181.50 m
Receiver elevation : 172.00 m
Barrier elevation : 172.00 m
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.84	59.75	59.75 *
Total			59.75 dBA

* Bright Zone !

Result summary (night)

---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.GOREWAY DR.	0.84	54.34	54.34	*
Total			54.34	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 59.75
(NIGHT): 54.34

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:00:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2ext.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R2, EXISTING SOUND LEVELS (2006)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 14827/1833 veh/TimePeriod *
Medium truck volume : 227/28 veh/TimePeriod *
Heavy truck volume : 76/9 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.84	57.11	57.11
Total			57.11 dBA

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.83	51.42	51.42
Total			51.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.11
(NIGHT): 51.42

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:03:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2fut.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R2, FUTURE SOUND LEVELS (2031)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg -55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -55.00 deg
Barrier height : 0.00 m
Elevation : 4.00 m
Barrier receiver distance : 20.00 / 20.00 m
Source elevation : 176.00 m
Receiver elevation : 172.00 m
Barrier elevation : 172.00 m
Reference angle : 0.00

Road data, segment # 2: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50

```
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 2: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           : -55.00 deg   -45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -55.00 deg   Angle2 : -45.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.00 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          : 180.00 m
Receiver elevation        : 172.00 m
Barrier elevation         : 172.00 m
Reference angle           :   0.00


Road data, segment # 3: GOREWAY DR. (day/night)
-----------------------------------------------
Car traffic volume  : 26777/3309  veh/TimePeriod  *
Medium truck volume :   410/51    veh/TimePeriod  *
Heavy truck volume  :   137/17    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     6 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  30700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 3: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           : -45.00 deg   -15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -45.00 deg   Angle2 : -15.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.00 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          : 180.00 m
Receiver elevation        : 172.00 m
Barrier elevation         : 172.00 m
Reference angle           :   0.00


Road data, segment # 4: GOREWAY DR. (day/night)
-----------------------------------------------
```

```
Car traffic volume  : 26777/3309  veh/TimePeriod  *
Medium truck volume :   410/51    veh/TimePeriod  *
Heavy truck volume  :   137/17    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     6 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  30700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 4: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           : -15.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -15.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Elevation                 :   4.00 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          : 176.00 m
Receiver elevation        : 172.00 m
Barrier elevation         : 172.00 m
Reference angle           :   0.00


Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    51.61 !    51.61 *
 2.GOREWAY DR.      !     0.84 !    49.03 !    49.03 *
 3.GOREWAY DR.      !     0.84 !    54.34 !    54.34 *
 4.GOREWAY DR.      !     0.84 !    58.49 !    58.49 *
--------------------+---------+---------+---------
                      Total                  60.80 dBA

  * Bright Zone  !


Result summary (night)
----------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    46.39 !    46.39 *
 2.GOREWAY DR.      !     0.84 !    43.52 !    43.52 *
```

3.GOREWAY DR.	!	0.84	! 48.73 !	48.73 *
4.GOREWAY DR.	!	0.84	! 52.95 !	52.95 *
	Total			55.29 dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 60.80
(NIGHT): 55.29

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:01:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 3ext.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R3, EXISTING SOUND LEVELS (2006)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 14827/1833 veh/TimePeriod *
Medium truck volume : 227/28 veh/TimePeriod *
Heavy truck volume : 76/9 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.84	57.11	57.11
Total			57.11 dBA

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.83	51.42	51.42
Total			51.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.11
(NIGHT): 51.42

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:03:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 3fut.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R3, FUTURE SOUND LEVELS (2031)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg -70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -70.00 deg
Barrier height : 0.00 m
Elevation : 9.00 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 181.00 m
Receiver elevation : 172.00 m
Barrier elevation : 172.00 m
Reference angle : 0.00

Road data, segment # 2: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50

```
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 2: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           : -70.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -70.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Elevation                 :   4.00 m
Barrier receiver distance :  10.00 / 10.00  m
Source elevation          : 176.00 m
Receiver elevation        : 172.00 m
Barrier elevation         : 172.00 m
Reference angle           :   0.00


Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    49.63 !    49.63 *
 2.GOREWAY DR.      !     0.84 !    60.40 !    60.40 *
--------------------+---------+---------+---------
                      Total                  60.75 dBA

  * Bright Zone  !


Result summary (night)
----------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    44.66 !    44.66 *
 2.GOREWAY DR.      !     0.84 !    54.85 !    54.85 *
--------------------+---------+---------+---------
                      Total                  55.25 dBA

  * Bright Zone  !

TOTAL Leq FROM ALL SOURCES (DAY): 60.75
                           (NIGHT): 55.25
```

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:01:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4ext.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R4, EXISTING SOUND LEVELS (2006)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 14827/1833 veh/TimePeriod *
Medium truck volume : 227/28 veh/TimePeriod *
Heavy truck volume : 76/9 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 4.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 1.00 m
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.84	59.23	59.23
Total			59.23 dBA

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.83	53.55	53.55

Total 53.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.23
(NIGHT): 53.55

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:03:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4fut.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R4, FUTURE SOUND LEVELS (2031)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg -55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -55.00 deg
Barrier height : 0.00 m
Elevation : 3.50 m
Barrier receiver distance : 15.00 / 15.00 m
Source elevation : 174.50 m
Receiver elevation : 171.00 m
Barrier elevation : 175.00 m
Reference angle : 0.00

Road data, segment # 2: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50

```
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 2: GOREWAY DR. (day/night)
-----------------------------------------------
Angle1   Angle2           : -55.00 deg   60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  30.00 / 30.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -55.00 deg   Angle2 : 60.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.00 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          : 179.00 m
Receiver elevation        : 171.00 m
Barrier elevation         : 178.00 m
Reference angle           :   0.00


Road data, segment # 3: GOREWAY DR. (day/night)
-----------------------------------------------
Car traffic volume  : 26777/3309  veh/TimePeriod  *
Medium truck volume :   410/51    veh/TimePeriod  *
Heavy truck volume  :   137/17    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     6 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  30700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 3: GOREWAY DR. (day/night)
-----------------------------------------------
Angle1   Angle2           :  60.00 deg   80.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  30.00 / 30.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  60.00 deg   Angle2 : 80.00 deg
Barrier height            :   0.00 m
Elevation                 :  10.00 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          : 181.00 m
Receiver elevation        : 171.00 m
Barrier elevation         : 179.30 m
Reference angle           :   0.00


Road data, segment # 4: GOREWAY DR. (day/night)
-----------------------------------------------
```

```
Car traffic volume  : 26777/3309  veh/TimePeriod  *
Medium truck volume :   410/51    veh/TimePeriod  *
Heavy truck volume  :   137/17    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     6 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  30700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 4: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           :  80.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  30.00 / 30.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  80.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Elevation                 :  10.50 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          : 181.81 m
Receiver elevation        : 171.00 m
Barrier elevation         : 180.50 m
Reference angle           :   0.00


Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    47.40 !    47.40
 2.GOREWAY DR.      !     0.84 !    51.54 !    51.54
 3.GOREWAY DR.      !     0.84 !    44.67 !    44.67
 4.GOREWAY DR.      !     0.84 !    41.06 !    41.06
--------------------+---------+---------+---------
                      Total                  53.79 dBA


Result summary (night)
----------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    48.11 !    48.11 *
 2.GOREWAY DR.      !     0.84 !    50.90 !    50.90
 3.GOREWAY DR.      !     0.84 !    42.25 !    42.25
 4.GOREWAY DR.      !     0.84 !    37.44 !    37.44
```

Total			53.22 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.79
(NIGHT): 53.22

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:13:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 5ext.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R5, EXISTING SOUND LEVELS (2006)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 14827/1833 veh/TimePeriod *
Medium truck volume : 227/28 veh/TimePeriod *
Heavy truck volume : 76/9 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 33.00 / 33.00 m
Receiver height : 1.50 / 4.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 1.00 m
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.84	58.55	58.55
Total			58.55 dBA

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.GOREWAY DR.	0.83	52.91	52.91

Total	52.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.55
(NIGHT): 52.91

STAMSON 5.0 SUMMARY REPORT Date: 20-08-2007 17:03:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 5fut.te Time Period: Day/Night 16/8 hours

Description: RECEPTOR R5, FUTURE SOUND LEVELS (2031)

Road data, segment # 1: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 0.50
Day (16 hrs) % of Total Volume : 89.00

Data for Segment # 1: GOREWAY DR. (day/night)

Angle1 Angle2 : -90.00 deg -65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 33.00 / 33.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -65.00 deg
Barrier height : 0.00 m
Elevation : 6.80 m
Barrier receiver distance : 15.00 / 15.00 m
Source elevation : 177.80 m
Receiver elevation : 171.00 m
Barrier elevation : 178.50 m
Reference angle : 0.00

Road data, segment # 2: GOREWAY DR. (day/night)

Car traffic volume : 26777/3309 veh/TimePeriod *
Medium truck volume : 410/51 veh/TimePeriod *
Heavy truck volume : 137/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50

```
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 2: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           : -65.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -65.00 deg   Angle2 : 0.00 deg
Barrier height            :   0.00 m
Elevation                 :   9.80 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          : 180.80 m
Receiver elevation        : 171.00 m
Barrier elevation         : 180.20 m
Reference angle           :   0.00


Road data, segment # 3: GOREWAY DR. (day/night)
---------------------------------------------
Car traffic volume  : 26777/3309  veh/TimePeriod  *
Medium truck volume :   410/51    veh/TimePeriod  *
Heavy truck volume  :   137/17    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     6 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  30700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 3: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           :   0.00 deg   60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 60.00 deg
Barrier height            :   0.00 m
Elevation                 :   9.80 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          : 180.80 m
Receiver elevation        : 171.00 m
Barrier elevation         : 180.40 m
Reference angle           :   0.00


Road data, segment # 4: GOREWAY DR. (day/night)
---------------------------------------------
```

```
Car traffic volume  : 26777/3309  veh/TimePeriod  *
Medium truck volume :   410/51    veh/TimePeriod  *
Heavy truck volume  :   137/17    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     6 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  30700
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   0.50
    Day (16 hrs) % of Total Volume     :  89.00

Data for Segment # 4: GOREWAY DR. (day/night)
---------------------------------------------
Angle1   Angle2           :  60.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  60.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Elevation                 :  10.60 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          : 181.60 m
Receiver elevation        : 171.00 m
Barrier elevation         : 181.60 m
Reference angle           :   0.00


Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    47.84 !    47.84
 2.GOREWAY DR.      !     0.84 !    45.96 !    45.96
 3.GOREWAY DR.      !     0.84 !    44.93 !    44.93
 4.GOREWAY DR.      !     0.84 !    46.59 !    46.59
--------------------+---------+---------+---------
                      Total                  52.48 dBA


Result summary (night)
----------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+---------+---------+---------
 1.GOREWAY DR.      !     0.84 !    44.12 !    44.12
 2.GOREWAY DR.      !     0.84 !    44.39 !    44.39
 3.GOREWAY DR.      !     0.84 !    43.18 !    43.18
 4.GOREWAY DR.      !     0.84 !    42.58 !    42.58
```

Total			49.65 Dba

TOTAL Leq FROM ALL SOURCES (DAY): 52.48
(NIGHT): 49.65

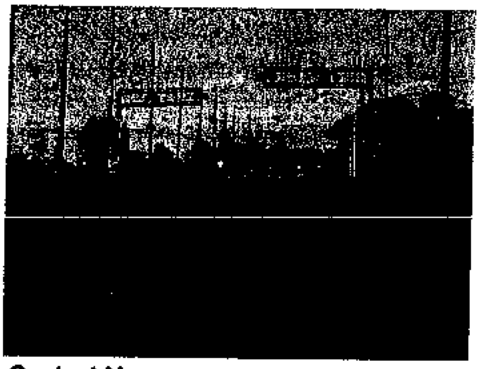
UMA | AECOM

City of Brampton

Goreway Drive (Steeles Avenue to Brandon Gate Drive)

Class Environmental Assessment

Traffic Operations & Safety Performance Review Report



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Transportation Planner/Traffic Engineer

February 2007

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1.0 Introduction

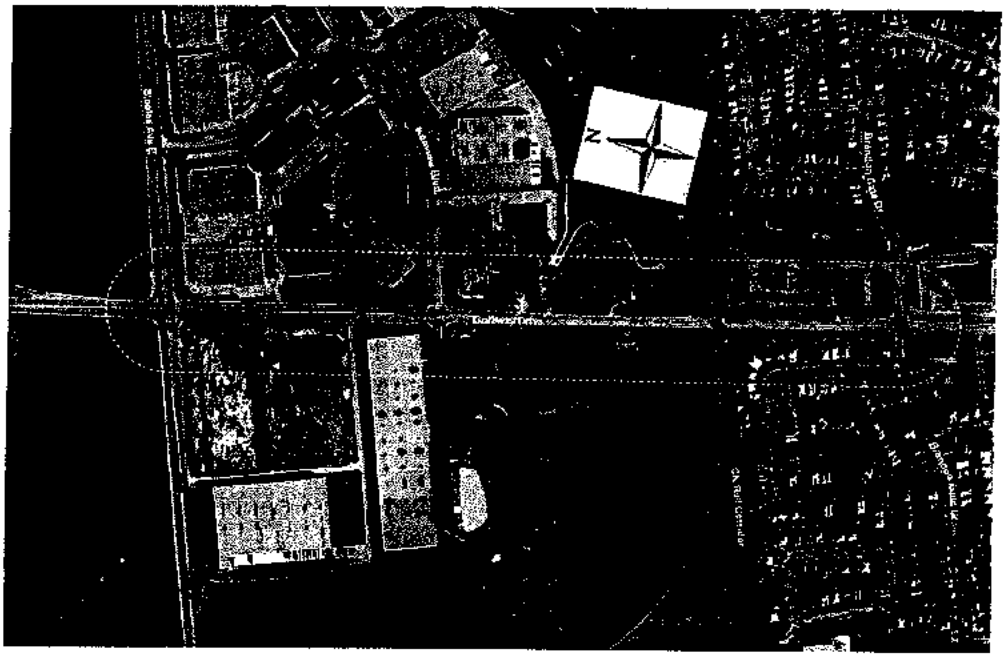
1.1 Project Background and Purpose

The City of Brampton, in collaboration with the City of Mississauga, has initiated a Class Environmental Assessment (Class EA) Study to improve an approximately 1.2 km section of Goreway Drive between Steeles Avenue in the City of Brampton and Brandon Gate Drive in the City of Mississauga. Improvements to this section of Goreway Drive are needed to accommodate future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing (Halton Subdivision). UMA Engineering Ltd. (UMA) was retained to undertake the Class EA Study and to develop a Preferred Alternative to facilitate the road improvements to Goreway Drive.

As shown in **Figure 1.1**, the Study Area Corridor for Goreway Drive stretches approximately 1.2 km southerly from Steeles Avenue in the City of Brampton to Brandon Gate Drive in the City of Mississauga. Goreway Drive is currently a four-lane roadway. The roadway provides north-south connectivity for commuter, commercial and emergency service vehicles between the two cities.

Goreway Drive is under the jurisdiction of the City of Brampton north of the Halton Subdivision, which delineates the municipal boundary. Within this section, Goreway Drive is designated in the City of Brampton Official Plan as a "major arterial road" (2006). The southern portion of Goreway Drive extending from the Halton Subdivision to Brandon Gate Drive is under the jurisdiction of the City of Mississauga and is designated as a "major collector road" within the City of Mississauga Official Plan (2005).

Figure 1.1 – Map of Study Area



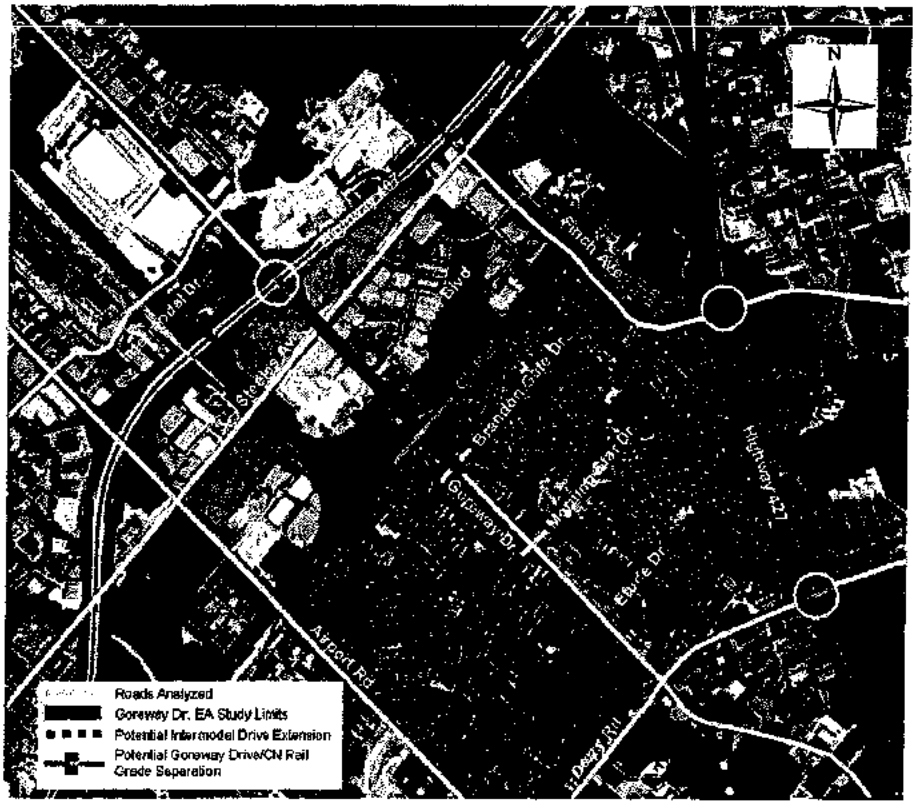
At present, long queues and significant traffic delays are encountered on Goreway Drive at CN's existing at-grade (level) railway crossing due to frequent closures of the road for train operations. This results in reduced capacity and safety of the road, coupled with restrictions in traffic flow and driver frustration. Consequently, the City of Brampton, in collaboration with the City of Mississauga, proposes to make

requisite improvements to Goreway Drive within the 1.2 km Study Area Corridor to address these deficiencies. To facilitate the proposed improvements the municipality is obligated to carry out a Class EA Study in accordance with the *Municipal Class Environmental Assessment* (2000) process. A Class EA is a standard process that addresses needs and options then recommends a solution.

1.2 Traffic Study Objectives

In support of the Class EA Study, a Traffic Operations and Safety Performance review was conducted to provide input to the need and justification of the project, and the evaluation of alternative improvement solutions. This Report documents the findings of the traffic analysis. A separate Sub-area Transportation Network Study was completed (and documented in a separate report) to examine existing and future travel demand within the wider transportation network and establish requirements for improvements within the road network. The network analysis focused on the surrounding area, encompassing three north-south arterials (Airport Road, Goreway Drive and Finch Avenue) from north of Highway 407 to south of Derry Road, including connections to the freeway system as shown in **Figure 1.2**. The results of the Transportation Network Study, relevant to the assessment of future traffic operation conditions on Goreway Drive within the study limits are further discussed in Section 4.

Figure 1.2 - Map of Transportation Network Analysis Area



The ultimate objectives of the Traffic Operations analysis were to establish roadway/intersection improvement requirements for further assessment of the design alternatives and recommendations of specific solutions for the preliminary design.

2.0 Existing Traffic Operations and Roadway Conditions

2.1 Roadway Classification and Characteristics

Goreway Drive within the Study limits encompasses two jurisdictions (the Cities of Brampton and Mississauga), in which it has different classification. It is classified as a major arterial in the City of Brampton Official Plan (OP) which proposes an ultimate 6-lane cross-section for the roadway. In Mississauga, Goreway Drive is considered to be a 4-lane main collector road. Mississauga planning documents (OP) do not anticipate a need for widening of the road in a foreseeable future.

Between Steeles Avenue and Kenview Boulevard Goreway Drive passes through newly erected industrial development. Further south, up to the CN Rail Corridor, land adjacent to the roadway are mostly greenlands (Parkshore Golf Course is located on the east side), as the road crosses the Mimico Creek flood plain. South of CN tracks Goreway Drive enters the Malton residential area.

There are three signalized intersections within the Study limits:

- At Steeles Avenue. Steeles Avenue is a major urban arterial (Regional Road under Region of Peel jurisdiction) providing connectivity for local, regional and long distance traffic. A separate project is underway for improvements to the Steeles Avenue/Goreway Drive intersection (by the Region)

- At Kenview Boulevard. Kenview Boulevard is a short industrial collector providing access to industrial district developed between Steeles Avenue (north) and CN Corridor (south) and Mimico Creek (west) and Finch Avenue (east). Available lands in this area are almost fully developed.

- At Brandon Gate. Brandon Gate Drive is an east-west local residential collector providing access to the residential establishment in the north side of Malton.

A direct access to Goreway Drive, other than through the intersections is very limited. There are two driveways from industrial properties accessing Goreway Drive between Steeles Avenue and Kenview Boulevard (one on each side of the road), one property access on the east side between Kenview Boulevard and CN tracks, and one driveway from the residential complex on the east side north of Brandon Gate.

Within the study limits, Goreway Drive is a 4-lane road with an urban cross-section (curb and gutter). There are two short sections equipped with one-side sidewalks (on the east side from Steeles Avenue to Kenview Boulevard and approximately 90 m from Brandon Gate Drive northerly on the east side of the road).

The existing level crossing of Goreway Drive and the CN tracks is the major operational obstacle for traffic traveling on Goreway Drive. Both number of trains and specific rail operations related to the near-by intermodal facility require closures of the road for prolonged periods. In consequence, there are extended queue build-ups on both sides of the crossing and users of the Goreway Drive corridor experience significant delays.

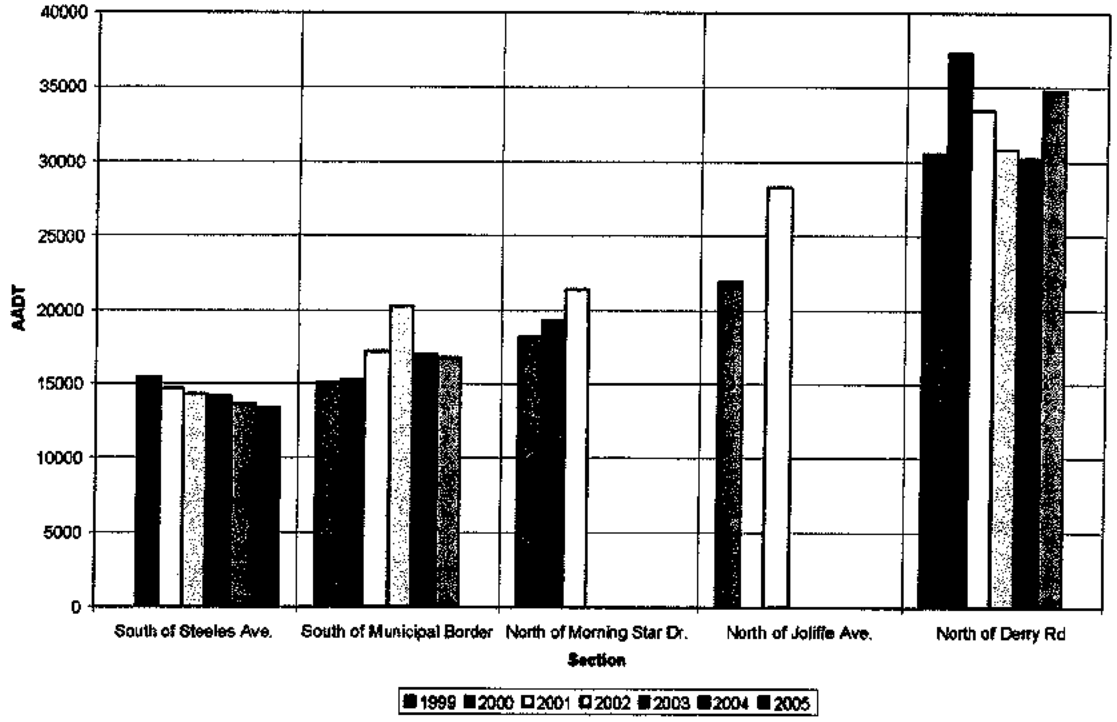
2.2 Traffic Data

All municipalities having jurisdiction over roads within the study area involved in the Goreway Drive Class EA process (the Cities of Brampton, Mississauga and the Region of Peel) provided extended sets of traffic data for the Goreway Drive corridor to be used for the traffic operations and safety review analyses. This included existing and historical sectional 24 hour traffic counts, intersection turning movements, and collision data. Cordon count data was also available through the Data Management Group at the University of Toronto. The original data processed and used for the Study analyses is documented in the project file.

2.3 Existing Traffic Operations/Conditions

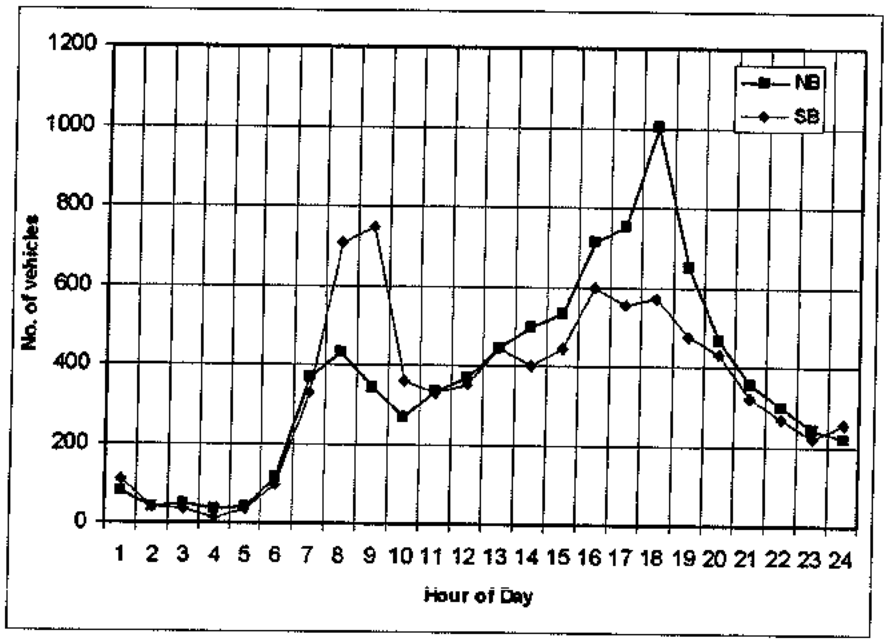
The historical sectional traffic data (AADT) for the Goreway Drive links within the study limits were analysed to assess a growth pattern. **Figure 2.1** presents a plot of AADT values on various sections of Goreway Drive for the period between 1990 and 2005. There is no obvious growth trend within the analysed period of time for individual sections (not complete sets of data were available for all section though). Yet, traffic volumes grow from north (Steeles Avenue) to south (Derry Road) indicative of significant number of trips, originated and destined in Malton, using Goreway Drive as a commuter route (volumes practically double between locations south of Steeles Avenue and north of Derry Road). As this area is mature and saturated with land development, any eventual future traffic growth would be generated outside, within the extended Goreway Drive corridor through development areas in northern Brampton.

Figure 2.1 – Goreway Drive – Historical AADT



Daily and directional distribution of traffic on Goreway Drive at the Mississauga/Brampton border is shown in **Figure 2.2**. A shape of the diagram indicates a typical commuter traffic pattern. The morning peak hour occurring between 8 and 9 o'clock is much higher for the SB direction toward GTA destinations, while in the afternoon, a reverse pattern is observed. In the PM Peak Hour traffic volumes are approximately 10% higher then in AM. Traffic data presents similar patterns for Goreway Drive sections south of the Study Area.

Figure 2.2 – Directional/Hourly Traffic Distribution (Goreway Dr. at Mississauga/Brampton Border)



As mentioned earlier, there are three existing intersections on Goreway Drive within the Study limits at: Steeles Avenue, Kenview Boulevard and Brandon Gate. The 2005/2006 turning movements at these intersections are presented in **Figure 2.3**. These volumes were further applied in the Synchro analysis carried out to assess intersections operations, compute existing volume/capacity ratios and assess levels of service. Also, existing turning movements were prorated using growth factors determined using the Transportation Model (Transportation Network Analysis) to forecast intersection traffic volumes for the future Study horizons (2011 and 2021).

The existing volume to capacity (v/c) ratios computed by Synchro are shown in **Figure 2.4** (intersections were evaluated using optimised timing and phasing of traffic signal controls). Existing intersection lane configurations are indicated on the charts. Detailed Synchro reports are included in **Appendix A**. The following observations are made in regard to the existing intersection operations:

- There are no capacity deficiencies at present at the Goreway Drive/Brandon Gate Drive intersection. The SB through and right turn group lane experiences a v/c ratio of 0.78 in the AM Peak Hour, which may indicate future problem as SB and NB volumes grow. The immediate solution would be an introduction of the auxiliary right turn lane for the SB approach to this intersection.
- At the Goreway Drive/Kenview Boulevard intersections the SB left turn movement operates at relatively high v/c ratio (0.83) in the morning peak hour. The NB two lane group (through and through-right turn lane) also operates close to capacity during afternoon peak hour (v/c=0.87). This indicates a potential need for improvements as traffic grows on Goreway Drive in the future.
- Confirming a general perception of the congested conditions at the Goreway Drive/Steeles Avenue intersection, the analysis indicates that some turning movements approach critical volumes for the existing intersection lane configuration. In particular, high values of v/c ratio are observed for the SB left turn and through lane groups, mainline of Steeles Avenue (in both directions) and the Goreway Drive NB approach to the intersection. As mentioned earlier, the Region of Peel is currently working on the project to improve this intersection.

Figure 2.3 – Goreway Drive Intersections - Existing Turning Movements (2005/2006)

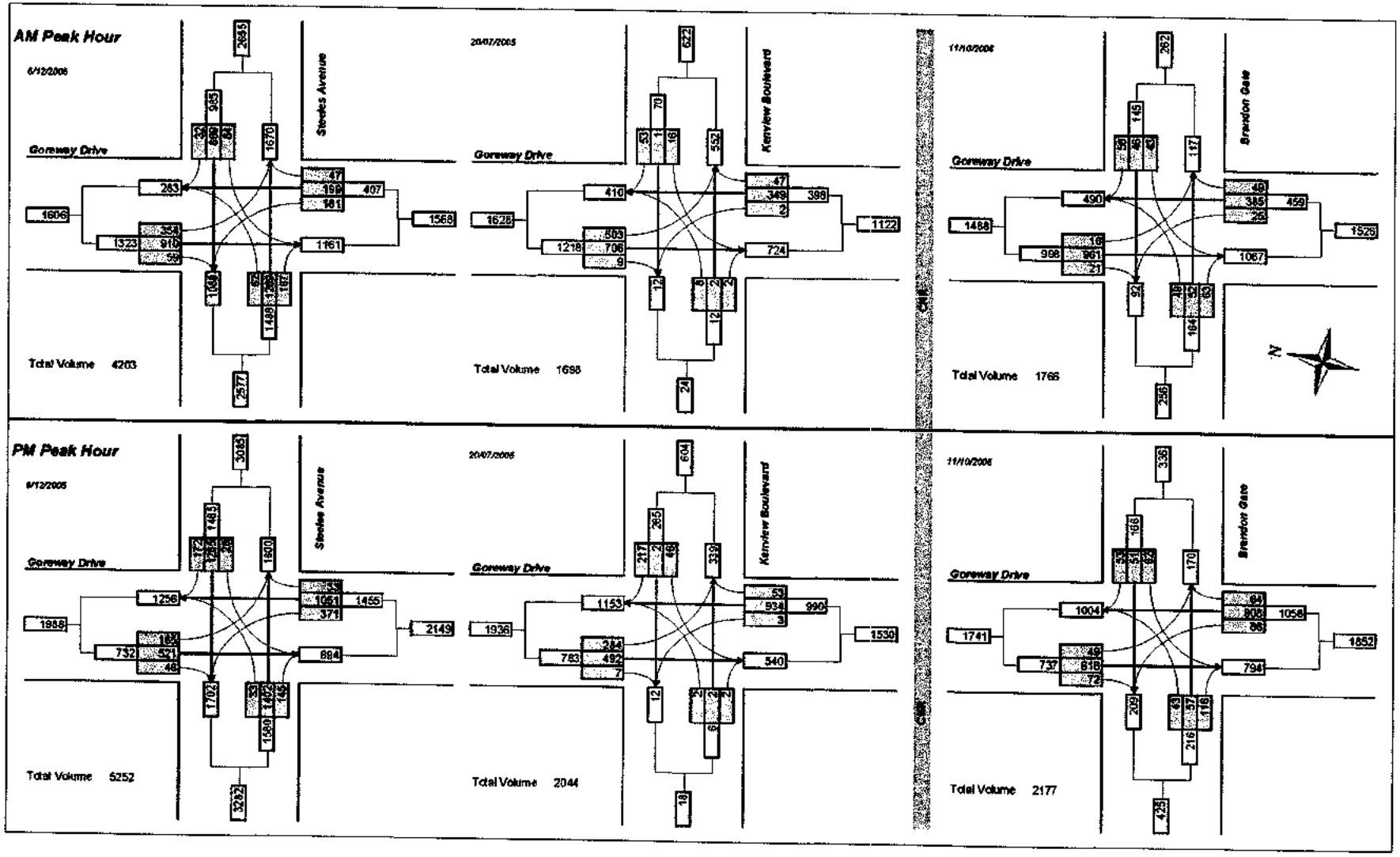
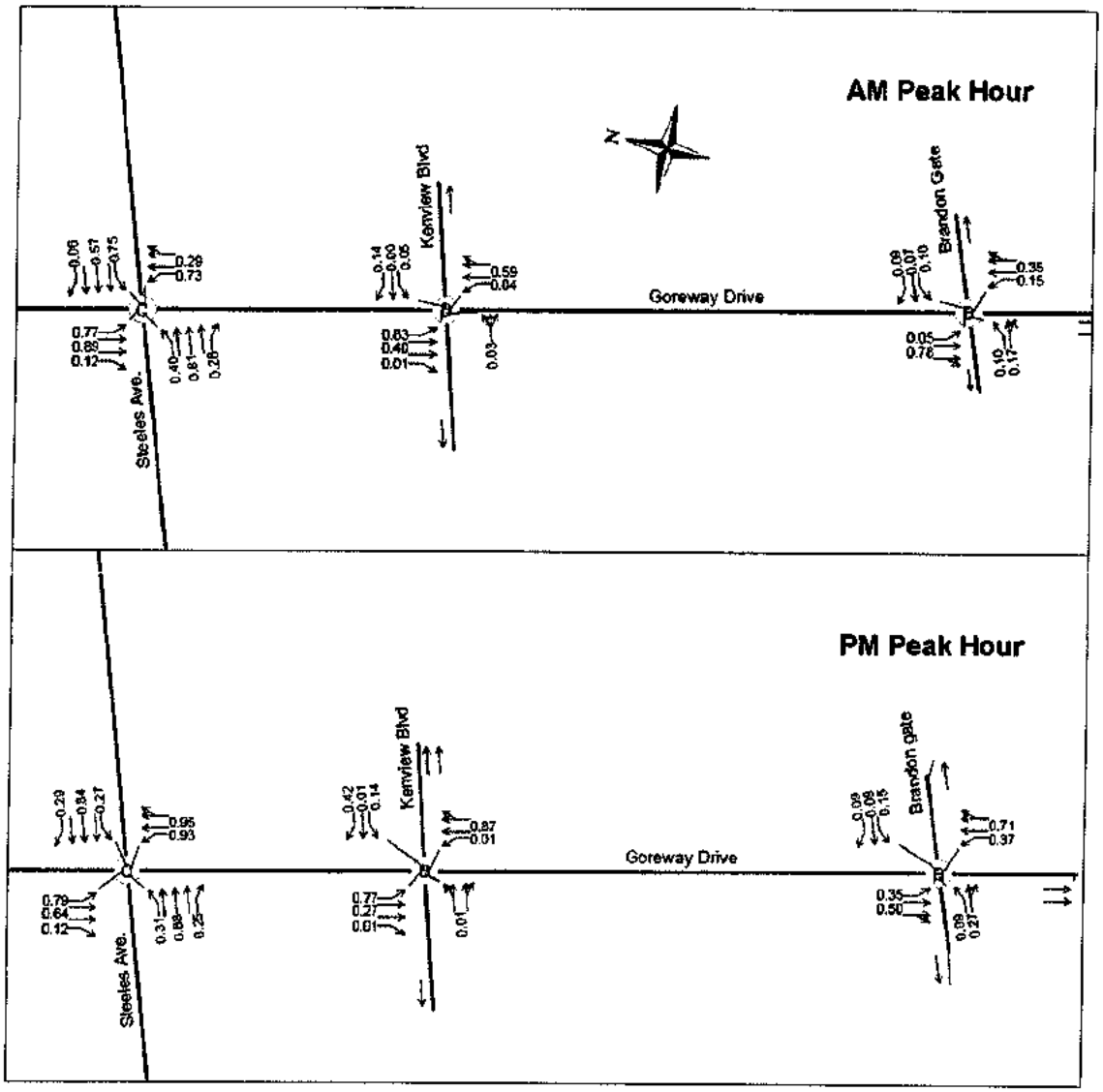


Figure 2.4 – Goreway Drive Intersections – V/C Ratios (Existing Conditions)



2.4 Goreway Drive/CN Railway Crossing

There are extensive delays and queues observed currently at the existing Goreway Drive crossing at the CN Railway Halton Subdivision tracks. This at-grade crossing is located approximately 300 m north of Brandon Gate Drive. There are three tracks in service to facilitate movements of freight trains into and out of CN's Brampton Intermodal Terminal located to the north. The Halton Subdivision currently accommodates about 50 freight trains per day. In addition, Goreway Drive has an Average Annual Daily Traffic (AADT) volume in excess of 15,000 vehicles per day. Based on these volumes, the at-grade CN crossing has an existing Exposure Index of 750,000 (50 trains multiplied by 15,000 vehicles). This exceeds multifold a threshold value of the Exposure Index (200,000) warranting a grade separation. Increasing traffic on Goreway Drive will worsen a situation at the crossing both from traffic operations (queues and delays) and safety perspective (observed unsafe operations as drivers in queues try to reverse and use other routes to avoid delays at the crossing).

3.0 Safety Performance Review

3.1 Introduction

The Safety Performance Review was carried out based on the available data (collision data and speed survey data) provided by the City of Brampton and the City of Mississauga for their respective sections of the Goreway Drive. In addition, the relevant existing design/survey documentation was reviewed and confirmed during site investigations. No significant safety problems are experienced/reported for the section of Goreway Drive within the Study limits that would be indicative of systemic deficiencies related to roadway/intersection configuration and geometry, visibility, roadside conditions, and traffic patterns and operations. Goreway Drive between Steeles Avenue and Brandon Gate Drive is a straight and relatively flat link of the roadway. There are no visibility constraints along the road, as well at all intersections within the Study limits.

3.2 Collision Data/Analysis

Data

The scope of the collision analysis was based on the available collision data. A review of the collision information was undertaken as part of the roadway safety assessment, including determining the collision rates. For a segment of roadway (i.e. Goreway Drive between intersections), the collision rate is calculated per Million-Vehicle-Kilometres (MVK) along the length of the segment. For intersections, the collision rate is calculated per Million Vehicles Entering (MVE) the intersection. The collision rate is calculated based on the annual average daily traffic (AADT) on the segment or entering the intersection.

Brandon Gate to Municipal Boundary (Mississauga City)

Motor vehicle collision data for the years 2002-2005 was obtained from the City of Mississauga; however the data set did not include information on the type of accidents (fatalities, non-fatal injuries or property damage only). AADT information derived from 2006 counts was measured at 21,770 entering the Goreway Drive/Brandon Gate intersection from all four approaches, and 15,925 on roadway north of Brandon Gate Drive. The segment of Goreway Drive between Brandon Gate Drive and the municipal boundary is 0.286 km.

The yearly number of collisions for the segment of Goreway Drive between Brandon Gate Drive and the Municipal Boundary within the City of Mississauga totaled to 2 with one collision in 2002 and 2005 each. The computed collision rates are summarized in **Table 3.1**. Over the reported four year period the rates are less than 1.0 collision per MVK, which is relatively low for this type of the roadway.

Table 3.1 Mid Block Collision Data – Goreway Drive: Brandon Gate Drive to Municipal Boundary

Year	Total Collisions	Total Collision Rate/million vehicle-km (MVK)
2002	1	0.6
2003	0	0.0
2004	0	0.0
2005	1	0.6

For the intersection of Goreway Drive and Brandon Gate Drive, the yearly number of collisions and collision rates are summarized in **Table 3.2**. The collision rates over the years have generally decreased, with a rate of less than 1 per MVE in 2005.

Table 3.2 Intersection Collision Data – Goreway Drive at Brandon Gate Drive Intersection

Year	Total Collisions	Total Collision Rate/million vehicle entering (MVE)
2002	9	1.13
2003	12	1.51
2004	3	0.38
2005	5	0.63

Collision characteristics on Goreway between Brandon Gate Drive to Municipal Boundary (within Mississauga City) in terms of time of occurrence is analyzed and presented in **Table 3.3**. Over the four-year period, approximately 71% of collisions occurred during daylight conditions, and rest 19% during dark.

Table 3.3: Collision Conditions– Goreway Drive: Brandon Gate Drive to Municipal Boundary

Year	Conditions		
	Daylight	Dark	Dawn/Dusk
2002	9	1	0
2003	9	3	0
2004	1	2	0
2005	3	3	0
Total	**22**	**9**	**0**

Collision type characteristics from the year 2002 to 2005 are summarized in **Table 3.4**. By an impact type, rear end and angle collisions constituted 32% each, with an additional about 23% being turning movement collisions.

Table 3.4: Collision Type – Goreway Drive: Brandon Gate Drive to Municipal Boundary

Year	Type of impact			
2002	4	2	3	1
2003	3	5	2	2
2004	2	1	0	0
2005	1	2	2	1
Total	**10**	**10**	**7**	**4**

Municipal Boundary to Steeles Avenue (Brampton City)

A more detailed motor vehicle collision data for the years 2001-2005 was obtained from the City of Brampton. The total length of Goreway consider to study collision rate in the section of Goreway Drive from Municipal Boundary to Steeles Avenue is 0.683 Km. Average Daily Traffic (ADT) on this section of Goreway Drive is 19,305 and AADT at Goreway Drive / Kenview Blvd. intersection is 20,440.

The average annual collision rate for the segment of Goreway Drive between Municipal Boundary and Steeles Avenue within the City of Brampton is around 2 MVK. In 2004 number of collision occurrences was significantly higher. The computed collision rates are summarized in **Table 3.5**.

Table 3.5 Mid Block Collision Data – Goreway Drive: Municipal Boundary to Steeles Avenue

Year	Total Collisions	Total Collision Rate/million vehicle-km (MVK)
2001	2	1.2
2002	2	1.2
2003	1	0.6
2004	7	4.2
2005	3	1.8

The yearly number of collisions (the available collision data set included years 2001-2005) and corresponding collision rates for the Goreway Drive/Kenview Boulevard intersection are summarized in **Table 3.6**. At this location, the AADT was derived from 2005 count information, and was measured as 20,440 vehicles entering the intersection from all four approaches.

Table 3.6 Intersection Collision Data – Goreway Drive at Kenview Boulevard Intersection

Year	Total Collisions	Total Collision Rate/million vehicle entering (MVE)
2001	4	0.54
2002	2	0.27
2003	4	0.54
2004	5	0.67
2005	3	0.40

An examination of the type of crashes indicated that the majority of incidents reported in this time frame were property damage only (88%), with the remainder as non-fatal injury crashes (12%). No fatalities were recorded. The majority of incidents occurred during daylight hours (nearly 75%). Summary information on the characteristics of collisions at this location is provided in **Tables 3.7, 3.8** and **3.9**.

Table 3.7: Collision Characteristics – Goreway Drive: Municipal Boundary to Steeles Avenue

Year	Type of Accident		
	Fatalities	Injury	PDO
2001	0	1	5
2002	0	0	4
2003	0	1	4
2004	0	1	11
2005	0	1	5
Total	**0**	**4**	**29**

Table 3.8: Collision Conditions – Goreway Drive: Municipal Boundary to Steeles Avenue

Year	Conditions		
	Daylight	Dark	Dawn/Dusk
2001	5	1	0
2002	3	0	1
2003	4	1	0
2004	9	2	1
2005	4	0	2
Total	**25**	**4**	**4**

Rear end collisions are major collision type with about 45% of total collision recorded in this section.

Table 3.9: Collision Type – Goreway Drive: Municipal Boundary to Steeles Avenue

Year	Type of impact			
2001	3	2	1	0
2002	3	1	0	0
2003	2	0	2	1
2004	5	3	2	2
2005	2	1	2	1
Total	**15**	**7**	**7**	**4**

Railway Crossing

No collision data was available for the railway crossing. It might be assumed that there were no automobile collisions at this specific location, as well as there were no collisions with trains. Barriers and signals at the crossing are up to standards and operate properly. However it is recognized and confirmed by field observations that there is a potential safety problem related to the operations of the crossing. During extended closures of the crossing, it was observed that many drivers try escaping the queues and finding another route to their destinations. Reversing and turning maneuvers are potential situations which may lead to collisions.

3.3 Speed Survey

The City of Mississauga conducted a speed study in 2006 for Goreway Drive just south of the Study area (north and south of Morning Star Drive) to assess existing speed patterns on the road. The results of the speed analysis are presented in **Table 3.10**. The percentile of the vehicles exceeding the posted speed limit is relatively high. At the section immediately south of the Goreway EA Study limit, almost a quarter of the traffic moves at a speed exceeding the posted speed of 60 km/hr. It can be expected that further to the north, as the road passes through un-urbanized area, even higher number of vehicles may exceed the limits. This may affect safety on the road, particularly in the context of the existing at grade railway crossing.

Table 3.10 Speed analysis results

Direction	NB
Posted Speed	60kmph
Average speed	58kmph
Percentile exceeding posted speed	26.3
85th percentile speed	69.13kmph
Average headway	3.36 sec.
Road temperature	22 - 41 degrees
Road surface dryness	79.07%

Direction	NB
Posted Speed	60kmph
Average speed	52kmph
Percentile exceeding posted speed	13.2
85th percentile speed	64.34kmph
Average headway	2.71 sec.
Road temperature	22 - 41 degrees
Road surface dryness	41.86%

MORNING STAR

GOREWAY DR.

GOREWAY DR.

MORNING STAR

Direction	SB
Posted Speed	60kmph
Average speed	57kmph
Percentile exceeding posted speed	23.2
85th percentile speed	68.29kmph
Average headway	4.04 sec.
Road temperature	23 - 41 degrees
Road surface dryness	76.74%

Direction	SB
Posted Speed	60kmph
Average speed	55kmph
Percentile exceeding posted speed	13.7
85th percentile speed	64.58kmph
Average headway	3.78 sec.
Road temperature	24 - 41 degrees
Road surface dryness	65.12%

4.0 Future Traffic Demand and Operations

4.1 Transportation Network Study Recommendations

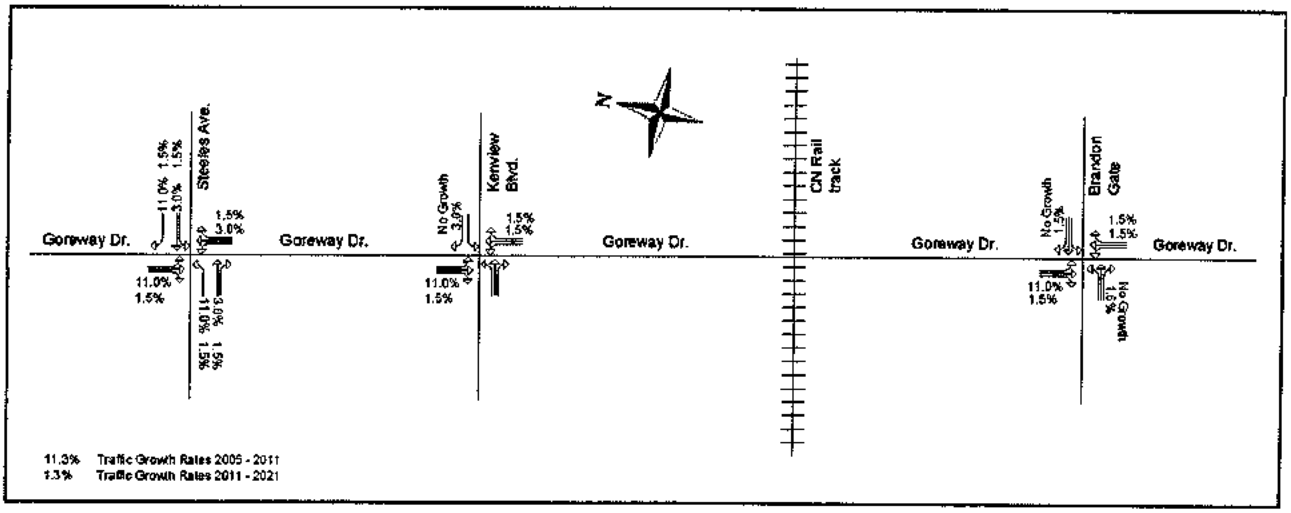
As mentioned in Section 1.2, a separate Transportation Network Study was completed to determine improvements to Goreway Drive within the Study area in a context of the wider road network. The Study confirmed that the existing four-lane roadway configuration on Goreway Drive from Steeles Avenue to Derry Road, will be sufficient to service future traffic demand. Notwithstanding, additional capacity and level of service improvements on Goreway Drive may be realized through implementation of intersection improvements such as turning lanes, improved geometrics, and/or traffic signal optimization. In addition, a detailed examination of the V/C ratio at the approach to CN's at-grade Halton Subdivision indicates an obvious improvement in capacity when a grade separation is introduced.

A traffic operational analysis was carried out to ascertain the degree to which capacity can be increased, and the level of service improved at signalized intersections along the corridor, particularly at Steeles Avenue, Kenview Boulevard and Brandon Gate Drive. The results are documented below. Subsequently, specific improvements were identified and recommended.

4.2 Data and Traffic Projections

The Transportation Modeling analysis allowed establishing traffic growth patterns for the subject section of Goreway Drive and intersections within the Study limits for the 2011 and 2021 time horizons. The rationalized traffic growth rates for the Goreway Drive intersections at Steeles Avenue, Kenview Boulevard and Brandon Gate Drive are shown in **Figure 4.1**. These traffic growth rates (from the year 2001-2011and 2011-2021) by approach to the intersection are further applied to 2005 turning movement volumes to derive at projected turning movement traffic volumes for the Study horizons. The representation of heavy vehicles in projections was based on existing conditions. As the Transportation Model was set to analyze the afternoon peak period conditions, the projections are limited to the PM Peak Hour.

Figure 4.1 – Goreway Drive Intersections – Traffic Growth Rates (2011, 2021)



It has to be noted that the mainline SB direction of Goreway Drive will experience significant growth by 2011 (11% average annual growth according to the Transportation Model results), while the NB growth will be modest (at 3% at the NB approach to Steeles Avenue and 1.5 % further south). This growth is related to changes in the overall road network, in particular the extension of the Goreway Drive/Humberwest Parkway link further north and west to Sandalwood Parkway and ongoing land development along this transportation corridor. Most of this growth is expected to occur by 2011. Kenview Boulevard and Brandon Gate Drive service areas are saturated with development and only minimal growth can be expected at the approaches of these roads to Goreway Drive (assumed a nominal growth of 1.5% for the Study forecasts).

Figure 5.2 shows the projected 2011 and 2021 PM Peak Hour turning movement volumes on the Goreway Drive intersections at Steeles Avenue, Kenview Boulevard and Brandon Gate.

4.3 Assessment of Future Traffic Operations - Improvement Needs

The projected volumes were further analysed using the Synchro intersection analysis software to assess future intersection operations and determine improvement requirements (optimised timing and phasing of traffic signal controls were assumed in the Synchro analysis). The existing intersection configurations were examined first, and the improved configurations next. **Figure 4.3** presents the volume to capacity (v/c) ratios resulted from the analysis of the projected volumes on the existing intersection configurations. Respectively, **Figure 4.4** presents the computed v/c ratios for the improved intersection configurations as indicated. Synchro reports are included in **Appendix A**.

Figure 4.3 – Goreway Drive Intersections – V/C Ratios (Existing Configurations)

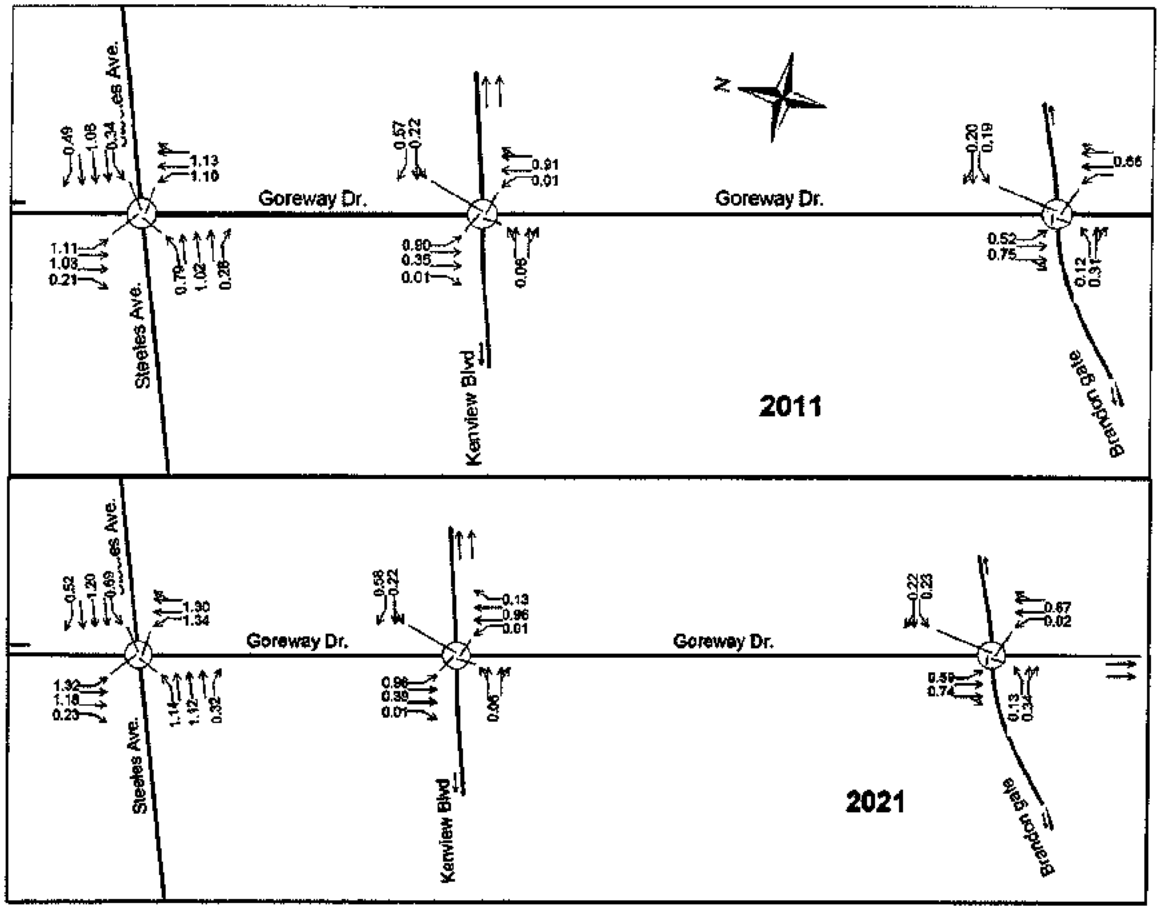


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Figure 4.2 – Goreway Drive Intersections - Projected Turning Movements (2011/2021)

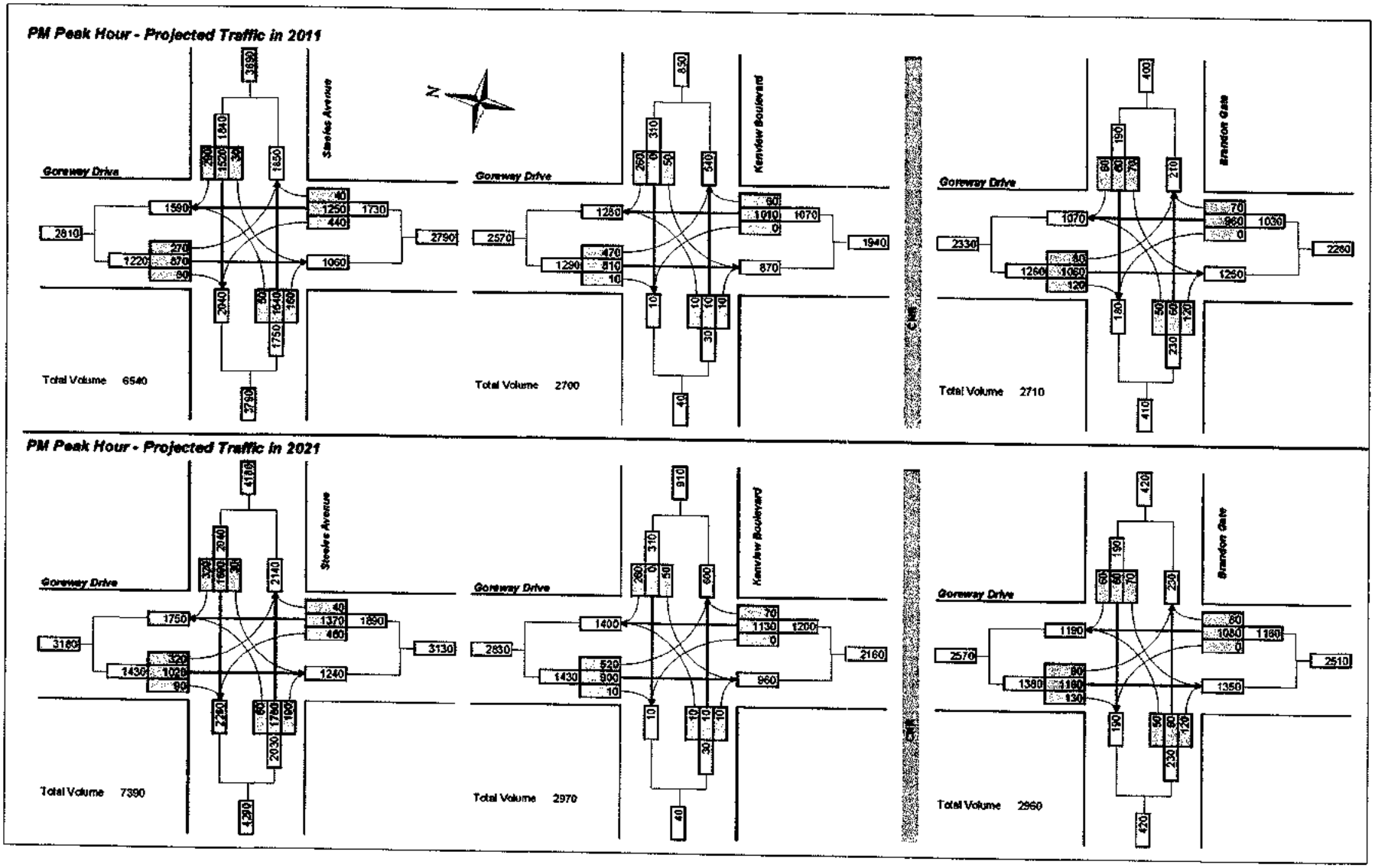
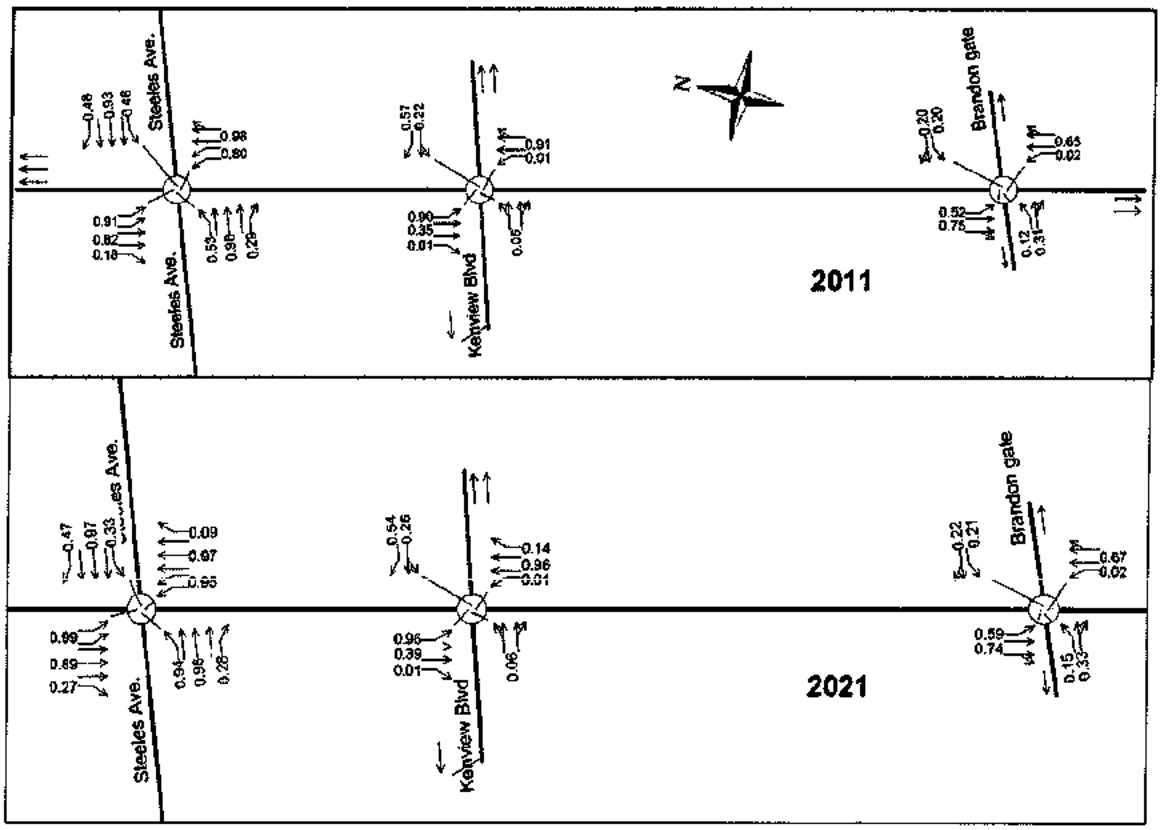


Figure 4.4 – Goreway Drive Intersections – V/C Ratios (Improved Configurations)



The following is a discussion of the results of the Synchro intersection analysis for the projected conditions.

- There are no capacity deficiencies at present at the Goreway Drive/Brandon Gate Drive intersection and the intersection will accommodate the projected traffic volumes (PM Peak Hour) in 2011 and 2021. As indicated earlier in discussing existing conditions the SB through and right turn group lane experiences a v/c ratio of 0.78 in the AM Peak Hour. It needs to be assumed (as the AM Peak Hour volumes were not projected) that this condition will worsen in 2011 and 2021 as traffic volumes grow. This may require the introduction of an auxiliary right turn lane for the SB approach to this intersection.
- At the Goreway Drive/Kenview Boulevard intersection the SB left turn movement operates at a relatively high v/c ratio (0.83 and 0.76 in the AM and PM peak hour respectively). The condition at this lane will deteriorate over time approaching capacity level by 2021. Due to the proximity of the Steeles Avenue intersection the issue of improving the configuration of the SB approach to the intersection needs to be dealt within conjunction with proposed improvements to the Steeles Avenue intersection. A potential solution is to provide double left turn lanes at the SB approach to Kenview Boulevard and similarly at the NB approach to Steeles Avenue. The NB two lane group at Kenview Boulevard (through and through-right turn lane) also operates close to capacity during 2005 afternoon peak hour (v/c=0.89). In 2011 and 2021 the v/c ratios will deteriorate further indicating a potential need to introduce a separate right turn lane.
- According to the analysis, the congested conditions at the Goreway Drive/Steeles Avenue intersection will significantly worsen in 2011 and 2021, if the intersection is not improved. Critical group lanes include all through lanes and NB, SB, and EB left turning lanes. Doubling left turn lane groups may keep the v/c ratio just below 1.0 (there are already three through lanes on

Steeles Avenue in both directions). However, some additional improvements in the wider road network (e.g. Intermodal Drive extension to Finch Avenue) and Travel Demand Management measures may be required to keep traffic demand at this intersection at a manageable level. As mentioned earlier, the Region of Peel is currently studying potential improvements to this intersection.

4.4 Detailed Assessment – Storage Requirements

Methodology:

A three part process was conducted to determine the storage length requirements under 2011 and 2021 conditions:

- An assessment of the existing laning and geometric configuration[1] with 2011 & 2021 volume was conducted in Synchro/SimTraffic[2] to determine if any improvements are warranted.
- The required length of storage for each intersection approach leg at the three study intersections on Goreway Drive, based on TAC standards and future 2011 & 2021 traffic volumes were calculated.
- Minimum TAC storage requirements were tested in Synchro/SimTraffic to ascertain that the lengths were appropriate, and that queuing and control delays did not detrimentally reduce the level of service for traffic on Goreway Drive.

The Transportation Association of Canada (TAC) Design Guide (1999) was referenced to define storage and calculate the length of storage[3] of turning lanes. TAC's minimum requirement for storage at signalized intersections is 15m; TAC also indicates that in addition to the storage lane, additional deceleration lane of 40-90m is preferred for a design speed of 60kmph and 60-130m[4] is preferred for a design speed of 80km/hr. This length is adjusted in the case of grades or a decrease in the design speed.

TAC indicates that the requirement for an exclusive right turn lane is based on the proportion of right turn volume relative to total approach. The standards note that if right turning vehicles comprise 10% or greater of the total approach volume, a right turn bay is required. In addition to the TAC criterion, the total volume of right turning traffic was taken into account to assess the requirement for an exclusive right auxiliary lane.

Traveling along the corridor from North to South, the following documents the required auxiliary laning at each intersection. Synchro Highway Capacity Manual (HCM) results for signalized intersections, and queuing summaries from SimTraffic are included in **Appendix A** as additional reference material.

Steeles Avenue

Of the three study intersections, the Steeles Avenue at Goreway Drive location experiences significant delay and queuing resulting in poor LOS. In 2021 without any geometric modifications, all four

[1] Existing geometrics and laning information contained in the Goreway 4020-009-00 Goreway 2005 PM.sy7 model was confirmed using the online GIS functionalities of the City of Brampton (Brampton Maps http://www.bramptonmaps.ca/), and the City of Mississauga (e-maps http://www.mississauga.ca/portal/services/maps).

[2] SimTraffic queuing observations were based on multiple runs (5 in total) with the results averaged. This provides a more reliable observation than a single run.

[3] Section 2.3.5.4, Geometric Design Guide for Canadian Roads, 1999

[4] Table 2.3.5.2 for Right turning tapering length and 2.3.8.2 for Left turning tapering length, Geometric Design Guide for Canadian Roads, 1999

approaches would experience LOS F, despite signal timing optimization. This suggests that additional capacity is required at the intersection.

Keeping existing lane configuration, number of lanes, storage lengths and traffic volume in the year 2005, the overall v/c ratio (HCM) is 0.9, average control delay of 25.8 sec. with actuated cycle length of 60 sec.

In order to accommodate increased traffic in the year 2011, NB, SB and EB left turning lane groups are increased to 2 lanes in order to keep V/C ratio less than 1. With these modified lane configuration, the v/c ratio is reduced to 0.93 (actuated optimized cycle length is 75 sec.).

In the year 2021, through movements on Goreway Dr. (i.e. NB & SB) require three lanes. To avoid a funneling effect, the same lane configuration is maintained on SB exit lanes and tapering to two lanes at an appropriate length. An auxiliary lane for right turn on NB is required to reduce interference with through movement traffic. Other lanes and storage lengths remain as in the year 2011. The capacity augmentation has resulted in lesser actuated cycle length of 65 sec. and average control delay of 26.2 sec.

Figure 4.5 shows the existing and improved (according to the above analysis) intersection configuration.

Figure 4.5 – Goreway Drive/Steeles Avenue Intersection – Existing/Improved Configuration

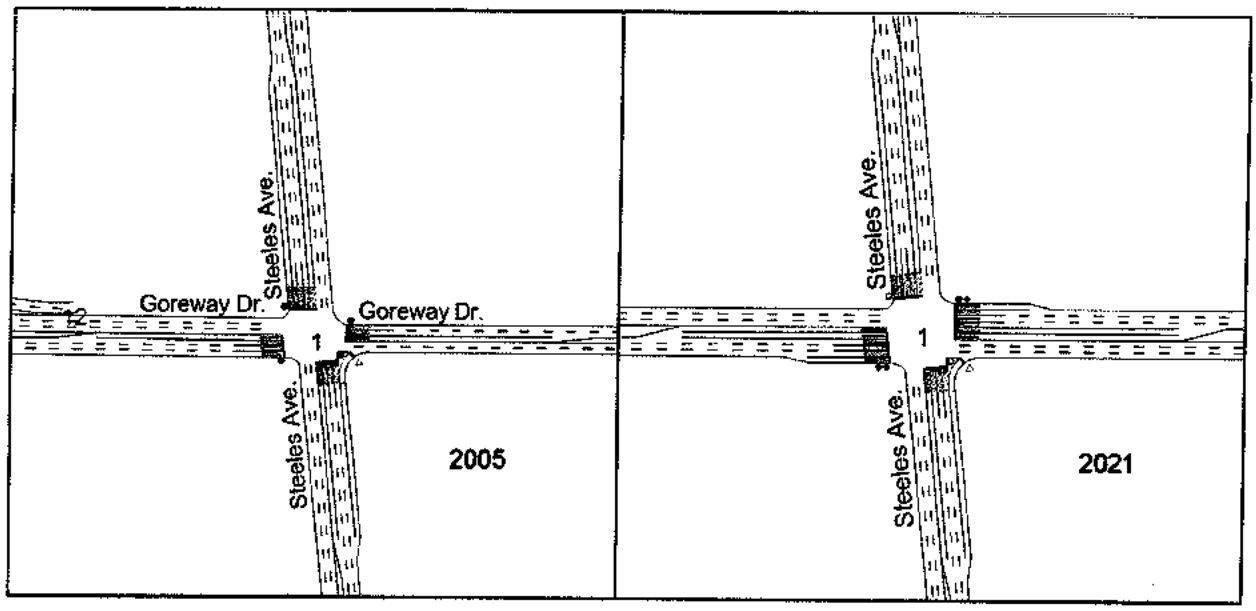


Table 4.1 provides a summary of the results of the analysis described above (for the proposed improved intersection configuration)

Table 4.1 Steeles Avenue Intersection Analysis Summary

Year	Total approaching traffic volume (PM Peak)	HCM Level of Service	Actuated Cycle Length (sec.)	HCM average control delay (sec.)	Intersection Capacity Utilization	HCM Volume to Capacity ratio
2005	5252	C	59.7	25.8	76.7%	0.90
2011	6450	C	75.0	34.3	89.9%	0.93
2021	7390	D	75.0	39.7	86.7%	1.00

The storage lengths are calculated as per TAC methodology[5]. On Goreway Drive, storage length needs to double for growing traffic demand for left turning traffic. An auxiliary lane for NB right turning traffic on Goreway Drive is required in the year 2021.

Table 4.2 provides a summary of the storage requirements for the Goreway Drive/Steeles Avenue intersection. These requirements are compared to the existing conditions and the Region of Peel recommended improvements.

Table 4.2 Steeles Avenue Intersection Storage Requirements

	Steeles Avenue				Goreway Drive			
	EBL	EBR	WBL	WBR	SBL	SBR	NBL	NBR
Exiting auxiliary lane length (m)	120	90	150	100	100	90	100	n/a
Computed Storage length as per TAC (m)								
2005	10.5	102	25.5	64.5	118	32	236	20
2011	12	172.5	39	70.5	194	54	280	24
2021	12	190.5	48	84	230	62	306	24
Deceleration length as per TAC (m)	130 - 170	60 - 130	130 - 170	60 – 130	115 - 140	60 – 130	115 - 140	60 – 130
Computed auxiliary length (m) in 2021	142 - 182	250 - 320	178 - 218	114 - 214	345 - 370	122 - 192	421 - 446	84 - 154
Region of Peel Recommended improvements	120	90	150 m plus 90m taper	100	Dual 100m plus 134m taper	50 m plus 80m taper	100 m plus 140m taper	100 m plus 140m taper

Kenview Boulevard

At this intersection, with existing lane configuration, number of lanes, storage lengths and traffic volume in the year 2005, the Level of Service is 'B' and average control delay of 19.6 sec. with actuated cycle length of 59 sec. under this condition, there is no turning movement experiencing a Level of Service lower than C.

For traffic demand in the year 2011, without changing existing lane configuration, the Level of Service dropped to C. The average control delay is increased by 36%.

In order to maintain Level of Service C in the year 2021, an auxiliary lane should be created for North Bound right turning traffic on Goreway. The storage length for South Bound left turning traffic on Kenview Blvd. has to be increased to accommodate future turning movement traffic.

Figure 4.6 shows the existing and improved (according to the above analysis) intersection configuration.

[5] Section 2.3.5.4, Geometric Design Guide for Canadian Roads, 1999

Figure 4.6 – Goreway Drive/Kenview Blvd – Existing/Improved Configuration

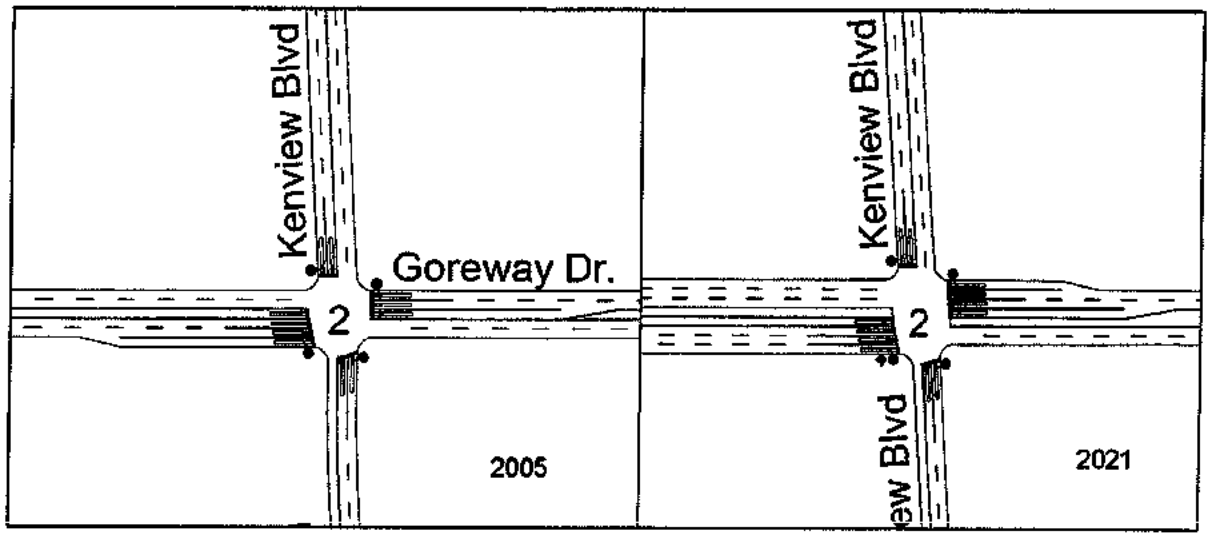


Table 4.3 summarizes results of the analysis for the Goreway Drive/Kenview Boulevard intersection improved configuration.

Table 4.3 Kenview Boulevard Intersection Analysis Summary

Year	Total approaching traffic volume (PM Peak)	HCM Level of Service	Actuated Cycle Length (sec.)	HCM average control delay (sec.)	Intersection Capacity Utilization	HCM Volume to Capacity ratio
2005	2055	B	59.2	19.6	62.5%	0.62
2011	2700	C	87.4	26.4	75.3%	0.74
2021	2970	C	93.2	31.1	79.5%	0.84

Table 4.4 provides a summary of the storage requirements for the proposed improved intersection configuration.

Table 4.4 Kenview Boulevard Intersection Storage Requirements

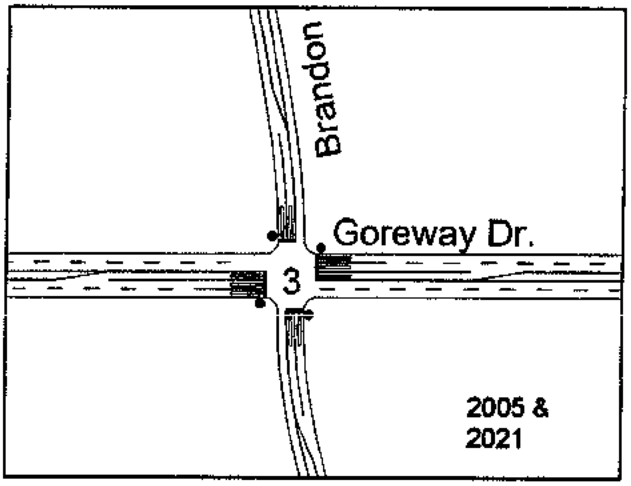
	Kenview Blvd.				Goreway Drive			
	EBL	EBR	WBL	WBR	SBL	SBR	NBL	NBR
Exiting auxiliary lane length (m)	n/a	n/a	n/a	Exclusive	230	115	70	n/a
Computed storage length as per TAC (m)								
2005	6	1.5	18	105	139.5	3	1.5	24
2011	6	4.5	19.5	126	231	4.5	1.5	27
2021	6	4.5	19.5	126	255	4.5	1.5	31.5
Deceleration length as per TAC (m)	115 - 140	60 - 130	115 - 140	60 – 130	115 - 140	60 – 130	115 - 140	60 – 130
Computed auxiliary length (m) in 2021	Not required	Not required	135 - 165	186 - 256	370 - 395	Not required	Not required	92 - 162

Brandon Gate Drive

Future volumes were tested against the existing geometrics at this intersection. Optimization of the signal cycle length and splits results in an intersection level of service (LOS) of B, with no individual movement operating at LOS worse than B. No changes are warranted in either lane configuration nor in signal phasing type/sequence.

Figure 4.7 shows the existing intersection configurations.

Figure 4.7 – Goreway Drive/Brandon Gate Intersection – Existing Configuration



Results of the analysis are summarized in **Table 4.5**, while the storage requirements are shown in **Table 4.6**.

Table 4.5 Brandon Gate Drive Intersection Analysis Summary

Year	Total approaching traffic volume (PM Peak)	HCM Level of Service	Actuated Cycle Length (sec.)	HCM average control delay (sec.)	Intersection Capacity Utilization	HCM Volume to Capacity ratio
2005	2093	A	41.8	10.0	57.4%	0.44
2011	2710	B	46.2	11.0	64.2%	0.54
2021	2960	B	51.6	11.2	67.3%	0.56

Table 4.6 Brandon Gate Drive Intersection Storage Requirements

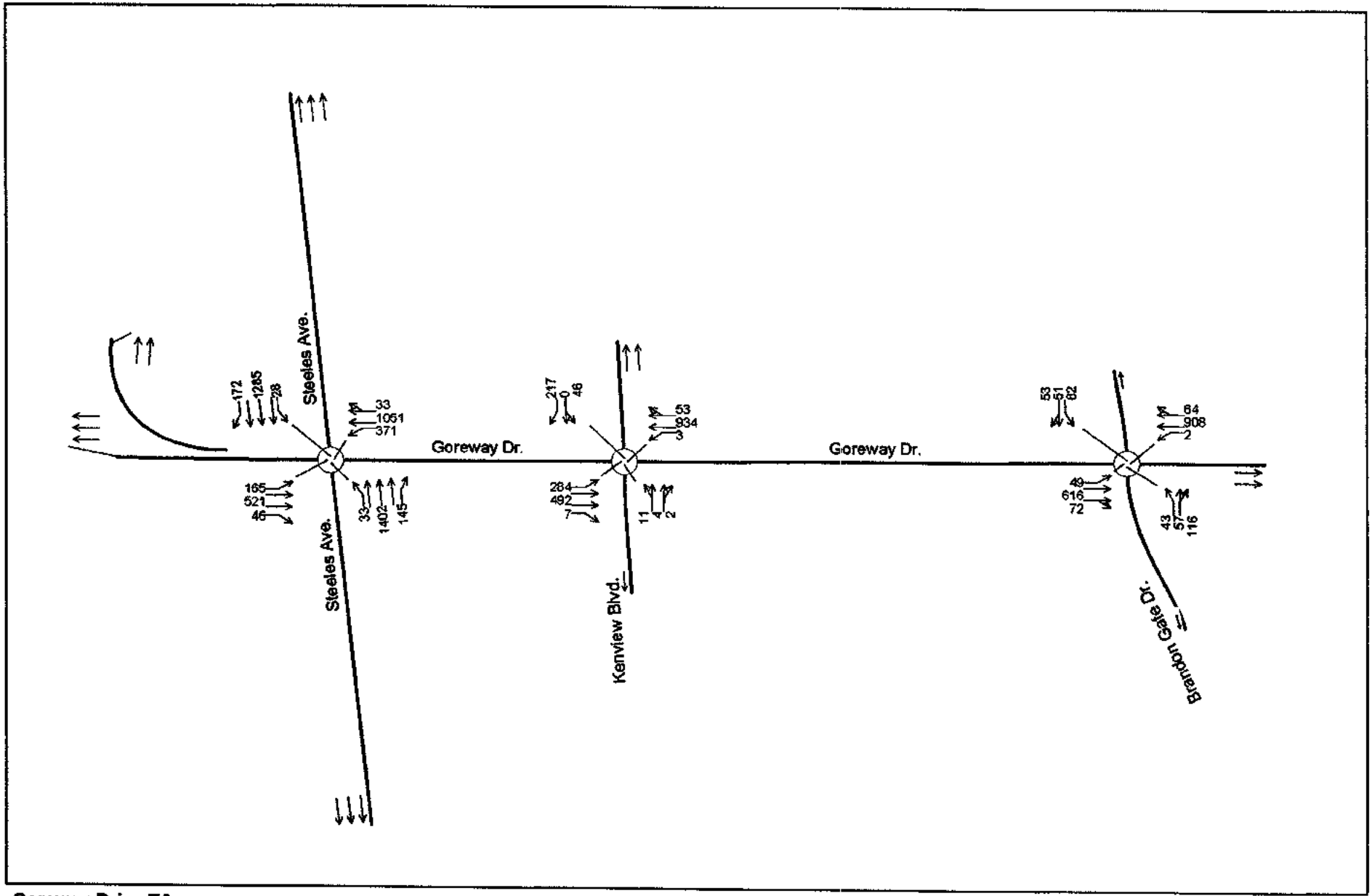
	Brandon Gate Dr.				Goreway Dr.			
	EBL	EBR	WBL	WBR	SBL	SBR	NBL	NBR
Exiting auxiliary lane length (m)	45	n/a	45	n/a	65	n/a	65	n/a
Computed storage length as per TAC (m)								
2005	30	21	18	54	21	31.5	3	25.5
2011	33	24	21	55.5	34.5	51	3	27
2021	33	24	21	55.5	39	55.5	3	31.5
Deceleration length as per TAC (m)	115 - 140	60 - 130	115 - 140	60 – 130	115 - 140	60 – 130	115 - 140	60 – 130
Computed auxiliary length (m) in 2021	148 - 178	84 – 154	136 - 161	115 - 185	155 - 170	115 - 185	Not required	92 - 162

5.0 Findings & Recommendations

- Goreway Drive within the Study limits operates as a typical urban commuter road.
- Under existing traffic volumes the intersection of Goreway Drive and Steeles Avenue operates close to capacity level and experiences a poor level of service.
- The remaining two intersections within the Study limits have some capacity reserves and operate at a satisfactory level of service.
- No significant safety problems are experienced/reported for the section of Goreway Drive within the Study limits that would be indicative of systemic deficiencies related to roadway/intersection configuration and geometry, visibility, roadside conditions, and traffic patterns and operations.
- From both the operational and safety perspective there is a need for the grade separation between Goreway Drive and CN Rail tracks at this location. The existing Goreway Drive level crossing at CN Rail tracks causes significant disturbances to traffic flows on the road (constraining capacity and creating significant delays) and raises safety concerns.
- The Transportation/Road Network Analysis and Transportation Modeling confirms that existing and future traffic volumes do not justify the need to widen Goreway Drive from 4 to 6 lanes within the 1.2 km Project Limits.
- According to the results of the Transportation Modeling analysis, the mainline of Goreway Drive will experience a significant growth of traffic between now and 2011 (11% and 3% annually on SB and WB), as well as at Steeles Avenue approaches to Goreway Drive. After 2011 a nominal growth of 1.5% is anticipated on Goreway Drive. No significant traffic growth is expected on Kenview Boulevard and Brandon Gate Drive during the analysis period (up to 2021).
- The results of the future intersection operations indicate a need for significant improvements to the Goreway Drive/Steeles Avenue intersection. The Region of Peel is currently working on a project dedicated to providing an appropriate solution for this intersection.
- There will be a need for minor improvements at the Goreway Drive intersections at Kenview Boulevard and Brandon Gate Drive. Refer to Section 4.4 for detailed requirements.

Appendix A
Traffic Operations Analysis – Synchro Reports

Baseline - Existing configuration
Traffic volumes - 2005



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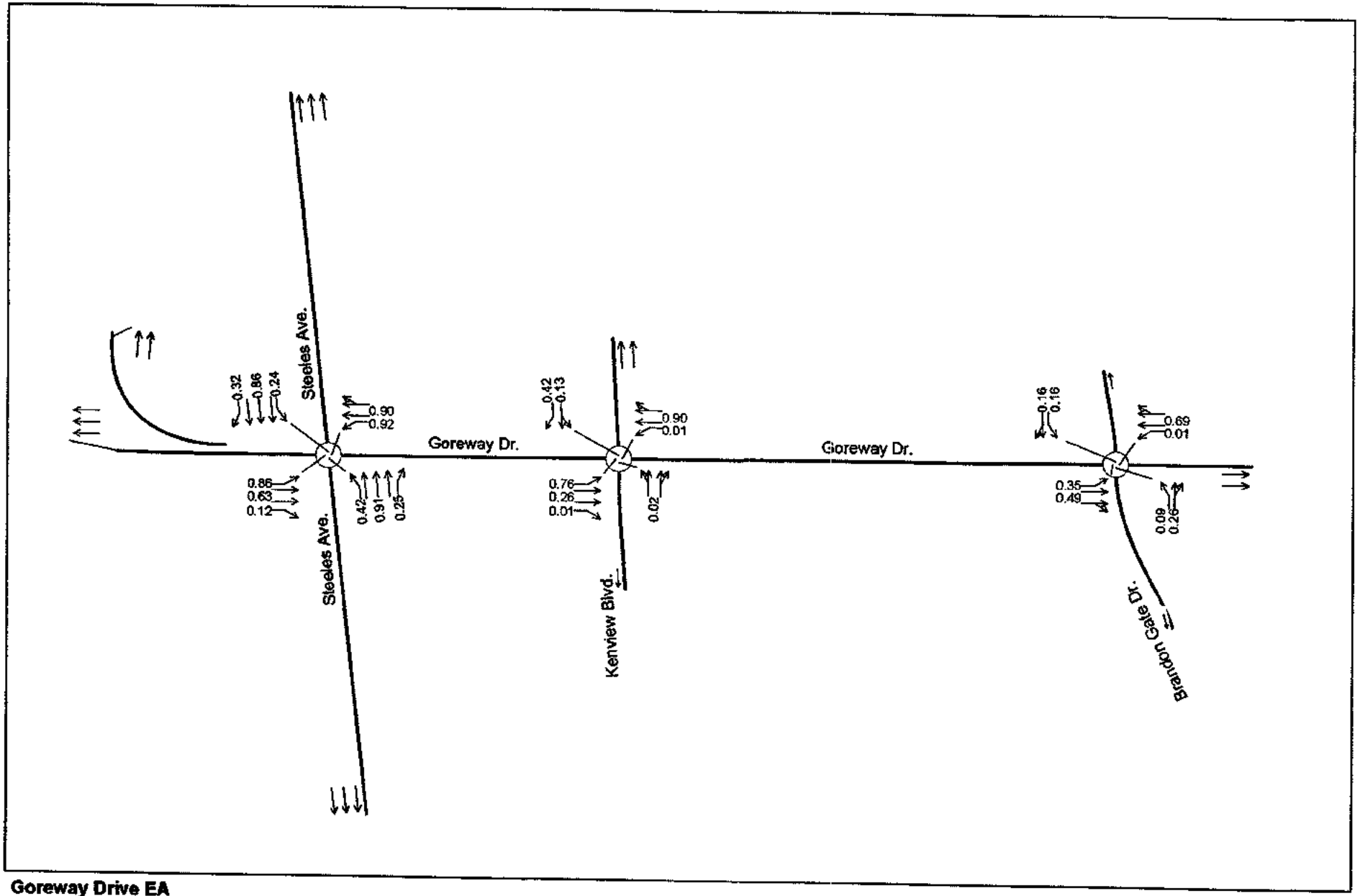
Baseline - Existing configuration
V/C ratios - 2005



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Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1220	4759	1495	1805	4590	1292	1626	3450		1517	3438	1404
Flt Permitted	0.19	1.00	1.00	0.19	1.00	1.00	0.24	1.00		0.25	1.00	1.00
Satd. Flow (perm)	245	4759	1495	362	4590	1292	419	3450		407	3438	1404
Volume (vph)	33	1402	145	28	1285	172	371	1051	33	165	521	46
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	1524	158	30	1397	187	403	1142	36	179	566	50
RTOR Reduction (vph)	0	0	102	0	0	121	0	4	0	0	0	31
Lane Group Flow (vph)	36	1524	56	30	1397	66	403	1174	0	179	566	19
Heavy Vehicles (%)	48%	9%	8%	0%	13%	25%	11%	4%	9%	19%	5%	15%
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	21.0	21.0	21.0	21.0	21.0	21.0	30.7	22.7		19.7	15.7	15.7
Effective Green, g (s)	21.0	21.0	21.0	21.0	21.0	21.0	30.7	22.7		19.7	15.7	15.7
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35	0.35	0.51	0.38		0.33	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	86	1674	526	127	1615	454	438	1312		209	904	369
v/s Ratio Prot		c0.32			0.30		c0.17	0.34		0.06	0.16	
v/s Ratio Perm	0.15		0.04	0.08		0.05	c0.30			0.23		0.01
v/c Ratio	0.42	0.91	0.11	0.24	0.87	0.14	0.92	0.90		0.86	0.63	0.05
Uniform Delay, d1	14.7	18.5	13.0	13.7	18.0	13.2	10.7	17.4		17.8	19.4	16.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.3	8.9	0.4	4.3	6.5	0.7	24.5	8.2		27.4	1.4	0.1
Delay (s)	29.0	27.4	13.4	18.0	24.5	13.9	35.3	25.6		45.3	20.8	16.5
Level of Service	C	C	B	B	C	B	D	C		D	C	B
Approach Delay (s)		26.1			23.1			28.1			26.0	
Approach LOS		C			C			C			C	

HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.98			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3067			1770	1442	1805	3436		1597	3471	1615
Flt Permitted		0.87			0.75	1.00	0.45	1.00		0.16	1.00	1.00
Satd. Flow (perm)		2744			1388	1442	861	3436		272	3471	1615
Volume (vph)	11	4	2	46	0	217	3	934	53	284	492	7
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	2	50	0	236	3	1015	58	309	535	8
RTOR Reduction (vph)	0	1	0	0	0	173	0	7	0	0	0	3
Lane Group Flow (vph)	0	17	0	0	50	63	3	1066	0	309	535	5
Heavy Vehicles (%)	18%	0%	0%	2%	0%	12%	0%	4%	8%	13%	4%	0%
Turn Type	Perm			Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4		4	6			2		2
Actuated Green, G (s)		16.0			16.0	16.0	20.7	20.7		35.6	35.6	35.6
Effective Green, g (s)		16.0			16.0	16.0	20.7	20.7		35.6	35.6	35.6
Actuated g/C Ratio		0.27			0.27	0.27	0.35	0.35		0.60	0.60	0.60
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		737			373	387	299	1193		405	2073	965
v/s Ratio Prot								c0.31		c0.14	0.15	
v/s Ratio Perm		0.01			0.04	c0.04	0.00			0.32		0.00
v/c Ratio		0.02			0.13	0.16	0.01	0.89		0.76	0.26	0.00
Uniform Delay, d1		16.0			16.5	16.7	12.7	18.4		11.3	5.7	4.8
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1			0.7	0.9	0.0	8.8		8.3	0.1	0.0
Delay (s)		16.1			17.3	17.6	12.8	27.2		19.6	5.8	4.8
Level of Service		B			B	B	B	C		B	A	A
Approach Delay (s)		16.1			17.5			27.2			10.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

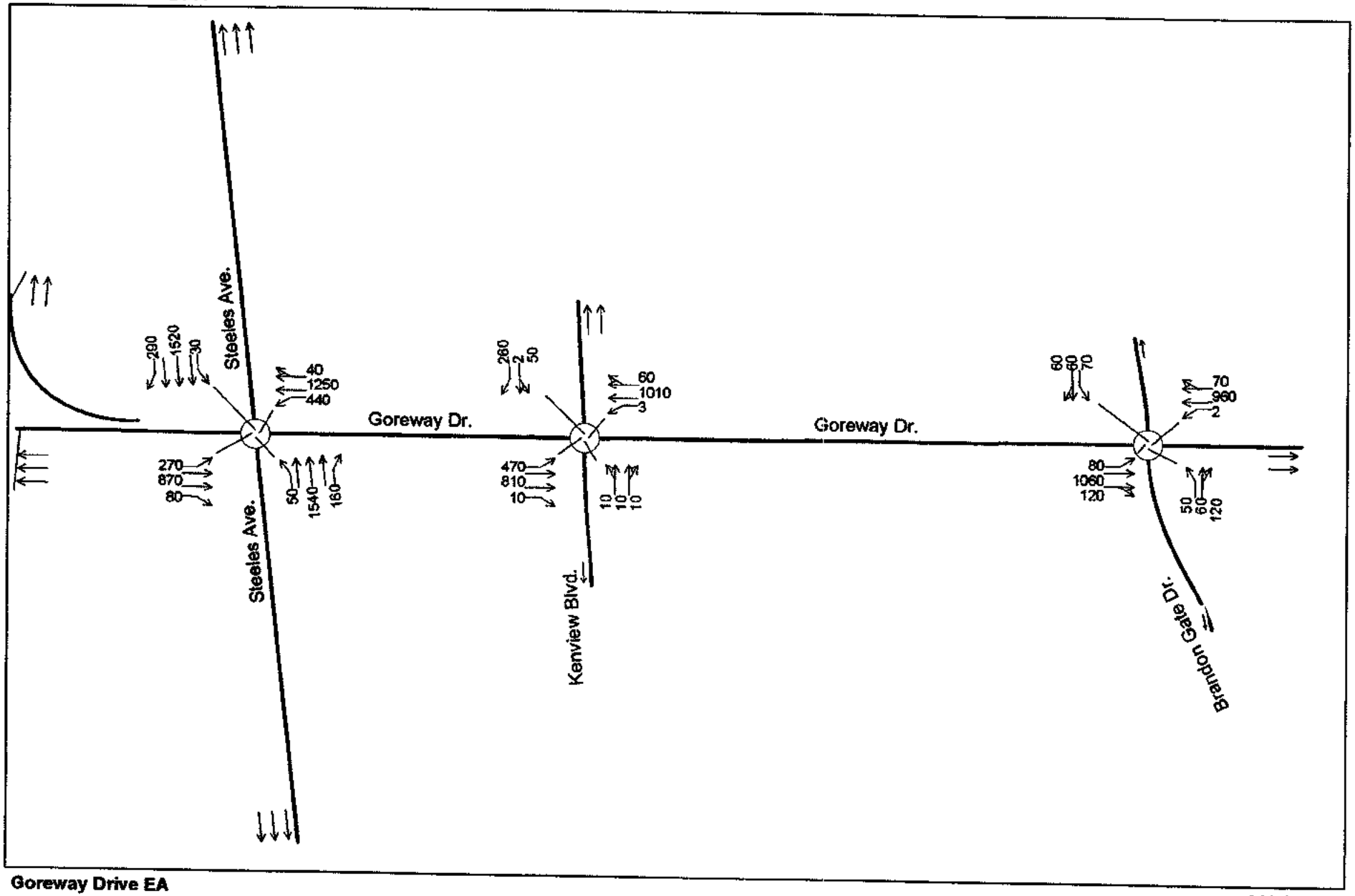
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.92		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1612		1612	1704		1641	3473		1703	3469	
Flt Permitted	0.69	1.00		0.64	1.00		0.32	1.00		0.23	1.00	
Satd. Flow (perm)	1266	1612		1090	1704		559	3473		405	3469	
Volume (vph)	43	57	116	62	51	53	2	908	64	49	616	72
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)	45	60	122	65	54	56	2	956	67	52	648	76
RTOR Reduction (vph)	0	75	0	0	34	0	0	12	0	0	21	0
Lane Group Flow (vph)	45	107	0	65	76	0	2	1011	0	52	703	0
Heavy Vehicles (%)	3%	0%	9%	12%	4%	2%	10%	3%	2%	6%	2%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	16.1	16.1		16.1	16.1		17.7	17.7		17.7	17.7	
Effective Green, g (s)	16.1	16.1		16.1	16.1		17.7	17.7		17.7	17.7	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.42	0.42		0.42	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	488	621		420	656		237	1471		171	1469	
v/s Ratio Prot		c0.07			0.04			c0.29			0.20	
v/s Ratio Perm	0.04			0.06			0.00			0.13		
v/c Ratio	0.09	0.17		0.15	0.12		0.01	0.69		0.30	0.48	
Uniform Delay, d1	8.2	8.5		8.4	8.3		7.0	9.8		8.0	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.8	0.4		0.0	1.4		1.0	0.2	
Delay (s)	8.6	9.1		9.2	8.6		7.0	11.2		9.0	9.0	
Level of Service	A	A		A	A		A	B		A	A	
Approach Delay (s)		9.0			8.8			11.1			9.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	41.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

2005 Network & 2011 Traffic volumes

Traffic Volumes - 2011



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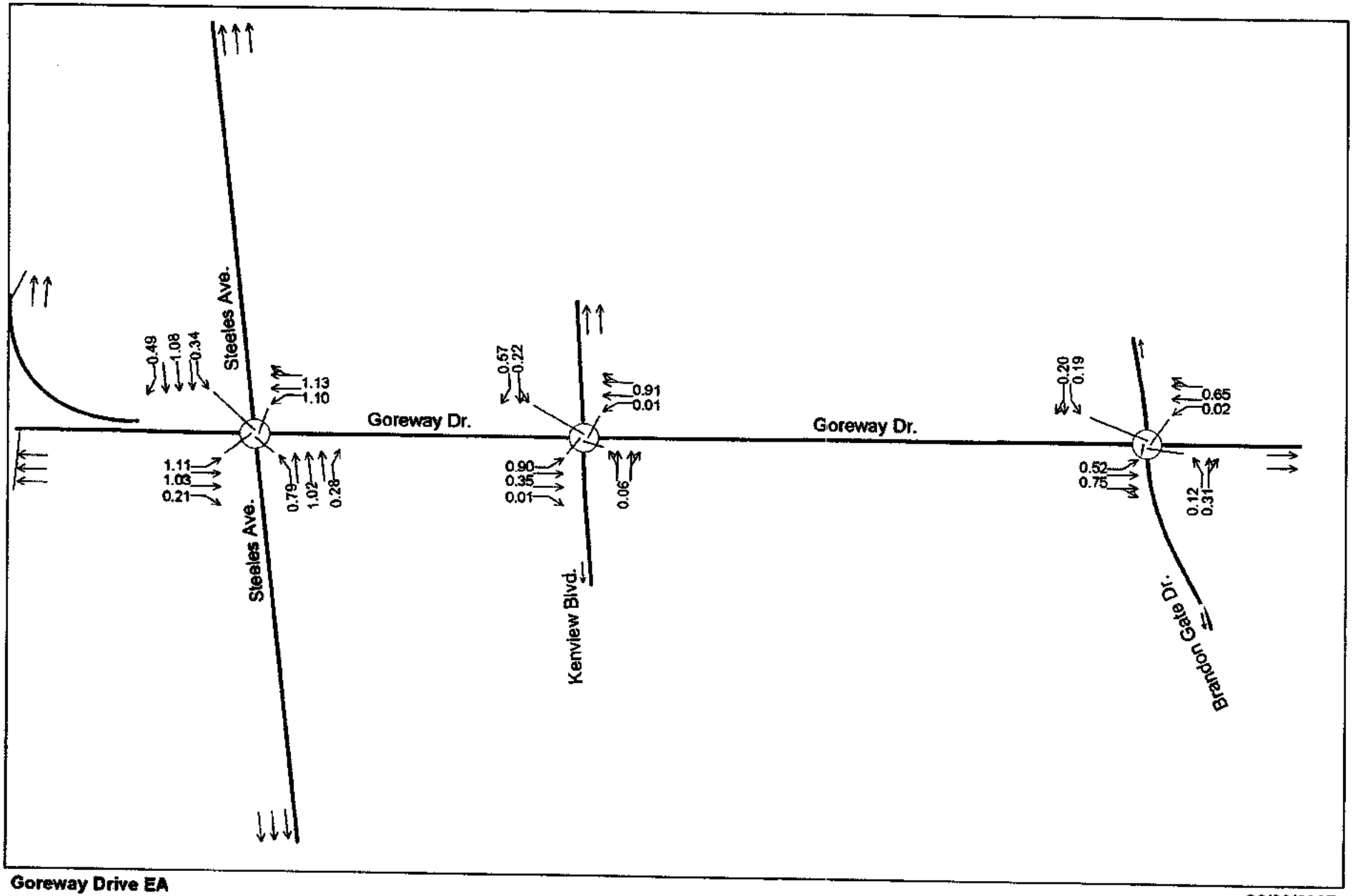
2005 Network & 2011 Traffic volumes
V/C ratios - 2011



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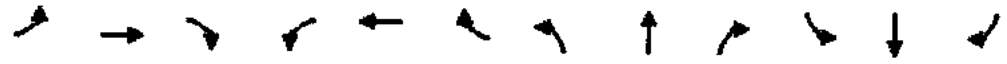


Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1220	4759	1495	1805	4590	1292	1626	3450		1517	3438	1404
Flt Permitted	0.08	1.00	1.00	0.08	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	100	4759	1495	150	4590	1292	1626	3450		1517	3438	1404
Volume (vph)	50	1540	160	30	1520	290	440	1250	40	270	870	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	1674	174	33	1652	315	478	1359	43	293	946	87
RTOR Reduction (vph)	0	0	103	0	0	209	0	1	0	0	0	46
Lane Group Flow (vph)	54	1674	71	33	1652	106	478	1401	0	293	946	41
Heavy Vehicles (%)	48%	9%	8%	0%	13%	25%	11%	4%	9%	19%	5%	15%
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6						4
Actuated Green, G (s)	55.6	51.6	51.6	54.0	50.8	50.8	40.0	54.0		26.0	40.0	40.0
Effective Green, g (s)	55.6	51.6	51.6	54.0	50.8	50.8	40.0	54.0		26.0	40.0	40.0
Actuated g/C Ratio	0.37	0.34	0.34	0.36	0.34	0.34	0.27	0.36		0.17	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	67	1628	512	89	1546	435	431	1235		262	912	372
v/s Ratio Prot	c0.02	0.35		0.01	c0.36		c0.29	c0.41		0.19	0.28	
v/s Ratio Perm	0.28		0.05	0.13		0.08						0.03
v/c Ratio	0.81	1.03	0.14	0.37	1.07	0.24	1.11	1.13		1.12	1.04	0.11
Uniform Delay, d1	42.2	49.6	34.2	38.9	50.0	36.1	55.4	48.4		62.4	55.4	41.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	48.7	29.9	0.6	2.6	43.7	1.3	76.4	70.9		91.2	39.9	0.1
Delay (s)	90.9	79.5	34.8	41.5	93.7	37.5	131.8	119.3		153.6	95.3	42.1
Level of Service	F	E	C	D	F	D	F	F		F	F	D
Approach Delay (s)		75.7			84.0			122.5			104.7	
Approach LOS		E			F			F			F	

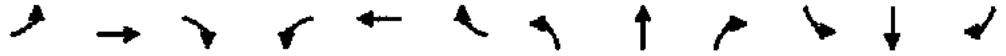
Intersection Summary			
HCM Average Control Delay	95.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	150.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.95			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3182			1778	1442	1805	3435		1597	3471	1615
Flt Permitted		0.89			0.74	1.00	0.32	1.00		0.11	1.00	1.00
Satd. Flow (perm)		2892			1381	1442	613	3435		185	3471	1615
Volume (vph)	10	10	10	50	2	260	3	1010	60	470	810	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	11	54	2	283	3	1098	65	511	880	11
RTOR Reduction (vph)	0	9	0	0	0	231	0	5	0	0	0	3
Lane Group Flow (vph)	0	24	0	0	56	52	3	1158	0	511	880	8
Heavy Vehicles (%)	18%	0%	0%	2%	0%	12%	0%	4%	8%	13%	4%	0%
Turn Type	Perm			Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4		4	6			2		2
Actuated Green, G (s)		16.1			16.1	16.1	32.4	32.4		63.3	63.3	63.3
Effective Green, g (s)		16.1			16.1	16.1	32.4	32.4		63.3	63.3	63.3
Actuated g/C Ratio		0.18			0.18	0.18	0.37	0.37		0.72	0.72	0.72
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		533			254	266	227	1273		569	2514	1170
v/s Ratio Prot								0.34		c0.28	0.25	
v/s Ratio Perm		0.01			c0.04	0.04	0.00			c0.37		0.00
v/c Ratio		0.05			0.22	0.20	0.01	0.91		0.90	0.35	0.01
Uniform Delay, d1		29.3			30.3	30.2	17.4	26.1		22.7	4.5	3.3
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			2.0	1.6	0.0	9.7		16.8	0.1	0.0
Delay (s)		29.5			32.3	31.8	17.4	35.8		39.5	4.5	3.3
Level of Service		C			C	C	B	D		D	A	A
Approach Delay (s)		29.5			31.9			35.7			17.3	
Approach LOS		C			C			D			B	

HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

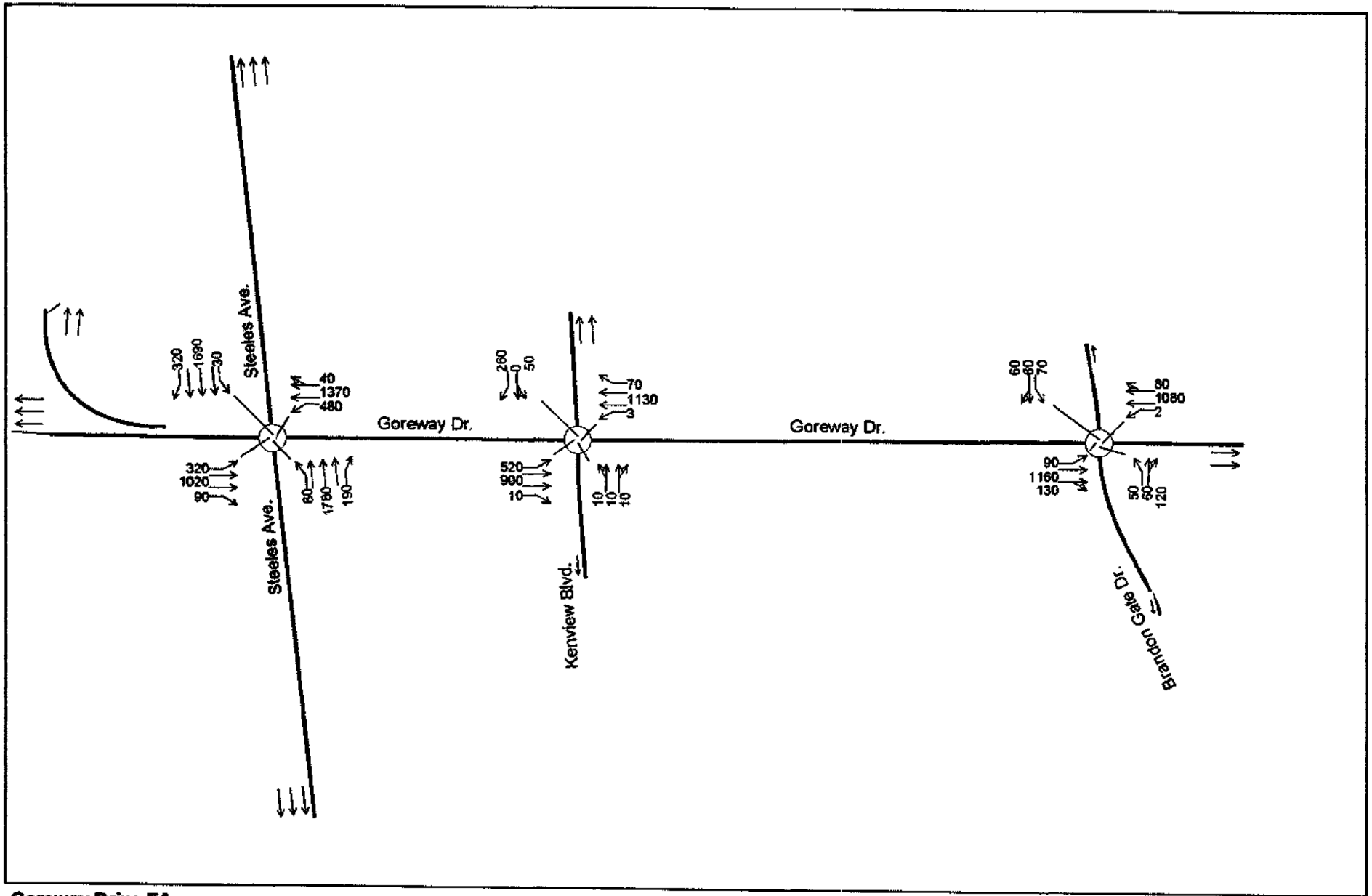


Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1613		1612	1706		1641	3471		1703	3472	
Flt Permitted	0.68	1.00		0.64	1.00		0.18	1.00		0.18	1.00	
Satd. Flow (perm)	1247	1613		1083	1706		315	3471		327	3472	
Volume (vph)	50	60	120	70	60	60	2	960	70	80	1060	120
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)	53	63	126	74	63	63	2	1011	74	84	1116	126
RTOR Reduction (vph)	0	40	0	0	41	0	0	12	0	0	19	0
Lane Group Flow (vph)	53	149	0	74	85	0	2	1073	0	84	1223	0
Heavy Vehicles (%)	3%	0%	9%	12%	4%	2%	10%	3%	2%	6%	2%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	16.2	16.2		16.2	16.2		21.9	21.9		21.9	21.9	
Effective Green, g (s)	16.2	16.2		16.2	16.2		21.9	21.9		21.9	21.9	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.48	0.48		0.48	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	438	567		381	600		150	1649		155	1649	
v/s Ratio Prot		c0.09			0.05			0.31			c0.35	
v/s Ratio Perm	0.04			0.07			0.01			0.26		
v/c Ratio	0.12	0.26		0.19	0.14		0.01	0.65		0.54	0.74	
Uniform Delay, d1	10.1	10.7		10.4	10.2		6.4	9.2		8.6	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.1		1.1	0.5		0.0	0.9		3.8	1.8	
Delay (s)	10.7	11.8		11.5	10.7		6.4	10.1		12.4	11.6	
Level of Service	B	B		B	B		A	B		B	B	
Approach Delay (s)		11.6			11.0			10.1			11.7	
Approach LOS		B			B			B			B	

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

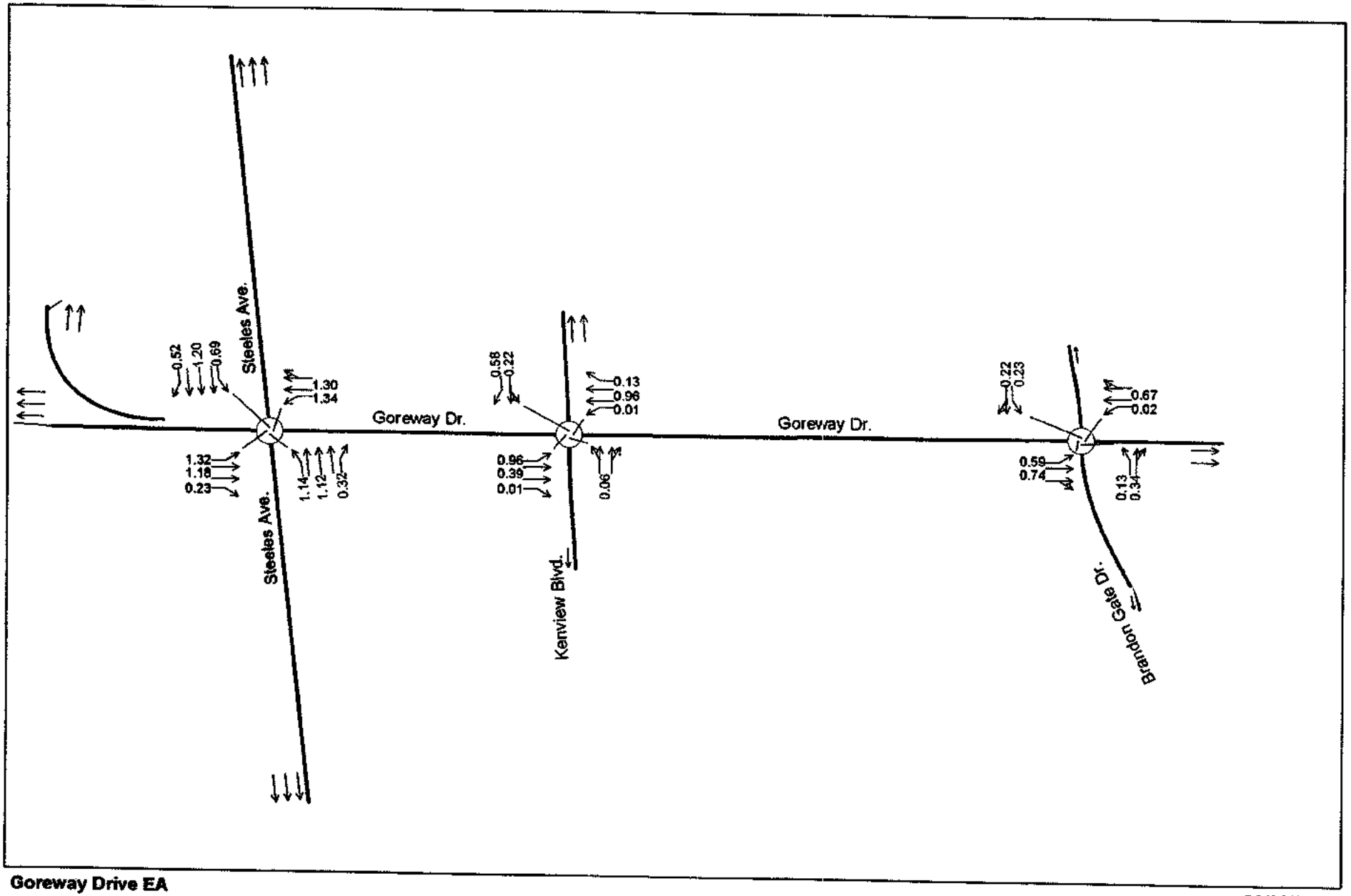
2005 Network & 2021 Traffic volumes
Traffic Volumes 2021



Goreway Drive EA
UMA Engineering Ltd.

06/03/2007

2005 Network & 2021 Traffic volumes
V/C ratios - 2021



Goreway Drive EA
UMA Engineering Ltd.

06/03/2007

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1220	4759	1495	1805	4590	1292	1626	3452		1517	3438	1404
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1220	4759	1495	1805	4590	1292	1626	3452		1517	3438	1404
Volume (vph)	60	1780	190	30	1690	320	480	1370	40	320	1020	90
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	1935	207	33	1837	348	522	1489	43	348	1109	98
RTOR Reduction (vph)	0	0	107	0	0	231	0	1	0	0	0	44
Lane Group Flow (vph)	65	1935	100	33	1837	117	522	1531	0	348	1109	54
Heavy Vehicles (%)	48%	9%	8%	0%	13%	25%	11%	4%	9%	19%	5%	15%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						4
Actuated Green, G (s)	7.0	54.6	54.6	3.2	50.8	50.8	36.0	51.0		26.0	41.0	41.0
Effective Green, g (s)	7.0	54.6	54.6	3.2	50.8	50.8	36.0	51.0		26.0	41.0	41.0
Actuated g/C Ratio	0.05	0.36	0.36	0.02	0.34	0.34	0.24	0.34		0.17	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	57	1723	541	38	1546	435	388	1167		262	935	382
v/s Ratio Prot	c0.05	c0.41		0.02	c0.40		c0.32	c0.44		0.23	0.32	
v/s Ratio Perm			0.07			0.09						0.04
v/c Ratio	1.14	1.12	0.19	0.87	1.19	0.27	1.35	1.31		1.33	1.19	0.14
Uniform Delay, d1	71.9	48.1	32.9	73.6	50.0	36.5	57.4	49.9		62.4	54.9	41.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	162.7	63.7	0.8	93.8	91.5	1.5	171.8	146.5		171.6	94.6	0.2
Delay (s)	234.6	111.8	33.7	167.4	141.5	38.0	229.2	196.4		234.0	149.5	41.7
Level of Service	F	F	C	F	F	D	F	F		F	F	D
Approach Delay (s)		108.1			125.6			204.7			161.6	
Approach LOS		F			F			F			F	

HCM Average Control Delay	148.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	150.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3182			1770	1442	1805	3471	1495	1597	3471	1615
Flt Permitted		0.89			0.73	1.00	0.29	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)		2888			1368	1442	557	3471	1495	167	3471	1615
Volume (vph)	10	10	10	50	0	260	3	1130	70	520	900	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	11	54	0	283	3	1228	76	565	978	11
RTOR Reduction (vph)	0	9	0	0	0	234	0	0	30	0	0	3
Lane Group Flow (vph)	0	24	0	0	54	49	3	1228	46	565	978	8
Heavy Vehicles (%)	18%	0%	0%	2%	0%	12%	0%	4%	8%	13%	4%	0%
Turn Type	Perm			Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)		16.0			16.0	16.0	37.0	36.2	36.2	69.2	64.4	64.4
Effective Green, g (s)		16.0			16.0	16.0	37.0	36.2	36.2	69.2	64.4	64.4
Actuated g/C Ratio		0.17			0.17	0.17	0.40	0.39	0.39	0.74	0.69	0.69
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		496			235	248	232	1348	581	569	2398	1116
v/s Ratio Prot							0.00	0.35		c0.31	0.28	
v/s Ratio Perm		0.01			c0.04	0.03	0.01		0.03	c0.43		0.00
v/c Ratio		0.05			0.23	0.20	0.01	0.91	0.08	0.99	0.41	0.01
Uniform Delay, d1		32.2			33.3	33.1	17.0	27.0	18.0	26.5	6.2	4.5
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			2.3	1.8	0.0	9.5	0.1	35.7	0.1	0.0
Delay (s)		32.4			35.6	34.8	17.1	36.4	18.0	62.3	6.3	4.5
Level of Service		C			D	C	B	D	B	E	A	A
Approach Delay (s)		32.4			35.0			35.3			26.7	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

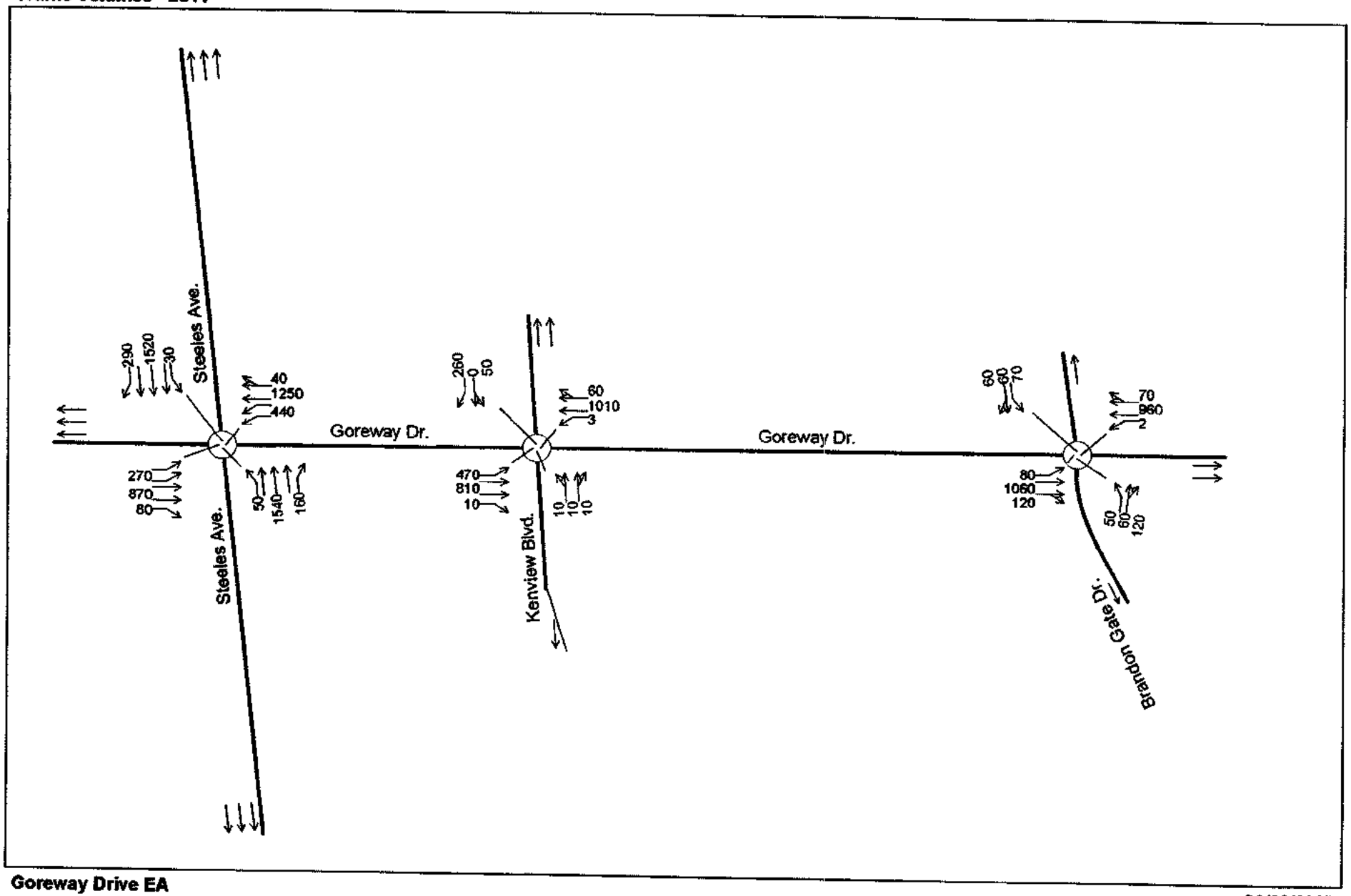
c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1613		1612	1706		1641	3471		1703	3472	
Flt Permitted	0.68	1.00		0.63	1.00		0.15	1.00		0.15	1.00	
Satd. Flow (perm)	1247	1613		1075	1706		254	3471		267	3472	
Volume (vph)	50	60	120	70	60	60	2	1080	80	90	1160	130
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)	53	63	126	74	63	63	2	1137	84	95	1221	137
RTOR Reduction (vph)	0	49	0	0	43	0	0	11	0	0	17	0
Lane Group Flow (vph)	53	140	0	74	83	0	2	1210	0	95	1341	0
Heavy Vehicles (%)	3%	0%	9%	12%	4%	2%	10%	3%	2%	6%	2%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	16.4	16.4		16.4	16.4		27.2	27.2		27.2	27.2	
Effective Green, g (s)	16.4	16.4		16.4	16.4		27.2	27.2		27.2	27.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.53	0.53		0.53	0.53	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	396	513		342	542		134	1830		141	1830	
v/s Ratio Prot		c0.09			0.05			0.35			c0.39	
v/s Ratio Perm	0.04			0.07			0.01			0.36		
v/c Ratio	0.13	0.27		0.22	0.15		0.01	0.66		0.67	0.73	
Uniform Delay, d1	12.5	13.1		12.9	12.6		5.8	8.9		8.9	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.3		1.4	0.6		0.0	0.9		12.0	1.5	
Delay (s)	13.2	14.5		14.3	13.2		5.9	9.8		20.9	10.9	
Level of Service	B	B		B	B		A	A		C	B	
Approach Delay (s)		14.2			13.6			9.8			11.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

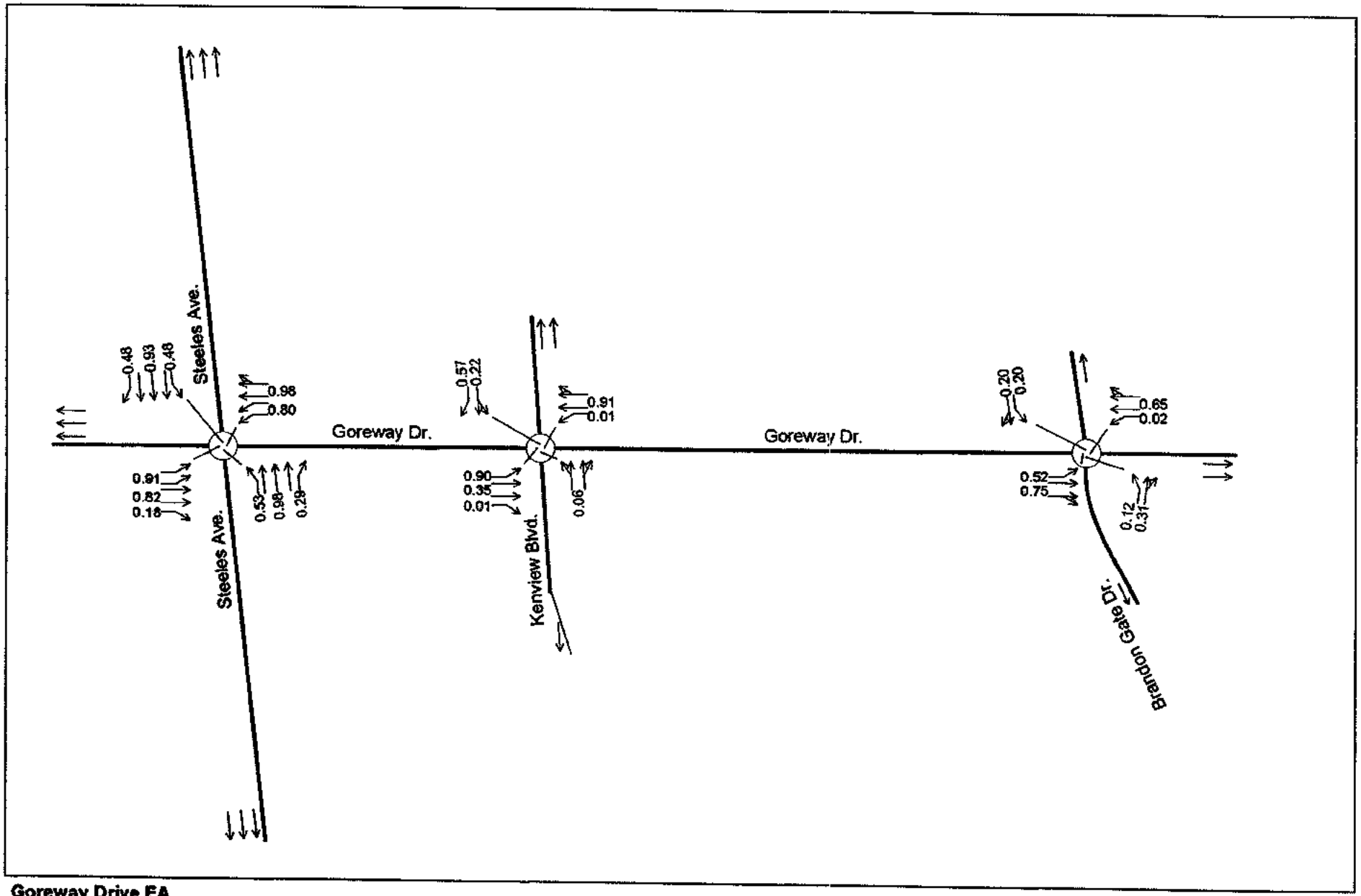
Improved configuration
Traffic Volumes - 2011



Goreway Drive EA
UMA Engineering Ltd.

06/03/2007

Improved configuration
V/C ratios - 2011



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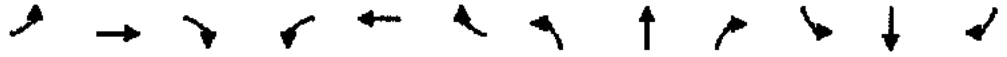
UMA Engineering Ltd.

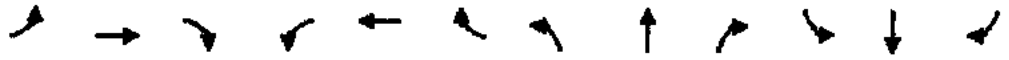
06/03/2007



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1805	4590	1292	1220	4759	1495	3155	3450		2943	3438	1404
Flt Permitted	0.14	1.00	1.00	0.14	1.00	1.00	0.14	1.00		0.16	1.00	1.00
Satd. Flow (perm)	271	4590	1292	183	4759	1495	456	3450		494	3438	1404
Volume (vph)	50	1540	160	30	1520	290	440	1250	40	270	870	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	1674	174	33	1652	315	478	1359	43	293	946	87
RTOR Reduction (vph)	0	0	109	0	0	95	0	3	0	0	0	5
Lane Group Flow (vph)	54	1674	65	33	1652	220	478	1399	0	293	946	82
Heavy Vehicles (%)	0%	13%	25%	48%	9%	8%	11%	4%	9%	19%	5%	15%
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	28.0	28.0	28.0	28.0	28.0	28.0	39.0	31.0		29.1	25.1	25.1
Effective Green, g (s)	28.0	28.0	28.0	28.0	28.0	28.0	39.0	31.0		29.1	25.1	25.1
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.52	0.41		0.39	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	101	1714	482	68	1777	558	593	1426		322	1151	470
v/s Ratio Prot		c0.36			0.35		c0.11	c0.41		0.05	0.28	
v/s Ratio Perm	0.20		0.05	0.18		0.15	0.31			0.30		0.06
v/c Ratio	0.53	0.98	0.13	0.49	0.93	0.39	0.81	0.98		0.91	0.82	0.17
Uniform Delay, d1	18.4	23.2	15.5	18.0	22.6	17.3	14.7	21.7		21.8	22.9	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.8	16.9	0.6	22.7	10.1	2.1	7.9	19.4		28.0	4.8	0.2
Delay (s)	37.2	40.0	16.1	40.7	32.7	19.4	22.6	41.1		49.8	27.7	17.8
Level of Service	D	D	B	D	C	B	C	D		D	C	B
Approach Delay (s)		37.8			30.7			36.4			32.0	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.95			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3182			1770	1442	1805	3435		1597	3471	1615
Flt Permitted		0.89			0.73	1.00	0.32	1.00		0.11	1.00	1.00
Satd. Flow (perm)		2893			1368	1442	613	3435		185	3471	1615
Volume (vph)	10	10	10	50	0	260	3	1010	60	470	810	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	11	54	0	283	3	1098	65	511	880	11
RTOR Reduction (vph)	0	9	0	0	0	231	0	5	0	0	0	3
Lane Group Flow (vph)	0	24	0	0	54	52	3	1158	0	511	880	8
Heavy Vehicles (%)	18%	0%	0%	2%	0%	12%	0%	4%	8%	13%	4%	0%
Turn Type	Perm			Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4		4	6			2		2
Actuated Green, G (s)		16.1			16.1	16.1	32.4	32.4		63.3	63.3	63.3
Effective Green, g (s)		16.1			16.1	16.1	32.4	32.4		63.3	63.3	63.3
Actuated g/C Ratio		0.18			0.18	0.18	0.37	0.37		0.72	0.72	0.72
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		533			252	266	227	1273		569	2514	1170
v/s Ratio Prot								0.34		c0.28	0.25	
v/s Ratio Perm		0.01			c0.04	0.04	0.00			c0.37		0.00
v/c Ratio		0.05			0.21	0.20	0.01	0.91		0.90	0.35	0.01
Uniform Delay, d1		29.3			30.3	30.2	17.4	26.1		22.7	4.5	3.3
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			1.9	1.6	0.0	9.7		16.8	0.1	0.0
Delay (s)		29.5			32.2	31.8	17.4	35.8		39.5	4.5	3.3
Level of Service		C			C	C	B	D		D	A	A
Approach Delay (s)		29.5			31.9			35.7			17.3	
Approach LOS		C			C			D			B	

HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

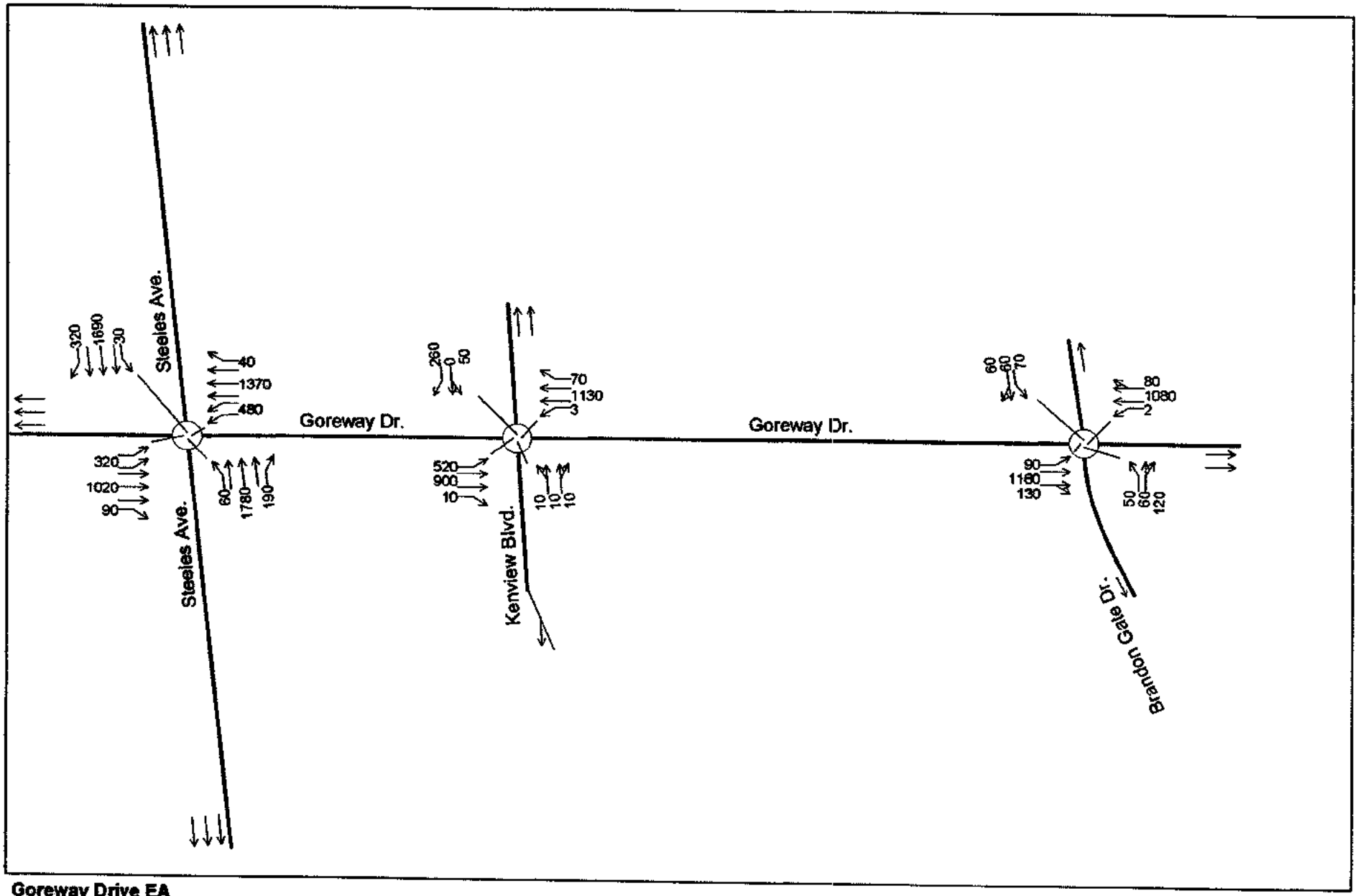
c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1613		1612	1706		1703	3494		1641	3455	
Flt Permitted	0.68	1.00		0.64	1.00		0.18	1.00		0.18	1.00	
Satd. Flow (perm)	1247	1613		1083	1706		326	3494		314	3455	
Volume (vph)	50	60	120	70	60	60	2	960	70	80	1060	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.98	0.95	0.95
Adj. Flow (vph)	53	63	126	74	63	63	2	1011	74	82	1116	126
RTOR Reduction (vph)	0	40	0	0	41	0	0	12	0	0	19	0
Lane Group Flow (vph)	53	149	0	74	85	0	2	1073	0	82	1223	0
Heavy Vehicles (%)	3%	0%	9%	12%	4%	2%	6%	2%	6%	10%	3%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	16.2	16.2		16.2	16.2		22.0	22.0		22.0	22.0	
Effective Green, g (s)	16.2	16.2		16.2	16.2		22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.48	0.48		0.48	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	437	566		380	598		155	1664		150	1645	
v/s Ratio Prot		c0.09			0.05			0.31			c0.35	
v/s Ratio Perm	0.04			0.07			0.01			0.26		
v/c Ratio	0.12	0.26		0.19	0.14		0.01	0.65		0.55	0.74	
Uniform Delay, d1	10.2	10.7		10.5	10.3		6.4	9.1		8.6	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.1		1.1	0.5		0.0	0.9		4.0	1.9	
Delay (s)	10.7	11.9		11.6	10.8		6.4	10.0		12.6	11.7	
Level of Service	B	B		B	B		A	B		B	B	
Approach Delay (s)		11.6			11.1			10.0			11.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	46.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

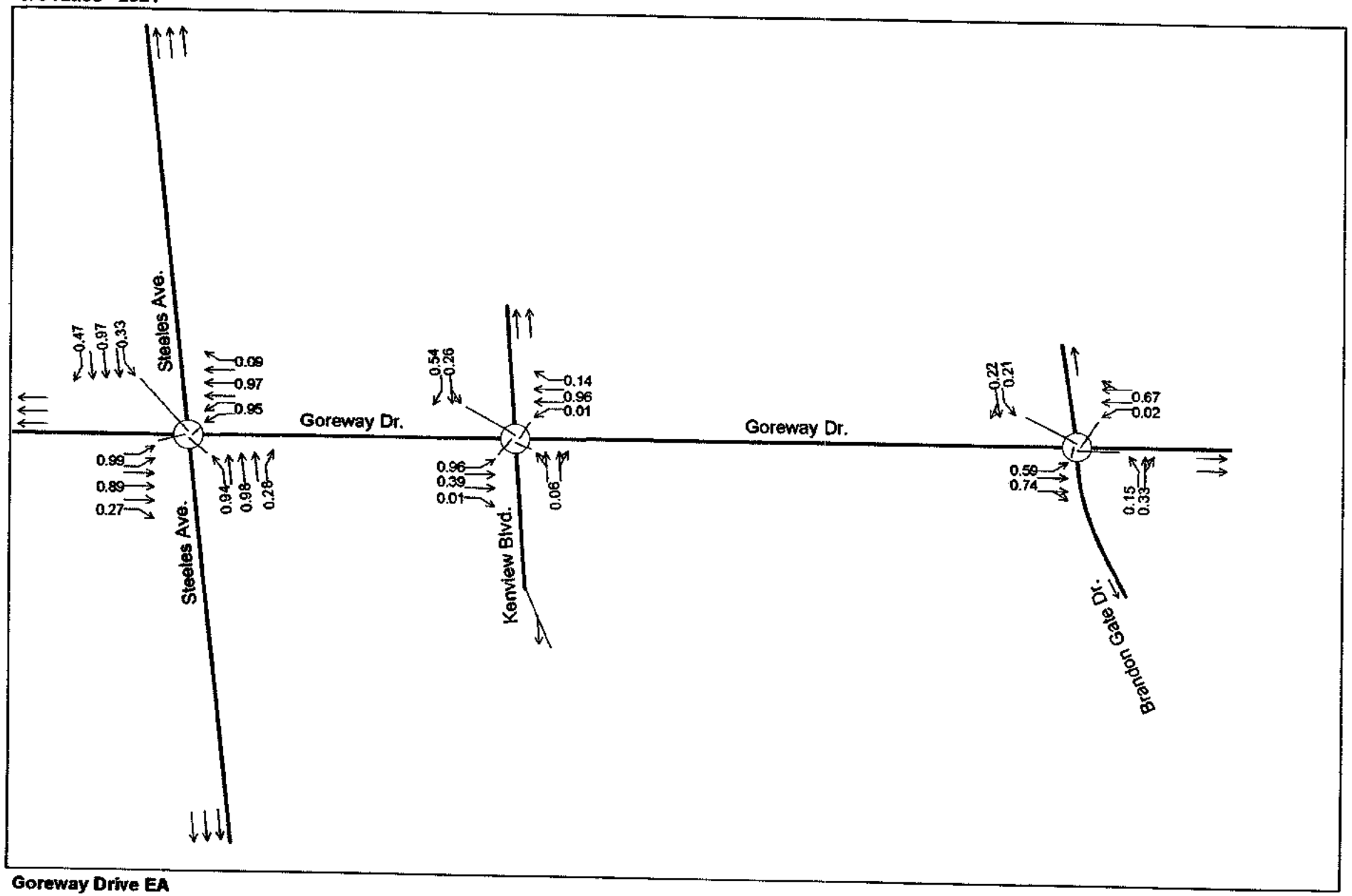
Improved configuration - 2021
Traffic volume - 2021



Goreway Drive EA
UMA Engineering Ltd.

06/03/2007

Improved configuration - 2021
V/C ratios - 2021



Goreway Drive EA
UMA Engineering Ltd.

06/03/2007

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1220	4759	1495	1805	4590	1292	3155	4988	1482	2943	4940	1404
Flt Permitted	0.13	1.00	1.00	0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	166	4759	1495	245	4590	1292	3155	4988	1482	2943	4940	1404
Volume (vph)	60	1780	190	30	1690	320	480	1370	40	320	1020	90
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	1935	207	33	1837	348	522	1489	43	348	1109	98
RTOR Reduction (vph)	0	0	121	0	0	204	0	0	4	0	0	4
Lane Group Flow (vph)	65	1935	86	33	1837	144	522	1489	39	348	1109	94
Heavy Vehicles (%)	48%	9%	8%	0%	13%	25%	11%	4%	9%	19%	5%	15%
Turn Type	Perm		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	31.0	31.0	31.0	31.0	31.0	31.0	13.0	23.0	23.0	9.0	19.0	19.0
Effective Green, g (s)	31.0	31.0	31.0	31.0	31.0	31.0	13.0	23.0	23.0	9.0	19.0	19.0
Actuated g/C Ratio	0.41	0.41	0.41	0.41	0.41	0.41	0.17	0.31	0.31	0.12	0.25	0.25
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	69	1967	618	101	1897	534	547	1530	454	353	1251	356
v/s Ratio Prot		c0.41			0.40		c0.17	c0.30		0.12	0.22	
v/s Ratio Perm	0.39		0.06	0.13		0.11			0.03			0.07
v/c Ratio	0.94	0.98	0.14	0.33	0.97	0.27	0.95	0.97	0.09	0.99	0.89	0.26
Uniform Delay, d1	21.1	21.8	13.7	14.9	21.5	14.5	30.7	25.7	18.5	32.9	27.0	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	92.9	16.8	0.5	8.4	14.4	1.2	27.2	16.9	0.1	43.7	7.9	0.4
Delay (s)	114.1	38.5	14.2	23.3	35.9	15.8	57.9	42.6	18.6	76.7	34.8	22.8
Level of Service	F	D	B	C	D	B	E	D	B	E	C	C
Approach Delay (s)		38.5			32.6			46.0			43.4	
Approach LOS		D			C			D			D	

HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3223			1530	1615	1805	3471	1495	1597	3471	1615
Flt Permitted		0.89			0.73	1.00	0.29	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)		2925			1183	1615	557	3471	1495	167	3471	1615
Volume (vph)	10	10	10	50	0	260	3	1130	70	520	900	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	11	54	0	283	3	1228	76	565	978	11
RTOR Reduction (vph)	0	9	0	0	0	234	0	0	0	0	0	3
Lane Group Flow (vph)	0	24	0	0	54	49	3	1228	76	565	978	8
Heavy Vehicles (%)	2%	0%	12%	18%	0%	0%	0%	4%	8%	13%	4%	0%
Turn Type	Perm			Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)		16.0			16.0	16.0	37.0	36.2	36.2	69.2	64.4	64.4
Effective Green, g (s)		16.0			16.0	16.0	37.0	36.2	36.2	69.2	64.4	64.4
Actuated g/C Ratio		0.17			0.17	0.17	0.40	0.39	0.39	0.74	0.69	0.69
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		502			203	277	232	1348	581	569	2398	1116
v/s Ratio Prot							0.00	0.35		c0.31	0.28	
v/s Ratio Perm		0.01			c0.05	0.03	0.01		0.05	c0.43		0.00
v/c Ratio		0.05			0.27	0.18	0.01	0.91	0.13	0.99	0.41	0.01
Uniform Delay, d1		32.2			33.5	33.0	17.0	27.0	18.4	26.5	6.2	4.5
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			3.2	1.4	0.0	9.5	0.1	35.7	0.1	0.0
Delay (s)		32.4			36.7	34.3	17.1	36.4	18.5	62.3	6.3	4.5
Level of Service		C			D	C	B	D	B	E	A	A
Approach Delay (s)		32.4			34.7			35.3			26.7	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1612	1666		1752	1682		1641	3471		1703	3472	
Flt Permitted	0.68	1.00		0.63	1.00		0.15	1.00		0.15	1.00	
Satd. Flow (perm)	1147	1666		1169	1682		254	3471		267	3472	
Volume (vph)	50	60	120	70	60	60	2	1080	80	90	1160	130
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)	53	63	126	74	63	63	2	1137	84	95	1221	137
RTOR Reduction (vph)	0	49	0	0	43	0	0	11	0	0	17	0
Lane Group Flow (vph)	53	140	0	74	83	0	2	1210	0	95	1341	0
Heavy Vehicles (%)	12%	4%	2%	3%	0%	9%	10%	3%	2%	6%	2%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	16.4	16.4		16.4	16.4		27.2	27.2		27.2	27.2	
Effective Green, g (s)	16.4	16.4		16.4	16.4		27.2	27.2		27.2	27.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.53	0.53		0.53	0.53	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	530		372	535		134	1830		141	1830	
v/s Ratio Prot		c0.08			0.05			0.35			c0.39	
v/s Ratio Perm	0.05			0.06			0.01			0.36		
v/c Ratio	0.15	0.26		0.20	0.16		0.01	0.66		0.67	0.73	
Uniform Delay, d1	12.6	13.1		12.8	12.6		5.8	8.9		8.9	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.2		1.2	0.6		0.0	0.9		12.0	1.5	
Delay (s)	13.4	14.3		14.0	13.2		5.9	9.8		20.9	10.9	
Level of Service	B	B		B	B		A	A		C	B	
Approach Delay (s)		14.1			13.5			9.8			11.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

UMA | AECOM

City of Brampton

Goreway Drive (Steeles Avenue to Brandon Gate Drive)

Class Environmental Assessment

Transportation Study Report

Prepared by:
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December 2006

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1.0 Introduction

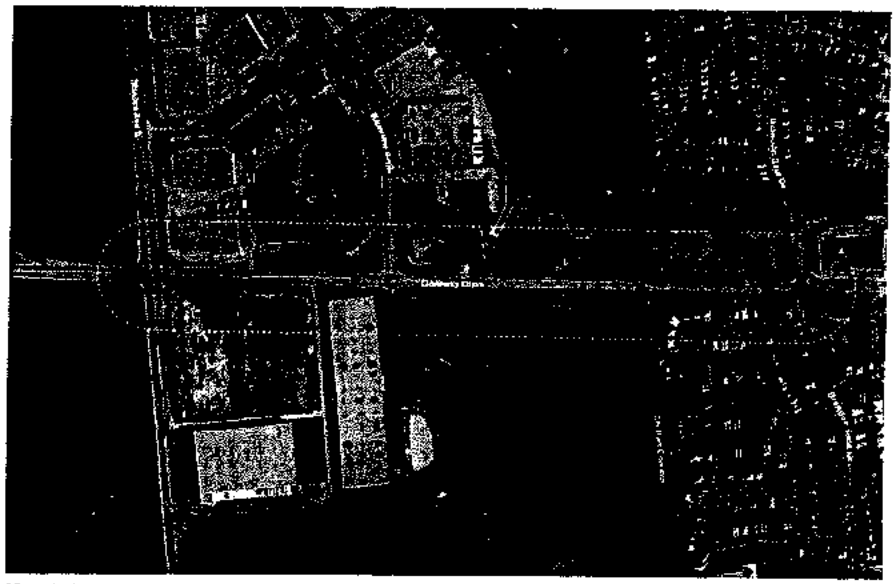
1.1 Project Background and Purpose

The City of Brampton, in collaboration with the City of Mississauga, has initiated a Class Environmental Assessment (Class EA) Study to improve an approximately 1.2 km section of Goreway Drive between Steeles Avenue in the City of Brampton and Brandon Gate Drive in the City of Mississauga (see map of Project Area below). Improvements to this section of Goreway Drive are needed to accommodate future travel demands and to alleviate road vehicle delays at the existing Canadian National (CN) at-grade (level) railway crossing (Halton Subdivision). UMA Engineering Ltd. (UMA) was retained to undertake the Class EA Study and to develop a Preferred Alternative to facilitate the road improvements to Goreway Drive.

As shown in **Figure 1.1**, the Study Area Corridor for Goreway Drive stretches approximately 1.2 km southerly from Steeles Avenue in the City of Brampton to Brandon Gate Drive in the City of Mississauga. Goreway Drive is currently functioning as a four-lane urban arterial roadway within the City of Brampton, and as a major collector roadway within the City of Mississauga. The roadway provides north-south connectivity for commuter, commercial and emergency service vehicles between the two cities.

The roadway is under the jurisdiction of the City of Brampton from Steeles Avenue south to the Halton Subdivision, which delineates the municipal boundary. Within this section, Goreway Drive is designated in the City of Brampton Official Plan as a "major arterial road" (2006). The southern portion of Goreway Drive extending from the Halton Subdivision to Brandon Gate Drive is under the jurisdiction of the City of Mississauga and is designated as a "major collector road" within the City of Mississauga Official Plan (2005).

Figure 1.1 - Map of Study Area



At present, traffic delays are encountered at CN's existing at-grade (level) railway crossing due to long queues as trains cross Goreway Drive. This results in reduced operational conditions and road safety, coupled with restrictions in traffic flow and driver frustration. Consequently, the City of Brampton, in collaboration with the City of Mississauga, proposes to make requisite improvements to Goreway Drive within the 1.2 km Study Area Corridor to address these deficiencies. To facilitate the proposed improvements the municipality is obligated to carry out a Class EA Study in accordance with the

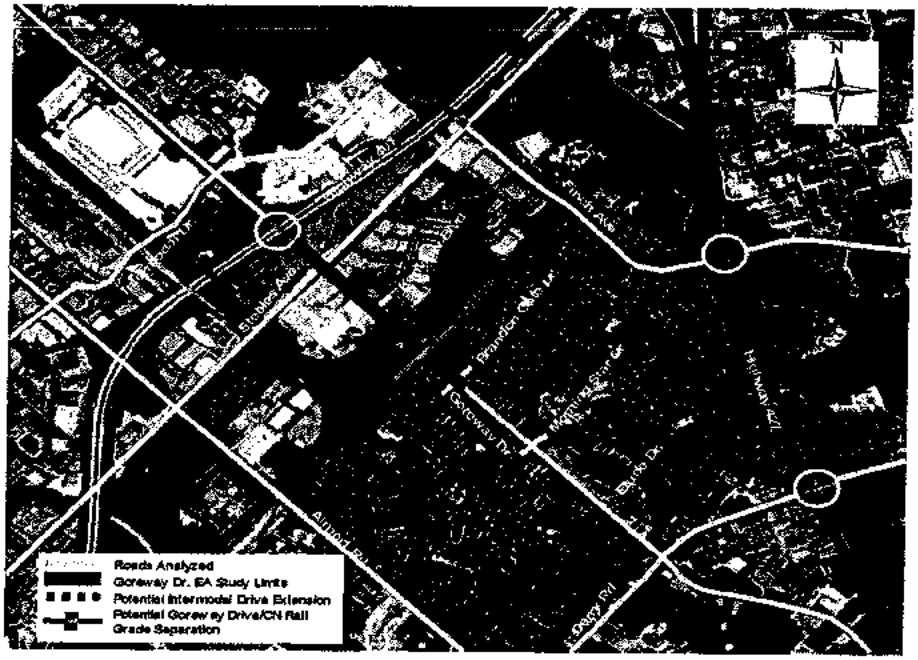
Municipal Class Environmental Assessment (2000) process. A Class EA is a standard process that addresses needs and options then recommends a solution.

1.2 Study Objectives

In support of the Class EA Study, a Sub-area Transportation Network Analysis was conducted to provide input to the need and justification of the project, and the evaluation of alternatives. This Report documents the findings of this analysis. The examination of options (Alternative Solutions) to satisfy existing and future travel demand within the Study Area Corridor was undertaken using the regional transportation model. The modelling analysis focused on the surrounding area, encompassing three north-south arterials (Airport Road, Goreway Drive and Finch Avenue) from north of Highway 407 to south of Derry Road, including connections to the freeway system as shown in **Figure 1.2**. Specifically, the analysis was carried out to:

- examine potential (future) alternative improvements to the road network within the surrounding area, including road widenings, extensions and grade separation of CN's existing at-grade Halton Subdivision (as potential alternatives to six-laning of Goreway Drive)
- confirm the need and timing for potential widening of Goreway Drive.

Figure 1.2 - Map of Sub-Area Analysis Area



1.3 Issues and Constraints

Differing visions for Goreway Drive: The Brampton Transportation and Transit Master Plan (TTMP) recommended a six lane arterial cross section within the section of roadway between Steeles Avenue and CN's Halton Subdivision. However, Mississauga's Official Plan (2005) envisages a four lane collector cross section for Goreway Drive to the south of the rail corridor, as the roadway traverses through the residential community of Malton.

CN Halton Subdivision: Goreway Drive crosses this at-grade (level) crossing approximately 300 m north of Brandon Gate Drive. Presently, there are three tracks in service to facilitate the movement of freight trains into and out of CN's Brampton Intermodal Terminal located to the north. The Halton Subdivision currently accommodates about 50 freight trains per day to service industry.

2.0 Transportation/Road Network Analysis Methodology

2.1 Model Development and Calibration

This Study made use of the regional transportation planning model, which was developed and calibrated using the EMME/2 software (Brampton PM Peak Model developed by Peter Dalton). The P.M. Peak model was originally calibrated to 2001 conditions by supplying 2001 land use data as an input, and then comparing the model's 2001 traffic volumes with those from field counts. After calibration, the model was supplied with land use projections for future years, in order to develop corresponding traffic projections.

As the primary tool used to forecast traffic demand and assess alternative improvements, the model was further refined to develop a more detailed sub-area model for the Study Area (as indicated in **Figure 1.2**). Network and land use refinements incorporated into the model included traffic zone and centroid connection adjustments, speed and capacity modifications and current land use projections from the City of Brampton. The model calibration within the Study Area indicates a relatively good fit to observed conditions at the municipal border for Goreway Drive, Finch Avenue and Airport Road particularly in the northbound direction. While the model tends to underestimate volumes for the section of roadway south of the proposed project at Morning Star Drive, overall corridor volumes provide a reasonable match to observed counts.

2.2 Travel Demand Forecasting

The model was used to forecast travel demand for the 2011, 2021 and 2031 study horizon years. For each study horizon, the base transportation model includes overall land use projections, road network and transportation system improvements anticipated to be in place. These improvement elements are based on those identified within the respective official plans for the City of Brampton, the City of Mississauga and the Region of Peel, as well as within the Brampton TTMP and the Region of Peel Long Range Transportation Plan. Though it is noted that some of these represent improvements beyond the Study Area, it is recognized that these improvements may affect traffic assigned to Study Area roads.

The potential alternative improvements were coded and incorporated into each horizon year base scenario, individually and in combination with other alternatives. The resulting model outputs (traffic volumes and volume/capacity (v/c) ratios) were used to assess travel pattern changes and future capacity requirements. Model outputs were analyzed to confirm the extent of improvements required on either Goreway Drive or Finch Avenue south of Steeles Avenue, and to determine whether the two can work together or substitute for each other to satisfy transportation demand.

Details regarding the alternatives analysed as part of this analysis, as well as the network evaluation results are described in **Section 3**. Detailed output from the Transportation Model is provided in **Appendix A**.

3.0 Network Evaluations

3.1 Proposed Improvements and Network Alternatives

In the context of the transportation network analysis, the proposed improvements to Goreway Drive include widening from four to six four lanes between Steeles Avenue and Derry Road. An integral component of the *Municipal Class EA* process is the evaluation of Alternative Solutions to address the deficiencies within the Goreway Drive Study Area Corridor. In recognition that there may be more than one way to solving these deficiencies, a series of network alternatives to the proposed widening of Goreway Drive were identified for modelling and evaluation as part of this Study. As noted in **Table 3.1** below, the alternatives examined as part of this Study consist of various improvement elements including roads designed to access developing areas, expanded routes designed to increase capacity and ease congestion in problem areas, as well as grade separation of CN's Halton Subdivision.

Table 3.1 Improvement Components

Goreway Drive	Widen from 4 to 6 lanes between Steeles Avenue and Derry Road
Finch Avenue	Widen from 4 to 6 lanes between Steeles Avenue and Highway 427
Intermodal Drive	Eastern extension to Gorewood Drive and further to Steeles Avenue at Finch Avenue
Goreway Drive/CN Crossing	Grade separation of Goreway Drive at CN's existing at-grade (level) crossing (Mile 8.80 Halton Subdivision)

The seven Alternatives summarized in **Table 3.2** below, were assessed incorporating one or more of the above improvement components. This analysis enables the benefits associated with each component to be captured both individually and in combination.

Table 3.2 Alternatives Analyzed

Alternative	Goreway Drive Steeles Ave. to Derry Rd.	Goreway Drive/ CN Grade Separation	Finch Avenue Steeles Ave. to Hwy 427	Intermodal Drive Extension
1A	4 lanes	No	4 lanes	No
1B	4 lanes	No	4 lanes	Yes
2A	4 lanes	Yes	4 lanes	No
2B	4 lanes	Yes	4 lanes	Yes
3	4 lanes	Yes	6 lanes	Yes
4	6 lanes	Yes	4 lanes	Yes
5	6 lanes	Yes	6 lanes	Yes

Alternative 1A: Base Case
This Alternative, referred to as the "Do Nothing" option, examined the implication of not undertaking any network improvements under existing and future conditions. It provides the basis against which the proposed improvements and all other alternatives can be compared.

Alternative 1B: Base Case with Extension of Intermodal Drive
This Alternative considers the impact of a future extension of Intermodal Drive between Goreway Drive and Gorewood Drive, to service industrial lands within the Gorewood Business Park located in southeast Brampton north of ETR 407 and between Goreway Drive and Gorewood Drive. The roadway provides greater continuity in the municipal road network, and provides access to this industrial area.

Alternative 2A: Base Case with Grade Separation of Halton Subdivision
The existing CN at-grade crossing of Goreway Drive currently accommodates 46 to 52 freight trains per day to service industry, and accounts for lengthy and numerous road vehicle delays. This Alternative considers the benefits associated with a grade separated crossing of CN's three-track Halton Subdivision.

Alternative 2B: Base Case with Extension of Intermodal Drive and Grade Separation of Halton Subdivision
This Alternative includes both the extension of Intermodal Drive and grade separation of CN's Halton Subdivision, to consider the potential benefits that may be accrued if both elements were included. This Alternative was carried forward as the basis for all other alternatives under consideration.

Alternative 3: Alternative 2B with Six-laned Finch Avenue
With the extension of Intermodal Drive, the improved continuity of the road network provides a choice of routes for traffic crossing Highway 407 to and from the Gorewood Acres area. However, with increased volumes flowing from the area via Gorewood Drive south, capacity concerns on Finch Avenue required the consideration of additional laning along Finch Avenue. This Alternative considered six-laning on Finch Avenue, between Steele Avenue and Highway 427.

Alternative 4: Alternative 2B with Six-laned Goreway Drive and Grade Separation of Halton Subdivision
This Alternative incorporates the extension of Intermodal Drive, the grade-separation of CN's Halton Subdivision coupled with the six-laning of Goreway Drive between Steeles Avenue and Derry Road. It is included to ascertain the extent to which these improvements in conjunction with the proposed widening of Goreway Drive can satisfy future traffic demand.

Alternative 5: Six-laning of Goreway Drive and Finch Avenue
This final Alternative includes the six-laning of both Goreway Drive and Finch Avenue. It is included to consider whether improvements on both facilities are required, and whether they can substitute for each other to satisfy future transportation demands.

3.2 Evaluation Methodology

The volume-to-capacity ratio (V/C ratio), computed for the above Alternatives was used as the key parameter to evaluate the handling capacity of the various roadway sections within the Study Area for the 2011,2021, and 2031 time horizons. The V/C ratio for each roadway section was calculated, and categorized on a three-tier scale, with a threshold of 0.9 used to determine the need for additional capacity. Roadway sections included in the evaluation included:

- 6 segments along Goreway Avenue
- Finch Avenue at the Brampton-Mississauga municipal border
- Airport Road south of Steeles Avenue
- Steeles Avenue East and West of Goreway Drive.

The V/C ratios computed by the transportation model are provided in **Appendix B**.

3.3 Network Analysis Findings

In general, with increased capacity provided within the network, the impact on traffic patterns results in a shifting of demand from at capacity facilities to roadways with capacity reserves. By assessing existing and forecast future demand against capacity, it is possible to determine the adequacy of service provided on any given facility. For each of the network Alternative and study horizon, the V/C ratio was calculated for the selected roadway sections. This enabled identification of the impact associated with each Alternative on the surrounding road network, and provided an indication of the timing of required improvements.

The results from the future volume to capacity analysis, is summarized in **Figure 3.1** (which follows this page). Additional details are provided the paragraphs below and in **Appendix B** of this Report.

3.3.1 Goreway Drive

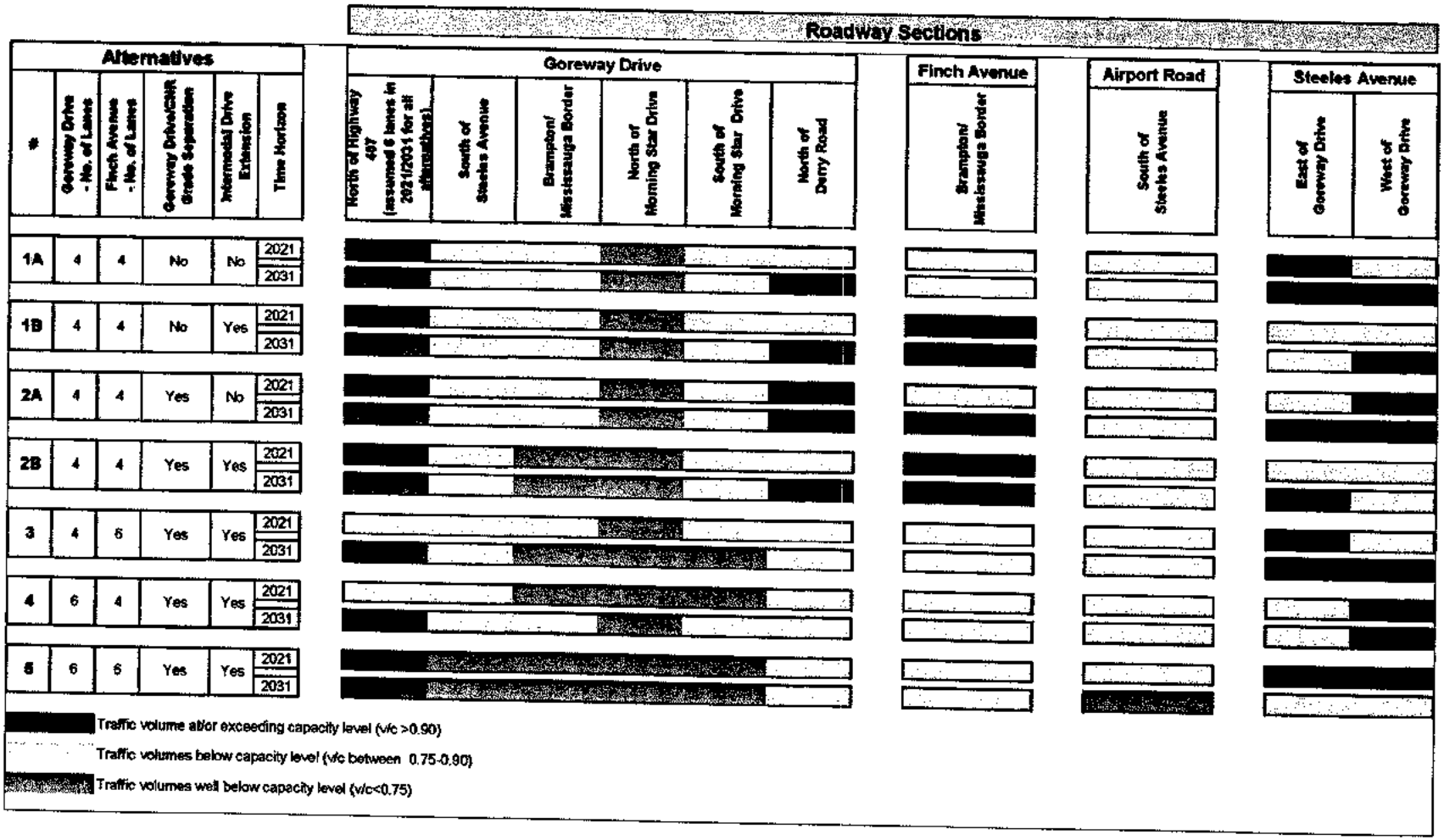
Travel demand on Goreway Drive north of Highway 407 consistently approaches/exceeds capacity for all Alternatives analyzed. This condition persists even after widening of the section of roadway between Queen Street and Highway 407 to six lanes as proposed by Brampton's TTMP. It is noted that increasing the capacity of north-south arterials such as Goreway Drive and Finch Avenue south of Highway 407, obviously, does not alleviate this problem. Thus, other network/land use allocation solutions are needed.

For the section of Goreway Drive extending from Steeles Avenue to south of Morning Star Drive, forecast demand is below the capacity of a four-lane roadway for all Alternatives during the 2011, 2021 and 2031 horizon years. It is noted that traffic volume increase on the section of the corridor to the north of Derry Road, approaching capacity of a four-lane facility in the 2031 horizon year.

This analysis confirms that the existing four-lane roadway configuration on Goreway Drive from Steeles Avenue to Derry Road, is sufficient to service future traffic demand. Notwithstanding, additional capacity and level of service improvements may be realized through implementation of intersection improvements such as turning lanes, improved geometrics, and/or traffic signal optimization. A traffic operational analysis was carried out to ascertain the degree to which capacity can be increased, and the level of service improved at signalized intersections along the corridor, particularly at Steeles Avenue, Kenview Boulevard and Brandon Gate Drive, and further to the south at Derry Road. The results are documented in a Traffic Operations Report submitted to the City under separate cover.

A detailed examination of the V/C ratio at the approach to CN's at-grade Halton Subdivision indicates an obvious improvement in capacity when a grade separation is introduced due to the alleviation of timely delays as trains pass. As noted previously, the Halton Subdivision currently accommodates about 50 freight trains per day to service industry. In addition, Goreway Drive has an Average Annual Daily Traffic (AADT) volume of approximately 15,000 vehicles per day. Based on these volumes, the at-grade CN crossing has an existing Exposure Index of 750,000 (50 trains multiplied by 15,000 vehicles). It is noted that an Exposure Index above 200,000 warrants a grade separation from capacity, delay and safety perspective.

Figure 3.1 Future Volumes vs. Roadway Capacity – Visualisation of the Transportation Model Results



Note: Other improvements and developments within the overall transportation network (beyond the Study Area) are considered in the Transportation Modeling Analysis. They affect traffic assigned to the Study Area roads

3.3.2 Finch Avenue

Forecasted traffic volumes on Finch Avenue indicate that this roadway will approach capacity in the 2021 horizon year, for Alternatives including the eastern extension of Intermodal Drive. The quality of service can be extended to 2031 for those Alternatives without the Intermodal Drive extension. This suggests that the need to widen Finch Avenue is in part, the result of developing the Intermodal Drive Extension. To this end, the analysis suggests that consideration should be given to widening Finch Avenue to six lanes after 2021 between Steeles Avenue and Highway 407.

3.3.3 Airport Road

The existing six lane cross section along Airport Road, south of Steeles Avenue provides sufficient capacity to service demand under all Alternatives and time horizons. Thus, the analysis confirms that no improvements are warranted prior to the 2031 horizon year.

3.3.4 Intermodal Drive Extension

The Intermodal Drive Extension appears to reduce traffic demand on Steeles Avenue east of Goreway Drive. Thus, consideration should be given to the completion of the Intermodal Drive Extension connected as a north leg to the Steeles Avenue/Finch Avenue intersection. Construction of the Extension would provide an alternative network bypass route for the Goreway Drive and Steeles Avenue intersection.

3.3.5 Steeles Avenue

Steeles Avenue east and west of the Goreway Drive intersection appears to experience capacity constraints in the longer term horizons irrespective of whether additional capacity is provided on Goreway Drive. However, some capacity and level of service improvements may be realized through intersection configuration improvements and traffic signal optimization.

3.3.6 Summary of Findings

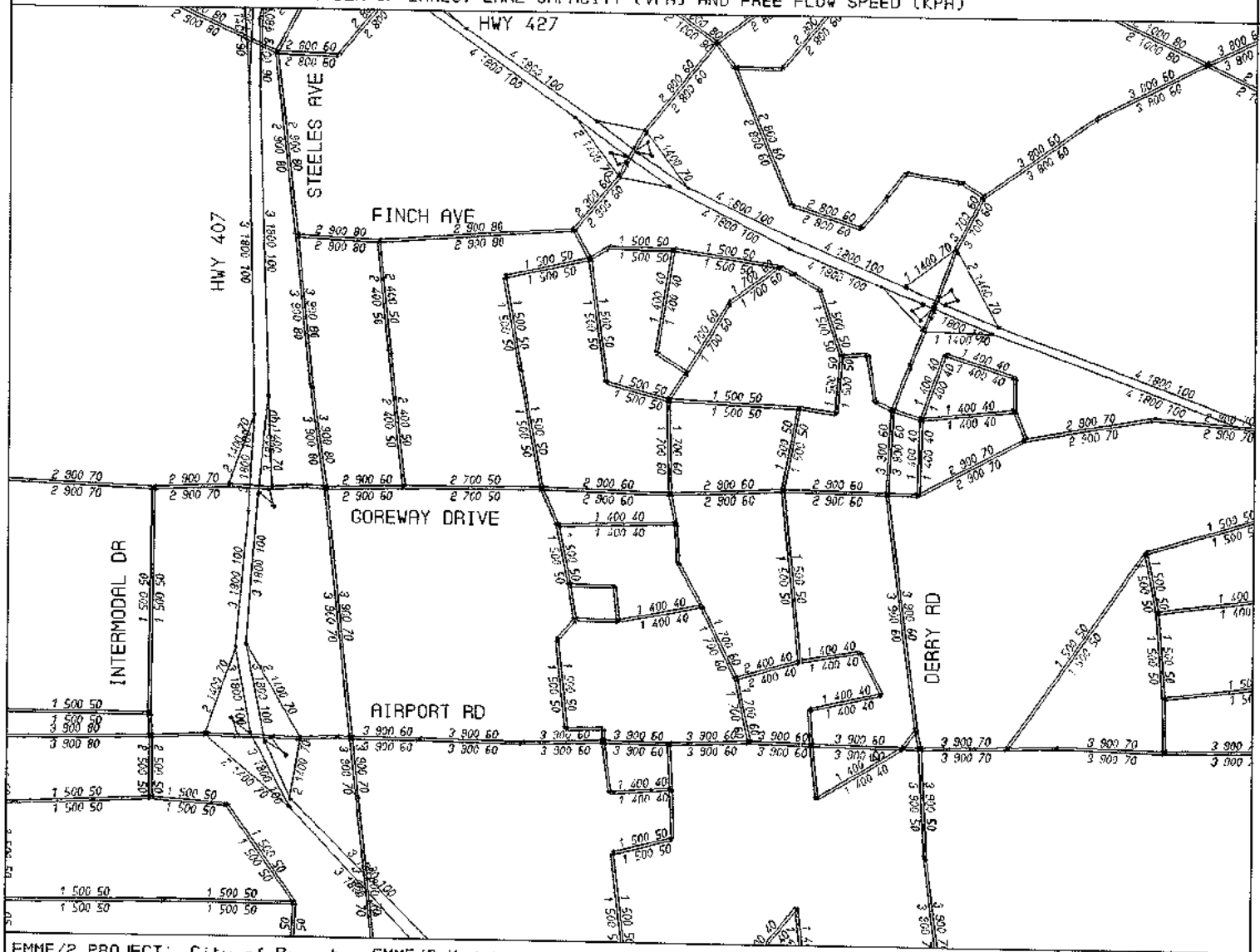
The findings of the transportation network analysis indicate that widening of either Goreway Drive (between Steeles Avenue and Derry Road) or Finch Avenue (between Steeles Avenue and Highway 427) may be required beyond 2021. This would provide additional roadway capacity on the Mississauga/Brampton border screen line to satisfy transportation demand forecasted beyond this time horizon.

4.0 Findings & Recommendations

- The Transportation/Road Network Analysis confirms that existing and future traffic volumes do not justify the need to widen Goreway Drive from 4 to 6 lanes within the 1.2 km Project Limits. However, the analysis indicates that traffic demand on Finch Avenue between Steeles Avenue and Highway 427 will reach capacity level by 2031.
- Based on the findings of the analysis, the Preferred Solution includes a four-lane cross section along Goreway Drive and a grade separation of CN's Halton Subdivision within the Project Limits. It is noted that selection of this Preferred Solution is based solely on transportation factors. Thus, in keeping with good planning principles and the *Municipal Class EA* process, applicable natural, social, economic and cultural criteria will need to be taken into consideration to ultimately justify and confirm selection of the Preferred Solution.
- The modeling results from the Sub-Area Transportation Network Analysis will be incorporated into the traffic operations analysis, including growth factors used to project intersection turning movements. The operational analysis will assist in the determination of the ultimate intersection geometric/traffic control signal requirements for the three intersections within the Goreway Drive Project Limits, that is, Steeles Avenue, Kenview Boulevard and Brandon Gate Drive.

Appendix A
Transportation Model Output/Results – EMME/2 Reports/Plots

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



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LAYERS:
Speed
Capacity
Lanes

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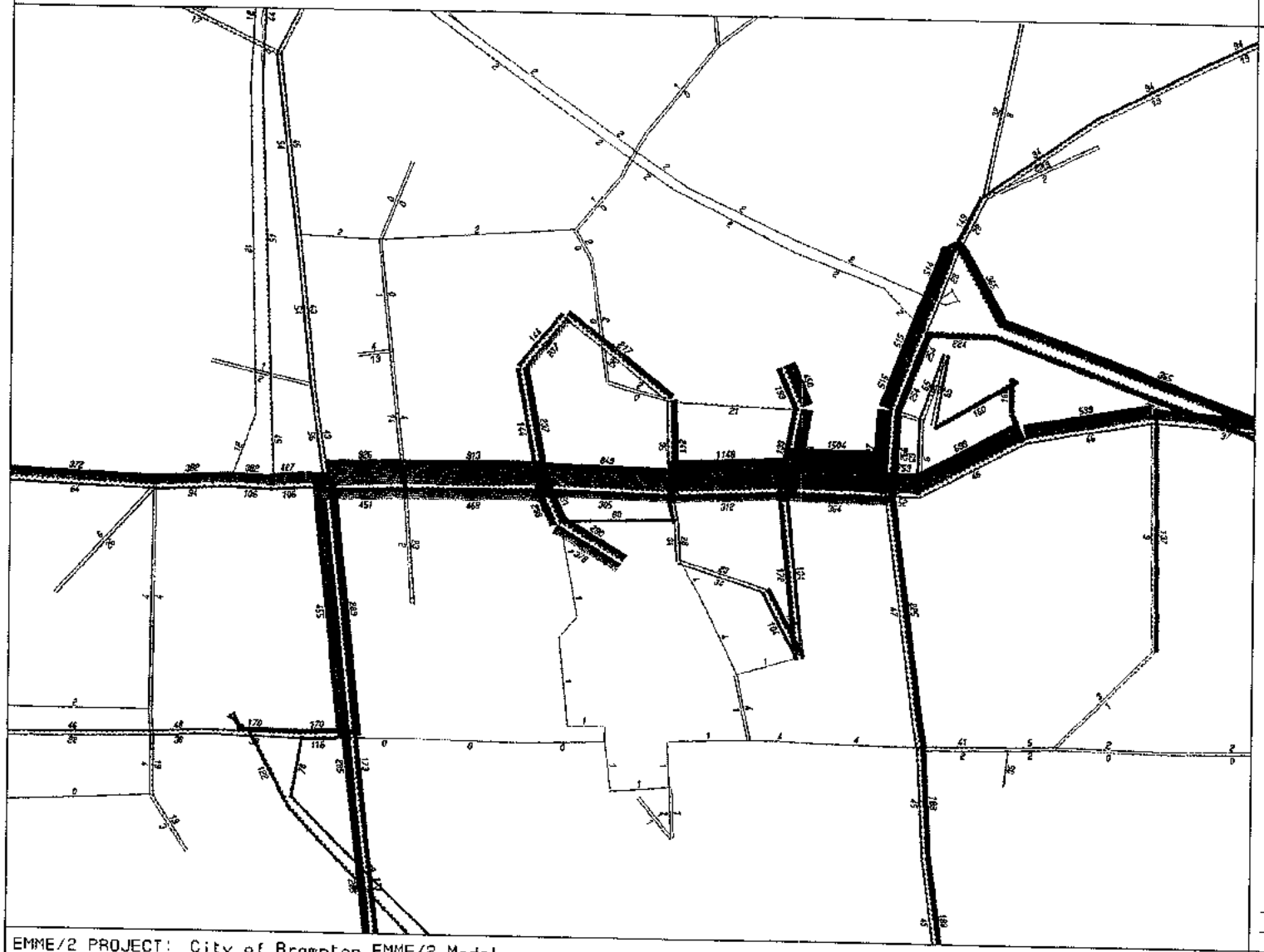
ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



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600
800
1000

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AUTO VOLUMES

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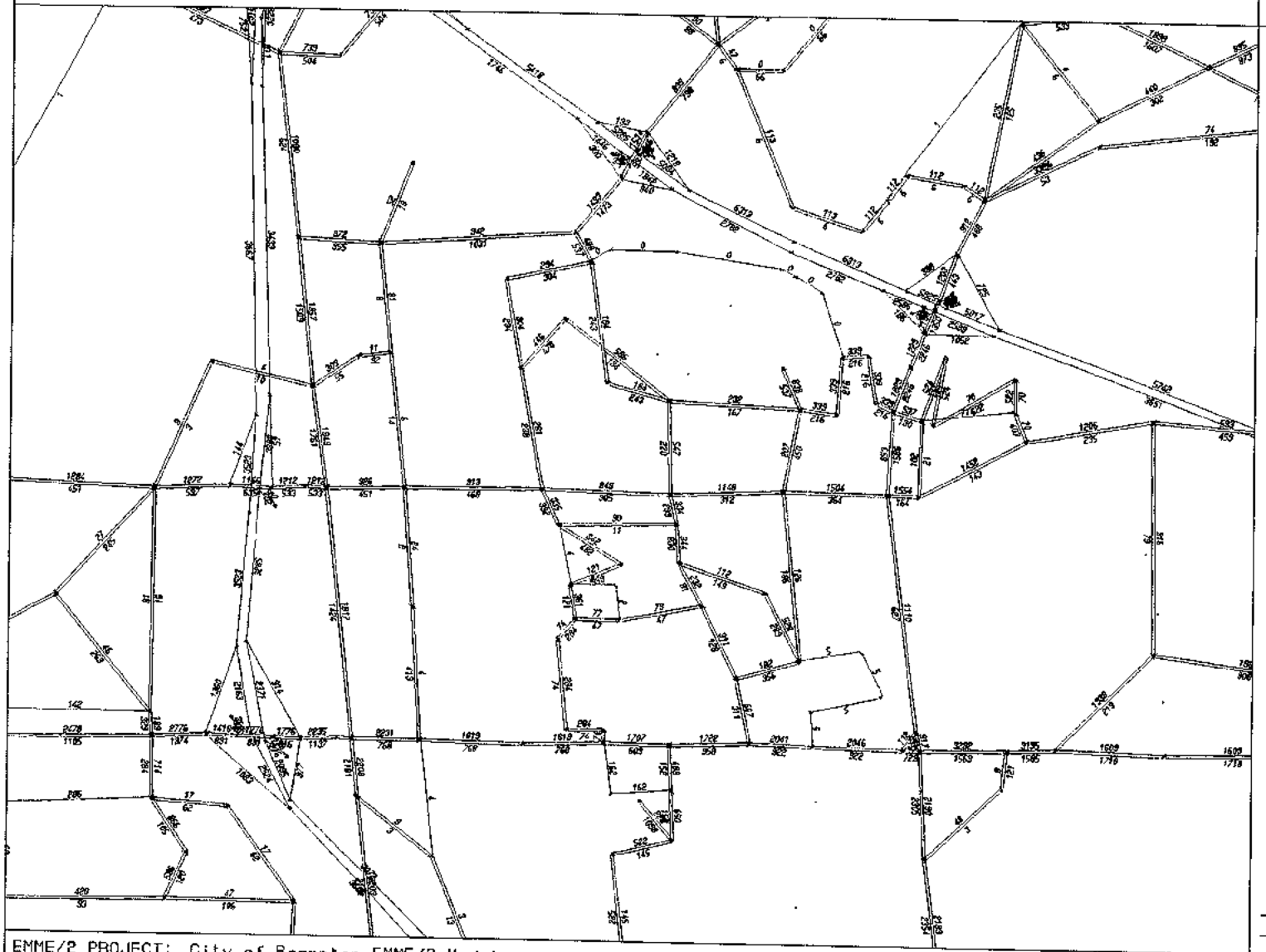

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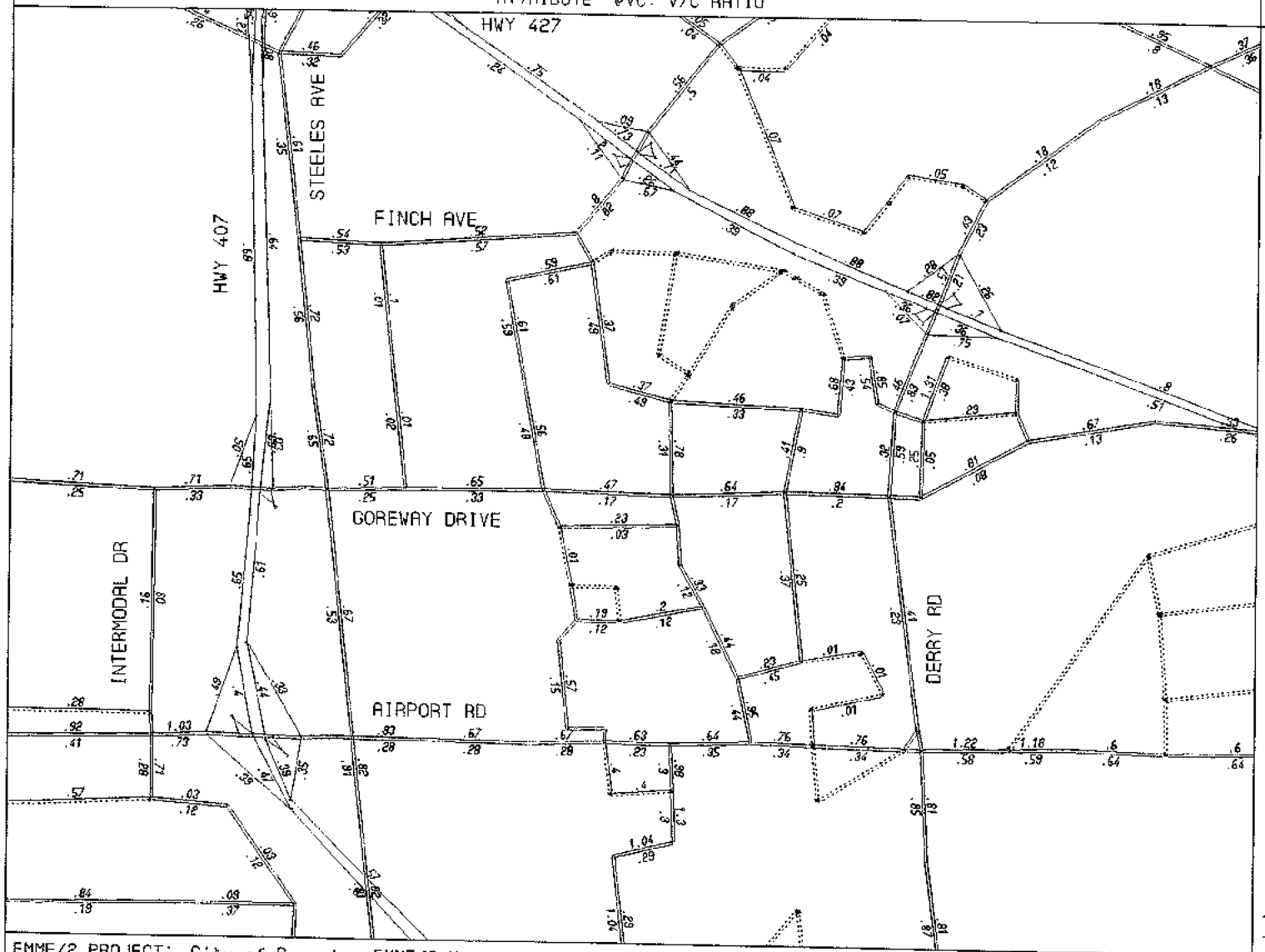

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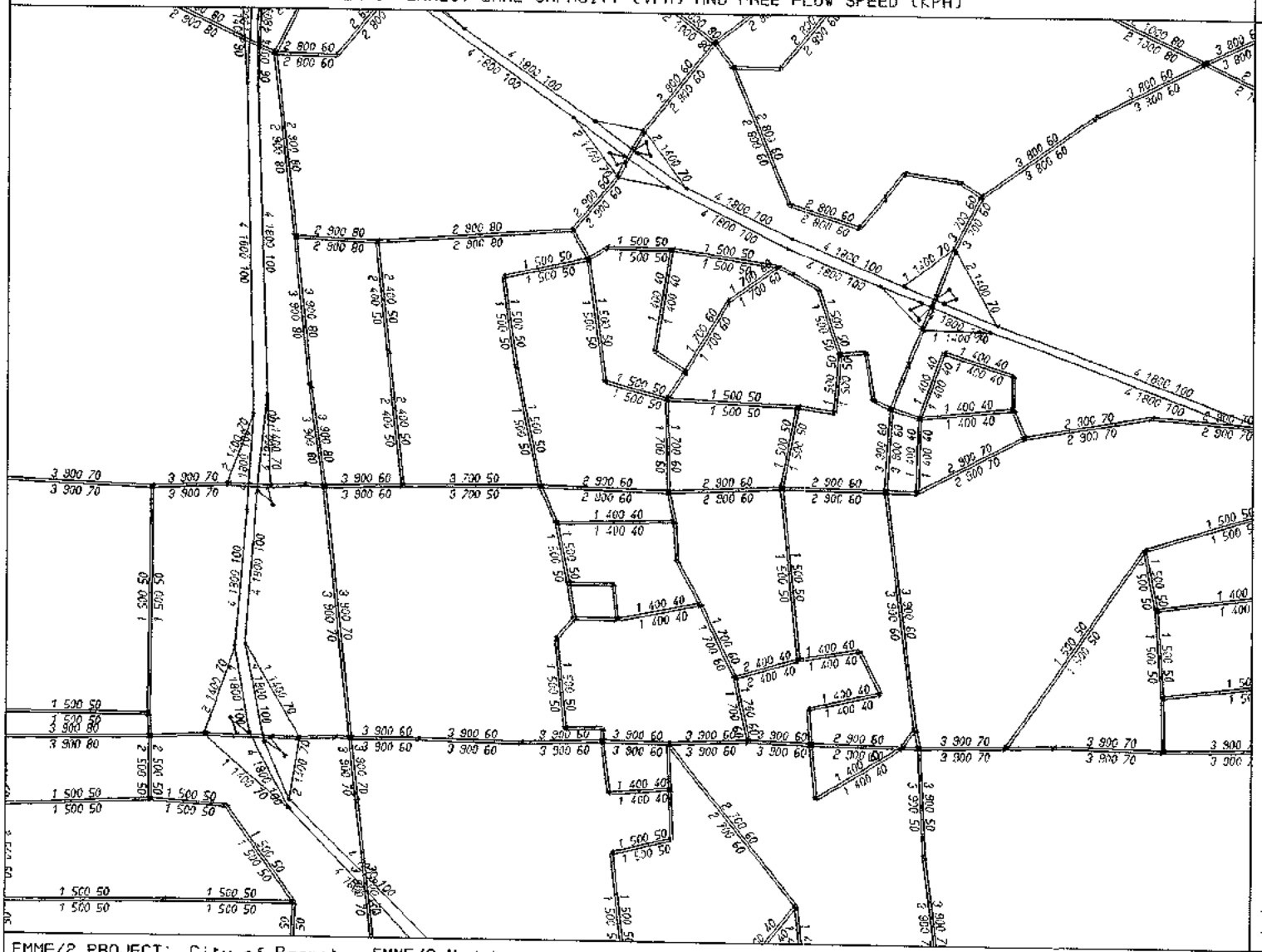

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Speed
Capacity
Lanes

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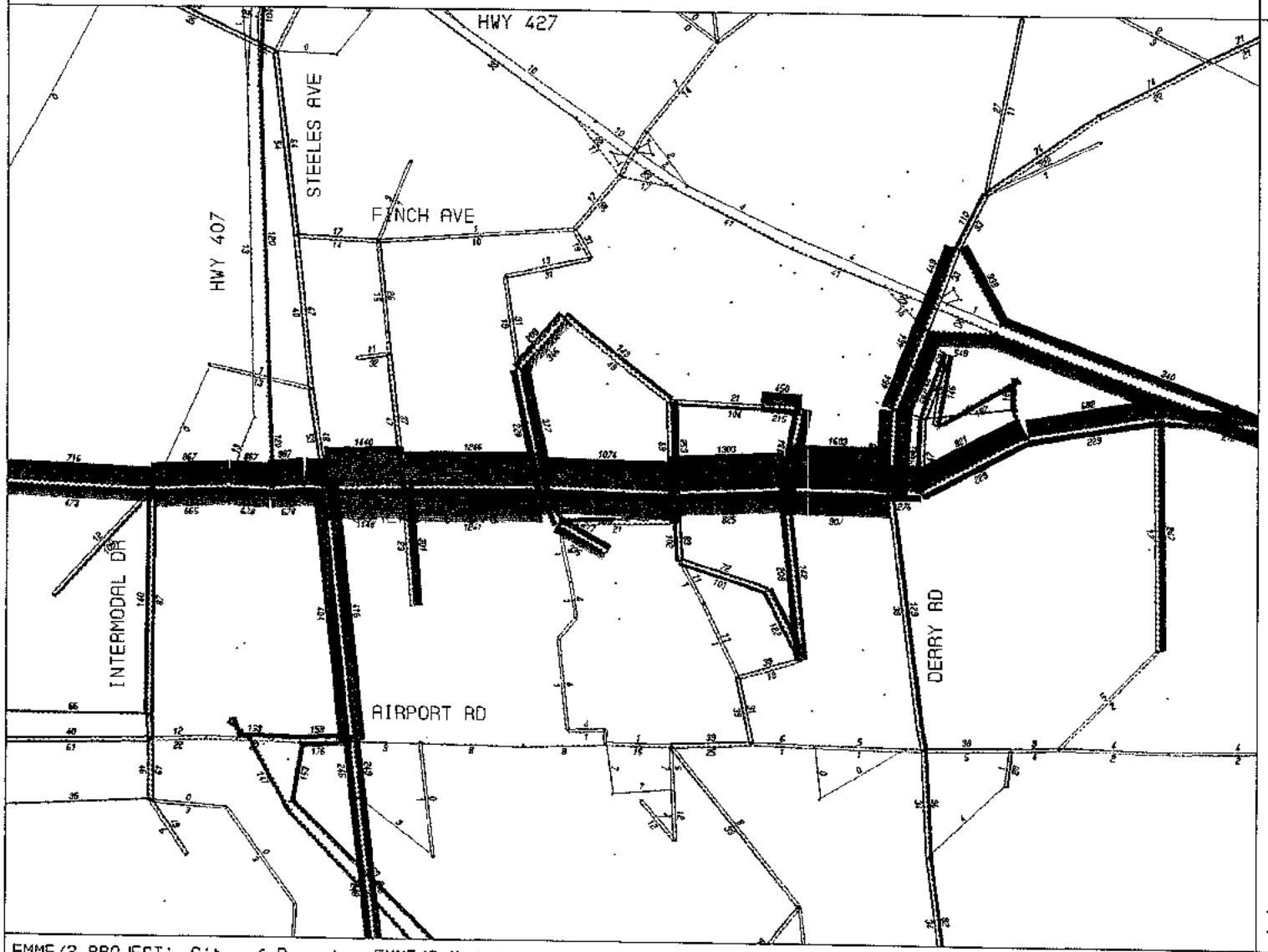

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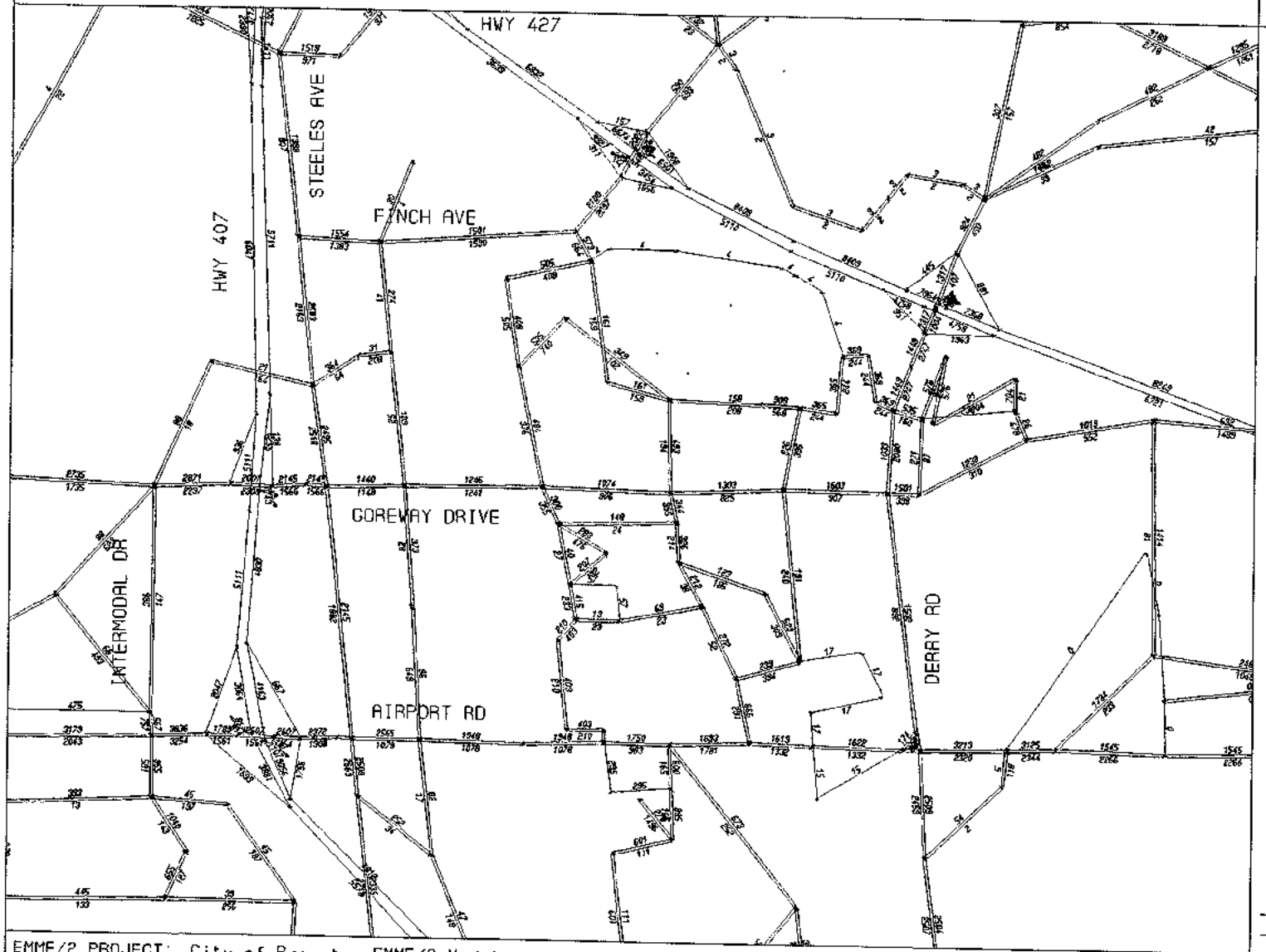

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BASE NETWORK

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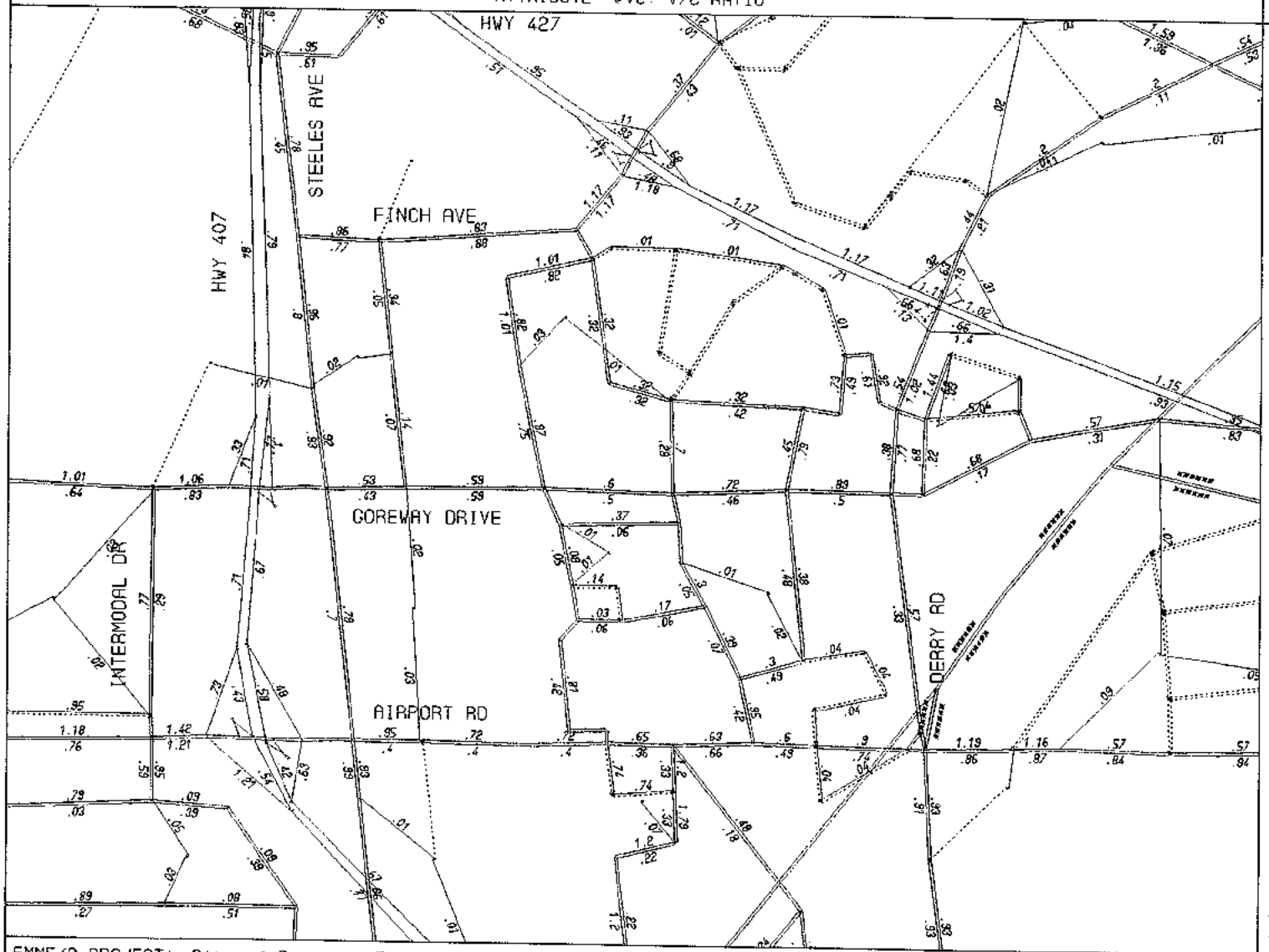
emme/2



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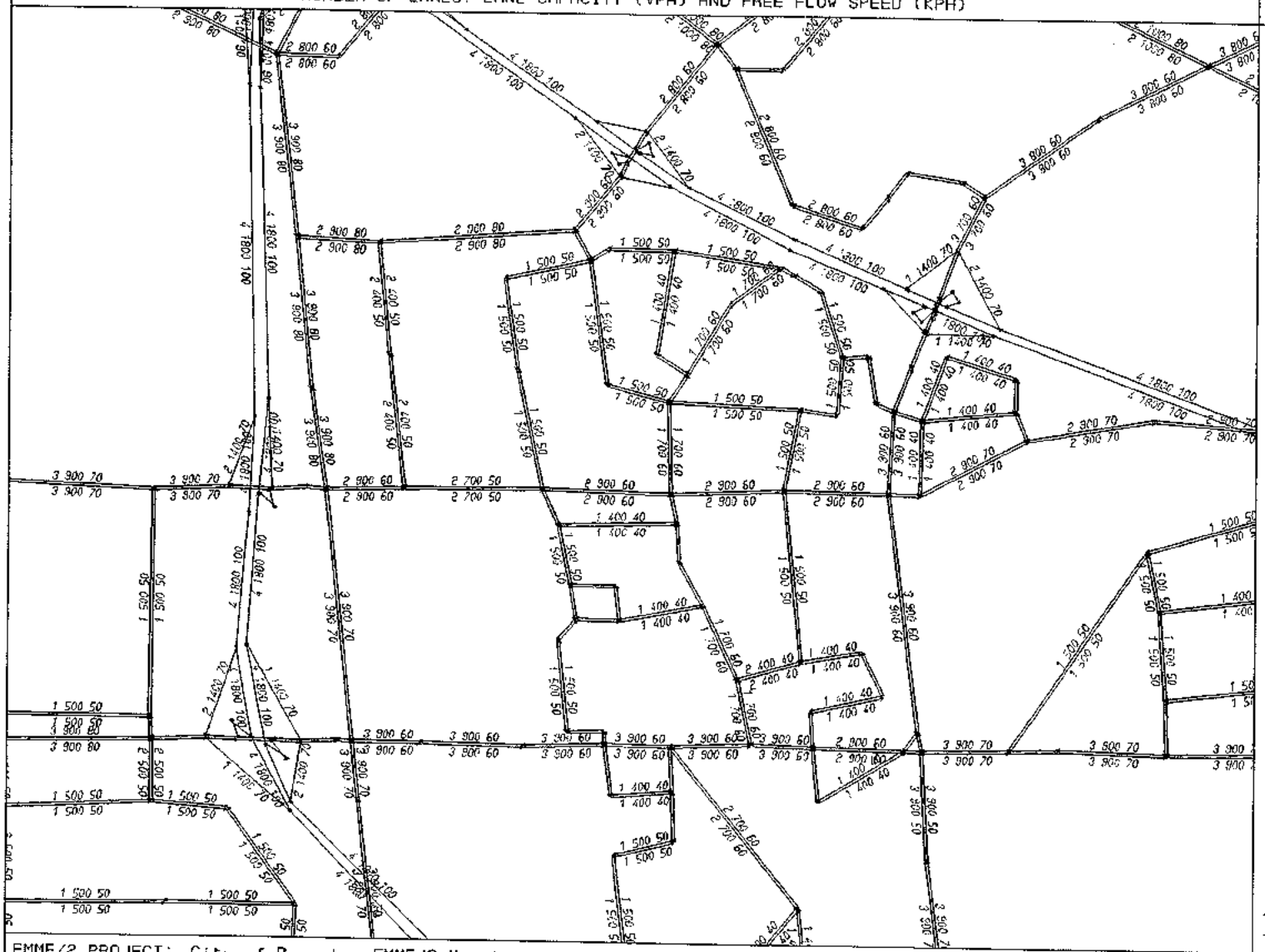

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SCENARIO 20224: 2021 S Goreway 1a - Do nothing

emme/2

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Speed
Capacity
Lanes

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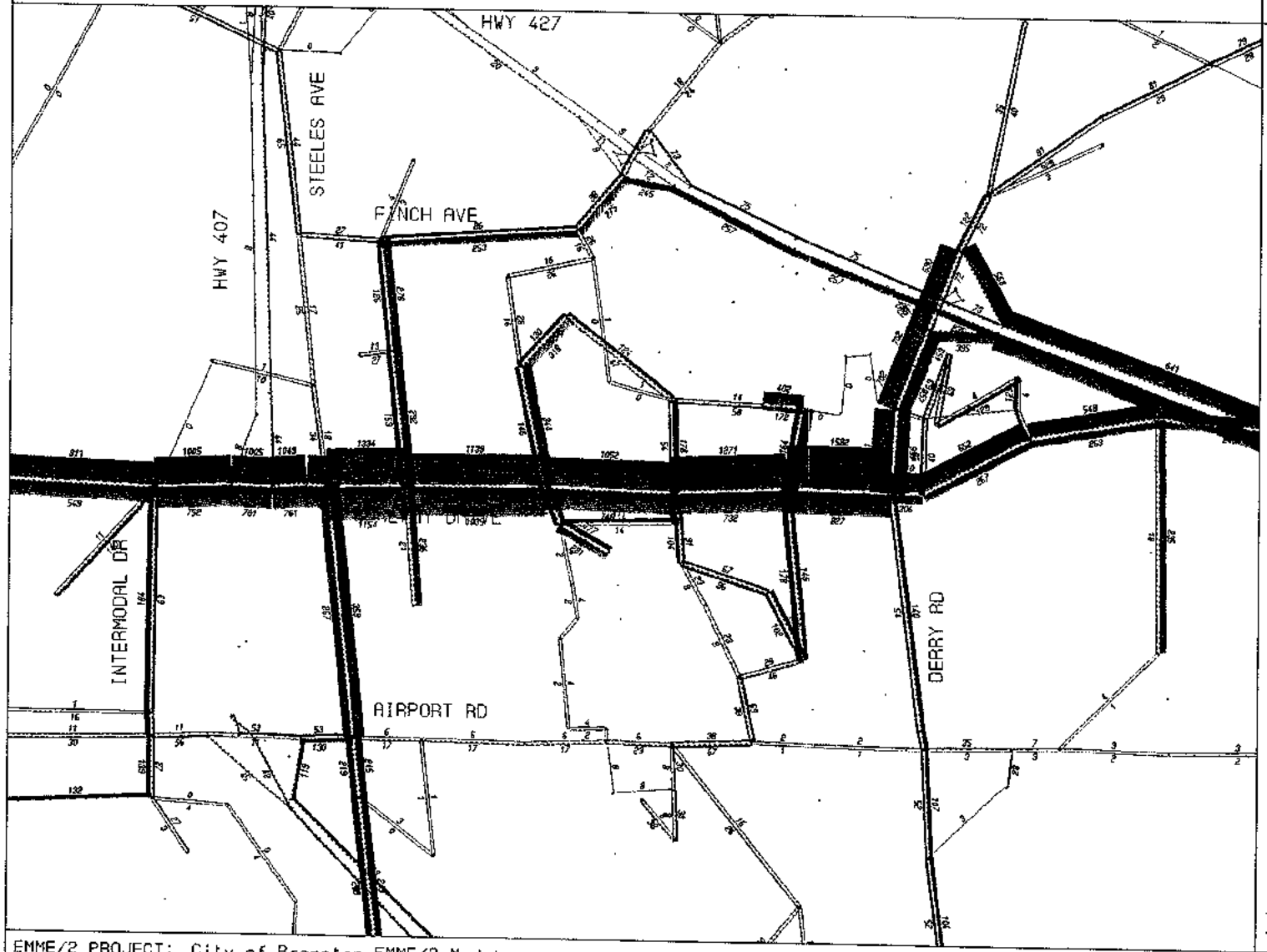
ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

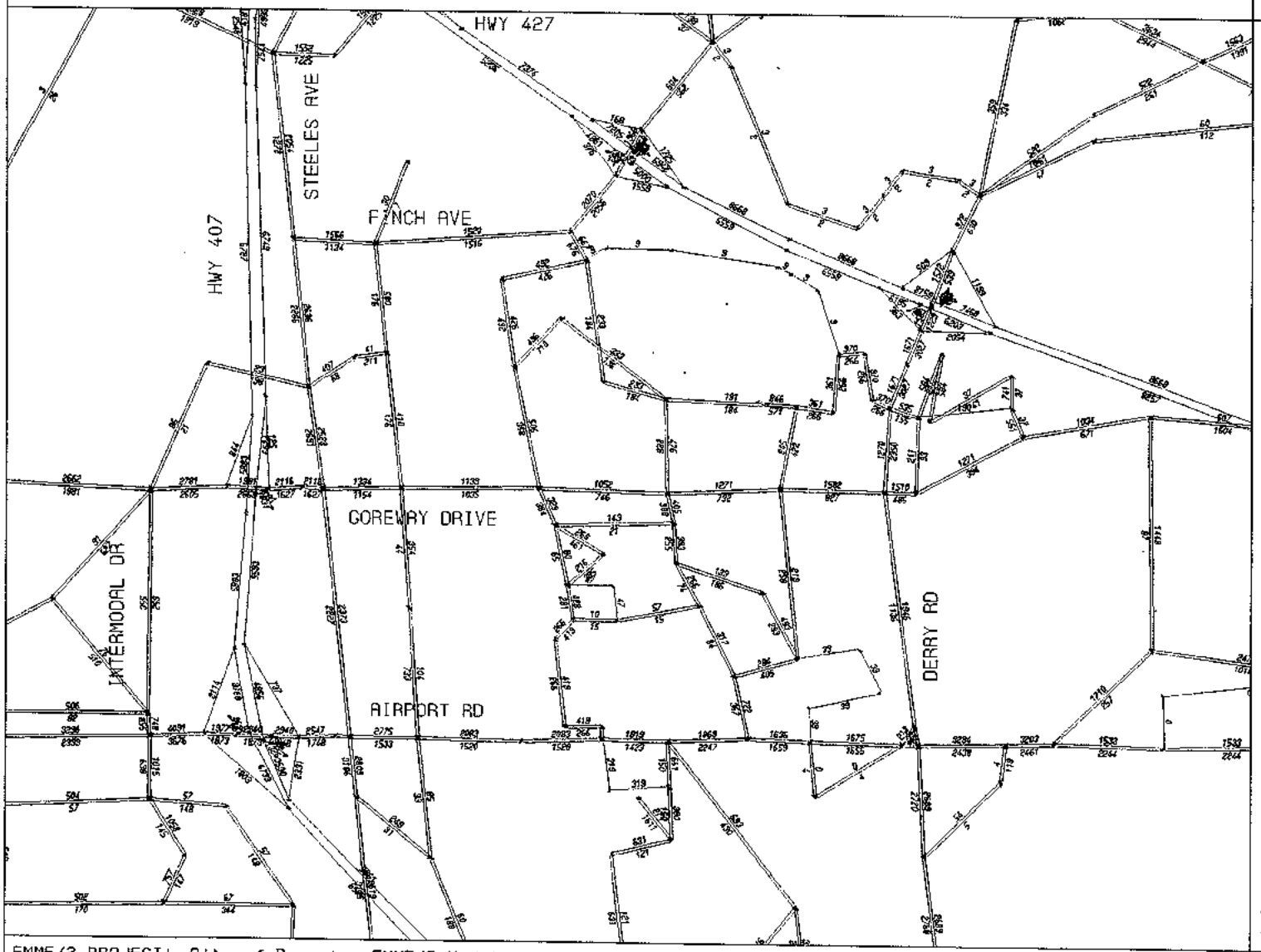
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20224: 2021 S Goreway 1a - Do nothing

06-09-25 08:02
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

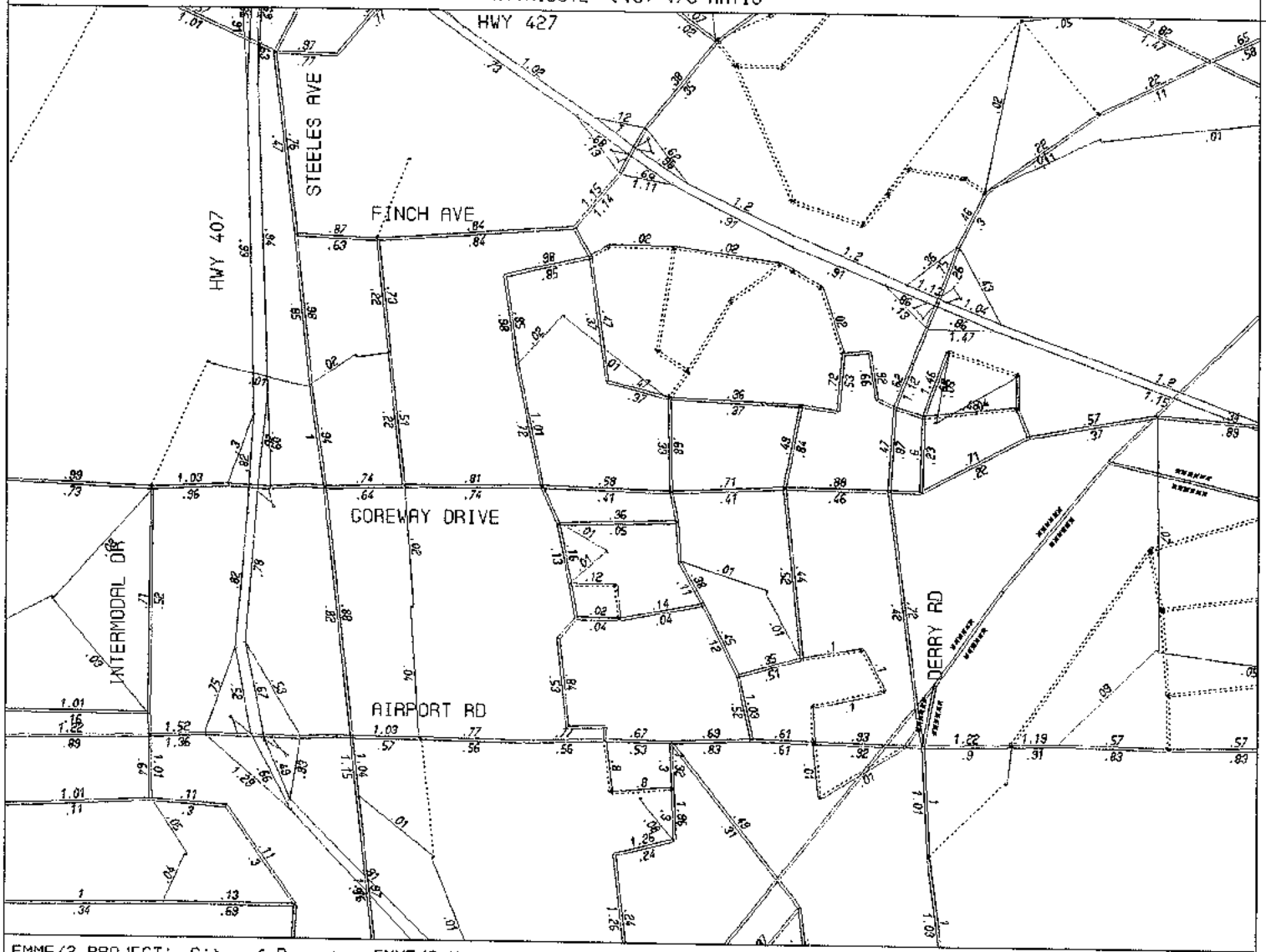
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20224: 2021 S Coreway 1a - Do nothing

06-09-25 08:02
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



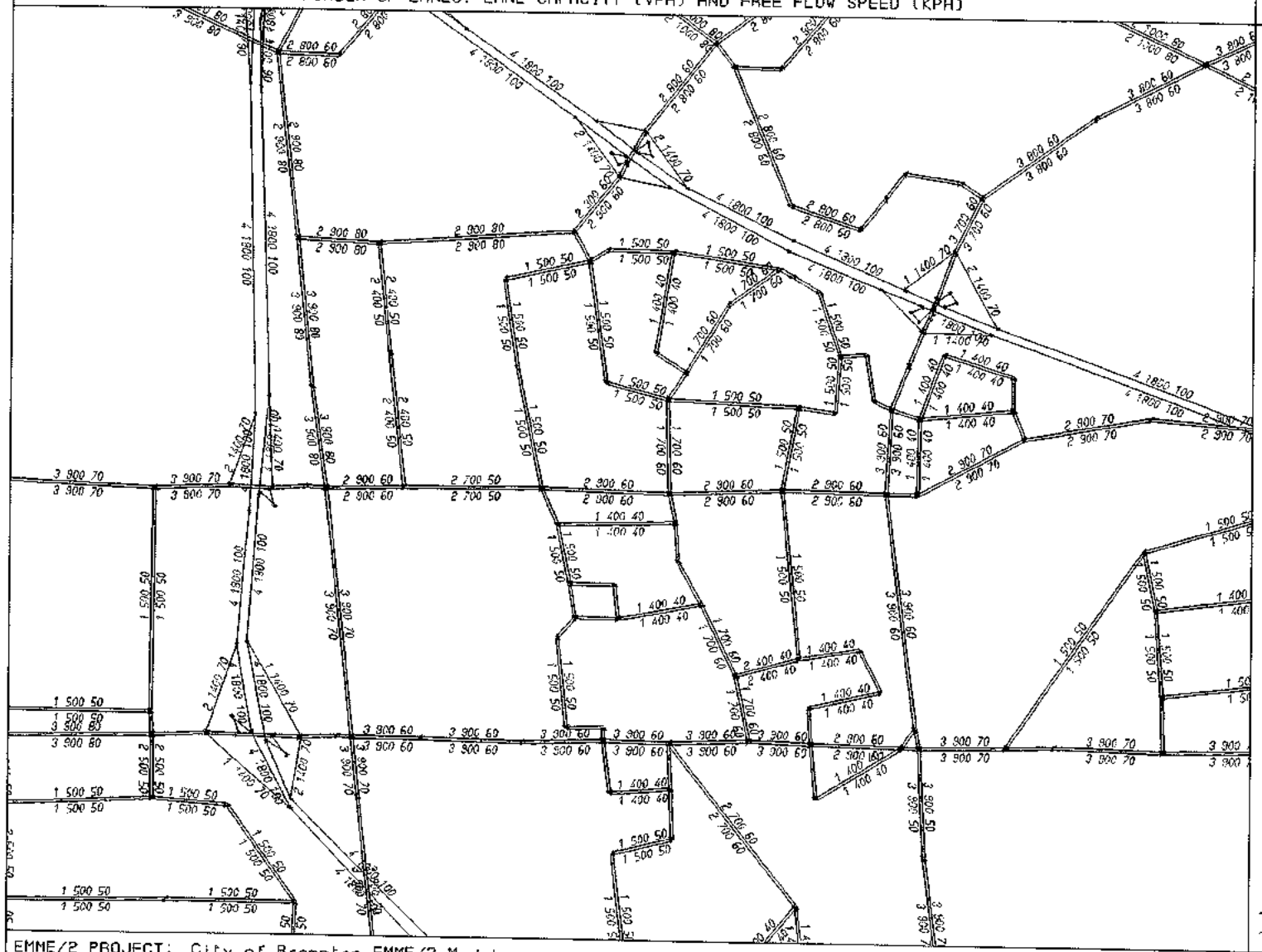
LINKS:
mod=c
:|ci=1
&|cj=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20224: 2021 S Goreway 1a - Do nothing
ATTRIBUTE @vc: V/C Ratio

06-09-25 08:03
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

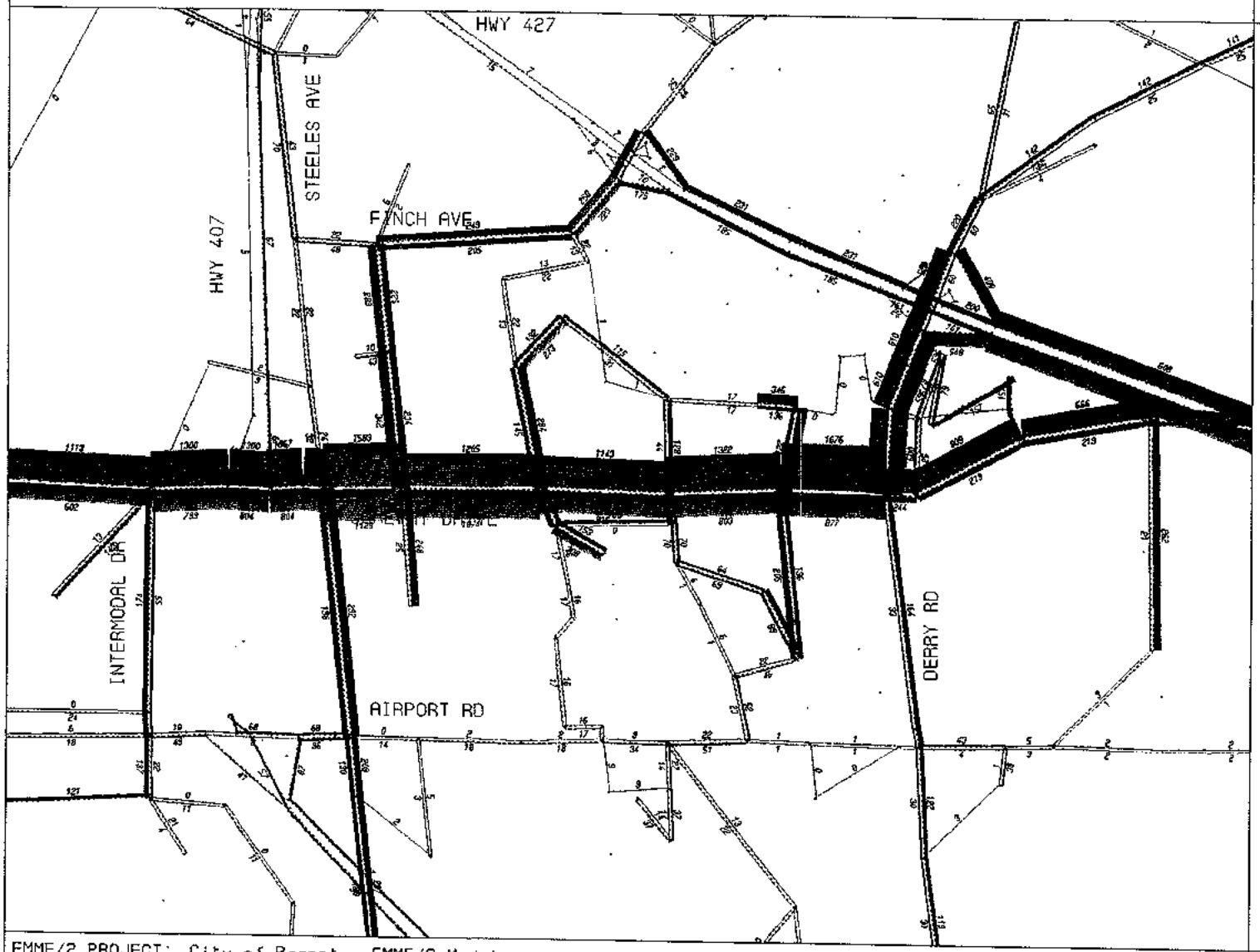
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20324: 2031 S Goreway 1a - Do nothing

06-09-23 13:11
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

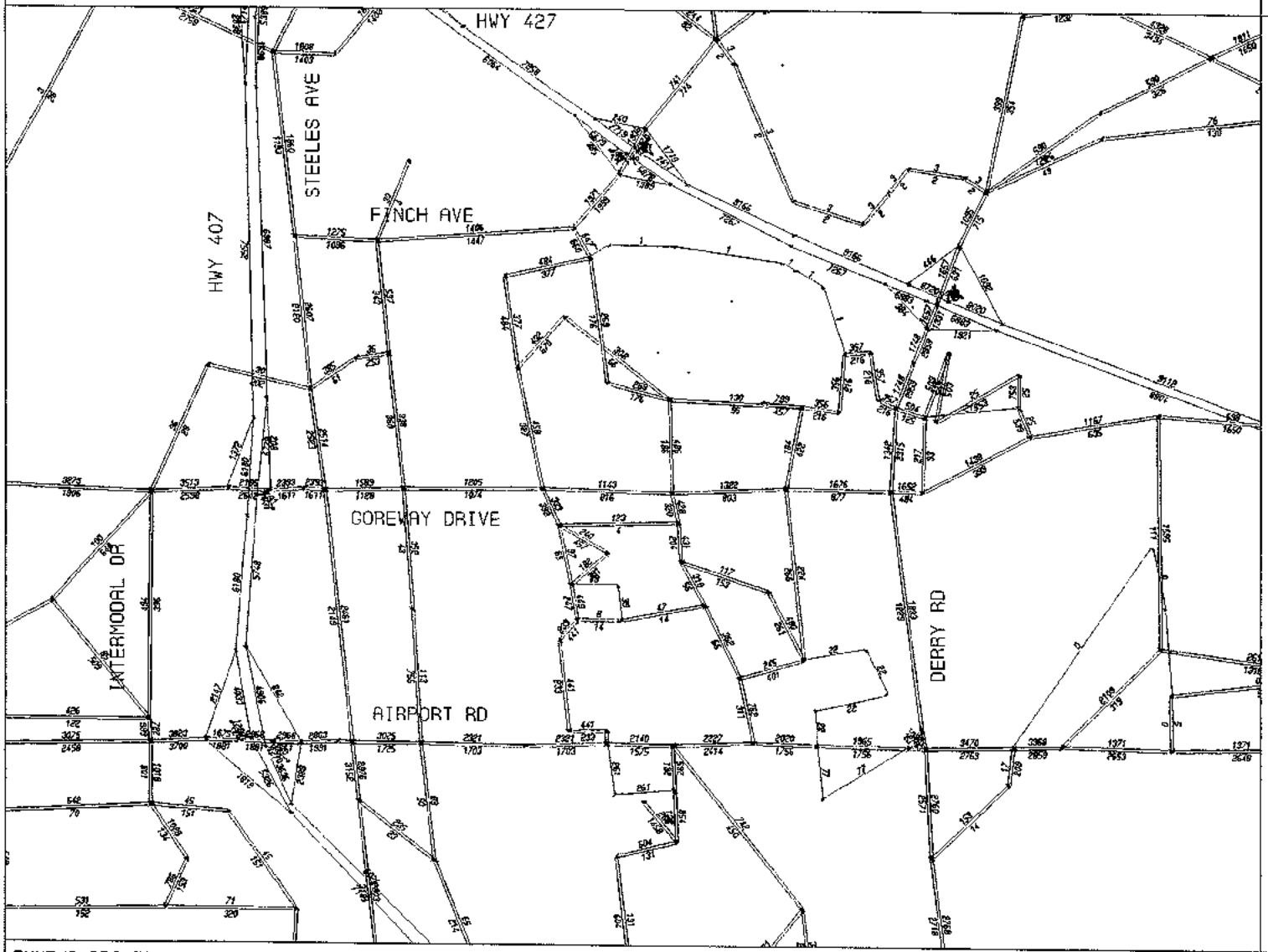
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20324: 2031 S Goreway 1a - Do nothing

06-09-23 13:37
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

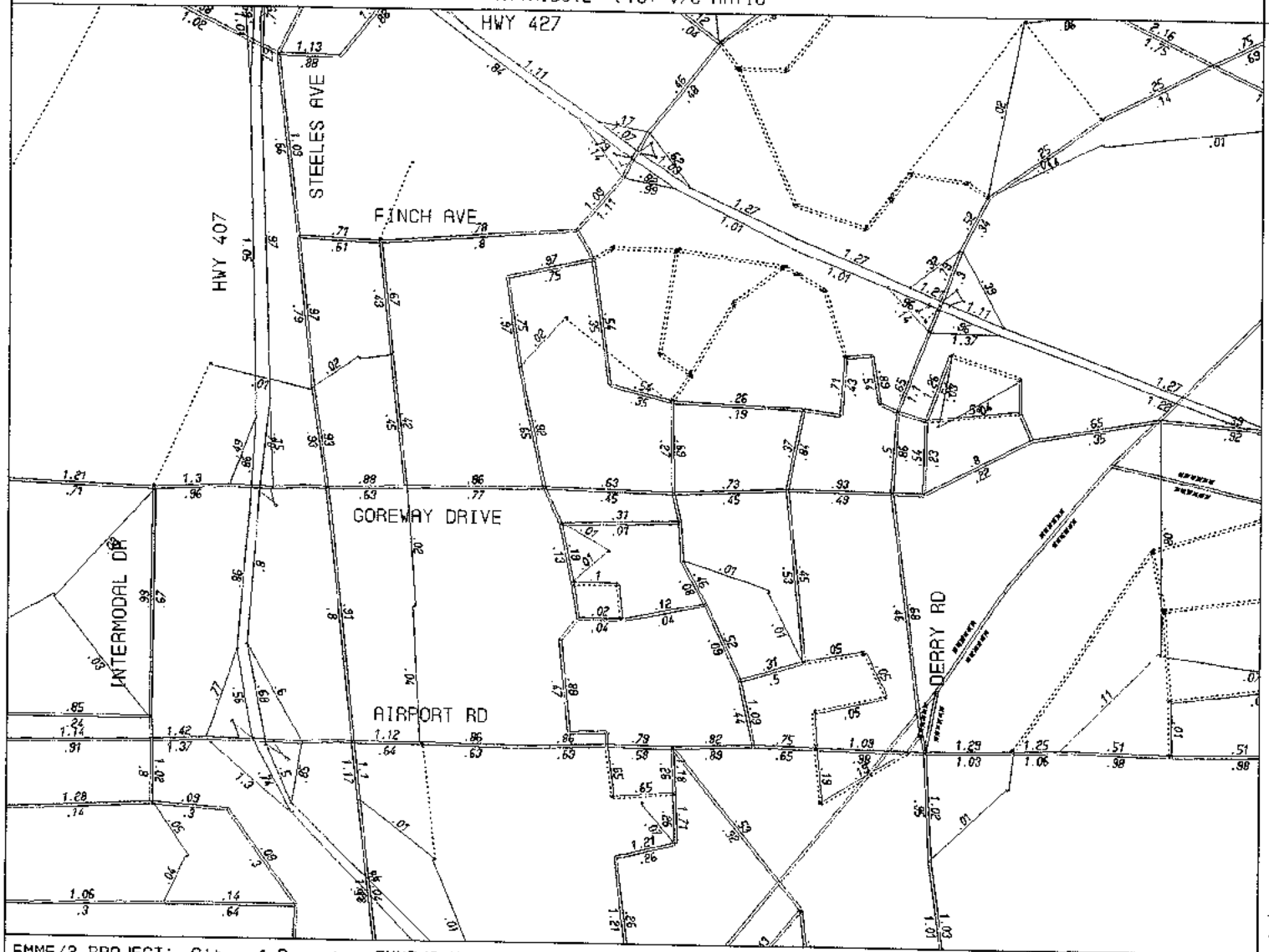
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20324: 2031 S Goreway 1a - Do nothing

06-09-23 13:36
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



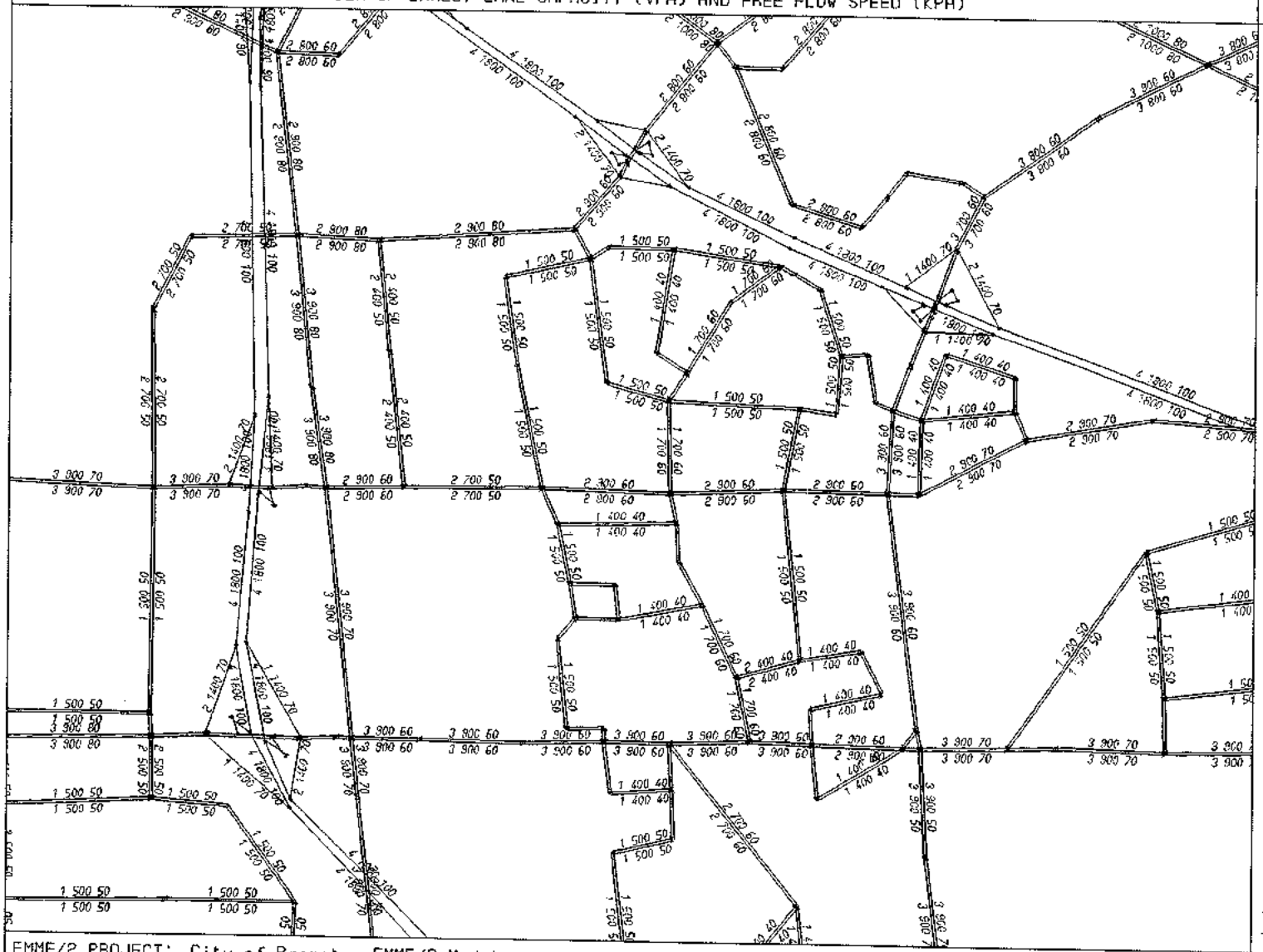
LINKS:
mod=c
:!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20324: 2031 S Goreway 1a - Do nothing
ATTRIBUTE @vc: V/C Ratio

06-09-23 13:37
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!cj=1
&!cj=1

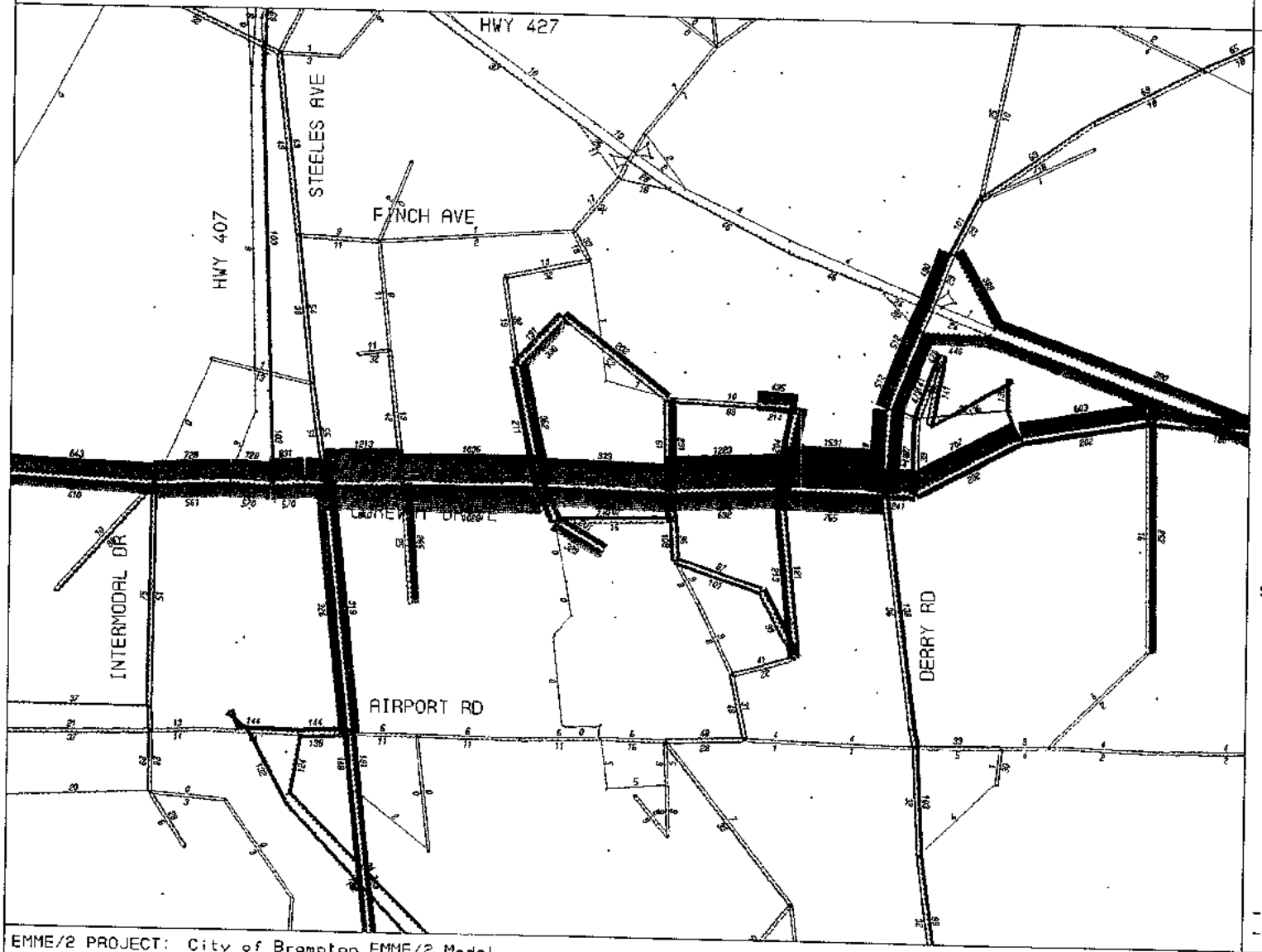
LAYERS:
Speed
Capacity
Lanes

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20126: 2011 S Goreway 1b - Intermodal

06-09-23 13:41
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK



emme/2

LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

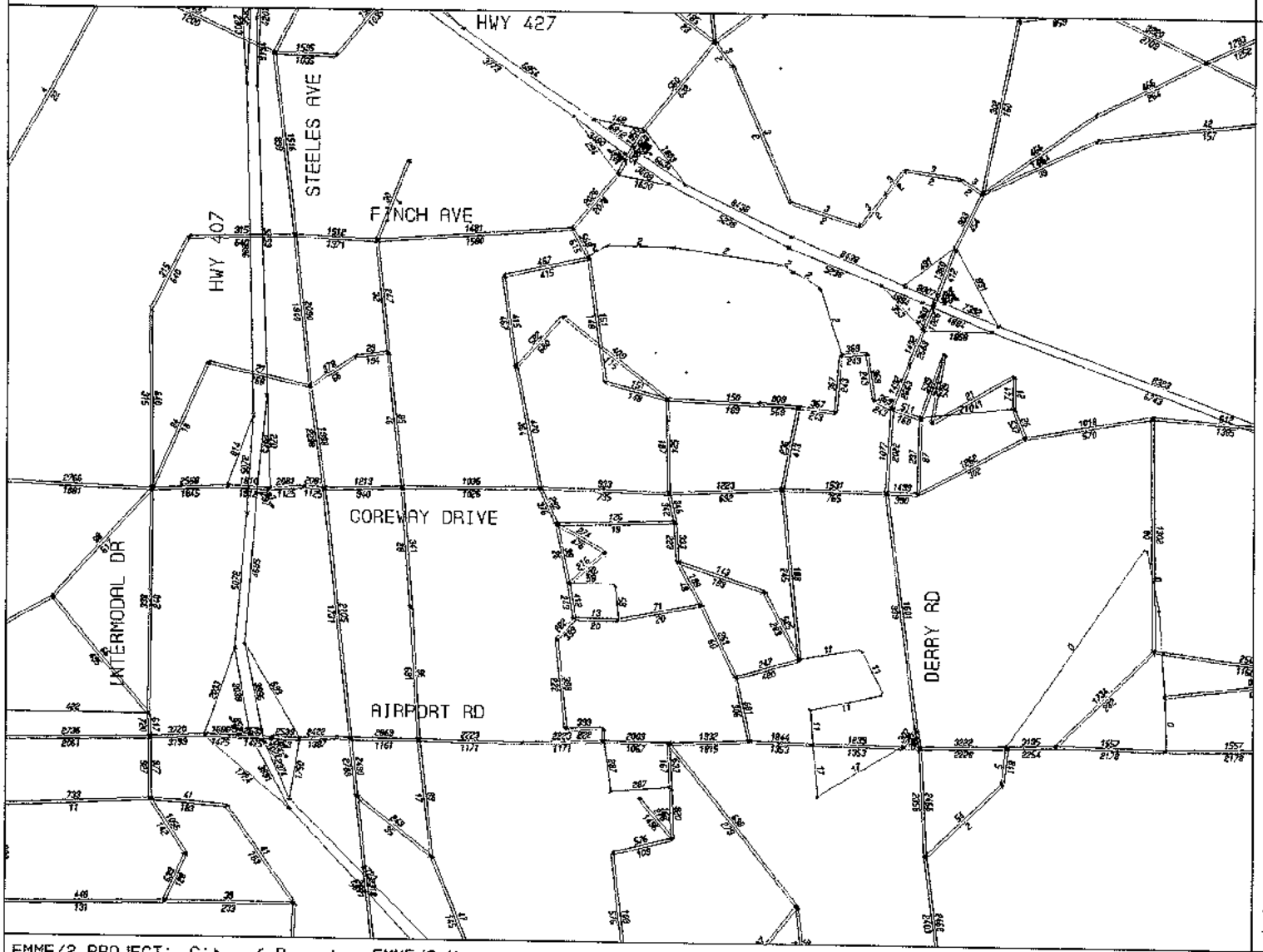
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20126: 2011 S Goreway 1b - Intermodal

06-09-23 13:58
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

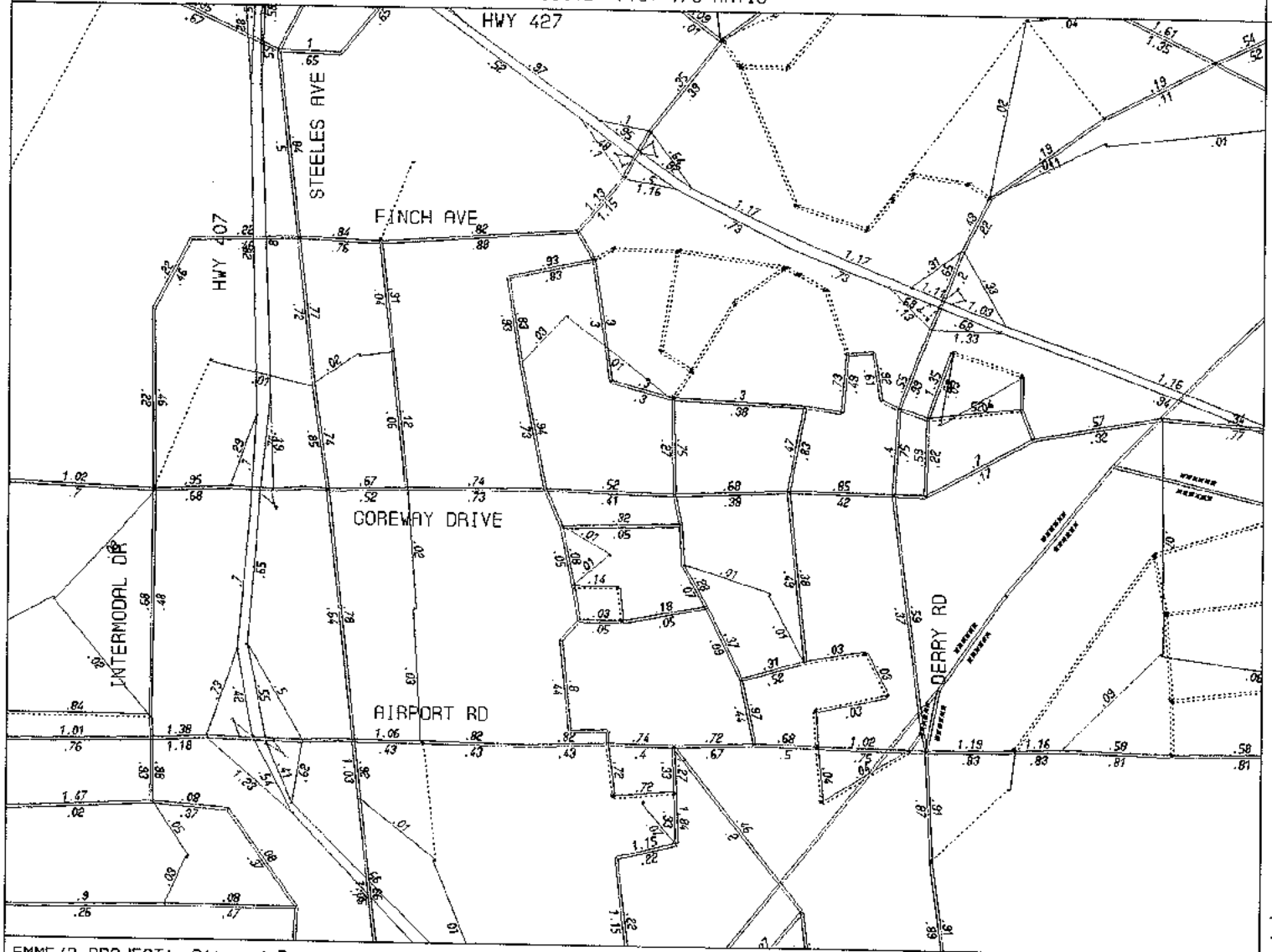
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20126: 2011 S Goreway 1b - Intermodal

06-09-23 13:58
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



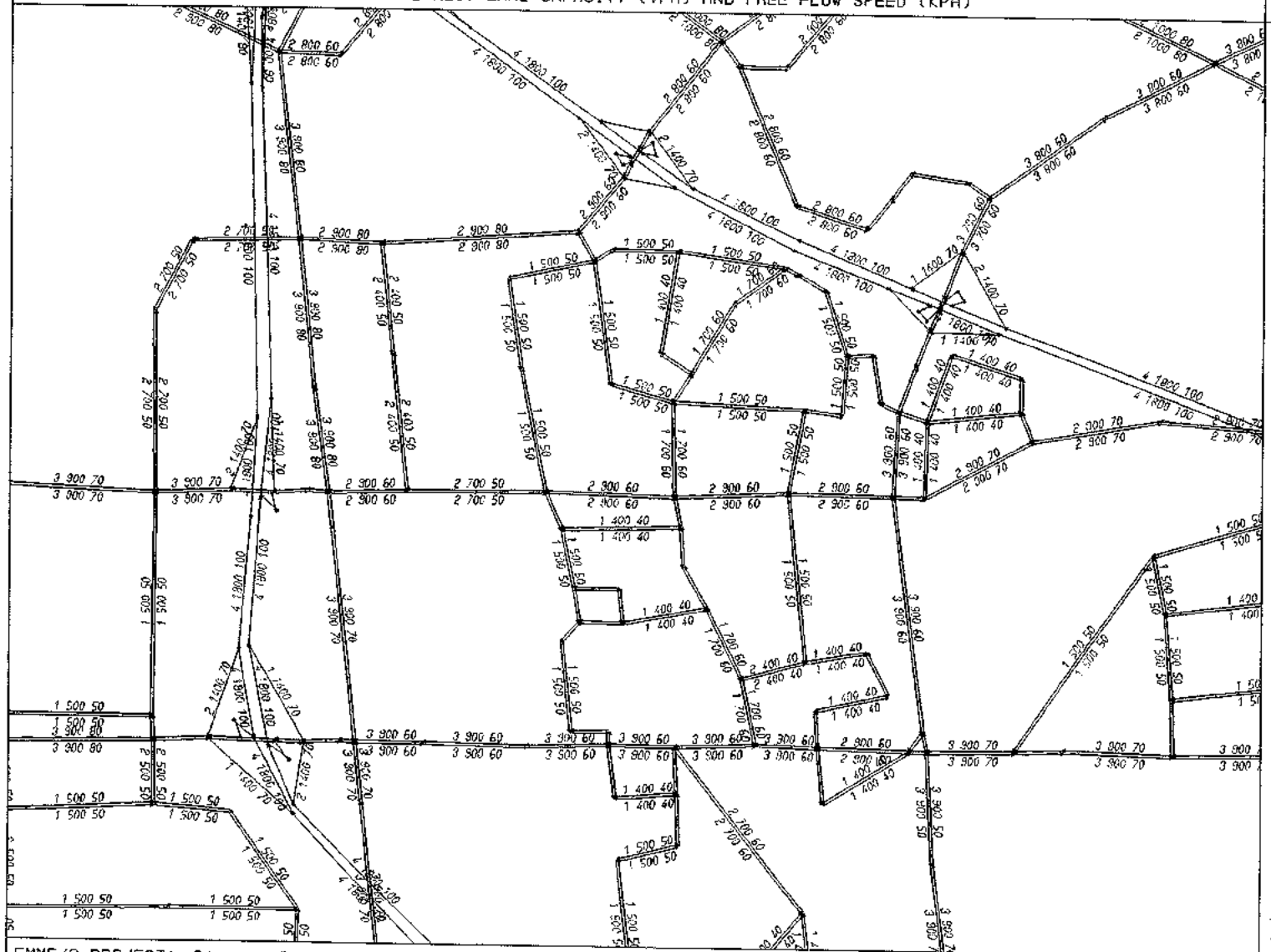
LINKS:
mod=c
!!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20126: 2011 S Goreway 1b - Intermodal
ATTRIBUTE @vc: V/C Ratio

06-09-23 13:59
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

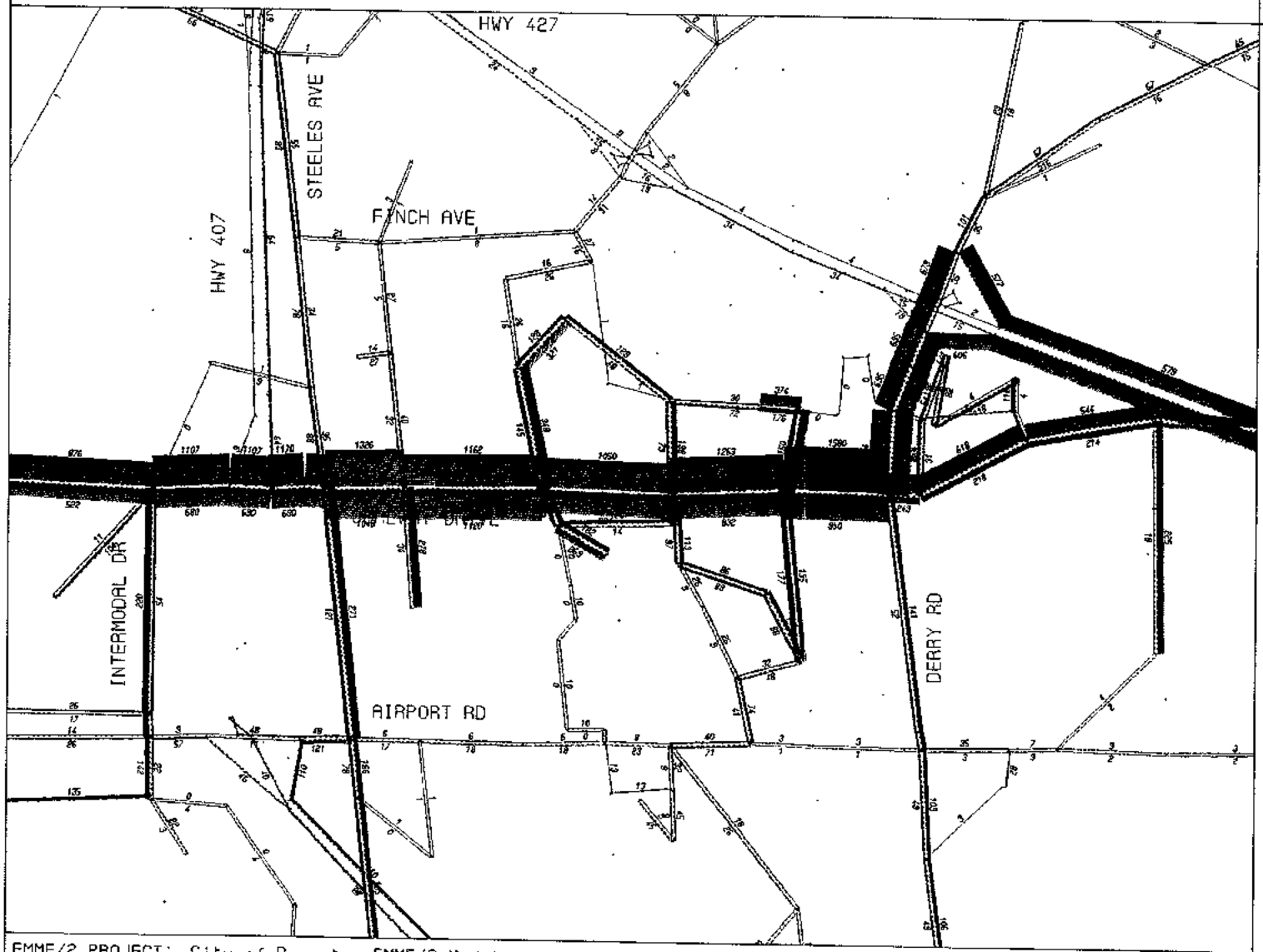
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20225: 2021 S Goreway - 1b Intermodal

06-09-23 14:10
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

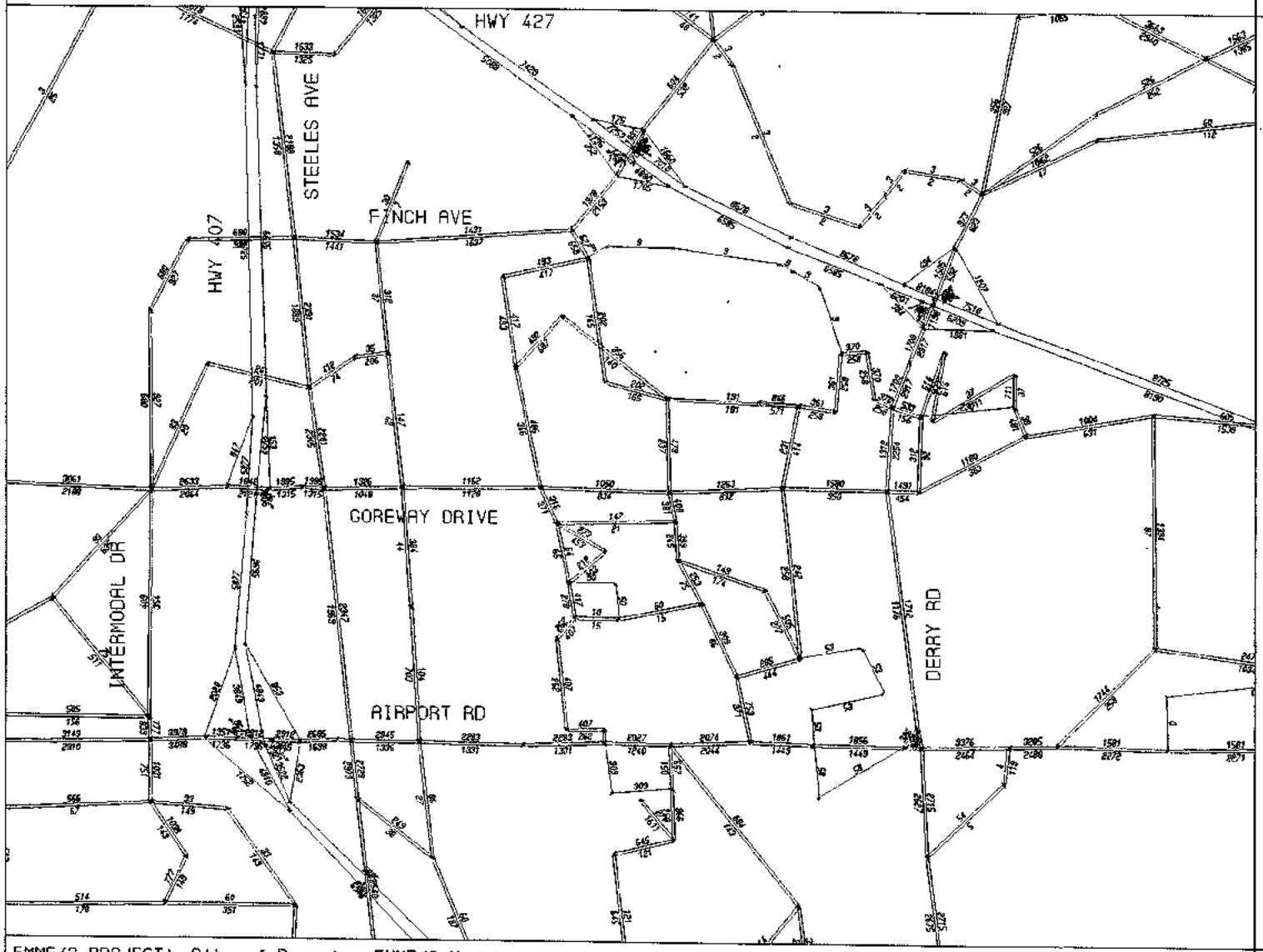
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20225: 2021 S Goreway - 1b Intermodal

06-09-23 14:31
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

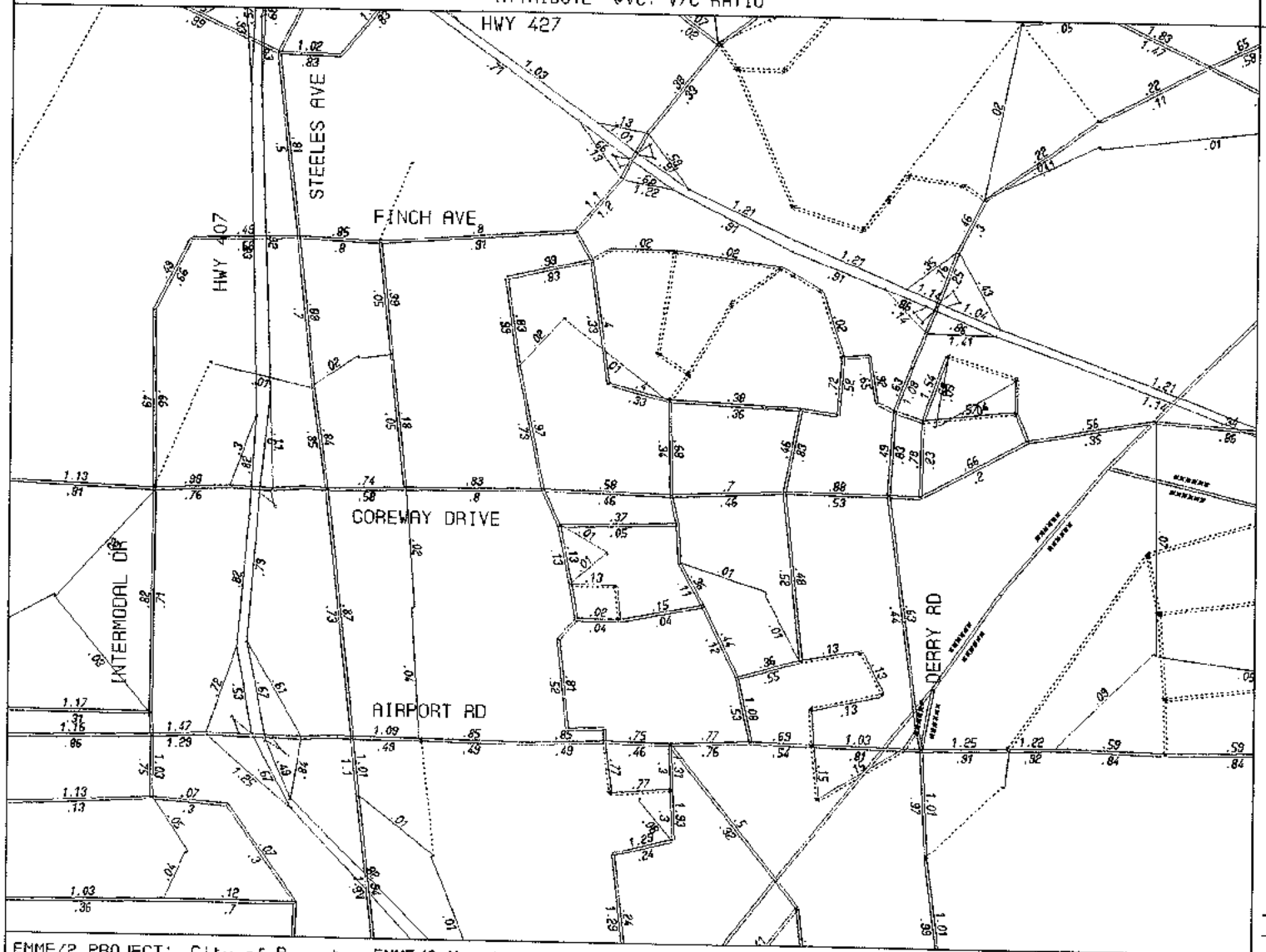
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20225: 2021 S Goreway - 1b Intermodal

06-09-23 14:30
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



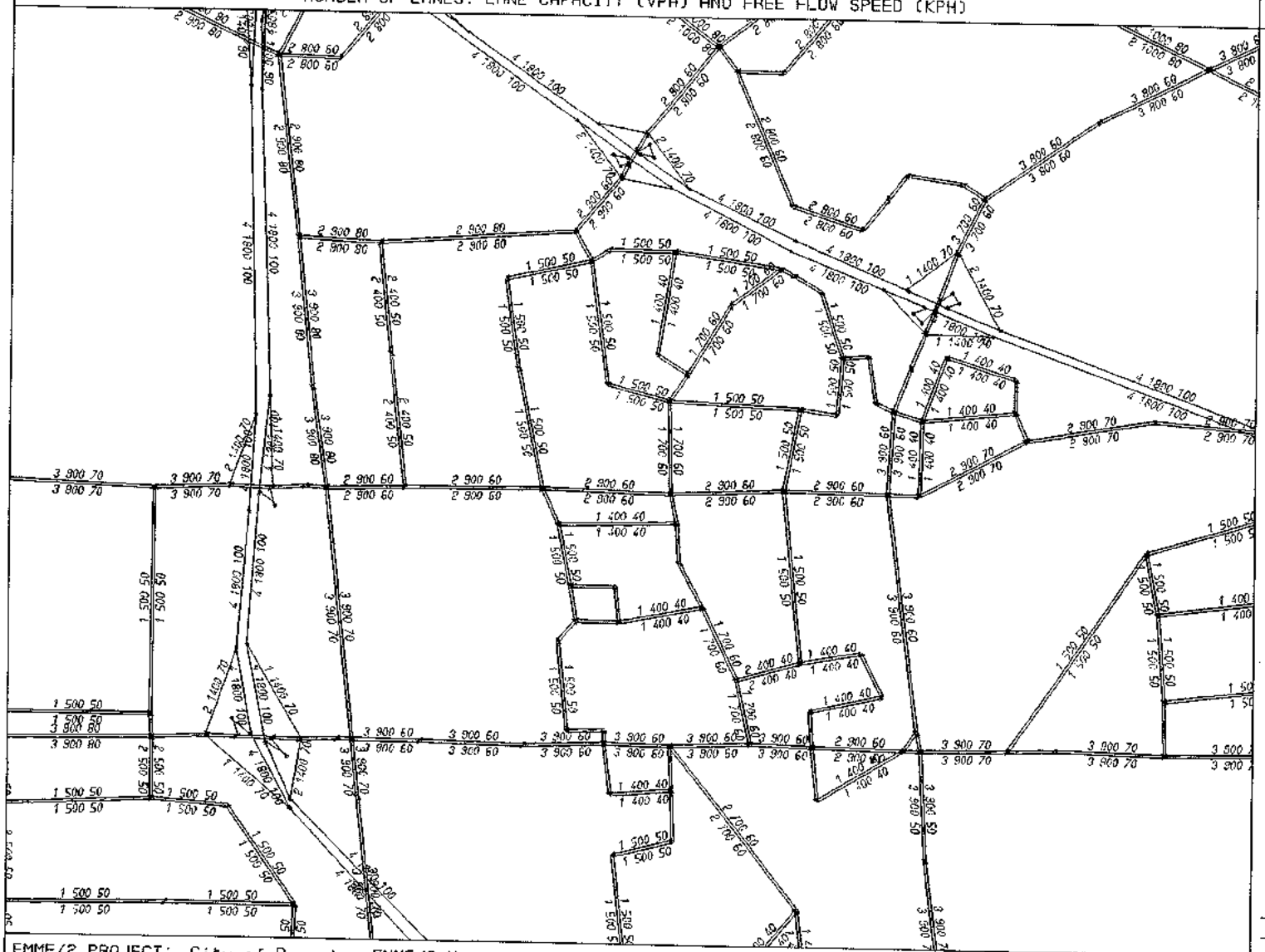
LINKS:
mod=c
!|c|=1
&|c|=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20225: 2021 S Goreway - 1b Intermodal
ATTRIBUTE @vc: V/C Ratio

06-09-23 14:31
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!c i=1
&!c j=1

LAYERS:
Speed
Capacity
Lanes

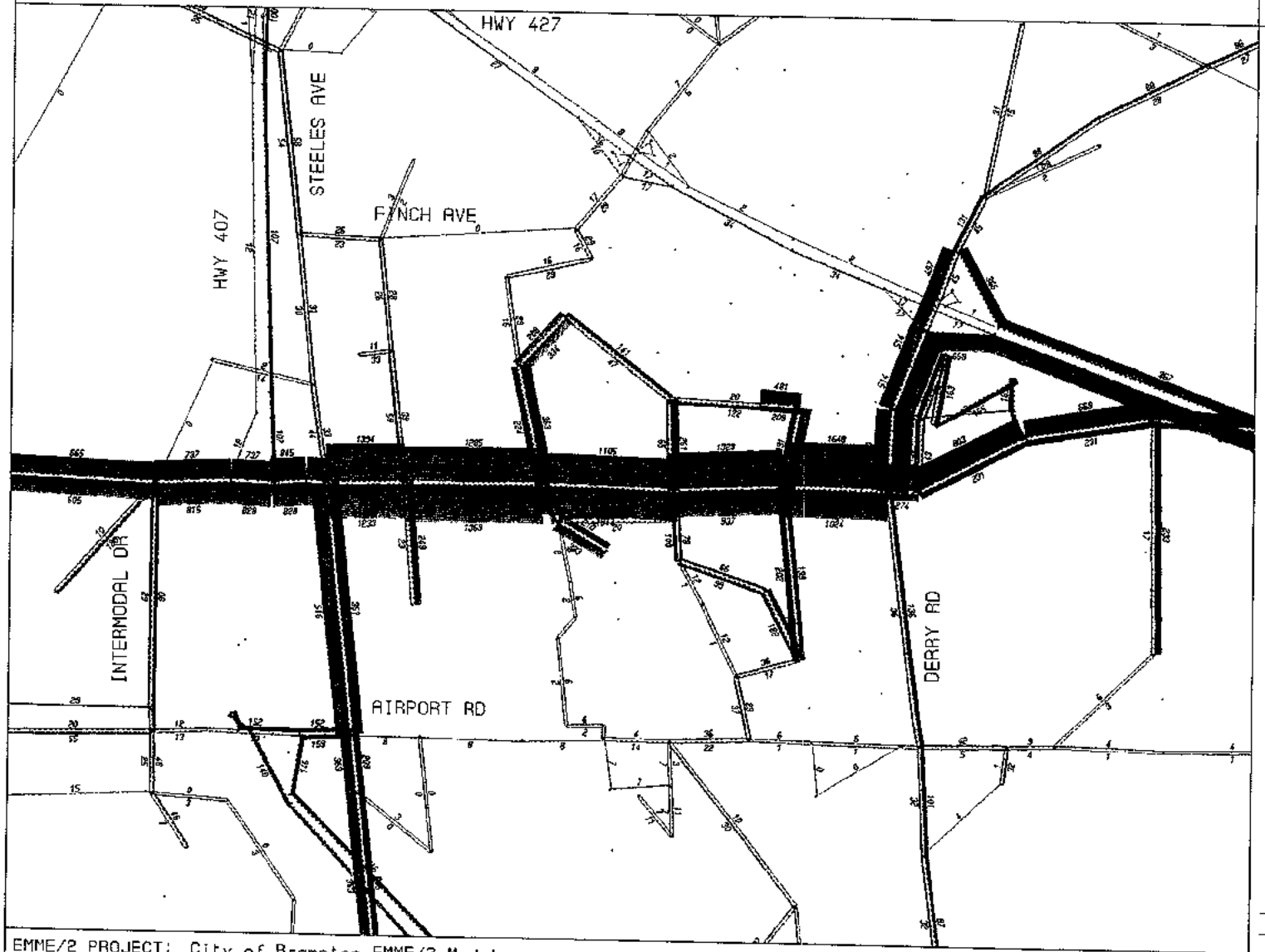
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20127: 2011 S Goreway 2a - Grade Sep.

06-09-23 14:52
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

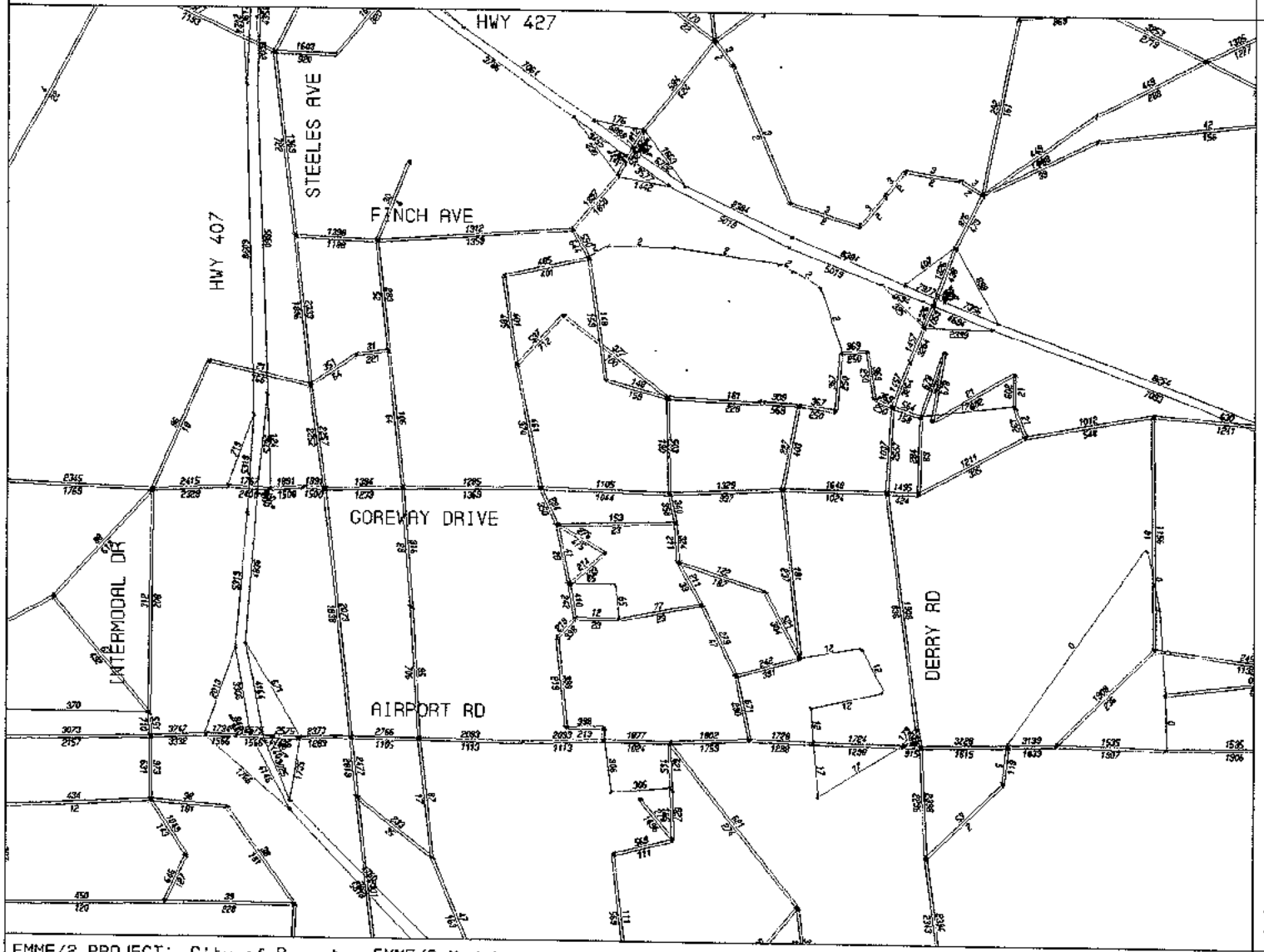
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20127: 2011 S Goreway 2a - Grade Sep.

06-09-23 15:10
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

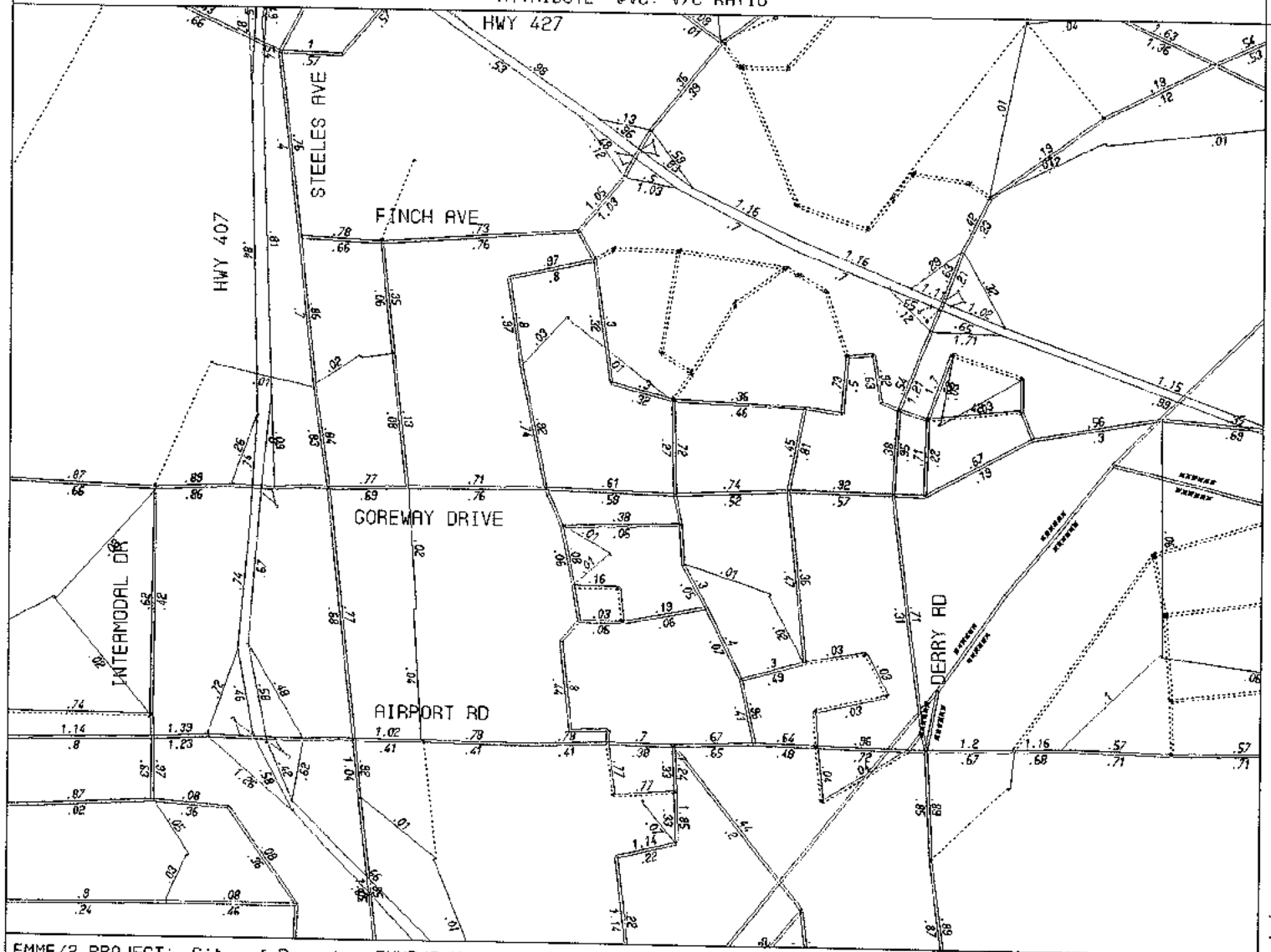
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20127: 2011 S Goreway 2a - Grade Sep.

06-09-23 15:10
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



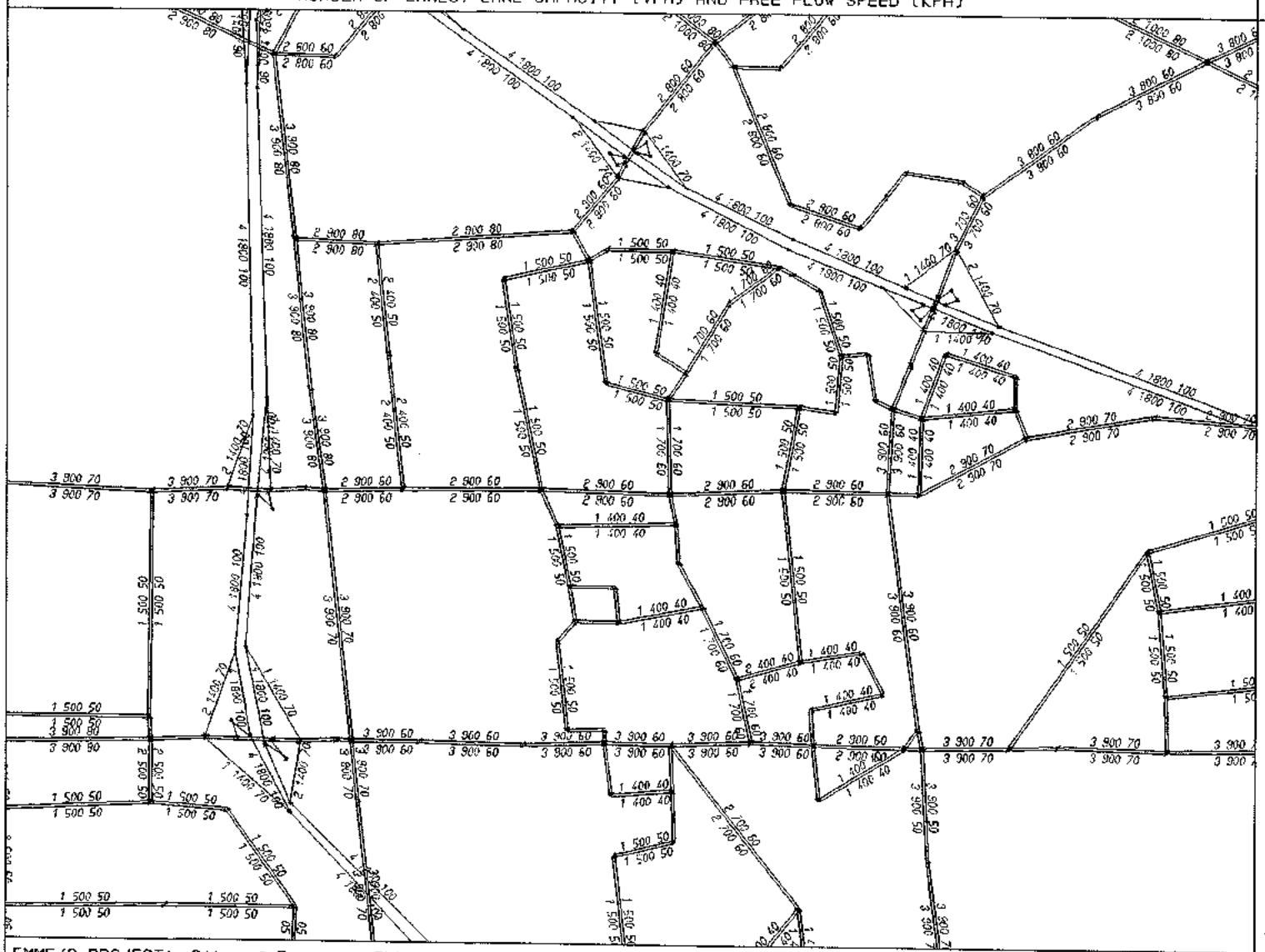
LINKS:
mod=c
!!c j=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20127: 2011 S Goreway 2a - Grade Sep.
ATTRIBUTE @vc: V/C Ratio

06-09-23 15:10
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!cj=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

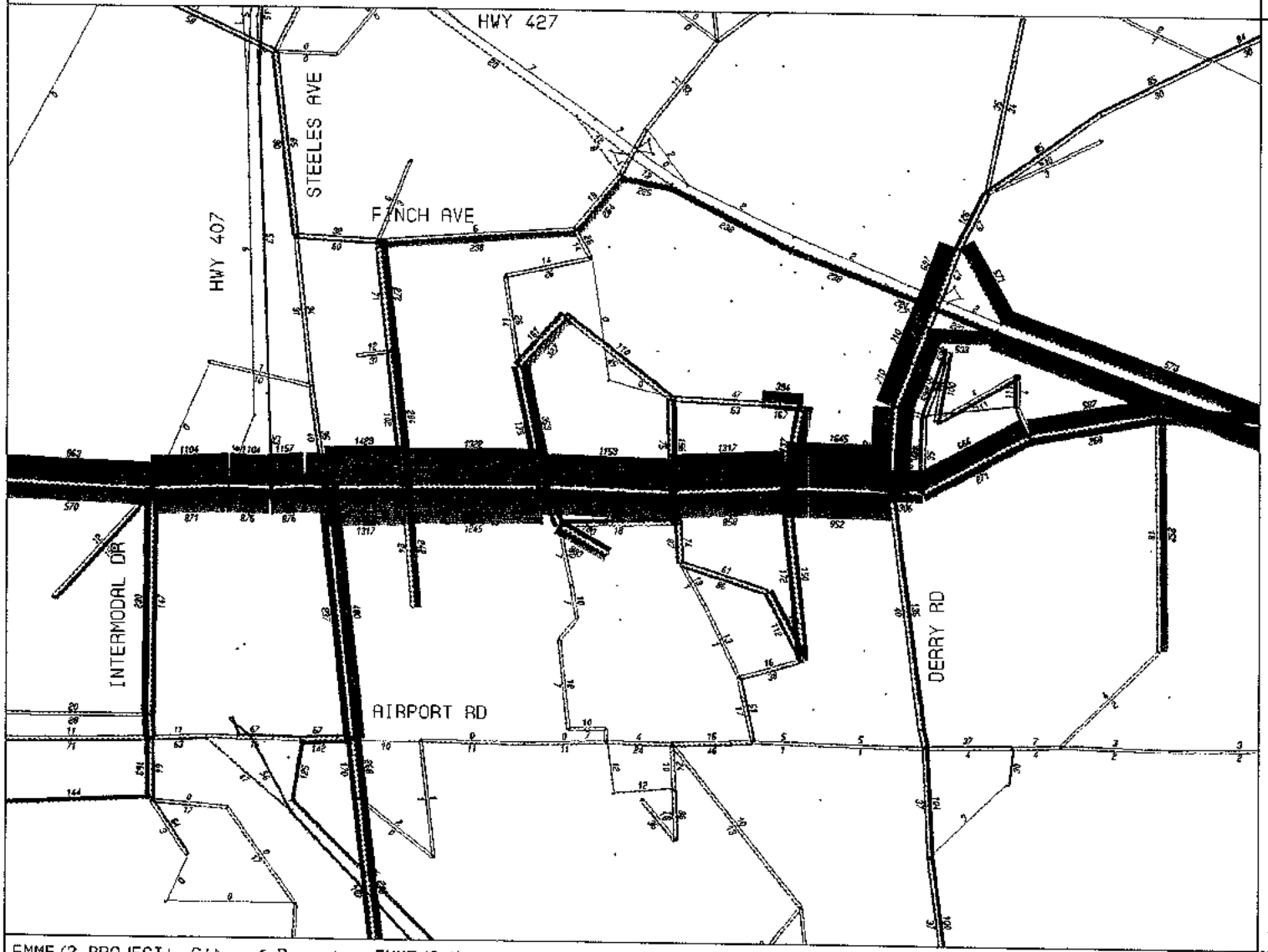
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20226: 2021 S Goreway 2a - Grade Sep.

06-09-25 08:46
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

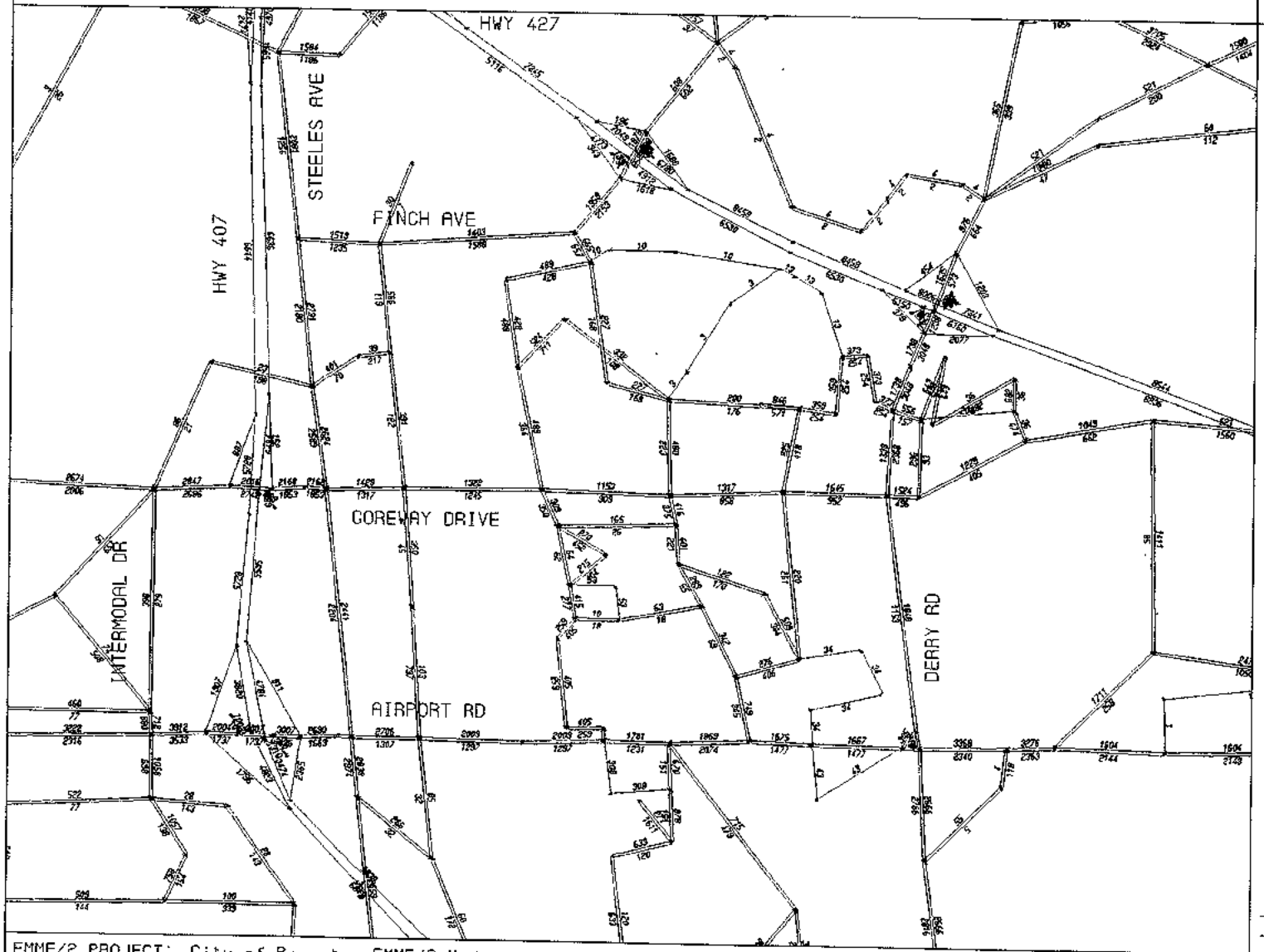
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20226: 2021 S Goreway 2a - Grade Sep.

06-09-25 09:10
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

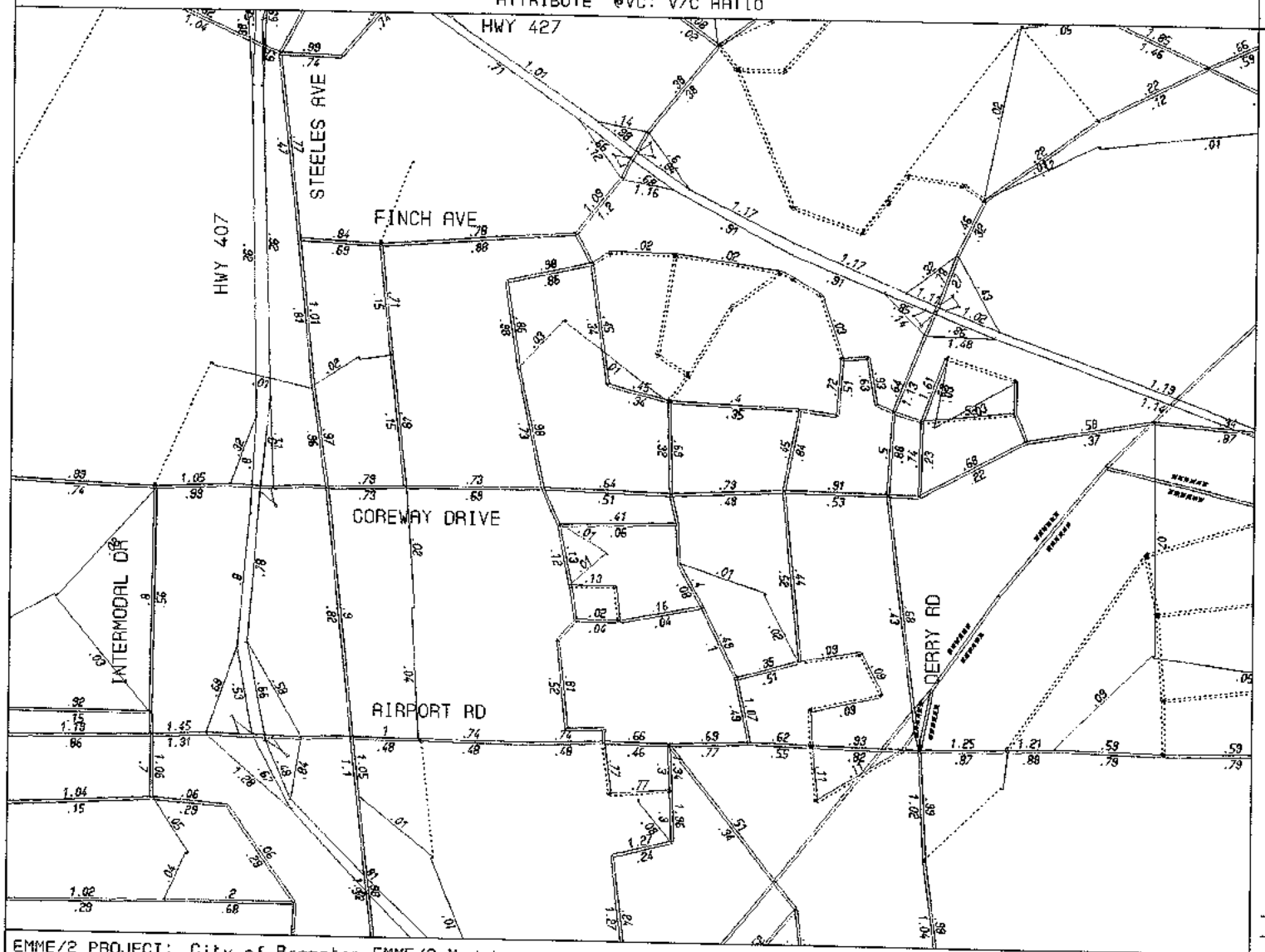
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20226: 2021 S Goreway 2a - Grade Sep.

06-09-25 09:08
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



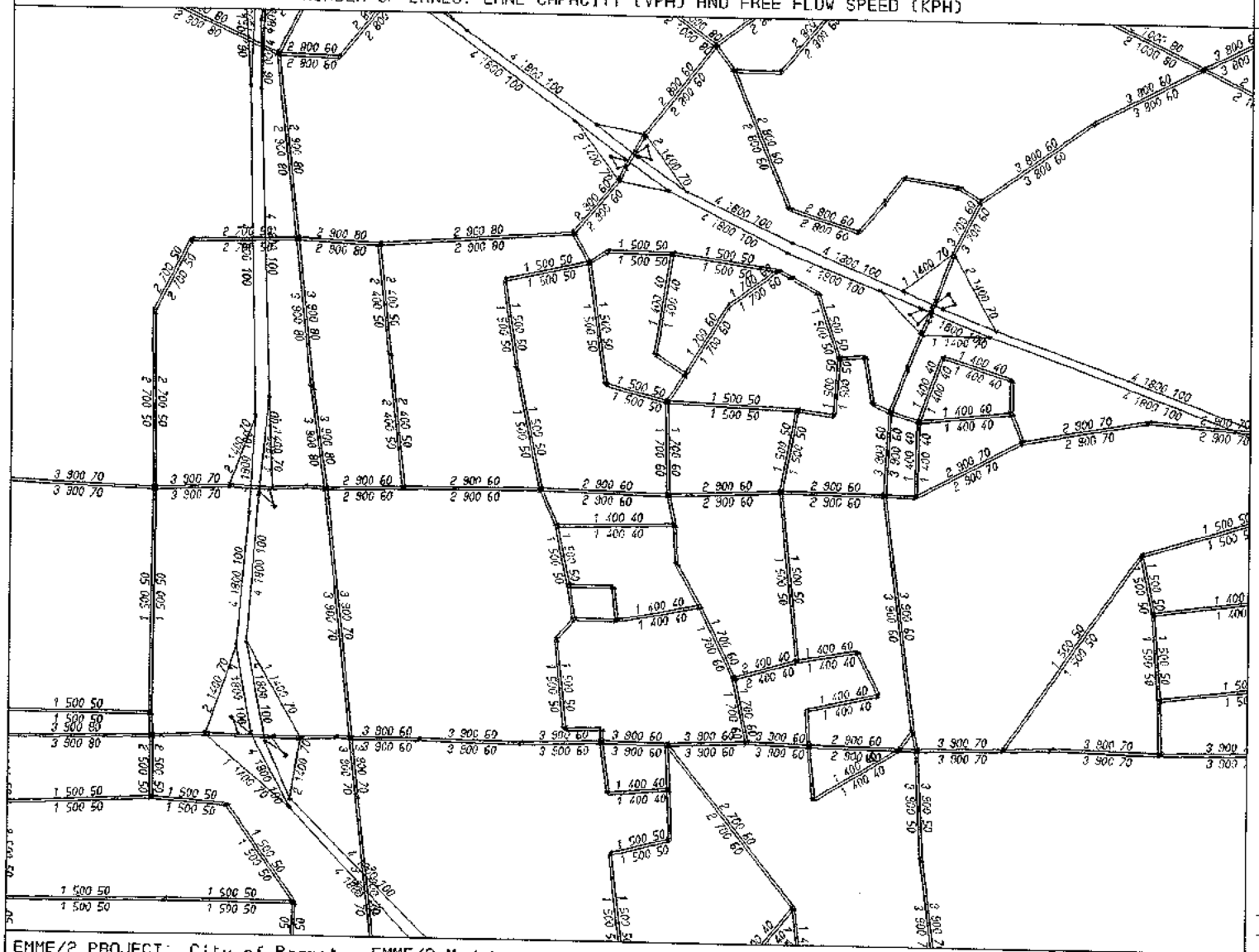
LINKS:
mod=c
!!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20226: 2021 S Goreway 2a - Grade Sep.
ATTRIBUTE @vc: V/C Ratio

06-09-25 09:12
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!cj=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

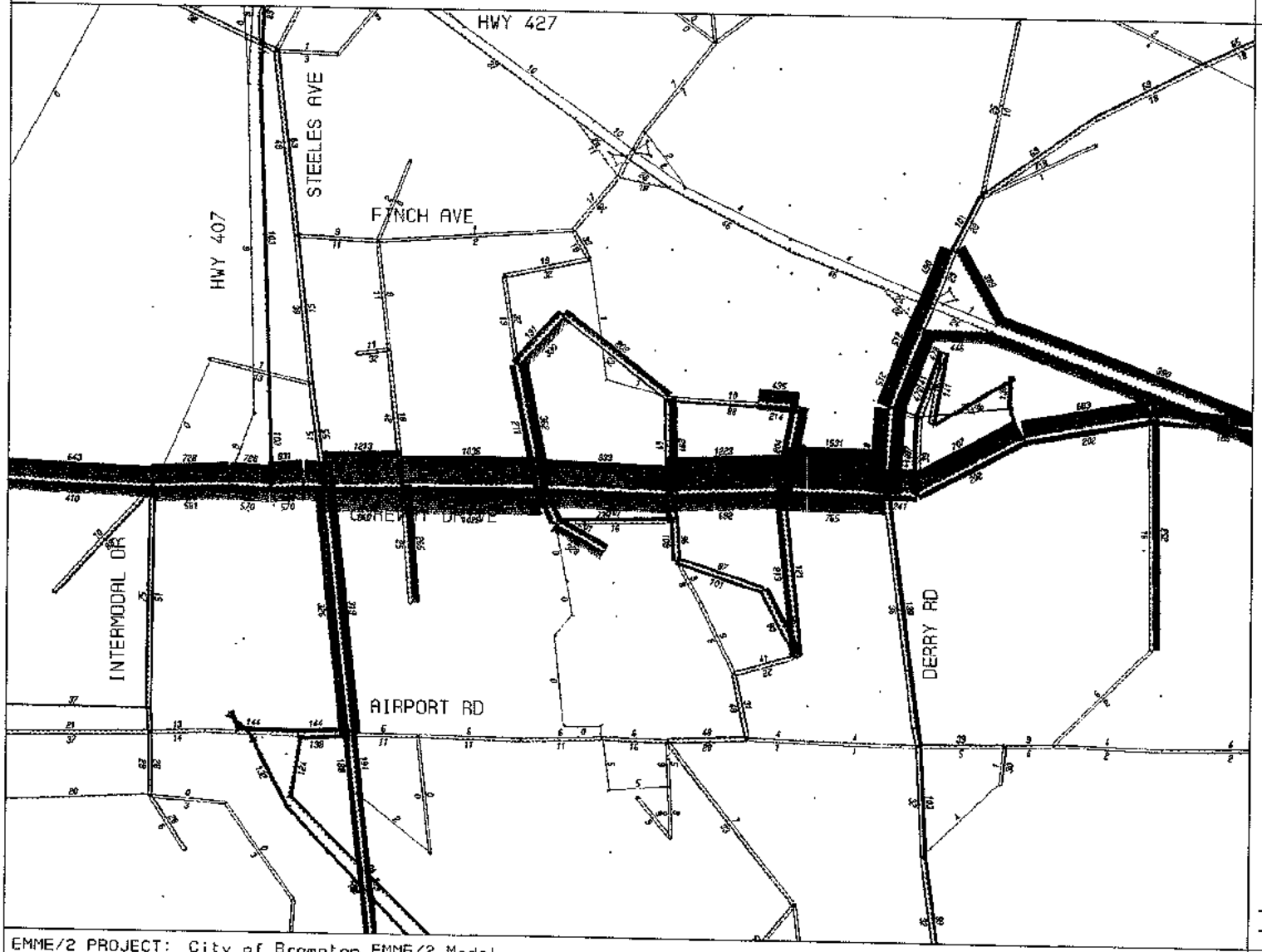
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20128: 2011 S Goreway 2b - Intermodal + grade sep.

06-09-24 12:55
MODULE: 2.13
DMC.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

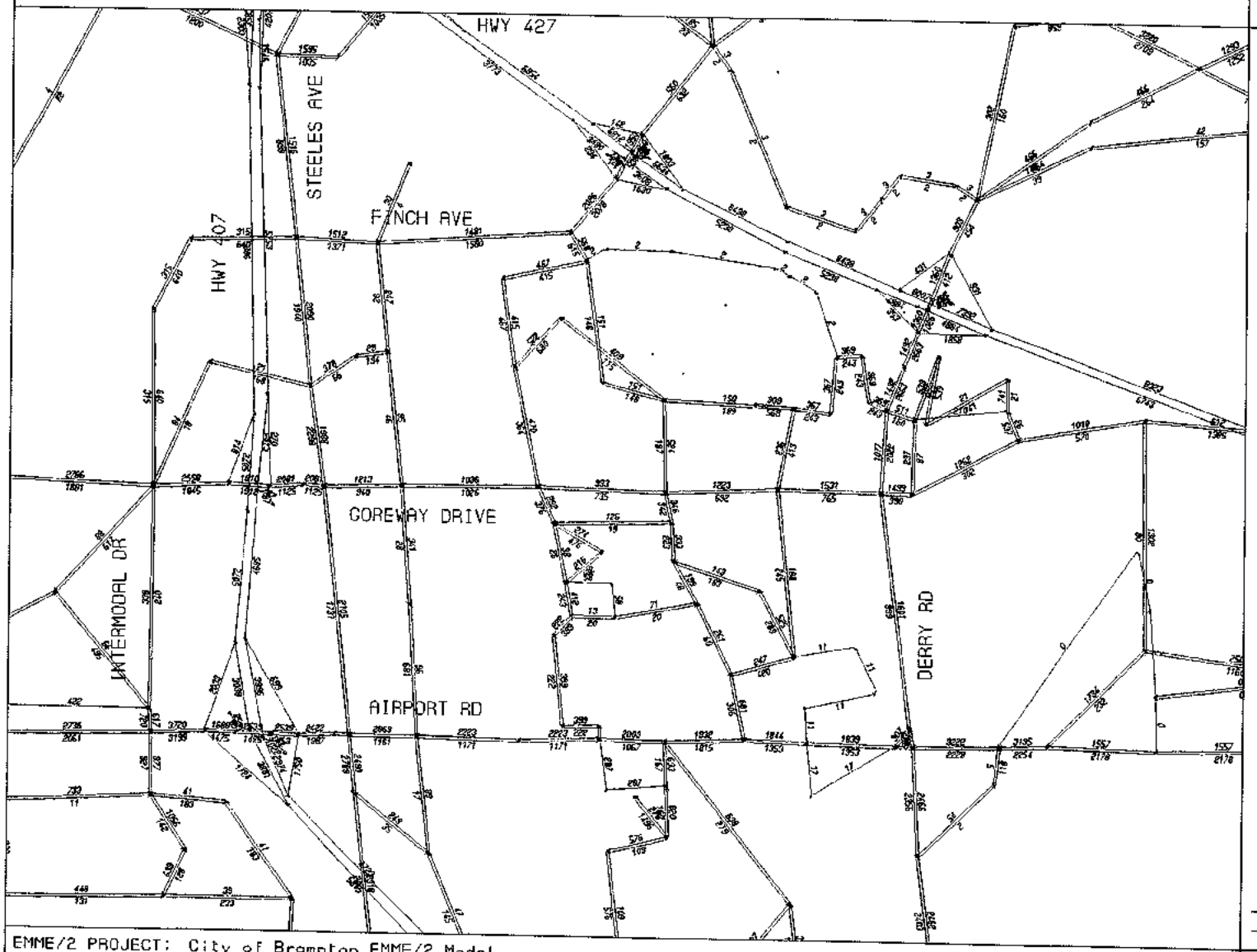
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20128: 2011 S Goreway 2b - Intermodal + grade sep.

06-09-24 12:55
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

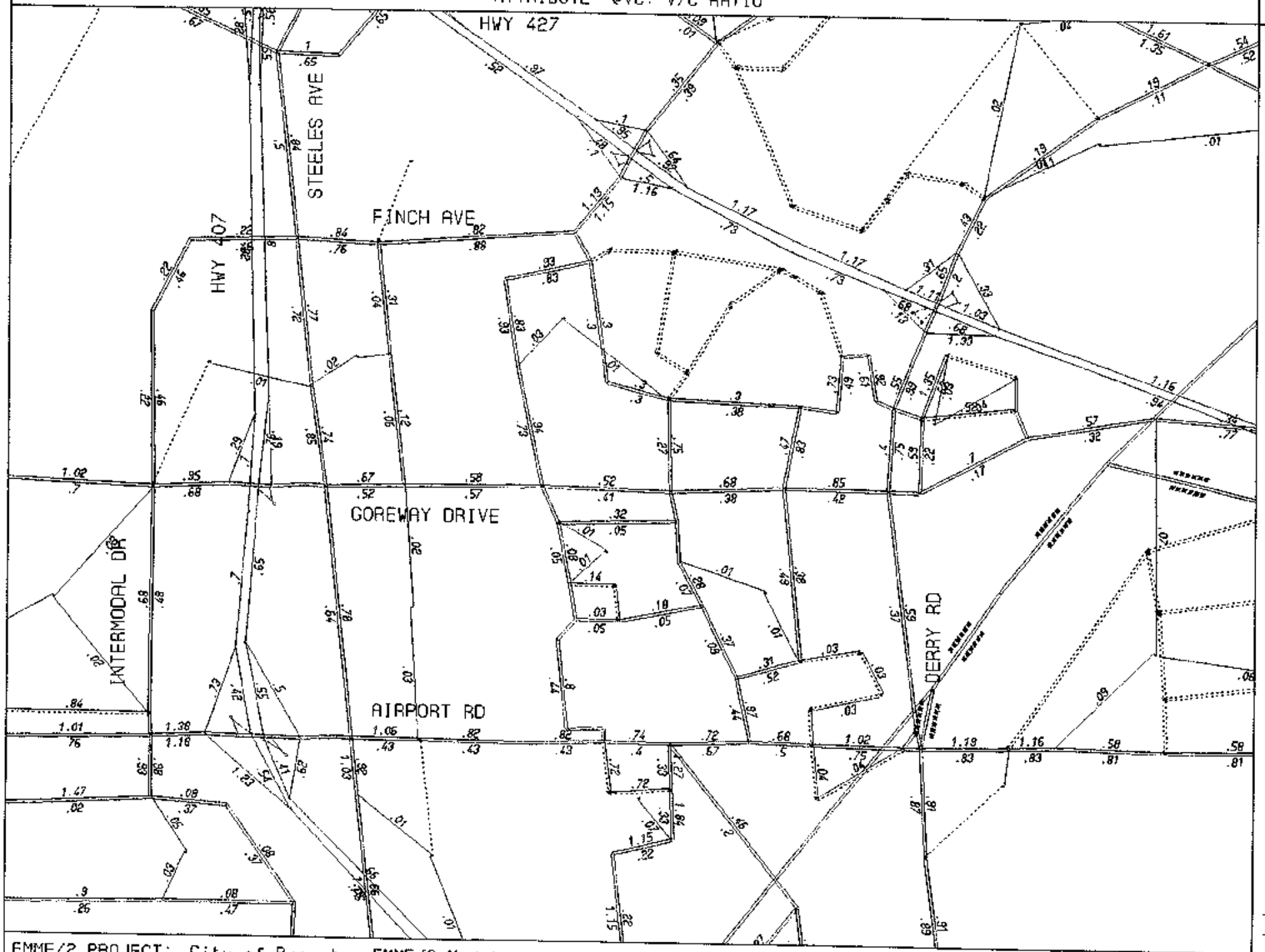
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20128: 2011 S Goreway 2b - Intermodal + grade sep.

06-09-24 12:55
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



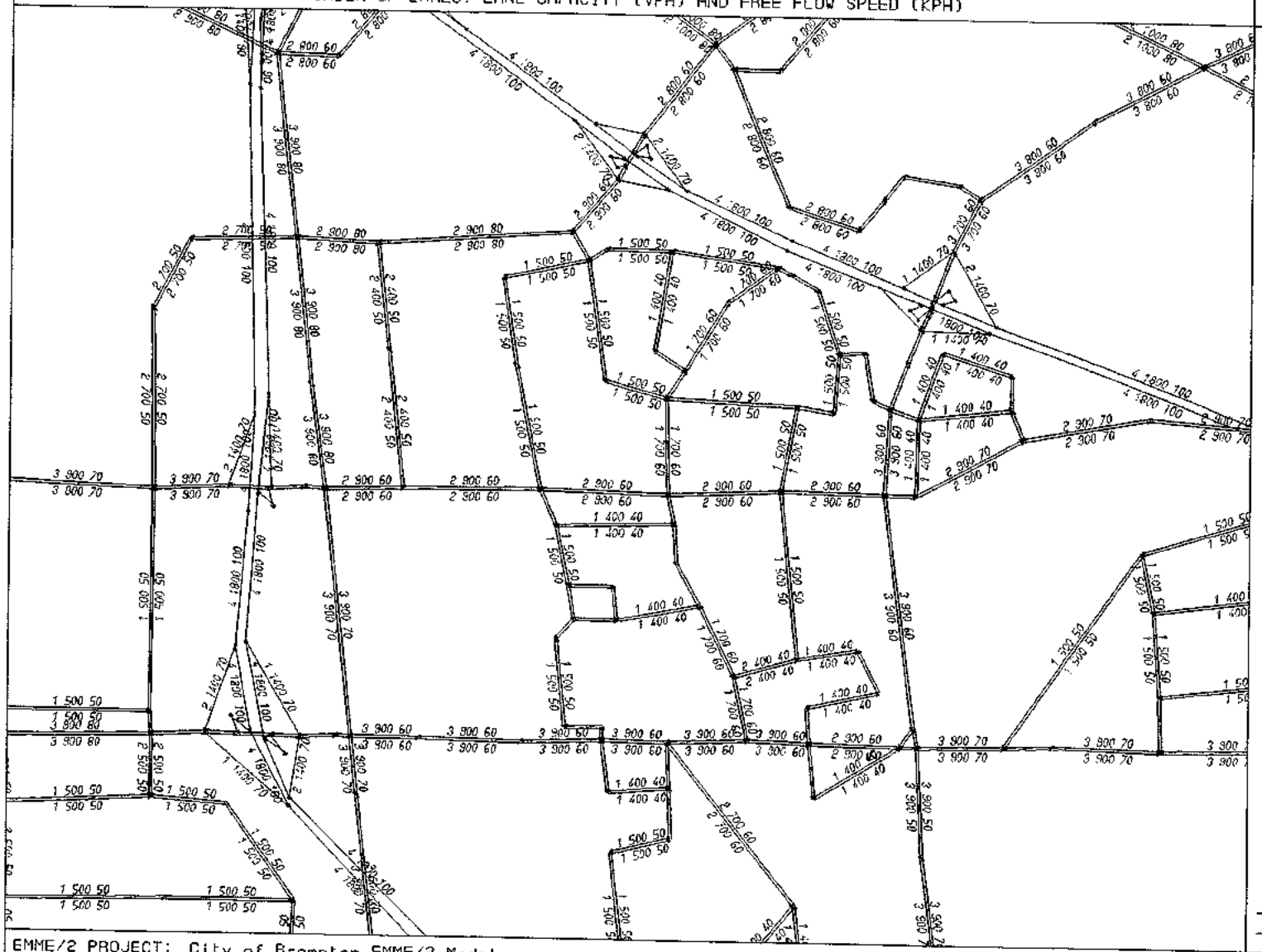
LINKS:
mod=c
!!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brompton EMME/2 Model
SCENARIO 20128: 2011 S Goreway 2b - Intermodal + grade sep.
ATTRIBUTE @vc: V/C Ratio

06-09-24 12:56
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!c i=1
&!c j=1

LAYERS:
Speed
Capacity
Lanes

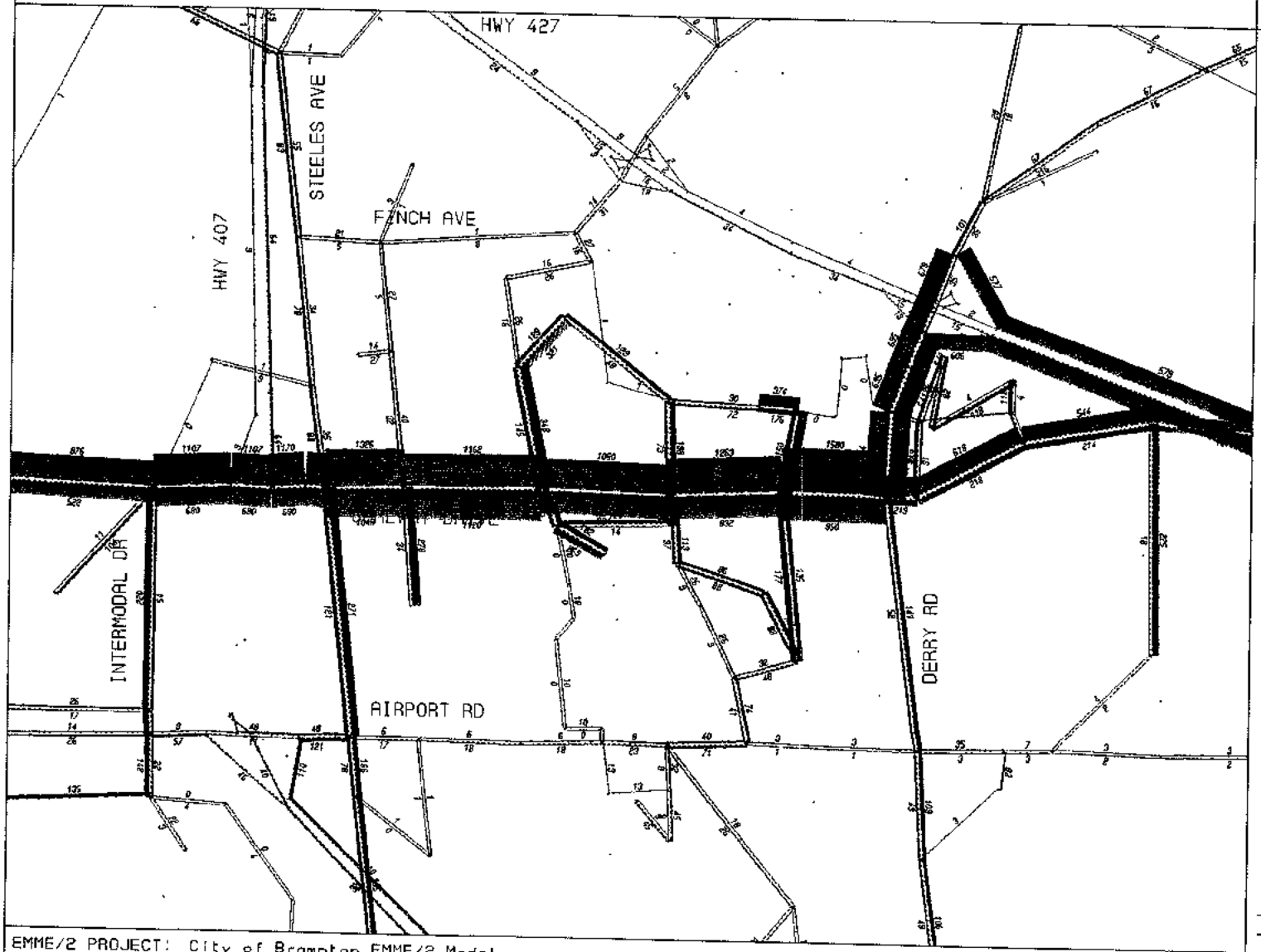
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20227: 2021 S Goreway 2b - Intermodal + Grade Sep.

06-09-24 12:57
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

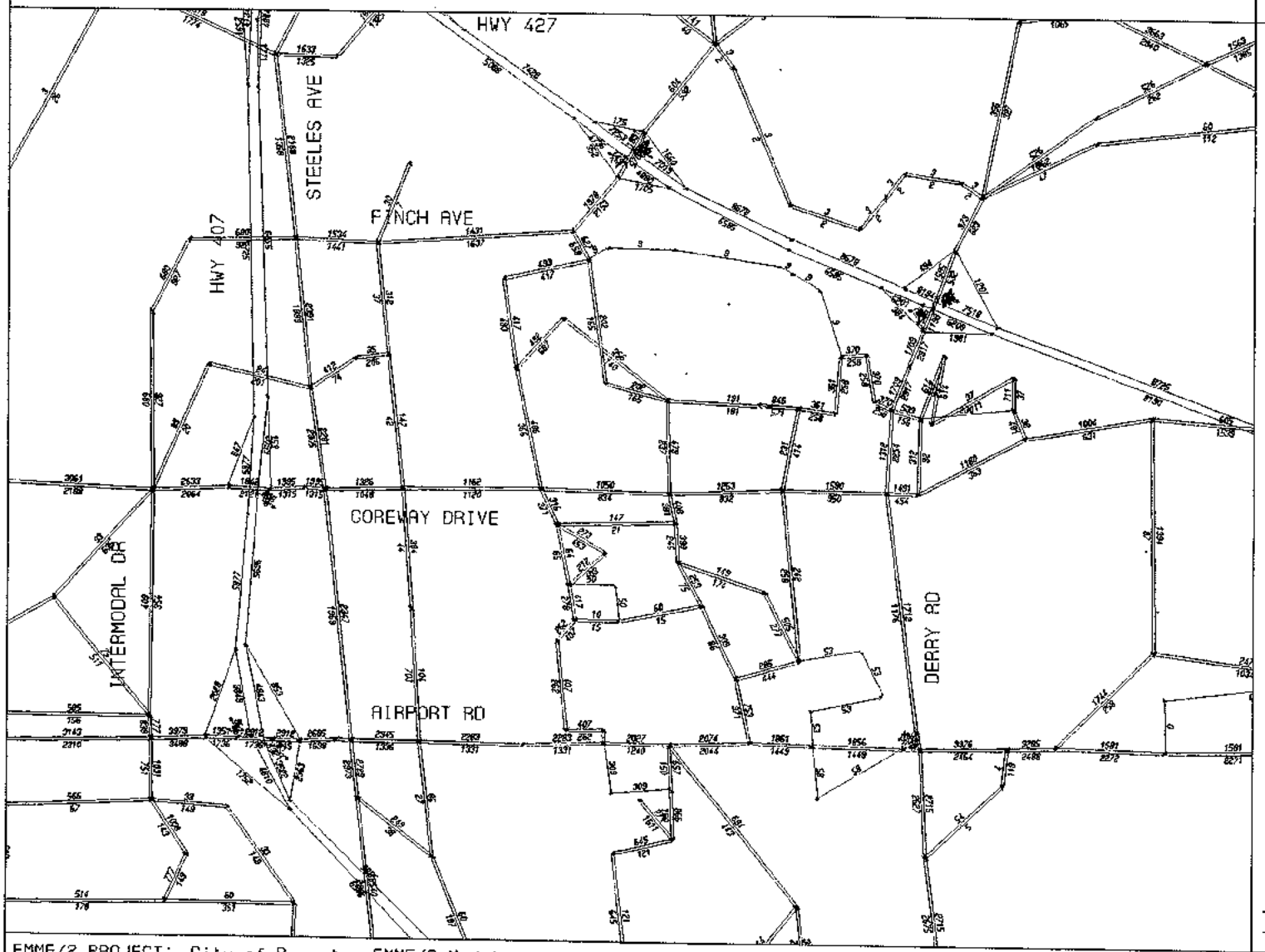
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20227: 2021 S Goreway 2b - Intermodal + Grade Sep.

06-09-24 12:58
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

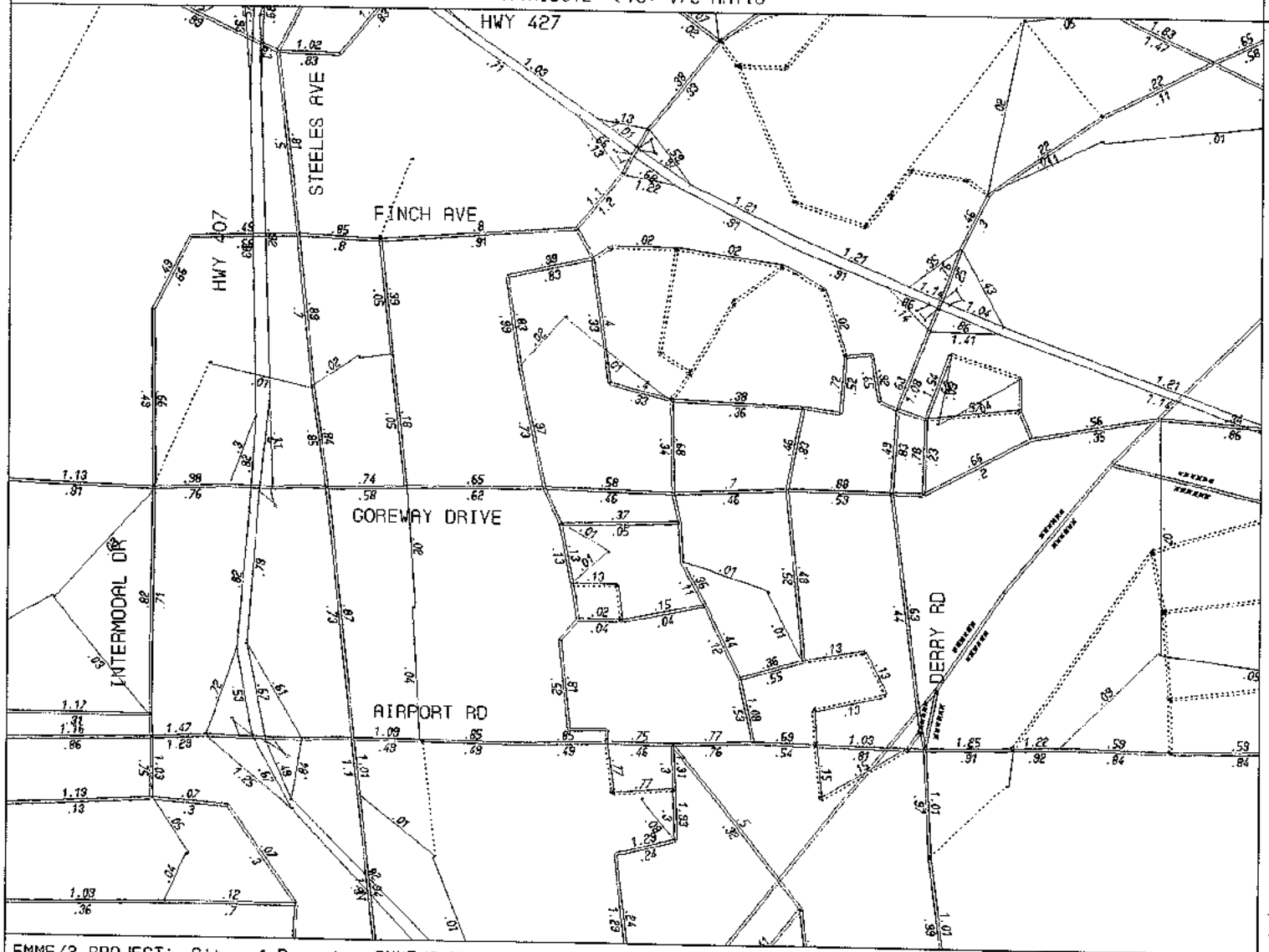
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20227: 2021 S Goreway 2b - Intermodal + Grade Sep.

06-09-24 12:58
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



LINKS:
mod=c
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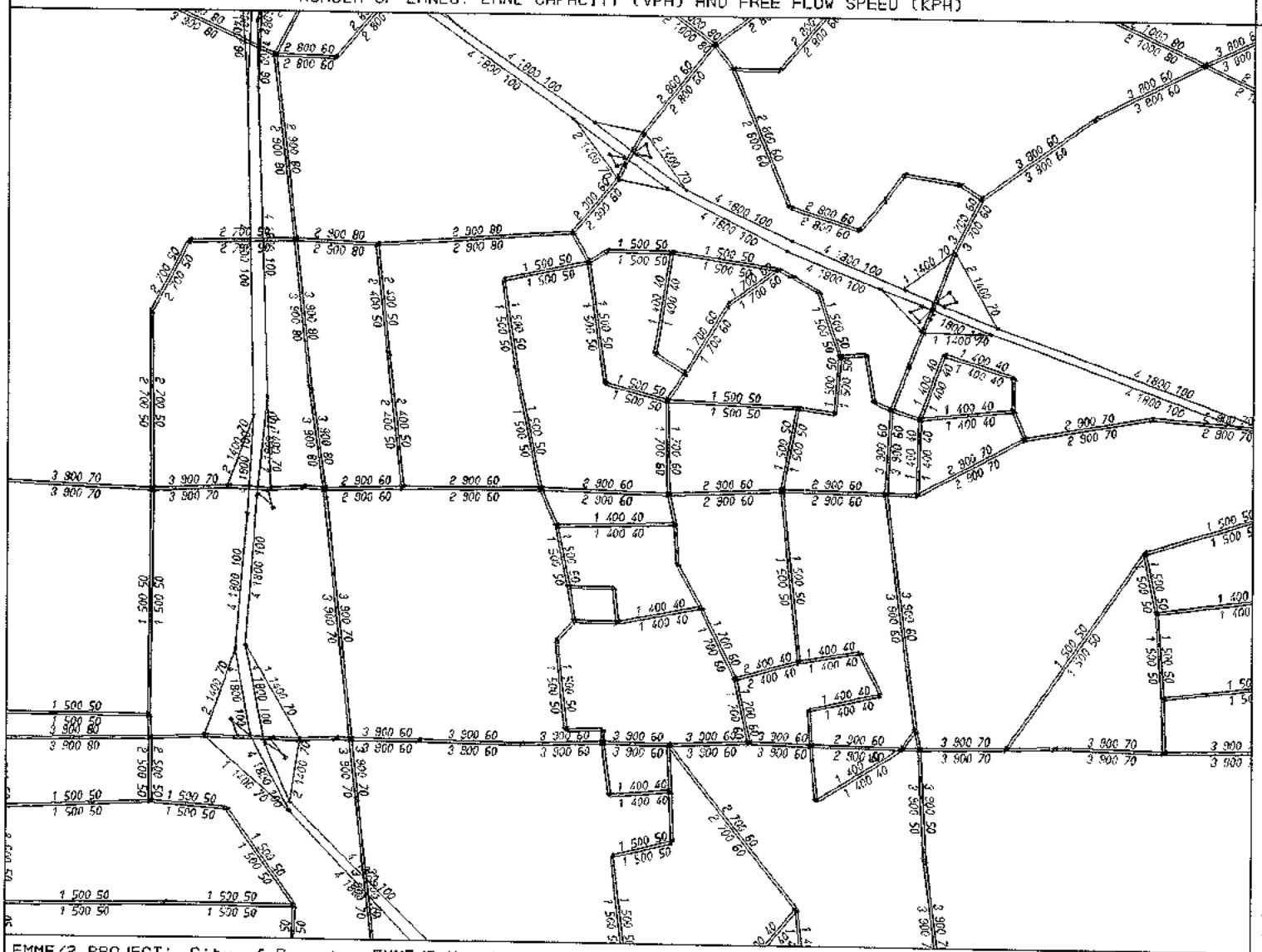
&!c|=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20227: 2021 S Coreway 2b - Intermodal + Grade Sep.
ATTRIBUTE @vc: V/C Ratio

06-09-24 12:59
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!c i=1
&!c j=1

LAYERS:
Speed
Capacity
Lanes

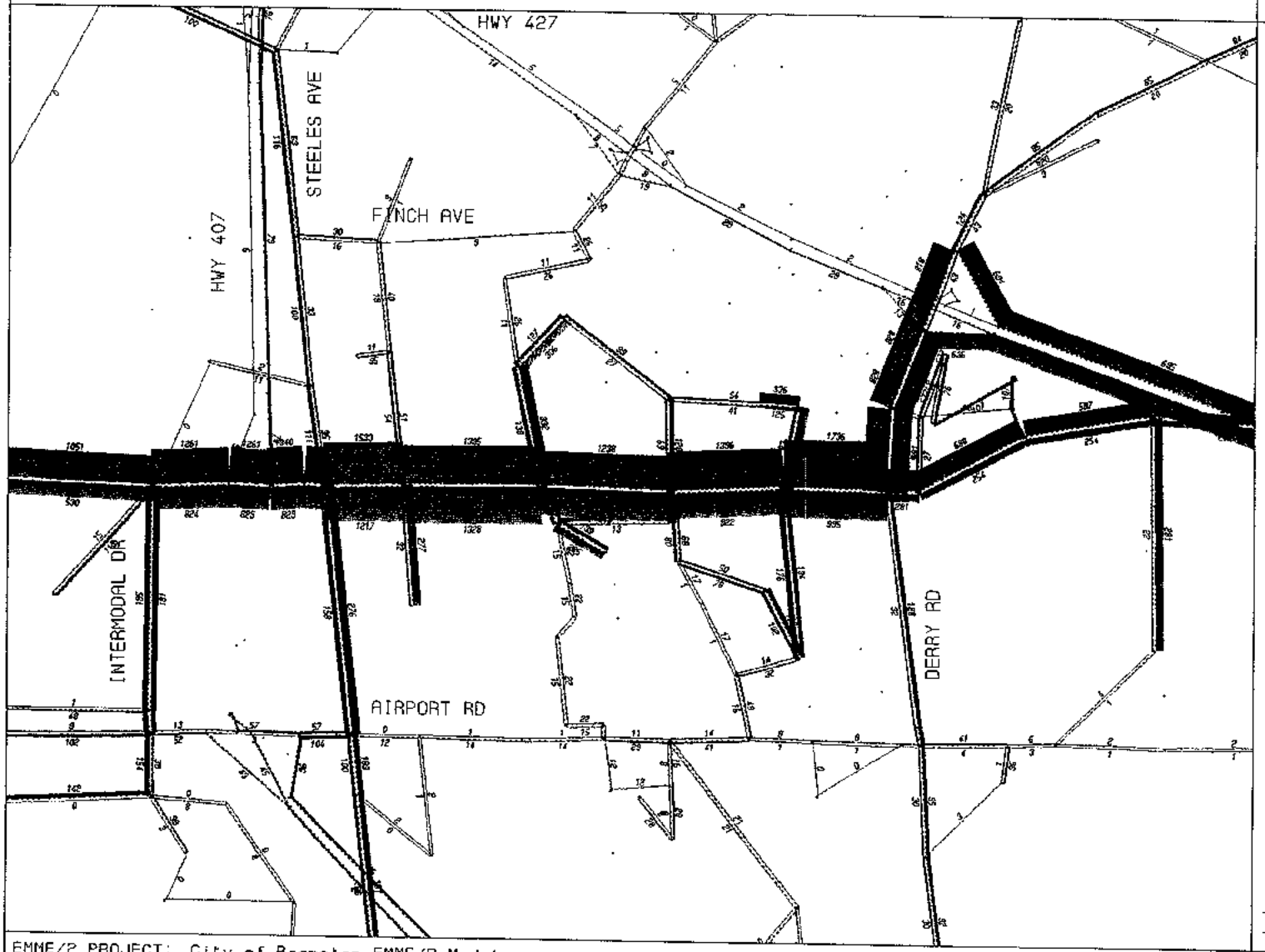
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20328: 2031 S Goreway 2b - Intermodal + Grade Sep.

06-10-13 10:03
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

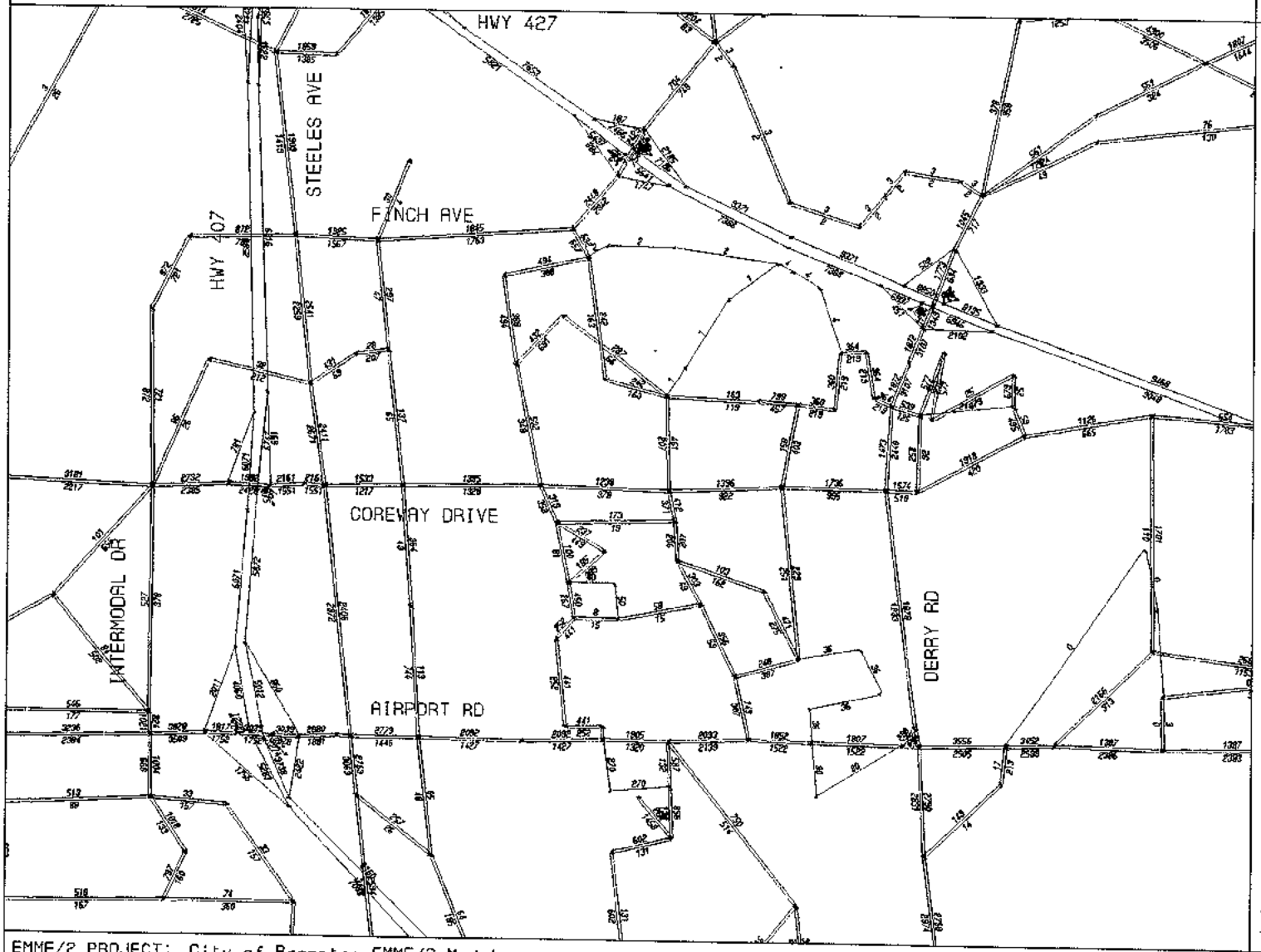
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20328: 2031 S Goreway 2b - Intermodal + Grade Sep.

06-10-13 11:09
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



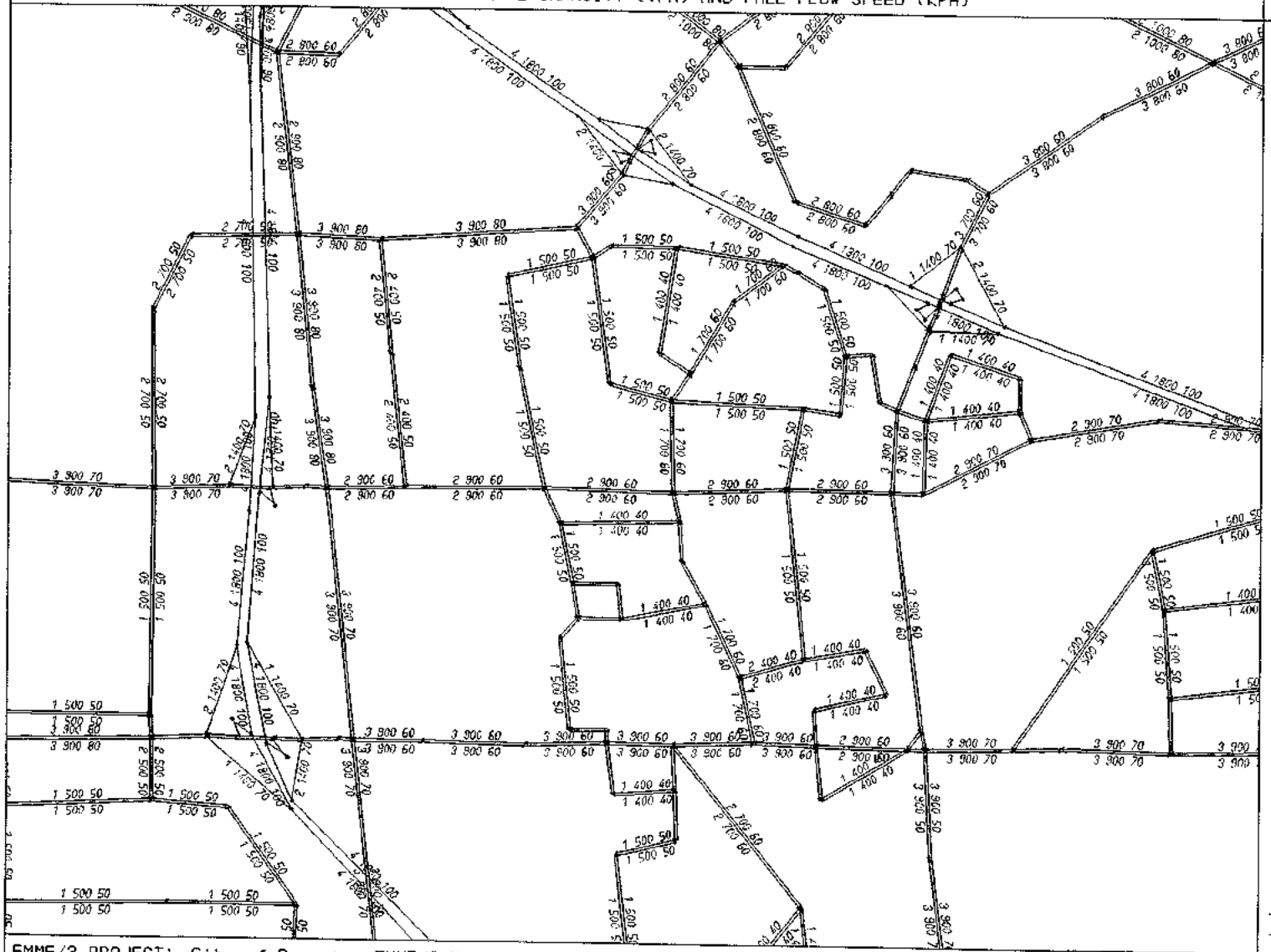
LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20328: 2031 S Goreway 2b - Intermodal + Grade Sep.

06-10-13 11:11
MODULE: 6.12
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

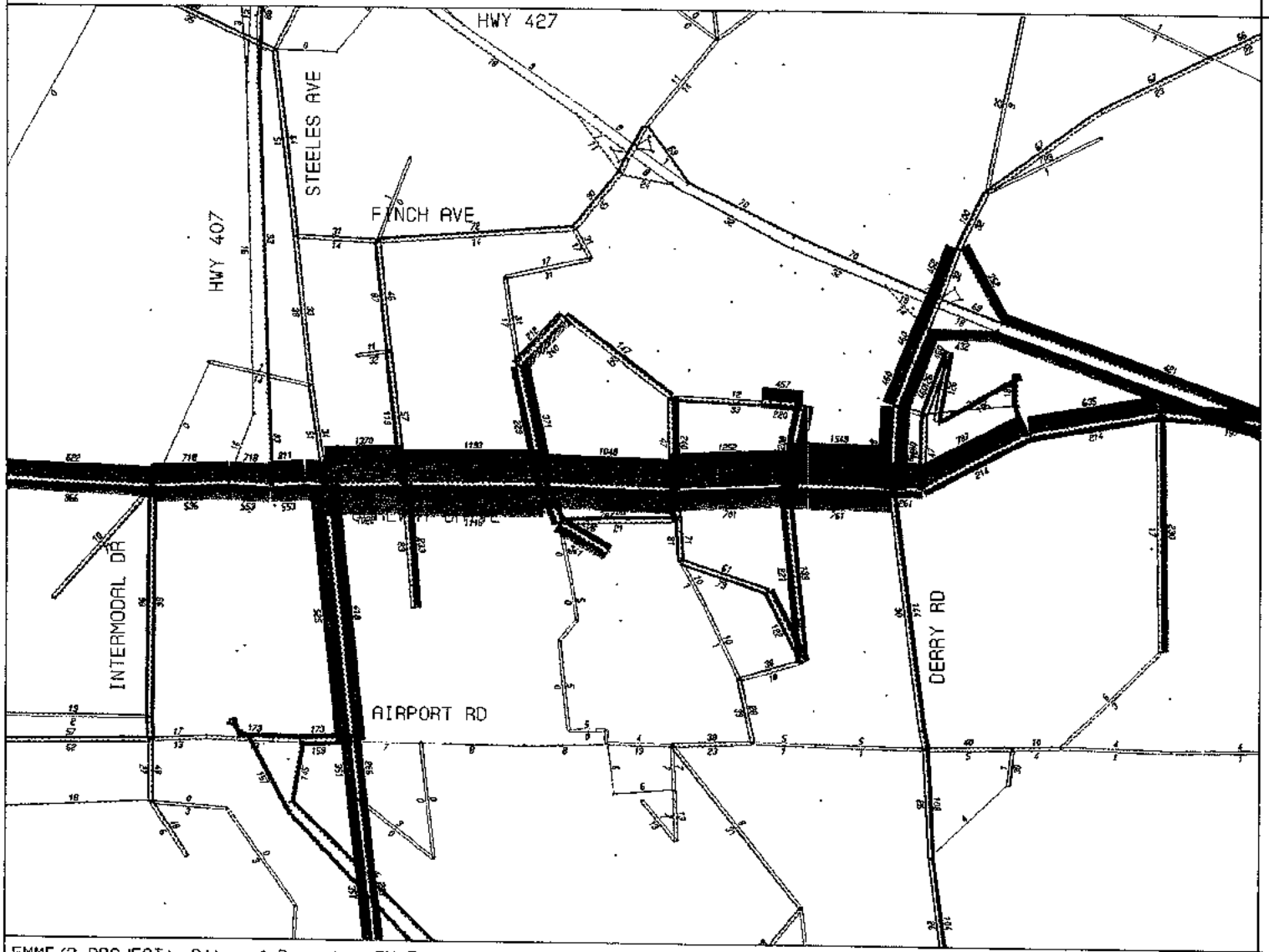
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20129: 2011 S Goreway 3 - Int. + C.S. + Finch 6 Lanes

06-09-24 13:01
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

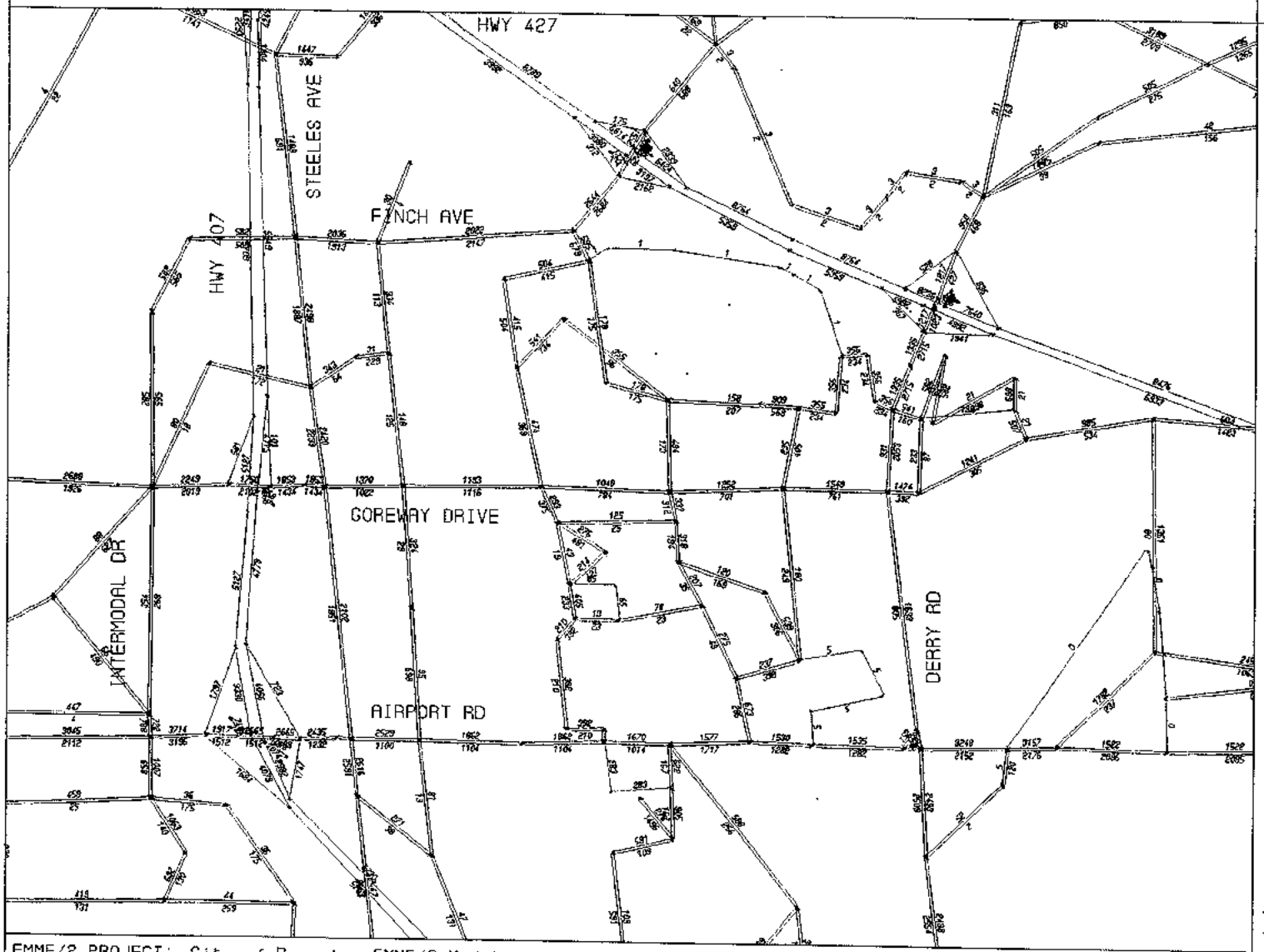
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20129: 2011 S Goreway 3 - Int. + G.S. + Finch 6 lanes

06-09-24 13:02
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

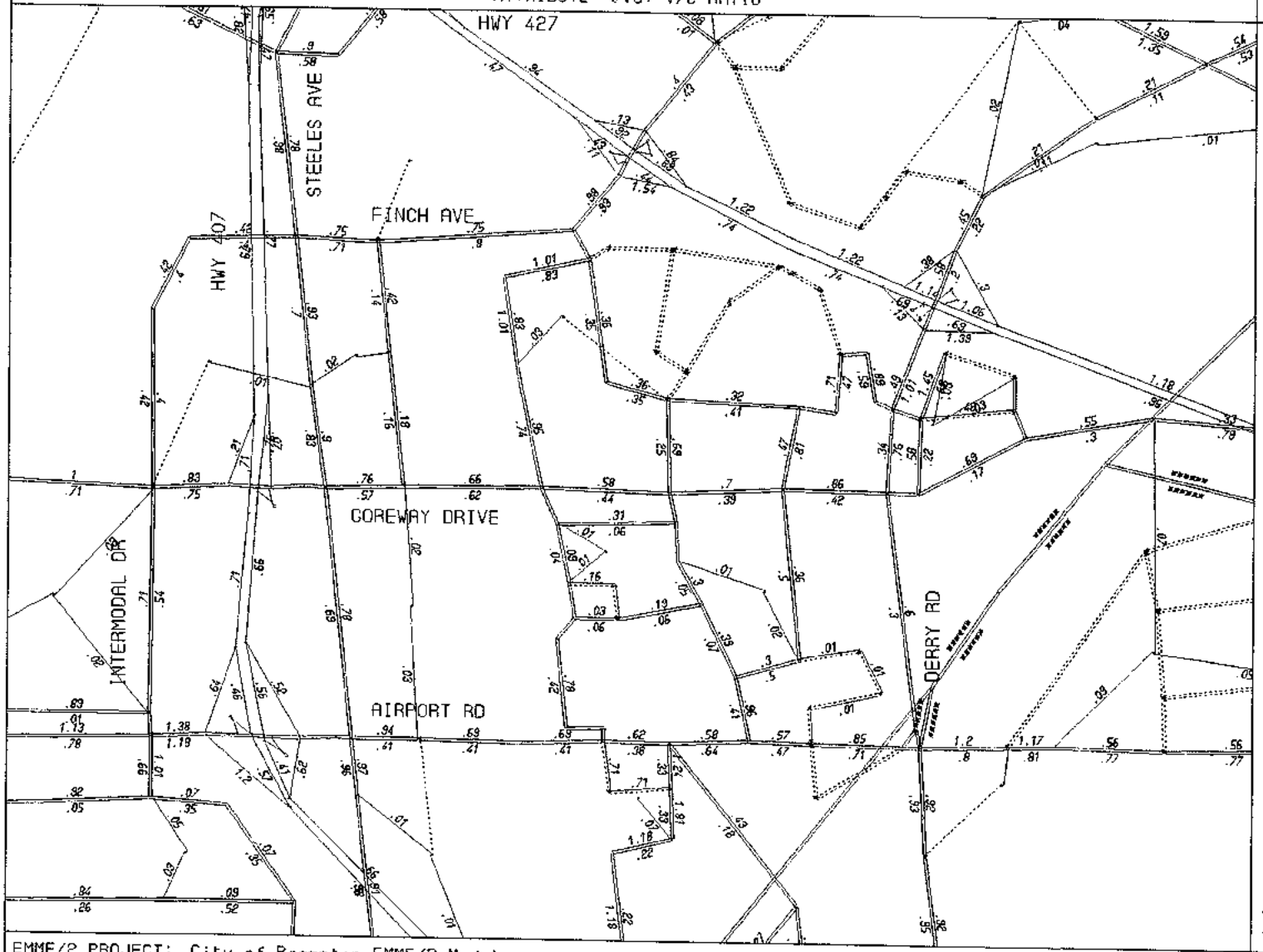
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20129: 2011 S Goreway 3 - Int. + G.S. + Finch 6 lanes

06-09-24 13:01
MODULE: 5.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



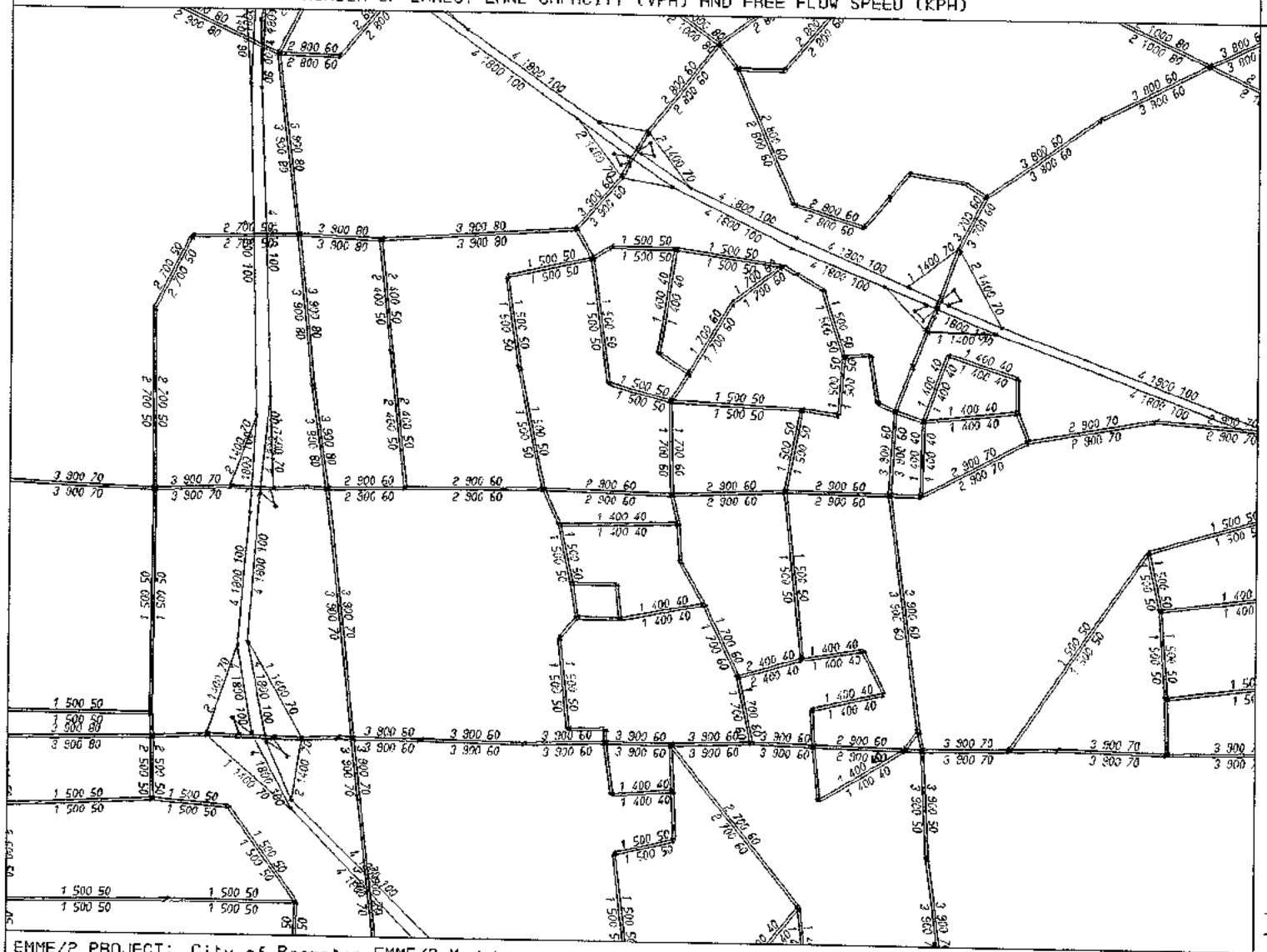
LINKS:
mod=c
!!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20129: 2011 S Coreway 3 - Int. + G.S. + Finch 6 Lanes
ATTRIBUTE @vc: V/C Ratio

06-09-24 13:04
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!cj=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

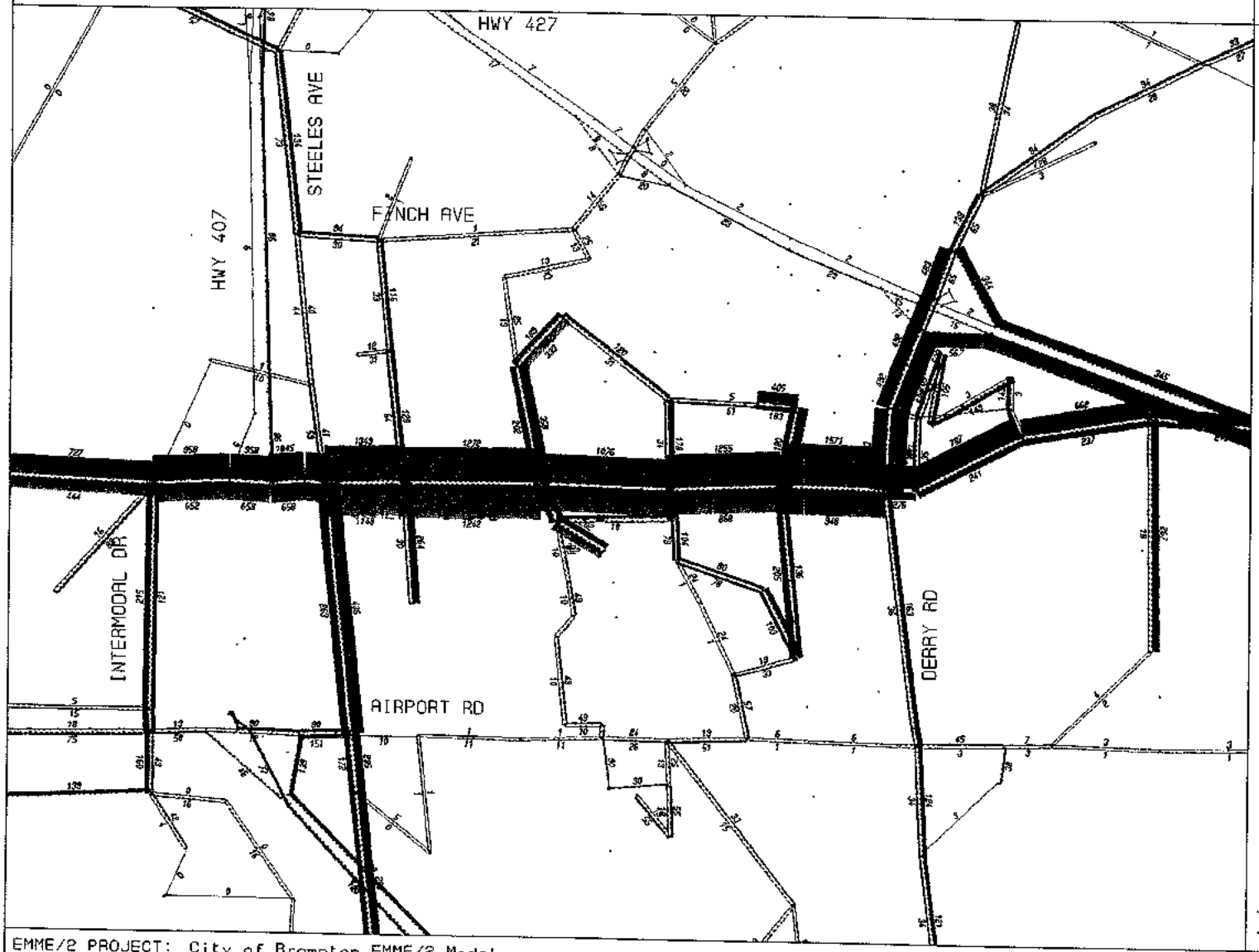
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20228: 2021 S Goreway 3 - Int + GS + Finch 6 lanes

06-09-24 13:06
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

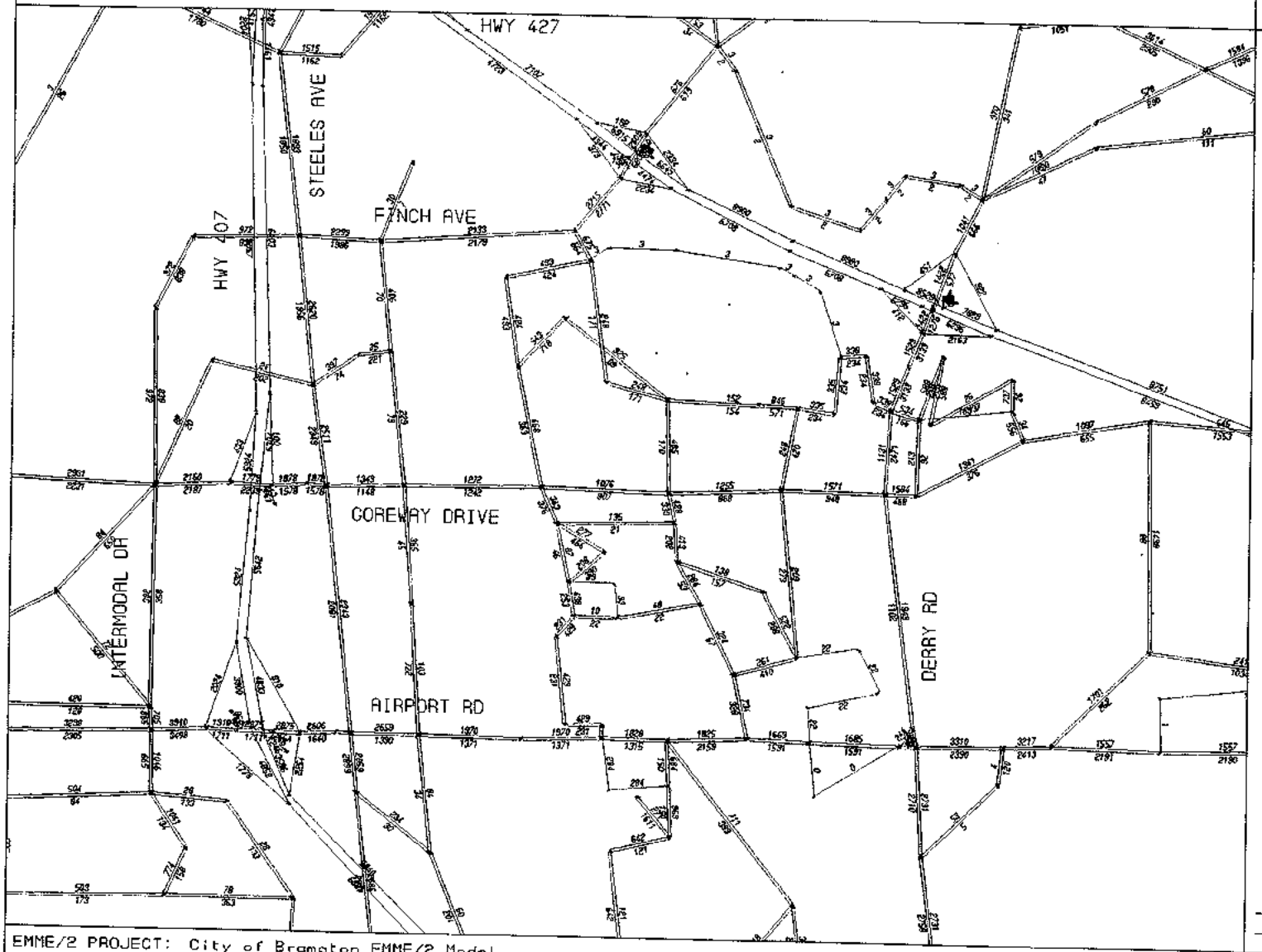
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20228: 2021 S Goreway 3 - Int + GS + Finch 6 lanes

06-09-24 13:08
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

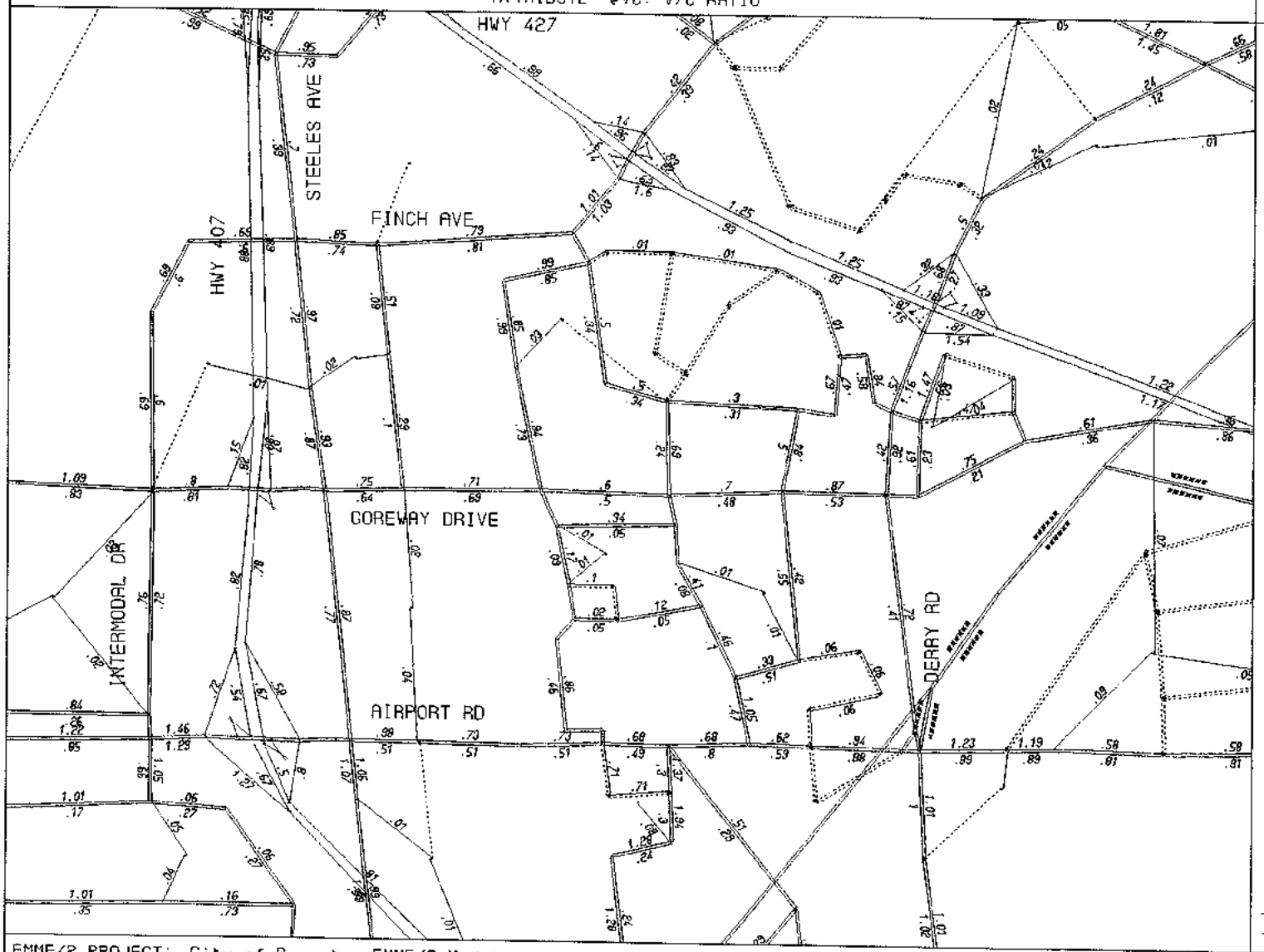
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20228: 2021 S Goreway 3 - Int + GS + Finch 6 lanes

06-09-24 13:07
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



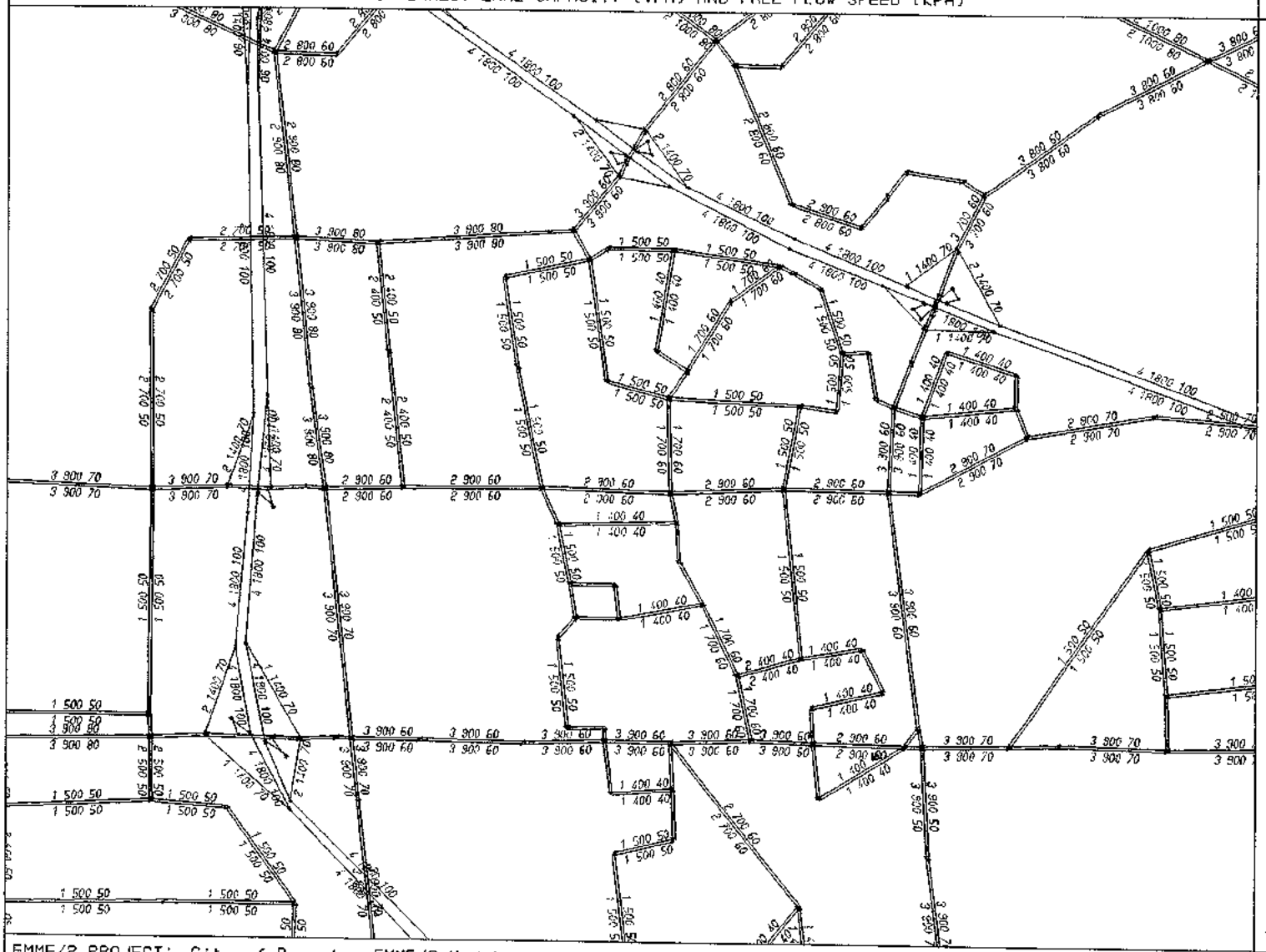
LINKS:
mod=c
i!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20228: 2021 S Coreway 3 - Int + GS + Finch 6 lanes
ATTRIBUTE @vc: V/C Ratio

06-09-24 13:08
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

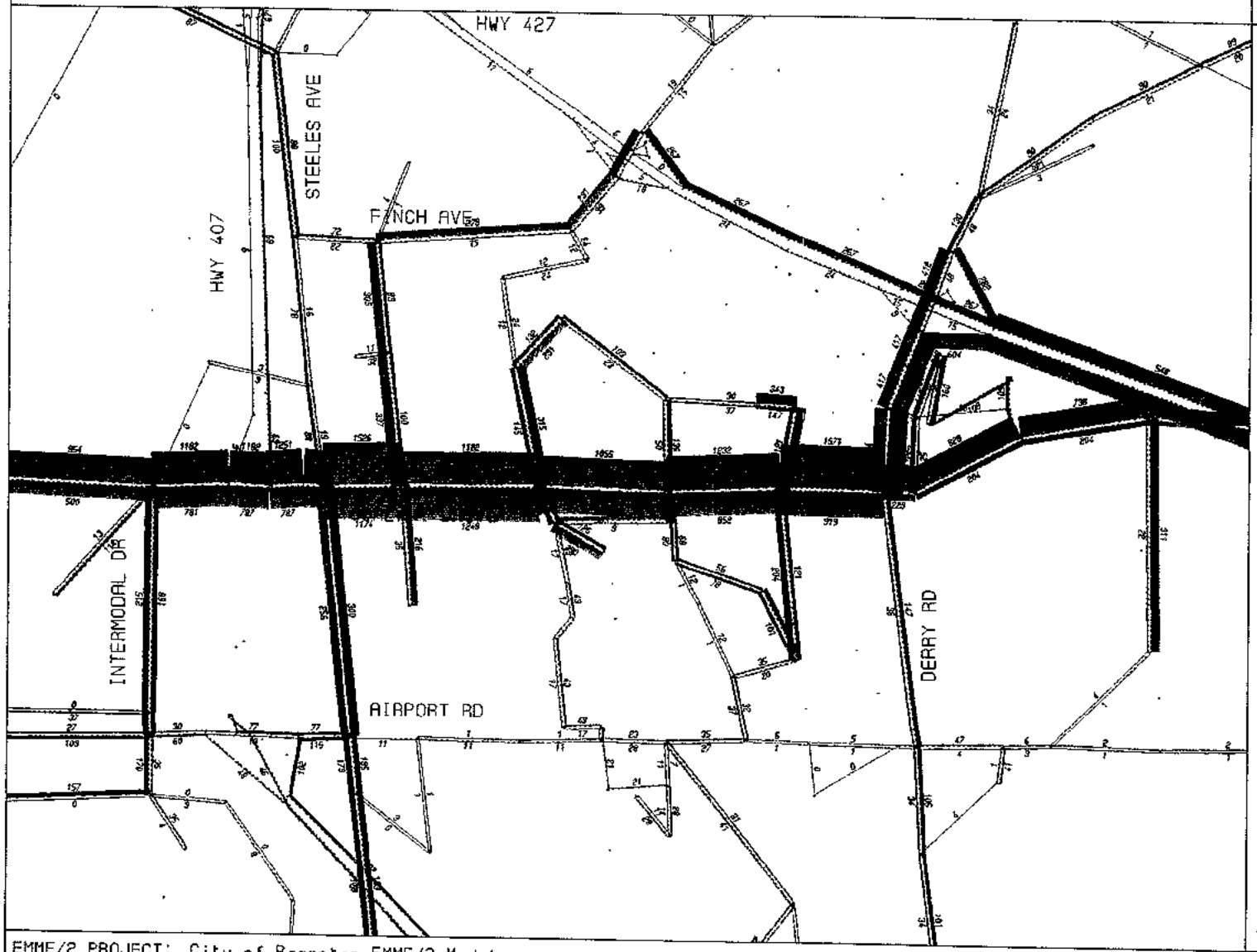
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20325: 2031 S Goreway 3 - Int + CS +Finch 6 lanes

06-09-24 13:12
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

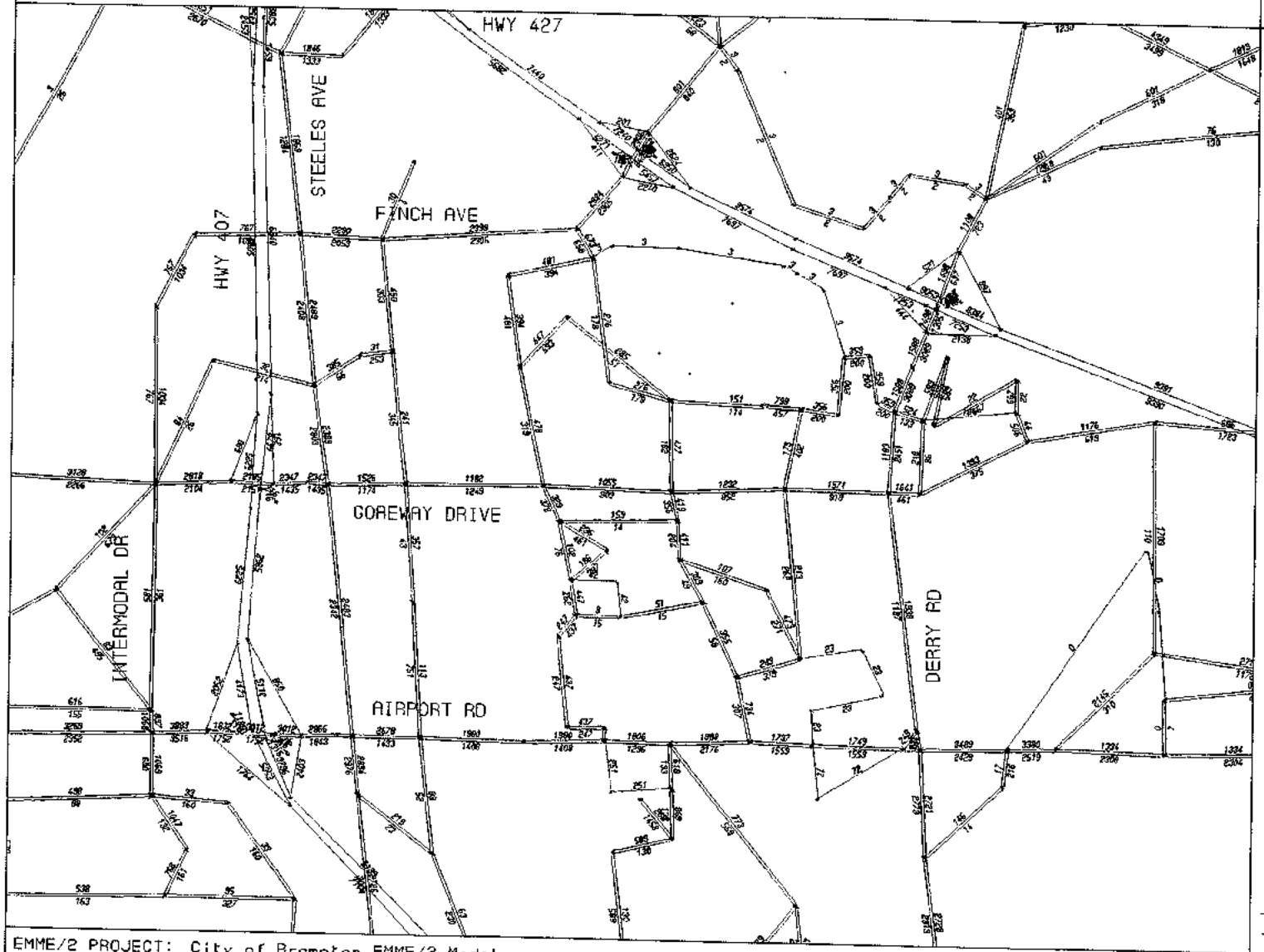
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20325: 2031 5 Goreway 3 - Int + GS +Finch 6 lanes

06-09-24 13:36
MODULE: 6.12
OMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

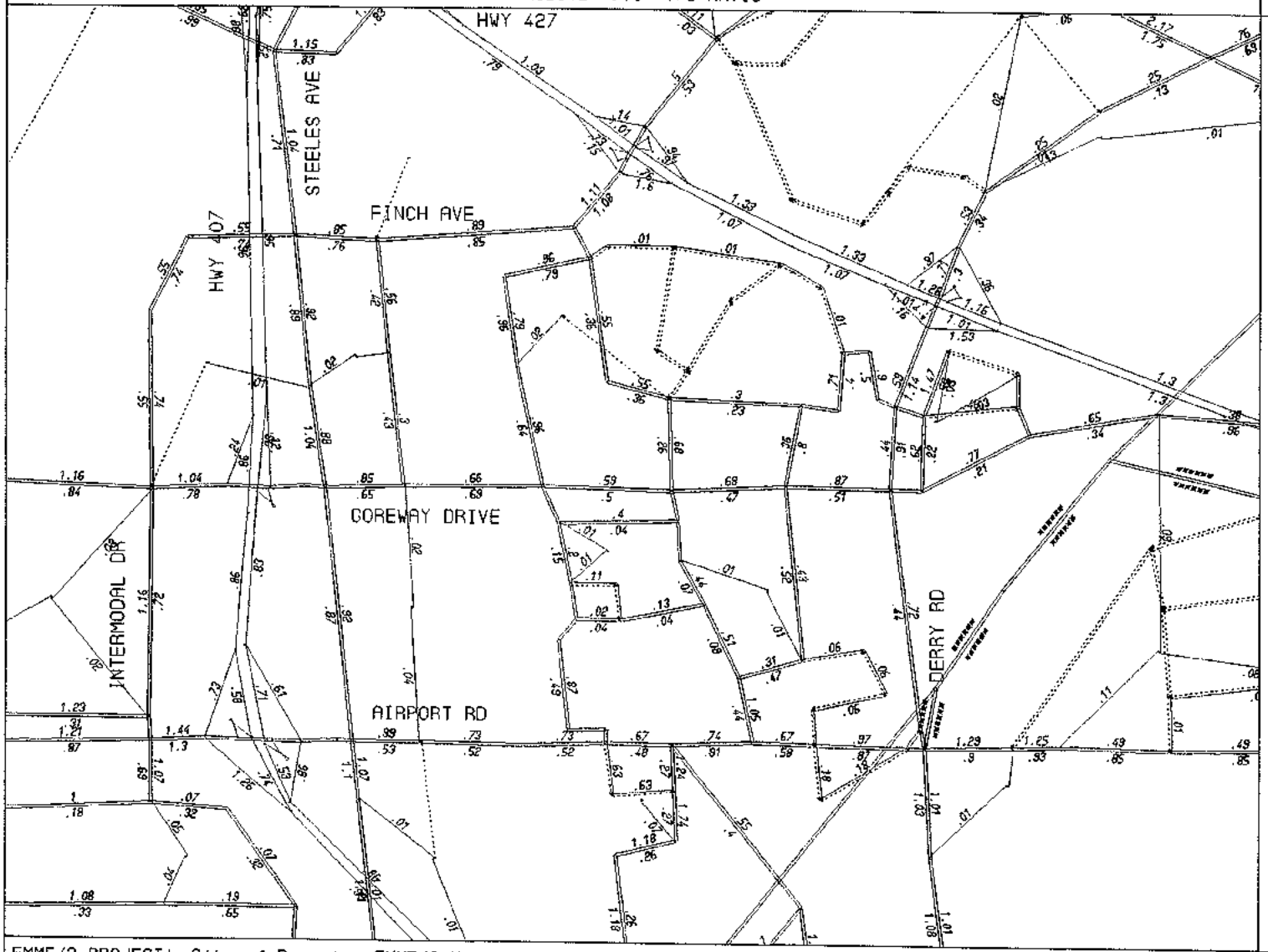
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20325: 2031 S Goreway 3 - Int + GS +Finch 6 lanes

06-09-24 13:35
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



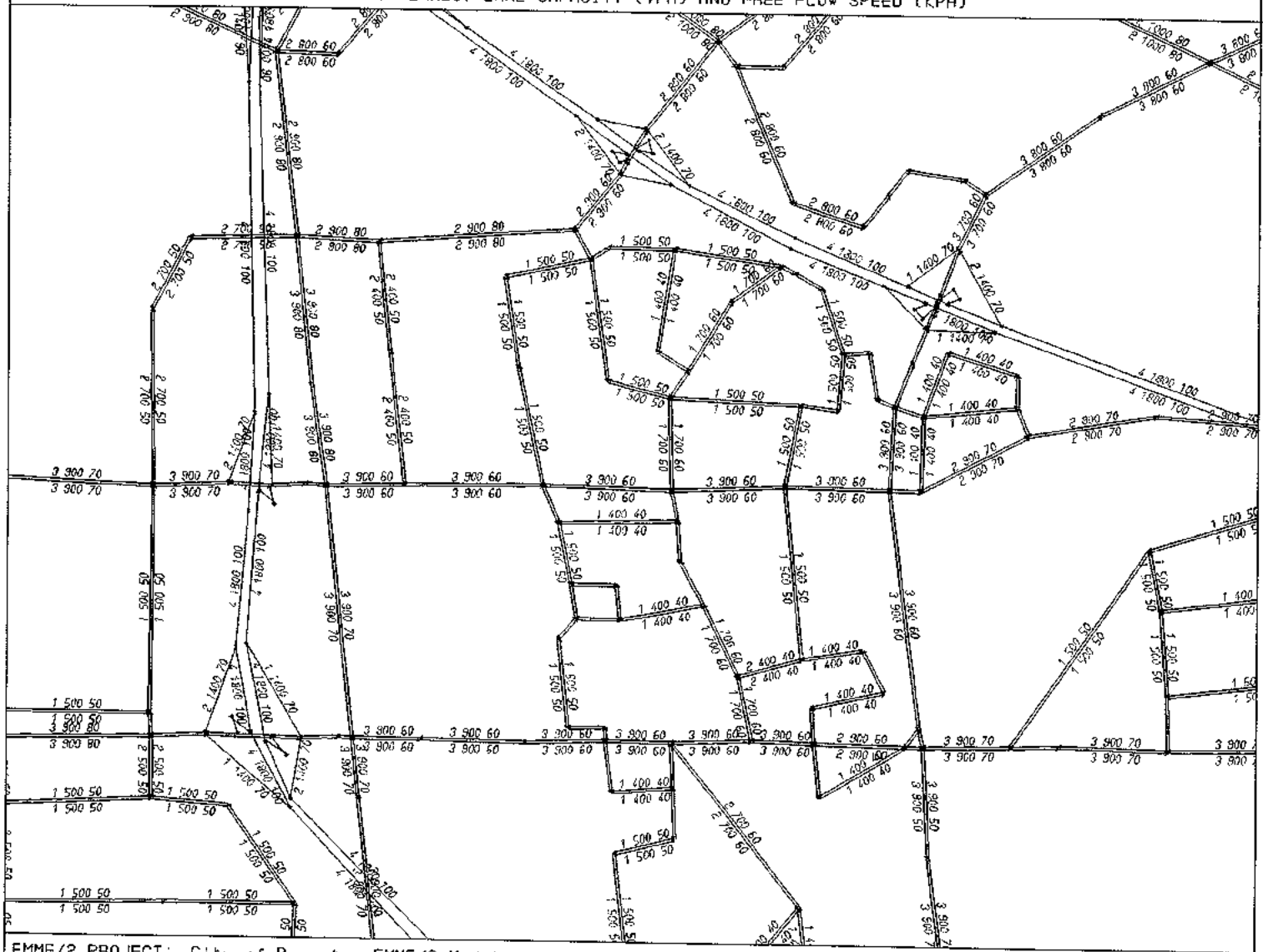
LINKS:
mod=c
!!c|=1
&!c|=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20325: 2031 S Coreway 3 - Int + GS +Finch 6 lanes
ATTRIBUTE @vc: V/C Ratio

06-09-24 13:36
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

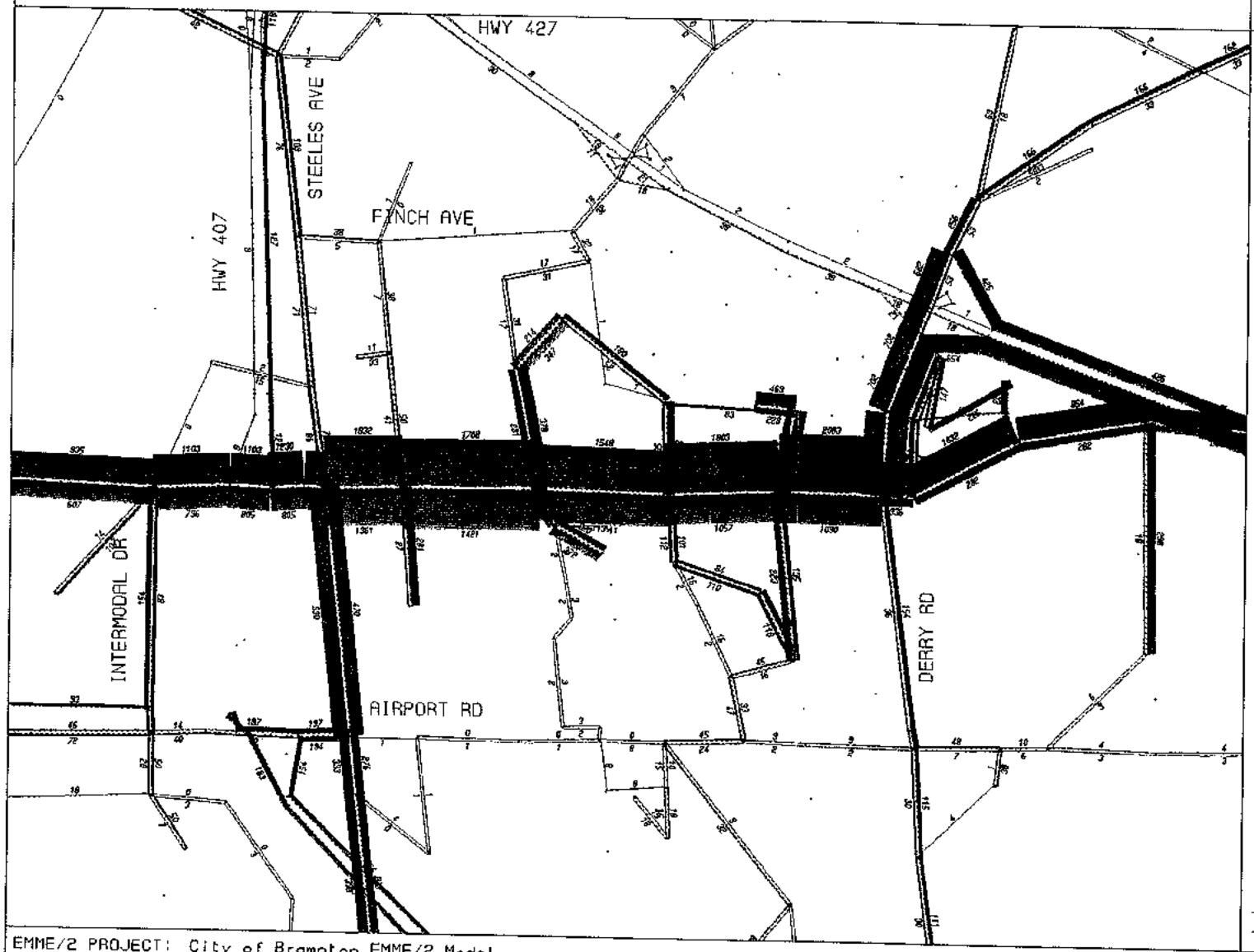
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20130: 2011 S Coreway 4 - Int + GS + 6 lanes

06-09-25 10:59
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

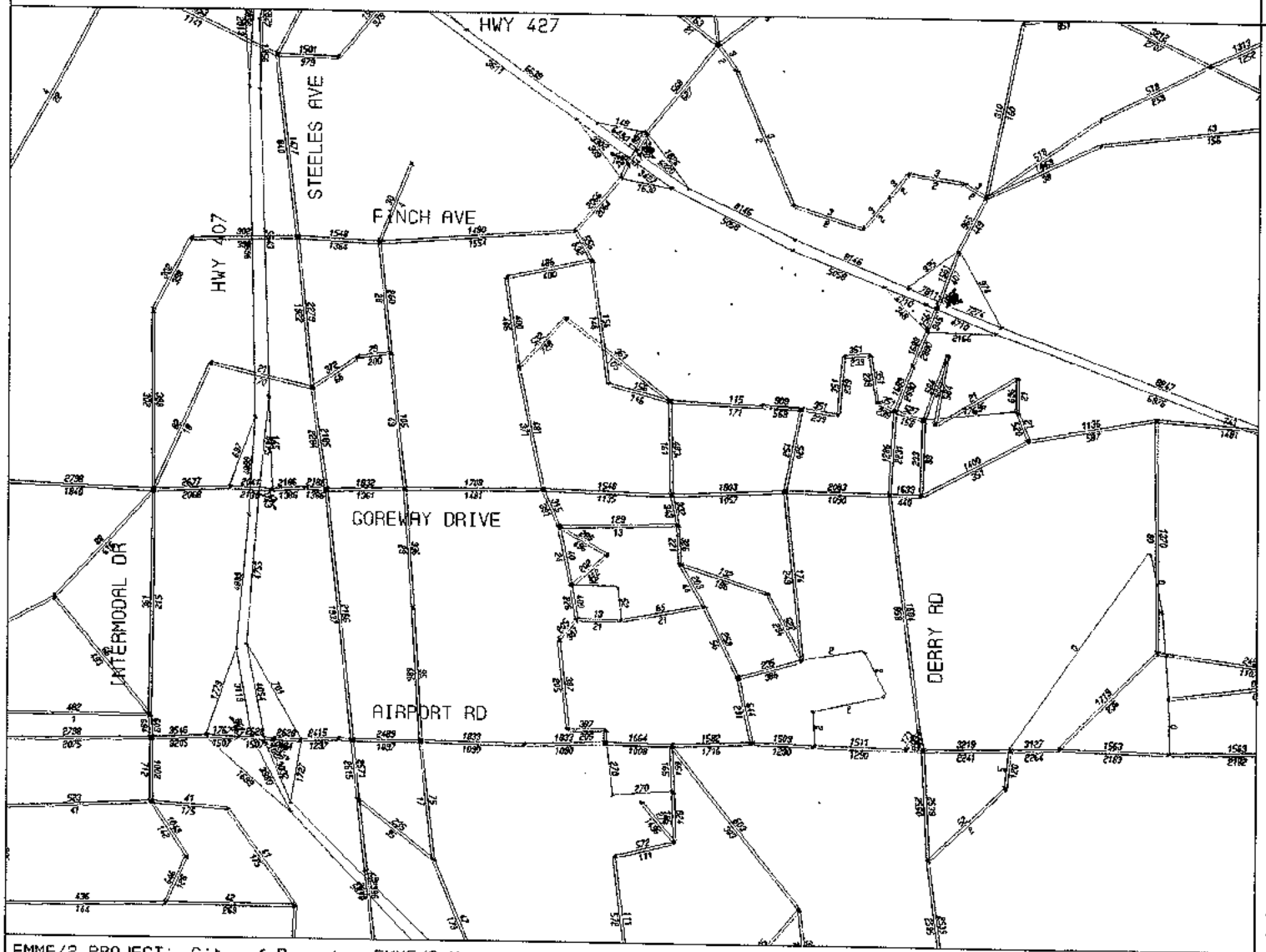
WINDOW H:
-167528/*******
-160751/*******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20130: 2011 S Goreway 4 - Int + GS + 6 lanes

06-09-25 11:18
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod*c

WINDOW H:
-167528/******
-160751/******

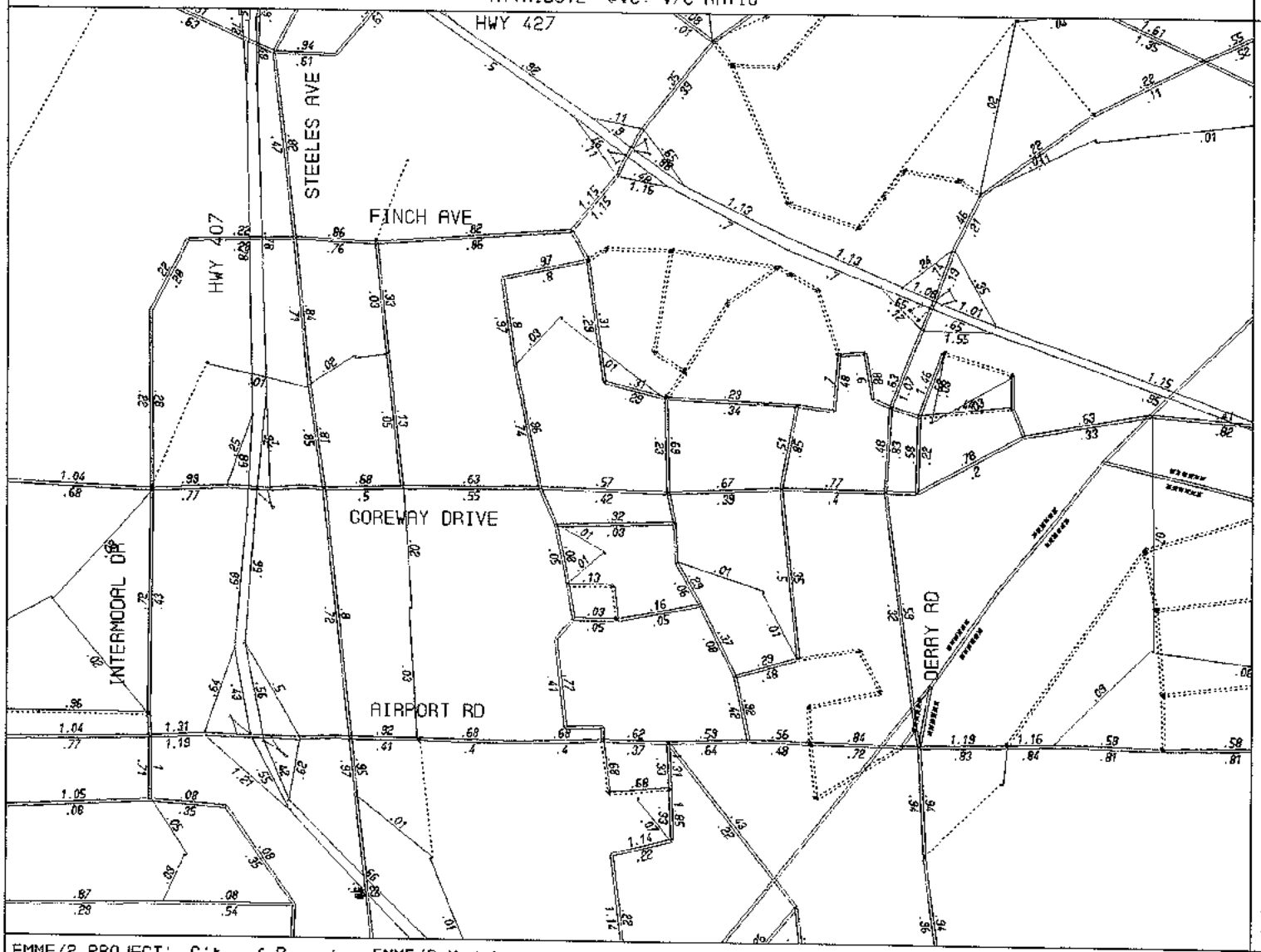
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20130: 2011 S Goreway 4 - Int + CS + 6 lanes

06-09-25 11:18
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



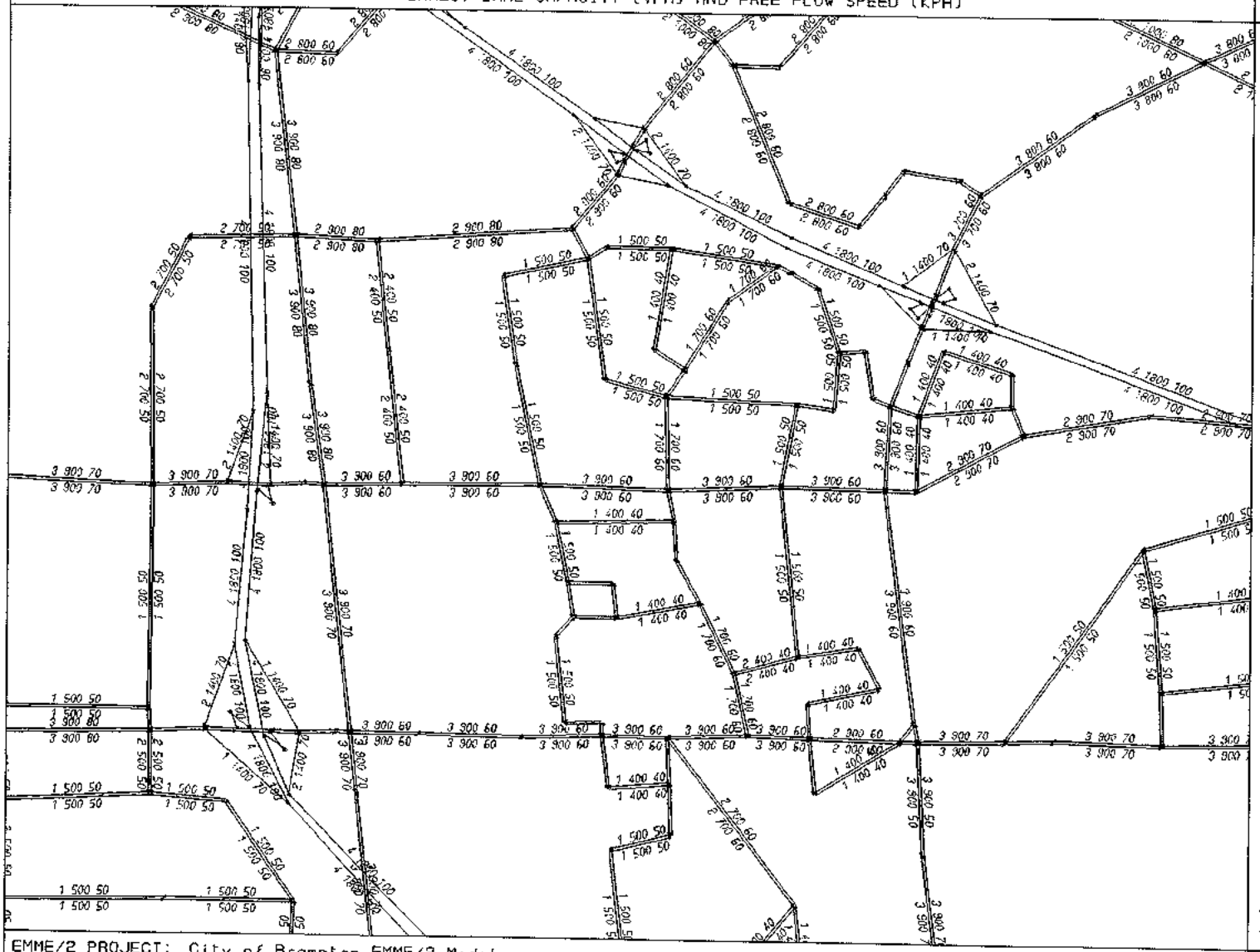
LINKS:
mod=c
!!c i=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20130: 2011 S Goreway 4 - Int + GS + 6 lanes
ATTRIBUTE @vc: V/C Ratio

06-09-25 11:19
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

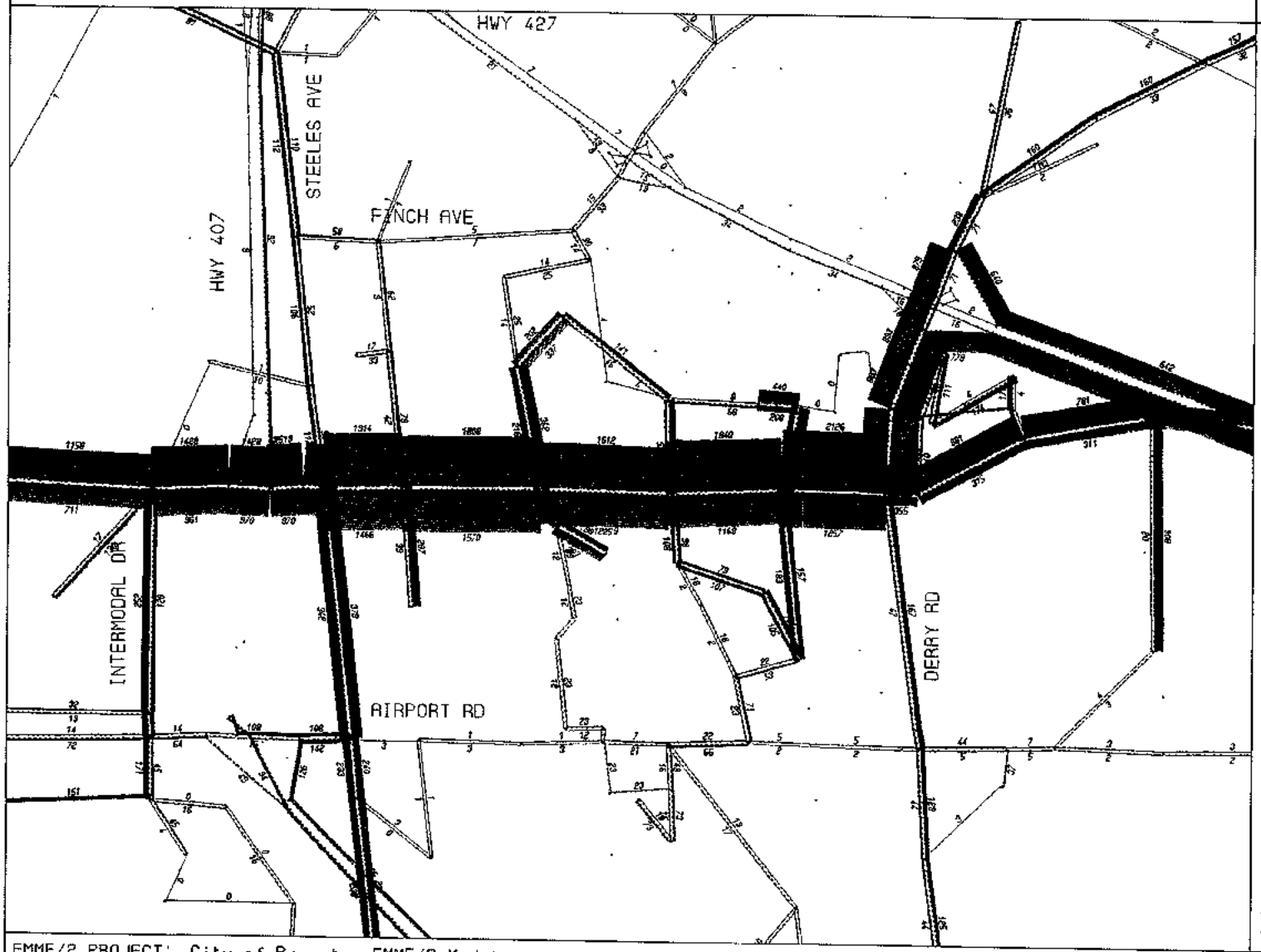
LAYERS:
Speed
Capacity
Lanes

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20229: 2021 S Goreway 4 - Int + CS + 6 lanes

06-09-25 11:21
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK



emme/2

LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

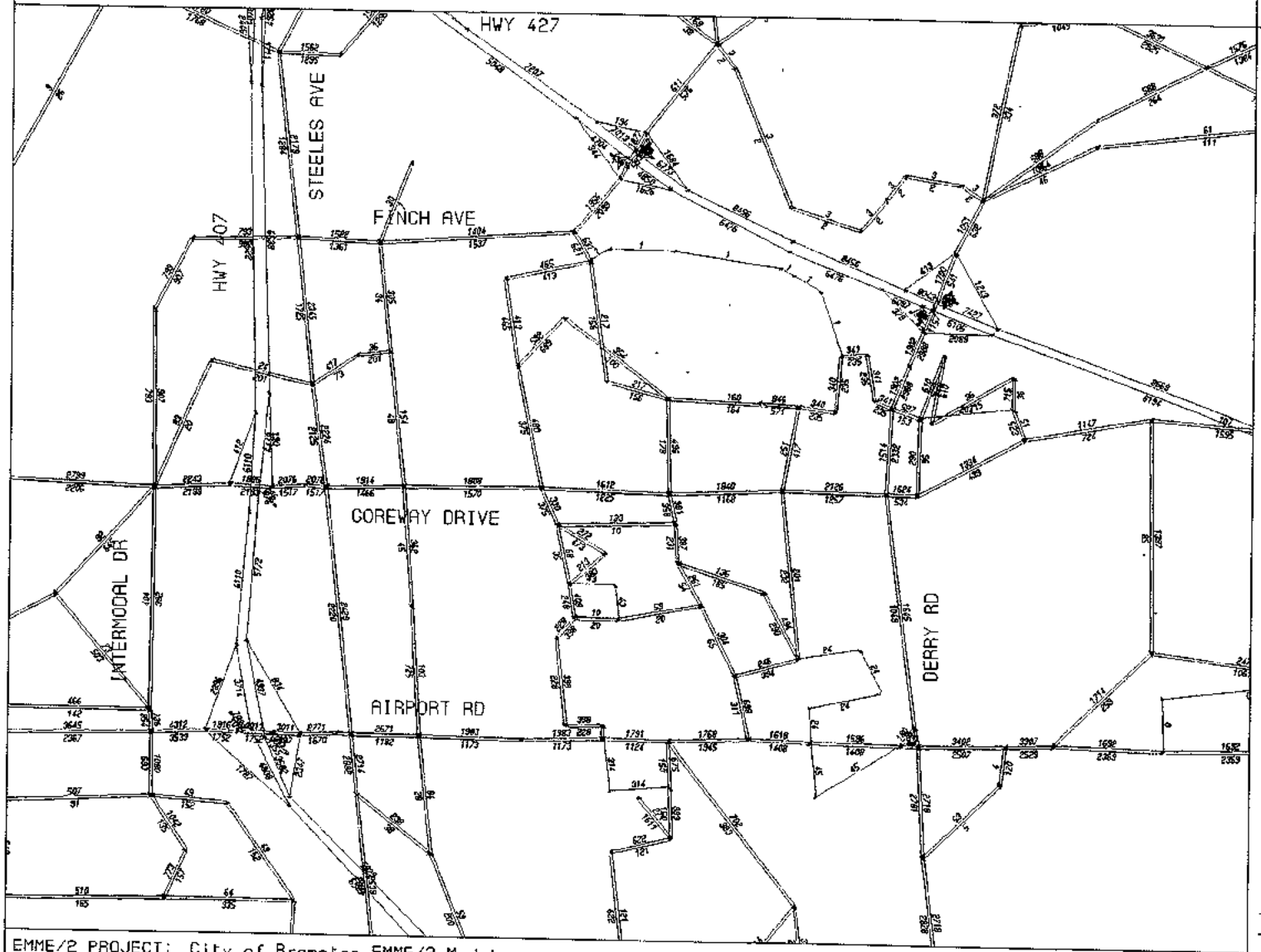
WINDOW H:
-167528/*******
-160751/*******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20229: 2021 S Goreway 4 - Int + GS + 6 lanes

06-09-25 11:42
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

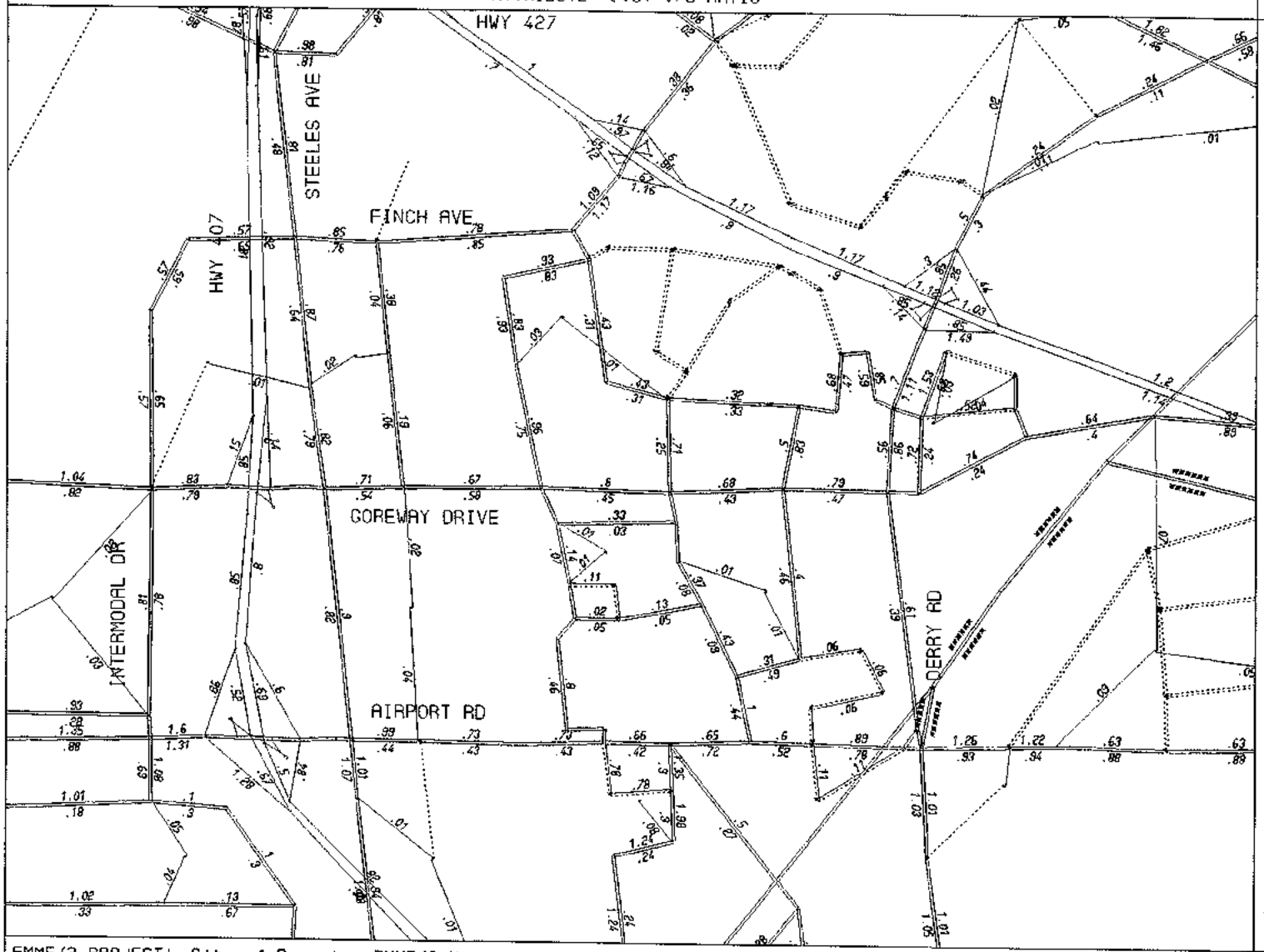
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20229: 2021 S Goreway 4 - Int + GS + 5 lanes

06-09-25 11:41
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



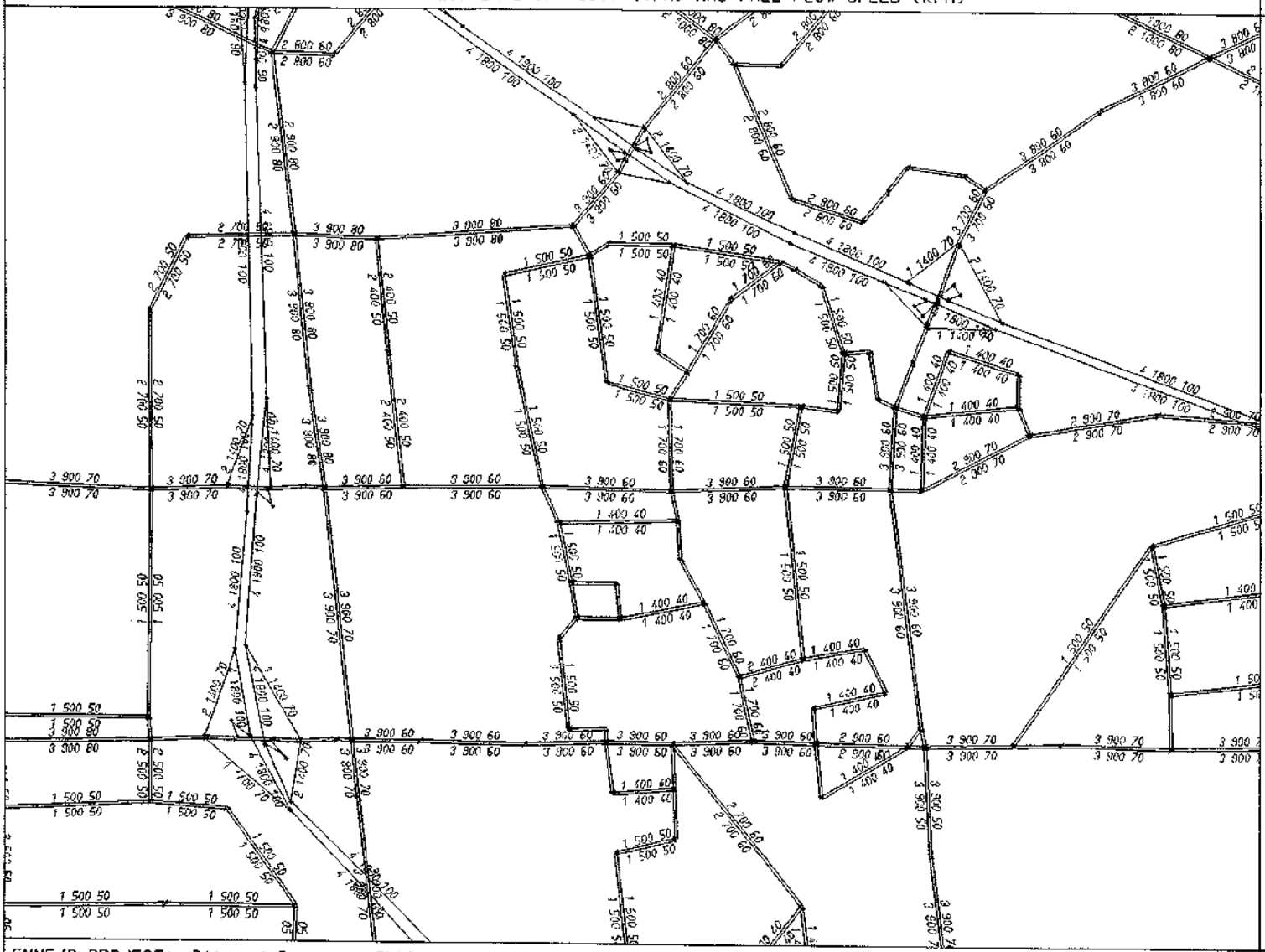
LINKS:
mod=c
i!ci=1
&!cj=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20229: 2021 S Goreway 4 - Int + GS + 6 lanes
ATTRIBUTE @vc: V/C Ratio

06-09-25 11:42
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!cj=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

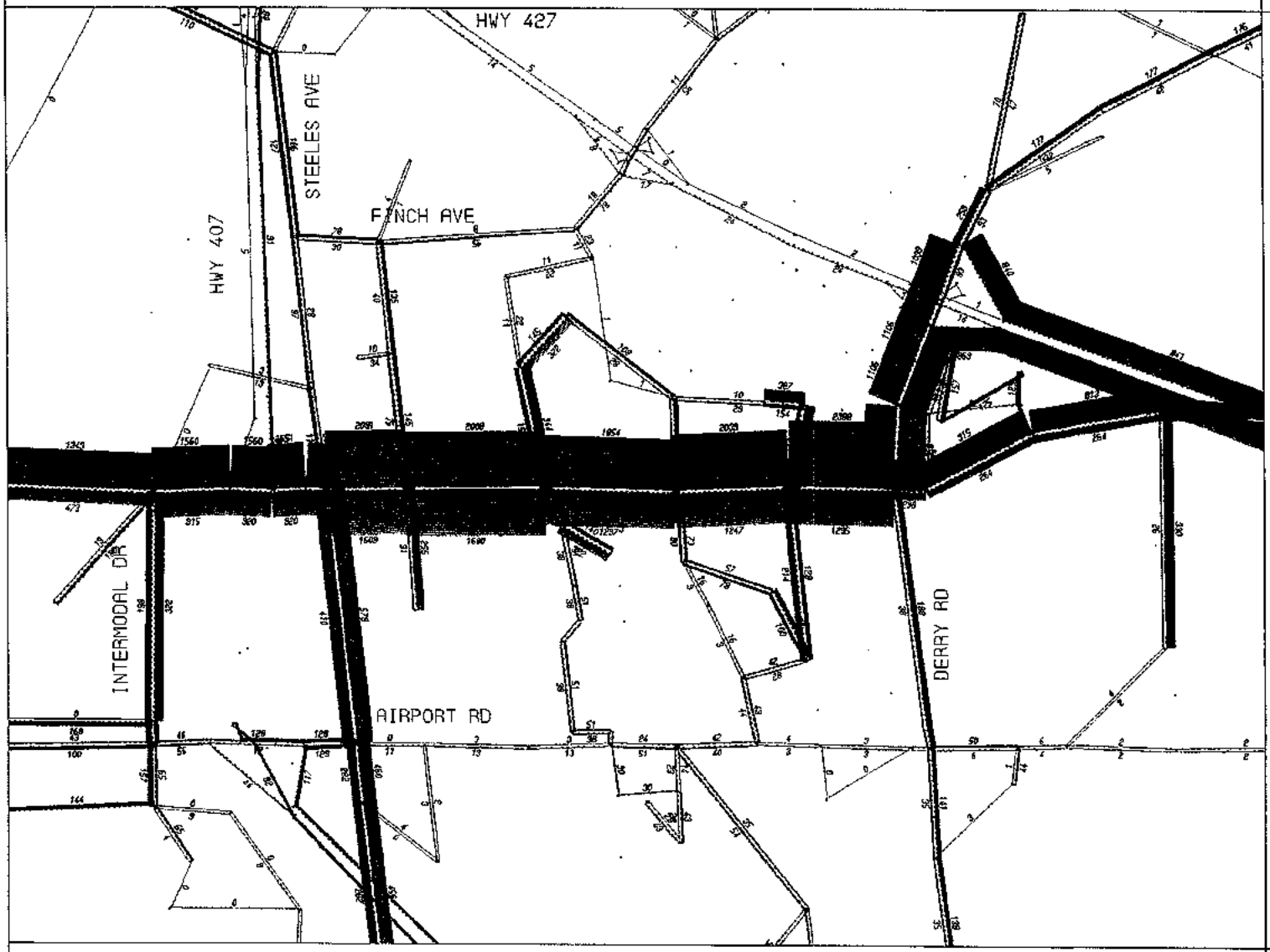
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20326: 2031 S Goreway 4 - Int + GS + 6 lanes

06-09-24 15:12
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50
200
400
600
800
1000

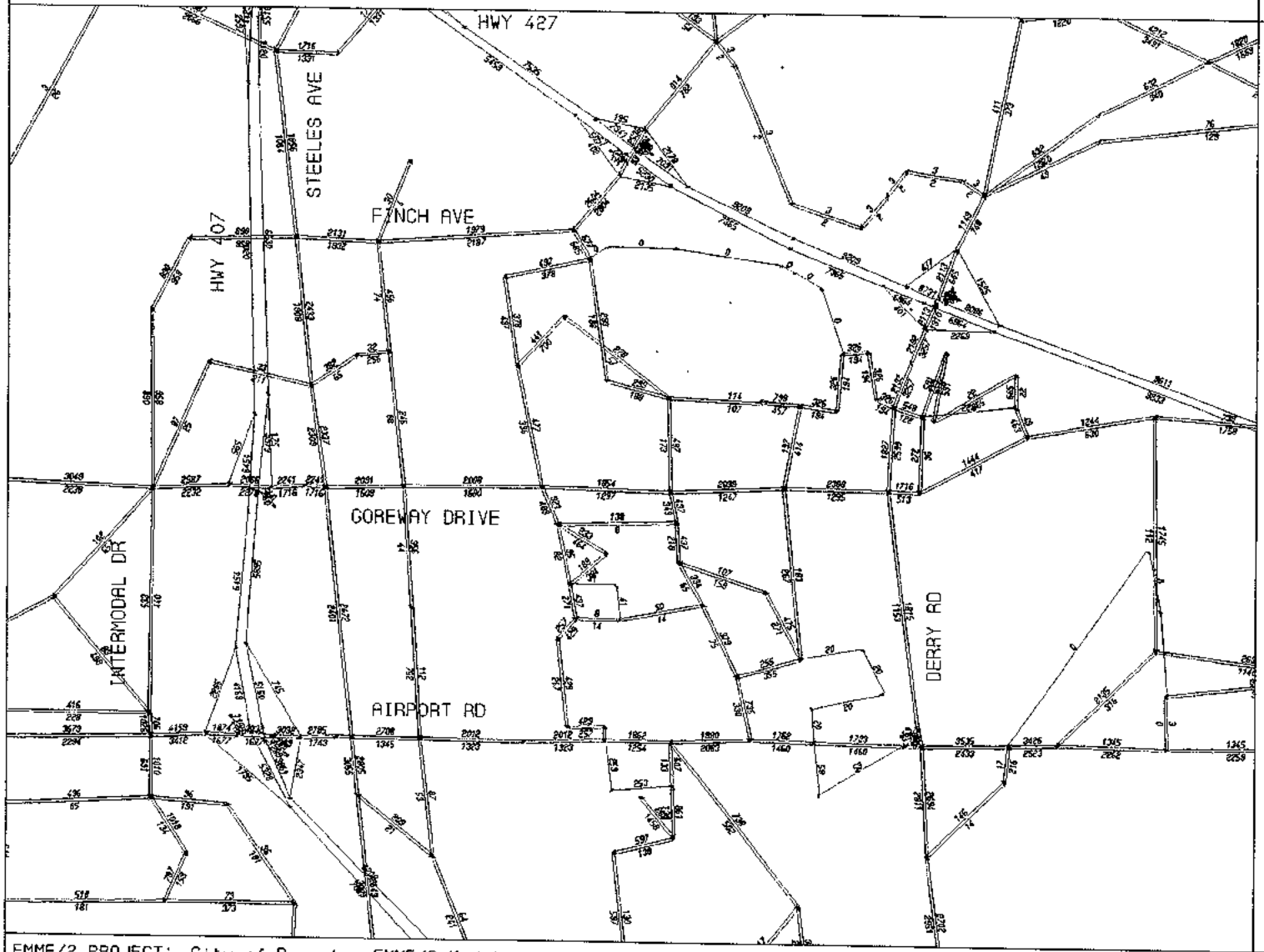
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20326: 2031 S Goreway 4 - Int + GS + 6 lanes

06-09-24 15:37
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

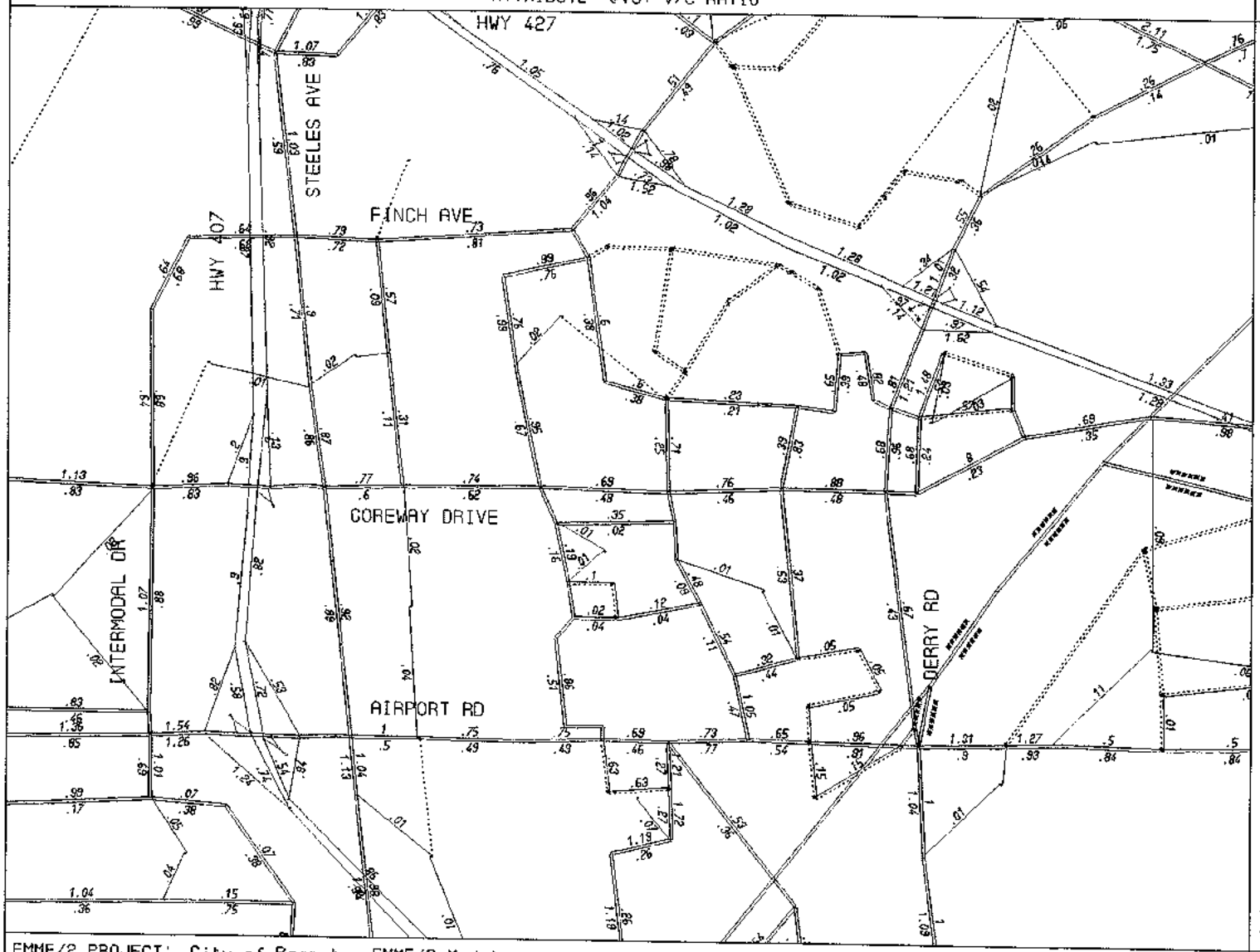
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20326: 2031 S Goreway 4 - Int + GS + 6 lanes

06-09-24 15:36
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



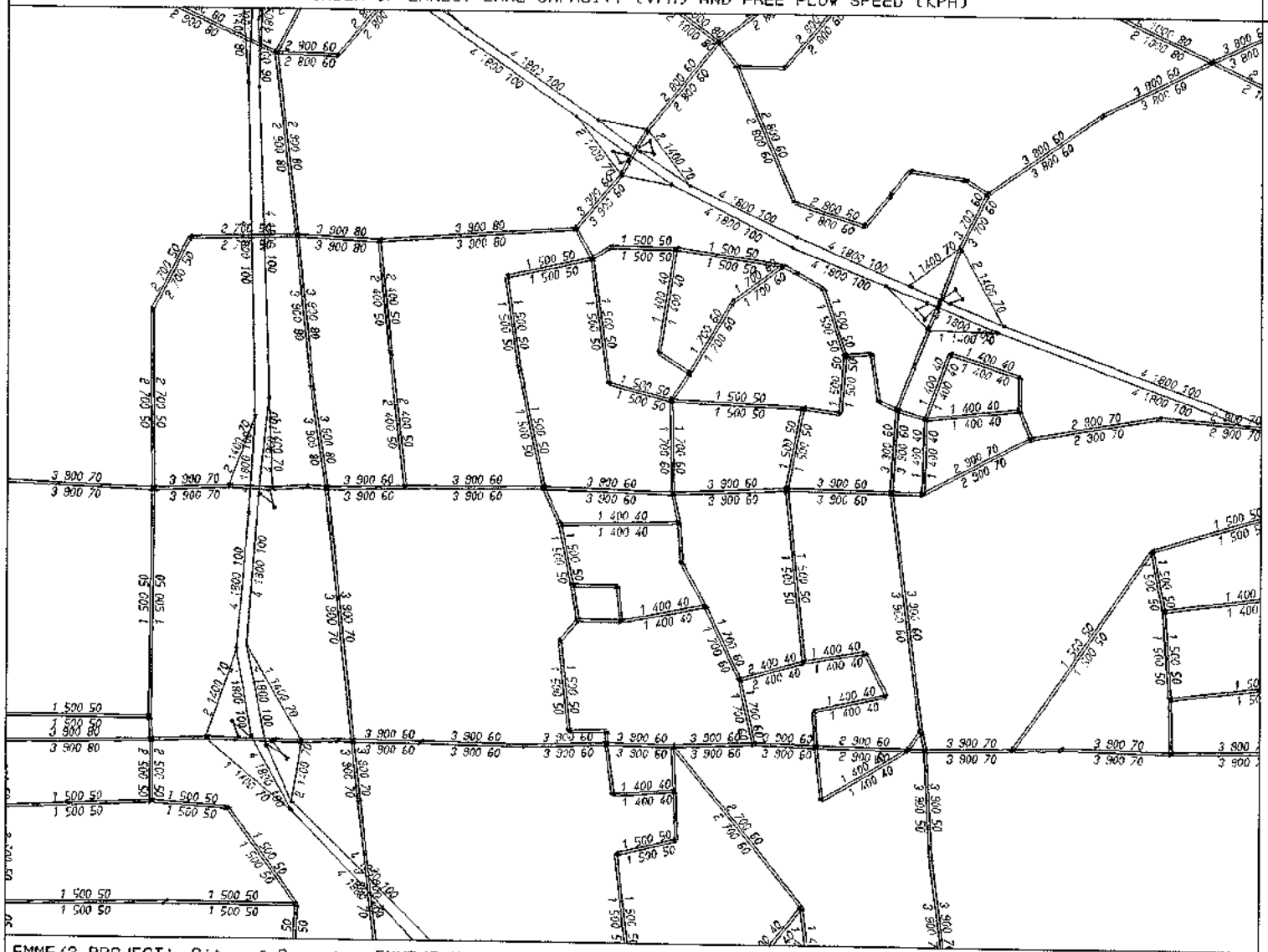
LINKS:
mod=c
!!ci=1
&!cj=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20326: 2031 S Goreway 4 - Int + GS + 6 lanes
ATTRIBUTE @vc: V/C Ratio

06-09-24 15:37
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&lci=1
&lcj=1

LAYERS:
Speed
Capacity
Lanes

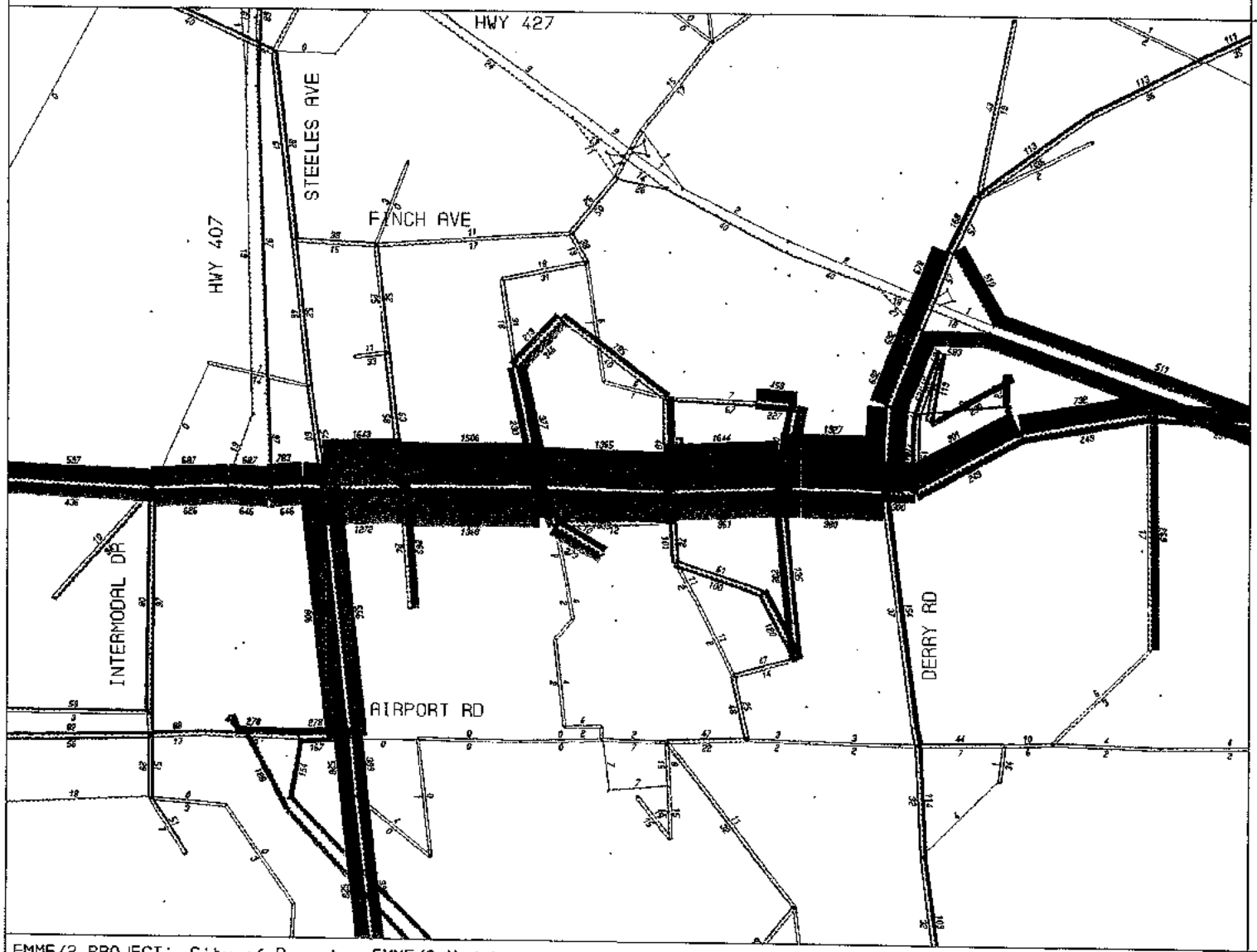
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20131: 2011 S Goreway 5 - Int + GS + 6 Lanes F&G

06-09-24 15:39
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

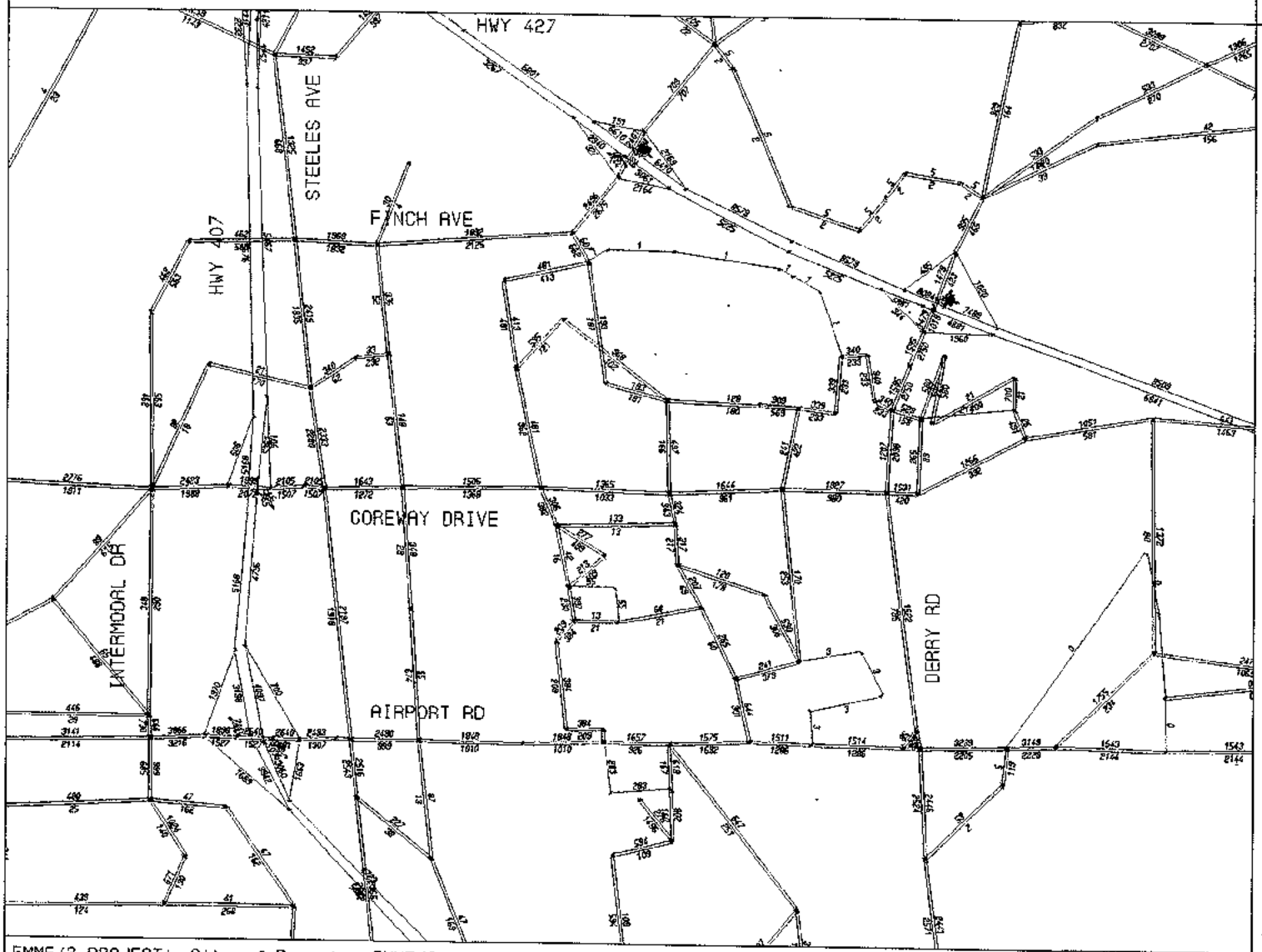
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20131: 2011 S Goreway 5 - Int + GS + 6 lanes F&G

06-09-24 15:57
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
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WINDOW H:
-167528/******
-160751/******

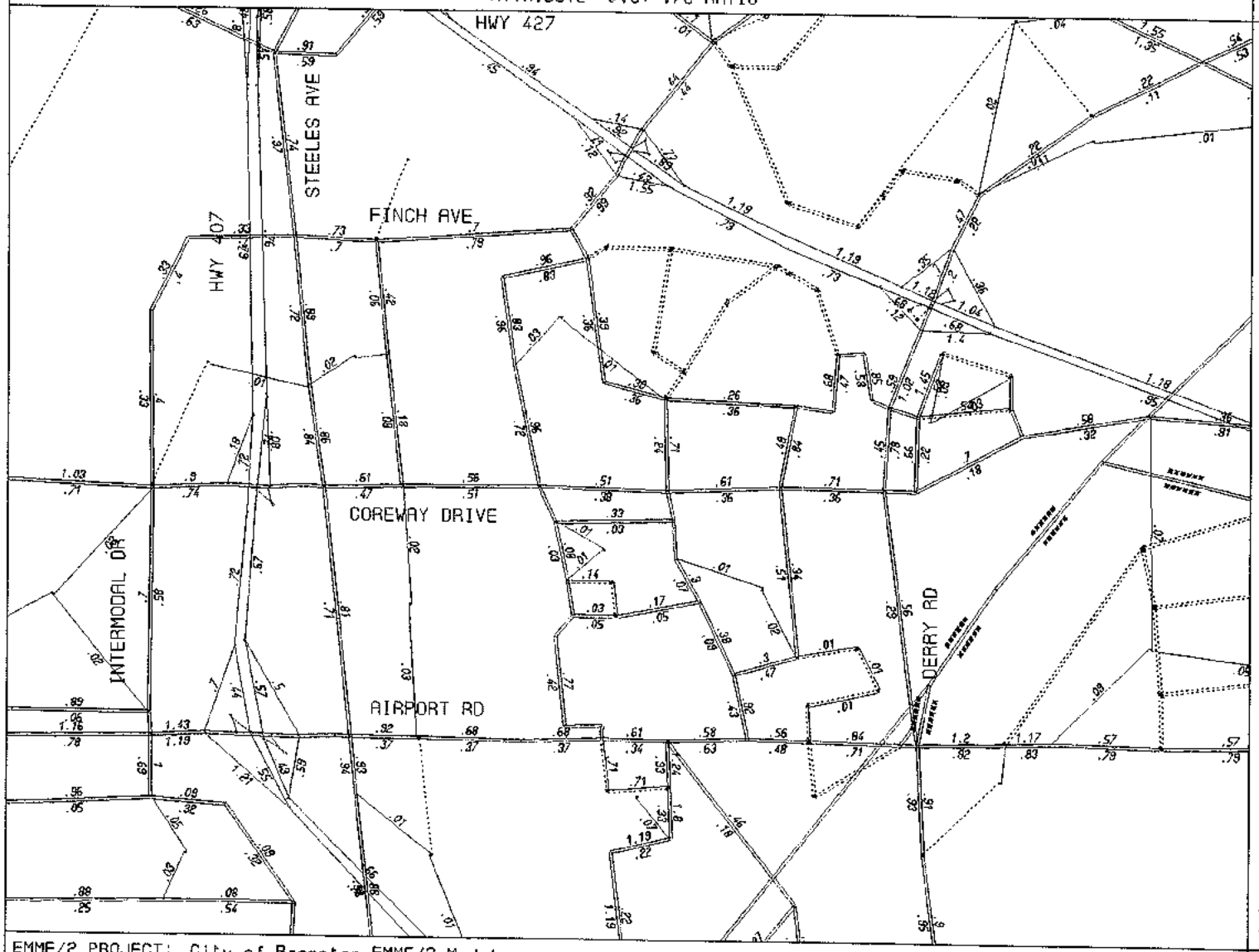
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20131: 2011 S Coreway 5 - Int + GS + 5 lanes F&G

06-09-24 15:56
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



LINKS:
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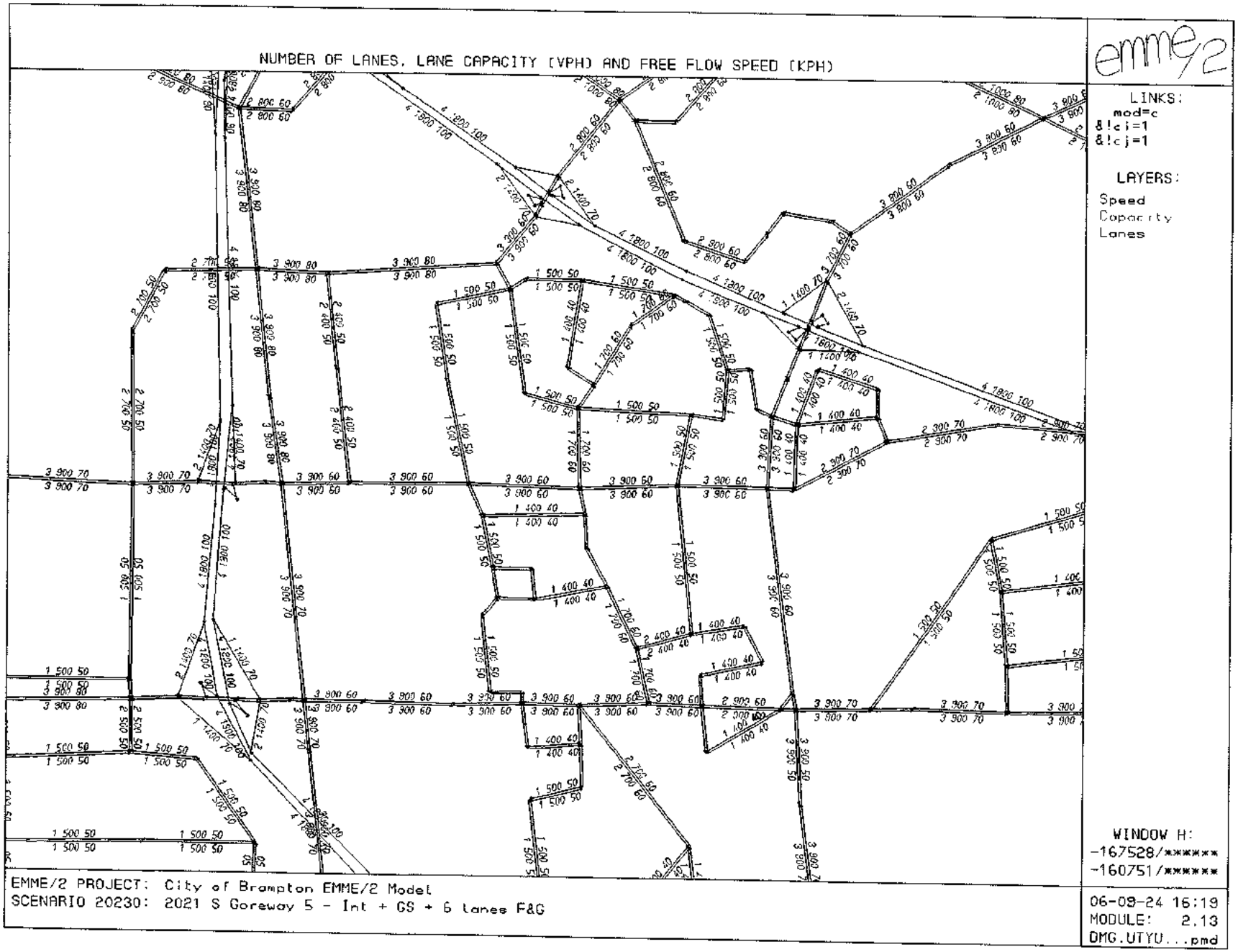
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20131: 2011 S Goreway 5 - Int + GS + 6 lanes F&G
ATTRIBUTE @vc: V/C Ratio

06-09-24 15:57
MODULE: 2.13
DMG.UTYU...pmd


NUMBER OF LANES, LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)
emme/2
LINKS:
mod=c
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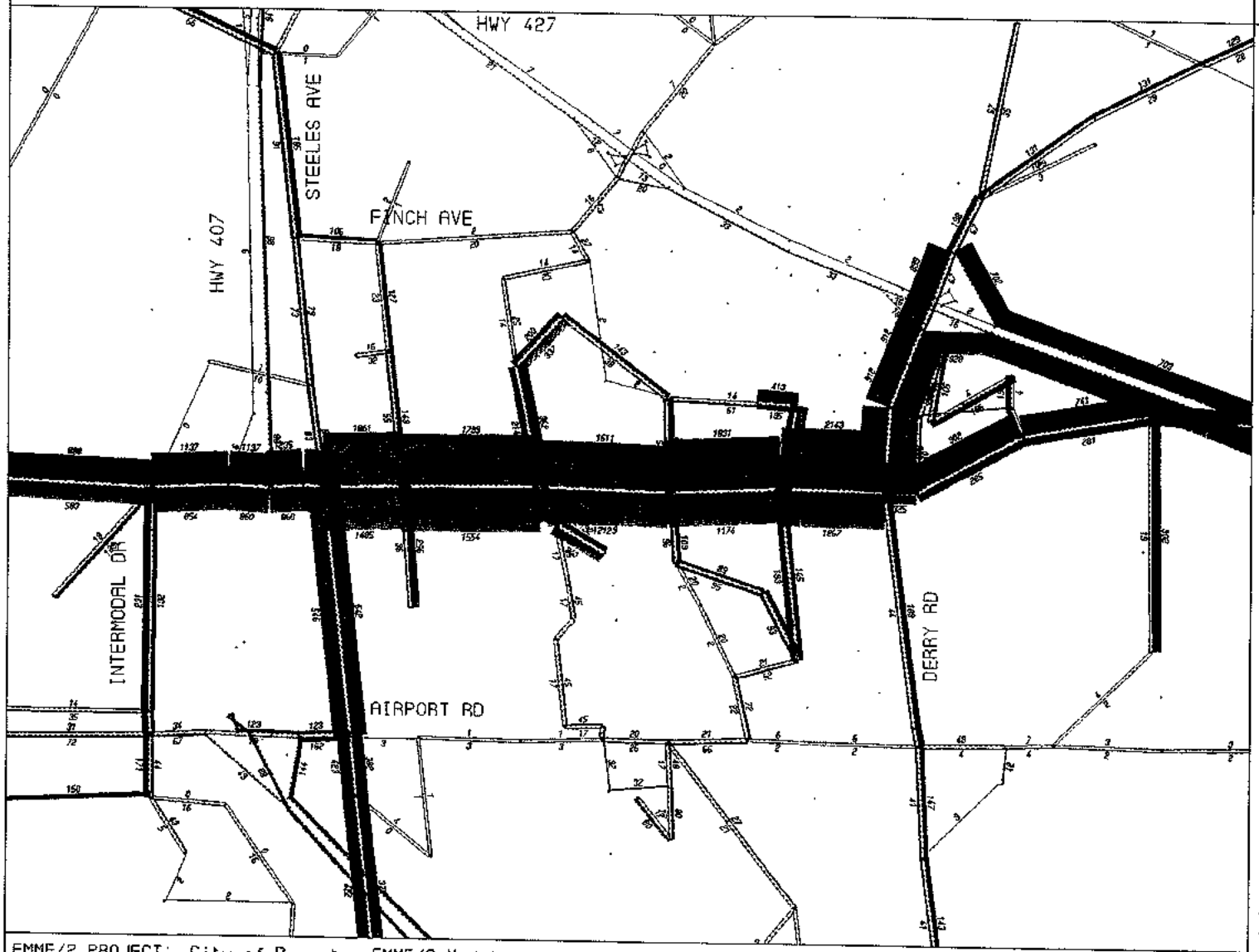
&!cj=1
LAYERS:
Speed
Capacity
Lanes
WINDOW H:
-167528/******
-160751/******
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20230: 2021 S Goreway 5 - Int + GS + 6 lanes F&G
06-08-24 16:19
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

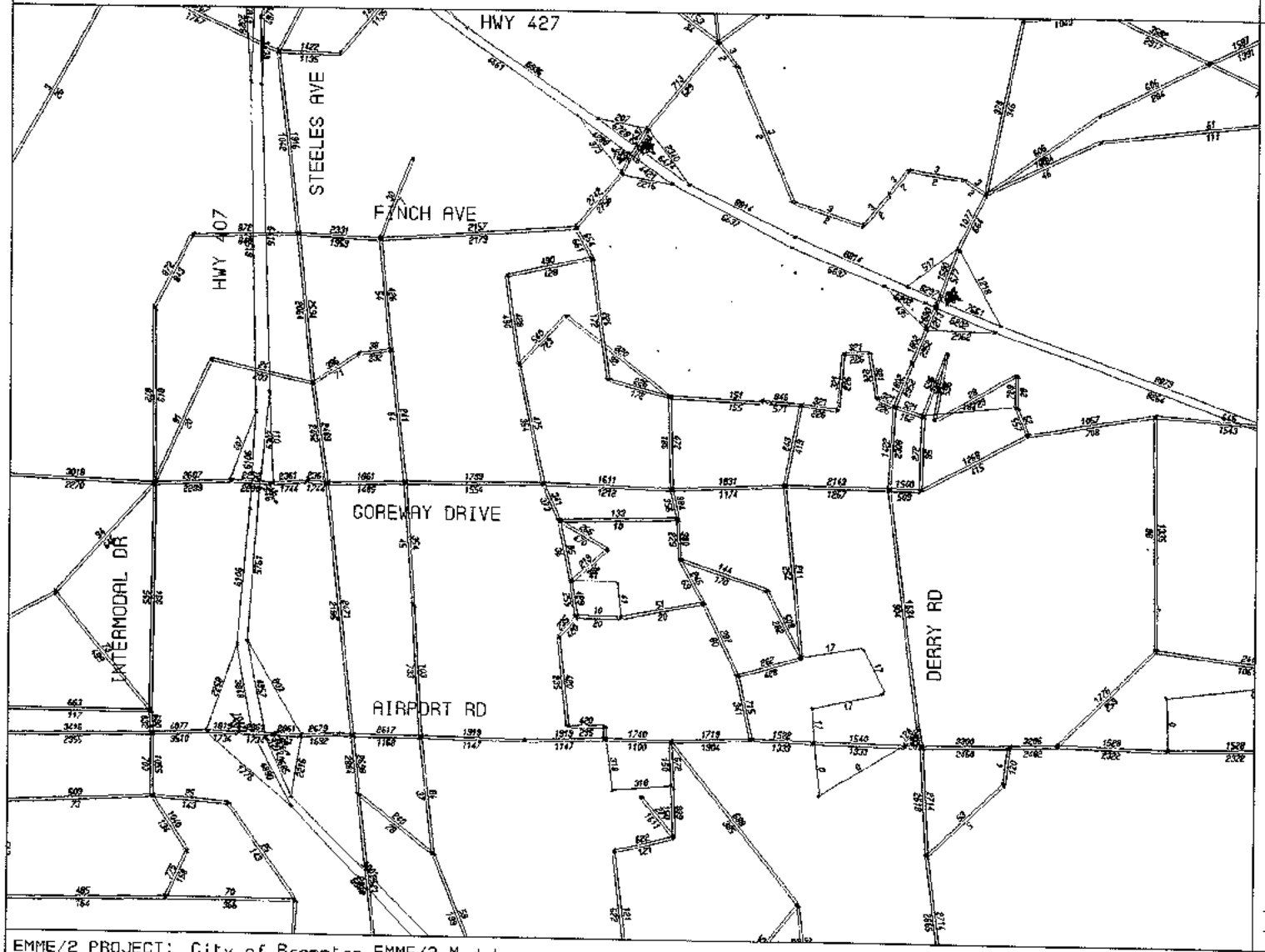
WINDOW #:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20230: 2021 S Goreway 5 - Int + GS + 6 lanes F&G

06-09-24 16:39
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

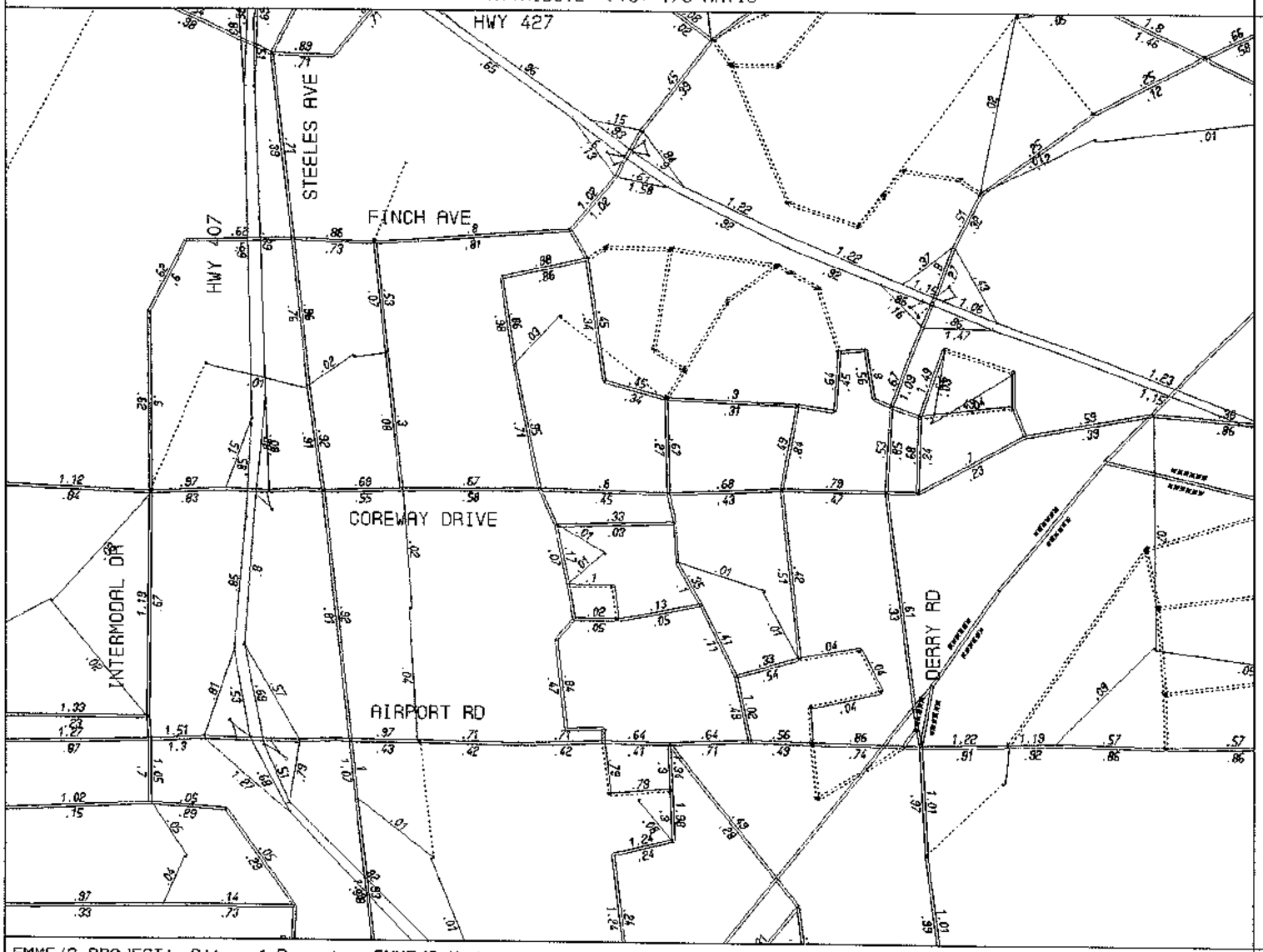
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20230: 2021 S Goreway 5 - Int + GS + 6 lanes F&G

06-09-24 16:39
MODULE: 6.12
DMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



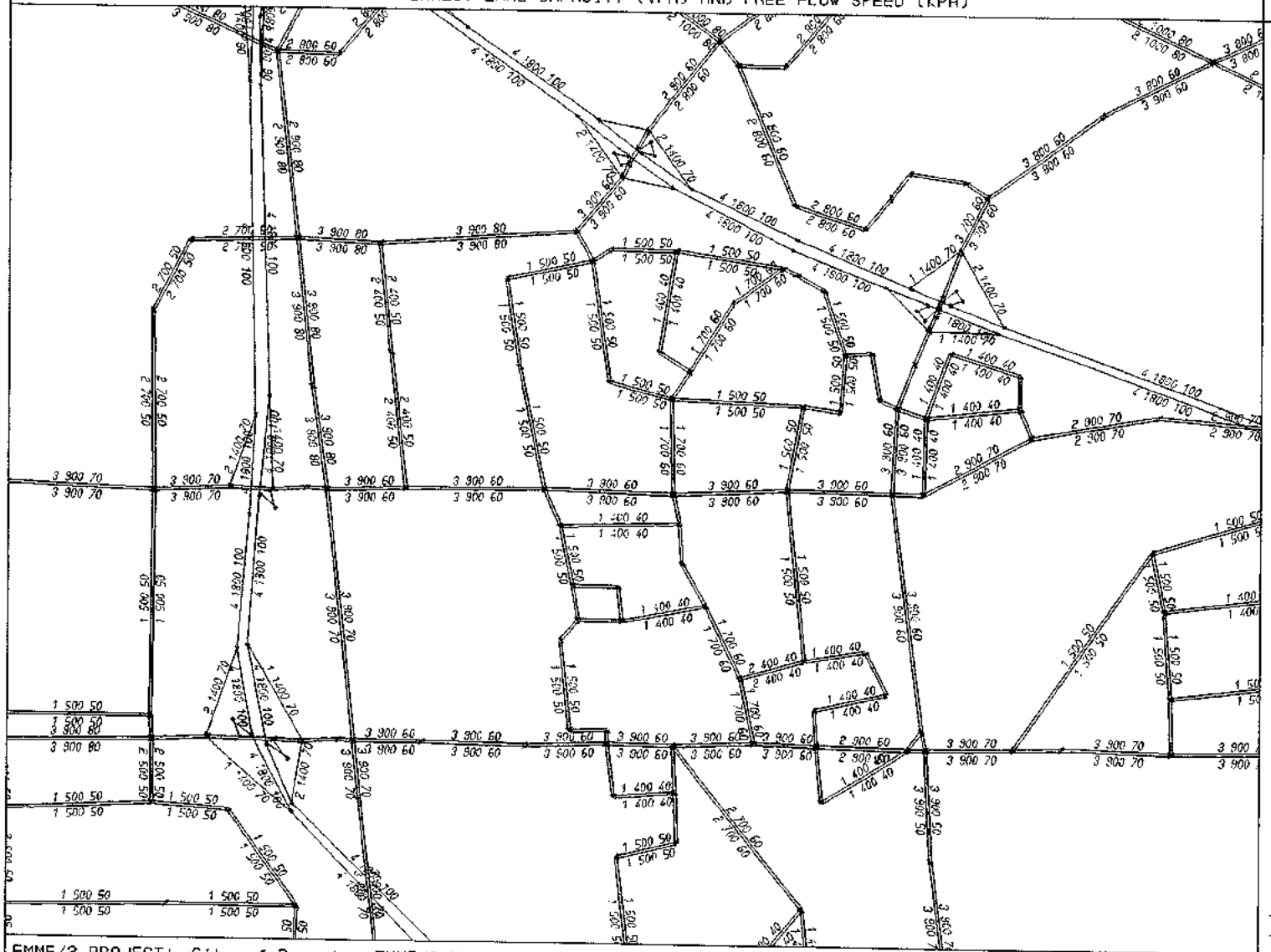
LINKS:
mod=c
!!c!=1
&!cj=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20230: 2021 S Goreway 5 - Int + GS + 6 lanes F&G
ATTRIBUTE @vc: V/C Ratio

06-09-24 16:40
MODULE: 2.13
DMG.UTYU...pmd

NUMBER OF LANES. LANE CAPACITY (VPH) AND FREE FLOW SPEED (KPH)



emme/2

LINKS:
mod=c
&!ci=1
&!cj=1

LAYERS:
Speed
Capacity
Lanes

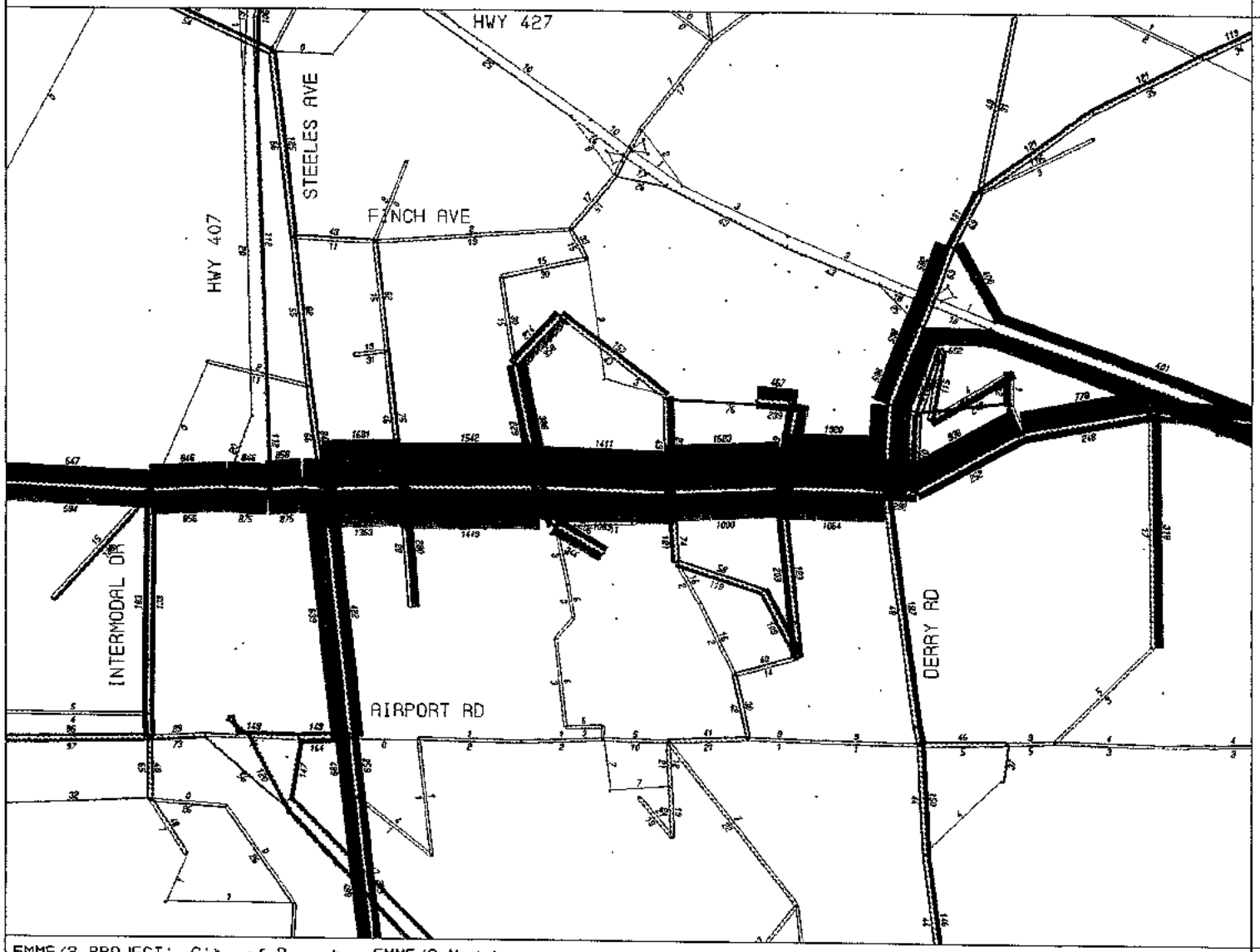
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20327: 2031 S Goreway 5 - Int + GS + 6 lanes F&G

06-09-24 16:46
MODULE: 2.13
DMG.UTYU...pmd

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=c

SCALE: 50

200
400
600
800
1000

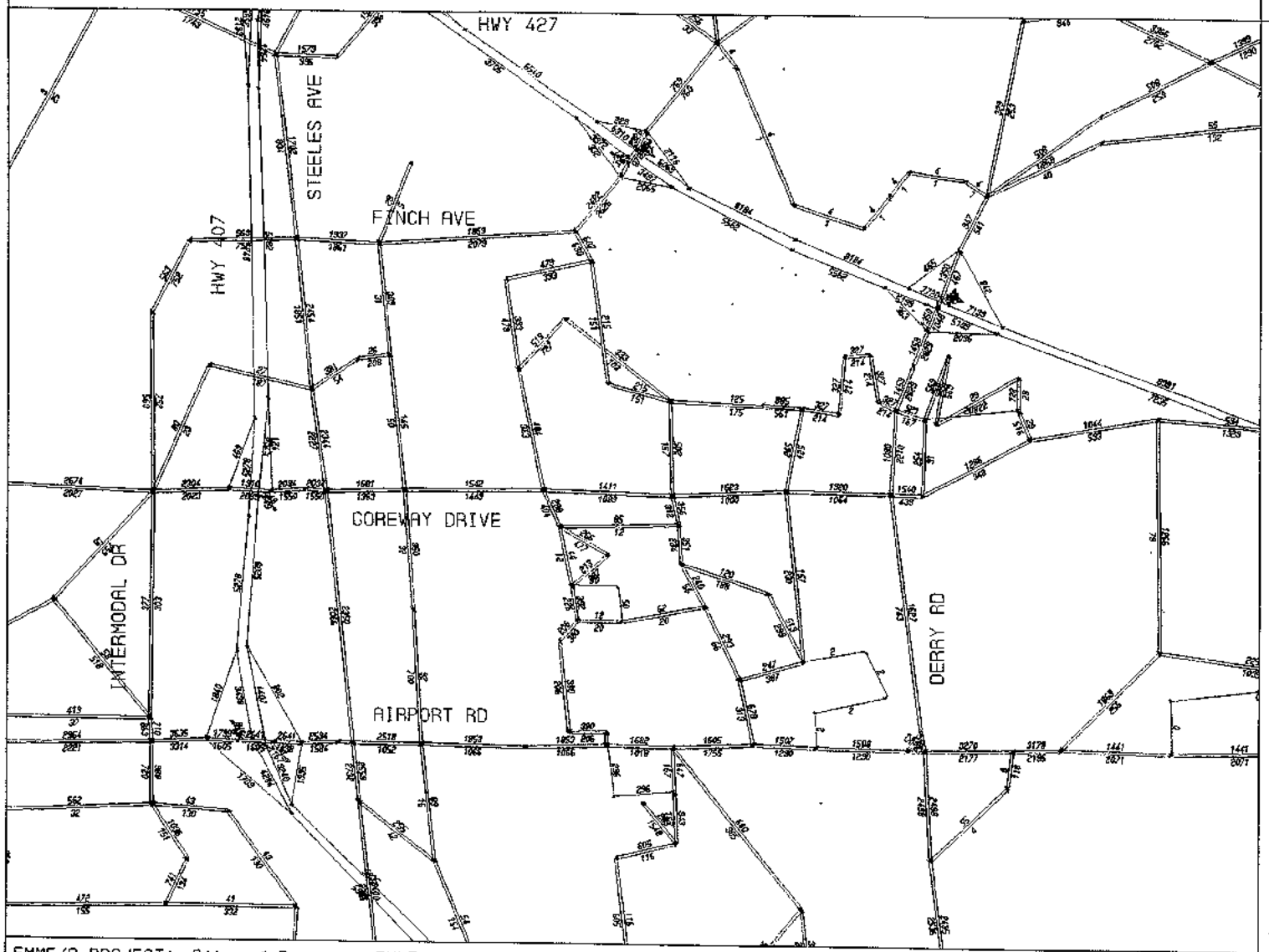
WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20327: 2031 S Goreway 5 - Int + GS + 6 lanes F&G

06-09-24 17:04
MODULE: 6.12
DMG.UTYU...pmd

AUTO VOLUMES

emme/2



LINKS:
mod=c

WINDOW H:
-167528/******
-160751/******

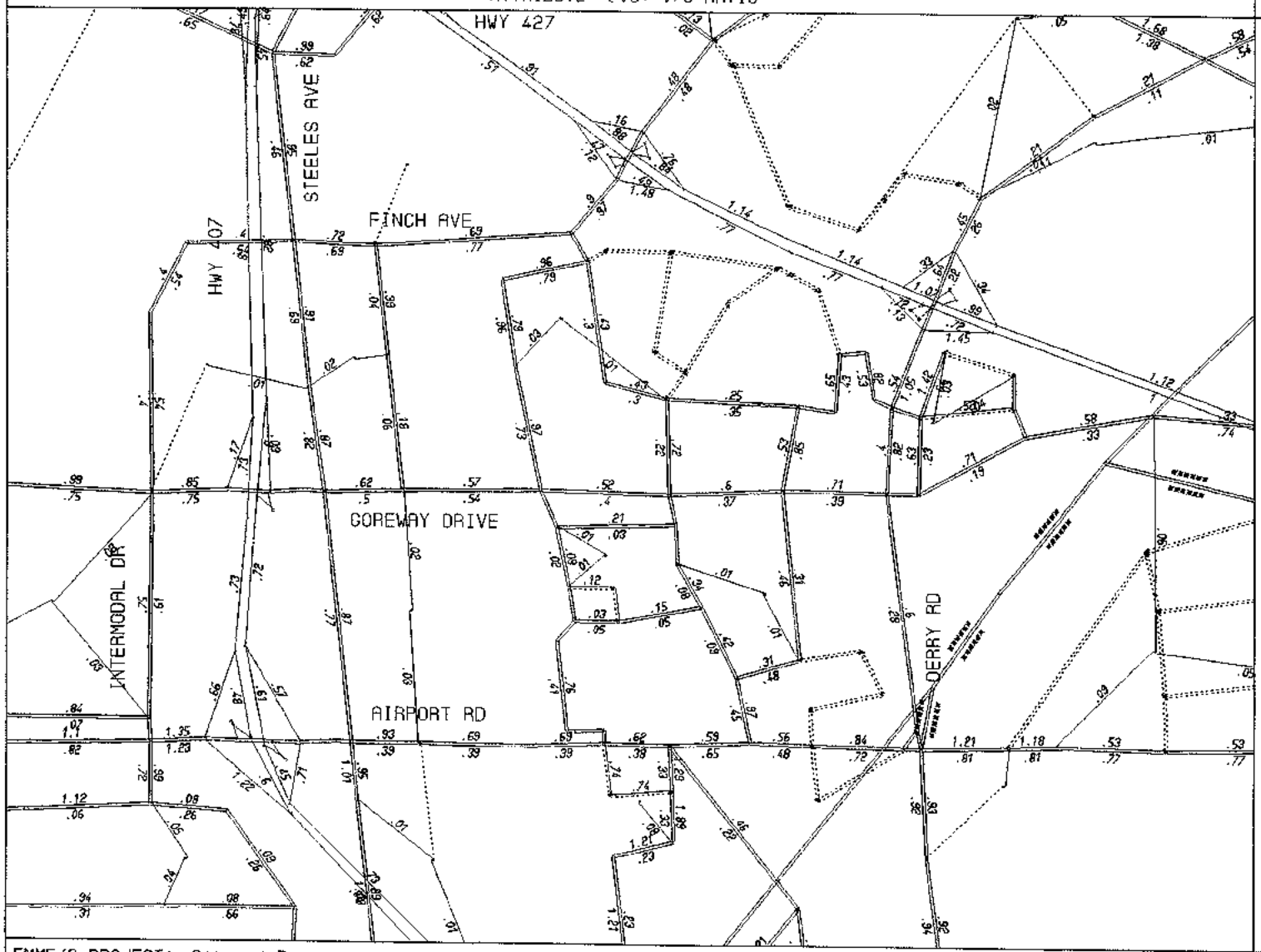
EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20327: 2031 S Goreway 5 - Int + GS + 6 lanes F&G

06-09-24 17:03
MODULE: 6.12
OMG.UTYU...pmd

BASE NETWORK

ATTRIBUTE @VC: V/C RATIO

emme/2



LINKS:
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!!c j=1
&!c j=1

WINDOW H:
-167528/******
-160751/******

EMME/2 PROJECT: City of Brampton EMME/2 Model
SCENARIO 20327: 2031 S Goreway 5 - Int + GS + 6 lanes F&G
ATTRIBUTE @vc: V/C Ratio

06-09-24 17:04
MODULE: 2.13
DMG.UTYU...pmd

Appendix B
Transportation Model Output/Results – Network V/C Ratios Summary

Goreway Drive, Steeles Avenue to Brandon Gate - Environmental Assessment Study
Transportation Study
Summary of Transportation Modeling Analysis - Forecasted Traffic Volumes, Volume/Capacity and Traffic Growth Ratios

UMA | AECOM

Alternatives						Location - Roadway Section: Goreway Drive																					
#	Goreway Dr. - No. of Lanes	Finch Ave. - No. of Lanes	Goreway Dr./CNR Grade Separation	Intermodal Dr. Extension	Time Horizon	North of Hwy 407 (6 lanes in 2011, 2021 and 2031 for all alternatives)				South of Steeles Ave.				Between Mayfield Rd. and Bolton Bypass				North of Morning Star Dr.				South of Morning Star Dr.				North of Derry Rd			
						vol		v/c		vol		v/c		vol		v/c		vol		v/c		vol		v/c		vol		v/c	
						NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
1A	4	4	No	No	2001	1272	597	0.71	[illegible]	926	451	[illegible]		913	468	[illegible]		849	305			1148	312			1504	364	0.84	
					2011	2871	2237	[illegible]	0.83	1440	1148	0.80		1246	1241	0.89	0.89	1074	909			1303	825	0.75		1603	907	0.89	
					2021	2781	2605	[illegible]	[illegible]	1334	1154	0.74		1139	1035	0.81	0.74	1052	746			1271	732	0.71		1582	827	0.88	
					2031	3513	2598	[illegible]	[illegible]	1589	1128	0.88		1205	1075	0.86	0.77	1143	816			1322	803	0.73		1676	877		
1B	4	4	No	Yes	2011	2558	1845	[illegible]	[illegible]	1213	940	[illegible]		1036	1026	0.74	0.73	933	735			1223	692			1531	765	0.85	
					2021	2633	2064	[illegible]	0.76	1326	1048	0.74		1162	1120	0.83	0.80	1050	834			1263	832	0.70		1580	950	0.88	
2A	4	4	Yes	No	2011	2415	2329	0.89	0.86	1394	1233	0.77		1290	1266	0.71	0.70	1105	1044			1329	937	0.74		1648	1024		
					2021	2847	2686	[illegible]	[illegible]	1429	1317	0.79	0.73	1324	1214	0.73		1153	909			1317	856	0.73		1645	952		
2B	4	4	Yes	Yes	2011	2558	1845	[illegible]	[illegible]	1213	940	[illegible]		1036	1026	[illegible]		933	735			1223	692			1531	765	0.85	
					2021	2633	2064	[illegible]	0.76	1326	1048	0.74		1162	1120	[illegible]		1050	834			1263	832	0.70		1580	950	0.88	
					2031	2732	2385	[illegible]	0.88	1533	1217	0.85		1395	1328	[illegible]		1238	978			1396	922	0.78		1736	995		
3	4	6	Yes	Yes	2011	2249	2019	0.83	0.75	1370	1022	0.76		1183	1116	[illegible]		1048	764			1252	701	0.70		1549	761	0.86	
					2021	2160	2187	0.80	0.81	1349	1148	0.75		1272	1240	0.71		1076	907			1255	868	0.70		1571	946	0.87	
					2031	2816	2104	[illegible]	0.78	1526	1174	0.85		1167	1124	[illegible]		1055	909			1232	862			1571	919	0.87	
4	6	4	Yes	Yes	2011	2677	2068	[illegible]	0.77	1832	1361	[illegible]		1758	1281	[illegible]		1548	1135			1803	1057			2083	1090	0.77	
					2021	2243	2138	0.83	0.79	1914	1466	0.71		1808	1370	[illegible]		1612	1225			1840	1168			2126	1257	0.79	
					2031	2587	2232	[illegible]	0.83	2091	1609	0.77		1930	1566	0.74		1854	1297			2039	1247	0.76		2388	1295	0.88	
5	6	6	Yes	Yes	2011	2423	1988	[illegible]	0.74	1643	1272	[illegible]		1696	1594	[illegible]		1385	1033			1644	941			1927	980	0.71	
					2021	2807	2239	[illegible]	0.83	1861	1485	[illegible]		1797	1613	[illegible]		1611	1212			1831	1174			2143	1267	0.79	
					2031	2304	2023	0.85	0.75	1681	1363	[illegible]		1540	1418	[illegible]		1411	1089			1623	1000			1920	1064	0.71	
0.90	- assumed v/c treshold							Avg.ann.grwth																					
				Alt. 2B	2001	1272	597			926	451			913	468			849	305			1148	312			1504	364		
	v/c => 0.90				2011	2558	1845	16.1%	20.9%	1213	940	3.1%	10.8%	1036	1026	1.3%	11.9%	933	735	1.0%	14.1%	1223	692	0.7%	12.2%	1531	765	0.2%	11.0%
	0.70 < v/c < 0.90				2021	2633	2064	0.3%	1.2%	1326	1048	0.9%	1.1%	1162	1120	1.2%	0.9%	1050	834	1.3%	1.3%	1263	832	0.3%	2.0%	1580	950	0.3%	2.4%
	v/c < 0.70				2031	2732	2385	0.4%	1.6%	1533	1217	1.8%	1.6%	1395	1328	2.0%	1.8%	1238	978	1.8%	1.7%	1396	922	1.1%	1.1%	1736	995	1.0%	0.5%

Goreway Drive, Steeles Avenue to Brandon Gate - Environmental Assessment Study
Transportation Study
Summary of Transportation Modeling Analysis - Forecasted Traffic Volumes, Volume/Capacity and Traffic Growth Ratios

UMA | AECOM

Alternatives						Location - Roadway Section																	
						Intermodal Dr. Ext.				Finch Avenue						Airport Road				Steeles Avenue					
#	Goreway Dr. - No. of Lanes	Finch Ave. - No. of Lanes	Goreway Dr./CNR Grade Separation	Intermodal Dr. Extension	Time Chontzon	Between Goreway Dr and Gorewood Dr/ Finch Ave				South of Steeles Ave.				Between Goreway Dr and Intermodal Dr				East of Steeles Ave.				East of Goreway Dr.			
						vol		v/c		vol		v/c		vol		v/c		vol		v/c		vol		v/c	
						NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	EB	WB	EB	WB
1A	4	4	No	No	2001	0	0			972	955			942	1031			1819	768			1949	1761	0.72	
					2011	0	0			1554	1383	0.86	0.77	1501	1644	0.83	0.88	1842	1078	0.75		2495	2518		
					2021	0	0			1566	1134	0.87		1620	1519	0.84	0.84	2063	1320	0.77		2528	2691		
					2031	0	0			1275	1096	0.71		1402	1437	0.78	0.80	2421	1778	0.86		2514	2523		
1B	4	4	No	Yes	2011	315	640			1512	1371	0.84	0.76	1481	1580	0.82	0.88	2223	1171	0.82		1988	2298	0.74	0.85
					2021	680	927			1534	1441	0.85	0.80	1431	1637	0.80		2283	1331	0.85		2281	2305	0.84	0.85
2A	4	4	Yes	No	2011	0	0			1398	1188	0.78		1312	1586	0.73	0.78	2092	1427	0.78		2257	2252	0.84	0.83
					2021	0	0			1519	1235	0.84		1402	1586	0.78	0.88	2092	1427	0.74		2624	2589		
2B	4	4	Yes	Yes	2011	315	640			1512	1371	0.84	0.76	1481	1580	0.82	0.88	2223	1171	0.82		1988	2298	0.74	0.85
					2021	680	927			1534	1441	0.85	0.80	1431	1637	0.80		2283	1331	0.85		2281	2305	0.84	0.85
					2031	672	721			1925	1567	1.07	0.87	1845	1763			2092	1427	0.77		2411	2671	0.89	
3	4	6	Yes	Yes	2011	582	585			2036	1913	0.75	0.71	2028	2147	0.75	0.80	1819	1104			2420	2239		0.83
					2021	972	838			2299	1986	0.85	0.74	2135	2178	0.79	0.81	1819	1171	0.73		2511	2349		0.81
					2031	787	1034		0.74	2290	2053	0.85	0.76	2399	2378	0.89	0.85	1842	1078	0.73		2389	2809	0.86	
4	6	4	Yes	Yes	2011	302	398			1546	1364	0.86	0.76	1480	1544	0.82	0.86	1823	1094			2185	2284	0.81	0.85
					2021	793	907			1522	1361	0.85	0.76	1404	1637	0.78	0.85	1819	1171	0.73		2224	2125	0.82	0.79
					2031	890	958			2131	1932	0.79	0.72	1970	2147	0.73	0.81	2011	1332	0.75		2337	2309	0.87	0.86
5	6	6	Yes	Yes	2011	462	563			1969	1892	0.73	0.70	1882	2125	0.70	0.79	1842	1078			2333	2280	0.86	0.84
					2021	872	843			2331	1959	0.86	0.73	2157	2178	0.80	0.81	1819	1171	0.71		2489	2452		
					2031	563	752			1937	1861	0.72	0.69	1845	2079		0.77	1823	1094			2344	2227	0.87	0.82
0.90	- assumed v/c treshold																								
					AR. 2B					972	955			942	1031			1819	768			1949	1761		
	v/c => 0.90				2011					1512	1371	5.6%	4.4%	1481	1580	5.7%	5.3%	2223	1171	2.2%	5.2%	1988	2298	0.2%	3.0%
	0.70 < v/c < 0.90				2021					1534	1441	0.1%	0.5%	1431	1637	-0.3%	0.4%	2283	1331	0.3%	1.4%	2281	2305	1.5%	0.0%
	v/c < 0.70				2031					1925	1567	2.5%	0.9%	1845	1763	2.5%	0.6%	2092	1427	-0.8%	0.7%	2411	2671	0.6%	1.6%

Alternatives						Location - Roadway Section							
						Steeles Avenue							
#	Goreway Dr. - No. of Lanes	Finch Ave. - No. of Lanes	Goreway Dr./CNR Grade Separation	Intermodal Dr. Extension	Time Chontzon	West of Goreway Dr.							
						vol		v/c					
						EB	WB	EB	WB				
1A	4	4	No	No	2001	1817	1424						
					2011	2145	1882	0.79	0.70				
					2021	2373	2227	0.88	0.82				
					2031	2461	2149		0.80				
1B	4	4	No	Yes	2011	2105	1731	0.78					
					2021	2347	1969	0.87	0.73				
2A	4	4	Yes	No	2011	2073	1838	0.77					
					2021	2441	2204		0.82				
2B	4	4	Yes	Yes	2011	2105	1731	0.78					
					2021	2347	1969	0.87	0.73				
					2031	2406	2372	0.89	0.88				
3	4	6	Yes	Yes	2011	2102	1851	0.78					
					2021	2343	2081	0.87	0.77				
					2031	2483	2342		0.87				
4	6	4	Yes	Yes	2011	2166	1937	0.80	0.72				
					2021	2429	2220		0.82				
					2031	2472	2401		0.89				
5	6	6	Yes	Yes	2011	2197	1918	0.81	0.71				
					2021	2471	2195		0.81				
					2031	2350	2066	0.87	0.77				
					AR. 2B								
					2011	1817	1424						
					2021	2105	1731	1.8%	2.2%				
					2031	2347	1969	1.1%	1.4%				
						2406	2372	0.3%	2.0%				

Brampton Works

N5RCNTM205--GOREWAY OVER MIMICO CREEK TR.

Visual Inspection Data

Bridge Name:	GOREWAY OVER MIMICO CREEK TR.
Location:	Goreway Drive 0.62 km South of Steeles Avenue East
UTM Coordinates:	608497E4842677N
Year Built:	1992
Bridge Type:	Reinforced Concrete Box Culvert - Closed Footing
Crosses:	Mimico Creek Tributary
Direction of Traffic:	SN
Number of Lanes:	4
Number of Cells:	1
Number of Retaining Walls:	6
Watercourse:	Yes
Years Until Widening:	N/A
Inspector:	Ron Robinson
Date of Survey:	4/15/2004 10:42:48 AM

Â

Geometric Data

	Dimensional Data
Cell 1 Vertical Exposed Surface Area(in sq. metres):	84.2
Cell 1 Vertical Wall Height (in metres)	2.2
Cell 1 Vertical Wall Length (in metres)	23.4
Cell 1 Vertical Wall Thick (in metres)	0.4
Cell 1 Horizontal Exposed Surface Area(in sq. metres)	224.6
Cell 1 Horizontal Slab Length (in metres)	23.4
Cell 1 Horizontal Slab Thick (in metres)	0.4
Cell 1 Horizontal Slab Width (in metres)	4.8
Cell 1 Over Burden (in metres)	1.5
Cell 1 Volume (in cube metres)	147.9

Â

Narrative

SITE NUMBER	N5RCNTM205
STRUCTURE NAME	GOREWAY OVER MIMICO CREEK TR.
LOCATION	Goreway Drive , 0.62 km South of Steeles Avenue East
JURISDICTION	Brampton
DATE OF INSPECTION	4/15/2004 10:42:48 AM
INSPECTOR	Ron Robinson

EXISTING CONDITIONS

GENERAL INFORMATION

This single cell reinforced concrete box culvert with a closed footing was built in 1992. The structure carries 4 lanes of north south traffic on Goreway Drive over a Mimico Creek tributary.

The structure is heavily used with an AADT of 15,390. It is predicted that in the next 10 years the AADT will rise to 18,470. The culvert is not designated as a heritage structure.

The existing soil conditions are good.

Cell 1

There is no evidence of failure in this cell and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the cell, there is no alkali aggregate reaction in the concrete. The extent of concrete cracking is local, the severity of the cracking is medium and the cracks are not leaching. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. The area of the cell's vertical surface requiring repairs is approximately 0%. The area of the cell's underside requiring repairs is approximately 3%. The area of the cell's horizontal surface requiring repairs is approximately 0%. There are 10m of cracks in the cell which require repairs, of which none are structurally related. The estimated remaining service life is 11 years.

RETAINING WALL 1

The retaining wall type is reinforced concrete cantilever and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the retaining wall, there is no alkali aggregate reaction in the concrete. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. Approximately 0% of the vertical surface requires repairs. There is no evidence of overturning. 0% of the wall has failed. The estimated remaining service life is 20 years.

RETAINING WALL 2

The retaining wall type is reinforced concrete cantilever and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the retaining wall, there is no alkali aggregate reaction in the concrete. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. Approximately 0% of the vertical surface requires repairs. There is no evidence of overturning. 0% of the wall has failed. The estimated remaining service life is 20 years.

RETAINING WALL 3

The retaining wall type is reinforced concrete cantilever and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the retaining wall, there is no alkali aggregate reaction in the concrete. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. Approximately 0% of the vertical surface requires repairs. There is no evidence of overturning. 0% of the wall has failed. The

estimated remaining service life is 20 years.

RETAINING WALL 4

The retaining wall type is reinforced concrete cantilever and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the retaining wall, there is no alkali aggregate reaction in the concrete. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. Approximately 0% of the vertical surface requires repairs. There is no evidence of overturning. 0% of the wall has failed. The estimated remaining service life is 20 years.

RETAINING WALL 5

The retaining wall type is reinforced concrete cantilever and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the retaining wall, there is no alkali aggregate reaction in the concrete. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. Approximately 0% of the vertical surface requires repairs. There is no evidence of overturning. 0% of the wall has failed. The estimated remaining service life is 20 years.

RETAINING WALL 6

The retaining wall type is reinforced concrete cantilever and it conforms to the Ontario Highway Bridge Design Code. Based on a visual assessment of the retaining wall, there is no alkali aggregate reaction in the concrete. The average compressive strength of the concrete is greater than 35 Mpa and the air void distribution is satisfactory. Approximately 0% of the vertical surface requires repairs. There is no evidence of overturning. 0% of the wall has failed. The estimated remaining service life is 20 years.

WATERCOURSE

The watercourse is stable. The average length of impact of the watercourse embankments is 22m. There is no evidence of significant erosion of the banks and no repairs are required. There is no evidence of any unanticipated flow exposure. There is no significant aggradation of the watercourse. The estimated remaining service life is 11 years.

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Summary Sheet

GOREWAY OVER MIMICO CREEK TR.:
This culvert, on Goreway Drive, 0.62 Km South of Steeles Avenue East is a 1 span structure crossing the Mimico Creek Tributary . The culvert, built in 1992, is constructed of Reinforced Concrete Box Culvert - Closed Footing. The major concern at this site is leakage at construction joints which will cause future concrete deterioration.

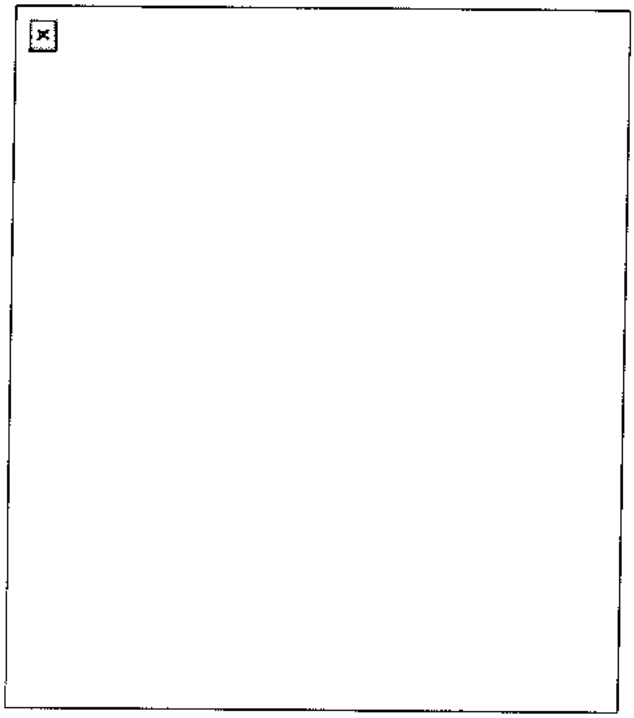
Estimated Minimum RSLs

Deck-Top	N/A	Abutments	N/A
Deck-Underside	N/A	Bearings	N/A
Retaining Wall	20	Slopes	N/A
Barriers	N/A	Piers	N/A
Approaches	N/A	Watercourse	* 11
Joints	N/A	Girders	N/A
Longitudinal Joints	N/A	Culverts	* 11
Sidewalks/curbs	N/A	Trails	N/A

Project Level Costs

Year	Pre-emptive	Rehabilitative
2006	$0.00	$0.00
2007	$0.00	$0.00
2008	$0.00	$0.00
2009	$0.00	$0.00
2010	$0.00	$0.00
2011	$0.00	$0.00
2012	$18,744.00	$26,026.30
2013	$18,744.00	$26,366.84
2014	**$18,744.00**	**$26,707.38**
2015	$18,744.00	$27,047.91
2016	$18,744.00	$27,388.45

Condition Index Profile:



AADT: 15390 **Original Asset Value:** $209,163.44 **Min. RSL:** 11

$AADT_{10}$: 18470 **Condition Index:** 100

Â

Treatment Details - 2006

FOR EACH TREATMENT CODE ANY OR ALL OF THE FOLLOWING TREATMENTS MAY APPLY:

Type	Code	Treatment	Price
		Mobilization:	$0.00
		Traffic Control:	$0.00
		Total:	$0.00

Appendix C – Alternative and Preferred Design Concepts and Cost Breakdown

The City of Brampton

GOREWAY DRIVE GRADE SEPARATION

PRELIMINARY COST ESTIMATE

UNDERPASS OPTION

Item No.	Description	Unit	Estimated Quantity	Contractor's Bid Per Unit	Payment Amount
GENERAL OVERHEAD					
01	Site office	month	18	$ 5,000.00	$ 90,000.00
02	Overhead Costs	year	2	$ 1,000,000.00	$ 2,000,000.00
03	Finance Carrying Costs	month	18	$ 15,000.00	$ 270,000.00
Subtotal					**$ 2,360,000.00**
REMOVALS					
A1	Removal of Concrete Curb and Gutter (All Types)	m	1450	$ 7.00	$ 10,150.00
A2	Removal of Asphalt Pavement	m^2	11000	$ 2.00	$ 22,000.00
Subtotal					**$ 32,150.00**
DRAINAGE					
B1	150 mm Perforated Subdrain	m	1200	$ 20.00	$ 24,000.00
B2	200 mm Rigid Pipe Sewers	m	300	$ 150.00	$ 45,000.00
B3	300 mm Rigid Pipe Sewers	m		$ 160.00	$ -
B4	375 mm Rigid Pipe Sewers	m	260	$ 175.00	$ 45,500.00
B5	450 mm Rigid Pipe Sewers	m	230	$ 225.00	$ 51,750.00
B6	525 mm Rigid Pipe Sewers	m	110	$ 250.00	$ 27,500.00
B7	675 mm Rigid Pipe Sewers	m	80	$ 325.00	$ 26,000.00
B8	Single Catchbasins	each	40	$ 2,000.00	$ 80,000.00
B9	Double Catchbasins	each	4	$ 2,800.00	$ 11,200.00
B10	Manholes	each	22	$ 3,200.00	$ 70,400.00
B11	Ditch Inlets	each	4	$ 2,200.00	$ 8,800.00
B12	Supply and Install 450mm CSP Culverts	m	40	$ 250.00	$ 10,000.00
B13	Pumps, Pump Station and Controls	l.s.	1	$ 750,000.00	$ 750,000.00
Subtotal					**$ 1,150,150.00**
GRADING AND PAVING					
C1	Earth Excavation (Grading) a) Cut including topsoil stripping b) Fill including topsoil stripping	 m^3 m^3	 77500 5400	 $ 5.00 $ 3.00	 $ 387,500.00 $ 16,200.00
C2	Tack Coat	m^2	15000	$ 0.30	$ 4,500.00
C3	Hot Mix HL-1	t	2000	$ 70.00	$ 140,000.00
C4	Hot Mix Heavy Duty HL-8	t	4000	$ 60.00	$ 240,000.00
C5	Hot Mix HL-3 for Splash Pad and Bike Path	t	1000	$ 65.00	$ 65,000.00
C6	Hot Mix Miscellaneous for Bicycle Path and Splash Pad including 150mm Granular A Compacted	m^2	3700	$ 10.00	$ 37,000.00
C7	Granular 'A'	t	5800	$ 20.00	$ 116,000.00
C8	Granular 'B', Type I	t	13500	$ 15.00	$ 202,500.00
C9	Concrete Curb and Gutter (All Types)	m	1450	$ 45.00	$ 65,250.00
C10	Concrete Sidewalks	m^2	1350	$ 40.00	$ 54,000.00
C11	Supply and Place 100mm Topsoil, Nursery Sod and Water for Sod	m^2	10000	$ 7.00	$ 70,000.00
C12	Supply and Place of 100 mm of Topsoil, Seed and Mulch	m^2		$ 3.00	$ -
C13	Landscaping (Allowance)	l.s.	1	$ 150,000.00	$ 150,000.00
C17	Pavement Marking (Durable) a) Solid Yellow, 10 cm b) Solid White, 10 cm c) 363 Broken White, 10 cm d) 333 Broken White, 10 cm e) Solid White, 60 cm f) Solid Yellow, 20 cm g) Pavement Marking Symbols	 m m m m m m each	 1000 1800 600 150 300 100 10	 $ 5.00 $ 5.00 $ 5.00 $ 5.00 $ 30.00 $ 10.00 $ 150.00	 $ 5,000.00 $ 9,000.00 $ 3,000.00 $ 750.00 $ 9,000.00 $ 1,000.00 $ 1,500.00
C18	Pavement Marking (Temporary/Staging) a) White b) Yellow	 m m	 1400 700	 $ 1.00 $ 1.00	 $ 1,400.00 $ 700.00
Subtotal					**$ 1,579,300.00**

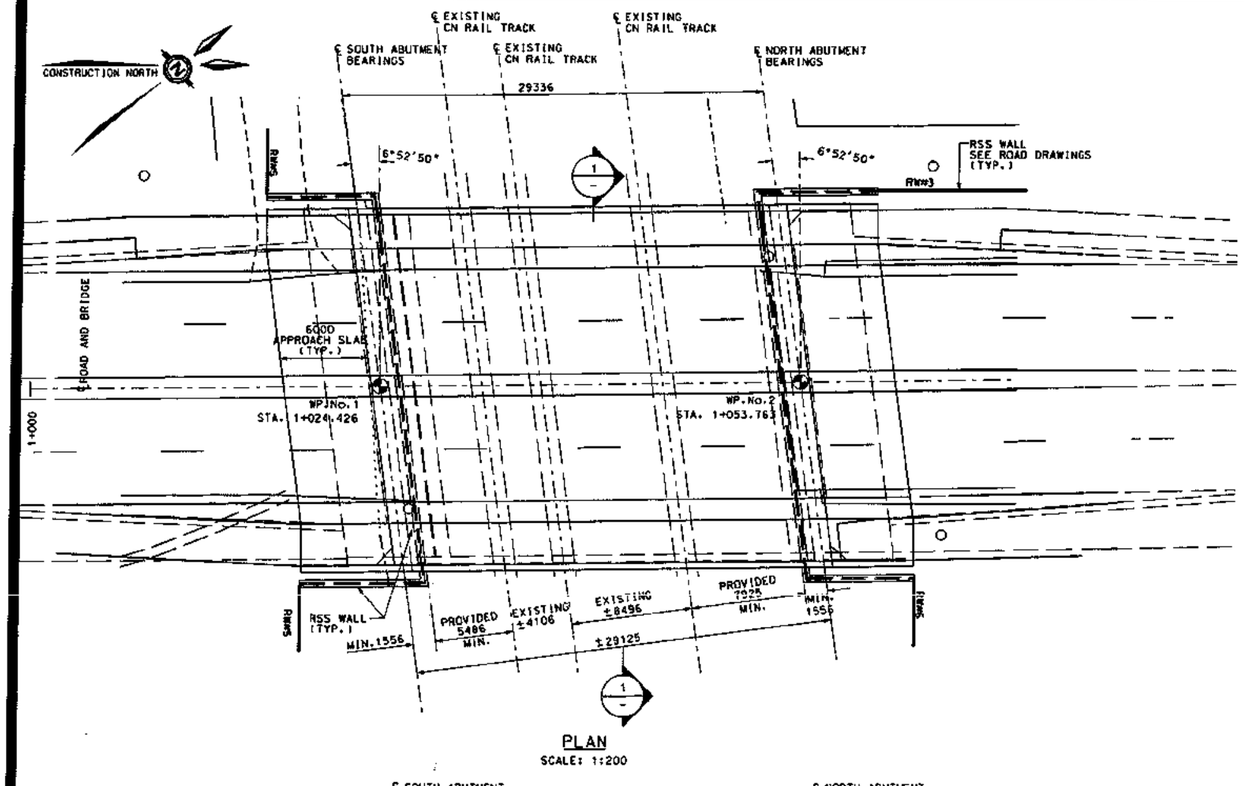
The City of Brampton

GOREWAY DRIVE GRADE SEPARATION

PRELIMINARY COST ESTIMATE

UNDERPASS OPTION

WATER AND ELECTRICAL					
D1	500mm CPP watermain	m	450	$ 800.00	$ 360,000.00
D2	500mm CPP watermain under CN by Jack and Bore	m	40	$ 5,000.00	$ 200,000.00
D3	New hydrants as per Peel Std. Dwg. 1-6-1 or 1-6-2	each	2	$ 3,000.00	$ 6,000.00
D4	Watermain Valves & Boxes	each	4	$ 1,000.00	$ 4,000.00
D5	Drain/Air Valve Chambers	each	4	$ 25,000.00	$ 100,000.00
D6	Water Valve Adjustments	each	2	$ 3,500.00	$ 7,000.00
D7	Illumination	l.s.	1	$ 300,000.00	$ 300,000.00
Subtotal					**$ 977,000.00**
STRUCTURAL					
E1	RSS Walls				
	a) RW#6	m^2	950	$ 1,000.00	$ 950,000.00
	b) RW#7	m^2	950	$ 1,000.00	$ 950,000.00
E2	Bridge Structure	m^2	730	$ 4,500.00	$ 3,285,000.00
E3	Temporary Shoring Protection	l.s.	1	$ 250,000.00	$ 250,000.00
E4	Extend Existing Concrete Culvert	l.s.	1	$ 50,000.00	$ 50,000.00
E5	Headwalls for Concrete Culvert Extension	l.s.	1	$ 25,000.00	$ 25,000.00
E6	Wingwalls for Concrete Culvert Extension	l.s.	1	$ 25,000.00	$ 25,000.00
Subtotal					**$ 5,535,000.00**
UTILITY RELOCATIONS					
F1	Relocate 900mm Diameter Enbridge Gas Main	l.s.	1	$ 1,500,000.00	$ 1,500,000.00
F2	Relocate Existing Hydro Poles and Lines	l.s.	1	$ 150,000.00	$ 150,000.00
F3	Relocate Existing Bell Conduit	l.s.	1	$ 300,000.00	$ 300,000.00
F4	Relocate Existing 360 Networks Fibre	l.s.	1	$ 300,000.00	$ 300,000.00
Subtotal					**$ 2,250,000.00**
TEMPORARY WORKS					
G1	Temporary Detour Paving	m^2	5500	$ 25.00	$ 137,500.00
G2	Temporary Concrete Barrier	m	500	$ 70.00	$ 35,000.00
G3	Temporary Concrete Barrier, Relocation	m	300	$ 25.00	$ 7,500.00
G4	Traffic Control for Detours	l.s.	1	$ 10,000.00	$ 10,000.00
G5	Rail Diversion and Temporary Signals	l.s.	1	$ 3,000,000.00	$ 3,000,000.00
G6	Provisional Sum for Extra Work	l.s.	1	$ 500,000.00	$ 500,000.00
Subtotal					**$ 3,690,000.00**
			SUBTOTAL		**$ 17,573,600.00**
			30% Contingency		**$ 5,226,400.00**
			TOTAL		**$ 22,800,000.00**



PLAN
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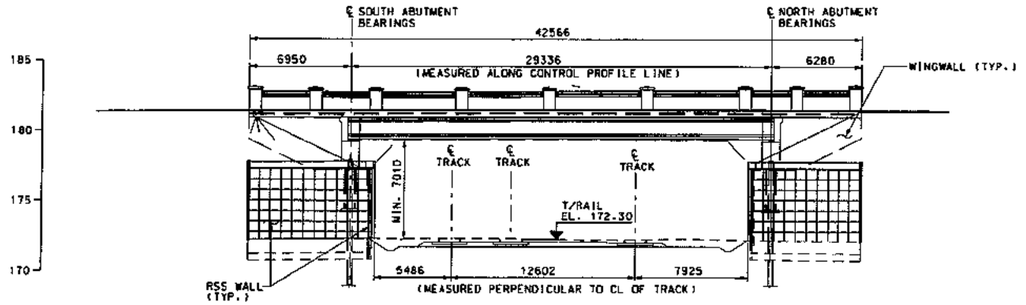

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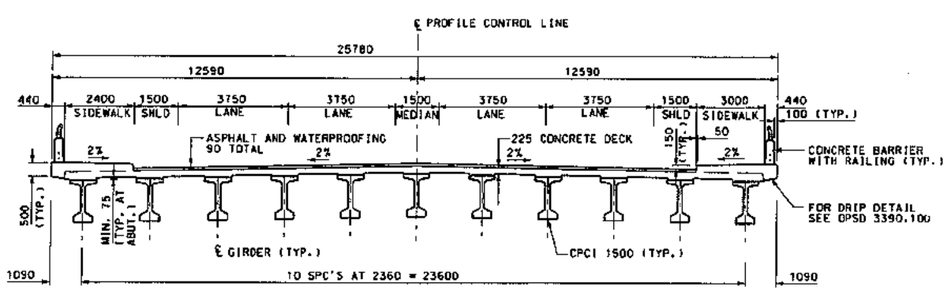


SECTION 1
SCALE 1:100

GENERAL NOTES:

1. CLASS OF CONCRETE

PRESTRESSED GIRDERS	50 MPa
DECK AND SIDEWALK	30 MPa
ABUTMENT AND WINGWALLS	30 MPa
FOOTING	30 MPa
REMAINDER	30 MPa

2. CLEAR COVER TO REINFORCING STEEL

ABUTMENT AND WINGWALLS		70 ± 20
DECK	TOP	70 ± 20
	BOTTOM	40 ± 10
FOOTING		100 ± 25
REMAINDER		70 ± 20 UND

3. REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.

REINFORCING STEEL DESIGNATED WITH PREFIX 'C' DENOTES COATED BARS.

TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS.

4. CONSTRUCTION NOTES:

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ADEQUATE PROTECTION OF UTILITIES, SERVICES, STRUCTURES, ROADWAYS, WATER COURSES, ETC. DURING CONSTRUCTION OPERATIONS. CONTRACTOR'S METHOD OF PROTECTION TO BE SUBMITTED TO CONTRACT ADMINISTRATOR

THE INFORMATION SHOWN ON THIS DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES NOT GUARANTEED TO BE ACCURATE.

THE CONTRACTOR SHALL ADVISE ALL UTILITY COMPANIES IN WRITING OF HIS PROPOSED WORK.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AT HIS OWN EXPENSE OF ANY DAMAGE TO UTILITIES CAUSED BY THE CONTRACTOR.

THE CONTRACTOR SHALL INSTALL PROTECTIVE MEASURES AND WORKING PLATFORMS (SCAFFOLDING, PLATFORMS, HEAVY POLYETHILENE SHEET, ETC.) TO PREVENT ANY DEBRIS, CUTTING WATER/SLURRY AND FINE DEBRIS FROM FALLING ONTO THE C.N. TRACKS. THE MEASURES TAKEN SHALL SATISFY THE REQUIREMENTS OF C.N.

THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND REMOVE THE TEMPORARY TRACK PROTECTION SYSTEM FOR ABUTMENTS AND RSS WALL ACCORDING TO THE OPSS REQUIREMENTS PERFORMANCE LEVEL 1.

THE CONTRACTOR SHALL ESTABLISH THE ACTUAL BEARING SEAT ELEVATIONS. IF THE ACTUAL BEARING THICKNESS ARE DIFFERENT FROM THOSE GIVEN WITH THE DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT

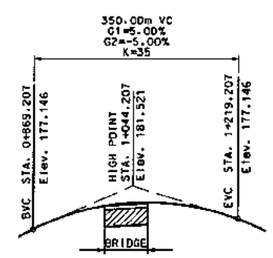
CONCRETE BARRIER WALLS ON WINGWALLS SHALL NOT BE CAST UNTIL THE WINGWALL BACKFILL HAS BEEN COMPLETED

NO CONCRETE OR GRANULAR MATERIAL SHALL BE PLACED UNTIL THE DEPTH OF THE EXCAVATION AND THE CHARACTER OF THE FOUNDATION HAVE BEEN APPROVED BY THE GEOTECHNICAL ENGINEER..

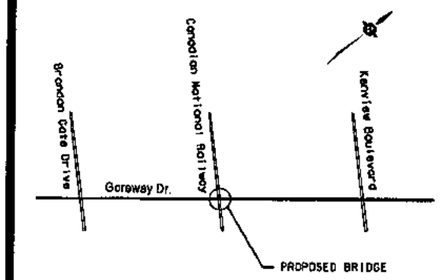
NO BACKFILL SHALL BE PLACED UNTIL THE DECK CONCRETE HAS REACHED 75% OF ITS SPECIFIED STRENGTH.

BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN HEIGHTS OF BACKFILL BE GREATER THAN 500mm.

5. W.P. DENOTES WORKING POINT
T/P DENOTES TOP OF PAVEMENT
B/F DENOTES BOTTOM OF FOOTING



PROFILE CONTROL LINE
GOREWAY DRIVE
SCALE: NTS



KEY PLAN
N.T.S.

APPLICABLE OPSD STANDARD DRAWINGS:

OPSD 3000.100	FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
OPSD 3000.150	FOUNDATION PILES - STEEL H-PILE SPLICE
OPSD-3101.150	WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT
OPSD 3102.100	WALLS - ABUTMENT, BACKFILL DRAIN
OPSD-3190.100	WALLS RETAINING AND ABUTMENT WALL DRAIN
OPSD-3370.100	DECK WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD-3370.101	DECK WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKES GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
OPSD-3419.100	BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
OPSD-3390.100	DECK DRIP CHANNEL
OPSD-3950.100	JOINTS - CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE

UMA | AECOM

NO.	BY	DATE	REVISIONS	CHECKED

CITY OF BRAMPTON
WORKS & TRANSPORTATION

PROJECT DWG. NO.

LICENSED PROFESSIONAL ENGINEER S. KIM 100071157 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER G.R.SMITH PROVINCE OF ONTARIO

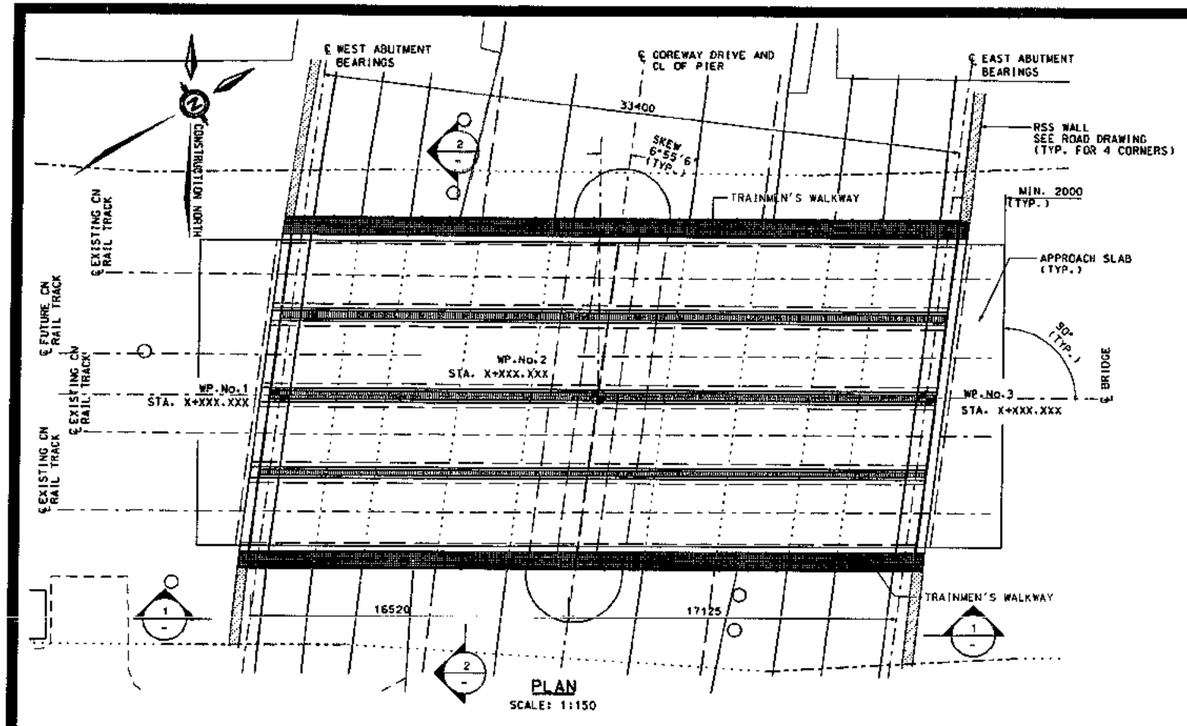
GOREWAY DRIVE

FROM STEELES AVENUE TO THE GOREWAY DRIVE

ROAD OVERPASS

GENERAL ARRANGEMENT

SURVEYED BY:		DATE:		CONTRACT NO.	2007-XXX
DRAWN BY:	V.K.	CHECKED BY:	A.B.	DRAWING NO.	SHEET NO.
DESIGNED BY:	P.K.	CHECKED BY:	S.S.		
SCALE:	AS SHOWN	DATE:	JAN 27, 2007		



PLAN
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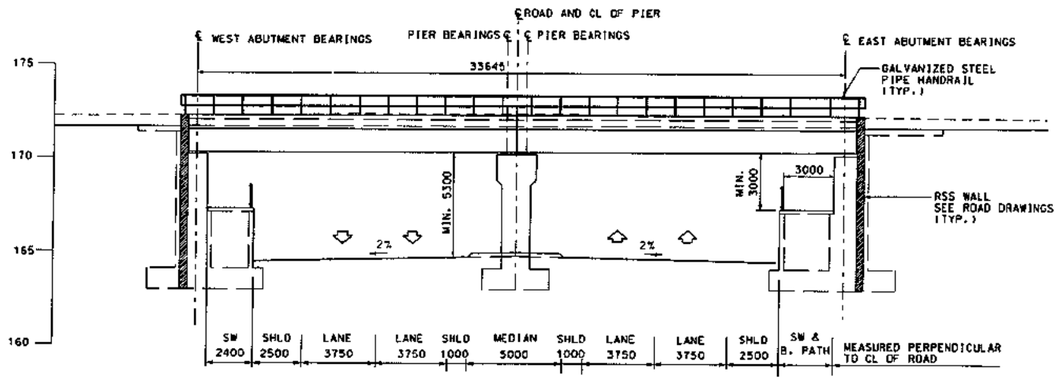
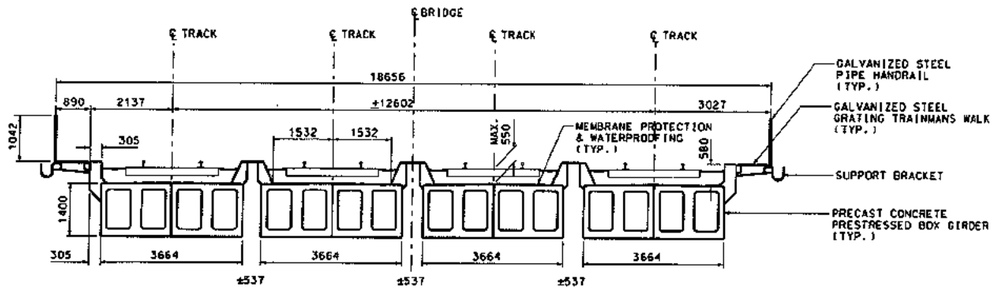


ELEVATION 1
SCALE 1:150



SECTION 2
SCALE 1:75

NOTE:
DIMENSIONS MEASURED NORMAL TO CL OF TRACK UNLESS NOTED OTHERWISE

GENERAL NOTES:

1. CLASS OF CONCRETE

PRESTRESSED GIRDERS	50 MPa
DECK AND SIDEWALK	30 MPa
ABUTMENT AND WINGWALLS	30 MPa
FOOTING	30 MPa
REMAINDER	30 MPa

2. CLEAR COVER TO REINFORCING STEEL

ABUTMENT AND WINGWALLS		70 ±20
DECK	TOP	70 ±20
	BOTTOM	40 ±10
FOOTING		100 ± 25
REMAINDER		70 ± 20 UNO

3. REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.

REINFORCING STEEL DESIGNATED WITH PREFIX 'C' DENOTES COATED BARS.

TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS. WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS.

STRUCTURAL STEEL FOR TRAINMAN'S WALK TO BE CAN/CSA-G40.21-M94. GRADE 350W. (GALV.)

STRUCTURAL STEEL FOR COVER PLATES TO BE CAN/CSA-G40.21-M94. GRADE 300W (GALV.)

4. CONSTRUCTION NOTES:

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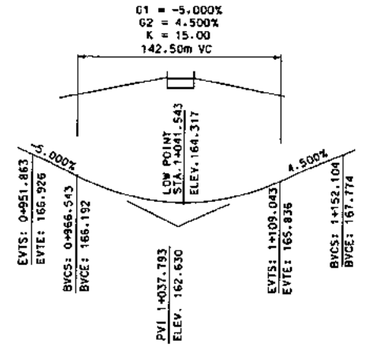
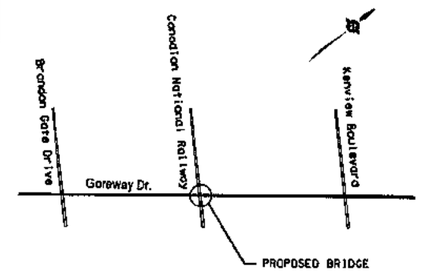
5. W.P. DENOTES WORKING POINT
T/P DENOTES TOP OF PAVEMENT
B/F DENOTES BOTTOM OF FOOTING



PROFILE CONTROL LINE
SCALE: NTS



KEY PLAN
N.T.S.

UMA | AECOM

NO.	BY	DATE	REVISIONS	CHECKED

CITY OF BRAMPTON
WORKS & TRANSPORTATION

S. KIM 100071157 LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

G.R.SMITH LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

PROJECT DWG. NO.

GOREWAY DRIVE

FROM STEELES AVENUE TO THE GOREWAY DRIVE

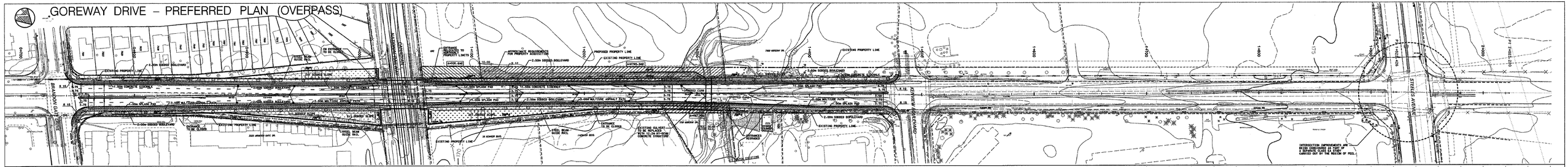
ROAD UNDERPASS

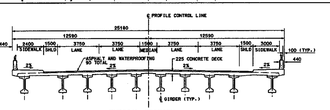
GENERAL ARRANGEMENT

SURVEYED BY:		DATE:	CONTRACT NO. 2007-XXX
DRAWN BY:	V.K.	CHECKED BY: A.B.	DRAWING NO. / SHEET NO.
DESIGNED BY:	P.K.	CHECKED BY: S.B.	
SCALE:	AS SHOWN	DATE: JAN 27, 2007	

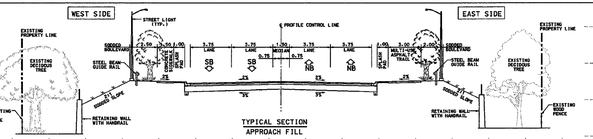
GOREWAY DRIVE – UNDERPASS

GOREWAY DRIVE – PREFERRED PLAN (OVERPASS)





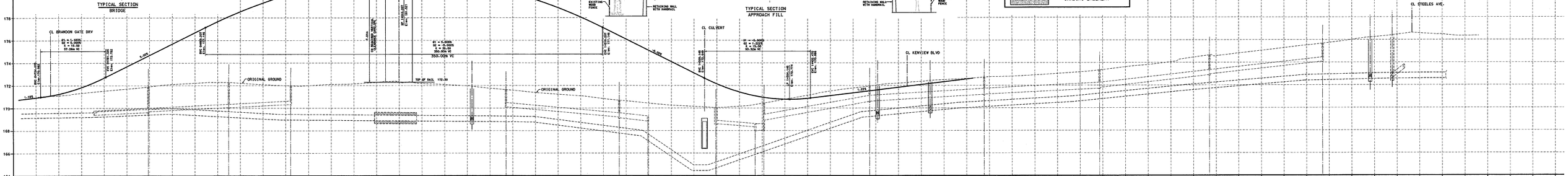
TYPICAL SECTION
BRIDGE



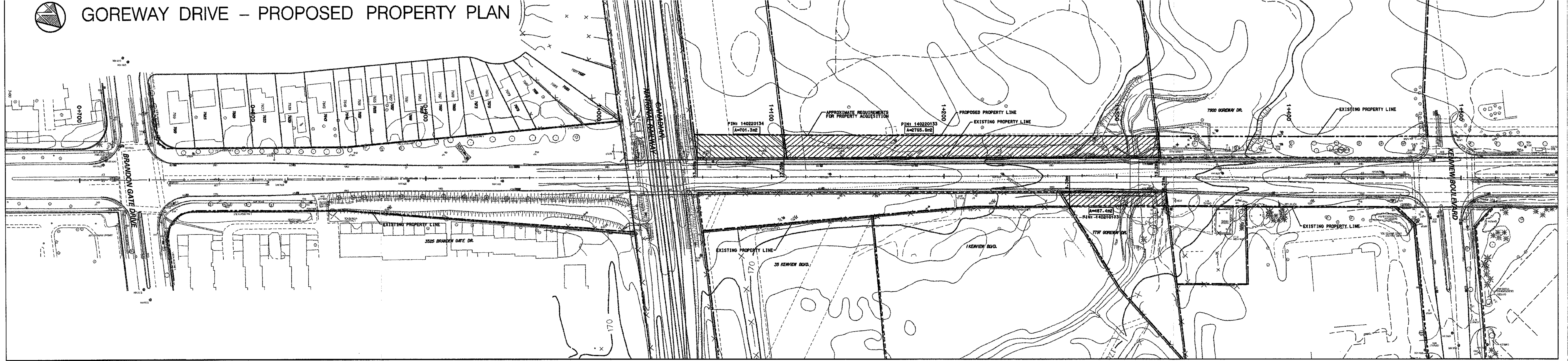
TYPICAL SECTION
APPROACH FILL

LEGEND:

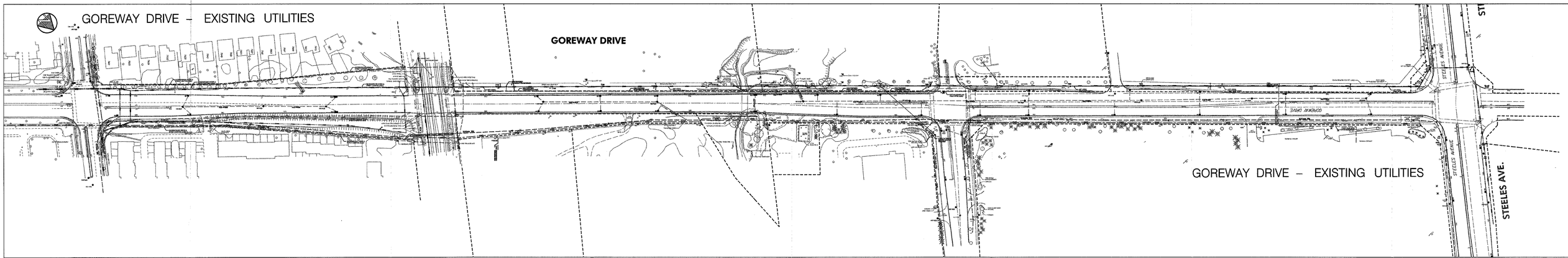
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPERTY ACQUISITION
- GRADING EASEMENT

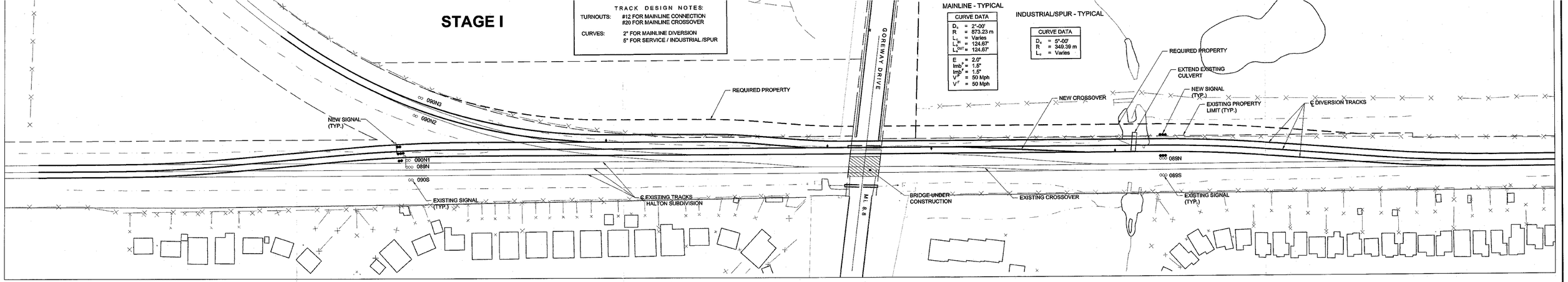


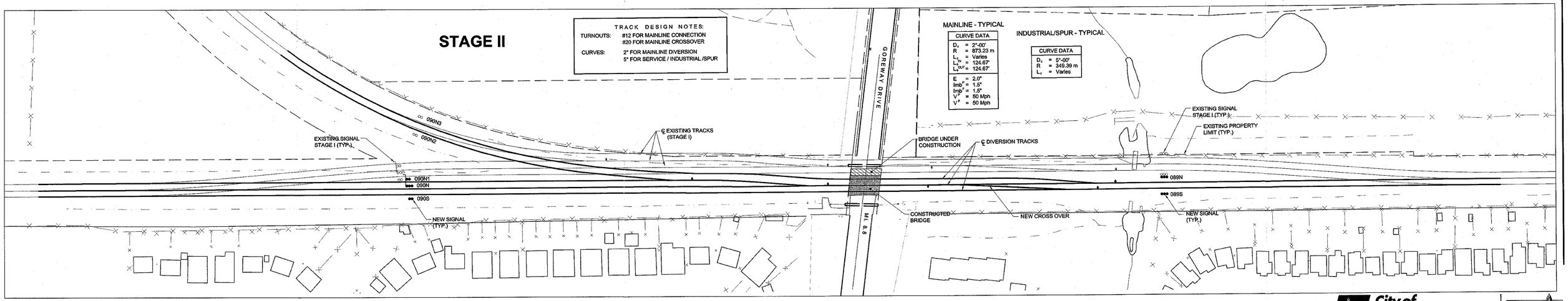
GOREWAY DRIVE – PROPOSED PROPERTY PLAN



GOREWAY DRIVE - DETOUR


GOREWAY DRIVE – EXISTING UTILITIES
GOREWAY DRIVE
GOREWAY DRIVE – EXISTING UTILITIES
STEELES AVE.

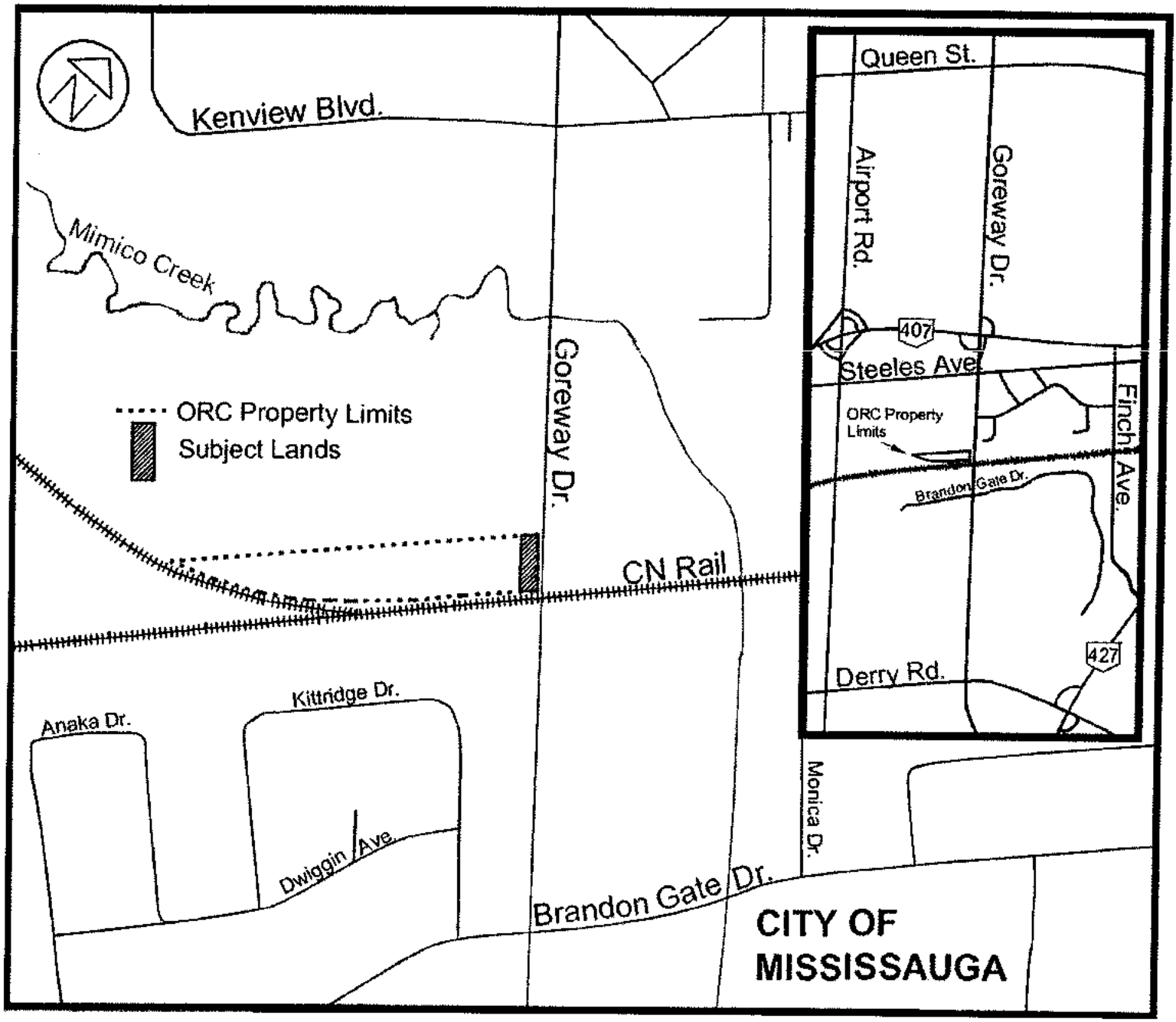




Scale 1:1000
February 2, 2007

City of MISSISSAUGA | CITY OF BRAMPTON

Appendix D – Ontario Realty Corporation Category 'B' Class EA


Kenview Blvd.
Mimico Creek
ORC Property Limits
Subject Lands
Goreway Dr.
CN Rail
Kittridge Dr.
Anaka Dr.
Dwiggin Ave.
Brandon Gate Dr.
Monica Dr.
CITY OF MISSISSAUGA
Queen St.
Airport Rd.
Goreway Dr.
407
Steeles Ave.
ORC Property Limits
Finch Ave.
Brandon Gate Dr.
Derry Rd.
427

CLASS ENVIRONMENTAL ASSESSMENT PROCESS
FOR MANAGEMENT BOARD SECRETARIAT

ORC CONSULTATION AND DOCUMENTATION
REPORT (C&D Report)

This report is completed and signed by ORC staff or its agents for all Category "B" and Category "C" undertakings. This is an electronic form available from the ORC. The form is designed so that any field can be enlarged to incorporate all required information. The form must be completed electronically. All questions must be addressed, as appropriate.

ORC Staff or Agent's Name: Andrew Ritchie, Consultant Planner, UMA Engineering Ltd.		Phone: (905) 238-0007, Ext. 8135
File/Project/Work Order Number: RFP 2006-041 EA06003 / 4020-009		
PIMS Installation Number: N72199	PIMS Building Number(s): N/A	Cultural Heritage Evaluation (CHE) Reference: N/A
Brief Description of Undertaking: Sale or Disposal and Severance of Property		
Brief Description of Purpose and Rationale: Sale or Disposal and Severance of Property to the City of Brampton for the future right-of-way (ROW) widening to facilitate construction of the proposed grade separation at Goreway Drive and CN's Halton Subdivision.		
Discussion of the Review of Alternatives to the Undertaking (attach as Appendix if Required): Not applicable for the Sale or Disposal and Severance of Property.		

PART I – PROJECT AND SITE DESCRIPTION

1. Identify Undertaking

☐ Optioning (Real Property, Easm'ts & ROWs)	☐ Building Repair (Interior & Exterior)
☐ Leasing & Renewals, No Change in Use	☐ Building Alteration and Restoration (Int & Ext)
☐ Letting & Renewals, No Change in Use	☐ Leasing & Renewals, with Change in Use
☐ Appraisals	☐ Letting & Renewals, with Change in Use
☐ Surveys	☐ Lease Purchase
☐ Feasibility Studies	☐ Easements
☐ Legal Services	☒ Severance
☐ Co-development Agreements	☐ Expropriations
☐ Consultant Agreements	☐ Purchase
☐ Real Estate Profile Reporting	☒ Sale or Disposal
☐ Grounds Maintenance	☐ Sale or Disposal W/ESA, to Conservation Body
☐ Landscaping	☐ Sale or Disposal W/ESA, to Non-Conservation Body
☐ Mortgages	☐ Demolition
☐ Grants	☐ Decommissioning
☐ Lease Administration	☐ Planning Approvals (Land Development)
☐ Title Search	☐ Sale of Density or Air Rights
☐ Contaminant Search & Decommission Estimates	☐ Low Voltage Rights (Power Poles & Guy Wires)
☐ Design Services	☐ Reconstruction
☐ Market & Realty Services	☐ Additions
☐ Building Maintenance (Interior & Exterior)	☐ Construction of New Facility
	☐ Other: Describe:

2 Client Ministry, Agency, Board or Commission:

Ministry of Public Infrastructure Renewal

3. Site Tenant:

Vacant Land

4. Client's Intended Land Use for Site:

Widening of road allowance to facilitate construction of the proposed grade separation at Goreway Drive and CN's Halton Subdivision.

5. Site Description (Attach Site Plan if available): Part of Lot 14, Concession 7 ND, City of Brampton

County:	Township:	Lot: Part of Lot 14	Concession: 7 ND
Region of Peel	City of Brampton		

Municipal Address:

0 Goreway Drive (part of Parkway Belt West Industrial Area and situated in the northwest quadrant of Goreway Drive and CN's Halton Subdivision)

Site Area: Approximately 705.6 m^2 (approximately 14 m by 52 m)

Brief Description of Site Features: Vacant lands consisting of old field or abandoned farmland.

PART II – PROVISIONAL ENVIRONMENTAL ASSESSMENT CATEGORIZATION

(Ref: Class EA Section 2)

1. Does client ministry/municipality have an applicable EA process or approval for the proposed undertaking? No additional EA process to the ORC Class EA. ☐ Yes ☒ No

   If YES, receive written confirmation from client that it intends to use its own process. (Document identified as Item 8 in Appendix 4 to be completed and kept in project file.) In this case, no further EA work is required by ORC.

   If NO, complete the C&D Report.

2. Identify provisional EA Category of Project using the Class EA, Fig.2.1 (Flowchart), Category Listing Matrix, and Appendix 1. If Category is in doubt, use Class EA Table 2.1 Category Identification Table.

   Provisional Category ☐ **A** ☒ **B** ☐ **C** ☐ **D**

3. If a Cultural Heritage Evaluation (CHE) has not been completed for this site, and it has not been identified on Page 1 of the C&D Report, a Category A undertaking which involves excavation, building alterations, sale or lease cannot be confirmed until the user of the Class EA completes Part III, Question 6, Cultural Heritage Analysis, of the C&D Report to assess the cultural heritage potential of the site and the requirement for further study.

4. Provisional Environmental Assessment Categorization Summary

   - For Category A projects, proceed without further EA action unless a heritage feature of the site or building is involved. Complete Sign-Off Declaration in Part V.
   - For Category B projects, complete remainder of this report and Sign-Off Declaration in Part V.
   - For Category C projects, refer to Class EA, Section 4 and complete Sign-Off Declaration in Part V.

PART III – SITE ANALYSIS, CONSULTATION AND DOCUMENTATION ("YES" answers require resolution in Part IV of this report. Ref: Class EA Section 4)	
1. EXISTING LAND USE STATUS (Under "Source" give name & phone number of Authority contact that provided the information. If information was derived from public records, give cross-reference.)	
a. Current Official Plan and Zoning Designations: Designated as Industrial Land and Parkway Belt Industrial Area in the City of Brampton Official Plan Designated as Open Space/Hazard Lands and Utility Corridor in the Parkway Belt West Industrial Area Secondary Plan Designated as Utility and Public Open Space Buffer within the Public Use Area of the Parkway Belt West Plan (In accordance with Section 5.4.1 of the Parkway Belt West Plan, 'linear transportation facilities including necessary accessory facilities are a permitted use within the Public Use Area') Zoned Agricultural Source: City of Brampton Official Plan (2006) (land use); City of Brampton Website (zoning); Ministry of Municipal Affairs and Housing, Alejandra Gonzalez, (416) 585-7323	
b. Floodplain Designation: The subject lands do not appear to be within an area regulated under Ontario Regulation 166/06. The subject lands are not within a floodplain. Source: Toronto and Region Conservation Authority, Anthony Sun, (416) 661-6600 Ext. 5618	
c. Designated Prime Agricultural Areas where Specialty Crop Lands and Prime Agricultural Lands (Class 1, 2 and 3) predominate: Site consists of Cachel soils, which are mapped as a combination of Class 1 and 2 soils with moderate limitations that reduce the choice of crops that can be cultivated, or that require moderate conservation practices. Source: Soil Survey of Peel County – Report No. 18; and, Canada Land Inventory Soil Capability for Agricultural Mapping.	
d. Environmentally Significant Areas (ESAs): The subject lands are not located within an Area of Natural or Scientific Interest (ANSI) or ESA. Source: Ministry of Natural Resources, Mark Heaton, (905) 713-7406; Toronto and Region Conservation Authority, Anthony Sun, (416) 661-6600 Ext. 5618	
e. Are there surface or underground easements on the site? Source: City of Brampton, Bob Waldon, (905) 874-3465 Specify: Parcel Register printed April 26, 2007 for PIN 14022-0134 indicates no registered easements or encumbrances. However, Hydro Enersource, Hydro One Brampton , Hydro One Telecom, and Bell Cable have utilities on the subject lands. A meeting was held with Hydro One Brampton and Hydro Enersource on November 16, 2007, with City of Brampton Staff. Both companies indicated that the relocation of utilities on top of the proposed grade separation is acceptable, and therefore no property acquisition or easement is required. Hydro One Telecom has aerial cable in connection with hydro plant and will be relocated with the relocation of hydro poles. Bell Canada has been contacted and the City will confirm the need for relocation of Bell's below-ground plant at the time of construction.	☐Yes ☒No
f. From the above contacts / research, in your opinion, will the client's intended land use (identified above in Part I, Question 4) require an application under the *Planning Act* to bring current land use into conformity with intended land use? If YES, has ORC, or anyone else, applied for a change in land use under the *Planning* Act? Describe resolution of this issue in Part IV, below.	☐Yes ☒No
g. Is the site directly adjacent to designated ESAs or major transportation routes? Source: Ministry of Natural Resources, Mark Heaton, (905) 713-7406; Toronto and Region Conservation Authority, Anthony Sun, (416) 661-6600 Ext. 5618; Mapping Specify: Properties adjacent to the subject lands are not located within and/or adjacent to an ANSI or ESA. Goreway Drive is located east of the subject lands and CN's Halton Subdivision is located south of the subject lands.	☒Yes ☐No ☒Yes ☐No

If "YES" to the above, are any impact mitigation studies being conducted? Class Environmental Assessment Study for Improvements to Goreway Drive from Steeles Avenue to Brandon Gate Drive If "YES" to either of the above 2 questions, describe the adjacent land use/studies in Part IV, below.	
h. Federal Government (PWGSC) Contact Name: N/A Phone No.: N/A Any federal lands? Is site part of or adjacent to federal land?	☐Yes ☒No ☐Yes ☒No

2. ENVIRONMENTAL CONDITION OF THE PROPERTY

The ORC or its Agent has the option of completing an Environmental Site Assessment Report (by a qualified assessor) or completing the Visual Inspection Report below.

An Environmental Site Assessment Report has been completed (Report dated May 25, 2007 and Addendum dated October 5, 2007). ☒Yes ☐No

Describe resolution of any issues in Part IV, below.

Visual Inspection Report: (Source: Peto MacCalium Ltd. 2007. Goenvironmental and Hydrogeological Site Investigations, Goreway Drive Improvement.)

Inspection Date: August 23, 2007

a. Is there visual evidence on the land or in buildings of any of the following: (X for YES)

☐ Incineration	☐ Fill added
☐ Leaking or unprotected underground or above ground fuel storage tanks	☐ Leaded paint (any building constructed prior to 1980 may contain leaded paint)
☐ Stained surfaces	☐ Discarded batteries
☐ Oily sheens on water	☐ Friable (crumbling) asbestos
☐ Unprotected industrial drums	☐ Ureaformaldehyde
☐ PCB ballasts/transformers	☐ Pesticide/herbicide containers
☐ Vegetation damage	☐ Chlorofluorocarbons, refrigerants not in use
☒ Other potential contaminants (specify): Operation of road traffic and railway adjacent to the subject lands; and, the unknown use of four trailers/containers on the west part of the subject lands.	☐ Signs of above-noted items on adjacent properties:

b. Record the results of consultation with neighbours, owners, tenants, municipal officials or provincial officials with respect to:

i. current and past uses (e.g., storage, vehicle repair garage, printing, dry cleaners, photo lab, waste processing, etc.):
DMSI (property management) has no knowledge of past use. It appears that the past primary use was agricultural.
Hydro Enersource, Hydro One Brampton , Hydro One Telecom, and Bell Cable have utilities on the subject lands.

ii. adjacent uses:
Telus has fibre in 360Network infrastructure along CN Rail corridor.

iii. fuel storage tanks (check with Ministry of Consumer and Business Services, Technical Standards and Safety Authority): No above ground or underground storage tanks were noted as part of the Phase 1 Environmental Site Assessment carried out for the Goreway Drive Improvements Class EA.

iv. records of old landfills or previous complaints or violations on site (check with MOE local office): N/A

v. presence of water well(s), water quality (check with MOE District Office, local Medical Officer of Health):

No well water in use on the subject lands.

Note: Water wells no longer being considered for use must be abandoned in accordance with the requirements of current Acts, regulations and guidelines (e.g. Regulation 903 on Wells).

vi. use of potentially hazardous substances on site (e.g. pesticides, batteries, chemicals, etc.):

Unknown use of four trailers/containers on the west part of the subject lands.

vii. other local findings (e.g. natural gas wells, radon gas, radioactivity, etc): N/A

c. Have other contaminant assessments taken place on this site? ☐Yes ☒No
Source: DMSI (property management), Tammy Fuller, (905) 472-7300, Ext. 225

Specify: No knowledge of past environmental concerns.

d. In your opinion, does the site contain evidence of contamination? ☒Yes ☐No
A "YES" answer is warranted if there is question of the nature or extent of contamination or the use of hazardous substances.
If YES, recommend a Phase 1 Environmental Site Assessment (contaminant assessment) be done in Part IV.

3. ENVIRONMENTALLY SIGNIFICANT AREAS (ESAS) (Ref: Class EA, Glossary)	
These areas will consist of those that have been designated and/or are under investigation by any of the agencies listed in this Section.	
a. MNR Contact Name: Mark Heaton Phone No.: (905) 713-7406	
Wetlands?	☐Yes ☒No
Areas of Natural and Scientific Interest? (ANSIs)	☐Yes ☒No
Habitats designated by *Endangered Species Act*?	☐Yes ☒No
Habitats designated or proposed of rare, vulnerable, threatened or endangered species?	☐Yes ☒No
Floodplains (MNR responsible for floodplain management where no Conservation Authorities exist)?	☐Yes ☒No
Conservation Authority Contact Name: Anthony Sun (TRCA) Phone No.: (416) 661-6600 Ext. 5618	
ESAs? The subject lands are not located within an ANSI or ESA. Properties adjacent to the subject lands are not located within an ANSI or ESA.	☐Yes ☒No ☐Yes ☒No
Floodplains? The subject lands do not appear to be within an area regulated under Ontario Regulation 166/06. The subject property is not within a floodplain.	
c. Municipal Contact Name: N/A Phone No.: N/A	
ESA designation in Official Plans? Source: City of Brampton Official Plan	☐Yes ☒No
Groundwater recharge or discharge sites? Source: Peto MacCallum Ltd. 2007. Goenvironmental and Hydrogeological Site Investigations, Goreway Drive Improvement.	☐Yes ☒No
d. Is any portion of the property designated by the Niagara Escarpment Plan as Natural or Rural Area?	☐Yes ☒No
e. Is site part of, or adjacent to, an ESA? (If YES, describe ESA below and on attached site plan.) Description:	☐Yes ☒No
If the site is part of an ESA, and a sale or disposal is intended, is the purchaser a conservation body? N/A (If YES, go to Question 3g, below. If NO, EITHER ensure the purchaser becomes a conservation body, OR elevate to a Category C process, OR abandon sale and note resolution in Part IV, below.)	☐Yes ☐No
f. In your opinion, based on the above contacts and any current, relevant ORC feasibility studies, could the intended undertaking cause any local, long term changes significant enough to threaten the ESA? If YES, hold further implementation until the environmental effects are identified and the required mitigation and monitoring are identified in Part IV, or until a Category C assessment is completed.	☐Yes ☒No
g. Is any portion of the property designated by the Oak Ridges Moraine Conservation Plan as Natural Core Area, Natural Linkage Area and/or as a Key Natural Heritage Feature?	☐Yes ☒No

4. DISTINCTIVE ENVIRONMENTAL FEATURES	
These features will consist of those that have already been identified and/or are under investigation by any of the agencies or interest groups listed in this Section	
a. Does visual inspection or research reveal any natural features (other than ESAs noted above) such as floodplain, high groundwater level, groundwater wells, streams, rivers, natural corridors (e.g., hedgerows), woodlots, wetlands, springs, water bodies, topography, prevailing slope direction, steep slopes, ravines, and rock outcrops? If YES, describe below, and on attached site plan. Description:	☐Yes ☒No
b. Would any of the observed features be affected by the implementation of the undertaking as currently planned? If YES, describe effects and any required mitigation and monitoring in Part IV, below.	☐Yes ☒No
c. Do municipal or other authorities or interest groups, including the contacts listed above in Item 3 on Environmentally Significant Areas, say that any of the observed features listed in Item 4(a) above warrant protection? Name(s) of municipal or other authorities or interest group(s): Name(s) of contact(s): Phone No.: If YES, to either of the last two questions, describe effects and/or protection measures in Part IV. If NO, go to Question 6 below.	☐Yes ☒No
d. Federal Government Contact Name: Phone No.: Is there a potential to impact any species at risk and their habitats, as designated by the *Species at Risk Act?*	☐Yes ☒No

5. SERVICING CAPACITY RE: SEWERAGE, WATER, ROADS, GAS, HYDRO, ETC.	
a. Does servicing involve a septic system? If YES, note in Part IV and attach technical research supporting site's capacity to sustain a septic system.	☐Yes ☒No
b. If well water is in use, is water undrinkable due to pollution? If YES, specify source of pollution and note in "Contaminants" section above and describe resolution in Part IV, below. If NO, cite your evidence: Evidence: No well water in use Note: Water wells no longer being considered for use must be abandoned in accordance with the requirements of current Acts, regulations and guidelines (e.g., Regulation 903 on Wells).	☐Yes ☒No
c. Based on local municipality, MOE, MTO or other contacts, or current, relevant ORC feasibility studies, will the undertaking require new or different servicing? If YES, specify your contact and anticipated resolution of new or different service in Part IV, below. Contact Name: Phone No.:	☐Yes ☒No

6. CULTURAL HERITAGE ANALYSIS

a. Does this property have a Cultural Heritage Evaluation on file with the ORC? ☐Yes ☒No
If YES, specify:
If NO, continue to Question 6c.

b. Is there any reason to reassess the cultural potential of this property (such as the appearance of new knowledge, new identification of nearby resources, an out-dated evaluation, etc.)? ☐Yes ☒No
If YES go to Question 6c. If NO go to Question 6g.

c. Does the local heritage planning body consider this site to have potential cultural heritage interest or sensitivity? (The contact may be the municipal planner, the Local Municipal Heritage Committee, Band Office, Parkway Commission or Conservation Authority.) ☐Yes ☒No ☐Uncertain
Contact Name: Jim Leonard, Heritage Coordinator Phone No: (905) 874-3825

Reason for potential interest or sensitivity:

(The property may have already been identified as an archaeological, sacred, heritage or historic site. It may be in a heritage area, or an area of identified heritage potential. In addition, planners should be asked whether there is a site of heritage interest within 500 metres of the site or if the site provides a sense of place and continuity to its community or area.)

d. Will the undertaking cause a ground disturbance (i.e., site grading) that may impact archaeological resources? (See Part IV, Item 6 for "Declaration on Protection of Archaeological Resources")

or is the undertaking a disposal, sale or letting of property? ☒Yes ☐No

If there is no impact or ground disturbance (i.e., site grading) and no disposal or letting of property, there is no need for further identification of archaeological potential for this undertaking.

e. Does this property have cultural and/or archaeological potential or do major indicators of cultural and/or archaeological potential exist? (see Part IV, Item 6 for "Declaration on Protection of Archaeological Resources")

For determination of archaeological potential, see the Ministry of Culture document entitled *Conserving a Future for our Past: Archaeology, Land Use Planning* and *Development in Ontario, An Educational Primer* and *Comprehensive Guide for Non-Specialist, 1997*, Archaeological Potential Checklist, Appendix B. This document may be revised from time to time.

i. Does the property contain a building or structure that is 40 years old or older? ☐Yes ☒No
ii. Is there a property of identified heritage and/or archaeological interest within 500 metres of this property? ☒Yes ☐No
Identify property: Following completion of a Stage 1 Archaeological Assessment, the Goreway Drive Study Area between Kenview Boulevard and CN's Halton Subdivision has been determined to exhibit archaeological potential. A Stage 2 Archaeological Assessment is recommended prior to construction commencement. ☐Yes ☒No
iii. Is this a heritage support property? Official Plan and Secondary Plan policies do not designate the subject lands as Cultural Heritage Lands.

f. Has the Ministry of Culture identified this property as a Cultural Heritage Property or a property with cultural heritage potential? (See Part IV, Item 6 for "Declaration on Protection of Archaeological Resources") ☒Yes ☐No

Contact Name: Shari Prowse, Archaeology Review Officer
Phone No: (519) 675-6898

Identify potential/heritage value and attach response from the Ministry of Culture: The Ministry of Culture agrees that a Stage 2 Archaeological Assessment will need to be completed for the subject lands prior to construction (verbal response, October 12, 2007).

g. Is this an ORC heritage property as identified in the Cultural Heritage Statement or has heritage potential been identified in Questions 6a to 6f? If NO, proceed to Part III, Question 7 Socio-Economic Effects. If YES, continue to Question 6h.	☒Yes ☐No
h. In your opinion, does the proposed undertaking affect the heritage potential or heritage value of the property as described in its Heritage Character Statement? ☐Yes ☐No Explanation: A Stage 2 Archaeological Assessment will be completed for the subject lands prior to construction of the proposed grade separation at Goreway Drive and CN's Halton Subdivision. If NO or UNCERTAIN, proceed to Question 6i and Question 6j. If YES, proceed to Question 6k and Question 6l.	☒Uncertain
i. Does the Ministry of Culture consider that the undertaking will affect the heritage potential or heritage value of the property as described in its Heritage Character Statement? N/A - Clearance will need to be secured from the Ministry of Culture prior to construction. Due to the moderate to high archaeological potential within the Study Area Corridor, it is recommended that a Stage 2 Archaeological Assessment is conducted for lands located centrally within the Study Area (i.e. to the north and south of Mimico Creek) and in any areas outside the existing disturbed ROW during the Detail Design stage and prior to construction activities. If NO, attach reply.	☒Yes ☐No
j. Does the Municipal Heritage Committee consider that the undertaking will affect the heritage potential or heritage value of the property as described in its Heritage Character Statement? As per Question 6C, it is not anticipated that the local heritage planning body considers the subject lands to have potential cultural heritage interest or sensitivity. If NO, attach reply.	☐Yes ☒No
k. Does the Ministry of Culture consider proposed mitigation will address heritage protection concerns adequately? N/A If YES, attach reply and describe effects, mitigation and monitoring requirements in Part IV,	☐Yes ☐No
l. Does the Municipal Heritage Committee consider proposed mitigation will address heritage protection concerns adequately? N/A If YES, attach reply and describe effects, mitigation and monitoring requirements in Part IV, below. If NO, it will be necessary to complete a Heritage Character Statement if one has not been completed and reconsider steps h, i and j or assess the undertaking as a Category C undertaking.	☐Yes ☐No
m. Does the Archives of Ontario consider the undertaking will affect the Government of Ontario Art Collection? N/A If NO, attach reply. If YES, attach reply and describe effects, mitigation and monitoring requirements in Part IV.	☐Yes ☐No
7. SOCIO-ECONOMIC EFFECTS	
Could the undertaking cause long-term changes, beyond existing background variations (Based on standard demographic measures), to the social structure or the demographic characteristics of the surrounding community? If the answer to this Question is YES then there must be a study completed to assess the impacts and identify mitigation and monitoring requirements. If this cannot be accommodated within the C&D Report and described in Part IV, below or appended to the C&D Report, the undertaking should be assessed as a Category C undertaking.	☐Yes ☒No

PART IV – ANALYSIS OF ENVIRONMENTAL EFFECTS, AND REQUIRED MITIGATION AND MONITORING (Ref: Section 7 of Class EA)

Part IV of the C&D Report is used to discuss environmental effects and identify any required mitigation and monitoring that, when implemented, would negate or reduce the significance of any environmental effects.

1. EXISTING LAND USE STATUS

Summary of Environmental Effects:
The subject lands are currently designated as Industrial Land and Parkway Belt Industrial Area within the City of Brampton Official Plan, and Utility and Public Open Space Buffer within the Public Use Area of the Parkway Belt West Plan. In accordance with Section 5.4.1 of the Parkway Belt West Plan, 'linear transportation facilities including necessary accessory facilities are a permitted use within the Public Use Area'.

Mitigation Measures: The subject lands are proposed to widen the existing road allowance to facilitate the construction and maintenance of the proposed grade separation at Goreway Drive and CN's Halton Subdivision. As the subject lands are currently zoned agricultural, the lands will need to be rezoned to the current zoning for Goreway Drive (i.e., Roads Public Ownership and Utilities).

Monitoring Measures: N/A

2. ENVIRONMENTAL CONDITION OF THE PROPERTY

Summary of Environmental Effects: Based on the Phase 1 ESA, the possibility of the contamination of soils and ground water underlying the subject lands cannot be excluded due to the operation of road and railway traffic within proximity to the subject lands. In addition, four trailers/containers were observed on the west part of the lands owned by ORC and adjacent, though very close, to the subject lands. The potential environmental concerns may not be significant as the subject lands will be acquired for road widening.

Mitigation Measures: As documented within the Goreway Drive Environmental Study Report (ESR), a program of limited sampling and chemical testing of soil and ground water will be carried out prior to construction of the proposed grade separation. The purpose of these activities is to confirm the presence of contaminated soils within the ROW, including the subject lands. In the event that contaminated soils are encountered during construction, the Contract Administrator or Inspector shall determine the level and type of contamination as expediently as possible. Should the excavated materials be deemed "contaminated", the soils shall be handled and disposed in compliance with Ontario Regulation 347 under the *Environmental Protection Act*. Moreover, the health and safety protocols specified under Regulation 839 of the Ontario *Occupational Health and Safety Act* shall be adhered to when encountering contaminated soils/materials.

Groundwater sampling was completed for the Goreway Drive Study Area Corridor. The sampling indicated high concentrations of electrical conductivity, total dissolved solids, and some metals. Depending on where water will be discharged, any required dewatering during construction will be treated before it can be released into the natural environment.

Monitoring Measures: None recommended.

3. ENVIRONMENTALLY SIGNIFICANT AREAS

Summary of Environmental Effects: None

Mitigation Measures: N/A

Monitoring Measures: N/A

4. DISTINCTIVE ENVIRONMENTAL FEATURES

Summary of Environmental Effects: None

Mitigation Measures: N/A

Monitoring Measures: N/A

5. SERVICING CAPACITY

Summary of Environmental Effects: Hydro Enersource, Hydro One Brampton , Hydro One Telecom, and Bell Cable have utilities on the subject lands.

Mitigation Measures: A meeting was held with Hydro One Brampton and Hydro Enersource on November 16, 2007, with City of Brampton Staff. Both companies indicated that the relocation of utilities on top of the

proposed grade separation is acceptable, and therefore no property acquisition or easement is required. Hydro One Telecom has aerial cable in connection with hydro plant and will be relocated with the relocation of hydro poles. Bell Canada has been contacted and the City will confirm the need for relocation of Bell's below-ground plant at the time of construction.

Monitoring Measures: N/A

6. CULTURAL HERITAGE ANALYSIS

Declaration on Protection of Archaeological Resources:

In agreement with the Ministry of Culture, this document will not provide specific information on the presence or absence of archaeological resources at the subject property. Where these resources may be present, the Ministry of Culture routinely reviews the findings of archaeological investigations, assesses the potential adverse effects of the proposed undertaking on archaeological resources, and recommends appropriate mitigation measures.

Summary of Environmental Effects:

Due to the moderate to high archaeological potential within the Goreway Drive Study Area Corridor, a Stage 2 Archaeological Assessment will be conducted for lands located centrally within the Study Area Corridor (i.e. to the north and south of Mimico Creek) and in any areas outside the existing disturbed ROW during the Detail Design stage and prior to construction activities (including the subject lands). Clearance will need to be secured from the Ministry of Culture prior to construction.

Pursuant to the Ministry of Culture's *Archaeological Assessment Technical Guidelines* (1993), a licensed Archaeologist will be retained should significant cultural resources be identified during the reconstruction of Goreway Drive. The role of the Archaeologist will be to bring the site(s) to the attention of the Ministry of Culture and develop an impact mitigation strategy in consultation with the Ministry to minimize the impacts of road reconstruction on the resources. In addition, if any archaeological remains are unearthed during construction immediate measures will be undertaken to protect the site in accordance with the mitigation strategy proposed for the site. At this time, a permit to excavate or alter archaeological and historical sites will be required from the Ministry.

Mitigation Measures: To be determined by the Stage 2 Archaeological Assessment

Monitoring Measures: To be determined by the Stage 2 Archaeological Assessment

7. SOCIO-ECONOMIC EFFECTS

Summary of Environmental Effects: None

Mitigation Measures: N/A

Monitoring Measures: N/A

8. OTHER ENVIRONMENTAL EFFECTS AND OTHER ISSUES

Summary of Environmental Effects: None

Mitigation Measures: N/A

Monitoring Measures: N/A

PART V – CONFIRMATION OF CATEGORY OF ENVIRONMENTAL ASSESSMENT AND SIGN-OFF DECLARATION

I hereby certify, to the best of my knowledge at this date, that the above description of the undertaking and affected site is correct, and that the directly affected parties noted in this C&D Report have been consulted by ORC. The issues raised by the directly affected parties with regard to the above seven point site-specific analysis, including any environmental effects, mitigation, net effects and monitoring have been dealt with as described in this C&D Report and Appended Attachments. The results of these investigations conclude that the Undertaking qualifies to be assessed under the Class EA process for ORC as a:

☒ Category B Undertaking; or

☐ Category C Undertaking (Require the Completion of an Environmental Study Report)

NAME AND SIGNATURE OF RESPONSIBLE ORC AGENT(S)/ENVIRONMENTAL PRACTIONER:	DATE: April 30, 2008
NAME AND SIGNATURE OF RESPONSIBLE PROJECT MANAGER: Brian Agensky	DATE: March 7, 2008

File/Project/Work Order Number: RFP 2006-041 EA06003 / 4020-009

Kapusin, Sonya

From: Heaton, Mark (MNR) [mark.heaton@ontario.ca]
Sent: December 21, 2007 3:28 PM
To: Kapusin, Sonya
Cc: Almond, John (MNR); Fernhout, Linda (MNR)
Subject: RE: ORC Class EA - Sale of Property - Information Request

Hello Sonya,

The previously provided information for the Goreway Drive Class EA applies to this ORC Class EA.

Regards,

Mark Heaton
Fish and Wildlife Biologist
OMNR - Aurora
(905) 713-7406

From: Almond, John (MNR)
Sent: Friday, December 21, 2007 10:04 AM
To: Fernhout, Linda (MNR); Heaton, Mark (MNR)
Subject: FW: ORC Class EA - Sale of Property - Information Request

Linda

Please process and include on the EA file. Mark, can you please provide a response to this request.

Thanks

John Almond
Area Supervisor
Halton-Peel-Toronto Area
Aurora District
Tel: 905-713-7385
Fax: 905-713-7361
email: john.almond@ontario.ca

From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: December 19, 2007 1:15 PM
To: Smith, Tracy (MNR)
Cc: Heaton, Mark (MNR); Almond, John (MNR); Ritchie, Andrew
Subject: ORC Class EA - Sale of Property - Information Request

Hi Tracy,

This email is a follow-up to our letter dated September 12 regarding the proposed sale of ORC property to facilitate the proposed grade separation at the CN rail crossing on Goreway Drive (between Brandon Gate Drive and Steeles Avenue in Brampton). I have carbon copied Mark Heaton and John Almond on this email in hopes that they may be able to assist in the response.

We received information from Mark Heaton for the Goreway Drive Class EA (see email below). However, we need to confirm if the same information applies to the ORC property that is required for this project (see subject lands on the attached drawing). We are completing the ORC's Consultation and Documentation Record as input into their Class EA process for the proposed sale/disposal of the subject lands. We ask if you could confirm the following:

- Whether the subject lands are situated within or adjacent to ESAs, ANSIs, and/or wetlands
- Whether there are any Habitats designated by the Endangered Species Act
- Whether there are any designated or proposed of rare, vulnerable, threatened or endangered species
- Whether the subject lands are situated in an area identified as a floodplain.

Your reply by January 11 would be very much appreciated. Please feel free to give me a call if you have any questions or need clarification.

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com

UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

<<DWG-4020-009-03-ORC Plan and Profile-070910.pdf>>
Hello Sonya,
Attached is our natural environment information for the study area.
Woodlots are in green. Watercourse is Mimico Creek and its tributaries. Red dots indicate fish survey locations with file #'s

There are no ANSIs, wetlands or species of special concern within the study area.
Regards,
Mark Heaton
Fish and Wildlife Biologist
OMNR - Aurora
(905) 713-7406
-----Original Message-----
From: Kapusin, Sonya [mailto:Sonya.Kapusin@uma.aecom.com]
Sent: Monday, September 18, 2006 7:56 AM
To: Patterson, Mark (MNR)
Cc: Heaton, Mark (MNR); Ritchie, Andrew; Smith, Greg; Tunio, Khurram
Subject: Goreway Drive Class EA
Dear Mark,
RE: Goreway Drive Improvements, Class Environmental Assessment
Further to our letter of August 8 to Mr. Tracy Smith of your office, announcing the Study Commencement for the above project, we are writing to request information that you or your organization can contribute to this Study. We

hope to receive information that will assist us in assessing the alternatives and associated impacts for this project.

As you may recall, UMA Engineering Ltd. has been retained by the City of Brampton to complete a Municipal Class Environmental Assessment Study for the proposed improvements to Goreway Drive, between Steeles Avenue and Brandon Gate Drive. The improvements are being considered to accommodate increased traffic demands and to alleviate road vehicle delays at the existing Canadian National Rail (CNR) at-grade (level) crossing (Halton Subdivision).

We would appreciate receiving any information that you can provide within the mandate of your program or policy area. We are particularly interested in information that describes areas of social and/or natural environment concerns within the Study Area (e.g., Areas of Natural and Scientific Interest, Environmentally Significant Areas, wetlands, fisheries habitat and resources, etc.). This information will be taken into consideration during the Study to both characterize the area's existing conditions and to comparatively evaluate alternative design solutions.

We would appreciate your reply at your earliest convenience so that we may consider the information you provide within the project schedule. You may fax the information to my attention at (905) 238-0038 or mail to the address below. If you require further information, please call me directly at (905) 238-0007 Ext. 2902.

Thank you,

Sonya Kapusin, MCIP, RPP
Environmental Planner
Email: sonya.kapusin@uma.aecom.com
UMA Engineering Ltd.
5080 Commerce Blvd, Mississauga, ON, L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

Ministry of Municipal Affairs and Housing
Municipal Services Office
Central Ontario
777 Bay Street, 2nd Floor
Toronto ON M5G 2E5
Phone: 416-585-6226
Fax: 416-585-6882
Toll-Free: 1-800-668-0230

Ministère des Affaires municipales et du Logement
Bureau des services aux municipalités
Centre de l'Ontario
777, rue Bay, 2nd étage
Toronto ON M5G 2E5
Téléphone: 416-585-6226
Télécopieur: 416-585-6882
Sans frais: 1-800-668-0230

Ontario

October 9, 2007

Andrew Ritchie
Consultant Environmental Planner
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON
L4W 4P2

Dear Mr. Richie:

Re: Parkway Belt West Plan Inquiry
ORC Sale of Property in NW Quadrant of Goreway Drive and CN's Halton Subdivision
Part of Lot 14, Concession 7 SD
City of Brampton, Region of Peel
MMAH File No. 21-DP-0031-07016

This letter is in response to your inquiry dated September 12, 2007, regarding the potential sale of the above noted Ontario Realty Corporation (ORC) lands to facilitate the widening of the Goreway Drive right-of-way.

Based on the information provided, it has been determined that the subject lands are located on Map 4: Northern Link (Milton-Woodbridge) and designated 'Utility' and 'Public Open Space Buffer' within the 'Public Use Area' of the Parkway Belt West Plan (PBWP).

Please find enclosed the relevant sections of the Plan for your review and documentation.

Section 5.4.1 of the Plan outlines the permitted uses on lands within the 'Public Use Area'. Please note that PBWP Amendment No. 147 modified Section 5.4.1 b) to permit the following linear facilities: "Linear transportation, communication, and utility facilities, including necessary accessory facilities and installations such as interchanges, transit including parking, maintenance/storage yards, transformer stations, and treatment plants that are part of the linear distribution or collection networks".

Section 6.4 of the PBWP outlines the specific objectives and implementing actions for lands located on Map 4: Northern Link (Milton to Woodbridge). Please note that Section 6.4.2 s) requires that the Plan "provide for future utilities" on the subject lands. In addition,

Section 6.4.3 a) (i), speaks to restricting the "number and location of transportation routes crossing the Link to existing facilities and their essential expansions" and Section 6.4.2 m) calls for the identification and protection of a transportation, communication, and utility corridor to western Ontario.

Please also note that Section 6.4.3 m) speaks to acquiring a right-of-way approximately 100 feet wide for future utilities between Steeles Avenue at Highway 401 and Martin Grove Road. Therefore, any work on the subject lands must ensure that this link is maintained.

Based on the foregoing, the Category 'B' Environmental Assessment process should consider the enclosed documentation. At this time I would also recommend contacting any utility provider within the utility corridor for their individual comments regarding this undertaking.

Please advise me of the progress of this process. Should you have any questions regarding the above matter, please do not hesitate to contact me at 416-585-7323.

Yours truly,

Alejandra Gonzalez, MES
Assistant Planner

5.2.2
Grants

The Minister may provide grants to municipalities to enable them to bring their official plans and zoning by-laws into conformity with the Plan. The Minister may also provide financial assistance to any person, organization, or corporation undertaking any program that implements the Plan.

5.2.3
Assessment

The Minister shall ensure that assessment levels are consistent with the provisions of this Plan.

5.3
Land Use Categories

The area covered by the Plan is divided into two land use categories, the Public Use Area and the Complementary Use Area.

5.4
Public Use Area

The Public Use Area comprises areas presently used or to be predominantly used in the future for public uses.

The Public Use Area consists of areas designated on the maps of the Plan as "Public Open Space and Buffer Area," "Utility," "Electric Power Facility," "Road," and "Inter-urban Transit." The Province shall encourage inter-regional linear facilities to locate in these areas.

Part 6 establishes particular provisions for each specific link.

5.4.1
Uses in Public Use Area

Subject to Subsection 5.4.2, the uses permitted in the Public Use Area are:

a) Existing Uses
All legally existing uses of land, buildings, and structures, subject to the provisions of The Planning Act, R.S.O. 1970, c. 349 respecting legal nonconforming uses.

b) Linear Facilities
Linear transportation, communication, and utility facilities, including necessary accessory facilities and installations such as interchanges, transformer stations, and treatment plants that are part of the linear distribution or collection networks.

c) Public Open Space and Buffers
Public open space and buffers and uses incidental to them.

d) Other Open-Space Uses
Privately operated open-space and recreation-oriented uses in certain portions of the areas designated as Public Open Space and Buffer Area, subject to the following conditions:

i) The uses are open to the general public.

ii) All natural features are preserved to the maximum possible degree.

iii) Buildings and structures have a very low lot coverage and are of limited height and low mass appearance.

iv) Buildings and structures are located in a manner that will secure an open-space character of the area.

v) Landscaping and berms are provided where necessary to secure the objectives of the Plan.

vi) Any other conditions required to attain the provisions of the Plan are satisfied.

e) Other Public Uses
Other public uses of land, buildings, and structures, subject to the following conditions:

i) All natural features are preserved to the maximum possible degree.

ii) Buildings and structures have a very low lot coverage and are of limited height and low mass appearance.

iii) Buildings and structures are located in a manner that will secure an open-space character of the area.

iv) Landscaping and berms are provided where necessary to secure the objectives of the Plan.

v) Any other conditions required to attain the provisions of the Plan are satisfied.

f) Interim Uses
In order to facilitate the use of properties prior to public acquisition, the uses set out in Paragraphs 5.5.1 (b), (c), and (d) of the Plan, subject to the following conditions:

i) All natural features are protected to the maximum possible degree.

ii) Buildings and structures have a low lot coverage and are of limited height and low mass appearance.

iii) Buildings and structures are located in a manner that will secure an open-space character of the area to the maximum possible degree.

iv) Landscaping and berms are provided where necessary to secure the objectives of the Plan.

v) An agreement is reached between the owner and the Province, if required by the Province, setting out the compensation that will be payable for the interim use at the time of acquisition.

vi) Any other conditions required to secure the provisions of the Plan are satisfied.

g) Additions to Uses
In order to facilitate the use of the properties prior to public acquisition, additions to existing uses, buildings, and structures and additions to interim uses, buildings, and structures, subject to the following conditions:

i) All natural features are preserved to the maximum possible degree.

ii) The existing open-space character of the area is retained to the maximum possible degree.

iii) The resulting buildings and structures have a low lot coverage and are of limited height and low mass appearance.

iv) An agreement is reached between the owner and the Province, if required by the Province, setting out the compensation that will be payable at the time of acquisition for the additions.

v) Any other conditions required to secure the provisions of the Plan are satisfied.

h) Change of Uses
Change of uses of land, buildings, and structures, subject to the following conditions:

i) New uses are as compatible with the provisions of the Plan as existing uses, or more compatible.

ii) All natural features are preserved to the maximum possible degree.

iii) Any other conditions required to secure the provisions of the Plan are satisfied.

5.4.2
Acquisition in the Public Use Area

a) Provincial Acquisition
Most of the lands in the Public Use Area will be acquired by the Province and other public authorities.

q) In the Special Complementary Use Area extending west from Etobicoke Creek, permit open-space and outdoor recreational uses, with only those accessory buildings and structures that cannot reasonably be located outside the area covered by the Plan. Such uses shall meet to the maximum possible degree the conditions in Paragraph 6.3.3 (n).

r) Provide an approximately 100-foot-wide buffer strip on the south side of Highway 403 between the Oakville-Mississauga Mini-belt Link and the Credit River-Mullet Creek Public Open Space Area.

6.4 Northern Link (Milton To Woodbridge)

6.4.1 Map

Subsection 6.4.1 is Map 4 (the Northern Link: Milton to Woodbridge) and is to be read together with the text of the Plan.

6.4.2 Special Objectives

All the objectives of Part 3 apply to this Link, although they are achieved to varying degrees. The following specific objectives apply to this Link and are achieved to varying degrees.

Amended by PBWP Amendment No. 131

a) Define the eastern limits of the Built-up Area at Milton.

b) Define the northern limits of the Milton East Future Urban Area.

c) Define the northern limits of the Mississauga Northwest Urban Area.

d) Define the southern limits of the Brampton Urban Area.

e) Define the northern limits of the Mississauga Industrial Area.

f) Define the northern limits of the Metropolitan Toronto Urban Area.

g) Define the southern limits of the Built-up Area at Woodbridge

h) Separate by open space the Brampton Urban Area and the Mississauga Industrial Area.

i) Separate by open space the Brampton and the Metropolitan Toronto Urban Areas.

j) Separate by open space the Built-up Area at Woodbridge and the Metropolitan Toronto Urban Area.

k) Where possible, include CP Rail and CNR lines and existing Highway 401.

l) Minimize the number of transportation routes crossing the Link.

m) Identify a transportation, communication, and utility corridor to western Ontario.

n) Provide for the possible extension of Dorval Way between the Burlington-Oakville Mini-belt Link and Highway 401.

o) Provide for future widening of Highway 401.

p) Provide for the future extension of the Highway 403-Queen Elizabeth Way Link Highway between the Oakville-Mississauga Mini-belt Link and Highway 401.

q) Provide for Highway 407 and for Highways 410 and 427 where they cross the Link.

r) Provide for Ontario Hydro facilities, including the following:

i) Milton Transformer Station, a railway spur to the site, and associated transmission facilities to the north of the station;

ii) Transmission facilities from Milton Transformer Station to Claireville Transformer Station;

iii) Transmission facilities from Milton Transformer Station to the Oakville-Mississauga Mini-belt Link;

iv) Claireville Transformer Station, a railway spur to the site, and associated transmission facilities;

v) Bramalea Transformer Station, a railway spur to the site, and associated transmission facilities.

s) Provide for future utilities.

t) Provide for public open space at the Credit River, Etobicoke Creek, and the West Humber River.

u) Provide open space between the Brampton Urban Area and the Metropolitan Toronto Urban Area/Mississauga Industrial Area so as to maintain the continuity of open space from the rural area west of Highway 410 to the rural area east of the Brampton Urban Area.

v) Provide for recreational trails and associated facilities between the Burlington-Oakville Mini-belt Link and Martin Grove Road.

w) Preserve the following prominent natural features:

i) Credit River Valley;

ii) Etobicoke Creek Valley;

iii) West Humber River Valley.

x) Protect tree stands that are either significant in their own right or serve as buffers.

6.4.3
Implementing Actions

In cases of discrepancy between the following specific implementing actions for this Link and the provisions of Part 5, the following implementing actions will prevail.

a) Restrict the number and location of transportation routes crossing the Link to:

i) Existing facilities and their essential expansions;

ii) Dorval Way, the Highway 403-Queen Elizabeth Way Link Extension, Highway 410, Highway 427, and other essential new facilities consistent with the Plan.

b) Acquire the required right-of-way for the possible construction of Dorval Way.

c) Acquire land for widening the Highway 401 right-of-way by approximately 100 feet.

d) Acquire a right-of-way approximately 300 feet wide for the future construction of an extension of the Highway 403-Queen Elizabeth Way Link Highway.

e) Acquire a right-of-way approximately 300 feet wide between Highway 401 and Highway 410 for the construction of Highway 407.

f) Acquire a right-of-way approximately 500 feet wide between Highway 410 and Martin Grove Road for the construction of Highway 407.

g) Acquire the necessary right-of-way for Highway 410.

h) Acquire the necessary right-of-way for Highway 427.

i) Acquire lands for the construction of the Ontario Hydro Milton Transformer Station, including a railway spur to the site and associated transmission facilities to the north of the station

j) Acquire lands for the construction of the Ontario Hydro Claireville Transformer Station, including a railway spur to the site and associated transmission facilities.

k) Acquire lands for the construction of the Ontario Hydro Bramalea Transformer Station, including a railway spur to the site and associated transmission facilities.

l) Acquire rights-of-way as follows for the construction of Ontario Hydro facilities:

i) Approximately 545 feet wide between Milton Transformer Station and Claireville Transformer Station, widening to approximately 800 feet where Toronto International Airport height constraints apply;

ii) Approximately 545 feet wide between Milton Transformer Station and the Oakville-Mississauga Mini-belt Link.

m) Acquire a right-of-way approximately 100 feet wide for future utilities between Steeles Avenue at Highway 401 and Martin Grove Road.

Amended by PBWP Amendment No. 131

n) In the Special Complementary Use Area located north of the CP Rail line between Fourth Line and Third Line, permit uses set out in Subsection 5.5.1.

Subject to Subsection 5.1.3, the Plan recognizes that the area may be designated for low-density urban residential development, subject to the availability of adequate and acceptable services. The Plan does not permit uses beyond those set out in Subsection 5.5.1 until a comprehensive official plan amendment has been prepared in consultation with appropriate municipal authorities, Provincial ministries, and other concerned persons and agencies, and subsequently approved by the appropriate authorities.

Such development shall meet to the maximum possible degree the following conditions:

i) Maintain and enhance the open-space character of the area.

ii) Protect watercourses, valley lands, wooded areas, hedge-rows, and prominent trees.

iii) Ensure that the pattern and nature of urban development in the area secure an overall open-space appearance.

iv) Locate development in such a manner as to retain the open-space character of the area along Highway 401, Third Line, and Fourth Line.

vi) Provide ample landscaping, tree planting, and berms in the areas set out in Clause (iv) above, as well as on the remaining lands.

vii) Satisfy any other conditions required to secure the provisions of the Plan.

Amended by PBWP Amendment No. 103.

o) In the General Complementary Use Area located south of Hallstone Road and north of the proposed Highway 407, between Creditview Road and Mississauga Road, the Plan does not preclude consideration by the local and regional municipalities of the development of a cooperative farm scheme, including a cluster residential component, for this area, together with other adjacent lands outside the area covered by the Plan. Such a scheme would not require an amendment to the Plan, provided that the conditions set out in Paragraph 5.5.1 (b) are met.

p) In the Credit River-Meadowvale Public Open Space Area, the Plan permits the re-alignment and widening of Derry Road through the area covered by the Plan, if the Peel Regional Council so decides.

Amended by PBWP Amendment No. 2 + 127

q) In the Special Complementary Use Area consisting of Brampton Golf Course and Peel Village Golf Course, encourage the continuation of the existing uses and permit open-space and recreational uses, including associated buildings and structures. Such uses shall meet to the maximum possible degree the following conditions:

i) All natural features are preserved.

ii) Buildings and structures have very low lot coverage, limited height, and low mass appearance.

iii) Buildings and structures are located in a manner that will secure the open-space character of the area

iv) Landscaping and berms are provided to enhance the open-space character of the area.

v) Any other conditions required to secure the provisions of the Plan are satisfied.

Amended by PBWP Amendment No 127

r) In the Special Complementary Use Areas at Etobicoke Creek, permit open-space and outdoor recreational uses and only those associated buildings and structures that cannot reasonably be located outside the area covered by the Plan. Such uses shall meet to the maximum possible degree the following conditions:

i) Protect the Etobicoke Creek Valley visually and physically from construction of buildings and structures.

(ii) Protect tree stands, hedgerows, and prominent trees.

(iii) Maintain and enhance the existing open-space character of the area.

iv) Satisfy any other conditions required to secure the provisions of the Plan.

Amended by PBWP Amendment No. 112

s) In the Special Complementary Use Area located at Bramalea Road, permit uses set out in Subsection 5.5.1.

Subject to Subsection 5.1.3, the Plan accepts that the lot coverage by the building existing on the date of the adoption of the Plan may be expanded by 50%. Such expansion shall meet the following conditions:

i) The height of such expansion does not exceed the height of the building on the date of the adoption of the Plan.

ii) No outside storage of goods or material is permitted.

iii) Ample landscaping, tree planting, and berms are provided along Bramalea Road and the proposed Highway 407.

iv) Any other conditions required to secure the provisions of the Plan are satisfied.

Amended by PBWP Amendment No. 4 + 101

t) In the Special Complementary Use Areas located between Torbram Road and Claireville Conservation Area, permit uses set out in Subsection 5.5.1.

Subject to Subsection 5.1.3, the Plan permits some further industrial development in this area. The Plan does not permit uses beyond those set out in Subsection 5.5.1 until a comprehensive restricted area by-law and development agreements under Section 35a of The Planning Act have been prepared in consultation with municipal authorities, Provincial ministries, and other concerned persons or agencies, and subsequently approved by the appropriate authorities.

xi) The creation of new lots is strictly limited, and lots smaller than 25 acres are not created for industrial uses.

xii) Any other conditions required to secure the provisions of the Plan are satisfied.

u) Acquire lands for the following Public Open Space Areas:

Amended by PBWP Amendment No. 127

i) Credit River (Meadowvale);

ii) Etobicoke Creek;

iii) West Humber River (Claireville).

v) Ensure that the design, development, and use of the Public Open Space Areas minimize any detrimental effect on woodlots, hedgerows, and the following prominent natural features:

Amended by PBWP Amendment No. 127

i) Credit River Valley;

ii) Etobicoke Creek Valley;

iii) West Humber River Valley.

w) Develop recreational trails and associated facilities between the Burlington-Oakville Mini-belt Link and Martin Grove Road.

6.5 Northern Link (Woodbridge To Markham)

6.5.1 Map

Subsection 6.5.1 is Map 5 (the Northern Link: Woodbridge to Markham) and is to be read together with the text of the Plan.

6.5.2 Specific Objectives

All objectives of Part 3 apply to this Link, although they are achieved to varying degrees. The following specific objectives apply to this Link and are achieved to varying degrees.

a) Define the northern limits of the Metropolitan Toronto Urban Area.

b) Define the southern limits of the Built-up Area at Woodbridge.

c) Define the southern and western limits of the Richmond Hill Urban Area.

d) Define the southern limits of the Built-up Area at Unionville.

Buildings and structures associated with such industrial uses may have a maximum lot coverage of 25%, exclusive of parking, for lots of 25 acres or more, and a maximum lot coverage of 20%, exclusive of parking, for lots less than 25 acres, provided that the following conditions are met:

i) No uses are permitted which might create obnoxious sounds, odours, fumes, or vibrations.

ii) All uses except parking are enclosed.

iii) Buildings or structures for industrial purposes do not exceed a maximum of one storey in height, and buildings and structures for associated office uses do not exceed a maximum of two storeys.

iv) Adequate parking facilities are provided on the lands for employees and visitors. These facilities shall be landscaped, suitably screened, and paved with a dust-free all-weather surface.

v) No outside storage of goods or materials is permitted.

vi) Railway sidings are permitted if such are compatible with other adjacent uses.

vii) The open-space character of the area is secured to the maximum possible degree.

viii) Setbacks for buildings and structures along Highway 407, Steeles Avenue, Goreway Drive, and Airport Road are not less than 400 feet from the said roads, where the ownership pattern existing on the date of the adoption of the Plan allows for such setbacks.

ix) Ample landscaping, tree planting, and berms are provided on the 400-foot-setback areas set out in Clause (viii) above, as well as on the remaining lands.

x) Wooded areas, hedgerows, and trees are protected to the maximum possible degree.

TORONTO AND REGION Conservation
for The Living City

September 27, 2007

VIA MAIL & EMAIL (andrew.ritchie@uma.aecom.com)

Andrew Ritchie
Consultant Environmental Planner
UMA Engineering Ltd.
5080 Commerce Blvd.
Mississauga, ON.
L4W 4P2

Dear Andrew Ritchie:

Re: Response to Class EA (Environmental Assessment) Consultation for Sale Lands at the Northwest Quadrant of Goreway Drive and CN's Halton Subdivision. Mimico Creek Watershed, City of Brampton

Toronto and Region Conservation Authority (TRCA) staff has received your letter dated September 12, 2007 in regards to the above noted property. It is our understanding that the proposal involves the sale of land by the Ontario Realty Corporation in order to facilitate the construction and maintenance of the proposed grade separation at Goreway Drive and the CN rail corridor.

As requested, provided below is the response summary for the inquiry question presented with your letter.

Property	On Site (i.e. within current property)	Adjacent Features (i.e. directly adjacent to or in close proximity to property)
Northwest Quadrant of Goreway Drive and CN's Halton Subdivision Brampton, Ontario.	• The property does not appear to be within an area regulated under Ontario Regulation 166/06. • The property is not within a floodplain. • The property is not located within an ANSI or ESA. • The property does not contain any identified natural heritage features.	• The adjacent properties to the north and east are regulated under Ontario Regulation 166/06. • The adjacent properties to the north and east are within a flood plain. • The adjacent properties are not located within an ANSI or ESA. • The adjacent properties do not contain any identified natural heritage features.

Please note that developments on the subject property may be subject to the EA Act, the Planning Act, and/or the Conservation Authorities Act. Mitigation opportunities and development concerns can be addressed through the EA and Development Planning processes. The TRCA may have additional

comments on such applications.

In accordance with Ontario Regulation 166/06 (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses), a permit is required from the TRCA prior to any of the following works taking place within TRCA's Regulation Limits:

a) straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland;
b) development, if in the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development.

Development is defined as:
i) the construction, reconstruction, erection or placing of a building or structure of any kind,
ii) any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
iii) site grading,
iv) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

Please note that the fee for a property inquiry is $175. Please include the fee and a legal survey or location map outlining the subject area with all inquiries.

Should you have any questions, please contact me at 416-661-6600 extension 5618, or by email at asun@trca.on.ca .

Yours truly,

Anthony Sun
Assistant Planner
Planning and Development

AS/

cc: VIA EMAIL

Chandra Sharma, TRCA, Mimico Creek Watershed Specialist
Beth Williston, TRCA, Manager, Environmental Assessment Review
Quentin Hanchard, TRCA, Manager, Development Planning and Regulation

Kapusin, Sonya

From: Ritchie, Andrew
Sent: September 24, 2007 4:44 PM
To: telusutilitymarkups@plantec.com
Cc: Kapusin, Sonya; Smith, Greg
Subject: FW: Telus Utility Markups Response
Attachments: 4020-009-TELUS.pdf; 4020-009-TELUS AS BUILT.pdf

Hernando,

Thanks for the timely response. Much appreciated.

Regards,

Andrew

Andrew Ritchie, M.Pl., MCIP, RPP
Manager, Environmental Planning
Direct Line: (905) 206-8135
Andrew.Ritchie@uma.aecom.com

UMA Engineering Ltd.
An AECOM Company
5080 Commerce Boulevard
Mississauga, ON L4W 4P2
T 905.238.0007 F 905.238.0038
www.uma.aecom.com

From: Hernando Martinez [mailto:]
Sent: September 24, 2007 3:29 PM
To: Ritchie, Andrew
Subject: Telus Utility Markups Response

Please find attached TELUS response to your job:

4020-009 Brampton Northwest Quadrant of Goreway Dr and CN's Halton Subdivision

Hernando Martinez
Plantec Inc-Consulting Engineers
200 Town Centre Blvd, Suite 300
Markham, ON, L3R 8G5
Tel: (905) 470-2112 ext.230

TELUS

TELUS Address:
2700 Matheson Boulevard East
5th floor, West Tower
Mississauga, Ontario
L4W 4V9

September 24, 2007

APPLICATION REVIEW

APPLICANT: UMA Engineering Ltd
YOUR FILE: 4020-009
LOCATION: Northwest Quadrant of Goreway drive and CN's Halton Subdivision Category 'B' Class Environmental Assessment
Brampton,On

CONFLICT [ ] **CAUTION** [X]

CAUTION! TELUS has fibre in 360Network infrastructure along CN Rail road as shown on the TELUS Field View Drawing. Refer to 360Network for their drawings. Telus has plan on Goreway Dr as shown in Telus Field View map, as well as in as built PL-01 (project 04-180) Please incorporate this information into your design drawings. Contact TELUS for more information if required. When working near TELUS plant, please adhere to these rules:

1) TELUS standards call for a minimum clearance as follows:

   a) Open cut method of construction: maintain a minimum clearance of 600 mm horizontally on either side of our facility and a minimum clearance of 300 mm vertically below our facility, especially at crossings.
   b) Directional bore method of construction: maintain a minimum clearance of 1000 mm horizontally on either side of our facility and a minimum clearance of 600 mm vertically below our facility at crossings.
   TELUS facilities shall be exposed prior to crossing

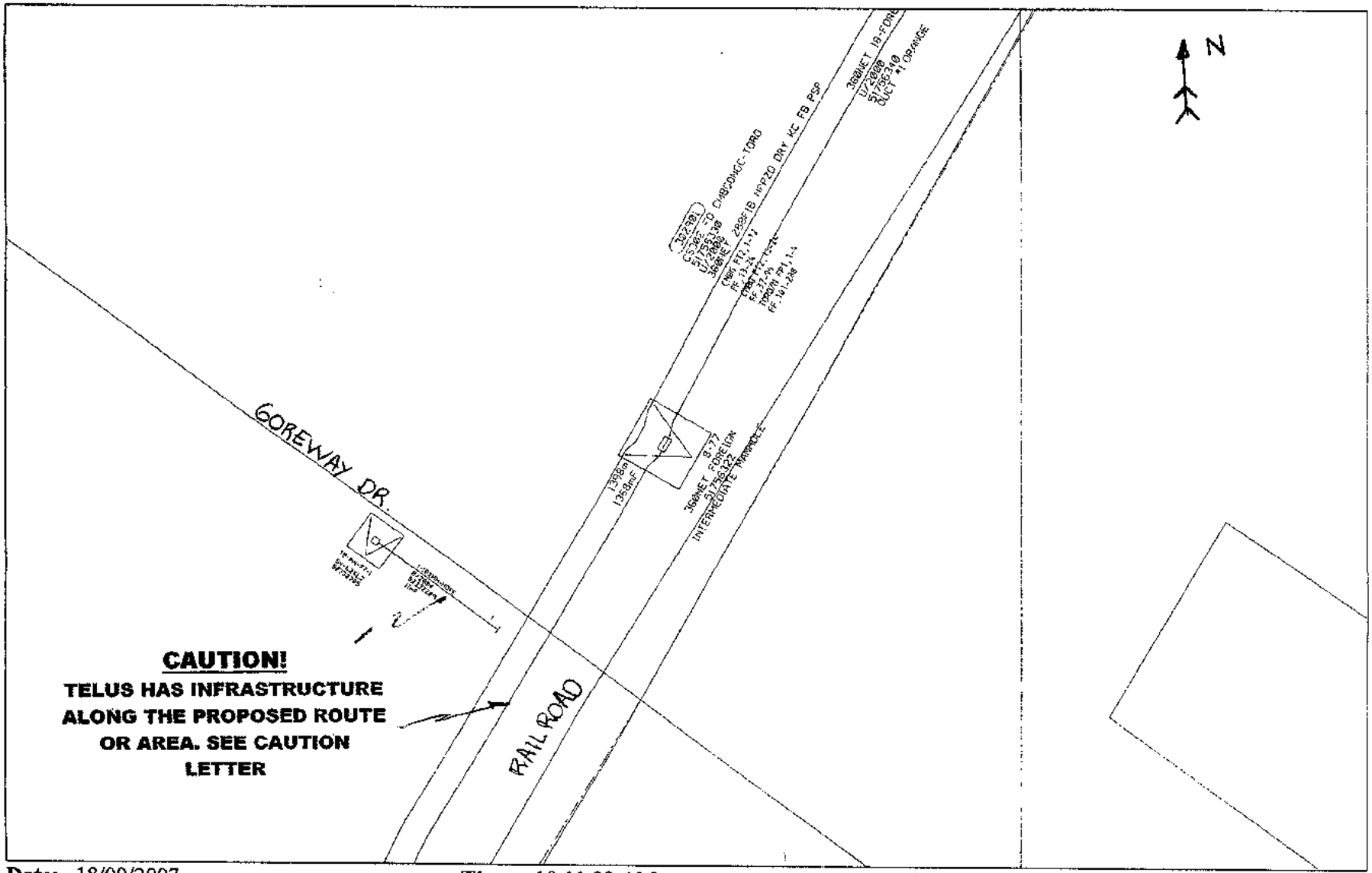
2) You are required to contact TELUS for route locates prior to digging/construction.
   You must hand trench to expose TELUS' infrastructure at all locations, pressurized water technology (Hydro-Vacuuming) is not permitted as alternate form of hand trenching.

Please contact TELUS 72hrs prior to construction to witness hand trenching at all locations indicated (1-800-593-5558)

SIGNATURE: _____ DATE: September 24, 2007

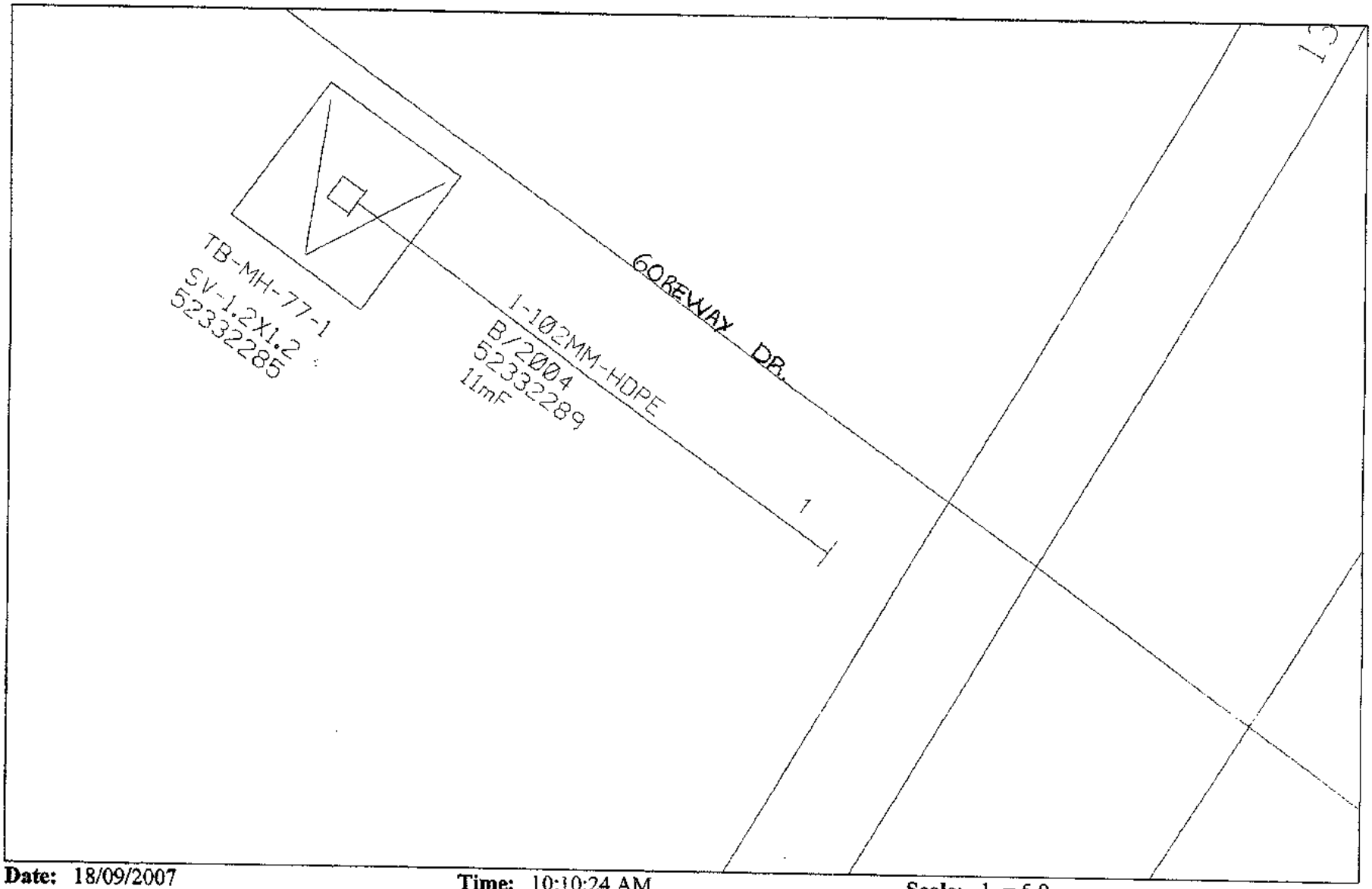
Hernando Martinez, Plantec Inc.
Tel: 905 470 2112 ext 230

PER
J. Grant Crowson
Design Technician
National Access Network Design
2700 Matheson Boulevard East
5th Floor, West Tower
Mississauga, Ontario, L4W 4V9
Office: 905-804-6090, Cell: 613-453-7014, Fax: 905-804-6143



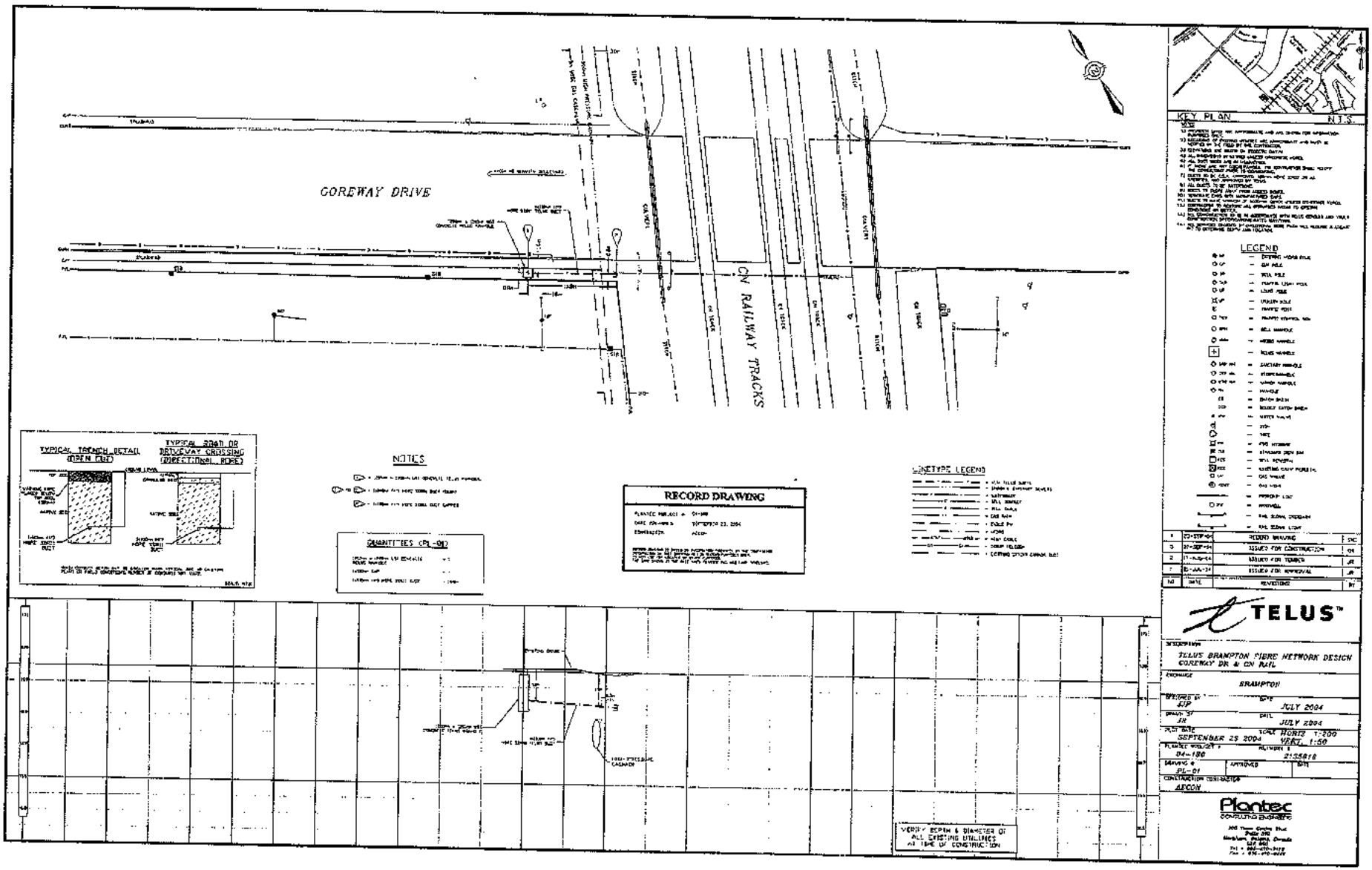
Date: 18/09/2007 **Time:** 10:11:23 AM **Scale:** 1 = 23.6

Telus Field View



Date: 18/09/2007 **Time:** 10:10:24 AM **Scale:** 1 = 5.9

Telus Field View


COREWAY DRIVE
CN RAILWAY TRACKS
TYPICAL TRENCH DETAIL (OPEN CUT)
TYPICAL 22MM OR DRIVEWAY CROSSING (DIRECTIONAL BORE)
NOTES
RECORD DRAWING
QUANTITIES (PL-01)
LINETYPE LEGEND
LEGEND
KEY PLAN
N.T.S.
VERIFY DEPTH & DIAMETER OF ALL EXISTING UTILITIES AT TIME OF CONSTRUCTION
TELUS
TELUS BRAMPTON FIBRE NETWORK DESIGN COREWAY DR & CN RAIL
BRAMPTON
JULY 2004
JULY 2004
SEPTEMBER 23 2004
HORIZ 1:300
VERT 1:50
04-130
2135818
PL-01
AECON
Plantec
CONSULTING ENGINEERS

Hydro One Brampton
175 Sandalwood Pkwy West
Brampton, Ontario L7A 1E8
Tel: (905) 840-6300

www.HydroOneBrampton.com

September 19, 2007

City of Brampton
8850 McLaughlin Road
Brampton, ON
L6Y 5T1

Attention: Khurram Tunio, M. Eng., P. Eng.

Re: Goreway Drive / CNR Grade Separation

Dear Sir:

Recently we were made aware of a proposed grade separation where Goreway Drive crosses the CN rail line near the Brampton / Mississauga boundary.

Hydro One Brampton has a vested interest in this project as it impacts the electrical supply to our customer, Parkshore Golf Course.

Hydro One Brampton will require vehicular access off Goreway Drive to the existing point of supply to the Golf Course. The point of supply is located on the east side of Goreway Drive approximately 28m north of the CN railway.

Please add Hydro One Brampton to your mailing list for this project. We would also appreciate receiving any design details for the grade separation.

Yours truly,
Hydro One Brampton Inc.

W. Schaefer, C.E.T.
Engineering Supervisor – Capital Works & Maintenance
WS/lm

allstream.

Allstream
50 Worcester Rd
Etobicoke Ont • M9W 5X2

416 649 7527 Tel
416 649 7500 Fax
www.allstream.com

Fax

Date: Sept 14/07	Pages: 3
To: Andrew Ritchie	From: Christine Anderson
Fax: 905-238-0038	Fax: 416-649-7500
Cc:	Tel: 416-649-7527

Re: 14020-009 - Class Environmental Assessment - Goreway

☐ Urgent ☐ Please reply ☒ For your review ☐ Please comment

Comments:

Sign-off

Christine Anderson
PUCC Coordinator (Mark Ups)
50 Worcester Rd
Etobicoke, ON
M9W 5X2
Christine.anderson@mtsallstream.com

UMA | AECOM

UMA Engineering Ltd.
5060 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

September 12, 2007 File Name: 4020-009

Ms. Christine Anderson
Allstream
50 Worchester Road
Etobicoke, ON M9W 5X2

Dear Ms. Anderson:

Re: Ontario Realty Corporation
Sale of Property in the Northwest Quadrant of Goreway Drive and CN's Halton Subdivision
Category 'B' Class Environmental Assessment
Project Notification

UMA Engineering Ltd. (UMA) has been retained by the City of Brampton on behalf of the Ontario Realty Corporation (ORC) to complete a Category 'B' Environmental Assessment under the *Class Environmental Assessment (Class EA) Process for Management Board Secretariat and Ontario Realty Corporation* for the potential sale or disposal of ORC lands. The subject lands are located in the northwest quadrant of Goreway Drive and CN's Halton Subdivision (rail corridor) within the City of Brampton and the Regional Municipality of Peel (Part of Lot 14, Concession 7).

The subject lands are illustrated on the attached drawing for the proposed widening of the Goreway Drive right-of-way (ROW). The ROW widening is proposed to accommodate the proposed grade separation (overpass or 'road over rail' structure) at Goreway Drive and the CN rail corridor. Due to the proposed grade separation, access to lands along the west side of Goreway Drive between the Mimico Creek crossing and the CN rail corridor, including the ORC lands just north of the CN rail corridor, will be affected. In order to maintain current access, a service lane has been proposed to extend along the west side of the proposed grade separation from south of the Mimico Creek crossing to north of the CN tracks.

Background

The purpose of the Category 'B' EA is to carry out due diligence as a result of the ORC proposing to grant interest within ORC lands. For this EA, the ORC proposes to sell lands for the future widening of the Goreway Drive ROW to facilitate the construction and maintenance of the proposed grade separation at Goreway Drive and the CN rail corridor. The proposed grade separation and associated ROW widening are being recommended as part of the Municipal Engineers Association (MEA) Municipal Class EA (Schedule 'C') process, which was initiated in July, 2006 and is scheduled for completion in 2007 (see attached Notice of Public Information Centre).

The Study recommends that a grade separation (overpass or 'road over rail' structure) be constructed at Goreway Drive and the CN rail corridor to alleviate road vehicle delays at the CN rail crossing. A service lane is proposed to maintain current access to properties along the west side of Goreway Drive. The current land use in the vicinity of the proposed grade separation is a mix of commercial/industrial, residential, recreational and natural areas. Old field (or abandoned farmland) is the primary land use to the north of the subject lands. Land uses along Goreway Drive from south of the CN corridor to Brandon Gate Drive are residential. Bell Canada, Enbridge Consumers Gas, Enersource Hydro Mississauga, Hydro One Brampton, Hydro One Telecom, Regional

UMA | AECOM

Municipality of Peel (i.e., watermain infrastructure), Rogers Cable, and Telus Communications all have plant along Goreway Drive in the vicinity of the subject lands.

Request for Comments

We invite your comments as they pertain to the potential sale or disposal of the ORC lands shown on the attached drawing. Your input will be taken into consideration as part of the ORC Category 'B' EA process and documented in the Consultation and Documentation (C&D) Record, which will be made available for public review.

We would appreciate receiving any comments/information pertaining to the subject lands that your agency may have on file by **October 12, 2007**, in order to meet the project schedule. Should your agency have any comments regarding this project, please contact the undersigned at (905) 238-0007 Ext. 6135 or Andrew.Ritchie@uma.aecom.com.

Thank you in advance for your assistance. Should you have any questions, please do not hesitate to contact the undersigned

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie

Andrew Ritchie, M.Pl. MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

:sk

Encl.

cc: K. Tunio, City of Brampton
S. Choi, City of Brampton
C. Duyvestyn, City of Brampton
R. Waldon, City of Brampton
A. Shaikh, City of Mississauga
G. Smith, UMA Engineering Ltd.
S. Kapusin, UMA Engineering Ltd.

Allstream has no existing plant in the area indicated in your submission.
No mark-up & no objection.

Name C Duclerow Date Sept 14/07

Title GIS/CAD Specialist

•peel District School Board

5650 Hurontario Street
Mississauga, ON, Canada L5R 1C6
t 905.890.1010 1.800.668.1146
f 905.890.6747
www.peelschools.org

September 25, 2007

Mr. Andrew Ritchie
Planner
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L5R 1C6

Dear Mr. Ritchie:

RE: **Ontario Realty Corporation**
Sale of Property in the Northwest Quadrant of Goreway Drive and CN's Halton Subdivision
Category "B" Class Environmental Assessment
Project Notification
City of Brampton

Thank you for your letter dated September 12, 2007 informing us of the sale of the above noted land in the City of Brampton. Please be advised that the Peel District School Board has no comments on its sale or disposal.

If you require any further information please contact me at 905-890-1010, ext. 2217.

Yours truly,

Paul Mountford, MCIP RPP
Intermediate Planning Officer
Planning and Accommodation Department

c. Steve Hare, Peel District School Board

Goreway ORC.doc

RECEIVED
SEP 27 2007
UMA

Rogers Cable Communications Inc.
280 Hillmount Rd, Unit 9
Markham, Ontario L6C 3A1
rogers.com

Tuesday, September 18, 2007

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON
L4W 4P2

Attn: Andrew Richie

Re: Ontario Realty Corporation
Sale of Property in the Northwest Quadrant of Goreway Drive and CN's Halton Subdivision Category "B" Class Environmental Assessment
Project Notification
File Name: 4020-009

Dear Mr. Ritchie:

Please note that Rogers Cable Communications (formerly FCI Broadband) does not have any facilities in the parameters of the above mentioned project.

Please do not hesitate to contact me if you have any additional questions or concerns.

Sincerely Yours,

D. Barclay

Gord Barclay
Service Provisioning Manager
FCI Broadband

UMA | AECOM

UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

September 12, 2007 File Name: 4020-009

Recipient's Name
Recipient's Title
Recipient's Company Name
Company Address

Dear Salutation Last Name:

Re: Ontario Realty Corporation
Sale of Property in the Northwest Quadrant of Goreway Drive and CN's Halton Subdivision
Category 'B' Class Environmental Assessment
Project Notification

UMA Engineering Ltd. (UMA) has been retained by the City of Brampton on behalf of the Ontario Realty Corporation (ORC) to complete a Category 'B' Environmental Assessment under the *Class Environmental Assessment (Class EA) Process for Management Board Secretariat and Ontario Realty Corporation* for the potential sale or disposal of ORC lands. The subject lands are located in the northwest quadrant of Goreway Drive and CN's Halton Subdivision (rail corridor) within the City of Brampton and the Regional Municipality of Peel (Part of Lot 14, Concession 7).

The subject lands are illustrated on the attached drawing for the proposed widening of the Goreway Drive right-of-way (ROW). The ROW widening is proposed to accommodate the proposed grade separation (overpass or 'road over rail' structure) at Goreway Drive and the CN rail corridor. Due to the proposed grade separation, access to lands along the west side of Goreway Drive between the Mimico Creek crossing and the CN rail corridor, including the ORC lands just north of the CN rail corridor, will be affected. In order to maintain current access, a service lane has been proposed to extend along the west side of the proposed grade separation from south of the Mimico Creek crossing to north of the CN tracks.

Background

The purpose of the Category 'B' EA is to carry out due diligence as a result of the ORC proposing to grant interest within ORC lands. For this EA, the ORC proposes to sell lands for the future widening of the Goreway Drive ROW to facilitate the construction and maintenance of the proposed grade separation at Goreway Drive and the CN rail corridor. The proposed grade separation and associated ROW widening are being recommended as part of the Municipal Engineers Association (MEA) Municipal Class EA (Schedule 'C') process, which was initiated in July, 2006 and is scheduled for completion in 2007 (see attached Notice of Public Information Centre).

The Study recommends that a grade separation (overpass or 'road over rail' structure) be constructed at Goreway Drive and the CN rail corridor to alleviate road vehicle delays at the CN rail crossing. A service lane is proposed to maintain current access to properties along the west side of Goreway Drive. The current land use in the vicinity of the proposed grade separation is a mix of commercial/industrial, residential, recreational and natural areas. Old field (or abandoned farmland) is the primary land use to the north of the subject lands. Land uses along Goreway Drive from south of the CN corridor to Brandon Gate Drive are residential. Bell Canada, Enbridge Consumers Gas, Enersource Hydro Mississauga, Hydro One Brampton, Hydro One Telecom, Regional Municipality of Peel (i.e., watermain infrastructure), Rogers Cable, and Telus Communications all have plant along Goreway Drive in the vicinity of the subject lands.

Request for Comments

We invite your comments as they pertain to the potential sale or disposal of the ORC lands shown on the attached drawing. Your input will be taken into consideration as part of the ORC Category 'B' EA process and documented in the Consultation and Documentation (C&D) Record, which will be made available for public review.

We would appreciate receiving any comments/information pertaining to the subject lands that your agency may have on file by **October 12, 2007**, in order to meet the project schedule. Should your agency have any comments regarding this project, please contact the undersigned at (905) 238-0007 Ext. 8135 or Andrew.Ritchie@uma.aecom.com.

Thank you in advance for your assistance. Should you have any questions, please do not hesitate to contact the undersigned

Sincerely,

UMA Engineering Ltd.

Andrew Ritchie, M.Pl. MCIP, RPP
Consultant Environmental Planner
andrew.ritchie@uma.aecom.com

:sk

Encl.

cc: K. Tunio, City of Brampton
S. Choi, City of Brampton
C. Duyvestyn, City of Brampton
R. Waldon, City of Brampton
A. Shaikh, City of Mississauga
G. Smith, UMA Engineering Ltd.
S. Kapusin, UMA Engineering Ltd.

ORC Agency Contact List

FEDERAL-PROVINCIAL AGENCIES	
Mr. Rob Dobos Head, Assessment	Environment Canada CCIW 867 Lakeshore Road P.O. Box 5050 Burlington, ON L7R 4A6
Pradeep Kharé Regional Director General	Environment Canada, Ontario Region 4905 Dufferin Street, Downsview, ON M3H 5T4
Mr. Stu Niven Associate District Manager	Fisheries and Oceans Canada Burlington District Office 3027 Harvester Road, Unit 304 Burlington, ON L7R 4K3
Ms. Debra D. Taylor Regional Director General, Ontario	Transport Canada Regional Director General's Office - Ontario Region 4900 Yonge Street, Suite 300 North York, ON M2N 6A5
Mr. Ernie Hartt APEP Supervisor	Ministry of the Environment Central Region Office 5775 Yonge Street, 9th Floor Toronto, ON M2M 4J1
Mr. James O'Mara Director	Ministry of the Environment Environmental Assessment and Approvals Branch 2 St. Clair Avenue West, Floor 12A Toronto, ON M4V 1L5
Ms. Cora Sheppard EA and Planning Coordinator	Ministry of Environment – Air, Pesticides and Environmental Planning 5775 Yonge Street 8th Floor North York, ON M2M 2J1
Ms. Shari Prowse Heritage Planner	Ministry of Culture Heritage Operations 400 University Avenue, 4th Floor Toronto, ON M7A 2R9

ORC Agency Contact List

FEDERAL-PROVINCIAL AGENCIES	
Mr. Michael Johnson Manager	Ministry of Culture Heritage Operations 400 University Avenue, 4th Floor Toronto, ON M7A 2R9
Ms. Carol Neumann Rural Planner	Ministry of Agriculture, Food and Rural Affairs West Central Ontario, Agricultural Land Use Wellington Pl, RR 1 Fergus, ON N1M 2W3
Mr. Tracy Smith District Manager	Ministry of Natural Resources Aurora District 50 Bloomington Road West Aurora, ON L4G 3G8
Mr. Bill Jones Manager	Ministry of Transportation Planning and Environmental Office Building D, 3rd Floor 1201 Wilson Ave Downsview, ON M3M 1J8

ORC Agency Contact List

MUNICIPALITIES	
Mr. Doug Roeterink PUCC Coordinator	City of Brampton 8850 McLaughlin Road Brampton, ON L6Y 5T1
Ali Sabouri Network Administrator	City of Brampton Information Technology Public Service Network 2 Wellington Street West Brampton, ON L6Y 4R2
Ms. Eve Adams Ward 5 Councillor	City of Mississauga 300 City Centre Drive Mississauga, ON L5B 3C1
Ms. Crystal Greer City Clerk	City of Mississauga Office of the City Clerk 300 City Centre Drive, 3rd Floor Mississauga, ON L5B 3C1
Ms. Janice Baker City Manager	City of Mississauga City Manager's Office 300 City Centre Drive Mississauga, ON L5B 3C1
Mr. Martin Powell Commissioner	City of Mississauga Transportation and Works 3484 Semenyk Court Mississauga, ON L5C 4R1
Mr. Ed Sajecki Commissioner	City of Mississauga Planning and Building 300 City Centre Drive, 10th Floor Mississauga, ON L5B 3C1
Mr. Mark Warract Heritage Coordinator	Mississauga Heritage Features Mississauga Civic Centre 300 City Centre Drive Mississauga, ON L5B 3C1
Ms. Kathy Cater Manager	Region of Peel Engineering and Infrastructure 11 Indell Lane, 2nd Floor Brampton, ON L6T 3Y3

ORC Agency Contact List

MUNICIPALITIES	
Mr. Ken Chartrand Engineering & Construction	Region of Peel Public Works 11 Indell Lane Brampton, ON L6T 3Y3
Mr. Cam Johnston Supervisor	Region of Peel Engineering and Infrastructure 11 Indell Lane, 2nd Floor Brampton, ON L6T 3Y3
Mr. Paul Callanan Director	Region of Peel Environmental Health 44 Peel Centre Drive Mississauga, ON L6T 4B5

ORC Agency Contact List

EMERGENCY SERVICE PROVIDERS	
Mr. Peter Dundas Director	Region of Peel Ambulance and Emergency Services 2 County Road, Suite 440 Brampton, ON L6W 3W8
Mr. Mike Grodzinski Inspector	Peel Regional Police Operational Planning 7750 Hurontario Street Brampton, ON L6V 3W6
Mr. Terry Irwin Fire Chief	City of Brampton Fire Department 8 Rutherford Road South Brampton, ON L6W 3J1
Mr. Bob Elinesky Admin Sergeant	Ontario Provincial Police Port Credit Detachment 49 South Service Road Mississauga, ON L5G 2R8

ORC Agency Contact List

OTHER	
Mr. Philip Bauslaugh	Bell Canada West Tower - F3 5115 Creekbank Road Mississauga, ON L4W 5R1
Ms. Amanda Sexton Supervisor, Planning and Design	Enbridge Gas Distribution Inc. Special Projects, Distribution Planning 500 Consumers Road North York, ON M2J 1P8
Mr. Jim Washburn System Planner	Rogers Cable OPE - GTA West 3573 Wolfedale Road Mississauga, ON L5C 3T6
Mr. Bruno Pereira Engineering Supervisor – East	Hydro One Brampton 175 Sandalwood Parkway West Brampton, ON L7A 1E8
Mr. Ian Mitchell OSP Manager	Hydro One Telecom Inc. 65 Kelfield Street Rexdale, ON M9W 5A3
B. Jamie Bignell ADET Zone 3A/Zone 8	Hydro One Networks 913 Crawford Drive Peterborough, ON K9J 3X1
Mr. Bob Koskocky	Enersource Corporation 3240 Mavis Road Mississauga, ON L5C 3K1
Mr. Gord Barclay	FCI Broadband 280 Hillmount Road, Unit 9 Markham, ON L6C 3A1
Mr. Grant Crowson	Telus Communication 2700 Matheson Blvd East 5th Floor, West Tower Mississauga, ON L4W 4V9

ORC Agency Contact List

OTHER	
Mr. Anthony Segreto	Telus Network 11 King Street West, 11th Floor Toronto, ON M5H 4C7
Mr. Hernando Martinez Utility Markups	Plantec Inc. – Consulting Engineers on behalf of Telus communications 200 Town Centre Boulvard Suite 300 Markham, ON L3R 8G5
Mr. Satish Kumar Coordinator	Trans Northern Pipelines 45 Vogell Rd. Suite 310 Richmond Hill, ON L4B 3P6
Mr. Kevin O'Brien	Canada Post Delivery Planning 193 Church Street, Suite 200 Oakville, ON L6J 7S9
Mr. Roger Roberts	Trans Canada Pipelines 11200 Weston Road Maple, ON L6A 1S7
Ms. Christine Anderson	Allstream 50 Worchester Road Etobicoke, ON M9W 5X2
Mr. John MacTaggart Senior Engineering Service Officer	Canadian National Railway 4 Welding Way P.O. Box 1000 Concord, ON L4K 1B9
Ms. Sharon Lingertat Planner, Peel Region and City of Brampton	Toronto and Region Conservation Authority 5 Shoreham Drive Downsview, ON M3N 1S4
Mr. Sheldon Leiba General Manager	Brampton Board of Trade 33 Queen Street West, 2nd Floor Brampton, ON L6Y 1L9

ORC Agency Contact List

OTHER	
Mr. Jim Grieve Director of Education	Peel District School Board HJA Brown Education Centre 5650 Hurontario Street Mississauga, ON L5R 1C6
Mr. Michael Bator Director of Education	Dufferin-Peel Catholic District School Board Catholic Education Centre 40 Matheson Boulevard West Mississauga, ON L5R 1C5
Ms. Sheryl McKean President & CEO	Mississauga Board of Trade 701-77 City Centre Drive Mississauga, ON L5B 1M5
Ms. Virginia McLaughlin President	York Federation of Agriculture P.O. Box 90 Richmond Hill, ON L4C 4X9
Ms. Taja Dirks Director of Growth Policy Planning & Analysis	Ministry of Public Infrastructure Renewal 777 Bay Streeet, 4th Floor Toronto, ON M5G 2E5
Mr. Bruce Singbush Manager, Planning Projects	Ministry of Municipal Affairs and Housing 777 Bay Streeet, 4th Floor Toronto, ON M5G 2E5
Ms. Diana Jardine Director, Plans Administration Branch	Ministry of Municipal Affairs and Housing 777 Bay Streeet, 4th Floor Toronto, ON M5G 2E5
Mr. Victor Doyle Manager, Community Planning & Development	Ministry of Municipal Affairs and Housing 777 Bay Streeet, 4th Floor Toronto, ON M5G 2E5
Michelle Moretti Planner	Municipal Affairs and Housing Planning Projects, Toronto 777 Bay Street, 2nd Floor Toronto, ON M5G 2E5
Brian McCormick Manager	Hydro One Networks Environmental Services and Approvals 483 Bay Street Toronto, ON M5G 2P5

ORC Agency Contact List

OTHER	
Tom Hewitt Head	Ministry of Transportation Corridor Management Section 1201 Wilson Avenue, 7th Floor, Building D Downsview, ON M3M 1J8

ORC Agency Contact List

FIRST NATIONS	
Ms. Pam Wheaton Director	Ontario Secretariat for Aboriginal Affairs Policy and Relationships Branch 720 Bay Street, 4th Floor Toronto, ON M5G 2K1
Mr. Surinder Singh Gill Policy Advisor	Ontario Secretariat for Aboriginal Affairs Policy and Relationships Branch 720 Bay Street, 4th Floor Toronto, ON M5G 2K1
Ms. Maryanne Pearce A.Sr Claims Analyst	Ontario Research Team Indian and Northern Affairs Canada 10 Wellington Street Gatineau, QC K1A 0H4
Ms. Louise Trepanier Director	Comprehensive Claims Branch Claims East of Manitoba Indian and Northern Affairs Canada 10 Wellington Street, 8th Floor Gatineau, QC K1A 0H4
Mr. Grant Wedge Counsel	Ministry of the Attorney General Crown Law Office – Civil 8th Floor, 720 Bay Street Toronto, ON M5G 2K1
Mr. Al Dokis Intergovernmental Affairs Director	Anishinabek Nation Head Office: Nipissing First Nation P.O. Box 711 North Bay, ON P1B 8J8
Chief Tracy Gauthier	Mississaugas of Scugog Island 22521 Island Road, RR #5 Port Perry, ON L9L 1B6

Peto MacCallum Ltd.
CONSULTING ENGINEERS

October 5, 2007

PML Ref.: 07TX014

Mr. Greg Smith, P.Eng.
UMA Engineering Limited
5080 Commerce Boulevard
Mississauga, Ontario
L4W 2P2

Dear Mr. Greg

Addendum to Report of
Phase I Environmental Site Assessment (ESA)
Goreway Drive Between Brandon Gate Drive and Steeles Avenue East
Mississauga/Brampton, Ontario

We are pleased to present our findings of a supplemental Phase I ESA we have recently carried out on part of the Ontario Realty Corporation (ORC) lands as an addendum to our previous Phase I ESA Report 07TX014 dated May 25, 2007 prepared for the above-referenced alignment.

Peto MacCallum Ltd. (PML) was retained by UMA Engineering Limited (the Client) to conduct a Phase I ESA for the subject site located along Goreway Drive between Brandon Gate Drive (in Mississauga, Ontario) and Steeles Avenue (in Brampton, Ontario). Mr. Greg Smith of UMA Engineering Limited authorized the work included in a Subconsultant Agreement signed on February 14, 2006.

The Goreway Drive Improvement is understood to include roadway widening, and CN Halton crossing, Mimico Creek East Branch crossing (culvert) improvement and storm sewer reconstruction activities.

The Phase I ESA was conducted to assess and document the past and present site geoenvironmental conditions; and to identify any actual or potential on-site and off-site sources of contamination for due diligence purposes. The Phase I ESA was carried out in accordance with the Canadian Standard Association (CSA) Standard Z768-01, dated November 2001.

Due to the roadway widening, land acquisition along the Goreway Drive alignment will have to be considered accordingly; and PML was requested to include in the Phase I ESA a portion of ORC lands on the west side of Goreway Drive for land acquisition.

The subject site, approximately rectangular in shape and about 784 m^2 (14 m by 56 m) in size, is located on the west of Goreway Drive and north of Canadian National (CN) railway in the city of Brampton (see attached Figure 1).

In addition to the previous Phase I ESA report, reports of Geotechnical Investigation (Report 07TF007) and Geoenvironmental and Hydrogeological Site Investigations (Report 07TX014) that we have prepared recently for the subject project were reviewed and their salient pertinent findings are outlined as follows.

165 Cartwright Avenue, Toronto, Ontario, Canada M6A 1V5
Tel: (416) 785-5110 Fax: (416) 785-5120
E-mail: toronto@petomaccallum.com
BARRIE, BRAMPTON, HAMILTON, KITCHENER, TORONTO

- The areas between CN railway and Steeles Avenue were predominantly agricultural or uncultivated lands according to the 1978 Aerial Photograph; and the environmental concerns along the Goreway Drive alignment were considered insignificant;

- The subsurface stratigraphy revealed generally comprised topsoils/fill/pavement over clayey silt underlain by sandy silt, which was in turn underlain by silty sand or sand deposits;

- Ground water levels in the monitoring wells were recorded between 2.54 and 4.54 m below ground surface and about elevations 169.0 m to 167.5 m; and ground water flows nearly southeasterly, and locally to the Mimico Creek tributary;

- The environmental quality of the analyzed soil samples met the Ontario Standards for industrial/commercial/community land uses except some elevated Sodium Adsorption Ratios (SARs) which are most likely indicative of the past use of deicing salt on the road; and

- The environmental quality of the ground water samples taken from the selected monitoring wells and analyzed did not meet the Provincial Water Quality Objectives (PWQO), or the Peel Region Storm Water Sewer By-law criteria.

A member of our technical staff conducted a site visit beyond the property fence on August 23, 2007. The site features observed are shown on Plates 1 and 2 enclosed. According to the visual observations, the site was observed vacant and covered with weeds and vegetation. No evidences of environmental concern were noted on the subject site. However, four trailer/containers were found on the west part of the subject lands (see attached Plates 1 and 2).

Regarding the land use, a questionnaire was sent to DMSI, the property management department (see Appendix A). Based on the response, it was advised that their files on the subject land contained limited information; the property was classified as vacant; the past primary use was likely agricultural; and no knowledge of environmental concerns on the land or on the use of the trailers were indicated.

Based on our supplementary assessment, the possibility of the contamination of soils and ground water underlying the subject site cannot be excluded in our opinion due to the operation of traffic road and railway in many years and the unknown use of the trailers in the adjacent land properties. Considering that the subject site will be acquired for the widening of roadway, the likely environmental concerns may not be significant.

This report shall be read as a part of our previous report (Report 07TX014 dated May 25, 2007) of Phase I Environmental Site Assessment.

We trust that you will find this report complete within our terms of reference. Should you have any questions or if we can be of further assistance in the upcoming stages of the project, please do not hesitate to contact this office.

Sincerely

Peto MacCallum Ltd.

Bujing Guan, MASc, P.Geo.
Project Geoscientist

Mori H. Mortazavi, MEng, P.Eng., P.Geo.
Manager and Chief Engineer
Geoenvironmental and
Hydrogeological Services

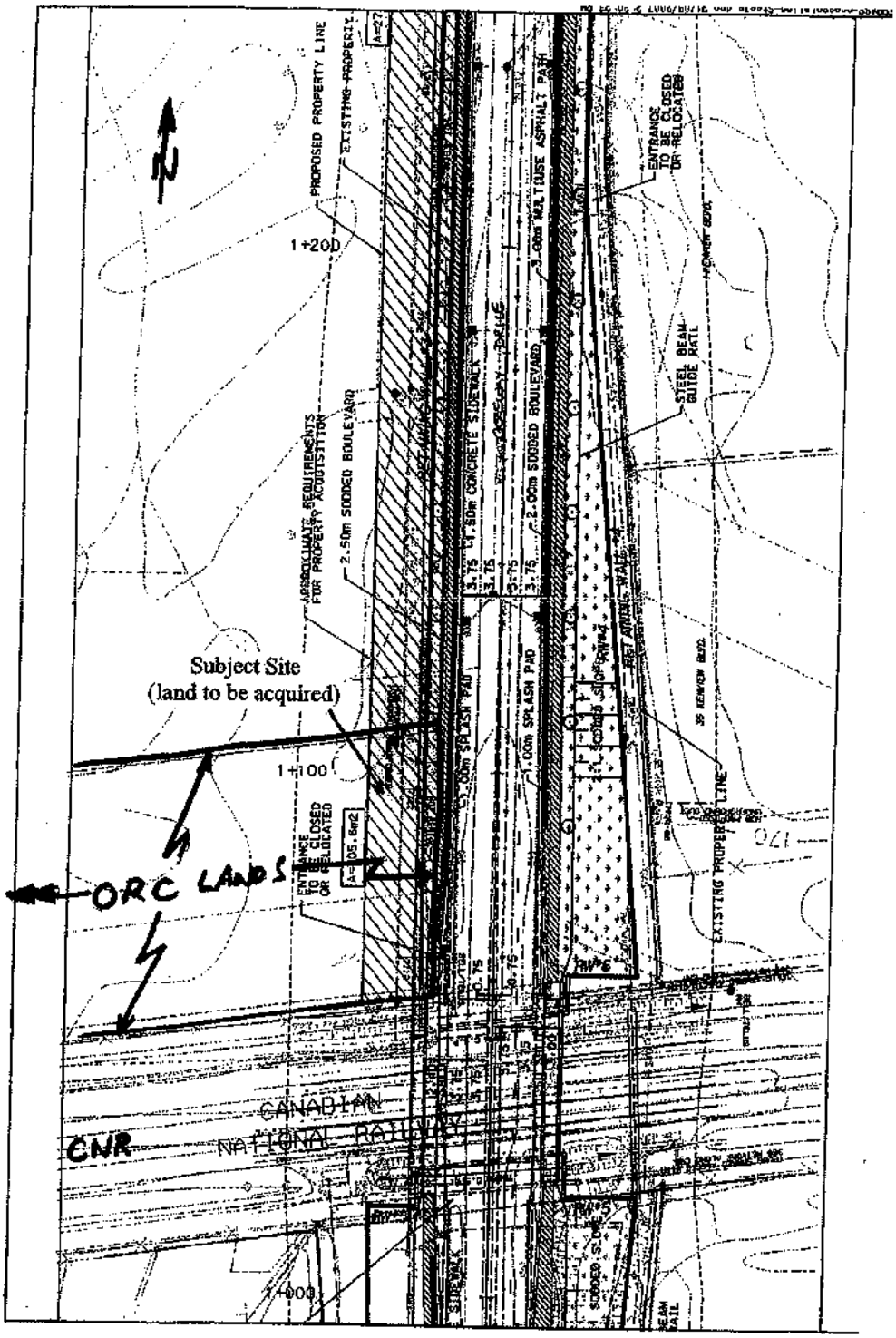
MHM/BG-bg:lr

Enclosures:

Figure 1 - ORC Lands and Land to be Acquired
Plates 1 and 2 - Site Photographs
Appendix A – Questionnaire

Distribution:

3 cc: UMA Engineering Limited
1 cc: PML Toronto



The drawing was provided by UMA Engineering Ltd.

UMA ENGINEERING LIMITED				
ORC LANDS AND LAND TO BE ACQUIRED				
PHASE I ENVIRONMENTAL SITE ASSESSMENT GOREWAY DRIVE BRAMPTON/MISSISSAUGA,ONTARIO	DATE	SCALE	JOB NO.	FIGURE NO.
	OCT.2007	1:1300	07TX014	1

Peto MacCallum Ltd.
CONSULTING ENGINEERS

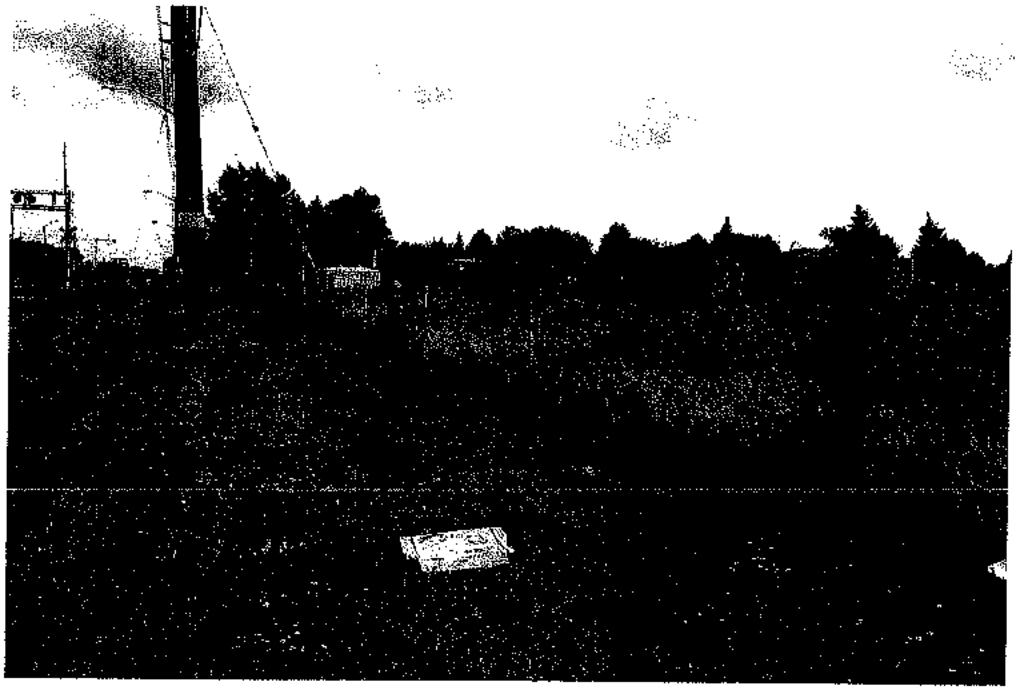


Plate 1: View of Subject Site. Four trailers/containers were noted on ORC land close to the Subject Site. Photo facing south.

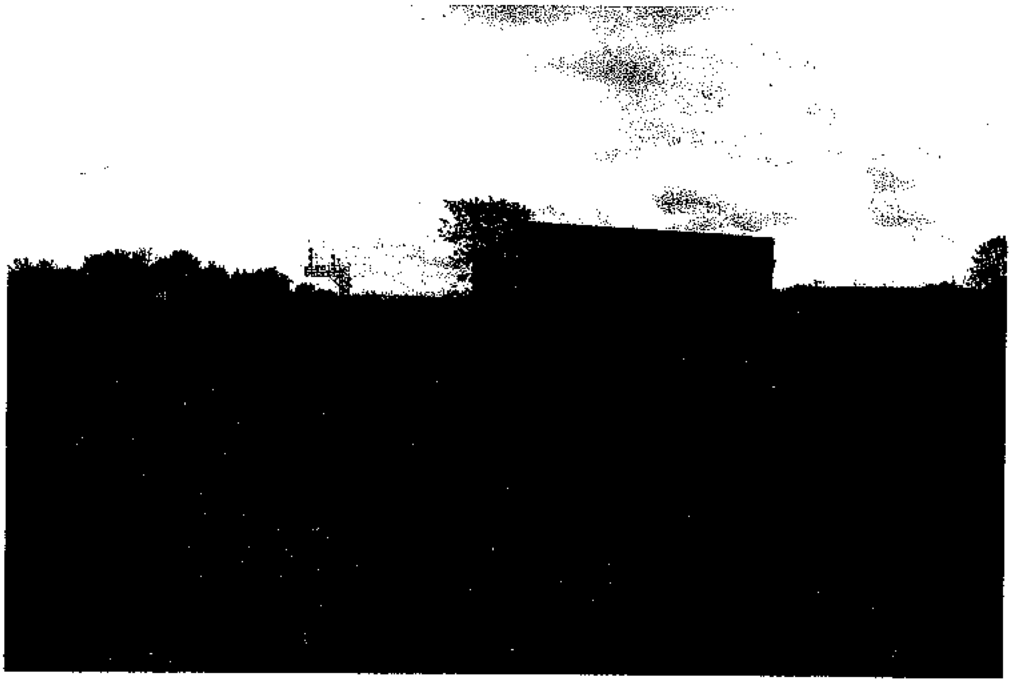


Plate 2: Partial view of Subject Site. CN railway was located to the south (left) of the Subject Site. Photo facing west.

APPENDIX A

Questionnaire

PML Toronto

From: "Tammy Fuller" <tfuller@dmsproperty.com>
To: "PML Toronto" <toronto@petomaccallum.com>
Cc: "Deborah Soulier" <dferguson@dmsproperty.com>
Sent: Tuesday, September 25, 2007 3:32 PM
Subject: RE: Goreway Drive Grade Separation P65667

Hello Bujing:

Our file on this property is very limited. Hence, DMS has no background information of any value.

We have the property classified as vacant. However, I have been out in the area and it would appear that its past primary use was agricultural. We have no knowledge of past use or environmental concerns.

Deborah Ferguson of our office is working on the trailer issue. As at this date, we do not know to whom they belong, what is contained therein or if there is any contaminant leak. Once Deborah has gathered any relevant information in this regard, I will request that she forward same along to you.

If you require access tot eh land to complete the EA, a Permission to Enter document will be required. In order for our office to complete such, we will need to know the name and title of the PML signatory, the access dates, the intent of the access (borehole testing etc). Further, PML will have to secure indemnity insurance for access. Once you are ready to proceed, please call and advise and we will prepare the information.

Tammy Fuller
Sr. Manager - Operations
DMSI
905-472-7300 X225

From: PML Toronto [mailto:toronto@petomaccallum.com]
Sent: Tuesday, September 25, 2007 2:55 PM
To: Tammy Fuller
Cc: mmortazavi@petomaccallum.com
Subject: Goreway Drive Grade Separation

Hello Tammy,

As you may have known, we (Peto MacCallum Limited) are assisting UMA in conducting an ESA study for Goreway Drive Improvement construction at the City of Brampton, Ontario.

Because the Goreway Drive Improvement will require a widening of the existing road, it is supposed to acquire a portion of ORC land (about 14m from property line to west) on the northwest of CN railway/Goreway drive intersection. Consequently, an environmental site assessment will have to include part of land.

We conducted a site visit by the side of Goreway Drive, and found that the land was currently vacant and four trailer containers were existing close to the land property line.

To conduct a comprehensive assessment, we will have to investigate the present and past use of the property land. We appreciate that you can assist in answering the following questions:

1. When did ORC acquire the land?
2. What is the purpose of the land use by ORC (vacant, agricultural or other use)?
3. What was the purpose of land use by the previous owner?
4. Do you know if there are any environmental concerns on the land?
5. Who owns the trailer containers and what are stored in them?

6. Did any chemical spills occur inside or outside the trailer containers?

Regards,

Bujing

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165 Cartwright Avenue
Toronto, Ontario
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