



Hamilton

**CITY OF HAMILTON**

**PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT**  
**Economic Development Division**

<b>TO:</b> Mayor and Members General Issues Committee	<b>WARD(S) AFFECTED:</b> CITY WIDE
<b>COMMITTEE DATE:</b> May 15, 2013	
<b>SUBJECT/REPORT NO:</b> McMaster Institute for Transportation & Logistics (MITL) Advisory Board Membership (PED13093) (City Wide)	
<b>SUBMITTED BY:</b> Tim McCabe General Manager Planning and Economic Development Department	<b>PREPARED BY:</b> Neil Everson (905) 546-2424 Ext. 2359
<b>SIGNATURE:</b>	

**RECOMMENDATION:**

- (a) That the City of Hamilton renew its membership status on the McMaster Institute for Transportation & Logistics (MITL) Advisory Board for a three year period at a cost of \$25,000 per year to be funded from account "Transfer to Partnership" 55992-811010;
- (b) That the McMaster Institute for Transportation & Logistics (MITL) undertake projects mutually agreed upon between the City of Hamilton and MITL in return for the City of Hamilton's annual contribution to the Institute.
- (c) That the Director of Economic Development retain his seat on the McMaster Institute for Transportation & Logistics (MITL) Advisory Board as the City of Hamilton's representative.

**EXECUTIVE SUMMARY:**

The McMaster Institute for Transportation & Logistics (MITL), established in 2008, is now entering its sixth year and quickly becoming the recognized academic leader

nationally in transportation and logistics analysis. Staff is recommending that the City continue to support MITL for another three year term but at a reduced annual contribution of \$25,000 per year.

Organizations that partner with MITL at the \$25,000 level of funding have first priority on project selection and their annual contributions are used to cover the costs of agreed-upon project(s). In addition, the Director of Economic Development should remain on the MITL Advisory Board as the City's representative and to ensure Hamilton's interests take precedence. This Board meets four times a year and on an "ad hoc" basis for strategic planning, budgets, and other related matters.

Eight of the seventeen research projects undertaken by MITL, since its inception, have been applicable to Hamilton's focus for transportation. In 2013, there are two additional studies that will be required by the City both of which can be completed by MITL.

***Alternatives for Consideration – See Page 4***

**FINANCIAL / STAFFING / LEGAL IMPLICATIONS:**

**Financial:** That \$25,000 per annum for three years be funded from account "Transfer to Partnership" 55992-811010

**Staffing:** The Director of Economic Development will continue as a member of the MITL Advisory Board.

**Legal:** N/A

**HISTORICAL BACKGROUND:**

McMaster Institute for Transportation & Logistics (MITL) is a non-profit organization of private and public sector investors that was created to work with business and government partners to address real challenges facing the transportation and logistics industry. MITL is the only institute in the country that brings together the resources, expertise and experience that the industry does not have but desperately needs. The key focus areas for MITL are:

- research, education and outreach;
- to improve the efficiency of transportation systems; and,
- to increase the competitiveness of the logistics/manufacturing sector (one of Hamilton's six key industry sectors).

In a nutshell, MITL is dedicated to solving these transportation and logistics problems in order to make our municipality, Province and country work better. MITL employs an

applied research approach to solve current and future challenges in transportation that will have a positive economic, environmental and/or social impact. It also has access to research and best practises world-wide through its international connections with academic institutions and transportation industry leaders. MITL is supported by its partners in industry, government and academia (See Appendix “B” to this Report).

In December 2007, Hamilton City Council approved a \$1.5 M increase to the Planning and Economic Development Department which was distributed through different divisions and allocated to specific community partnerships and organizational initiatives. One such partnership was a five year commitment of \$30,000 per year to fund the MITL. This also included a position for the Director of Economic Development on the MITL Advisory Board.

**POLICY IMPLICATIONS/LEGISLATED REQUIREMENTS:**

N/A

**RELEVANT CONSULTATION:**

Corporate Services Department – Finance and Administration Section  
Public Works Department – Transportation Division  
Planning and Economic Development – Growth Management and Planning Divisions  
City Manager’s Office

**ANALYSIS / RATIONALE FOR RECOMMENDATION:**

The City of Hamilton was a founding member of the MITL in 2008 and has had a seat on the MITL Advisory Board ever since. During the five year funding period, MITL organized/hosted four “Translog” Conferences in Hamilton for academic and industry transportation specialists from around the world. It also completed 17 major research studies. Of these 17 studies the following were directly applicable to Hamilton’s Transportation and Goods Movement interests (see Appendix “A”):

- Goods Movement in the Greater Toronto and Hamilton Area: Modelling, Data Issues and the Development of an Establishment Survey Instrument (2008);
- A Sustainable Strategy for Developing Hamilton as a Gateway (2009);
- Estimating Urban Commercial Vehicle Movements in the GTHA (2010);
- Hamilton’s Rapid Transit Future: The Role of Light Rail Transit (2011);
- A Vision for Hamilton’s Transportation Future (Video) (2011);
- Hamilton Truck Route Study (2012);
- The North American Light Rail Experience: Insights for Hamilton(2012); and,
- Maximizing the Potential of the Foreign Trade Zone (FTZ) Concept in Canada (2013).

Since 2008, Hamilton's Public Works Department, Transportation Division and the Planning and Economic Development Department, Economic Development Division have been the primary users of the MITL applied research services.

MITL Advisory Board status for the City ensures that the Institute's priorities are aligned with Hamilton's priorities in transportation and logistics. It also ensures that the amount of the City's contribution is used to cover the costs of any agreed-upon project(s). In 2013, there are already two transportation research projects that need to be undertaken: 1) Update of the 2005 Hamilton Goods Movement Study and 2) A Review and Analysis of one-way street conversions to two-way streets. Without MITL Board membership, one or both of these projects would be subject to the City's procurement process and the prevailing market prices from transportation industry consultants. The MITL provides quality research at significantly lower cost to the taxpayer along with a relatively quick turnaround time on projects.

By 2015, MITL is projecting to be a \$300,000 per year academic institute specializing in congestion and emissions studies, freight regulatory analysis, delivery route optimization and technologies to increase the sustainability of goods and people movement. This will make MITL the Canadian centre of excellence for transportation & logistics research. It is also the exact type of "infrastructure" required to grow two of Hamilton's key sectors - manufacturing and goods movement.

**ALTERNATIVES FOR CONSIDERATION:**

That the City of Hamilton discontinue its support of the McMaster Institute for Transportation & Logistics and any City driven transportation related studies/projects be subject to a Request for Proposal (RFP) process and funding be identified from alternative sources.

That the City of Hamilton become a member of the Project Advisory Council at a cost of \$5,000 per year. This Council meets semi-annually and has an opportunity to provide input on the projects to be undertaken by MITL.

That the City of Hamilton become a member of MITL at a cost of \$1,000 and attend the annual "Networking Reception".

**ALIGNMENT TO THE 2012 – 2015 STRATEGIC PLAN:**

**Strategic Priority #1**

A Prosperous & Healthy Community

*WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.*

**Strategic Objective**

- 1.1 Continue to grow the non-residential tax base.
- 1.2 Continue to prioritize capital infrastructure projects to support managed growth and optimize community benefit.
- 1.4 Improve the City's transportation system to support multi-modal mobility and encourage inter-regional connections.
- 1.5 Support the development and implementation of neighbourhood and City wide strategies that will improve the health and well-being of residents.
- 1.6 Enhance Overall Sustainability (financial, economic, social and environmental).

**Strategic Priority #2**

Valued & Sustainable Services

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

**Strategic Objective**

- 2.2 Improve the City's approach to engaging and informing citizens and stakeholders.
- 2.3 Enhance customer service satisfaction.

**Strategic Priority #3**

Leadership & Governance

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

**Strategic Objective**

- 3.1 Engage in a range of inter-governmental relations (IGR) work that will advance partnerships and projects that benefit the City of Hamilton.
- 3.4 Enhance opportunities for administrative and operational efficiencies.

**APPENDICES / SCHEDULES:**

Appendix "A" – McMaster Institute for Transportation & Logistics (MITL) Completed Research Projects: City of Hamilton Funded Projects

Appendix "B" - McMaster Institute for Transportation & Logistics (MITL) – "Knowledge to Drive You Forward" Brochure

NE/dkm



# MITL Completed Research Projects

## City of Hamilton Funded Projects

### **The North American Light Rail Experience: Insights for Hamilton (April 2012)**

This study examines thirty cities in North America that have already developed light rail systems and with varying levels of success. The main objective of the work is to determine the main underlying factors that have contributed to the outcomes experienced in terms of ridership and the extent of transit-oriented development. The implications for a future Hamilton LRT are discussed.

### **Hamilton Truck Route Study (March 2012)**

In recent years, Hamilton, Ontario has been making modifications to its truck routes and has been considering the implications of some proposed reductions in routes. Partially, the changes result from the opening of the Red Hill Valley Parkway and partially they result from a desire to reduce the impacts of trucks on certain neighbourhoods. This brief study simulates the impacts of these changes on the movements of trucks through the city.

### **Hamilton's Rapid Transit Future: The Role of Light Rail Transit (August 2011)** [see video on our website]

In partnership with the Rapid Transit group of the City of Hamilton, MITL created this ten minute presentation that examines Light Rail Transit in the city with an emphasis on the proposed B-Line. The presentation focuses on: how LRT in Hamilton will look, why it is important, how it can aid urban development in key areas of the city and what can be learned from other cities that have developed LRT.

### **A Vision for Hamilton's Future (January 2011): [Videos]**

This presentation, created by the McMaster Institute for Transportation and Logistics (MITL), paints a picture of how Hamilton, Ontario, Canada is set to evolve as a successful gateway city for Southern Ontario and beyond. This video builds on a 2009 study released by MITL.

The short version (7 minutes) is narrated by the Mayor of Hamilton, Bob Bratina, and has a strong focus on Hamilton's opportunity to evolve as a gateway. The long version (20 minutes) is narrated by Dr. Virginia Frisk also has a Hamilton focus but is designed more for educational purposes. It goes into detail about goods movement and what a gateway is. It also contains some case studies of other successful gateway cities.

### **A Sustainable Strategy for Developing Hamilton as a Gateway (April 2009)**

For MITL's first major research project, the City of Hamilton, Ontario was evaluated for its potential to develop further as a goods movement gateway. The research featured an extensive literature review, detailed economic impact scenarios based on assumptions about gateway oriented employment growth and related traffic and emission scenarios. The central thesis of this report was that economic development and job creation need not conflict with environmental sustainability. Development of employment lands coupled with a strong urban intensification strategy and investment in public transit infrastructure is ideal for promoting economic interaction and gateway development while minimizing congestion and transport related emissions.

## **Projects Funded by Other Agencies**

### **Maximizing the Potential of the Foreign Trade Zone Concept in Canada (January 2013)**

This research examined the array of programs in Canada that seek to provide similar benefits to the more singular U.S. FTZ program. It has also examined the dilemma of not using a true zone concept in a world that is used to FTZs as zones with defined spatial boundaries. As well as the U.S. case, some examples from around the world are evaluated. The report concludes that some geographical reframing of the FTZ concept is required and that there are some important marketing issues to be considered as well. Finally, it suggests that the disparate FTZ-oriented programs in Canada need to be brought more into line with one another. The full report and access Dr. Mark Ferguson's January 25th speech can be found on our research website page.

### **Seaway Under-Utilization: Are Regulations to Blame? (June 2012)**

This report assesses the extent to which the regulatory environment can be used as an explanation for why Seaway volumes have not reached the levels of decades past and why it has been difficult for new Seaway services oriented towards higher value goods to gain traction. The results suggest that non-regulatory factors such as shifts in global demand patterns and intense competition from other modes within the region such as rail offer the most powerful explanations. Nevertheless, the report notes that even after the elimination of the Canadian 25% duty on foreign built ships, there are still some significant regulatory barriers to be addressed.

### **Delivery Route Optimization: An LCBO Case Study (December 2011)**

Exploratory work was carried out for the Liquor Control Board of Ontario (LCBO) to determine if there was potential for LCBO stores and The Beer Store (TBS) locations to be served more efficiently from the four LCBO warehouses in Ontario. Research was also motivated by the fact that the Durham warehouse was operating very close to capacity and scenarios which assigned more stores to the London warehouse were to be explored. Results showed that there appears to be significant potential to develop more efficient routes. The number of routes could be fewer with trucks filled closer to capacity. These routes would be associated with less aggregate distance travelled and therefore less emissions. Aggregate travel time would also be reduced. The results were derived taking traffic congestion patterns into account and detailed reports were developed which showed step-by-step the composition and timing of each route. The analysis was done on the basis of a "typical" two week cycle and thus did not take seasonality into account. For peak periods of the year in particular, alternative routing schemes would be required to accommodate the extra volumes.

**A Exploration of the Freight Village Concept and its Applicability to Ontario (October 2011)**

This research was carried out for the Ontario Ministry of Transportation. The purpose of the research was to explore the concept of a freight village and provide some high level insights on the applicability of the concept in the province of Ontario. A freight village is an advanced form of logistics centre where a cluster of goods movement oriented and logistics facilities are co-located and co-ordinated to achieve synergies. Key attributes include an intermodal terminal, warehousing, manufacturing, wholesaling, logistics services and access to shared facilities, equipment and services. Centralized management and ownership and partnership between the public and private sectors are also central elements. In its pure form, a freight village can serve as an incubator for smaller logistics and related firms. Extensive details about the concept and its relevance for Ontario can be found on our research web page.

**Movements of Dangerous Goods Across the Credit Valley Conservation Watershed (September 2011)**

The movement of dangerous goods is a prominent theme within the general area of goods movement. Large quantities of flammable liquids and compressed gases among other dangerous substances, move between and within our urban areas. The safety of these movements is of paramount concern. Nevertheless, there have been significant incidents that have taken place over the years resulting in loss of life and environmental damage. In order to maximize their understanding of the current situation and to achieve the highest level of emergency preparedness, the Credit Valley Conservation Authority approached MITL for research that would seek to quantify the movements of hazardous materials across the Credit Valley Watershed via the modes of road and rail. The framework that was implemented to evaluate these movements is described in detail in the linked report. The final estimate for road movements was 8.857 million tonnes of hazmat per year that interact with the watershed. For rail, the corresponding estimate is 6.442 million tonnes per year.

**Green Technology and Trucking: An Investigation of Factors Influencing Fuel Consumption Using GPS Data (February 2011)**

This study explores factors such as acceleration and speed which impact fuel consumption for short-haul trucking – that is, the shipment of goods within 200 and 300 kilometers of a driver’s home terminal. The data used in this study were provided by Transcare Logistics Corporation, a member of the Carego Group of Companies. The data consisted of GPS records for all trips undertaken by two trucks operating for the corporation, freight information, and fuel information.

**Champlain Bridge-Montreal: Impacts of Disruptions to Bridge Capacity (January 2011)**

MITL completed a project for the Federal Bridge Corporation which assessed the impacts of potential closures to the Champlain Bridge in Montreal. Given that the main part of Montreal is an island, the metropolitan economy is very dependent on its river crossings. Congestion in the vicinity of these crossings is already a major problem. In the event of a moderate seismic event, there is the possibility that the crossing could be closed for several years. This project studied various closure scenarios and their implications for traffic patterns and also the competitiveness of the metropolitan economy.



**An Assessment of Hands-Free Mooring (December 2010)**

MITL completed a project for the St. Lawrence Seaway Management Corporation seeking to assess a new Hands Free Mooring technology which is being studied for rollout throughout the Seaway system. The study sought to establish base rates over recent years for negative vessel incidents in transiting locks and evaluated current tests of the new technology against those base rates. Also, a stakeholder interview process was executed to assess views on the new technology.

**Estimating Urban Commercial Vehicle Movements in the GTHA (July 2010)**

This project was completed for Metrolinx, the provincial transportation agency for the Greater Toronto Hamilton Area (GTHA). In this work, available data sources were integrated with a computationally intensive simulation framework to estimate, on an hourly basis, the flows of light, medium and heavy commercial vehicles between over 2000 zones in the GTHA.

**Goods Movement in the Greater Toronto and Hamilton Area: Modeling, Data Issues and the Development of an Establishment Survey Instrument (October 2008)**

This research was carried out for Metrolinx with a view to develop improved data on Urban Commercial Vehicle Movements (UCVM) within the GTHA. A possible survey instrument was developed and a description of possible subsequent simulation modeling was provided.

**All reports and videos can be downloaded from:**

**<http://mitl.mcmaster.ca/research.html>**

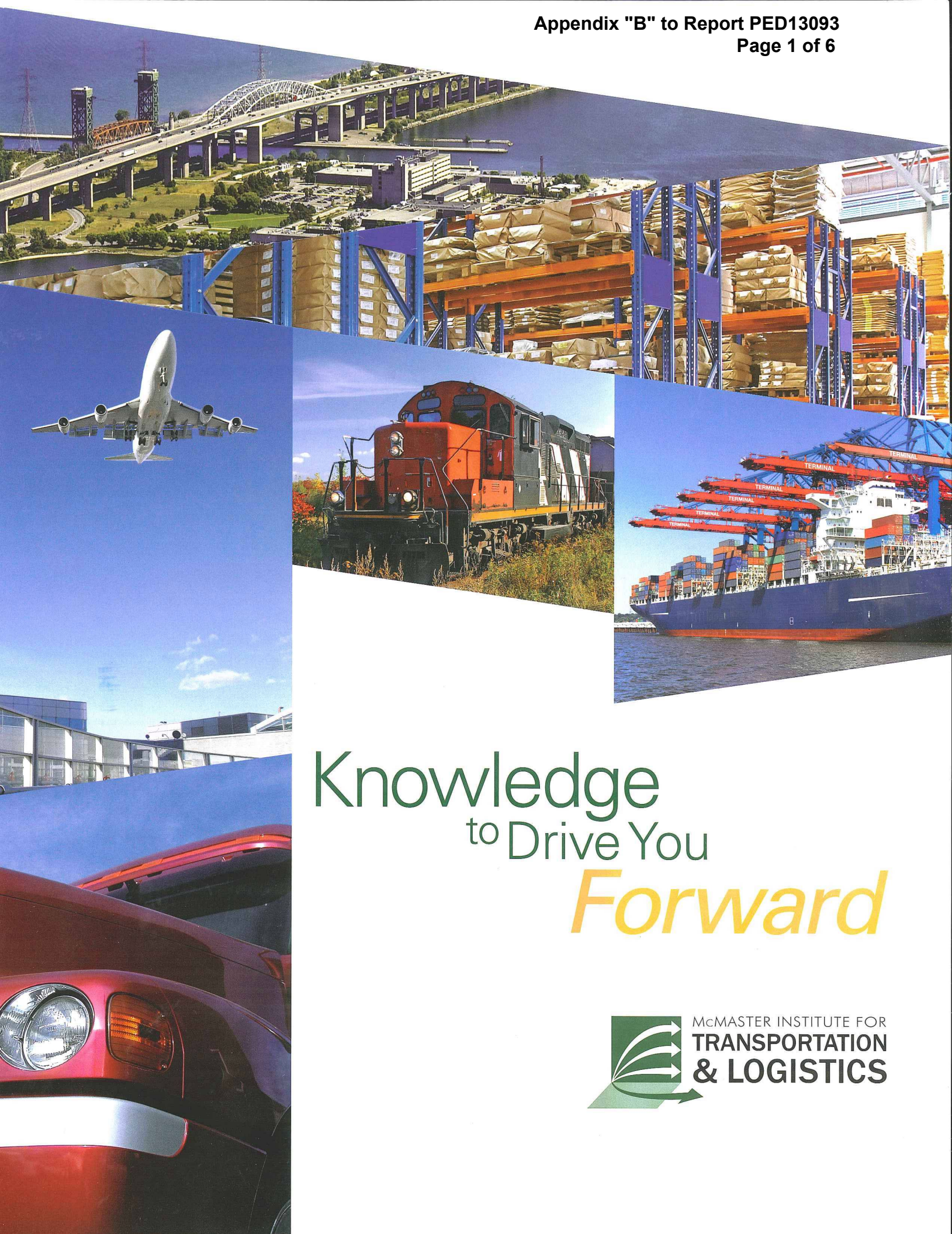
## **MITL Current Research Projects**

**Estimating Road Link-Based Emissions for Key Canadian Census Metropolitan Areas**

This research is being carried out for Environment Canada and seeks to provide emissions estimates associated with all metropolitan road links in the CMAs covered. An Integrated Urban Modelling Framework is used where trips originating from and arriving in each small census area are estimated for each hour of the day. These trips are assigned to the road network using an advanced assignment algorithm and an appropriate environmental module is employed to estimate emissions associated with the traffic levels on each road link. Something similar is done for light, medium and heavy commercial vehicles and public transit vehicles. Variations by day and by month are taken into account to provide a complete picture for a full year.

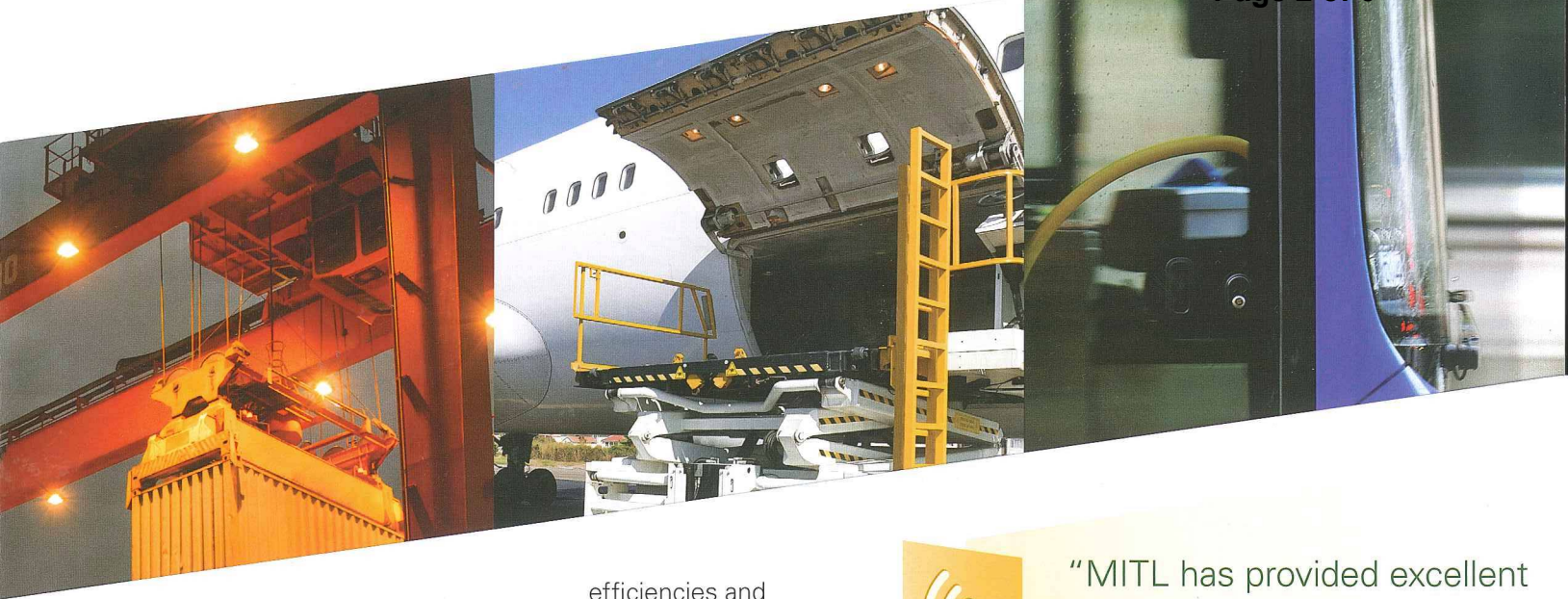
**An Examination of Freight Generators in the Province of Ontario**

This work is being carried out in partnership with the Ontario Ministry of Transportation as a follow up to a study that examined some of the more internationally-oriented freight generators in the Province. The purpose here is use available data sources to accurately screen out a large number of second-tier freight generators scattered throughout regions of the province and to perform a round of survey work to gather further details about each generator.



Knowledge  
to Drive You  
*Forward*





Are you doing everything you can to service your customers better?

What would it take to make your operations more efficient?

Whether you're in the business of delivering goods, moving people or providing integrated logistics services, your future depends on the choices you make today.

Good decision making requires good knowledge. And good knowledge comes from good research. The kind of research that has made the McMaster Institute for Transportation and Logistics (MITL) a leading resource for private sector firms and governments at all levels who are looking to achieve

What mode of transportation should we be using?



efficiencies and drive innovation in transportation.

MITL delivers the valuable evidence you need to make decisions that address real and immediate business challenges, build cities that work, grow the economy and improve our quality of life.

As a research resource to industry and government, MITL is unique.

The only institute in Canada offering world-class, in-house research capabilities in:

- Traffic simulation modeling
- Traffic emissions modeling
- Transport sustainability
  - Transport infrastructure
  - Regulatory issues
  - Logistics/freight optimization, and
  - Land use issues



"MITL has provided excellent value for our research dollar. The proposed distribution solutions, when implemented, are likely to generate significant cost savings and provide a high return on investment."

**George Soleas**

Executive Vice-President, LCBO

MITL provides the breadth and depth of expertise and resources that only a leading research University can provide, including:

- Internationally renowned experts in transportation modeling and optimization methods
- State-of-the-art laboratories and latest technologies in computer science, GIS science, and transportation science
- Access to researchers in Science, Business, Engineering



## How do we lower fuel costs and emissions?



### Strength in numbers

As an MITL member, you will gain:

- Access to industry leading best practices from those who understand the issues and challenges you face – because they've been there.
- The opportunity to commission your own applied research – alone or in partnership with others – affording the benefits of an in-house R&D shop without the in-house cost.
- An influential voice with civic leaders and policymakers whose decisions impact the future of your business.
- Knowledge and insight that can only come from having the latest and best available industry research at your fingertips.
- MITL research findings the moment they become available, prior to public release.

and other faculties able to examine your transportation problem from every angle

At MITL, no research problem is too large or too small. Whether studying key forces and trends shaping the future of transportation on the Great Lakes or helping a private company deliver product to its customers more efficiently, MITL delivers rigorous, thorough, unbiased, analysis – information you can trust to make informed decisions for a better and sustainable future.

- Participation in seminars and networking sessions with prominent researchers and public and private sector leaders in transportation, logistics and supply chain management.
- Reviews and news of the latest industry developments worldwide that could impact your business.
- Complimentary registration at MITL's bi-annual TRANSLOG conference, featuring industry, government and academic speakers from around the world.



## How can we trade and move more goods internationally?



## City of Hamilton

**Challenge:** Does light rail transit (LRT) make sense for the City of Hamilton?

**Method:** MITL researchers examined the success and failure of LRT projects in 30 North American cities, and used these experiences to determine the likelihood of success for an LRT system in Hamilton.

**Bottom Line:** The research concluded that LRT works best in cities experiencing rapid population and employment growth, where congestion is already an issue. While respectable, Hamilton's growth is far from booming and existing transit systems are fairly efficient. LRT could work in Hamilton under the right circumstances, "but it will be a long, challenging and costly process", says the report.

**Last Word:** "MITL gave us objective, third-party input and helped us look at LRT not in isolation from but in concert with, everything else we're doing."

**Chris Murray**  
City Manager, City of Hamilton

Where do we put our distribution centre?



## Credit Valley Conservation

**Challenge:** Every day flammable liquids, compressed gases and other dangerous substances are transported across our urban areas. What is the threat to citizens and the environment, and how can political leaders prepare for it?

**Method:** Credit Valley Conservation engaged MITL to estimate the volumes of hazardous materials that are moved by road and rail across its 1,000-square-kilometer jurisdiction. Using advanced modeling techniques and simulation, researchers were able to isolate the quantity and type of hazardous materials moving across the watershed.

**Bottom Line:** The final hazardous materials estimate for the watershed was 8.857 million tonnes moved by road and 6.442 million tonnes moved by rail every year.

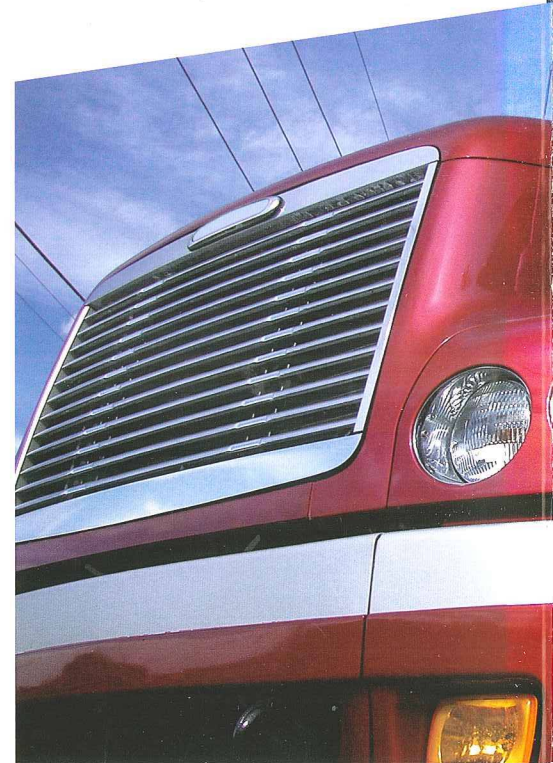
**Last Word:** "Despite a scarcity of data, MITL compiled a very valuable report which has assisted us in our emergency preparedness plans."

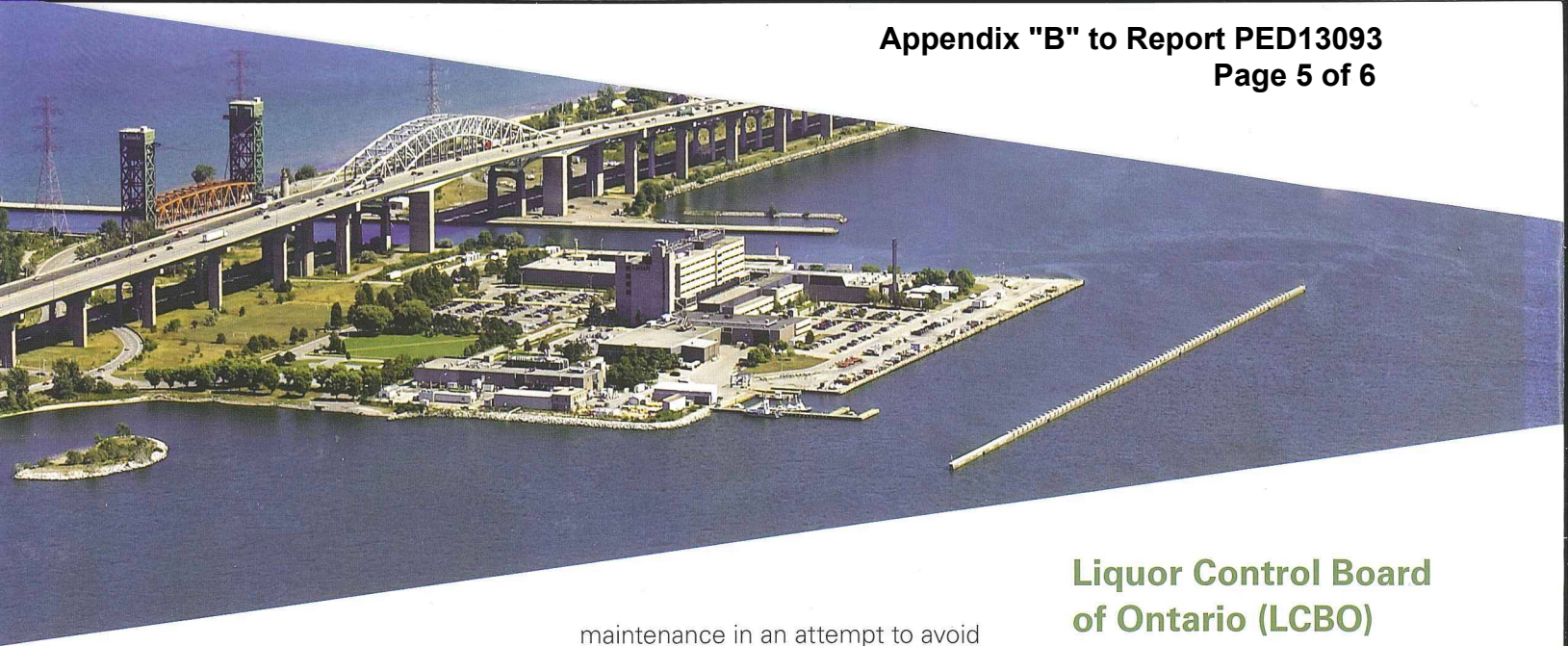
**Amanjot Singh**  
Water Quality Engineer, Credit Valley Conservation



"Too many companies suffer because they make decisions with no evidence to back them up. MITL gives you the data you need to make decisions with confidence."

**Bob Armstrong,**  
President, Atlas Trade and Logistics Group





## MITL at Work

### Federal Bridge Corporation Limited

**Challenge:** The Champlain Bridge – one of five crossings linking Montreal’s south shore communities to the main island and the region’s most important bridge crossing for trade with the U.S. – faces the very real threat of partial or total closure due to deterioration and a possible seismic event. The federal government is between a rock and a hard place – pumping \$25 million annually into bridge

“MITL has become a true centre of excellence and a thought leader for strategic and important transportation issues.”

**Richard Koroscil,**  
President, Korolon Strategic Services

maintenance in an attempt to avoid the estimated \$5 billion to replace it.

**Method:** MITL used economic modelling and traffic simulation to study the impact of various closure scenarios both on traffic flow and the region’s economy.

**Bottom Line:** MITL’s research showed closure of the Champlain Bridge would mean a \$600 million annual loss to Montreal’s economy, increasing congestion, choking commercial trade, overloading public transit, threatening public safety and hampering future investment in the region.

**Last Word:** “MITL’s thoroughly researched analysis made the case.

The Federal Government

announced it would replace the Champlain Bridge with a new Transport Corridor, potentially including LRT, to serve the City of Montreal.”

**J. Keith Robson**  
Chair, Federal Bridge Corporation Limited

## Liquor Control Board of Ontario (LCBO)

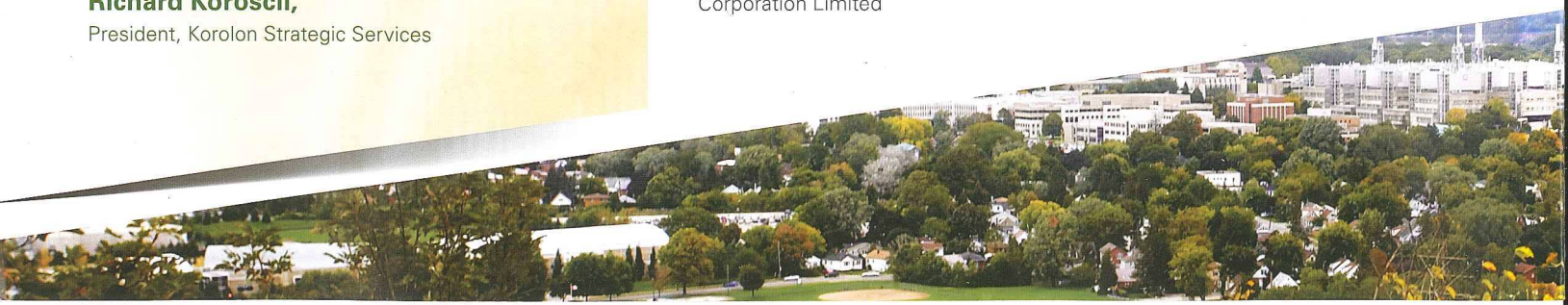
**Challenge:** With one of four warehouses nearing capacity, could the Liquor Control Board of Ontario (LCBO) optimize its delivery system to get product from its distribution centres to its retail outlets more efficiently?

**Method:** MITL analyzed traffic congestion patterns and used state-of-the-art routing tools to derive new, more efficient delivery routes.

**Bottom Line:** Research revealed that by filling trucks nearer to capacity, the LCBO could dramatically cut the number of routes, reducing aggregate travel time and distance, a result that would improve efficiency while also reducing harmful emissions.

**Last Word:** “MITL has provided excellent value for our research dollar. The proposed distribution solutions, when implemented, are likely to generate significant cost savings and provide a high return on investment.”

**George Soleas**  
Executive Vice-President, LCBO





Let the best evidence  
guide your business strategy.  
Consider MITL for your  
research needs.

For more information, go to <http://mitl.mcmaster.ca>  
or contact [mitl@mcmaster.ca](mailto:mitl@mcmaster.ca) or 905-525-9140, ext. 22542.



*Building Alliances,  
Advancing Solutions*