

FREIGHT TRANSPORTATION DEMAND MANAGEMENT STUDY



PREPARED BY:



&



SUMMER 2012

Acknowledgements

Project Manager

Noorani Khaderoo, Region of Peel
Eric Chan, Region of Peel (*Interim Project Manager*)

Steering Committee Members

David Kuperman, City of Brampton
Linda Wu, City of Brampton
Kant Chawla, Town of Caledon
Norm Lingard, Town of Caledon
Hamish Campbell, City of Mississauga
Wayne Chan, Region of Peel
Sabbir Saiyed, Region of Peel
Fion Ho, Region of Peel

Principal Authors

Stuart Anderson, UrbanTrans North America
Matthew Kaufman, UrbanTrans North America
Brian Hollingworth, IBI Group
Michael Kieran, IBI Group
Susanne Glenn-Rigny, IBI Group

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Executive Summary

Peel Region is one of Ontario's fastest growing communities. Between 2006 and 2011 the population of Peel grew at a rate of nearly 12 percent. The Region has also experienced a similar increase in travel demand, resulting in significant stress on the Region's roadway system. Further growth in travel demand cannot be met by the Region's existing and planned roadway system (supply of roads) without changes to travel behaviour (demand for roads).

Transportation Demand Management (TDM) offers part of the solution. TDM focuses on the demand-side of transportation and offers a collection of strategies that make the roadway system more efficient, safe and environmentally sustainable.

Peel Region has provided ongoing support for TDM measures with the goal of reducing personal car use and encouraging environmentally friendly travel options such as carpooling, cycling, walking, public transit and telework. To achieve these goals, the Region has developed and supported initiatives dedicated to changing the automobile-centered mindset. The Region supports three transportation management associations: Smart Commute Mississauga, Smart Commute Pearson Airport Area and Smart Commute Brampton-Caledon, all of which focus on services to employers and employees for commute trips.

Building on the success of its current TDM efforts, the Region commissioned a study to explore the application of TDM to goods movement in the Region of Peel. The potential strategies are referred to as Freight Transportation Demand Management (FTDM).

Purpose of this Study

This study examined strategies that blend demand management and sustainable transportation practices with improvements to goods movement in the area. The study involved collaboration at three different levels: government, businesses and networks.

The study employed the following methodology to create an action-oriented FTDM plan:

- Conducted a literature review of similar efforts in North America and the United Kingdom
- Defined best practices
- Sought input from goods movement businesses as to the issues that need to be addressed
- Facilitated discussions with a Project Steering Committee for guidance as to the appropriate measures to be considered
- Formulated core recommendations for FTDM
- Sought further input from goods movement businesses and public agencies
- Detailed recommendations

- Prepared action steps for furthering FTDM in the Peel Region

What is Freight Transportation Demand Management?

Freight transportation demand management is a relatively new concept in efficient goods movement. FTDM tends to focus on the “softer” planning-related measures such as enhanced communication and coordination, reducing employee trips on major freight corridors, improving intersections, reducing bottlenecks, and advancing technologies such as virtual load matching and related new software. These types of measures complement roadway capacity projects and other infrastructure-based solutions.

FTDM strategies are designed to improve the efficiency of the transportation system through route, mode and time-of-day travel choices. When applying these concepts to freight corridors, shipments and/or truck traffic, the desired result is optimum use of existing and future transportation facilities and services in areas primarily used for goods movement.

FTDM includes a range of activities aimed at increasing the timeliness and economics of goods movement. Undertaken by the public or private sector, and often through a partnership of the two, FTDM initiatives can include:

- Policies to support mode shifts
- Introduction of new technologies
- Redesign of freight routes or scheduling changes
- Legislative and regulatory changes
- Product and packaging redesign

Past Efforts Support the Introduction of Freight TDM

In 2004, Peel Region commissioned a study to assess the state of the goods movement transportation system in Peel Region and to develop strategic options for addressing longer-term goods movement transportation objectives. The study resulted in a report titled, *Study of Goods Movement in Peel: Strategic Overview (November 2004)*.

Among the principal findings from the report was information regarding continued growth in the Peel Region in the industrial, warehousing and distribution sectors of its economy. Paralleling this economic expansion is growing stress on, and risks to, the reliability and operational efficiency of the transportation network. It is difficult to precisely quantify or analyze the extent and character of these issues due to an historic lack of systemic data collection regarding goods movement in the Peel Region and throughout the country. Collecting more and better data about goods movement activities, patterns and problems in the Peel Region will significantly improve the Region’s ability to identify and implement cost-effective system improvements and policy initiatives.



By forming partnerships with goods movement stakeholders in the private and public sectors and involving them in the planning process, the Region can proactively work toward addressing these issues, many of which will require partnerships among the public and private sectors and governments to resolve.

Building on the principal findings, the report recommends improvements in three major policy areas: goods movement stakeholder involvement, goods movement corridors, and goods movement policy and funding coordination.

Best Practices

The project team conducted a literature review of FTDM plans and programs in North America and the United Kingdom. Case studies can be used to understand the challenges faced in other jurisdictions, but it is important to understand the context under which they have been implemented. Varying government structures and economic differences often preclude examples from being plucked from one region and dropped into another. What these Canadian, United States and European examples do illustrate are broad themes that should be considered when addressing freight transportation issues.

These examples illustrate the importance of:

- Having the right membership at the table – a mix of public- and private-sector stakeholders is required
- Formulating proactive goals to guide the group
- Understanding how land use affects the demand for shipping and transportation

Issues to Address

During the course of this study various private-sector companies and goods movement associations were contacted for input regarding ideas and to provide reactions to some of the core concepts. The interviews were conducted over a two-month period: most were done over the phone; some were done in person and others via e-mail. A base set of questions was used for each interview, but the questions were open-ended to allow for a more fluid exchange of ideas.

- Most businesses were supportive of efforts to improve communication and coordination
- Businesses reported significant challenges in improving goods movement in Peel Region. Many expressed a lack of confidence that issues will be addressed. And, they do not know who to talk to about their issues
- Many mentioned the need for support to train and attract skilled labour into the goods movement industry with driver recruitment being a key challenge. Some expressed frustration regarding the LCV permitting process
- There was mixed support for the idea of a single point of contact for logistics issues within the Region
- Some felt that it was important that the point of contact be an experienced logistics manager

- A few felt that staff within municipalities could be fulfilling the role of improving communication and coordination, as well as logistics, but who this person(s) might be is unclear
- Larger businesses reported that they do not need assistance with logistics as this is their business. Rather, they need assistance with addressing issues out of their control (e.g. traffic signal timing, construction delays, LCV permitting, driver hiring, turn restrictions, etc.)

Operational Association

- Establishing a Smart Freight Association seemed interesting, but many felt that they needed more clarity about its purpose and function within the goods movement arena in Peel
- Businesses would not pay for this type of association today given their limited knowledge of its function. But some understood that testing the concept over a three-year period using grant funding was a good step forward in exploring solutions to various issues

New Technologies

- Some mentioned a need for financial assistance (grants or tax breaks) to encourage companies to invest in new software
- Many mentioned the desire to better employ GPS technology to improve goods movement
- None of the interviewees could identify a specific technology that needed to be implemented in the area

Employee Travel Option

- Most felt that the Smart Commute programs were good for their businesses. They see the need to address site-specific congestion
- Some businesses felt that there is a need for better transit in the area
- None of the businesses supported the idea of staggering work shifts in order to spread out congestion, or coordinating the arrival and departure times of trucks and employees

Plan Target Goals

Plan goals were developed through the various outreach efforts and are listed below.

- Reduce emissions produced by freight carriers per kilometer of travel by improving freight carrier fuel efficiency through technological improvements, better maintenance, improved road system operations, driver behaviour modification, and other techniques
- Reduce kilometers traveled by freight carriers by enacting land use and development policies that reduce the distance goods must travel to reach market or by increasing the cost of travel through pricing
- Shift freight to modes with less climate change impact. The most effective example is shifting truck freight to rail

Recommendations

The following recommendations were assembled by the consultant team, in coordination with the study's Steering Committee:

- A. Strive for system optimization through the use of Intelligent Transportation Systems (ITS) within the Region of Peel
- B. Provide active assistance to goods movement businesses for the purpose of enhancing partnerships, communication and advocacy within the Region of Peel
- C. Identify system enhancements that allow for a more efficient use of transportation infrastructure

System Optimization Recommendations

Employing new ITS options may include: developing software, promoting the development of virtual load management software, and establishing incident impact measures and recovery time to restore normal service level. These measures would be folded into a newly created entity called the Smart Freight program, which is defined in Recommendation 6. Such measures could also be enhanced by more extensive initiatives such as dedicated truck lanes and the creation of freight hubs.

While this study reviewed a variety of new technologies, it is not the intention of this study to recommend specific software or ITS technology. Following this study an inventory of current technologies used in the area should be conducted. This inventory would assist technology professionals with recommendations for new software, as well as use of a specific software program.

Basis for Recommendations:

- Improve travel time reliability for trucks in key goods corridors
 - Address recurring bottlenecks on arterial roads with heavy truck volumes; small reductions in delay can contribute to large time and fuel savings for trucks over time
- Improve information flow to and from the goods movement industry

- Improve the level of information available to truck drivers on real-time network performance

Recommendation 1: Technology Inventory - Conduct new and enhanced inventory of existing and desired goods movement technology. Coordinate with local businesses to ensure that there will be no redundancy in the software and load-matching. The support for this effort could be obtained from the Smart Freight Association (see Recommendation 6). This may include the purchase of load-matching software.

Recommendation 2: Trucking Focused Signal Priority Plan - Improved traffic operations along the goods movement corridors via CCTV, enhanced signalization and infrastructure changes.

Corridors:

- Dixie Road
- Airport Road
- Steeles Avenue
- Derry Road

Recommendation 3: Virtual Container Yards - Virtual Container Yards, a system of container matching using the Internet, can be used to eliminate empty truck trips, which should increase shipping efficiency and lowering GHG emissions. Virtual Container Yards work like a “computer clearinghouse” or “bulletin board” and can reduce empty truck trips by providing information about container status and location, facilitate communication between parties and assisting parties to make optimal decisions regarding container logistics. Port of Oakland (California) VCY is a successful example.

Recommendation 4: “Last Mile” Solutions - Look for opportunities to introduce “last mile” solutions which facilitate lower-impact ways of delivering goods to neighbourhoods and commercial areas—the last mile referring to the end of the trip. This could include, for example, the use of pack-stations or locker boxes, which are prevalent in European countries.

Partnerships, Communication and Advocacy Enhancement Recommendations

Enhanced communication was a top priority in case studies, business interviews and Steering Committee discussions. Without better methods to ensure timely communication, partnerships and networks would be difficult.

Communication often meant getting in contact with the right person regarding an issue and/or exchanging information about items that could impact normal business operations.

Coupled with communication is education. Education can occur at two levels: policy and operations. Providing workshops on a variety of topics could help to increase awareness of desired solutions and bring stakeholders to a common level of understanding about issues and solutions.

Coordination is the basis for partnerships and networks. Many of the problems with regard to goods movement could be addressed through a formalized method for coordination. Additionally, new technologies can help facilitate coordination.

Basis for recommendations:

- Stakeholder input regarding the lack of clarity about who to talk with regarding goods movement issues
- Case examples show a common thread of communication, education and coordination as a key component of system efficiency
- Steering Committee direction to enhance public and private communication and coordination

Recommendation 5: Employer Network - Formalize a network of firms and stakeholders who are working together with government to improve the overall goods movement system.

Recommendation 6: Feasibility of a Smart Freight Association - It is recommended that the feasibility of a Smart Freight Association be further assessed to understand the applicability of a SFA in Peel, the process of creating, interrelationship with similar associations, and its global and mutual benefits to the Regions in southern Ontario and all level of governments and private sectors.

Once it is determined that a SFA be created, the association would operate as a central point of contact for goods movement businesses. The association would provide services including newsletters, training, coordination with public agencies on desired infrastructure and non-infrastructure improvements, guiding the development of new software and exchanging ideas between businesses. The association could be created as a stand-alone entity initially funded through grants with a gradual shift over to funding from participating businesses. The Smart Freight Association would be staffed by a logistics professional, titled the FTDM Coordinator. Funding may include both private and public contributions.

A Smart Freight Association is built on the successful model of Smart Commute Associations. They are similar in their administration, funding and some general services, but differ in the skill set required for staffing and the membership services needed to be relevant.

Should it be determined that the SFA is not currently feasible, the study should explore alternative options to fill the void identified through this study. One Alternative could be assigning a public agency staff member to begin limited FTDM services. As interest grows, the SFA may be considered should the market conditions support its creation.

Recommendation 7: Recognition Program - Work with Metrolinx and the Ministry of Transportation to explore the development of a program that recognizes and rewards business behaviour that improves freight movement, similar to the one being offered in London, England. This type of program

would serve to motivate businesses to meet a common standard for operations and assist the Smart Freight Association in bringing together interested businesses.

Recommendation 8: Reduce Employee Vehicle Trips - Most employers were willing to receive free services designed to help their employees travel to and from work. These services would promote the use of carpooling, transit and alternative work arrangements based on the needs of the traveller. The Peel Region has a solid foundation of Smart Commute organizations that can work with the FTDM Coordinator. The FTDM Coordinator would identify interested goods movement businesses and forward the contact and information to Smart Commute staff based on the location of the business. These services would be provided through existing Smart Commute funding.

Recommendation 9: Monitoring and Evaluation - Formalize monitoring and evaluation system with goals based on the findings from further work on Peel's goods movement baseline.

Infrastructure and Land Use Improvement Recommendations

Recommendation 10: Freight Hubs - Consider the need and benefits of extending strategies to include dedicated freight hubs. More detail regarding freight hubs can be found in Ministry of Transportation draft report Freight Villages, August 2011.

Recommendation 11: Centre of Excellence - Support the establishment of a goods movement Centre for Excellence. The Centre is also an action (Action 23) recommended in the Goods Movement Strategic Plan, April 2012.

Table 3: Freight Transportation Demand Management Recommendation

| Strategic Direction | Action | | Project Partner | Timeframe (Years) | Status |
|---------------------|--------|--|----------------------------|-------------------|------------------------------------|
| System Optimization | 1. | Conduct new and enhanced inventory of existing and desired goods movement technology. Coordinate with local businesses to ensure that there will be no redundancy in the software and load-matching. | Peel | 1 | Project Initiation January 2013 |
| | 2. | <p>Improved traffic operations along the goods movement corridors via CCTV, enhanced signalization and infrastructure changes.</p> <p>Corridors:</p> <ul style="list-style-type: none"> ○ Dixie Road ○ Airport Road ○ Steeles ○ Derry Road | Peel & Area Municipalities | 2 | Project Initiation January 2014 |

| | | | | | |
|---------------------------------------|----|--|----------------------------------|---|-------------------------------------|
| System Optimization (continued) | 3. | Create a Virtual Container Yard. | Smart Freight Association | 1 | Project Initiation June 2013 |
| | 4. | Pursue opportunities to introduce “last-mile” solutions which facilitate lower impact ways of delivering goods to neighbourhoods and commercial areas. | Peel & Area Municipalities | 3 | Project Initiation June 2014 |
| Partnership, Communication & Advocacy | 5. | Formalize a network of firms and stakeholders who work together with government to improve the overall goods movement system. | Peel & Smart Freight Association | 1 | Project Initiation November 2012 |
| | 6. | Feasibility of a Smart Freight Association. The feasibility study would explore the current need, framework and market for FTDM. The association could operate as a central point of contact for goods movement businesses. The association would provide services including newsletters, training, coordination with public agencies on desired infrastructure and non-infrastructure improvements, guiding the development of new software and exchanging ideas between businesses. Development of a five-year business plan, formation of a Smart Freight Steering Committee and ongoing maintenance of the project website. Funding may include both private and public contributions. | Peel & Smart Freight Association | 1 | Project Initiation November 2012 |

| | | | | | |
|--|-----|--|----------------------------|---------|---------------------------------------|
| Partnership, Communication & Advocacy (continued) | 7. | Work with Metrolinx and the Ministry of Transportation to explore the development of a recognition program similar to the one being offered in London, UK. This type of program would serve to motivate businesses to meet a common standard for operations and assist the Smart Freight Association in bringing together interested businesses. | Peel, Metrolinx & MTO | 2 | Project Initiation January 2014 |
| | 8. | Forward leads to Smart Commute organizations. | Smart Freight Association | Ongoing | Project Initiation June 2013 |
| | 9. | Formalize monitoring and evaluation system with goals based on the findings from further work on Peel's goods movement baseline. | Smart Freight Association | 1 | Project Initiation June 2013 |
| Infrastructure Improvements/ Land Use | 10. | Address the need and benefits of extending strategies to include freight hubs. More detail regarding freight hubs can be found in Ministry of Transportation draft report <i>Freight Villages</i> , August 2011. | Peel & Area Municipalities | 3 | Project Initiation January 2015 |
| | 11. | Support the establishment of a goods movement Centre for Excellence that recognizes efforts in FTDM. | TC, MTO, Metrolinx | 3 | Project Initiation January 2016 |

Conclusion

FTDM is a relatively new concept in efficient goods movement. This study reviewed case examples and best practices in FTDM related strategies and solutions. It examined strategies that blend demand management and sustainable transportation practices with improvements to efficient freight movement in the area. The study involved collaboration at three different levels: government, businesses and networks. The purpose was to produce an action oriented document that advances elements of the long-term goals of the long-range transportation plan (LRTP) and the Study of Goods Movement in Peel: Strategic Overview, as well as other regional and area-wide studies.

Peel Region has made a bold step forward by conducting this study. The study ventured into new ideas for enhancing the goods movement systems. The feasibility assessment of a Smart Freight Association is likely one of the first to be considered in North America. The association could serve as a central point of contact for goods movement businesses in Peel as well as hosting the development of new technologies and/or implementing existing technologies designed to actively support the goods movement system.

Being one of the first of its kind, the Smart Freight Association concept needs to be evaluated at key milestones for achieving goals and ultimately demonstrating the return on investment to all stakeholders.

In conclusion, the Freight Transportation Demand Management Study has been successful in exploring new and innovative solutions. It will serve as the launching point for subsequent measures as identified in the Action Plan. As part of the Goods Movement Good Movement Task Force's Strategic Plan, it is the beginning of the process for improving goods movement throughout the Peel Region.

1.0 | INTRODUCTION

The Peel Region is one of Ontario's fastest growing communities. Between 2006 and 2011 the population of Peel grew at a rate of nearly 12 percent.¹ The Region has also experienced a similar increase in travel demand. This demand has resulted in significant stress on the Region's roadway system. Further growth in travel demand cannot be met by the Region's existing and planned roadway system (supply of roads) without changes to travel behaviour (demand for roads).



Transportation demand management (TDM) offers part of the solution. TDM focuses on the demand-side of transportation management and offers a collection of strategies that make the roadway system more efficient, safe and environmentally sustainable.

The Peel Region has provided ongoing support for TDM measures with the goal of reducing personal car use and encouraging environmentally friendly travel options such as carpooling, cycling, walking, public transit and telework. To achieve this goal the Region has developed and supported initiatives dedicated to changing the automobile-centered mindset. The Region supports three transportation management associations: Smart Commute Mississauga, Smart

Commute Pearson Airport Area and Smart Commute Brampton-Caledon, all of which primarily focus on employer and employee service for commute trips.

FTDM is designed to make goods movement more efficient, safe and environmentally sustainable.

Building on the success of TDM measures, the Region commissioned a study to explore the application of TDM to goods movement in Peel Region. The potential strategies are referred to as Freight Transportation Demand Management

(FTDM).

¹ Source: Statistics Canada 1991-2011. Peel Data Centre and Henson Consulting, Ltd.

1.1 | Purpose of this Study

This study examined strategies that blend demand management and sustainable transportation practices with improvements to efficient goods movement in the area. The study involved collaboration at three different levels: government, businesses and networks.

The study employed the following methodology in order to create an action-oriented FTDM plan:

- Conducted literature review of similar efforts in North America and the United Kingdom
- Defined best practices
- Sought input from goods movement businesses as to the issues that need to be addressed
- Facilitated discussions with a Project Steering Committee for guidance as to the appropriate measures to be considered
- Formulated core recommendations for FTDM
- Sought further input from goods movement businesses and public agencies
- Detailed recommendations
- Prepared action steps for furthering FTDM in the Region of Peel

1.2 | Background

Peel Region is situated west of Toronto in the Greater Toronto and Hamilton Area (GTHA). Made up of three area municipalities – the Town of Caledon, the City of Brampton, and the City of Mississauga – the region has an area of 1,225 square kilometers. The Peel Region includes a diverse mixture of urban, suburban, rural, agricultural and natural landscapes, including the Oak Ridges Moraine and Niagara Escarpment.

Peel Region is a principal freight hub in North America, handling freight travelling between Southern Ontario, the rest of Canada, the United States and other nations. Goods movement infrastructure in or adjacent to the Region of Peel includes Lester B. Pearson, Canada’s largest air cargo international airport, seven major expressways, and the two largest inland rail container terminals in the country. The goods movement network is a predominant part of the Peel Region’s transportation system and a significant part of the region’s economy.

Municipalities within the Peel Region are committed, through the Regional Official Plan and Corporate Strategic Plan, to achieving a sustainable transportation system. The Regional Official Plan emphasizes the importance of optimizing how existing transportation infrastructure and services are used and improving the efficiency, safety and reliability of the intra- and inter-regional movement of people and goods.

As a result of rapid population and employment growth, the continuing dominance of automobile trips and high levels of freight traffic on roads, the Region is confronted with

mounting pressure to address major transportation challenges. Specific to goods movement, these challenges include congestion, increased travel, increased demands on infrastructure, barriers to intermodal operations and environmental impacts.

In seeking to develop a more efficient and sustainable goods movement transportation network, the Region sees potential benefit in adopting FTDM strategies.

1.3 | Past Efforts

In 2004, the Peel Region commissioned a study to assess the state of its goods movement transportation system and to develop strategic options for addressing longer-term goods movement transportation objectives. The study resulted in a report titled, *Study of Goods Movement in Peel: Strategic Overview (November 2004)*.

Among principal findings from the report was information regarding continued growth in the Peel Region in the industrial, warehousing and distribution sectors of its economy. Paralleling this economic expansion is growing stress on, and risks to, the reliability and operational efficiency of the transportation network.

It is difficult to precisely quantify or analyze the extent and character of these issues due to an historic lack of systemic data collection regarding goods movement in the Region of Peel and throughout the country. Collecting more and better data about goods movement activities, patterns and problems in the Peel Region will significantly improve the Region's ability to identify and implement cost-effective system improvements and policy initiatives.

By forming partnerships with goods movement stakeholders in the private and public sectors and involving them in the planning process, the Region can proactively work toward addressing these issues, many of which will require partnerships among the public and private sectors and governments to resolve.

Building on the principal findings, the report recommends improvements in three major policy areas: goods movement stakeholder involvement, goods movement corridors, and goods movement policy and funding coordination.

1.4 | Peel Goods Movement Task Force

Subsequent to the report, under the direction of Peel Regional Council, the Region has taken a leadership role in advancing goods movement issues in Ontario. In April 2009, Peel Region Council directed that a Peel Goods Movement Task Force be established. The mandate of the Task Force is to:

- Develop a common vision for goods movement in the Peel Region area

- Provide a forum to bring together key public- and private-sector stakeholders to guide future improvements to the goods movement system, facilitate the exchange of information and develop common messages on issues affecting goods
- To monitor, review and provide input and feedback to regional, provincial and federal initiatives related to goods movement
- To develop an action plan, and the required partnerships, for the implementation of short, medium and long-term improvements to the goods movement network in the Region of Peel

The Task Force operates as a partnership, with members acting through consultation, communication and consensus building. Task Force membership includes representatives from private- and public-sector organizations involved in goods movement in the Region of Peel.



1.5 | What is Freight Transportation Demand Management?

Freight Transportation Demand Management is a relatively new concept in efficient goods movement. FTDM tends to focus on the 'softer' planning related measures such as enhanced communication and coordination, reducing empty trips on major freight corridors, improving intersections, removing bottlenecks, and advancing technologies such as virtual load matching and related new software. These types of measures complement roadway capacity projects and other infrastructure based solutions.

FTDM strategies are designed to improve the efficiency of the transportation system through route, mode and time of day travel choices. When applying these concepts to freight corridors, shipments and/or truck traffic the desired result is optimum use of existing and future transportation facilities and services in areas primarily used for goods movement.

FTDM can include a range of activities aimed at increasing the timeliness and economics of goods movement. Undertaken by the public or private sector, often through a partnership of the two, FTDM initiatives can include:

- Policies to support mode shifts
- Introduction of new technologies
- Redesign of routes or scheduling changes
- Legislative and regulatory changes
- Product and packaging redesign

2.0 | BEST PRACTICES

The project team conducted a literature review of plans and programs in North America and the United Kingdom. Case studies can be used to understand challenges faced in other jurisdictions, but it is important to understand the context in which they have been implemented. Varying government structures and economic differences often preclude examples from being plucked from one region and dropped into another. These Canadian, United States and European examples illustrate the broad themes that should be considered when addressing freight transportation issues.

These examples illustrate the importance of:

- Having the right membership at the table – a mix of public- and private-sector stakeholders is required
- Formulating proactive goals to guide the group. Using a multifaceted approach that can include communications and training programs, new technologies and mode shifts
- Understanding how land use affects the demand for shipping and transportation

2.1 | Best Practices in Canada

While there are no domestic examples of comprehensive regional or provincial Freight Transportation Demand Management (FTDM) plans, there are Canadian examples of regional coordination on the development of transportation networks in support of goods movement. This section presents four Canadian public-private partnerships aimed at increasing the efficiency of freight movements in key Canadian markets. Also included is a municipal freight data collection program using bluetooth technology to track the efficiency of goods movement and support the development of goods movement targets.

The programs are:

- Comité interrégional pour le transport des marchandises/ Interregional Freight Transportation Committee (CITM), Montréal
- Greater Vancouver Gateway Council
- Halifax Gateway
- Freight Data Monitoring and Reporting Program, City of Calgary

2.1.1 | Comité interrégional pour le transport des marchandises (CITM)²

The Comité interrégional pour le transport des marchandises (CITM) is made up of industry and government representatives, as well as local administrators and representatives from socio-economic groups. It is headed by the Conférence régionale des élus of Montréal with a mission to reinforce the Region of Montréal as a key point in the North American freight transportation network.



The CITM traces its origins to the Forum on Goods Transportation. Held in June 1998, under the sponsorship of the CRDÎM (Conseil régional de développement de l'île de Montréal) this event provided an opportunity to identify an initial plan of action that was to become the basis for the CITM's work. The CITM was officially established in 1999 and operates with an annual budget of \$100,000 with funds from the Canadian, Quebec and City of Montréal governments, as well as contributions from member companies.

Key projects undertaken by the Committee include:

- Participating in regional, provincial, national and international committees
- Promoting the development of regional logistics centres
- Educating the public about the importance of freight transportation
- Facilitating dialogue between the public and private sectors
- Informing the private sector about legislative and regulatory changes
- Lobbying for government support for regional transportation projects

2.1.2 | Greater Vancouver Gateway Council³

The Great Vancouver Gateway Council (GVGC) is a non-profit industry-led organization of senior executives from the seaports, airport, carriers and other companies engaged directly in the Gateway transportation business. Their projects and studies are funded by various government departments and member companies.

² www.citm-transport.org

³ www.gvvc.ca

The Council was formed in 1994 to build and act on a vision for Greater Vancouver as a world transportation gateway, able to meet global challenges and capitalize on opportunities for growth from expanding world trade and tourism. Looking ahead to 2030, the Gateway Council envisions cargo and passenger volumes doubling. This would provide significant economic opportunities for the region and it is predicted that total Gateway employment could reach 250,000 under this scenario.

HGC is an example of how public and private interests can work collectively in marketing an area. Marketing and education are FTDM priorities.

The main challenges facing the Greater Vancouver Region are how to handle projected growth and realize the region's gateway potential in the context of an expanding population, increasing real estate prices, and increasing demands for urban transportation, while at the same time making deep cuts to emissions. The Gateway Council has undertaken to define this Vision for the Future of the Gateway as the transportation industry's contribution to the broader question of how a truly sustainable Gateway Region can be achieved.

The GVGC is working towards:

- Encouraging new frameworks for infrastructure /investment
- Supporting appropriate zoning and development buffers
- Developing a sufficiently skilled workforce
- Improving the policy, taxation and regulatory frameworks under which they operate

2.1.3 | Halifax Gateway Council⁴

Established in 2004, the Halifax Gateway Council (HGC) provides a forum for transportation providers and stakeholders in the Halifax Region to work collaboratively to improve the efficiency and competitiveness of the Gateway for the movement of goods and people.

Funded by both the public and private sector, the HGC is working towards:

- Establishing partnerships to increase business through the Halifax Gateway
- Conducting research and studies related to the Gateway
- Positioning the Gateway for government funding
- Marketing Halifax as an international trade hub with a competitive geographic location

The HGC is managed by the Greater Halifax Partnership and led by a Board of Directors comprised of representatives from private and public organizations that rely on the Halifax

⁴ www.halifaxgateway.com

transportation system to bring people and goods to and from Halifax and other areas around the world.

The Council's five-year plan outlines the following priorities:

- Ensuring the Halifax Gateway offers efficient transportation networks to meet shipping and travel needs
- Improving Halifax Gateway infrastructure to capitalize on gateway related business opportunities
- Ensuring government policy supports gateway development and that barriers to trade and travel are minimized
- Establishing the Halifax Gateway brand nationally and internationally
- Coordinating with other gateway councils and organizations in Atlantic Canada

2.1.4 | Freight Data Monitoring and Reporting Program⁵

The City of Calgary's Monitoring and Reporting Program provides a mechanism through which the goals, objectives and policies of the Calgary Transportation Plan (CTP) and the Municipal Development Plan (MDP) can be assessed. The program identifies several citywide indicators that are relevant for the implementation of these plans. Travel time reliability on the goods movement network is one of the citywide supplementary indicators monitored by the program. By monitoring the travel time reliability on selected goods movement corridors over time, the effects of network improvements and the impacts of congestion and delay on commercial vehicle movement can be measured and mitigated as necessary.

In 2011 the city undertook a study to determine the best technology for gathering information about the fluidity of goods movement on its key corridors. The key criteria were reliability and cost and ease of use. In the end, Bluetooth technology with roadside Blufax units was selected. The Region of York currently uses this type of technology to monitor traffic flows and adjust their light cycles in real time.

The Calgary project is currently gathering data to understand:

- Travel time reliability on selected goods movement corridors
- The effects of network improvements
- Impacts of congestion and delay on commercial vehicle movement
- The results will be used as a baseline and a 10-year target for the goods movement indicators



⁵ http://www.calgary.ca/Transportation/TP/Documents/Planning/Transportation-data/mobility_monitor_june.pdf

2.2 | Best Practices in the United States

The following section is a synthesis of current and best practices in both TDM and sustainable freight transportation planning and management in the United States. Materials researched for this report include statewide and county freight plans, and additional case studies of some large ports and freight corridors. Specific plans and case studies reviewed for this report include:

- Oregon Freight Sustainability Plan
- Maryland Statewide Freight Plan
- Freight Action Strategy for Seattle, WA
- Los Angeles, CA TDM Coordination
- Long Beach, CA Freight TDM
- Tampa Bay Cross Town Connector

The plans and case studies reviewed address various types of freight travel: road, rail and marine transport. The analysis allowed the project to identify best practices of freight TDM planning and lessons learned from implemented programs. Specific analysis focused on four principal categories: employee trip reduction; site design including infrastructure and land use; stakeholder coordination; and public policy.

2.2.1 | Oregon Freight Sustainability Plan

The Oregon Freight Sustainability Report's scope addresses the connection between climate change and freight transportation. Included in the plan are a variety of goals and programs that aim to reduce greenhouse gas (GHG) emissions and increase freight operations.

The plan set a number of freight-program goals, which are outlined below:

- Reduce emissions produced by freight carriers per mile of travel by improving freight carrier fuel efficiency through technological improvements, better maintenance, improved road system operations, driver behavior modification, and other
- Reduce miles travelled by freight carriers by enacting land use and development policies that reduce the distance goods must travel to reach market, or by increasing the cost of travel through pricing

FTDM Priorities:

Encourage passenger mode shift to public transportation;

Develop strategies to reduce peak-hour goods movement;

Implement congestion pricing/tolling;

Promote reduction of empty trucks on highways; and

Educate carriers that compliance with safety regulations reduces bottlenecks at inspection stations.

- Shift freight to modes with less climate change impact. The most effective example is shifting truck freight to rail

In order to achieve its program goals, the Oregon Freight Sustainability Plan identified a number of useful tools summarized below:

- Virtual Container Yards - Virtual Container Yards, a system for container matching using the Internet, can be used to eliminate empty truck trips increasing efficiency and lowering GHG emissions. Virtual Container Yards work like a computer clearinghouse or bulletin board and can reduce empty truck trips by providing information about container status and location, facilitating communication between parties and assisting parties to make optimal decisions regarding container logistics. Port of Oakland (CA) VCY is a successful example.
- Gate Appointment Systems - An efficient appointment system that helps terminal operators achieve better utilization of labour and equipment by better balancing truck arrivals. A gate appointment system requires truckers to pick up containers from a terminal within a specific time frame, decreasing queues and shortening shipment turn-around times. Abuses of the appointment system may occur to ensure more favorable pick-up times: applying fees for no-shows is one way to address this possible problem.
- Conventional Tolls - Increasing the price per kilometer for shipping goods can encourage truckers to reduce total trip numbers. However, the net effect is dependent upon specific routes and facilities. An adverse impact could be increasing trip length to use non-tolled roads, ultimately increasing emissions. An assessment of alternative routes should be considered if tolling is to be implemented. Additionally, tolling used to increase the price per kilometer for shipping could encourage mode shift to non-road modes, specifically rail or maritime.
- Cordon Pricing - Cordon Pricing is designed to address urban congestion by charging a toll to vehicles entering a city or some sector of an urban center; this system could be designed to charge for entry during the day with free or reduced entry during night or weekend hours, when traffic is less likely to be congested.
- Truck only Toll (TOT) Lanes - TOT lanes are a kind of managed lane, specifically dedicated for the exclusive use of trucks. TOT lanes can be designed to serve long-haul needs or as corridors through urban centers. Three proposed TOT lanes include I-70 from Missouri to Ohio, and in Southern California and Miami to allow port-related traffic to bypass urban centers. Benefits to truck-only roads include congestion reduction, increased safety resulting from less passenger-vehicle/truck interaction, higher truck speeds, and installation of specialty pavements that can handle double and triple trailers.

2.2.2 | Maryland Statewide Freight Plan

Forecasts in Maryland indicate that freight demands will more than double in coming decades. To accommodate this growth, the state must ambitiously advance an agenda to provide efficient and expanded freight infrastructure. Capacity investment is of paramount importance as Maryland positions itself to remain economically competitive.

In order to assist the state to understand the dimensions of the policy issues facing Maryland, the Maryland Department of Transportation (MDOT) has collected and synthesized key issues and problems affecting goods movement. These policy issues were drawn from stakeholders and the public, including agency staff and many private freight interests, including carriers, shippers and manufacturers. The following are policy directions for freight mobility in the State of Maryland and specific actions and programs to implement desired change.

- Consider changes to state law to allow alternative financing options such as toll lanes, congestion pricing, carload/container fees, fuel tax increase, a fee based on vehicle miles of travel, performance-based funding, or state rail infrastructure tax credit
- Truck routing impacts (safety, hazmat, noise, vibration, local traffic)
- Develop truck routing, conditions of OS/OW permitting, tollbooth/weigh station avoidance reduction strategies
- Work with truckers to identify and correct inefficient routing
- Provide good level of maintenance on truck routes
- Identify truck routing in land use master plans
- Provide incentives (e.g., PrePass or HOT lanes credit) to encourage trucks to use approved routes and/or suggested bypass options during congestion/incidents.

2.2.3 | Freight Action Strategies for Seattle, WA

The goal of the Seattle Action Plan is to streamline freight movement through the Central Puget Sound Region in an attempt to enable Seattle and greater Washington State to be an economic competitor through trade in the North American and international marketplace. Central Puget Sound is a congested waterway and an area where TDM programs can impact freight mobility and increase operational efficiency.

FAST or Freight Action Strategy is an innovative partnership formed to address the issue of freight mobility in the Puget Sound Region and is co-sponsored by the Washington State Department of Transportation (WSDOT) and the Puget Sound Regional Council. Additionally, FAST is comprised of transportation agencies, freight ports, local municipalities, economic development organizations and trucking and rail companies. The most well-known members include: Burlington Northern Santa Fe Railroad, Union Pacific Railroad, Washington Truckers Association and Freight Mobility Strategic Investment Board.

The FAST partnership has developed the following recommendations to increase freight mobility efficiency in the Central Puget Sound Region.

- Congestion and Mobility - prioritize investments that enhance freight and goods mobility on a systems approach and complete strategic projects that have already been recognized as having substantial freight benefit
- Economy - recognize and support the unique function this region serves as a hub for international trade and logistics
- Environment - take proactive approach to understand the changing regulatory structure with regards to environmental issues in a way that continues to allow goods-dependent industries to flourish
- Land Use – protect strategic manufacturing and industrial locations from incompatible land uses
- Planning – continue to strengthen planning capabilities through accurate data analysis, and stakeholder engagement.

2.2.4 | Los Angeles, CA TDM Coordination

The Los Angeles region has been historically important to the study of transportation management, with more than 16 million residents, nine million jobs and one of the world's busiest freight ports. A better number of techniques and programs are being used to manage congestion in the greater Los Angeles region..

The first action in creating an effective management structure was to define all stakeholders that would be affected by transportation decisions in the corridor. Caltrans, one of the largest agencies in the region, established partnerships with numerous other agencies in the area including local, state and regional governments, private companies, MPOs and selected members from academia. The collection of stakeholder agencies was so comprehensive that half of all planning organizations and transportation operators in the region were involved. Stakeholder workshops were utilized to identify existing conditions, system bottlenecks, and technological requirements to relieve problem areas.

FAST created a non-profit that supports the design and implementation of FTDM strategies. The plan takes a holistic view of addressing goods movement challenges.

The main challenge in implementing an effective management structure for freight transportation was integrating the numerous interest groups possessing vastly different backgrounds and agendas.

Management strategies utilized in Los Angeles to better coordinate the numerous and diverse stakeholders:

- Find and utilize enthusiastic leaders to keep less enthusiastic agencies involved
- Provide optional workshops and technical training sessions to agencies less versed in TDM, ITS, GIS or other technical topics creating an even playing field for all stakeholders at meetings and promoting wider participation
- Set stakeholder structure that goes beyond optional good-faith involvement
- Borrow management framework from other national or regional successes to use as a starting point
- Create smaller task forces from stakeholders with mutual interests.

2.2.5 | Long Beach, CA Freight TDM

The Port of Long Beach in the Los Angeles Region moves close to 13,000 20-foot long freight containers daily: to better manage freight movement at the port two TDM programs have been implemented, PierPass and Intelligent Transportation Systems.

Intelligent Transportation Systems can be used to apply TDM concepts traditionally seen in personal commuting to goods movement. TDM concepts in goods movement include better scheduling, better routing and reduction of bottlenecks at check points.

In 2003 the Marine Terminal Operators (MTO) introduced a new truck identification technology as an attempt to reduce air pollution and better manage truck congestion around the Port of Long Beach. The two tracking devices being used are radio frequency identification tags (RFID) and Real-Time Locating System tags (RTLS), both systems are similar to electronic toll collection devices currently used in private automobiles.

Long Beach is one of the first areas to call its plan FTDM.

These technologies help reduce congestion in several ways. First, allowing the MTO to identify and register trucks without the need for them to stop at port entrances. Electronic identification reduces the entrance gate personnel requirements, making off-hour deliveries less expensive and more realistic. Increasing off-hour deliveries has the potential to shift delivery schedules to times of the day that experience less commuter congestion. Thirdly, electronic identification provides an excellent tool to gather data on truck contributions to local highway congestion.

Extending gate hours can more evenly distribute pickup times, reducing truck queues and idling times. The PierPass implemented in Long Beach provides incentives for shippers to move cargo during off peak hours and weekends. Currently, cargo owners are assessed a mandatory traffic mitigation fee on all cargo moved through the port. The PierPass program refunds this fee for all cargo moved outside of peak hours (8 a.m. to 6 p.m.) and on weekends. Enacted in 2005, off-peak port traffic increased to nearly 40 percent of total usage by 2008. Impacts of the PierPass program include shorter queues for unloading and loading cargo, decreased idling of cargo vehicles, decreased emissions into the atmosphere, an increase in the number of cargo trips per shift by drivers and an overall positive opinion of off-peak shipping. Revenues from the traffic mitigation fee are used to support the operating cost of maintaining extended port gate hours.

2.2.6 | Tampa Bay Crosstown Connector

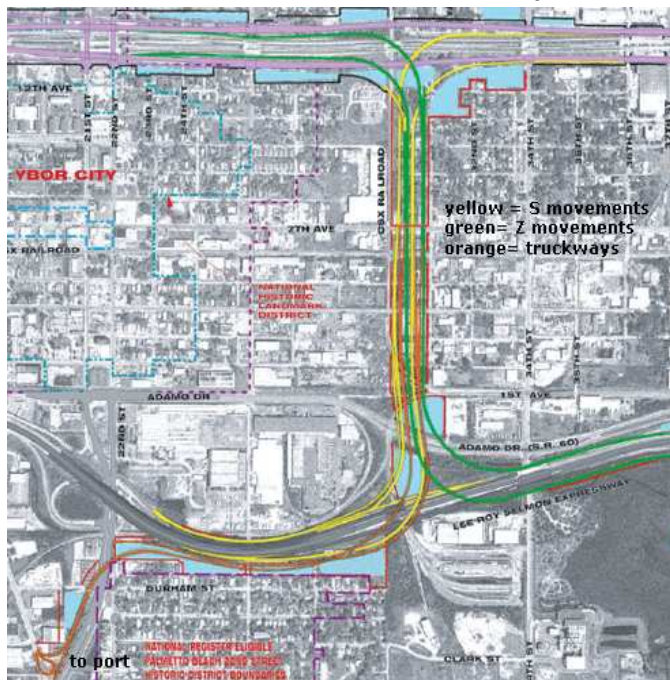
In January 2010, construction began on the Tampa Bay Crosstown Connector. This 1.6 kilometre segment of freeway, which is essentially an urban interchange, connects Interstate 4 (I-4) and the Selmon (Crosstown) Expressway and the Port of Tampa. In addition to improving truck access to the Port of Tampa, this facility will essentially remove trucks from the historic Ybor City neighbourhood.

This project claims several “firsts”, including:

- First to provide exclusive truck-only roadways and ramps
- First to utilize all-electronic tolling to help finance an interchange
- First time for this toll authority to toll as many as 13 lanes side-by-side

Many movements between the two parallel freeways were being served inefficiently, with local neighbourhoods receiving undesirable traffic levels. The current at-grade connections for truck traffic involve about 10 sets of traffic signals on each one-way connector along this route. The number of trucks accessing the Port (primarily from I-4) and their travel patterns through the historic Ybor City neighbourhood were major factors in determining the need for the facility. Approximately 11,000 trucks enter or leave the port daily, travelling predominantly on North 21st and North 22nd streets to reach the I-4. This number is projected to grow with the expansion of the Panama Canal drawing more traffic to ports on the Gulf Coast. The Florida Department of Transportation projects 42,000 vehicles per day will use the Connector when it opens in 2014.⁶ Given that construction is just getting underway (2010), its success is yet to be determined. However, one measure will certainly be the traffic generated in light of the tolls.⁷

Crosstown Connector Layout⁸



2.3 | Best Practices in London, England

Transport for London, the local government body charged with managing most aspects of the transportation system in Greater London (England), has developed a recognition and membership service entity designed to support improved freight delivery in region. The Freight

⁶ Shopes, Rich. "I-4 connector work to begin in January." St. Petersburg Times, June 21, 2009. <http://www.tampabay.com/news/transportation/roads/article1012106.ece>, accessed July 1, 2010

⁷ : <http://www.tollroadsnews.com/node/3193>, accessed February 9, 2009

⁸ : <http://www.tollroadsnews.com/node/4555>

Operator Recognition Scheme (FORS) is a free and voluntary system open to any company operating in the capital region.⁹

FORS aims to:

- Recognize and reward excellence
- Raise standards
- Educate and encourage freight operators to follow best practices, rather than focusing purely on keeping within the law

The program offers three levels of membership – bronze, silver and gold – requiring participants to reach increasing levels of performance benchmarks. Those reaching the gold level may have access to benefits such as driver’s license checks, workshops and breakdown assistance.

⁹ <http://www.tfl.gov.uk/microsites/fors/>

3.0 | INDUSTRY INPUT

During the course of this study various private-sector companies and goods movement associations were contacted for input regarding ideas and to provide reactions to some of the core concepts (see Appendix A for more detail). The interviews were conducted over a two-month period; most done over the phone, some done in person and others via e-mail. A base set of questions was used for each interview, but the questions were open-ended to allow for a more fluid exchange of ideas.

One of the challenges faced by the interviewers was identifying the best person to speak with at each of the companies. Many large firms have a central telephone number, so it was not always clear to which person the questions should be addressed. In some cases, it was necessary for the interviewer to make a call to a known contact at another firm who could then provide the name of the appropriate person to talk to at the target firm. Once the correct person was identified, it was a further challenge to find a convenient time to talk. Often, the person who knows the most about the shipping and goods movement activities of a company is coordinating those activities and not able to spend time on the phone.

The scope of the interview and sample size precludes any statistical analysis of the responses. The goal was gather general reactions to the proposed ideas and to learn if there were additional ideas which should be considered.

The following is a summary of the input received.

Issues to Address

- Most businesses were supportive of efforts to improve communication and coordination
- Businesses reported significant challenges in improving goods movement in Peel Region. Many expressed a lack of confidence that issues will be addressed. And, they do not know who to talk to about their issues
- Many mentioned the need for support to train and attract skilled labour into the goods movement industry, with driver recruitment being a key challenge. Some expressed frustration regarding the LCV permitting process
- There was mixed support for the idea of a single point of contact for logistics issues within the Region
- Some felt that it was important that the point of contact be an experienced logistics manager

- A few felt that staff within municipalities could be fulfilling the role of improving communication and coordination as well as logistics, but who this person(s) might be is unclear
- Larger businesses reported that they do not need assistance with logistics as this is their business. Rather, they need assistance with addressing issues out of their control (e.g. traffic signal timing, construction delays, LCV permitting, driver hiring, turn restrictions, etc.)

Employee Travel Options

- Most felt that the Smart Commute programs were good for their businesses. They see the need to address site-specific congestion
- Some businesses felt that there is a need for better transit in the area
- None of the businesses supported the idea of staggering work shifts in order to spread out the congestion or coordinating the arrival and departure times of trucks and employees

New Technologies

- One mentioned a need for financial assistance (grants or tax breaks) to encourage companies to invest in new software
- Many mentioned the desire to better employ GPS technology to improve goods movement
- None of the interviewees could identify a specific technology that needed to be implemented in the area.

Operational Association

- Establishing a Smart Freight Association seemed interesting, but many felt that they needed more clarity about its purpose and function within the goods movement arena in Peel
- Businesses would not pay for this type of association today given their limited knowledge of its function. But some understood that testing the concept over a three-year period using grant funding was a good step forward in exploring solutions to various issues

4.0 | RECOMMENDATIONS

Freight Transportation Demand Management (FTDM) is a relatively new concept in efficient goods movement. FTDM tends to focus on “softer” planning related measures such as enhancing communications and coordination, reducing employee trips on major freight corridors, and implementing technologies such as virtual load matching and other emerging options. These measures complement roadway capacity projects and other infrastructure based solutions.

The following recommendations were assembled by the consultant team, in coordination with the study’s Steering Committee:

- A. Strive for system optimization through the use of Intelligent Transportation Systems within the Peel Region.
- B. Provide active assistance to goods movement businesses for the purpose of enhancing partnerships, communication and advocacy within the Region of Peel.
- C. Identify system enhancements that allow for a more efficient use of transportation infrastructure.

4.1 | System Optimization

Employing new ITS options may include: developing software, promoting the development of virtual load management, and establishing incident impact measures and recovery time to restore normal service level. These measures would be folded into the Smart Freight program (see Recommendation 6). Such measures could also be enhanced by more extensive initiatives such as dedicated truck lanes and the creation of freight hubs.

While this study reviewed a variety of new technologies, it is not the intention of this study to recommend specific software or ITS technology. Following this study, an inventory of current technologies used in the area should be conducted. This inventory would assist technology professionals with recommendations for new software, as well as use of a specific software program.

Basis for Recommendation:

- Improve travel time reliability for trucks in key goods corridors
- Address recurring bottlenecks on arterial roads with heavy truck volumes; small reductions in delay can contribute to large time and fuel savings for trucks over time
- Improve information flow to and from goods movement industry
- Improve level of information for truck drivers on real-time network performance

Recommendation 1: Technology Inventory - Conduct new and enhanced inventory of existing and desired goods movement technology. Coordinate with local businesses to ensure that there will be no redundancy in the software and load-matching.

The support for this effort could be obtained from the Smart Freight Association (see Recommendation 6). This may include the purchase of load-matching software.

Recommendation 2: Trucking Focused Signal Priority Plan - **Recommendation 2: Trucking Focused Signal Priority Plan** - Improved traffic operations along the goods movement corridors via CCTV, enhanced signalization and infrastructure changes.

Corridors:

- Dixie Road
- Airport Road
- Steeles Avenue
- Derry Road

Recommendation 3: Virtual Container Yards - Virtual Container Yards, a system of container matching using the Internet, can be used to eliminate empty truck trips increasing efficiency and lowering GHG emissions. Virtual Container Yards work like a computer clearinghouse or bulletin board, and can reduce empty truck trips by providing information about container status and location, facilitate communication between parties and assisting parties to make optimal decisions regarding container logistics. Port of Oakland (CA) VCY is a successful example.



Recommendation 4: “Last Mile” Solutions - Look for opportunities to introduce “last-mile” solutions which facilitate lower impact ways of delivering goods to neighbourhoods and commercial areas—last mile referring to the end of the trip. This could include, for example, the use of pack stations or locker boxes which are prevalent in European countries.

4.2 | Enhance Partnerships, Communication and Advocacy

Enhanced communication was a top priority in case studies, business interviews and Steering Committee discussions. Without better methods to ensure timely communication, partnerships and networks would be difficult.

Communication often meant getting in contact with the right person regarding an issue and/or exchanging information about items that could impact normal business operations.

Coupled with communication is education. Education can occur at two levels: policy and operations. Providing workshops on a variety of topics could help to increase awareness of desired solutions and bring stakeholders to a common level of understanding about issues and solutions.

Coordination is the basis for partnerships and networks. Many of the problems with regard to goods movement could be addressed through a formalized method for coordination. Additionally, new technologies can help facilitate coordination.

Basis for recommendations:

- Stakeholder input regarding the lack of clarity about who to talk with regarding goods movement issues
- Case examples show a common thread of communication, education and coordination as a key component of system efficiency
- Steering Committee direction in enhancing public and private communication and coordination.

Recommendation 5: Employer Network - Formalize a network of 15 or more firms and stakeholders who are working together with government to improve the overall goods movement system.

Recommendation 6: Feasibility of a Smart Freight Association - It is recommended that the feasibility of a Smart Freight Association be further assessed to understand the applicability of a SFA in Peel, the process of creating, interrelationship with similar associations, and its global and mutual benefits to the Regions in southern Ontario and all level of governments and private sectors.

Once it is determined that a SFA be created, the association would operate as a central point of contact for goods movement businesses. The association would provide services including

The Peel Goods Movement Task Force has served as an excellent method for addressing and coordinating policy related freight issues. To further this success a Smart Freight Association should be formed to become a membership-based organization that addresses operational issues for day-to-day activities.

newsletters, training, coordination with public agencies on desired infrastructure and non-infrastructure improvements, guiding the development of new software and exchanging ideas between businesses. The association could be created as a stand-alone entity initially funded through grants with a gradual shift over to funding from participating businesses. The Smart Freight Association would be staffed by a logistics professional, titled the FTDM Coordinator.

A Smart Freight Association is built on the successful model of Smart Commute Associations. They are similar in their administration, funding and some general services, but differ in the skill set required for staffing and the membership services needed to be relevant. Funding may include both private and public contributions.

Should it be determined that the SFA is not currently feasible, the study should explore alternative options to fill the void identified through this study. One alternative could be assigning a public agency staff member to begin limited FTMD services. As interest grows, the SFA may be considered should the market conditions support its creation.

Table 2a: Administration and Funding

| | Smart Commute | Smart Freight |
|----------------------------|---------------|---------------|
| Administration | | |
| Public private partnership | × | × |
| Non-profit with Board | × | × |
| Small staff | × | × |
| Funding | | |
| Membership fees | × | × |
| Public grants | × | × |
| Fee-for-service | × | × |
| Other | | Impact fees |

Table 2b: General Services

| | Smart Commute | Smart Freight |
|--|---------------|---------------|
| General Services | | |
| Employer outreach | × | × |
| Baseline Commuter Survey | × | |
| Customized Employee Commuting Plan | × | |
| Event Launch | × | |
| Workshops | × | × |
| Annual Events | × | |
| Incentives and Promotions | × | × |
| Smart Commute Employer of the Year Award | × | |
| Website with monthly updates | × | × |
| Monitoring and evaluation | × | × |

Table 2c: Member Services

| | Smart Commute | Smart Freight |
|--|---------------|---------------|
| Member Services | | |
| Corporate Carpool Zone Program | × | |
| Emergency Ride Home Program | × | |
| Discount Transit Program | × | |
| Activate Your Commute, Walking & Cycling Program | × | |
| Walk & Cycle Program | × | |
| Telework Program | × | |
| Rewards Program | × | |
| Workplace Program | × | |
| Trucking focused signal priority plans | | × |
| Virtual Container Yard hosting | | × |
| “Last-mile” solutions | | × |
| Trucking recognition program | | × |
| Dedicated truck lanes and freight hubs | | × |
| Centralized Goods Movement for mixed use areas | | × |

The Business Case for the Smart Freight Association

The Peel Region has created a strong policy leader in the formation of the Goods Movement Task Force. However, this group is limited in its ability to move the public-private partnership to implementation. The Smart Freight Association creates the institutional framework that allows for the day-to-day management of a variety of goods movement recommendations.

The Smart Freight Association does not replace the Goods Movement Task Force, but rather complements the task force as a conduit for implementation of approved policies.

The idea of the Smart Freight Association is one of the first of its kind in North America. The original concept emerged from the Best Practices review, as well as from stakeholder discussions. The Smart Freight Association is built around the successful model created for commuter traffic – the Smart Commute Associations. The association would save time and money by streamlining program implementation and allow for economies of scale to benefit its public and private membership.

The Smart Freight Association also moves responsibility for implementing solutions to a public-private venture instead of solely a public initiative. Working together creates a better sense of ownership for the solutions. It also leverages limited public funding by inviting private-sector investment.

While the institution is new, the core elements are not. Nearly all case examples reviewed as part of this study show a strong need for partnering and implementation of the solutions together.

Recommendation 7: Recognition Program - Work with Metrolinx and the Ministry of Transportation to explore the development of a recognition program similar to the one being offered in London, UK. This type of program would serve to motivate businesses to meet a common standard for operations and assist the Smart Freight Association in bringing together interested businesses.

Recommendation 8: Reduce Employee Vehicle Trips - Most employers were willing to receive free services designed to help their employees travel to and from work. These services would promote the use of carpooling, transit and alternative work arrangements based on the needs of the traveller. The Peel Region has a solid foundation of Smart Commute organizations that can work with the FTDM Coordinator. The FTDM Coordinator would identify interested goods movement businesses and forward the contact and information to Smart Commute staff based on the location of the business. These services would be provided through existing Smart Commute funding.

Recommendation 9: Monitoring and Evaluation - Formalize monitoring and evaluation system with goals based on the findings from further work on Peel's goods movement baseline.

4.3 | Infrastructure Improvements/Land Use

Recommendation 10: Freight Hubs - Consider the need and benefits of extending strategies to include freight hubs. More detail regarding freight hubs can be found in Ministry of Transportation draft report Freight Villages, August 2011.

Recommendation 11: Centre of Excellence – Support the establishment of a goods movement Centre for Excellence. The Centre is also an action (Action 23) recommended in the Goods Movement Strategic Plan, April 2012.

Table 3: Freight Transportation Demand Management Recommendation

| Strategic Direction | Action | | Project Partner | Timeframe (Years) | Status |
|---------------------|--------|---|----------------------------|-------------------|------------------------------------|
| System Optimization | 1. | Conduct new and enhanced inventory of existing and desired goods movement technology. Coordinate with local businesses to ensure that there will be no redundancy in the software and load-matching. | Peel | 1 | Project Initiation January 2013 |
| | 2. | <p>Improved traffic operations along the goods movement corridors via CCTV, enhanced signalization and infrastructure changes.</p> <p>Corridors:</p> <ul style="list-style-type: none"> ○ Dixie Road ○ Airport Road ○ Steeles Avenue ○ Derry Road | Peel & Area Municipalities | 2 | Project Initiation January 2014 |

| | | | | | |
|---------------------------------------|----|--|----------------------------------|---|-------------------------------------|
| System Optimization (continued) | 3. | Create a Virtual Container Yard. | Smart Freight Association | 1 | Project Initiation June 2013 |
| | 4. | Pursue opportunities to introduce “last-mile” solutions which facilitate lower impact ways of delivering goods to neighbourhoods and commercial areas. | Peel & Area Municipalities | 3 | Project Initiation June 2014 |
| Partnership, Communication & Advocacy | 5. | Formalize a network of firms and stakeholders who work together with government to improve the overall goods movement system. | Peel & Smart Freight Association | 1 | Project Initiation November 2012 |
| | 6. | Feasibility of a Smart Freight Association. The feasibility study would explore the current need, framework and market for FTDM. The association could operate as a central point of contact for goods movement businesses. The association would provide services including newsletters, training, coordination with public agencies on desired infrastructure and non-infrastructure improvements, guiding the development of new software and exchanging ideas between businesses. Development of a five-year business plan, formation of a Smart Freight Steering Committee and ongoing maintenance of the project website. Funding may include both private and public contributions. | Peel & Smart Freight Association | 1 | Project Initiation November 2012 |

| | | | | | |
|--|-----|--|----------------------------|---------|------------------------------------|
| | 7. | Work with Metrolinx and the Ministry of Transportation to explore the development of a recognition program similar to the one being offered in London, UK. This type of program would serve to motivate businesses to meet a common standard for operations and assist the Smart Freight Association in bringing together interested businesses. | Peel, Metrolinx & MTO | 2 | Project Initiation January 2014 |
| | 8. | Forward leads to Smart Commute organizations. | Smart Freight Association | Ongoing | Project Initiation June 2013 |
| | 9. | Formalize monitoring and evaluation system with goals based on the findings from further work on Peel's goods movement baseline. | Smart Freight Association | 1 | Project Initiation June 2013 |
| Infrastructure Improvements/ Land Use | 10. | Address the need and benefits of extending strategies to include freight hubs. More detail regarding freight hubs can be found in Ministry of Transportation draft report Freight Villages, August 2011. | Peel & Area Municipalities | 3 | Project Initiation January 2015 |
| | 11. | Support the establishment of a goods movement Centre for Excellence that recognizes efforts in FTDM. | TC, MTO, Metrolinx | 3 | Project Initiation |

| | | | | | |
|--|--|--|--|--|--------------|
| | | | | | January 2016 |
|--|--|--|--|--|--------------|

5.0 | MEASURING FTDM IMPACTS

The value of FTDM measures relate to the economic, environmental and trip reduction impacts that can be achieved. The following section describes the basis for measuring FTDM impacts.

NOTE: THE REGION OF PEEL NEEDS TO CREATE A BASELINE FOR MEASURING IMPACTS. SPECIFIC GOALS CAN NOT BE ESTABLISHED WITHIN THIS REPORT UNTIL A BASELINE STUDY IS COMPLETE.

5.1 | Economic Impacts of Congestion on Freight Transportation

Freight Transportation Demand Management programs take a variety of forms including infrastructure investment, scheduling and technology changes, and policy and legislative changes. The overall goal is to have freight moving in an efficient and well-planned manner enabling the timely delivery of goods and services in support of economic development. The efficient movement of freight in turn contributes to efficiencies in the transportation network, which can produce economic, social and environmental benefits.

FTDM programs are often created in response to congestion and unpredictability in the transportation system. It is expected that certain times of the day – for example the morning and evening commute – there are going to be heavier traffic flows and some level of congestion. The authors of a study examining the economic benefits of transportation infrastructure investment in the GTHA argue that some level of congestion is good, as it is a sign of economic activity.¹⁰ Excessive congestion, which is more the focus of the study's analysis, occurs when the benefits from accommodating additional traffic are outweighed by the costs that reduce travel speeds imposed on the road users.¹¹ Excessive congestion is the tipping point between a predictably slow commute and being stuck in traffic.

The infrastructure investment study calculated a travel time index (TTI) for Peel Region of 1.75. This means that a 20-minute trip in free-flow conditions would take 38 minutes, or 75 percent longer, in periods of peak congestion.¹² For the average daily commuter, this adds up to just over 11 minutes a day, or 48 hours per year. Translating this to economic terms, the excessive congestion cost is \$5.08/auto commuter/day or \$1,322 per capita/year in the Peel Region.¹³

Commuter work trips tend to have one origin and destination with few route changes. Freight companies however have more complex routings which must be able to change according to the

¹⁰ HDR Corporation (2008). *Costs of Road Congestion in the Greater Toronto and Hamilton Area: Impact and Cost Benefit Analysis of the Metrolinx Draft Regional Transportation Plan*. Greater Toronto

¹¹ *Ibid*, page 9.

¹² *Ibid*, page 8.

¹³ *Ibid*, A3-4.

marketplace and customer demands. As a result, congestion has a broader range of impacts on the commercial sector. Costs for fuel, labour and maintenance increase when vehicles are idling in congestion. Unpredictable or delayed delivery schedules can also lead to decreased demand and associated lost revenue, higher costs for inventory overhead and loss of backhaul opportunities.¹⁴ Table 5.a. highlights the impacts of congestion for the retail, wholesale and transportation sectors.

Table 4a. Impacts of Congestion on Selected Commercial Sectors

| | Increased Costs | | | Decreased Demand | | |
|-----------|-----------------|--------|--------------|------------------|---------------------|------------------|
| | Fuel | Labour | Main-tenance | Loss of Revenue | Increased Inventory | Loss of backhaul |
| Retail | X | X | X | X | X | |
| Wholesale | X | X | X | X | X | |
| Transport | X | X | X | X | | X |

Goods movement trips usually have multiple stops and the routes can change for a variety of reasons. The complexity of these trips and the lack of sufficient data present a challenge when calculating the specific economic impacts of congestion. One study estimates that excessive congestion led to increased costs of \$16.7 million for the GTHA transportation sector in 2006. This was coupled with decreased revenue of \$6.0 million and more than 40 lost jobs. Table 5.b. presents the economic impacts of congestion for the retail, wholesale and transportation industries in the GTHA in 2006.

Table 4b. Economic Impacts of Congestion on Selected Industries in the GTHA

| | Increased Cost (\$ million) | Reduction in Revenue (\$ million) | Reduction in Jobs |
|----------------|-----------------------------|-----------------------------------|-------------------|
| Retail | \$22.1 | \$27.5 | 467 |
| Wholesale | \$56.3 | - | - |
| Transportation | \$16.7 | \$6.0 | 43 |

Source: HDR (2008). Page 22.

Wholesale is considered to be upstream of retail and therefore revenue and job numbers are not reported at this level to avoid double counting.

¹⁴ Ibid, A3-12.

On a micro level, it is possible to estimate the financial impact that excessive congestion can have on the bottom line of a delivery company. Table 5.c. outlines the case of a firm with 6 trucks that are each doing six deliveries per day.

Scenario One presents the deliveries under the planned schedule and Scenario Two looks at the impact of one hour of unplanned congestion.

Table 4c. Additional Delivery Costs from Excessive Congestion

| | Deliveries as Planned | Excessive Congestion |
|-------------------------------|-----------------------|----------------------|
| Driver set-up/finish & breaks | 1.5 hours | 1.5 hours |
| Delivery time | 6.5 hours | 7.5 hours |
| Total work time | 8 hours | 9 hours |
| Deliveries | 6 | 6 |
| Congestion | 0 | 1 hour |
| Average time/delivery | 65 minutes | 75 minutes |
| Fleet size | 6 trucks | 6 trucks |
| Additional cost | | \$336/day |
| | | \$1,680/week |

Referring to the TTI of 1.75 that was calculated for the Peel Region in a previous study, Scenario One includes 1 hour and 20 minutes of travel in congestion in the current 6.5 hours of delivery time. Scenario Two would have an additional hour of travel in excessive congestion. Standard congestion would likely occur in the stem period, which is the beginning and the end of the schedule, rather than happening with each delivery.

The additional costs are based on the following assumptions:

Idling in traffic

- 4 litres diesel/hour at a cost of \$1.30/litre (\$5.20/hour)
- Additional \$0.80/hour for increased maintenance costs
- Total of \$6.00/hour fuel and maintenance for idling time in congestion

Overtime

- \$50/hour/truck (wages and overhead)

\$56/hour * 6 trucks (each delayed one hour) = \$336/day * 5 days = \$1,680/week

It would be reasonable to assume that if a company was facing chronic overtime from congestion, they would make schedule adjustments

5.2 | Environmental Impacts of Freight Transportation

Greenhouse gas emissions (GHG) from freight transportation in Canada are increasing. Data from Natural Resources Canada shows GHG emissions from all freight transportation increasing an average of 21 percent from 2000 to 2008. Annual GHG emissions attributed to heavy vehicles rose by 31 percent from 27.6Mt in 2000 to 40.1Mt in 2008.¹⁵ This increase is largely attributed to the growing number of trucks on the road and would likely be higher without the emissions-reducing technologies and vehicle operating standards that are being used across the industry.

Calculating GHG emissions for various types of vehicles is technically straightforward. However, two factors that have a significant influence on the level of emissions are driver behaviour and driving conditions. The United States Environmental Protection Agency (EPA) estimates that quick acceleration and heavy braking can reduce fuel economy by up to 33 percent on the highway and five percent in urban driving.¹⁶ For freight transporters, inefficient accelerating and braking activity usually happens in congested driving conditions.

The effects of driver behaviour and driving conditions can be captured for an individual vehicle or even at the fleet level, but to extrapolate the data to a geographic level is methodologically challenging. Deliveries of a local or urban nature are by and large done with smaller vehicles, and these movements are not easily captured by traffic studies. Deliveries done with large vehicles are generally interregional or interprovincial and only part of the total trip emissions

¹⁵Natural Resources Canada, Office of Energy Efficiency (2010). *Canada's GHG Emissions by Sector, End-Use and Sub-Sector – Including Electricity-Related Emissions*. Accessed on January 24, 2012 at http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/tableshandbook2/aaa_ca_3_e_4.cfm?attr=0

¹⁶United States Government, Environmental Protection Agency. *Many Factors Affect MPG*. Accessed on January 31, 2001 at <http://www.fueleconomy.gov/feg/factors.shtml>

would be attributable to the Region. Again, capturing this data on a complete trip basis is possible, but challenging at the regional level.

Even without being able to precisely measure the regional level of GHG emissions from freight transportation, there are still a variety of policy and operational changes which governments and the private sector can undertake to support the more efficient movement of all traffic and contribute towards emission reductions. Table 5.d. outlines nine options and indicates whether each falls in the government or private-sector scope of responsibility.

Table 4d. Policy and Operational Options for Reducing GHG Emissions from Freight Transportation

| | Federal | Provincial | Local | Private Sector |
|---------------------------|---------|------------|-------|----------------|
| Anti-idling Policies | | X | X | X |
| Driver Education Programs | X | X | X | X |
| Fees/tolls* | X | X | | |
| Fuel Options | X | | | X |
| Mode Shift* | X | X | | X |
| Truck Routes* | | X | X | X |
| Speed | | X | X | X |
| Vehicle | | X | X | |
| Vehicle Design | X | | | X |

Of the nine aspects presented in Table 3.d., the five starred could further be classified as freight transportation demand management. Fees/tolls, mode shift, truck routes, and vehicle configuration all work towards shifting the demand for access to the transportation network. Fees/tolls aim to shift demand to off-peak periods with financial incentives while support for mode shift aims to take the demand to other networks. Truck routes focus the demand for road access to specific routes and sometimes include time of day restrictions to reduce congestion in peak periods. Finally, vehicle configurations like the already mentioned LCVs or weight and axel restrictions focus on the types and number of vehicles on the road. While LCVs are larger than standard trucks, they reduce the total number of vehicles on the road.

In some cases, such as educating drivers about the most efficient way to operate their vehicles, all four groups have a role to play. One study of four transportation companies in England showed that simply educating drivers about the advantages of turning off their engines lead to

reduced idling and significant cost savings.¹⁷ Other changes, such as vehicle configurations, are currently being addressed by provincial and local governments. The Ontario government recently increased the number of permits available for long combination vehicles (LCVs). Typically made of one truck and two trailers that are each 40 to 53 feet in length, LCVs can only travel on approved routes between specific origin and destinations and are subject to a wide range of seasonal and time of day operating restrictions. The move to increase the number of LCVs on the road is expected to save shippers and consumers up to \$320 million per year including reducing fuel consumption by 70 million litres and reducing emissions by 190,000 tonnes.¹⁸ Local governments are key players in this type of program by ensuring they have truck routes and intersections that can accept these vehicles where appropriate.

5.3 | Transportation Demand Management Vehicle Trip Calculations

Employers have the ability to access the services provided by the various Smart Commute programs. As a rule of thumb, an employer that uses basic Transportation Demand Management measures offered by Smart Commute can shift up to 10 percent of total employee trips from single-occupant vehicles to an alternative mode, which may include bicycling, walking, carpooling, vanpooling, using transit and/or alternative work arrangements.

Smart Commute programs begin work with an employer by assessing current travel behaviour and offering employees free services including CarpoolZone (matching service), emergency ride home, transit information and/or passes, and support information about available incentives and general benefits.

Anecdotal information demonstrates that a more aggressive program can achieve up to a 25 percent mode shift. These types of programs often include both “carrots” and “sticks”. Carrots can be startup incentives, free transit passes, quarterly prize drawings and recognition. Sticks can be charging for parking or other commute-related charges.

For the purpose of this study, it is assumed that select employers will adopt a Smart Commute Program at their workplace. It is assumed that up to 50 worksites will adopt a Smart Commute program within the first six years of services provided in partnership with the various Smart Commute programs. Additionally, it is assumed that larger worksites (250 employees or more) will be addressed first.

The following summary highlights the potential vehicle kilometres travelled (VKT) reduced through the adoption of a basic Smart Commute Program.

¹⁷ Department of Transport, Government of England (2009). *Engine Idling – Costs you Money and Gets You Nowhere*.

¹⁸ Government of Ontario, Ministry of Transportation (2011). *Ontario Long Combination Vehicle (LCV) Program: Questions and Answers*. Accessed on January 24, 2012 at <http://www.mto.gov.on.ca/english/trucks/lcv/program-conditions/questions-and-answers.shtml>.

VKT Calculation

- Current VKT for employment sites = Current vehicle trips * average one-way commute distance
- Current VKT for employment sites = 4,750,000 * 9.5 km = 45,125,000 kilometers/year
- It is assumed that VKT can be reduced by 10 percent, which is equal to 4,512,500 kilometres/year

GHG Calculations

- GHG reduction = VKT reduced * average vehicle fuel consumption * GHG/L
- GHG reduction = 4,512,500 km/year * 10.4L/100km * 2.4 kg/L = 1,126,320 kg/year

Assumptions

- 50 participating employers
- 250 employees per employer (actual numbers per site may be higher or lower)
- VKT is reduced 10 percent
- Average round trip commute distance in the GTHA is 19 kilometres (Statistics Canada)
- The average employee commutes 5 days per week and 46 weeks per year
- 95 percent of employees arrive at work in an automobile (Estimate for Peel based on 2008 model data from Metrolinx)
- Average auto occupancy (AVO) is 1.15 (Estimate based on 2008 model data from Metrolinx)

5.4 | Data Collection Summary

Plan Target Goals:

- Reduce emissions produced by freight carriers per mile of travel by improving freight carrier fuel efficiency through technological improvements, better maintenance, improved road system operations, driver behavior modification, and other techniques.
- Reduce kilometres traveled by freight carriers by enacting land use and development policies that reduce the distance goods must travel to reach market, or by increasing the cost of travel through pricing.
- Shift freight to modes with less climate change impact. The most effective example is shifting truck freight to rail.

6 | Conclusion

Freight Transportation Demand Management (FTDM) is a relatively new concept in efficient goods movement. This study reviewed case examples and best practices in FTDM related strategies and solutions. It examined strategies that blend demand management and sustainable transportation practices with improvements to efficient freight movement in the area. The study involved collaboration at three different levels: government, businesses and networks. The purpose was to produce an action oriented document that advances elements of the long-term goals of the LRTP and the Study of Goods Movement in Peel: Strategic Overview, as well as other regional and area-wide studies.

The Peel Region has made a bold step forward by conducting this study. The study ventured into new ideas for enhancing the goods movement systems. The feasibility assessment of a Smart Freight Association is likely one of the first to be considered in North America. The association could serve as a central point of contact for goods movement businesses in Peel as well as host the development of new technologies and/or implementing existing technologies designed to actively support the goods movement system.

Being one of the first of its kind, the Smart Freight Association concept needs to be evaluated at key milestones for achieving goals and ultimately demonstrating the return on investment to all stakeholders.

In conclusion, the Freight Transportation Demand Management Study has been successful in exploring new and innovative solutions. It will serve as the launching point for subsequent measures as identified in the Action Plan. As part of the Goods Movement Goods Movement Task Force's Strategic Plan, it is the beginning of a process for improving goods movement throughout the Peel Region.

APPENDIX A – Industry Input

A.1. Issues to Address – Initial contact with goods movement companies in the area was to gain insight into desired services for the Peel Region, as well as the type of issues that needed to be addressed. Topics were limited to non-infrastructure related issues and services.

The following is a list of issues:

- Lack of communication regarding proposed improvements and limited contact regarding daily issues that could impact their business
- Trouble reaching the appropriate person(s) and/or agencies to contact for help
- Limited contact between public and private sectors
- Need for better coordination for shared loads for smaller operations
- Challenges in coordinating applications for LCV permits

Some of the large goods movement firms stated that they have a complete operational program internally and, therefore, had only infrastructure related concerns.

A.2. Businesses Contacted – The following is a list of firms that were contacted during the goods movement study. Not all firms responded to all issues and questions. Nor were the firms willing to go on record for their individual statements.

- Wal-mart
- Supply Chain & Logistics Association of Canada
- Canadian Tire
- Canadian Courier & Logistics Association
- Ontario Trucking Association
- Cavalier Transportation Services, Inc.
- TOPAC Express
- Wheels Clipper
- Pratt & Whitney
- Unisource
- Caledon Chamber of Commerce
- MSM Transportation
- Ontario Natural Food Coop
- Smart Commute Brampton-Caledon
- Smart Commute Mississauga
- Nestle
- Greater Toronto Airports Authority

- Maple Lodge Farms
- Metrolinx
- Purolator Inc.

A.3. Reaction to Core Recommendations – The following is some questions that were posed to select goods movement businesses.

- Do you see a need for improved coordination and communication with regard to truck movement throughout the area?
 - If so, do you think that a logistics professional could help assuming that this person would be accessible to all goods movement firms in Peel?
- Would it matter to you if this person is placed within a public agency or private networking group funded with public grants?
 - If not, what do you see as a reasonable alternative for improving coordination and communication?
- Do you feel that better coordination of commuters and trucks during peak periods at specific bottlenecks and arterials could help?
 - If so, would you be open to receiving free assistance to help shift some of your employees into carpools, vanpools, transit or other forms of non-automobile travel to and from work?
 - If all goods movement firms were to do this voluntarily, do you feel that it would improve truck movement during peak periods at bottle necks and arterials in Peel?
 - What types of new technologies available could enhance goods movement in Peel?

Additionally, a Project Steering Committee was formed of public stakeholders.

During the course of the study, the consultant team and Steering Committee met four times to review information and provide feedback. The following information is taken from a presentation made to the Steering Committee that helped form the basis for the development core recommendations.

Projects Arising from Consultations

| Strategy | Projects Arising from Consultations |
|---|---|
| Optimize Existing System (refer to Peel Region ITS Strategic Plan projects) | <ul style="list-style-type: none"> • Expand LCV Access to major CV trip generators • Promote deployment of virtual load matching, especially for trips within the Region • Implement incident management solutions • Dynamic tolling on 407 – reduced (or rebate) for trucks at night |
| Improve Goods Movement Infrastructure | <ul style="list-style-type: none"> • Revise intersection geometry at key intersections • Review signal timing at truck-intensive intersections |
| Enhance Communication and Education (Recruitment) Programs | <ul style="list-style-type: none"> • Establish clear lines of communication for industry stakeholders (e.g. timely operational information, consultation regarding policies) • Adopt proximity guidelines for transportation and logistics land use • Identify and promote best practices |

Measurement Criteria

| Strategy | Measurement Criteria |
|----------------------------------|---|
| All Strategies – Common Measures | <ul style="list-style-type: none"> • GHG emissions from movements of goods and services – should decrease • Ambient noise levels at designated locations – should decrease • Annual cost of congestion delay – periodic surveys should trend downward |
| Optimize Existing System | <ul style="list-style-type: none"> • Regional Economic Value-Added (GDP) per Vehicle Kilometre Travelled (CVKT - commercial vehicles excluding transit) – should trend upward • Transit time - trips per day per driver – local drayage • Peak-to-average ratio of CVKT - should trend downward with overall growth • Number or percentage of companies subscribing to virtual shipping services/portals |

| Strategy | Measurement Criteria |
|--|--|
| Improve Goods Movement Infrastructure | <ul style="list-style-type: none"> • Level of Service (LOS) at key designated intersections • Long Combination Vehicle (LCV - e.g. tractor plus 2 x 53' trailers) compatible access lane kilometres between terminal areas (e.g. Dixie Road, Airport Road etc.) and 400-series highways • Truck route network coverage and continuity |
| Enhance Communication and Education Programs | <ul style="list-style-type: none"> • Participation rate among employers for “smart commute” type initiatives • Incident impact measures and recovery time to restore normal service levels • Take-up of best practices re sustainable goods movement |

Goals/Criteria

| Project | Sponsorship | Goals/Criteria |
|---|--|---|
| Establish clear lines of communication for industry stakeholders (e.g. timely operational information, consultation regarding policies) | Peel Region with Goods Movement Task Force | Stakeholder Feedback Web site hits for timely shared info (e.g. Region 511) Periodic satisfaction surveys |
| Adopt clear consistent proximity guidelines for transportation and logistics land use | Municipalities lead with support from Region | Reduced lead-time for project planning approval Investment growth |
| Identify and promote best practices | All – facilitated by Region and GM Coordinator | Productivity growth; job applications and enrollment in logistics vocational training |

| Project | Sponsorship | Goals/Criteria (Peel Region) |
|---|---|--|
| Expand LCV Access to major CV trip generators | MTO lead - Peel Region to work with industry and municipalities to approach MTO | VKT, fuel, emissions, noise etc. - reductions |
| Promote deployment of virtual load matching, especially for trips within the Region | Industry lead – Region would support GM Task Force; federal and provincial tax incentives | VKT, fuel, emissions, noise etc. – reductions ; Reduction of empty moves Improved productivity |
| Implement incident management solutions | Peel Region ITS Strategy – coordinated with MTO and municipalities | Delay reduction; faster incident recovery |
| Dynamic tolling on 407 – reduced (or rebate) for trucks at night | Unclear – advocacy role for GM Liaison and Regional Council | Reduction in peak/average ratio; improved delivery time reliability |

| Project | Sponsorship | Goals/Criteria |
|---|--------------------------------|---|
| Revise intersection geometry at key intersections | Peel Region and Municipalities | Observed LOS at average and peak conditions Productivity |
| Review signal timing at truck-intensive intersections | Peel Region and municipalities | Fluidity for all vehicle classes Productivity CV schedule reliability |

APPENDIX B – Next Steps

Phase One – FTDM Strategy Acceptance

1. *Seek plan approval* *September 2012*
2. *Secure program funding* *October 2012*

At the conclusion of this study, the Peel Goods Movement Task Force will be provided an opportunity to review and comment on the plan. The comments will be incorporated into the final plan as directed by the project management team. When approved, the plan should be implemented as soon as reasonable. Unlike other studies, this plan requires ongoing support from participating employers as well as public agencies. The plan is as much about the process as it is about the end product. Continuing buy-in is essential.

Public Agency Support – Many of the recommendations contained within this study require partnering with agencies beyond the Peel Region. Ideally, Transport Canada should be informed of the effort and partnering opportunities should be pursued where feasible. The Ministry of Transportation and Metrolinx address freight needs in the GTHA. It will be important to ensure that the plan connects to other area-wide freight initiatives. This may include the development of a recognition-type program similar to the one developed by Transport for London, UK.

Smart Commute Support - The second core recommendation focuses on commute related trips to and from employer worksites. For the purposes of this effort, worksites that have a goods movement component will be targeted. In this respect, Smart Freight and Smart Commute staff will reach out to the employers and work to obtain a 10 percent mode shift over a five-year period. The reduction of employee vehicle trips may reduce traffic congestion on key arterials and bottlenecks.

The Smart Commute programs include:

- Smart Commute Brampton-Caledon
- Smart Commute Mississauga
- Smart Commute Pearson International Airport

This coordination should begin at the point in which the Smart Freight business plan is being developed. Smart Commute staff will be invited to participate on the proposed Smart Freight Association Steering Committee.

Private Sector Support – The link to the project website will be shared with all employers contacted as part of this study. The project website will be augmented and include a copy of the final report. The link to the website will be promoted to interested parties who may likely be contacted as implementation begins. Ideally, champions should emerge and be identified early on to ensure that private sector input is received. These employers could potentially add to the proposed Smart Freight Association Steering Committee.

In advancing the plan, funding will need to be secured for the development of a Five-Year Business Plan, inventory of technology opportunities and three-year funding of operations for the Smart Freight Association.

The estimated cost of proposed strategies may be:

- | | |
|--|------------------------|
| • Five-Year Business Plan and Program Launch | \$75,000 |
| • Inventory of Technologies | \$35,000 |
| ▪ Prioritized list of desired technologies | \$50,000/year cap |
| • Smart Freight Association operations | \$75,000 for Year One |
| | \$185,000 for Year Two |
| | \$195,000 Year Three |

Phase Two – Startup Activities

- | | |
|---|-------------------------|
| 1. <i>Development of a Five-Year Business Plan</i> | <i>Oct – Dec 2012</i> |
| 2. <i>Conduct an inventory of technological opportunities</i> | <i>Jan – May 2013</i> |
| 3. <i>Form Smart Freight Association Steering Committee</i> | <i>June-August 2013</i> |

The following list outlines common steps in preparing a five-year business plan and launch.

- Prepare Request for Proposal for qualified contractors in the development of the five-year business plan, formation of a Smart Freight Steering Committee and ongoing maintenance of the project website
- Select consultant
- Target specific businesses, agencies and/or individuals for participation on the Smart Freight Steering Committee
- Work with the Steering Committee to develop program goals and objectives for the association

- Develop marketing plan including program identity, enhanced website and other related collaterals
- Detail the type of services to be conducted over the five-year startup period. Prioritize services. Service are often categorized as:
 - Advocacy
 - Operations
 - Technologies
 - Institutional support
 - Marketing
 - Management
 - Networking
 - Communication
- Create a five –year budget for the Smart Freight Association (first three to be funding through public grants)
- Plot out a timeline for launching and maintaining the Smart Freight Association
- Develop a job description for the desired Smart Freight Coordinator
- Determine whether the association will be hosted by an existing organization or operate independently as a non-profit service organization
- Assist in securing commitment for the launch
- Prepare methodology for tracking and evaluation

A contractor should be hired to conduct an inventory of existing technologies used within the Peel Region, proposed technologies identified through related projects and desired technologies that can be supported by the Smart Freight Association or other related organization. The technologies will be prioritized based on funding availability and interest from the private sector.

Phase Three - Program Launch

- | | |
|--|--|
| 1. <i>Launch program</i> | <i>January 1, 2013</i> |
| 2. <i>Development and introduction of prioritized services</i> | <i>January 1, 2013 to September 30, 2015</i> |
| 3. <i>Program evaluation</i> | <i>August-September 2013</i> |
| | <i>August-September 2014</i> |
| | <i>August-September 2015</i> |