

Niagara to GTA Corridor

Planning and Environmental Assessment Study

AREA TRANSPORTATION SYSTEM PROBLEMS AND OPPORTUNITIES REPORT

Executive Summary

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EXECUTIVE SUMMARY

1. OVERVIEW OF TRANSPORTATION PROBLEMS AND OPPORTUNITIES

The Ministry of Transportation (MTO) initiated the Niagara to GTA (NGTA) Corridor Planning and Environmental Assessment (EA) Study in 2005, defining the project in terms of the corridor's multi-modal transportation system. An EA Terms of Reference (ToR) for the NGTA EA was approved by the Minister of the Environment in June 2006. The approved EA ToR defines the process to be followed during the Individual EA and Planning process, and states the purpose of the EA is to address existing and future anticipated transportation capacity deficiencies (transportation problems and opportunities), to the year 2031 and beyond.

Subsequent to the approval of the EA ToR, MTO initiated Phase 1 of the NGTA EA Study. The focus of this phase is to examine long-term inter-regional transportation problems and opportunities, and to develop an integrated, multi-modal Transportation Development Strategy that offers choice for the efficient movement of people and goods.

The identification of future transportation problems and opportunities within the Study Area is a crucial stage for this phase of the study. An understanding of the shortfalls of the transportation system and opportunities to improve its future performance provides a foundation for identifying sustainable transportation solutions. These solutions will become the basis for a technically, environmentally and economically sound, multi-modal Development Strategy.

These multi-modal solutions will be developed using a "building-block" approach that starts with optimizing the existing infrastructure, investing in transit as the first priority for moving people, and thorough consideration of other modes before decisions are made for new highway facilities.

Transportation in the Study Area is characterized by a high degree of reliance on the road network as the vast majority of trips in the NGTA Corridor are made by automobile and truck. Furthermore, as established by analysis and stakeholder consultation, the road network is of paramount importance to the operation of all travel modes in the Study Area including transit, rail, air and marine. All of these modes rely upon and connect to the road network. Although the majority of problems identified relate to the road transportation network, all travel modes will be considered in generating alternative transportation solutions to address the identified transportation problems.

Transportation service providers for rail, air and marine indicate that their systems have sufficient capacity to accommodate future travel growth. Enhancements to these individual modes to accommodate growth and/or changing travel markets (for example, a further shift to containerization of goods) can generally be made within the existing lands/corridors of the railways, ports and airports. The key transportation issues identified by all of the service providers relate to the following:

- Lack of capacity on the road network to handle growth;
- Need for improved connections between different travel modes; and,
- Roadway congestion particularly during the weekday peak period commute, especially in the Hamilton and Halton areas, as well as high volumes of summer tourism and recreation travellers, particularly in the Niagara area.

In addition to the transportation problems, there are also numerous transportation opportunities that can be achieved within the Study Area by providing an efficient multi-modal transportation system. These include:

- Improved multi-modal connections to the GTA and areas west of the Corridor;
- Improved access to Niagara Falls and the U.S. border for tourism and trade;
- Improved access to inter-modal facilities such as Hamilton International Airport (HIA) and the Port of Hamilton;
- Support for municipal land use planning, such as Niagara's "Grow South" plan to protect the tender fruit lands, Hamilton's planned Airport Employment Growth District (AEGD), and Halton's planned employment growth lands in Milton, Oakville and Burlington; and,
- Minimized impacts to the natural, social, economic and cultural environments, through measures including optimizing existing transportation infrastructure.

2. APPROACH TO DETERMINING FUTURE TRANSPORTATION PROBLEMS AND OPPORTUNITIES

A multi-step process was implemented that considers the future transportation network in the context of the current provincial policy framework, and the key factors that influence travel demand:

- **Existing and Future Area Transportation System** – A multi-modal overview of existing and planned transportation infrastructure and services (highway, transit, rail, airport and marine services) was conducted through consultation with provincial, municipal and private sector transportation service providers. A range of transportation initiatives is planned to be implemented by 2031, with support from the provincial gas tax program, which provides municipalities with funding for expansion and improvement of transit services. This improved transportation system is considered the base case for analysis of future conditions. It includes:
 - The *Metrolinx Regional Transportation Plan* (Metrolinx RTP), which identifies a \$50 billion transit investment in the Greater Toronto and Hamilton Area (GTHA), including new express and commuter rail services, bus and light rail transit services;
 - GO Transit's Strategic Plan, *GO 2020*, which proposes increased service frequencies and provide new rail service extensions to Guelph, Kitchener/Waterloo and Niagara;

- The Ministry of Transportation's planned highway improvement program, including highway extension and expansion plans, and High Occupancy Vehicle (HOV) systems;
 - A range of municipal transportation initiatives for road, transit and active transportation programs identified through Transportation Master Plans and Official Plans of Halton, Hamilton, and Niagara; and,
 - Rail, air and marine transportation initiatives and programs including future redevelopment of the Hamilton Port to increase capacity for container shipping; expansion of HIA to increase freight and passenger services; and freight rail service enhancements and a potential longer term CN rail inter-modal facility in the Milton Area.
- **Goals, Objectives and Functions** – Goals and objectives were developed based on the government's policy framework, in particular, the *Growth Plan for the Greater Golden Horseshoe*, *Greenbelt Act* and *Plan and Provincial Policy Statement*, to guide the identification of problems and opportunities in support of the following three defining pillars: compact, vibrant and complete communities; a prosperous and competitive economy; and a protected environment.
 - **Future Travel Demand** – Future travel demand was identified based on forecast growth in person trips and goods movement, with a focus on travel markets for goods, commuter and tourism and recreation travel. A range of scenarios was developed for sensitivity testing based on alternative land use scenarios and forecasting methodologies.
 - **Other Factors** – Other factors include government policies relating to the economy, trade, land use, tourism and transportation; planned population and employment growth; broader transportation initiatives such as the Detroit River International Crossing project and the Ontario-Quebec Continental Gateway and Trade Corridor Study; global and local economic trends and forecasts; and tourism and recreation factors.

Transportation problems and opportunities for all modes were identified based on the capacity of the future transportation system to accommodate the expected future transportation demands, and input received from public consultation.

3. FORECAST OF FUTURE TRAVEL DEMANDS

Forecasts for the NGTA Study Area show substantial growth by 2031. Population and employment levels are expected to grow by 45% and 53%, respectively, between 2001 and 2031 (576,000 people and 304,000 jobs).

Accordingly, Study Area travel is expected to increase significantly, as shown in Table 1:

Table 1: Projected Growth in the NGTA Corridor, 2001-2031

	2001	2031	% Change
Population	1,277,000	1,853,000	45%
Employment	570,000	874,000	53%
Total PM* Peak Period Person Trips	686,264	1,107,418	61%
PM* Peak Period Auto Trips	536,489	814,590	52%
PM* Peak Period Transit Trips	27,625	79,701	189%
PM* Peak Period Transit Mode Share	4%	7%	75%

* refers to afternoon/evening

Source: GGH Model land use allocation and trip data, October 2008

In addition to the increase in commuting trips, the Greater Golden Horseshoe's growth in population and employment will result in increased tourism and recreation trips to/from and through the NGTA Corridor, reflecting the status of Niagara and Toronto as major tourist destinations. The projected growth will also result in increased goods movement throughout the Greater Golden Horseshoe, and trucks will continue to be the dominant mode for moving goods in the Study Area.

Tourism and recreation travel to and from the Study Area occurs throughout the year with a focus on the summer period. About 35% of all tourism and recreation trips to the NGTA Study Area occur in the summer months, adding to an already congested road network. This is of particular importance to the eastern part of the Study Area as almost 80% of all tourism and recreation trips to the Study Area are destined to Niagara.

With regard to commuter travel, the origin-destination analysis reveals significant numbers of trips made internally within the Study Area's upper tier municipalities. Approximately 91% of trips in Niagara and 81% of trips in Hamilton are expected to remain within their respective regions during the weekday PM peak hour. This represents a slight reduction from 2006 levels (96% in Niagara and 86% in Hamilton). Trips across municipal boundaries are expected to be more substantial between Halton and Peel Regions, with the numbers of cross-boundary trips decreasing toward Niagara.

The following sections provide an overview of the anticipated growth by travel mode. In addition, an assessment of key individual facilities was undertaken to identify potential capacity shortfalls in relation to 2031 vehicle demand. This analysis is summarized in Section 5.4, and considered travel patterns for people and goods movement, including travel origins and destinations, times of travel, and available modes for trips. While weekday AM and PM peak hour travel on individual facilities is substantial, volumes are expected to continue increasing such that heavy flows are experienced throughout the day.

Transit

Future area transit improvements are expected to result in significant increases in transit trips, varying widely depending on the origin and destination of trips. For example, 2031 transit mode shares for inter-regional trips between the communities in the Study Area are forecast to reach as high as 15% for trips from Oakville to Hamilton. Transit

improvements, such as high-frequency, full-day GO rail services, are expected to result in decreases in some transit travel times between the Study Area's Urban Growth Centres ranging from 10% from St. Catharines to Hamilton to 60% from Hamilton to Oakville. Road based transit, however, will likely see an increase in travel time due to congestion on the road network, except in areas where there are planned transit priority measures.

Automobile

By 2031, automobile flows are expected to increase substantially. The traffic analysis indicates that weekday PM volumes are forecast to increase by as much as 35% across the Burlington Skyway Bridge, and 15% across the Welland Canal. Across the Hamilton East Boundary, traffic is expected to increase by approximately 40% to 70% by year 2031.

The analysis also shows that in the Study Area Summer Average Daily Traffic volumes (SADT) are generally greater than the Annual Average Daily Traffic volumes (AADT) that occur throughout the year. SADT is characterized by longer peak periods and more balance in the direction of travel, as commuter and tourism and recreation trips overlap.

Other Travel Modes

Canadian Pacific (CP) and Canadian National (CN) railways and VIA Rail operate in the Study Area, and rail use is anticipated to steadily increase through to 2031. This increase will be driven largely by the growth in volumes of containerized goods. There is capacity for further growth on the rail system and stakeholder consultation indicated that the existing infrastructure is anticipated to meet demand for the next 10 to 20 years.

Air transportation in the Study Area is also projected to increase to 2031, with substantial increases in air cargo movements at HIA.

Similarly, the Port of Hamilton plans to develop and expand its container services, with future projections of 200-300 TEU (twenty-foot equivalent units) in and out per week.

This growth in air and marine transportation services will result in increased automobile and truck traffic on the Study Area road network.

4. SUMMARY OF FUTURE TRANSPORTATION PROBLEMS

The overarching problem for the inter-regional transportation system in 2031 relates to the road network. Much of the higher order road system (i.e., highways and inter-regional roads) is expected to be heavily congested during peak periods and increasingly throughout the day. Road congestion in the summer is higher due to the overlay of tourism and recreation travel. The fact that every mode connects to and relies on the road network creates significant issues for the efficient movement of people and goods in the future.

Transportation in the NGTA Study Area in 2031 can be considered in the context of three sub-areas with differing geographic, land use and transportation system characteristics:

West – Region of Halton

Halton Region includes Highway 401 and the QEW, both of which carry high volumes of traffic and are expected to experience major congestion in 2031. The 407 ETR by contrast is forecast to experience only minor congestion through Halton Region.

Inter-regional transit service is provided by GO Transit's Lakeshore West Rail corridor. The Metrolinx RTP includes planned electrification of the Lakeshore West corridor to improve frequency and speed of service. The RTP also identifies Bus Rapid Transit service along the 407 ETR, Dundas Street and Trafalgar Road.

Halton Region represents an area of both transportation problems and opportunities, with major congestion along the area highways constraining commuter travel and trucking transport – a major concern for economic growth and prosperity.

Central – City of Hamilton

Future congestion is expected to be heavy on the Hamilton area highways. Highway 403 and the QEW are anticipated to experience major congestion throughout the day, particularly across the Burlington Skyway. Highway 6, which provides a lower capacity link to Guelph, is forecast to experience moderate congestion, increasing in summer months.

Higher order inter-regional transit currently operates along the Lakeshore West corridor and the Metrolinx RTP includes plans for extensions and expansions of rapid transit into Hamilton and to HIA.

The Hamilton area is characterized by good highway accessibility and transit connections along the lake, and important air and marine transportation features at HIA and the Port of Hamilton. However, there is a lack of adequate higher order connections to HIA and the Port of Hamilton, and highway capacity to the GTA and east to Niagara and the U.S.

East – Niagara Region

The QEW is the main highway route through Niagara Region, running along Lake Ontario to the U.S. border. Congestion on the QEW is expected to be heavy from Hamilton to St. Catharines, with reasonable operations easterly toward the U.S. border. Highways 405 and 420 provide connections from the border to the QEW, with increasing congestion on approaches to the QEW. Major alternate roadways connecting Hamilton and the GTA to the U.S. border are limited. Tourism is particularly important to the economy of Niagara Region, and tourism travel places large demands on the transportation system, particularly during the summer months.

Transit connections to tourist destinations are limited, although there are planned GO Transit services into the region as part of the Metrolinx RTP and the GO Transit Strategic Plan, *GO 2020*. In addition, a summer weekend and holiday GO Rail service to Niagara recently commenced in June 2009, with plans to begin weekday GO Bus service in this corridor in September 2009.

The Welland Canal is an important component of the St. Lawrence Seaway in this part of the Study Area. Extending the Seaway operation to year round service has potential to increase the marine share for goods movement.

No future transportation issues were identified relating to the area's minor ports and airports as well as the national and short line rail corridors.

5. TRANSPORTATION PROBLEMS BY TRAVEL MARKETS AND MODES

5.1 Moving People – Commuter

The movement of people in the Study Area is predominantly comprised of trips for commuting and for tourism and recreation. Although these trips have different characteristics, many of the future transportation problems are similar. In general, the limited choice of alternate travel modes in the Study Area increases reliance on the automobile.

Transit

Inter-regional transit connections will remain limited in the Study Area, even with the implementation of the Metrolinx RTP. Transit services generally run along the lakeshore toward the GTA, with connections between the GTA, Hamilton and Niagara.

- Inter-regional transit connections linking communities and employment areas located away from the QEW lakeshore corridor are limited. Outside of the urban areas, transit connections are even more limited. There are also limited transit connections to other transportation modes in the Study Area. For example, the lack of transit service to HIA has been identified as a problem.

Other transit issues include the following:

- There is a lack of integration between local and inter-regional transit services, particularly beyond corridors served by GO Transit, in terms of physical connections, timetables and hours of service, fare structures and payment methods;
- Roadway congestion limits the efficiency of bus transit services, increases unreliability and travel times; and,
- The expansion of passenger and freight rail services within existing rail corridors creates potential for conflicts, particularly during peak commuting periods, as well as issues of scheduling and integration of rail services.

Automobile

The road transportation system is the main mode used for commuting in the Study Area, especially where trips are not served by a higher order transit alternative. As traffic volumes increase throughout the day, the traditional AM and PM peak commuting periods are becoming longer, resulting in highways such as the QEW through Halton being congested throughout much of the day.

- Major congestion issues are anticipated on the main highways throughout the Study Area, including:
 - QEW between Hamilton and Halton;
 - QEW through Hamilton and east to St Catharines;
 - Highway 403 from Ancaster through Hamilton and Halton; and,
 - The length of Highway 401 within the Study Area's boundary through Hamilton and Halton.
- The expected capacity shortfall will increase automobile travel times between the urban centres throughout the Study Area. Delays that occur due to collisions, inclement weather conditions, road maintenance and construction will contribute to congested conditions.
- With the exception of the 407 ETR through Halton Region, there is a lack of alternate higher order inter-regional routes to avoid congested conditions on the existing network.

5.2 Moving People – Tourism and Recreation

The problems for tourism and recreation travel occur throughout the year and are somewhat similar to those for commuter travel. Summer travel, when roadway congestion is greatest, is a particular issue for tourists.

Transit

While the recent introduction of seasonal weekend and holiday GO Rail and daily GO Bus services to Niagara will provide greater choice for tourists destined to this area from the GTA, the vast majority of tourism trips are forecast to continue to be by automobile, even with even with additional GO services to Niagara in the longer term. Further to this:

- There are inadequate transit connections between urban centres, tourist gateways such as HIA, and tourist destinations. Limited multi-modal connections are likely to increase car use even for those who travel to the Study Area by rail or air.
- Where publicly funded transit services are in place or planned, schedules tend to cater to commuters rather than tourists, with service focused on AM and PM commuting times and limited weekend services. There are private sector inter-city services to tourist destinations but they are limited in terms of geographic coverage and in their integration with GO Transit and municipal transit services.

Automobile

Tourism and recreation travel is of particular importance in the NGTA Corridor, as Toronto and the Niagara Region are major Ontario tourist destinations.

The problems for road-based tourism and recreation travel include congestion and increased travel times, limited travel routes and modal options. The automobile is the transportation mode of choice for more than 85% of visitors to the Study Area. Tourism

and recreation travellers also pass through the Study Area to destinations in Toronto, northern and eastern Ontario, and the U.S.

- For the most part, the Study Area's tourism and recreation destinations are connected to urban centres by the Highway 401 and the QEW that regularly experience major congestion and heavy truck volumes. These trips through the Study Area are more likely to be oriented to the summer season.
- There are inadequate connections between tourist gateways (e.g., airports) and tourist destinations.
- There are limited options for by-passing road congestion, which can cause inter-regional travellers to move onto regional and local roads.
- High volumes of trucks on the major highway corridors can be a deterrent to tourist travel, especially during the summer months.

5.3 Goods Movement

The Study Area includes road, rail, air and marine facilities for goods movement. Multi-modal movement of goods and inter-modal connections are a critical element of the transportation system. Stakeholder consultation with rail, air and marine transportation operators in the Study Area revealed that there is capacity for future growth of goods movement by these individual modes. The collective issue for rail, air and marine transportation relates to the limitations associated with the inter-regional road network from the perspective of access and/or congestion.

Suppliers and distributors of goods generally decide how goods are shipped at the global, continental, and inter-regional scale. Certain goods are better suited to particular modes (i.e., truck for consumer goods, rail for bulk goods / containers). Goods shipment methods depend on type and character, origin and destination, travel distance, and urgency and reliability.



Generally, goods movement relies on the road system at least once during the delivery of a product.

Truck

The inter-regional road system is the primary distribution mode for goods movement in the area, shipping almost 70% of Canada-U.S. trade by value and 45% by tonnage. By 2031, commercial vehicle volumes in the Study Area will generally be concentrated on Highways 401, 403 and the QEW. By 2031, all of these road linkages are expected to experience major congestion throughout the day. While the problems for goods

movement by the inter-regional road system are largely similar to those for automobile commuters, they can result in significant economic impacts to shippers, distributors, local businesses and industries. These problems include:

- Increased congestion and travel times;
- Limited alternate route options;
- Insufficient road and inter-modal connections between urban centres, commercial centres and inter-modal facilities, such as HIA and the Port of Hamilton; and,
- Diversion of trucks to regional and local roads, which results in out-of-way travel with associated community, social, noise and safety concerns.

Rail

CN and CP operate mainline freight services through the NGTA Study Area. Rail inter-modal terminals are generally located to the north and east of the Corridor in Peel and York Regions. Rail services provide connections for goods movement in the Study Area, including inter-modal facilities with the Port of Hamilton. Much of the strong growth in rail and inter-modal goods movement has been driven by the growth in marine transport of containers.

- The key problems for rail transportation involve the lack of inter-modal connections to higher order roadways, as well as issues relating to congestion on the area road network.

Other problems include:

- Operational constraints on the rail network, including potential conflicts between rail-based transit and freight services during peak AM and PM commuting periods. As growth in both freight and passenger traffic occurs on existing shared infrastructure, these problems will increase. Limited connectivity of inter-modal facilities can increase the difficulty of moving goods by rail, and produce bottlenecks at the trucking interface.

Air

HIA is the main air transportation hub in the NGTA Corridor. The role of HIA has been growing to serve expanding regional freight and passenger markets, and air cargo movements are anticipated to grow substantially by 2031. The key problems for air transportation in the Study Area relate to direct connections to higher order roadway and transit systems.

- Connections between HIA, the Port of Hamilton and the QEW are currently facilitated by lower order (i.e. municipal) and constrained capacity roads and this will become a problem for the airport as growth occurs. The lack of rail connections directly serving the airport and the planned Airport Employment Growth District (AEGD) may also constrain the growth of this economic hub.

Marine

The Port of Hamilton and the Welland Canal are two significant features of the Great Lakes St. Lawrence Seaway System.

- Area roadway congestion and bottlenecks at locations that interface with rail / trucking are serious limiting factors for the use of marine transportation in the NGTA Study Area.
- The Port of Hamilton plans to expand container shipping operations, which has the potential to keep goods on ships for longer portions of their journey from the Atlantic Ocean but would contribute to increased roadway congestion in the vicinity of the Port and to the QEW as containers are transferred to trucks for delivery.
- Goods movement by marine transportation is somewhat constrained by the vessel size limitations of the St. Lawrence Seaway and its closure during the winter period.

5.4 Transportation Problems on the Inter-Regional Road Network

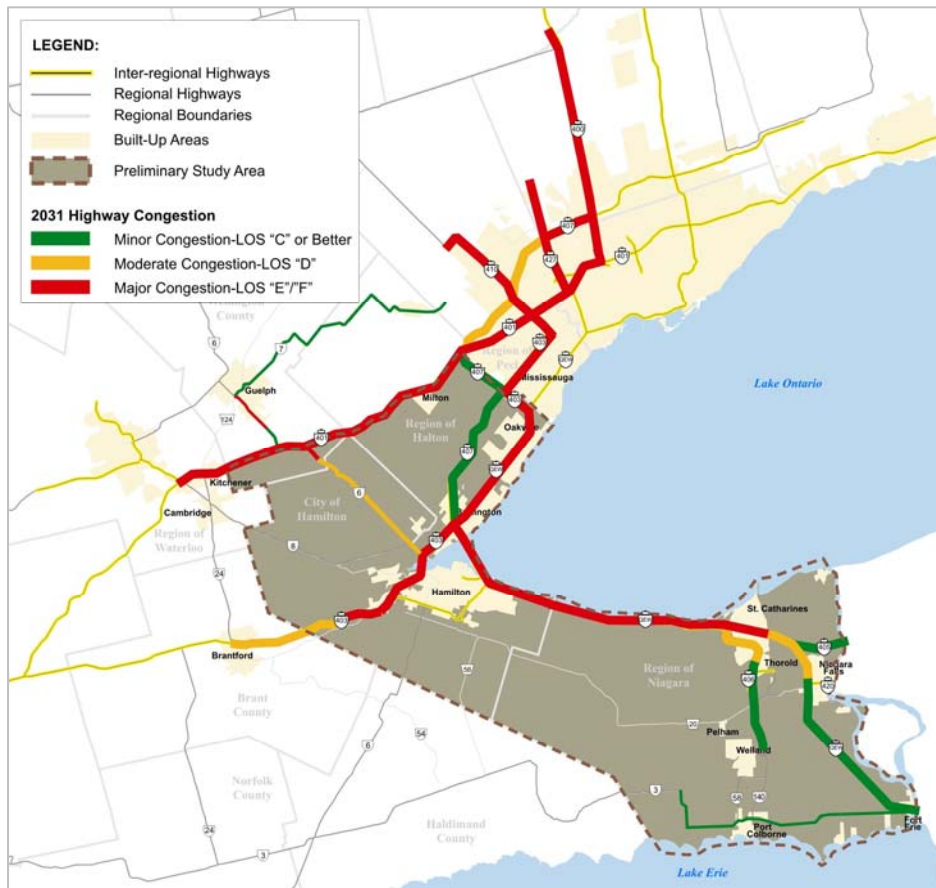
A quantitative analysis of capacity deficiencies for major highway corridors was undertaken based on the future travel demands in relation to future capacity, considering the planned improvements to the transportation network, including transit improvements as set out in the Metrolinx and GO Transit and municipal plans.

The QEW and Highways 401 and 403 are expected to experience major congestion throughout the day by 2031. Typical AADT congestion on the QEW is anticipated to be lower east of St. Catharines and beyond toward the U.S. border. Highways 405 and 406 are expected to experience minor to moderate congestion. The 407 ETR is forecast to experience minor congestion between Highway 401, Highway 403/QEW Burlington and Highway 403/QEW Oakville.

In the Study Area, 2031 SADT conditions are anticipated to be more congested than AADT conditions, with major congestion on the QEW extending east to Highway 420 at Niagara Falls, and major congestion along Highway 6 between Hamilton and Guelph. This is of particular significance for the NGTA Corridor, where tourism and recreation travel is an important market.

Exhibit 1 highlights the substantial AADT daily congestion forecast for 2031, even with the planned provincial and municipal road network and transit improvements.

Exhibit 1 – 2031 Weekday (AADT) Inter-regional Congestion Levels



Source: GGH Model, October 2008

5.5 Community, Environment and Economic Effects

The transportation problems associated with the inter-regional movement of people and goods have broader implications for the implementation of provincial policies relating to the community, environment and economy.

Community

- Increased costs for moving goods are passed on to consumers.
- Longer travel times result in reduced quality of life for commuters and lower quality trip experiences (tourists).
- Safety issues are intensified on congested roads.
- Trucks, commuters and tourists resort to using local roads to avoid congestion.
- Strong relationship between community land use planning and transit availability.

Environment

- Congestion increases air and noise emissions and fuel consumption.

Economic

- Congestion reduces economic competitiveness and influences where businesses locate.
- Productivity is lost through extended travel time.
- Effectiveness of inter-modal travel is impacted.
- Tourist expenditures are reduced.

6. FUTURE TRANSPORTATION OPPORTUNITIES

In addition to identifying the transportation problems, an equally important aspect of this study is the identification of transportation opportunities. The ability of this study to address the transportation problems and to capitalize on the significant opportunities to provide an efficient and reliable transportation system will be a key measure of success.

In the context of this study, “transportation opportunities” refers to the “big picture” strategic benefits of an efficient transportation system. These opportunities within the NGTA Study Area are summarized as follows:

1. Support Future Municipal Land Use Planning in Accordance with the Growth Plan

The opportunity exists to co-ordinate multi-modal transportation planning with municipal land use planning to support municipal growth aspirations which conform to the requirements of the Growth Plan, while at the same time accommodating both the local and inter-regional future travel demands. This would include:

- Co-ordinating with municipal land use planning by developing a corridor protection strategy that calls on both the province and municipalities to work collaboratively to keep all reasonable options open while the EA is underway;
- Co-ordinating with the Region of Niagara to support its “Grow South” plan. Given the strong relationship between transportation and land use, transportation improvements on the south side of the Niagara Escarpment could encourage growth south of the Niagara Escarpment and relieve development pressures on the tender fruit and grape lands north of the Niagara Escarpment;
- Working with the Region of Niagara to support their plans for development of the Niagara Gateway Economic Zone and Gateway Economic Centre in developing the transportation alternatives;
- Co-ordinating with the City of Hamilton during the development of transportation alternatives, particularly regarding plans to develop the lands around HIA as an Airport Employment Growth District; and,
- Co-ordinating with the Region of Halton during the development of the transportation alternatives as the region identifies a recommended land use option.

2. Maintain the Character and Integrity of Rural and Agricultural Lands

There is an opportunity to avoid or minimize potential impacts to rural and archaeological/heritage areas, as well as Niagara's prime agricultural areas such as the tender fruit and grape lands. This would include:

- Co-ordinating with municipal land use planning throughout the Growth Plan conformity exercise that will focus population and employment growth in Urban Growth Centres, Built Up Areas, and Designated Greenfield Areas, thereby serving to preserve key agricultural lands; and,
- Having due regard for the preservation principles embedded in various policy documents, including the Greenbelt Act and Plan and the Niagara Escarpment Plan.

3. Provide Transportation Choice, Improved Connections and Increased Reliability for Commuters

The opportunity exists to build upon the Metrolinx RTP and GO Transit's Strategic Plan, *GO 2020*, to provide a robust transportation system that offers commuters real alternatives to the automobile travel throughout the NGTA Study Area. This would include:

- Providing improved transportation services for commuters in the Hamilton/Halton area, including improved connections between local and inter-regional transit;
- Providing additional transit services for commuters in the Niagara Region;
- Enabling commuter choice, convenience and flexibility in making travel decisions during weekday morning and afternoon peak periods; and,
- Facilitating healthier lifestyles by incorporating active transportation considerations into the development of the transportation alternatives (e.g., bicycle storage facilities at transit terminals and aboard transit vehicles).

4. Provide Transportation Choice, Improved Connections and Increased Reliability for Goods Movement

While trucks will continue to play an integral role in moving goods throughout and beyond the Study Area, there is an opportunity to encourage increased utilization of other modes of travel for goods movement, including rail, marine and air, as well as to provide better connections between these modes. This would include:

- Improving connections from HIA and the Port of Hamilton to the existing highway and rail system, as well as to related clusters of logistics uses within the Study Area, thereby taking advantage of Hamilton's unique location; and,
- Improving connections between the Niagara border crossings and the Niagara Economic Gateway Centre and Zone, and HIA, the Port of Hamilton and the GTA to foster economic growth.

In summary, a more balanced utilization of available transportation modes, coupled with better interconnection between the modes and international gateways, will serve

to enhance the level of trade within the NGTA Study Area, and by extension, the economic competitiveness of the province of Ontario.

5. Provide Improved Transportation Service for Tourists

There is an opportunity to enhance the growth of tourist trips and the overall travel experience to the Niagara Region. This would include:

- Providing improved connections and greater modal choice for tourists arriving at gateways such as HIA and the U.S. border;
- Improving connections to local transportation services at tourist destinations;
- Facilitating active transportation through provision of bicycle storage and promotion of other forms of active transportation in these services; and,
- Improving transportation system operations to enhance tourism and recreational trip experience.

6. Optimize Existing Transportation Infrastructure

There are opportunities to use Transportation Demand Management (TDM) and Transportation Systems Management (TSM) strategies to reduce/shift trip making and automobile usage while optimizing use of the existing system. This would include:

- Considering TDM strategies such as HOV lanes and carpool lots along QEW, Highway 403, etc. to encourage increased vehicle occupancy;
- Considering TSM strategies to achieve greater reliability and enable improved decision making and distribution of travel (e.g., Intelligent Transportation Systems (ITS) use of changeable message signs, highway cameras, and “real time” adaptive transportation systems to provide “real time” information on traffic conditions);
- Considering other strategies such as speed harmonization, high occupancy toll lanes and road pricing, to optimize the existing transportation infrastructure; and,
- Considering upgrades to at-grade rail-to-rail and road-to-rail crossings, which serve as operational constraints within the transportation system, to improve travel flows and safety.

7. Minimize Impacts to the Natural, Social, Economic and Cultural Environments to the Extent Possible

There is an opportunity to minimize, and potentially avoid, impacts to important natural, social, economic and cultural features at the earliest planning stages. This can be done through planning that optimizes the use of existing infrastructure, and gives due regard to the requirements of approved provincial environmental protection policies, heritage resources and First Nations lands when developing, assessing and evaluating all reasonable transportation alternatives.

7. NEXT STEPS

The purpose of this report is to summarize the process and methodology that was used to identify transportation problems and opportunities, and to document the key findings of this work. The identified transportation problems and opportunities will serve as the basis for generating and evaluating transportation alternatives in the next stage of this study.