

Niagara to GTA Corridor Planning and Environmental Assessment Study

APPENDIX B: Assessment of Multi-Modal Alternatives *Draft for Consultation*

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B. Assessment of Multi-Modal Alternatives

Chapter 3 of the Area Transportation System Alternatives Report provides an overview of the second stage of the process for generating and assessing the Area Transportation Alternatives that was discussed in Section 1.6 of the main report.

A number of alternatives were identified by the study team, stakeholders and the public to address the transportation problems and opportunities in the study area as part of the first stage of the process (refer to **Chapter 2**). These include policies, programs, operational changes, and new infrastructure and inter-modal connections. **Table B-1** of this appendix describes each alternative and the study team's assessment as to whether it is able to substantively contribute to addressing the transportation problems and opportunities in the study area. The table further categorizes each of the alternatives that are considered able to substantively contribute on the basis of whether the alternative will be pursued as part of this study, or should be pursued as part of a separate study or initiative.

Table B-1: Description and Categorization of Multi-Modal Alternatives

Transportation Alternative	Potential to Substantively Contribute to Addressing the Identified Transportation Problems & Opportunities	Should be Further Considered as Part of the NGTA Study	Should be Pursued as Part of Separate Study / Initiative	Rationale
TRANSPORTATION DEMAND MANAGEMENT (TDM) / TRANSPORTATION SYSTEMS MANAGEMENT (TSM)				
GROUP #1	1. Overhaul and expedite incident clearance.	✓	✓	This would help to minimize the duration of lane closures and the effects of “shock waves” on corridors.
	2. Implement provincially coordinated employer-led TDM initiatives.	✓	✓	This would provide a broader regional network of transportation management associations (TMAs) that may result in improve efficiencies and increased exposure / utilization.
	3. Provide frequent updates on traffic conditions and alternate routes through a variety of media such as driver info on PDAs, expanded FTMS, improved signing with info about other corridors, etc.	✓	✓	Provide real time information to motorists, so motorists could plan their route in advance or take an appropriate alternative route, if needed.
	4. Implement ramp metering on QEW for the Niagara-Halton section.	✓	✓	This would help to extend the benefits of ramp metering to beyond the Mississauga section and regulate the flow of the on-ramp traffic and improve the overall traffic flow on QEW.
	5. Implement contra-flow lanes and moveable barriers to accommodate peak flows at critical locations such as QEW Hamilton / Halton, Burlington Skyway, etc.	✓	✓	This could improve the usage of existing facilities, and may be considered depending on feasibility of implementation.
	6. Implement variable posted speeds on congested highways - speed harmonization.	✓	✓	The use of variable posted speeds is intended to slow traffic in advance of the end of queue or slowdown area in order to avoid stop-and-go conditions and enhance throughput capacity on a corridor. This strategy has proven to be successful in European countries such as Germany and Holland.
	7. Implement strong provincial TDM initiatives (e.g. telecommuting, living and working in same city, etc.) with incentives / penalties.	✓		✓ This has the potential to substantively address the transportation problems and opportunities but would require significant changes to existing policies and is not within the scope of this study.
	8. Allow the use of longer combination vehicles.	✓	✓	This has the potential to substantively address the transportation problems and opportunities and the Ministry of Transportation is exploring this concept, and has initiated a pilot project to allow up to 100 Longer Combination Vehicles (LCVs) on the provincial highway network.
	9. Encourage the integration of pedestrian / bicycle connections along right-of-way of new or existing corridors.		✓	This will address localized problems, but it will not address inter-regional travel demand. However, provisions for cyclists and other modes of active transportation are recommended at transit stations and to improve local interconnections with other modes.
	10. Optimize efficiency for signalization (e.g. loop detectors) to better allocate the green time for each of the movements at intersections.			This is a local solution and it would not resolve the inter-regional transportation issues.
	11. Provide improvements at intersections to enhance overall throughput capacity.			This would ease localized capacity issues at intersections; however, it will not resolve the inter-regional transportation issues.
	12. Improve signal coordination of corridors in order to have synchronized signal timings and cycles between signalized intersections such that the through traffic would be unimpeded.			This is a local solution and it would not resolve the inter-regional transportation issues.
	13. Implement minor infrastructure improvements (e.g. fix curves, queue-jumps, weaves, speed change lanes) on corridors to enhance traffic operations and safety at isolated locations.			This is a local solution and it would not resolve the inter-regional transportation issues.

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14. Increase car ownership fees significantly but rebate for not using it during peaks across certain screenlines; thus reward is more effective than penalty (now being used in Holland).				This alternative is mainly to increase financial cost for peak hour driving – the policies to increase car ownership fees (e.g. taxes, increased gas prices, etc.) are major policy issues that are beyond the scope of this project.
15. Provide safety improvements for pedestrians / cyclists across transportation corridors to promote the use of alternative modes.			✓	MTO is currently reviewing the safety of pedestrians and cyclists across highway corridors and associated policies. There are also circumstances where pedestrian and cyclist safety could be addressed across municipal corridors, railways, canals and transportation facilities under the jurisdiction of other agencies.
16. Implement HOV lanes with carpool lots at all interchanges for 400-series freeways and key highways to promote and encourage motorists to car-pool and reduce the number of single occupancy vehicles.	✓		✓	This is already being addressed via MTO's <i>High Occupancy Vehicle Lane Network Plan</i> for provincial highways and freeways.
17. Implement new / higher road tolls to reduce road demand. Increase financial cost for peak hour driving to shift people to transit, off-peak hours, carpools, etc. Tolls could vary according to vehicle occupancy and time of day.	✓		✓	Tolling is an implementation issue, and will be explored during later stages of the study for potential new transportation corridors.
18. Coordinate land use planning with provincial highways to minimize length of trips (i.e. work to home / shops).	✓	✓		This represents an objective of this study that is already being pursued.
19. Planning policies to create nodal (mixed use) developments to minimize the need of external commuter trips.	✓	✓		This represents an objective of <i>The Growth Plan</i> that is being pursued by the government of Ontario and local municipalities.
20. Optimize or repatriate the use of Highway 407 and remove tolls	✓		✓	This may contribute to addressing the transportation problem statement, but will require changes to provincial policies. Metrolinx (including GO Transit) is planning a transitway within the Highway 407 corridor.
21. Implement a carbon tax to reduce auto use.				This would require a policy change that is beyond the scope of this study.
22. Implement a GPS-based truck monitoring and tolling system.	✓		✓	Tolling is an implementation issue, and will be explored during later stages of the study.
23. Reduce restrictions on truck loads (i.e. allow heavier trucks).				This would result in significant pavement maintenance issues and is not considered practical.
24. Create new broad-band centres to facilitate telecommuting thereby effecting reduction in the number of vehicular trips.			✓	This would help promote teleworking and reduce demand on existing systems, but is beyond the terms of reference of this study.
25. Use shoulders as truck lanes during peak hours to allow truck vehicles to bypass queues and minimize delays.	✓		✓	This has the potential to substantively address the transportation problems and opportunities but is not anticipated to be operationally desirable, as it would require changing driver expectations and ultimately would result in pavement maintenance issues.
26. Implement the mandatory use of winter tires to improve winter transportation safety.				This may improve winter transportation safety; however, it would not significantly resolve the inter-regional transportation issues.
27. Improve enforcement of HOV lanes.				This is not expected to significantly address the problems and opportunities, but could provide a local solution and may be pursued as a system enhancement.
28. Require trucks to use speed limiters.			✓	This has been implemented by MTO for most large trucks driven in Ontario.

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	29. Implement efficient grid truck routes.				This is a local solution and is not expected to substantively contribute to addressing the study area's inter-regional transportation problems and opportunities.
	30. Consider innovative ways to reduce emissions through vehicle technologies.				This is beyond the terms of reference of this study.
	31. Provide regular and more frequent road maintenance.				As strict regulations and contract requirements are already in place, this is not expected to substantively contribute to addressing the study area's inter-regional transportation problems and opportunities.
	32. Implement tolls on all 400-series highways.	✓		✓	This has the potential to address some of the transportation problems but tolling existing facilities is beyond the scope of this study.
	33. Reduce the number of lanes to discourage auto use. <i>* This alternative also applies to Roads and Highways.</i>				This will not address future travel demands.
GROUP #2	34. Consider multi-purpose use of existing and future corridors such as parallel transitway and motorways.	✓	✓		This alternative may serve to increase transit capacity where warranted by demand, with minimal land requirements.
TRANSIT					
GROUP #1	35. Improve access to transit services through the use of direct Reserved Bus Lanes / High Occupancy Vehicle (HOV) ramps into transit parking lots.	✓	✓		This may serve to improve convenience and accessibility to transit stations and may therefore promote increased transit ridership.
	36. Encourage improved integration of municipal and inter-regional transit services by promoting the use of major inter-regional transit stations by municipal transit services and coordinating municipal and GO Transit schedules. <i>* This alternative also applies to TDM / TSM.</i>	✓	✓		This may facilitate improved transfers between inter-regional and municipal transit systems and may serve to promote increased transit ridership.
	37. Incorporate active transportation at transit stations and on transit vehicles through the use of bike racks on transit vehicles, lockers at transit stations, etc.	✓	✓		This may make transit service more accessible to travellers utilizing active transportation. As such, this may promote increased transit ridership and contribute to healthier communities.
	38. Incorporate bus bypass shoulders on existing provincial facilities that enable transit vehicles to bypass queues during peak periods. <i>*This alternative also applies to TDM / TSM and Roads and Highways.</i>	✓	✓		This would help to enhance reliability and efficiency of bus-based transit services and may promote increased transit ridership.
	39. Improve coordination between modes (i.e. regional transit structure which could support regional and municipal transit, fare cards, etc.).	✓		✓	This would promote a seamless and integrated transit service which may promote increased transit ridership. These types of strategies are being pursued as part of the <i>Regional Transportation Plan</i> .
40. Provide more express trains on existing GO Transit corridors. <i>* This alternative also applies to TDM / TSM.</i>	✓		✓	This concept is currently being considered by Metrolinx (including GO Transit).	

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41. Provide incentives or regulations to have rail companies give preference to passenger rail traffic during peak commuter periods where rail lines cross at-grade. <i>* This alternative also applies to TDM / TSM and Freight Rail.</i>	✓		✓	Class I rail companies make decisions on how tracks are utilized, and would adopt this approach provided it makes sense from a business perspective. The province does not have jurisdiction over the rail companies, and therefore could not mandate this. However, consideration could be given for GO to purchase rail corridors that are critical for its rail operations. There is a proposal to have CN freight move off the northern CN line to Niagara to free up the Niagara line exclusively for passengers. This is also an opportunity to improve local traffic issues in Niagara Falls.
42. Provide all day, 7-day a week GO Rail service to Niagara Falls, St. Catharines, and Fort Erie from Hamilton / Burlington. <i>* This alternative also applies to TDM / TSM.</i>	✓		✓	This concept is currently being considered by Metrolinx (including GO Transit).
43. Provide support for private, small-scale local transit providers through funding and / or policy changes.				This is more of a local solution, and would not significantly reduce inter-regional transportation demands on the highway network.
44. Provide electrified passenger rail service along key transit corridors.	✓		✓	This concept is currently being considered by Metrolinx (including GO Transit).
45. Make transit travel more affordable and convenient than car travel through the provision of integrated, online fare and information system in real time, parking management, etc. <i>* This alternative also applies to TDM / TSM.</i>	✓		✓	This concept is currently being considered by Metrolinx (including GO Transit).
46. Optimize the use of the commuter rail system through the use of longer trains, comprising of 12 cars for example. <i>* This alternative also applies to TDM / TSM.</i>	✓		✓	Service requirements are determined by GO Transit. Maximum train lengths are established and limited by existing platform lengths. However, this could be considered by Metrolinx (including GO Transit).
47. Optimize use of inter-regional bus services through better integration with GO Transit services.	✓	✓		This would help to enhance reliability and efficiency of bus-based transit services and may promote increased transit ridership.
48. Consider multi-purpose use of existing and future corridors such as parallel transitway and motorways <i>* This alternative also applies to TDM / TSM and Roads and Highways.</i>	✓	✓		This alternative may serve to increase transit capacity where warranted by demand, with minimal land requirements.
49. Implement Reserved Bus Lanes along the QEW, Highway 401, Highway 403, Highway 407, and future corridors between Burlington to Niagara. <i>* This alternative also applies to TDM / TSM and Roads and Highways.</i>	✓	✓		This would serve to increase transit capacity and may promote increased transit ridership with minimal land requirements.
50. Implement transit hubs at major urban centres for bus / rail. <i>* This alternative also applies to Freight Rail.</i>	✓	✓		This would promote a seamless and integrated transit service which may promote transit ridership.

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51. Connect radial GO services by providing high quality inter-suburb links between existing GO service lines.	✓	✓		This would improve the existing service network which may promote transit ridership.
52. Create mobility hubs in urban growth centres such as Burlington, Hamilton, St. Catharines, and Niagara Falls that would provide inter-regional transit service to neighbouring communities.	✓	✓		This would promote transit ridership to, from and between these communities and encourage self-containment in these communities.
53. Expand rail infrastructure at constraint points such as the section of the GO Lakeshore corridor between Hamilton and Aldershot. Expanding infrastructure at key choke points could provide opportunities for future growth of freight and passenger travel on shared rail corridors, accommodating the planned significant increase in passenger transit without limiting future rail freight services. Addressing network bottlenecks can improve the capacity of an entire corridor. <i>* This alternative also applies to Transit and Freight Rail.</i>	✓		✓	Freight rail companies have indicated that they have adequate capacity to accommodate existing and future travel demands of people and goods. They will consider expansion of single track sections as warranted.
54. Provide premium GO Transit ferry service between major urban centres such as Hamilton, Halton and Toronto. A fast ferry service could connect locations such as St. Catharines, Port Dalhousie or Jordan Harbour to Oakville or downtown Toronto. Such a service could reduce automobile trips on the QEW in particular and increase the use of marine transportation for people movement. <i>* This alternative also applies to Marine</i>			✓	Although this is not expected to substantively contribute to addressing the study area's inter-regional transportation problems and opportunities, such a service could be a system enhancement, for commuter tourism and recreational travel. Further study will be required to determine the potential of future passenger ferry services.
55. Implement combined QEW BRT integrated system beyond study boundary to downtown Toronto. <i>* This alternative also applies to Roads and Highways.</i>	✓		✓	This is beyond the jurisdiction of this study, but may be considered in future studies. One of the goals of Metrolinx (including GO Transit) is to develop a comprehensive, interconnected, rapid transit network.
56. Implement high speed rail , with connections to the proposed Buffalo to NYC high speed rail.	✓		✓	Subject to findings of Windsor-Quebec Continental Gateway Study and the US high speed system, it may be examined further.
57. Implement Bus Rapid Transit (BRT) ring roads along the Red Hill Valley Parkway, the Lincoln Alexander Parkway, Highway 403 and the QEW. <i>* This alternative also applies to Roads and Highways.</i>				This is not anticipated to significantly address inter-regional travel characteristics.
58. Provide an inter-regional transit line to Brantford with a Dundas and RR52 stop, or near a future potential NGTA corridor. <i>* This alternative also applies to TDM / TSM.</i>	✓	✓		This would promote a seamless and integrated transit service which may promote transit ridership. It could be considered as system enhancements to be pursued by others.
59. Investigate the feasibility of rail passenger service linking major urban centres , such as Cambridge, Guelph, Milton, Hamilton and Brantford. <i>* This alternative also applies to TDM / TSM.</i>	✓	✓		This has the potential to provide improved inter-connectivity between the urban growth centres of Cambridge, Guelph, Milton, Hamilton and Brantford.

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60. Provide passenger rail service using Rail Diesel Cars (RDCs – self-propelled rolling stock, also known as Budd cars or Diesel Multiple Units (DMUs)) on rail links between less populated urban centres. <i>* This alternative also applies to TDM / TSM.</i>			✓	This would promote a seamless and integrated transit service which may promote transit ridership, but it would not significantly reduce inter-regional travel demand. It could be considered as system enhancements to be pursued by others.	
FREIGHT RAIL					
GROUP #1	61. National Policy Targets for Modal Shift onto Rail / Marine: For goods movement, such an initiative could result in programs and practices to transfer some shipments onto rail. Government mode shift targets would need to be accompanied by action plans to assist shippers and transportation service providers to achieve modal shift. Appropriate targets and timescales would need to be identified, as well as an implementation strategy. Other regulations and policies would be affected. <i>* This alternative also applies to TDM/TSM, Marine and Freight Inter-Modal.</i>	✓		✓	This is beyond the scope of this study: recommended for consideration or further study by provincial and / or federal authorities. Ontario's current policy is to let the private marketplace determine modal choice. Shippers generally use the most convenient and cost effective mode for transporting good within the policy framework.
	62. Changes to Rail Grade Separation Regulations: It is considered that future growth on the rail network would benefit from changes to the regulations surrounding rail grade separations, such that the system is protected for potential expansion of the rail network at costs that are not prohibitive to the railways. Such a change would be required at the national level.	✓		✓	This is beyond the scope of this study: recommended for consideration or further study by provincial and / or federal authorities
	63. Standardize Rail Car / Container Carrying Requirements across Jurisdictions: A harmonized protocol for goods inspection procedures across North America would benefit goods movements between Canada and the US through the study area, and could allow containers to be sealed at their point of origin on the continent and eliminate the need for customs checks at border crossings. The lack of a standardized system increases handling of containers and thereby increases inefficiencies and costs. This alternative will have security implications.	✓		✓	This is beyond the scope of this study: recommended for consideration or further study by provincial and / or federal authorities
	64. Coordinate with New Freight Inter-modal Terminal in Milton: The coordination of area land uses and transportation infrastructure with CN's long range plans for a new freight inter-modal facility in Milton could maximize the potential of this facility to improve the efficiency of goods movement and the use of freight rail transportation in the study area. <i>* This alternative also applies to Freight Inter-Modal.</i>	✓		✓	CN has a long range plan for a freight inter-modal terminal in the Milton area, and no program dates have been identified. Planners in Milton and Halton Region are aware of this potential future facility and future land use and transportation planning is and should continue to take it into consideration.

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<p>65. Grade Separate Road and Rail: A program of rail-road grade separations could improve the efficiency of rail travel and remove the uncertainty surrounding individual rail-road grade separations. Grade separations would need to be constructed with spans of the full rail corridor to allow unconstrained expansion as required in the future.</p> <p><i>* This alternative also applies to Roads and Highways.</i></p>			✓	<p>Although this is not expected to have a significant effect in terms of addressing the study area's inter-regional transportation problems and opportunities, it could improve the efficiency and competitiveness of rail transportation.</p>
<p>66. Work with Municipalities to Develop Logistics Hubs near Airports, Ports, Rail Yards, and / or Industrial Parks: By developing logistics hubs near transportation infrastructure, better use could be made of rail transportation as rail yards would be in close proximity to important locations for commerce and industry. Minimizing the distance between employment lands and transportation infrastructure could result in shorter trip lengths and potentially increased use of rail transportation.</p> <p><i>* This alternative also applies to Marine, Air, Freight Inter-Modal and TDM / TSM.</i></p>	✓	✓	✓	<p>This is being pursued by the <i>Assessment of Access to Inter-modal Facilities</i> research report. Many of Canada's key logistics hubs are located in the vicinity of the NGTA Corridor. One of this report's objectives is identification of roads where access to the facilities within these hubs could be improved. The findings of this work would be reviewed as part of the NGTA study.</p>
<p>67. Construct Dedicated Tracks for Passenger Rail: Although capacity is not currently an issue for freight rail transportation, the significant growth planned for passenger rail could conflict with future freight rail growth. New, dedicated passenger rail tracks could reduce conflicts with freight movements and allow for substantial growth of both passenger and freight rail. There are two options for dedicated passenger rail: within the existing rail corridor and within a new corridor separate from the freight rail network. Construction of dedicated passenger tracks on a new corridor would involve increased independence, but with increased complexity and cost implications.</p> <p><i>* This alternative also applies to Transit.</i></p>	✓		✓	<p>This could be considered as a strategy in GO Transit's <i>GO 2020 strategic plan</i>.</p>
<p>68. Rail Link to HIA / AEGD: As cargo movements grow at HIA and the planned Airport Employment Growth District (AEGD), a direct rail connection could further enable large volumes of goods transshipments between HIA / AEGD, the Port of Hamilton and beyond. A direct rail connection would provide additional transportation capacity for goods movement, provide choice and could improve efficiency for some types of goods movements to HIA / AEGD. A potential connection to the existing rail corridor could be considered at Copetown or Caledonia, northwest and south of the airport, respectively.</p> <p><i>* This alternative also applies to Air and Freight Inter-Modal.</i></p>			✓	<p>Although this is not expected to substantively contribute to addressing the study area's inter-regional transportation problems and opportunities, it could address other land use and economic objectives. Further study will be required and this could be recommended for consideration as planning for the AEGD progresses.</p>

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MARINE					
GROUP #1	<p>69. Improved Coordination between GTHA Port Authorities: Improved coordination between the Toronto, Hamilton and Oshawa Port Authorities could improve the distribution of goods throughout the GGH, resulting in optimized use of area marine and connecting transportation infrastructure. Such an initiative is expected to require significant organizational and policy changes.</p> <p><i>* This alternative also applies to Freight Inter-modal and TDM / TSM.</i></p>	✓		✓	The potential advantages and disadvantages of improved port coordination are outside the scope of this study.
	<p>70. Changes to Advance Notification Rules at Canada-US Border: Such changes could affect cross-border and cross-lake shipments, including Hamilton-Oswego, NY. Amendments to put marine notice periods more in line with those for other modes could reduce a disincentive to marine transportation and potentially make some cross-border services more practical and viable.</p>	✓		✓	This is beyond the scope of this study: recommended for consideration by federal authorities.
	<p>71. Changes to Canadian Cabotage Laws: The decrease or removal of the 25% tariff on imported vessels would remove a constraint to the import of foreign vessels and potentially increase marine transportation's competitiveness for goods movement, allowing equipment to be in place for new and expanded services.</p>	✓		✓	This is beyond the scope of this study: recommended for consideration by federal authorities.
	<p>72. Changes to US Harbor Maintenance Tax: The decrease or removal of the 0.125% tax on the value of goods shipped to / from the US could affect cross-border and cross-lake shipments, including potential Hamilton-Oswego, NY services. Such amendments could reduce a disincentive to marine transportation compared to other modes and potentially make some cross-border services more practical and viable.</p>	✓		✓	This is beyond the scope of this study: recommended for consideration by federal authorities.
	<p>73. Changes to Ballast Water Regulations: Changes such that ballast water regulations were more uniform across the US states and include additional stakeholder consultation could minimize the impacts of such regulations on Great Lakes and St. Lawrence Seaway marine transportation.</p>	✓		✓	This is beyond the scope of this study: recommended for consideration by federal authorities.
	<p>74. Formal Distribution Network to / from Montreal: This initiative would be similar to the Port Inland Distribution Network initiative at the Port of New York / New Jersey. High level organization of shipments between the GGH and Montreal could result in better use of the marine transportation system and the removal of a number of trucks off of the road network.</p>	✓		✓	This is being pursued by others: the Port of Hamilton is currently implementing ferry feeder services to / from the Port of Montreal (referred to as the Sea3 program).

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<p>75. Year-Round Operation of St. Lawrence Seaway: The winter closure may limit the potential for marine transportation in the GGH, although the system users have worked around this constraint to date. Year-round opening might allow the Port of Hamilton to pursue new business, especially new container markets. The SLSMC does not support year round activity and supports the closure period for maintenance activities.</p> <p><i>* This alternative also applies to TDM / TSM.</i></p>				<p>Not expected to substantively contribute to addressing inter-regional transportation problems and opportunities. Year-round operations are not considered a realistic option by the SLSMC as downtime is needed for maintenance.</p>
<p>76. “Gateway” Organization to Promote / Support a Multi-Modal Goods Distribution “Port” in Hamilton: “Port”-type organizations exist in a number of locations throughout North America, essentially comprising inter-modal facilities, transportation corridors and warehousing, logistics and light industrial activities in close proximity. The development of such an organization in the vicinity of HIA and the Port of Hamilton could improve use of marine transportation and reduce some of the distances for goods movement connecting to the air transportation network.</p> <p><i>* This alternative also applies to Air, Freight Inter-Modal, and TDM / TSM.</i></p>	✓		✓	<p>Being pursued by others, as part of the <i>Sustainable Strategy for Developing Hamilton as a Gateway Study</i> led by MITL</p>
<p>77. Water Link from Ohio / Welland / Hamilton for Goods and Services: A service connecting Ohio and Hamilton via the Welland Canal would provide an additional option to truck movements across the Canada-US border. Such services could connect the industries in Ohio and Ontario, providing an alternative for bulk and heavy goods movements. It could also provide for passenger travel, including tourists.</p>			✓	<p>Although this is not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities, such a service could be a system enhancement, and there could be potential for services between Hamilton and Oswego. Further study will be required to determine the potential feasibility of such services.</p>
<p>78. Rebuild St. Lawrence Seaway to Accommodate Ocean Vessels: Currently, goods being transported to and from the study area via the Atlantic Ocean must access large ocean vessels at the Port of Montreal, as the locks on the St. Lawrence Seaway restrict vessel size. Increasing the size of the Seaway would enable large vessels to travel between the Atlantic Ocean and the study area, thereby keeping goods on marine transportation for a greater proportion of the journey.</p>				<p>Not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities, considering the magnitude of the undertaking in terms of complexity, impacts, and costs.</p>
<p>79. Ferry Services for Goods Movement by Truck: A shortsea shipping-type initiative could be implemented for trucks, with potential routes across Lake Erie and through the Welland Canal, and across Lake Ontario. Such an initiative would remove trucks from the roadway, potentially reduce future traffic congestion, and would use less fuel for transportation per weight shipped.</p>			✓	<p>Although this is not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities, ferry services are being investigated by others. Shipping decisions depend greatly on the type of good, and length or urgency of delivery trip. Some goods shipped by truck are not suitable for delivery via marine, given the dependency on “just-in-time” delivery and the increase in trip duration expected from moving trucks by ferry.</p>
<p>80. Link Ports in Lake Ontario to Ports in Lake Erie via Rail / Highway: Better connectivity between the ports in Lake Ontario and Lake Erie could enable increased use of the marine transportation network for goods movement over longer distances such as to the Port of Montreal, and thereby remove some truck trips from the network.</p> <p><i>* This alternative also applies to Freight Rail and Roads and Highways.</i></p>				<p>Not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities: this function is currently provided by the Welland Canal and it has capacity to accommodate future growth in goods and services shipments.</p>

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AIR					
GROUP #1	<p>81. Improvements to Airport “Free Trade Zone” Systems: It has been noted that the air cargo industry could benefit from the creation of true “free trade zones”, which would provide opportunities in handling and some value-adding activities with no tax burden. Such improvements could stimulate use of air transportation at Toronto Pearson International and other airports.</p>			✓	<p>Although this is not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities, it could address other land use and economic objectives. Further study is recommended by federal authorities.</p>
	<p>82. Improve Distribution of Cargo Shipments between Airports: Changes to the distribution of cargo shipments could improve ground transportation services and the use of existing infrastructure. Such a system could improve efficiency of door-to-door goods movements and remove some trucks from the road network. An organizational change and potentially policy changes would be required.</p> <p><i>*This alternative also applies to Freight Inter-Modal and TDM / TSM.</i></p>				<p>Not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities, as it would not necessarily significantly impact the amount or distribution of goods and passenger movements throughout the study area and would require significant organizational and policy changes.</p>
	<p>83. Provincial Ownership of Regional Airports: Provincial control of regional airports could help to improve the distribution of goods between airports and thereby efficiency of goods distribution by air to / from the study area. It could enable better coordination between airports and improved use of the connecting transportation infrastructure. Such an initiative is expected to require policy changes.</p>				<p>Not expected to substantively contribute to addressing the study area’s inter-regional transportation problems and opportunities, as it would not necessarily significantly impact the amount or distribution of goods and passenger movements throughout the study area and would require significant organizational and policy changes.</p>
GROUP #2	<p>84. Rapid Transit Connection between HIA and Downtown Hamilton: This alternative would introduce public transit services to HIA and to the AEGD as it develops. One connection would link HIA to downtown Hamilton and the GO Transit network, potentially at James Street GO Station. This would benefit airport passengers as well as employees of the airport and the AEGD. Further, by providing a non-car transportation service for passengers and employees, conditions on area roadways may improve for goods movement by truck to and from HIA. A bus or light rail (BRT or LRT) system could provide this service.</p> <p><i>* This alternative also applies to Transit.</i></p>	✓		✓	<p>This is identified in the RTP to address transportation issues between Hamilton, the HIA and the AEGD and was planned for implementation in September 2009.</p>
	<p>85. Rapid Transit Connection between HIA and Niagara Tourist Destinations: A transit connection could extend between HIA and the tourist destinations in the Niagara region, to the south. This would allow tourists traveling by plane to use public transit to access tourism and recreation destinations and provide an alternative to car travel. Such a service could also benefit airport-area employees and travel for other purposes between Hamilton and Niagara. BRT service would likely be most appropriate for this connection.</p> <p><i>* This alternative also applies to Transit.</i></p>	✓	✓		<p>To be pursued as potentially substantively contributing to addressing the study area’s inter-regional transportation problems and opportunities.</p>

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FREIGHT INTER-MODAL					
GROUP #1	86. Introduce Planning Policies to Promote Nodal (mixed use) Developments: Land use planning can be used to avoid conflicts with the operations of freight inter-modal facilities, such as not having residential land uses in close proximity to freight inter-modal facilities. To minimize such conflicts, better land use planning policies must be in place, especially for areas with future potential inter-modal facilities. Improved planning could also create opportunities for compatible land uses such as industrial and logistics, increasing business opportunities. <i>* This alternative also applies to TDM / TSM.</i>	✓		✓	This represents an objective of <i>The Growth Plan</i> that is being pursued by the Ontario government and local municipalities.
	87. Coordinate with New Inter-modal Terminal in Milton: The coordination of area land uses and transportation infrastructure with CN's long range plans for a new inter-modal facility in Milton.	✓		✓	Could maximize the potential of this facility to improve the efficiency of goods movement and the use of freight rail transportation in the study area.
GROUP #4	88. New freight inter-modal at QEW between Fort Erie and Welland along rail corridor with new highway. <i>* This alternative also applies to Roads and Highways.</i>				Would not be well utilized. An inter-modal facility was implemented in the Fort Erie area in the past, and was not successful.
ROADS AND HIGHWAYS					
GROUP #1	89. Eliminate poor interchanges along corridor.				This would be a core objective of future route planning or preliminary design studies.
	90. Upgrade Highway 52 from Highway 403 to Highway 5				Does not align with current / projected travel desire lines.
	91. Improved Loading / Routing Efficiency through Consolidation of Logistics: This alternative targets loading / routing efficiency by consolidating load brokering logistics, which could reduce the number of empty trucks making trips through coordination and incentives. Some existing logistics firms are already focusing on such a consolidation.			✓	Not expected to substantively contribute to addressing the study area's inter-regional transportation problems and opportunities. This could benefit trucking efficiency and localized truck movements, and is being pursued by logistics companies.
GROUP #3	92. Widen Highway 6 between Highway 403 and Highway 401	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
	93. Widen QEW through Halton and Hamilton with reconfiguration / improvements to Freeman interchange and widening of Skyway bridges	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
	94. Widen QEW from Hamilton to Niagara Falls	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
	95. Widen Highway 403 through Hamilton	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.

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<p>96. Widen Highway 6 between HIA and Highway 403. The Highway 6 airport expressway, opened in 2004, is a two-lane highway serving the airport's passenger and goods movements. It was built to accommodate a planned future expansion to a four-lane divided highway between Highway 403 and the Airport, when warranted. The ongoing implementation of the HIA Master Plan and development of the AEGD will require increased capacity to avoid congestion and efficiently move vehicles to and from the Airport.</p> <p><i>* This alternative also applies to Air.</i></p>	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
97. Widen Highway 3 through Niagara				Use of Highway 3 as an alternate route through Niagara is not considered practical, as the route would be too circuitous, and would not be well utilized.
98. Widen Regional Road 20 and other connecting roads to provide supplementary route only for emergency route diversion.				Would be difficult to designate as only an emergency route.
99. Widen QEW for truck lanes that transition to HOV lanes at different times to cater to different peaks - or regular lanes to keep trucks in right lane.				Not anticipated to be operationally desirable, as would require changing driver expectations throughout the day and week.
100. Widen sections of QEW as general purpose lanes at bottlenecks such as the skyways for truck climbing.				Widening specifically for truck climbing lanes is not warranted.
101. Widen Highway 5 / Dundas Street through Oakville over and above HOV.				A widening of Highway 5 through Oakville is not required based on forecasted travel demands. Adequate capacity can be provided by Highway 403 and 407.
102. Widen Highway 8 - Cambridge to Hamilton.				A widening of Highway 8 from Hamilton to Cambridge would not address the future travel demands between Niagara and GTA associated with this study.
103. Expand roads by placing new lanes on separate level.				May be considered during route planning stage, but generally not desirable given air quality, noise, aesthetic and cost issues.
104. Upgrade Highway 406 / 140 connection to Highway 3.	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
105. Improvements to Regional Road 20 / Silver St / Binbrook / White Church / to Highway 6 Corridor as bypass around Hamilton and access to airport.				These routes would not be considered appropriate as an alternate route for long-distance inter-regional travellers.
106. Convert QEW Niagara to a core / collector system, with core lanes for international traffic and collector lanes for local traffic.				The future travel demands on this section of QEW do not warrant separation of these traffic streams.
107. Grade separate Highway 6 between Highways 403 and 401 (south of Morriston, controlled access), bypass Morriston (connect Highway 6 North and Highway 6, avoiding Morriston) and upgrade to a controlled access facility.	✓	✓		This section of Highway 6 may require widening to address the inter-regional transportation problems and opportunities. This suggestion will be considered as part of the next phase of work.
108. Widen Highway 5 from Highway 8 to Highway 6.				A widening of Highway 5 between Highway 6 and Highway 8 is not required based on forecasted travel demands.
109. Place freeway in Townline Tunnel.			✓	May be considered during route planning stage if freeway solution is selected. Not pursued at this stage of the study.
110. Widen QEW through Hamilton - Burlington as toll lanes.	✓		✓	Tolling is an implementation issue, and will be explored during later stages of the study.

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111. Central peninsula highway to: Highway 401, Highway 403, Highway 6, and Highway 407	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
112. Hamilton bypass via new corridor or use of existing facilities such as the Lincoln Alexander Parkway or Red Hill Valley Parkway.	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
113. Extend Highway 406 south to NGTA new corridor as controlled access.	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
114. Twin Burlington Skyway Bridge - make Eastport continuous on both sides of the skyway.	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
115. Connect the Lincoln Alexander Parkway to upgraded Regional Road 20 through Niagara.	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.
116. Cross Hamilton Bay tunnel to industrial portland and possible Burlington Street upgrade.				A cross Hamilton Bay tunnel to industrial portland and Burlington Street is not required based on forecasted travel demands.
117. Cross-Lake Bridge - for both auto and transit.				Would be cost prohibitive and would not be significantly utilized given limited commuter / tourist demand and the large diversity in origins and destinations.
118. Upgrade Burlington Street to freeway in Hamilton and connect to Highway 403 and Portland multi-modal facility.	✓	✓		This alternative would explored during subsequent stages as a possible strategy for improving access from the provincial highway system to the Port of Hamilton.
119. Upgrade Centennial Parkway to a freeway link from QEW to east of Hamilton.				This would address local issues within the City of Hamilton, but would not address the inter-regional transportation problems that have been identified by this study.
120. New corridor connecting Highway 400 to the Niagara border via Milton.				This alternative extends beyond the study area for this study. It is possible that if the recommendation for both this study and the GTA West study is a new corridor, the combination of the two recommendations would represent something similar to "The Sweep".
121. Highway 3 link to NGTA corridor				Use of Highway 3 as an alternate route through Niagara is not considered practical, as the route would be too circuitous, and would not be well utilized.
122. Extend Red Hill Valley Parkway south to HIA and west to Highway 403.	✓	✓		This concept may be considered as part of an alternative for addressing congestion issues on the QEW in the vicinity of the City of Hamilton.
123. New Road Connections between the Port, HIA, and major area freeways. This alternative involves a new road connection between the Port of Hamilton, HIA and the major area freeways of the QEW and Highway 403. Such a connection would benefit cargo movements and access to the Port, HIA and the Airport Employment Growth District (AEGD) employment lands, which are planned to include substantial warehousing and logistics activities. An improved road connection for trucks would require a higher order roadway extension. An expressway potentially connecting the Red Hill Valley Parkway at the Lincoln Alexander Parkway past HIA to Highway 403 would improve area road connectivity and allow truck traffic to bypass regional and local roads within Hamilton. * This alternative also applies to Marine and Air.	✓	✓		To be pursued as potentially substantively contributing to addressing the study area's inter-regional transportation problems and opportunities.

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124. New highway from Brantford to Kitchener-Waterloo (Highway 401) and link to Guelph.			✓	This is being pursued by MTO - not related to NGTA problems and opportunities.
125. Follow hydro corridor to connect Highway 407 to QEW.			✓	May be considered during route planning stage if freeway solution is selected. Not pursued at this stage of the study.
126. New scenic / tourist route for tour buses, cars, and bike lanes. An example route would be along the Niagara Parkway to Hug Lake to northwest St. Catharines to Old Highway 8 to a new link to Hamilton Beach to Old Highway 2.				This alternative is not anticipated to substantially address the inter-regional transportation problems and opportunities that have been identified as it would be focused primarily in localized tourist areas.