

GO RAIL NIAGARA SERVICE EXTENSION

INITIAL BUSINESS CASE
NOVEMBER 2015



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Glossary of Terms

Appraisal	Analysis of a program, investment or intervention that has not yet been implemented and focuses on estimated or forecasted evidence.
Benefits Case Analyses (BCA)	Reports produced by Metrolinx between 2008 and 2012 focusing on select economic impacts and financial costs of major proposed Metrolinx transit projects. BCAs have subsequently been replaced by the new Business Case framework.
Business Case	A collection of a suite of evidence on the potential strategic, economic, financial, deliverability and operational impacts of a proposed program, intervention or investment to inform decision-making throughout the project lifecycle. Metrolinx Business Cases are an enhancement and replacement of Metrolinx's former Benefits Case Analyses reports.
Cost Benefit Analysis	A form of evaluation that focuses on comparing certain economic impacts (generally benefits) to the cost of an investment. Cost Benefit Analysis is used in the Economic section of Metrolinx's Business Case framework and was also used to inform previous Benefits Case Analyses.
Economic Case	<p>One component of the Metrolinx Business Case that examines or reviews the impacts of proposed investments or interventions. Economic impacts include transportation user benefits (journey time impacts, road decongestion impacts, safety/accident reductions, etc.), environmental impacts (changes in emissions levels, vibration, etc.), social and community impacts (the distribution of benefits among populations, severance/isolation impacts, etc.), wider economic benefits (agglomeration/productivity impacts, etc.) and public funding impacts (property tax revenues, etc.). The Economic Case generally includes a cost-benefit ratio.</p> <p>Economics is a branch of science that studies the production, distribution and consumption of goods and services.</p>
Financial Case	One component of the Metrolinx Business Case that examines the lifecycle costs and revenues of proposed investments or interventions.
Delivery and Operations Case	One component of a Metrolinx Business Case that examines the impacts of proposed investments or interventions on operations, the delivery of the proposal, potential risks, procurement and related commercial or management issues.
Strategic Case	One component of a Metrolinx business case that examines the alignment of proposed programs, investments or interventions with Metrolinx strategic plans and goals. It involves the presentation of transportation planning information, including traffic forecasts, related travel patterns, drivers and interdependencies.

Acronyms

BCR	Benefit cost ratio
LRT	Light Rail Transit
BRT	Bus Rapid Transit
ALM	Automated Light Metro
MAE	Multiple Account Evaluation
NPV	Net Present Value
PV	Present Value
RTP	Regional Transportation Plan, <i>The Big Move, 2008</i>
SOV	Single Occupant Vehicle
TTS	Transportation Tomorrow Survey
VKT	Vehicle Kilometres Travelled

1 EXECUTIVE SUMMARY

This Initial Business Case report provides a summary of the strategic, financial and economic performance of the proposal to provide weekday commuter GO rail expansion into the Niagara Region. Substantial additional work will be required to refine estimates and optimize the investment associated with this potential investment.

One option has been assessed: two peak period, peak direction GO trains running inbound from Niagara Falls to Confederation station in Hamilton for interchange to Toronto in the AM, and outbound from Confederation to Niagara Falls in the PM using the CN corridor. Trains would also stop at Grimsby and St. Catharines. Grimsby, St. Catharines and Niagara Falls would require upgrades. Additional options involving direct train service to Toronto would impose significant reliability concerns on the existing Lakeshore West service due to the at-grade Welland Canal crossing and have not been tested at this time.

The report finds that the costs exceed benefits by a significant margin, with a substantial operating subsidy requirement forecast. Alternative service concepts, including those proposed by Niagara Region, have been examined in the past and have resulted in similar findings.

Transit market growth is a function of the relative attractiveness of transit when compared with alternatives. This is largely perceived by users to relate to the quality of a journey and is typically measured in terms of cost, speed, comfort and convenience. Solutions that combine to create a greater competitive advantage for rail (and which may not be solely be limited to the specification of the rail service) should be considered.

A pre-requisite for the operation of regular weekday GO rail service to Niagara is a robust and deliverable operational solution that eliminates the reliability concerns associated with the Welland Canal crossing.

Further work to support the development of sustainable transportation links between the Niagara region and the Greater Toronto and Hamilton Area (GTHA) is anticipated. Such work should include consideration of innovative solutions that could drive efficient delivery and/or market growth in order to address value for money considerations.

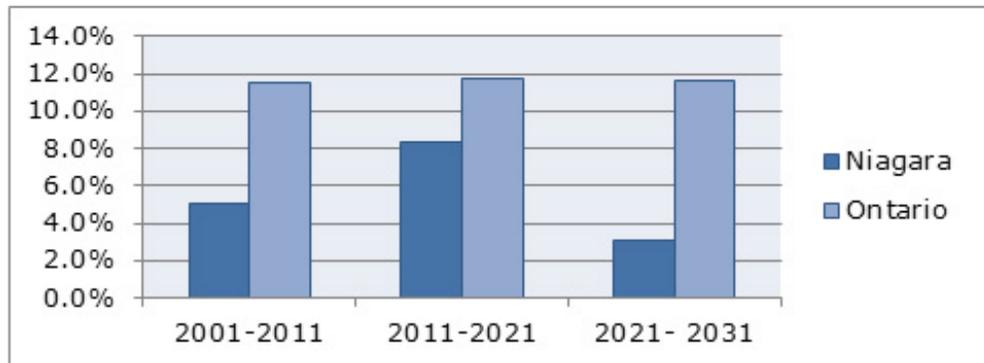
Table 1: Summary Table

Indicator	Option 1 (\$M)
Nominal Capital Costs (Total)	\$166
Nominal Annual Operating Costs (2031)	\$15.5
Nominal Annual Revenue (2031)	\$4.4
Operating Cost Recovery Ratio (2031)	0.29
Total Costs (PV, 2015 \$)	\$412
Benefits (PV, 2015 \$)	\$168
Net Benefits (PV, 2015 \$)	(\$244)
Benefit Cost Ratio	0.41

2.0 INTRODUCTION

The Niagara Region is set to experience population growth in the next 20 years, although at a slower rate than the rest of Ontario.

Figure 1: Population Growth, Niagara Region and Ontario (Source: Ontario Ministry of Finance)



Source: Niagara Region Planning and Development 2014; Ministry of Finance, Projected Population for Ontario 2011-2031

GO rail Lakeshore West services currently operate between Union Station, Hamilton GO Centre station and West Harbour station (formerly James St North station). Weekend summer service operates beyond Hamilton to Niagara. The extension contemplated in this business case makes use of the CN corridor from Hamilton to Niagara currently used by GO Transit to provide seasonal GO rail service to Niagara Falls, with trains terminating at Stoney Creek Confederation station.

The planned new GO Train stations are described as follows:

- Niagara Falls station: This station would be located near the existing VIA Rail station in the City of Niagara Falls. This location is served by local transit services and the arterial road network.
- St Catharines West station: This station would be located at or near the site of the existing VIA Rail station on the west side of St Catharines. Local bus service would be available on St Catharines Transit routes 3 and 15. Road access would be from St Paul Street West (Niagara Region Road 81).
- Grimsby station: This station would be located adjacent to Casablanca Boulevard and near the existing GO Transit bus terminal. The location has access to and from the QEW via the Casablanca interchange.

3.0 PROBLEM STATEMENT AND OPTIONS

Problem Statement

How can transit service be developed in the Niagara - Hamilton corridor to best meet the short, medium and long term transportation needs of the local communities?

Context

There are currently about 20,000 daily person trips in each direction on the Niagara - Hamilton - Toronto corridor that are Niagara based, with 60% terminating in Hamilton and 10% in Toronto. Approximately half of these trips occur in the AM peak period (0600-0900). The dominant mode is auto with transit currently accounting for approximately 125 trips per AM weekday peak period (from Niagara towards Toronto) on GO Bus Route 12 that operates between Niagara and Burlington with intermediate stops in St Catharines, Grimsby and Stoney Creek and with timed transfers at Burlington GO station for Toronto-bound service. Travel demand on the corridor is forecast to increase by approximately 30% in the next 25 years and this will create additional congestion on the QEW and potentially limit economic growth.

Options

Do Minimum: Lakeshore West Line is a well-established GO rail corridor. It provides rail service to Hamilton, Burlington, Oakville, and south Mississauga into Toronto with connecting GO Transit bus and local transit services at all stations. This line currently has peak period services only between Hamilton and Toronto Union. This line has all day weekday and weekend GO train services between Toronto Union Station and Burlington (Aldershot station) with train-meet buses connecting west to the Hamilton GO Centre.

Test Option: Two morning and two evening peak direction trains, for a total of four train trips per day. This service will connect Niagara with the GTHA using the CN track at Confederation station. At Confederation, passengers can transfer onto the existing Lakeshore West Line (with no impact to the latter), for travel further east into Union Station and beyond.

Further options that could be tested in future iterations of this business case may include:

- Bus connection from Burlington, rerouted within Niagara to reach tourist areas
- All day low frequency Niagara Shuttles rail service concept
- Use of alternative rail alignments and/or rail rolling stocks

4.0 STRATEGIC CASE

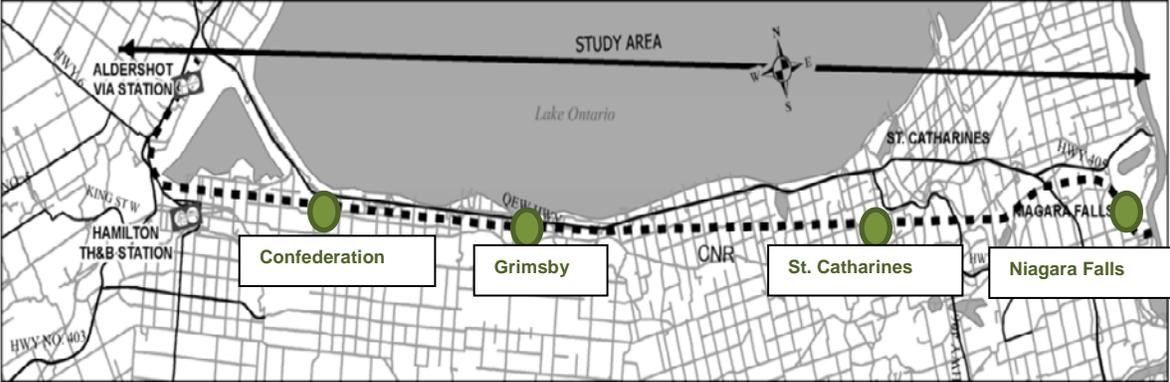
The core metric that has been used to measure strategic effectiveness of the GO rail service in the Niagara peninsula is ridership. The ridership forecasts used in this business case are derived from a business case put forward by Niagara Region in April 2015 for GO rail service between Niagara and the GTHA¹. Although GO rail service proposed would have marginal or no travel time improvement over today's GO bus service and would face reliability challenges due to the Welland Canal crossing, the Niagara Region forecasts assume significant future year deterioration in the performance of the highway network. It is on this "best case" scenario that the evaluation contained in this business case has been undertaken.

Table 2: AM Peak Period Boardings

2021	Boardings
Niagara Falls	50
St. Catharines	120
Grimsby	230
Total	390

2031	Boardings
Niagara Falls	100
St. Catharines	230
Grimsby	460
Total	780

Figure 2: Stations served by proposed service



¹ Niagara GO Rail: A Case for Weekday GO Train Service between Niagara and the GTHA, April 2015

5.0 FINANCIAL CASE

The financial case seeks to understand the investment costs and the ongoing operating costs throughout the whole life of the asset. The capital and operating cost estimates along with revenue estimates have been assembled for an assumed 60 year asset life and are presented in Table 3.

Table 3: Financial Information

Nominal Dollars	Option 1 (\$M)
Capital Cost (Total)*	\$166
Annual Incremental Operating Costs (2031)	\$15.5
Annual Incremental Revenue (2031)	\$4.4
Operating Cost Ratio (2031)	0.29

*Costs include inflation. In real terms, the capital costs are \$160M.

The analysis suggests that the Niagara peak period service does not provide a positive financial case and operating cost recovery ratio.

Operating costs are assessed based on detailed understanding of the unit rate of operating costs for diesel GO rail service. The operating cost recovery ratio of 0.29 is lower than the 2014-15 GO rail system average of approximately 0.76, meaning that this will result in an overall decrease in the operating cost recovery of GO service.

Capital costs of \$160 million are estimated to be required for station upgrades and other infrastructure necessary for the provision of services described. It is assumed that there is no additional rolling stock costs associated with the option under consideration. These are preliminary estimates that require further development and confirmation. In particular, the capital cost estimate is sensitive to a variety of assumptions and work is underway to better understand the range of estimates under alternative costing assumptions. It is expected that the central estimate is likely to increase once this work is completed. In addition, the capital cost estimate presented is a low-end estimate because no capital infrastructure renewal or maintenance costs have been calculated to date, and these costs are therefore not included in these figures.

6.0 ECONOMIC CASE

The economic case measures, quantifies and monetises transport impacts (benefits) and seeks to compare those benefits with costs to understand relative performance and value-for-money of each investment option.

Table 4: Economic Information

2015 \$ Value	Option 1 (\$M)
Total Costs (PV)	\$412
Benefits (PV)	\$168
Net Benefits (PV)	-\$244
BCR	0.41

In summary, the analysis suggests that the Niagara Peninsula peak period service does not provide value for money in economic terms, with costs outweighing the benefits of the proposed service.

Travel time savings were estimated based on the expected change in travel time between current travel and future travel between Niagara Region and the GTHA. Current GO bus travel times between Niagara Falls and Burlington (GO Bus Route 12) suggest congestion on the QEW in peak periods is typically not an issue. As a result, travellers from Niagara to east of Burlington may not experience travel time savings. For travellers headed to Hamilton, some travel time savings may occur, in part due to the current bus route. This business case assumes 1'30" of travel time savings for existing GO bus users. However, sensitivity tests of 10 minutes travel time savings were tested and found to have a marginal impact on performance (i.e., BCR remains <0.5).

The majority of benefits stems from reduced auto operating costs and road congestion. However, as this project is proposed for outside the GTHA, estimated road congestion reduction impacts may not be accurate. Reliability impacts resulting from the Welland Canal may result in missed connections to Lakeshore West service at Confederation station. These impacts have not been considered and would further lower project performance.

7.0 DELIVERABILITY AND OPERATIONS CASE

The deliverability and operating evidence focuses on key project implementation risks and any construction and on-going operating impacts that may result from investment options.

To date, no formal agreement has been reached with the St Lawrence Seaway Management Corporation (SLSMC) to operate regular train service across the Welland Canal. Until an agreement is reached setting out an operational solution to the Welland Canal crossing that involves the co-ordination of rail and seaway movements, there is a risk of recurrent delay to the proposed service of up to 20 to 30 minutes or more, 12 to 16 times per month. This delay would reduce the reliability of the current service provided to Niagara GO bus users.

The current Niagara Seasonal Rail Service provides a snapshot of the risk associated with the Welland Canal. During the 2014 season, 27 train trips –12% of the 225 total train trips – encountered a service disruption resulting from shipping traffic through the Welland Canal, causing an 18-minute delay to the train service on average. Overall on-time performance on the Niagara service, accounting for all service disruptions including those at the Welland Canal, was 63%. In comparison, on-time performance was at 95% on the entire GO network in 2014.

As noted in the financial section of this business case, the cost estimate for capital works are preliminary estimates (for example, does not include renewal and/or maintenance of capital assets). In addition, it does not include any new grade separations or train layover facilities. More work is currently underway with CN to undertake a capacity study. The results of this study will inform an update to the business case in terms of providing a more detailed assessment of the infrastructure required to accommodate additional service.

8.0 CONCLUSION AND NEXT STEPS

The overall business case for GO rail investment in the Niagara peninsula is low.

Both short and long term prospects for GO rail investments are constrained by the Welland Canal vertical lift bridge. This is of particular importance as GO RER proposals are developed, and the potential to create knock on impacts across the network increase. Such impacts could disrupt many more passenger journeys than just those affected on the Niagara Peninsula if through service from Niagara to the Lakeshore West corridor is contemplated in the future.