BUSINESS CASE - June 2015

CAMBRIDGE ON THE GO

Business Case | Extension of GO Train from Cambridge to Milton
EXECUTIVE SUMMARY

The partnering communities of Waterloo Region, the City of Cambridge, Halton Region and the Town of Milton have come together in this request for increased GO Rail service. This includes two-way, all-day GO Rail service to Milton and, as a concurrent and complementary phase, the extension of GO Rail services further west to Cambridge. The extension to Cambridge represents an innovative opportunity to pilot new technologies that could have benefits for the entire commuter rail network in southern Ontario.

These communities respectfully request that the Province of Ontario and Metrolinx:

- Identify two-way, all-day GO Rail service to Milton as a Next Wave project to be implemented through the Regional Express Rail (RER) strategy within (10) years, and re-prioritized accordingly through The Big Move (adopted in 2008 by Metrolinx) legislated update.
- Initiate the extension of GO Train service between Milton and Cambridge –by the early testing of Diesel Multiple Unit (DMU) technology for commuter rail service as part of a pilot project.
- Include GO Train service from Milton to Cambridge as part of the Regional Express Rail (RER) Strategy.
- Include Waterloo Region as part of the Metrolinx planning area and as part of the Big Move.
- Immediately commence an Environmental Assessment (EA) study for the extension of GO Train service to Cambridge in order to identify and protect for new station locations, crossings and other corridor requirements.
- Include representatives from Waterloo Region, the City of Cambridge, Halton Region and the Town of Milton on any applicable Stakeholders Committees.
Engage the Federal Government of Canada in discussions to establish the extension of GO Train service to Cambridge as an approved project under the Building Canada Fund.

**Key Benefits of GO Rail Expansion to Cambridge**

The City of Cambridge is a significant contributor to the provincial and national economy – both as a unique and vibrant community in its own right, as well as being part of the broader Waterloo Region economic engine. A high quality transportation network is essential to provide access to a wider regional labour force and continue this community’s economic contribution. The extension of GO Train service to Cambridge is a vital component of the regional, provincial and federal transportation networks. All Canadians will benefit from expanded and extended GO Rail services from downtown Toronto to Cambridge (passing through the urban growth centres of Etobicoke, Mississauga and Milton) through the enhanced mobility and economic activity that comes with the creation of a comprehensive transportation network in one of Canada’s busiest economic corridors. GO Rail expansion to Cambridge will:

- Support sustainable development by connecting two of the fastest growing communities in Ontario with two-way, all-day GO rail service to Milton and a lower cost and more flexible rail transit option between Milton and Cambridge.
- Provide a cost effective opportunity to expand the Regional Express Rail network more broadly, while also supporting Provincial objectives to:
  - Promote economic prosperity;
  - Enhance quality of life; and
  - Improve the natural environment, including reduction in greenhouse gases;
- Support Federal objectives to address national, regional and local infrastructure priorities that move towards a:
  - Stronger economy;
  - Cleaner environment; and
  - Strong and prosperous communities.
- The downtown Cambridge to Toronto Union Station route would cover over 90km within the Continental Gateway, an integrated transportation network connecting Ontario to Quebec that encompasses ports, airports, intermodal facilities, and border crossings, as well as essential road, rail, and marine infrastructure across a 1,000km radius.
- Align policy, strategic objectives and resources outlined in local, provincial, and federal plans including the Province’s Growth Plan for the Greater Golden Horseshoe to develop complete communities that are affordable, accessible and attractive.
- Leverage over 6.5 billion dollars of existing and future transportation infrastructure investments (Waterloo Region Ion Rapid Transit corridor, Highway 401 expansion, two GO Rail corridors and the GTA West highway).

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• Provide the infrastructure necessary to foster redevelopment and intensification opportunities for existing and planned mobility hubs in communities along the corridor (including the urban growth areas of downtown Milton and Cambridge).

• Complement and leverage the investment in two-way GO rail service on the Kitchener line to Kitchener/Waterloo, creating dynamic travel options between the GTA and Waterloo Region – our fastest growing communities and most heavily travelled transportation corridor.

• Create more high paying jobs across all sectors including advanced manufacturing and high tech. This includes support for the creation of approximately 7,300 new jobs within walking distance of the proposed Cambridge and Milton GO Rail stations creating integrated mobility hubs.

• Supply local businesses with better access to a region-wide labour force and reduce costs for their supply chain and export markets.

• Provide support for the expansion and connection of world class, post-secondary institutions between the GTA and Waterloo Region by providing an affordable transit option for over 275,000 students enrolled in eight post-secondary campuses along the corridor.

• Enhance the movement of goods and services by providing an effective transit travel alternative to the private car and by reducing highway congestion on critical links through the provision of more park and ride opportunities.

**Supporting Economic Development**

Cambridge is located in Waterloo Region or “Canada’s Technology Triangle”, which is known for the significant number of science, technology and advanced manufacturing companies that are located in this geographic region. Waterloo Region also includes the Cities of Kitchener and Waterloo, and the Townships of Wellesley, Wilmot, Woolwich and North Dumfries. A consumer market of over 525,000 people live in Waterloo Region, with a labour pool of over 269,000. The City of Cambridge alone is expected to grow to by approximately 40 percent to a population of 178,000 people by 2031, with a total employment forecast of approximately 102,000 jobs (79 percent growth). Its companies are well situated to access major markets in Southern Ontario and to export manufactured goods to the north eastern and central United States through the Michigan and Niagara gateways. Over the past five years, the establishment of business in Cambridge has increased 3.4 percent annually. Cambridge’s economic base is diversified with strengths in advanced manufacturing, automotive, textiles, plastics, agrifood and the technology sectors. The City has been rated the Top Ontario Investment Town (2014) by the Real Estate Investment Network (REID).

Currently, the only direct connection between Cambridge and the Greater Toronto Area (GTA) is the often congested Highway 401. Delays within this corridor impact economic growth opportunities by discouraging labour force mobility, trades and goods movement to and from the GTA. Cambridge’s location on Highway 401 is beneficial and is outside the congestion zone of the GTA. As such, the City attracts advanced manufacturing and other industries that have supply chains throughout southwest Ontario and export markets through the Michigan and Niagara gateways.
The City is strategically located on the Quebec-Ontario Continental Gateway. The Continental Gateway initiative is focused on developing a sustainable, secure and efficient multi-modal transportation system that keeps Canada’s economic heartland competitive, attractive for investment and essential for trade. Ontario, Quebec and the federal government have been working with the private sector and other key public sector stakeholders to develop a comprehensive infrastructure, policy, and regulatory strategy with recommendations for the short, medium and long term to support international trade through the Continental Gateway. The extension of passenger rail to Cambridge enhances over 90km of rail between Cambridge and downtown Toronto on the Continental Gateway, supporting improved international passenger traffic between the financial centre of Canada (downtown Toronto) and Canada’s Technology Triangle (Region of Waterloo).

Cambridge’s current and future businesses need access to regional labour and high quality transit is a key stimulant. Business travellers and post-secondary students need fast and reliable transit access to GTA growth centres. Without being part of the Regional Express Rail (RER) strategy, Cambridge will not achieve its potential to create economic growth, particularly in the advanced manufacturing sector that is heavily dependent on an efficient supply chain and access to export markets.

**Strategic Fit with Provincial and Federal Plans and Policies**

An evaluation was undertaken that demonstrates how the GO Rail extension supports broader policy directions in various provincial and federal policy documents, plans and studies. The following conclusions were made:

- The extension of GO Rail to Cambridge supports the three lenses of *The Big Move*: a high quality of life, a protected environment and a prosperous and competitive economy.
- The provision of passenger rail service to Cambridge is consistent with Provincial and Metrolinx policy including the *Provincial Policy Statement and the Provincial Growth Plan*.
- The *GTA West Corridor Environmental Assessment* identified the extension of full-day, two-way GO Trains to Cambridge (Regional Rail) as part of the solution in the Transportation Development Strategy.
- The federal and provincial governments support the *Continental Gateway* initiative which will benefit from the extension of GO Rail service to Cambridge.

The proposed GO Rail extension would also support federal, provincial and municipal objectives for sustainable growth, economic development and the reduction of environmental impacts from transportation by providing a public transit alternative in close proximity to the congested Highway 401 corridor.

The innovative use of smaller, self-propelled rail cars for commuter markets will generate significant environmental benefits including a reduction in GHG emissions per passenger kilometre. There may also be the opportunity for a Canadian car builder to supply DMU/EMU’s for the broader Metrolinx market.

A 2009 Cambridge to GTA Rail Passenger Feasibility Study concluded that the extension of GO Rail service from Milton to Cambridge is feasible. The feasibility was reconfirmed in this 2014 Cambridge to Milton Passenger Rail Business Case and Implementation Strategy. The detailed technical report is included in *Appendix A*. 


Project Scorecard
The Metrolinx project prioritization process uses a comprehensive and innovative methodology consisting of two key stages. The primary evaluation establishes core criteria against which the projects are scored and respond to the three lenses of The Big Move: a high quality of life, a protected environment and a prosperous and competitive economy. Then an implementation screen is considered which addresses issues of deliverability and constructability. These two stages create a project scorecard.

This project scorecard then enables the Metrolinx Board to assess the project’s Strategic Fit, which allows for consideration of broader elements, such as leveraging of other projects and initiatives, project readiness and funding.

Chapter 6 highlights the key scorecard indicators for the extension of GO Train service from Milton to Cambridge. The outcome of the project scorecard is summarized below:

1. **Prosperous Economy** – All Ontarians and Canadians will benefit from this expansion due to the enhanced mobility and economic activity that comes from the creation of a broader regional transportation network and improved goods movement.

2. **High Quality of Life** – Expansion of GO Rail will provide the necessary infrastructure to intensify, create high paying jobs and develop complete communities that are affordable, accessible and attractive.

3. **Sustainable Environment** – The extension of two-way GO Train service will provide a sustainable travel alternative to and from a rapidly growing region and reduce greenhouse gas emissions from Canada’s busiest highway corridor. A public transit alternative will contribute to the effectiveness of the Quebec-Ontario Continental Gateway.

4. **Strategic Fit** – Piloting the use of new Diesel Multiple Unit (DMU) technology to connect two of the fastest growing communities in Ontario will provide an opportunity to expand the Regional Express Rail network more broadly and cost effectively while supporting local, provincial, and federal plans and leveraging investment in transportation infrastructure.

Proposed GO Rail Extension Scenario
The City of Cambridge, along with the Region of Waterloo, is one of the most proactive communities in Ontario in supporting the Provincial sustainability objectives of building strong healthy communities, the efficient use and management of land and infrastructure and the protection of the environment and resources. These objectives are entrenched in the Official Plans of both the City and the Region, the Regional Growth Plan, Regional Transportation Master Plan and Active Transportation Master Plan. The community has implemented policy and invested in infrastructure to make this vision a reality. The provision of inter-regional passenger rail service is the one component of this vision that is not within the community’s control but is a significant element required to ensure the total success of implementing this vision.

The federal and provincial commitment to the Milton and Kitchener GO Rail corridors and the Region’s commitment to ION (the local rapid transit system) provide the key elements of the transit rail network
for GTA West. The inclusion of the Cambridge-Milton GO Rail link completes this transit network and complements the freeway network and the Continental Gateway.

A market entry scenario is proposed that connects Cambridge to Milton with four Diesel Multiple Unit (DMU) trains and one interim station (initially) in downtown Cambridge (Cambridge Central) to facilitate fast implementation. This scenario requires users travelling beyond Milton to transfer between the DMU and a 12-car GO Train at Milton station. This service would include four eastbound AM peak trips and four westbound PM peak period trips for consistency with the traditional Metrolinx approach to minimum market entry for rail service start-up.

Since the DMUs are not required for service east of Milton, this scenario allows for two-way travel in the AM and PM peak periods to accommodate Milton residents working in Cambridge. The DMUs can also be used to test mid-day return trips and evening service between Milton and Cambridge. Potentially these new service strategies could be tested on even longer sections of the corridor depending on track availability between Milton and Union Station.

The overall benefits of using DMUs over 12-car GO Trains for the extension of passenger rail service to Cambridge are as follows:

- Infrastructure costs as station platform lengths, passing sidings and storage tracks could be greatly reduced;
- Provides the opportunity to cost effectively provide two-way and off-peak service between Cambridge and Milton;
- More easily integrated with multi-modal station designs (in Cambridge there would be the potential opportunity to fully integrate the DMU with the future LRT station as both vehicles have the same track gauge);
- Improve overall reliability of service in the total corridor between Cambridge and Toronto as an incident or delay on the DMU between Cambridge and Milton would not delay the 12-car GO Train service between Milton and Toronto;
- Provides a second fleet standard for GO Transit that may be available to serve other transit markets to efficiently address other regional employment destinations.

For the Cambridge Central station, the final location would support the “Urban Growth Centre” designation for downtown Cambridge specified in the Growth Plan for the Greater Golden Horseshoe by providing a rapid transit connection in an area planned for higher density population and employment growth. Intensification is planned within an 800m radius of the proposed Cambridge Mobility Hub (integrated GO Train and ION light rail transit station) and other intensification/regeneration areas. With GO Train service, the population around the station is projected to grow from 13,500 to 18,900 and employment to grow from 6,500 to approximately 10,000 by 2031.

Extension of the GO Train service westerly to Cambridge would also be a catalyst for the designated Milton Urban Growth Centre. Intensification is planned within an 800m radius of the Milton station and population around the station is projected to grow from 2,200 to approximately 14,400 with employment growth from 2,200 to approximately 6,000 by 2031.

Capital cost for this scenario ranges from $20 to $73 million, depending on the final inclusion requirements of rail corridor infrastructure costs. This does not include the costs of rail equipment as
the DMUs may become surplus when the airport service is electrified. With the costs of six DMUs included, the range is from $47 to $100 million.

It is anticipated that DMU operational costs will be significantly less than the costs for a traditional GO Train as they will operate with much smaller diesel engines (lower energy costs and emissions) and fewer train operating crew will be required. Exact cost savings will be identified once the Union Pearson Express is operational. Annual ridership for the DMU pilot project is anticipated to be in the range of 192,000 to 376,000 passengers by 2031.

A cost effective and innovative service strategy is proposed which can be quickly implemented and easily expanded as ridership develops. The success of DMU’s in this corridor will provide opportunities for other applications within the Metrolinx network and accelerate implementation of the Regional Express Rail strategy. Federal objectives to implement a Continental Gateway and reduce GHG emissions from transportation will also be achieved.
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## Appendix


**Appendix B** - Project Scorecard Technical Details
1.0 INTRODUCTION

Cambridge is located in one of the fastest growing and strongest economic areas in Canada. The City’s population is expected to grow by approximately 40 percent to 178,000 people by 2031 with a total employment forecast to grow by approximately 79 percent to 102,000 jobs. Cambridge boasts a diverse economic base and is located within the Region of Waterloo and in the heart of Canada’s Technology Triangle known for a significant number of knowledge base enterprises. Cambridge has developed an advanced manufacturing cluster with its central location to the Greater Toronto Area (GTA) and international gateways at Niagara, Windsor and Sarnia. Unimpeded access to these gateways is ideal for local manufacturing and subsequent movement of goods to major export markets in the United States.

Waterloo Region is already the fourth largest community in Ontario and the tenth largest community in Canada. Provincial and national forecasts continue to identify Waterloo Region as a major growth centre for the future, with an estimated population of 730,000 and an additional 97,000 jobs being anticipated by the year 2031.

The City of Cambridge is located approximately 35 km west of the GTA. There is currently only one major transportation corridor connecting this community of over a half million people to the GTA which is the heavily congested Highway 401. The stressed transportation network, road congestion impacts on the movement of goods and the lack of a rail transit alternative for the regional labour force are limiting Cambridge’s potential to contribute to the Ontario and Canadian economy. The 2009 Cambridge to GTA Rail Passenger Feasibility Study assessed the potential to extend the service to the GTA using two different corridors: Cambridge to Union via Guelph along the Fergus subdivision rail corridor and Cambridge to Union via Milton along the CP rail corridor. The study identified the Cambridge to Milton corridor as the preferred feasible alternative. Travel time on the Cambridge via Milton corridor is lower and competitive with auto travel on the Highway 401 corridor.

Note: The Region and Area Municipalities have conducted growth projections to 2029. The distribution or population and employment amongst the Area Municipalities between 2029 and 2031 has not been finalized.
and the ridership and associated revenue is forecast to increase as the service matures and people adjust their travel behaviour. By 2021, the forecast indicates that the average GO system revenue cost ratio (currently 80 percent) is achievable and by 2031 the Cambridge service could achieve full cost recovery. This proposed transit service would also support federal, provincial and municipal objectives for sustainable growth, economic development and the reduction of environmental impacts from transportation by providing a public transit alternative in close proximity to the Highway 401; one of the busiest and most congested highways in North America.

The 2014 Cambridge to Milton Passenger Rail Business Case and Implementation Strategy confirmed the feasibility of GO Train service to Cambridge. This study began with a technical document which assessed different service scenarios, cost implications and ridership and revenue forecasts. The Technical document is included in Appendix A of this report. This was used to develop a broader business case, which includes an assessment of project benefits such as economic prosperity, quality of life, sustainable environment and strategic fit.

The technical document concluded that an extension of GO Rail service will attract auto commuters who are currently adding to the congestion on Highway 401. Service and technology scenarios were also assessed and a new service strategy using Diesel Multiple Units (DMUs) between Cambridge and Milton was recommended to connect to the 12-car GO Trains between Milton and downtown Toronto. The use of DMUs has some significant advantages over the traditional 12-car GO Train, including:

- lower operating costs (reduced energy consumption and staffing levels on the train);
- improved acceleration/deceleration performance giving faster trip times;
- lower infrastructure costs through shorter platform/siding requirements;
- reduced physical impacts in an urban environment (e.g. shorter delays at level crossings);
- greater ability to be integrated with local transit (buses and LRT’s) in multi-modal stations (due to the shorter platform requirements, which makes integration into an urban multi-modal station much easier); and
- improved reliability of the total corridor (e.g. delays on the outer DMU section of the corridor would not affect 12-car train service on the inner section of the corridor).

Based on the potential advantages of adopting DMU technology for specific applications on its commuter rail network, it was recommended that Metrolinx implement a pilot project of four DMUs operating on the CP rail corridor between Milton and Cambridge. If DMUs are not considered appropriate then extending some of the GO trains from Milton to Cambridge should be implemented.

Building on the technical document in Appendix A, the Business Case study presents further evidence of opportunity to improve the regional, provincial, and national transportation network to the west of the
GTA and outlines the business case for extending GO Train service from Milton to Cambridge. The report will demonstrate how this service is embedded in Provincial and Federal policy and is needed to leverage and support other infrastructure projects. A synopsis of the existing and future provincial transportation network and limitations, needs and opportunities is provided along with an implementation strategy for the proposed GO Train service. A Project Scorecard is included which demonstrates the feasibility, business case and strategic fit of a GO Rail extension from Milton to Cambridge.
2.0 THE SIGNIFICANCE OF CAMBRIDGE

Cambridge and the surrounding region is a significant contributor to the industrial economy of Ontario and Canada. Outside of Toronto, the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA) has created more jobs (+26,700) since the recession than any other Ontario CMA. The CMA’s employment base has grown 10.1 percent since October 2008, compared to only 3.3 percent growth for the province, demonstrating that this region is an important driver of provincial economic growth. The Kitchener-Cambridge-Waterloo CMA generated $22 billion in gross domestic product in 2012, comprising 4.3 percent of the province’s GDP, but making up only 3.7 percent of the province’s population. This area with close proximity to the Michigan and New York border crossings represents the industrial heartland contributing to Canada – U.S.A. trade.

Cambridge is located in Waterloo Region – also known as “Canada’s Technology Triangle” (Website http://www.techtriangle.ca), which recognizes the significant number of science and technology companies located in this geographic region. Canada’s Technology Triangle also includes the Cities of Kitchener and Waterloo, and the Townships of Wellesley, Wilmot, Woolwich and North Dumfries. A consumer market of over 528,000 people live and work in Canada’s Technology Triangle, with a labour pool of over 269,000.

Over the past five years, the establishment of business in Cambridge has increased 3.4 percent annually and a thriving local investment climate is why many businesses are choosing to locate and expand here. The City has been rated the Top Ontario Investment Town (2014) by the Real Estate Investment Network (REID). Cambridge’s economic base is diversified with strengths in advanced manufacturing, automotive, textiles, plastics, agrifood and the technology sectors. Major businesses located in Cambridge include Toyota Motor Manufacturing, Challenger Motor Freight, Loblaw Companies, COM DEV International, Rockwell Automation Canada Control Systems, ATS Automation Tooling Systems, Babcock & Wilcox Canada and Canadian General Tower.

Cambridge is proud to be home to the University of Waterloo’s School of Architecture, McMaster University’s Teaching Centre at Cambridge Memorial Hospital, Conestoga College Institute of Technology and Advanced Learning’s School of Engineering Technology and Trades as well as its Institute for Food Processing Technology. It is also within close proximity to University of Waterloo, Wilfrid Laurier University, University of Guelph, University of Toronto, York University, Western
University, McMaster University and several campuses of these and other post-secondary institutions.

Conestoga College is Ontario’s fastest growing college and a leader in polytechnic education. The college delivers a full range of career-focused education, training and applied research programs to prepare students for success in the new knowledge economy and promote economic prosperity throughout our region and across Ontario. Conestoga has unique apprenticeship programs that draw students from the entire GTA and would benefit greatly from improved transit access.
3.0 CONSISTENCY WITH FEDERAL/PROVINCIAL/METROLINX POLICY AND INFRASTRUCTURE PLANS

The provision of passenger rail service to Cambridge is consistent with Provincial and Metrolinx policy. Environmental Assessments for Provincial highway projects have included the service as part of the solution and Metrolinx has had previous plans to undertake an Environmental Assessment to extend GO Rail service to Cambridge.

Canada’s Gateway’s - National Policy Framework for Strategic Gateways and Trade Corridors

The National Policy Framework for Strategic Gateways and Trade Corridors was developed to advance the competitiveness of the Canadian economy on the rapidly changing playing field of global commerce. The document provides focus and direction for strategies that foster further development and exploitation of the transportation systems that are key to Canada’s most important opportunities and challenges in international trade. The Framework also helps guide investment decisions for the $2.1 billion fund for gateways and border crossings established by Budget 2007 as part of Building Canada, the federal government’s long-term infrastructure plan.

The Ontario-Quebec Continental Gateway and Trade Corridor encompasses a system of land, air and marine transportation assets (including the Milton Line between Toronto and Cambridge) that offers a competitive and attractive gateway for international trade. The two central Canadian provinces represent approximately 60 percent of Canada’s exports and gross domestic product. Major
transportation infrastructure assets of all modes, as well as four of Canada’s six highest volume border crossings, underpin this economic heartland. Optimal use and development of the region’s transportation system will be essential to support Canada’s current and future commerce relationship with the U.S. and other trade partners, and promise significant gains in competitiveness and sustainability.

**Provincial Policy Statement (2014)**

The Provincial Policy Statement (PPS) is the statement of the government’s policies on land use planning in Ontario. It applies province-wide and provides clear policy direction on land use planning to promote strong communities, a strong economy, and a clean and healthy environment. The Provincial Policy Statement recognizes the importance of efficient land use and the need to consider transit before other modes of transportation. The PPS states “These land use patterns promote a mix of housing, including affordable housing, employment, recreation, parks and open spaces, and transportation choices that increase the use of active transportation and transit before other modes of travel. They also support the financial well-being of the Province and municipalities over the long term. Strong, livable and healthy communities promote and enhance human health and social well-being, are economically and environmentally sound, and are resilient to climate change.”

The provision of GO Train service to Cambridge would support the strong, livable and healthy communities the Province is promoting. It provides a safe, energy efficient transportation service which facilitates the movement of people and goods. It is also an efficient use of existing and planned infrastructure which is also an objective of the PPS.

**Growth Plan for the Greater Golden Horseshoe**

The Growth Plan for the Greater Golden Horseshoe was released on June 16, 2006. It is a 25-year plan that aims to:

- Revitalize downtowns to become vibrant and convenient centres;
- Create complete communities that offer more options for living, working, learning, shopping and playing;
- Provide housing options to meet the needs of people at any age;
- Curb sprawl and protect farmland and green spaces; and
- Reduce traffic gridlock by improving access to a greater range of transportation options.

The Growth Plan includes specific objectives regarding the transportation system:

“The transportation system within the GGH will be planned and managed to –

1. provide connectivity among transportation modes for moving people and for moving goods
2. offer a balance of transportation choices that reduces reliance upon any single mode and promotes transit, cycling and walking
3. be sustainable, by encouraging the most financially and environmentally appropriate mode for trip-making
4. offer multi-modal access to jobs, housing, schools, cultural and recreational opportunities, and goods and services
5. provide for the safety of system users.”

Downtown Cambridge is identified as an Urban Growth Centre (UGC) in the Growth Plan and GO Train service to Cambridge is a necessity for this UGC to meet each of the objectives above.

**GTA West Corridor Environmental Assessment (EA)**

The purpose of the GTA West EA was to proactively plan for future infrastructure needs by examining long-term transportation problems and opportunities to the year 2031 and consider options to provide better movement of both people and goods between urban areas in the GTA West Corridor preliminary study area (Highway 400 westerly to Highway 6 North), including designated Urban Growth Centres. The recommendations take a “Transit first” approach and support existing long-range transit plans with the need to explore further enhancements. This study identifies the extension of GO Trains from Milton to Cambridge as Regional Rail (full-day, two-way service) in the Transportation Development Strategy.

**Highway 401 Preliminary Design and Class Environmental Study**

This study was initiated to determine the need and timing for operational and safety improvements required on Highway 401 from 1.0 km west of Hespeler Road Cambridge to the Wellington County/Halton Region boundary. The Ministry of Transportation Ontario (MTO) indicated in a response to Region of Waterloo comments that the Ministry is supportive of transit based initiatives. The Ministry also stated that even with long-term GO Transit expansions to the Region of Waterloo along the Kitchener and Milton GO Train corridors, there remains a need for increased capacity on Highway 401.

**Other Provincial/Metrolinx Initiatives**

In a July 2009 staff report to the Metrolinx Board of Directors, the expansion of GO Train service to Cambridge was identified. A Feasibility Study was scheduled to be initiated by Metrolinx for the Fall of 2011 with an environmental study planned to start the following year. This EA has not yet been initiated.

In December 2012, Metrolinx published The Big Move Update. This report updates Metrolinx’s long range regional transportation plan by incorporating recommendations of the GO 2020 plan, the GO Electrification Study, project benefits case analysis and other technical studies since the initial plan. This update continues to show GO Train service to Cambridge as a possible Regional Rail Extension beyond the GTHA.

The extension of GO Train service from Milton to Cambridge supports the Regional and Provincial commitment to Places to Grow, has been embedded in Provincial and Metrolinx policy and plans for several years and is part of the recommendations for other major infrastructure projects. The only thing
that has changed is the priority as the project has been deferred indefinitely. This project is required to support the GTA West Corridor and Highway 401 (Cambridge to Halton) initiatives.
4.0 THE CITY OF CAMBRIDGE IS BUILDING A SUSTAINABLE COMMUNITY

The City of Cambridge (and broader Waterloo Region) is one of the most proactive Canadian communities in supporting Federal and Provincial sustainability objectives. These objectives include building strong healthy communities, the efficient use and management of land use infrastructure and protection of the environment and resources. Further, these objectives are entrenched in the Official Plans of both the City and Region, the Regional Growth Management Strategy, Regional Transportation Master Plan and Active Transportation Master Plan.

Cambridge Official Plan

The policies of this plan implement the Provincial Growth Plan and are intended to plan and manage growth in accordance with the complete community concept. Cambridge will be a well-designed, compact vibrant city that provides access to a range of transportation options including public transit. The City supports a coordinated, multi-modal approach to transportation including a strong public transit system. To this end, the City will work with the Region, Province and other partners to plan, improve and promote the public transit system as an alternative form of transportation within the City. The City also supports the addition of effective inter-municipal transit links including the extension of GO Transit services to Cambridge. Policies supporting transit oriented development, higher density development and Transportation Demand Management have been incorporated into the plan.

Cambridge Corporate Sustainability Plan

The Corporate Sustainability Plan is an overarching document that develops a framework for sustainable implementation of priorities that will guide the Corporation’s actions and provide a process to implement ongoing Master Plans/Strategic Plans and to consider new sustainability initiatives in the longer term. The goal of the plan is to “foster a strong sustainability culture within the City’s operations that permeates through to its programs, policies, initiatives and practices that, in turn, support the four pillars of a sustainable community”: Culture, Economics, Environment, Social. To achieve these four sustainability pillars, the City
of Cambridge will implement a suite of actions staged over a three year planning cycle.

**Bikeway Network Master Plan**

The Bikeway Network Master Plan provides strategic direction for cycling in the City of Cambridge. The plan includes updates to existing cycling routes and identifies new cycling routes in the City and confirms and updates the City’s policies for the design, funding, implementation, maintenance and promotion of cycling routes. As part of this study, a vision was developed for creating a bicycle-friendly Cambridge. “The City recognizes the importance of cycling as a mode of transportation and a means of active living that provides health, environmental and economic benefits to individuals and the community as a whole. The City will support and encourage infrastructure, services and programs that will create a bicycle-friendly community for those who live, work and play in Cambridge…”

**Region of Waterloo Official Plan**

The Regional Official Plan (ROP) contains the planning policies needed to direct growth and change in Waterloo Region over the next 20 years. Some of the most notable components of the new ROP include:

- a stronger, more widespread focus on striving for sustainability and complementing this with a commitment to liveability through the creation of compact, mixed-use, complete communities that meet people’s needs for daily living throughout their entire lifetime;
- a long-term boundary (Countryside Line) between the existing and future Urban Areas/ Township Urban Areas and the countryside and a new Protected Countryside designation;
- focusing development in existing urban areas (re-urbanization) with emphasis on existing centres and frequently-used transit corridors;
- new retail, commercial, and employment-related policies designed to maintain and enhance the region's economic strength and attract investment;
- a focus on providing a variety of transportation choices, including walking, cycling, and the introduction of a rapid transit system linking the Cities of Kitchener and Waterloo;
- strengthened source water protection policies, including a new Regional Recharge Area designation, to protect surface water and groundwater resources;
- a commitment to collaboration through innovative communication strategies with community stakeholders, including Area Municipalities and other agencies;
- the establishment of an expanded Greenlands Network protecting more environmental features; and
- a strengthened commitment to environmental stewardship, improving air quality and encouraging use of alternative and renewable energy.
Regional Growth Management Strategy

The Growth Management Strategy introduced several key elements to provide the necessary framework to shape growth including:

- establishment of a firm countryside line to limit urban sprawl, protect valuable agricultural lands and maintain the rural character;
- intensification of the Central Transit Corridor, including the implementation of an LRT system, to leverage capital investment and support revitalization of the downtown core areas;
- protection and preservation of environmentally sensitive landscapes; and
- development of new employment lands to maintain and enhance the area’s economic prosperity.

Regional Transportation Master Plan (RTMP)

The RTMP defines how the Region’s transportation system will grow and change in the coming decades. It will help the Region offer more travel choices to residents, and make sure the future transportation system is affordable and environmentally sustainable. The goal of the plan is to create:

- a transportation network that centres on transit, with a rapid transit system connecting Waterloo, Kitchener and Cambridge;
- more cycling lanes and pedestrian-friendly routes;
- an expanded bus network, including more express bus service to feed rapid transit stations and better serve the busy residential and commercial centres beyond the rapid transit corridor;
- planned road improvements to ensure movement of goods, relieve traffic problems or support transit; and
- Supporting policies to help the Region encourage transit ridership, cycling and walking, manage congestion and promote vibrant urban places.

The plan sets a goal that by 2031, 15 percent of all trips in Waterloo Region will be by transit and 12 percent of all trips will be by cycling or walking.

Active Transportation Master Plan

Walk Cycle Waterloo Region is the Region of Waterloo’s plan for making it easier to walk and cycle in the community. By promoting and integrating active forms of transportation, Walk Cycle Waterloo Region will help to achieve the Region’s “Vision for a Sustainable and Liveable Waterloo Region”. The Plan outlines the strategy to increase mode share for Active Transportation from 7.8 percent for PM peak hour trips today to 12 percent by 2031. This will be accomplished by expanding the active transportation network including doubling of the existing cycling network over the next 10 years, providing strategic
way-finding signage, improving the winter network and encouraging behavior change.

**Grand River Transit**

Grand River Transit (GRT) has grown significantly since its inception on January 1st, 2000; when the regional transit system was established through the merger of the former Cambridge and Kitchener transit systems. In over 10 years of operation, Grand River Transit has achieved considerable ridership growth and has become a key element in addressing the land use, economic, environmental and transportation objectives of the Region. **Transit ridership has been increasing at triple the rate of population growth.** Annual ridership in 2014 was 22 million, a 134 percent increase from the 9.4 million annual rides at the end of 1999 when GRT was established, and an 11.7 percent increase over the 2011 ridership.

**Rapid Transit**

The Region of Waterloo rapid transit system will connect the three major urban centres of the Cities of Cambridge, Kitchener and Waterloo. Stage 1 of the rapid transit system consists of:

- Light Rail Transit (LRT) between Conestoga Mall in the City of Waterloo and Fairview Park Mall in the City of Kitchener (19 km);
- adapted Bus Rapid Transit (aBRT) between Fairview Park Mall in the City of Kitchener and the Ainslie Street Terminal in the City of Cambridge (17 km);
- twenty-two (22) stations along the 36 km transit corridor; and
- an investment level of $818 million funded through a partnership among the region, province and federal government.

An Environmental Assessment is being initiated for Stage 2 which would extend the LRT from Kitchener to downtown Cambridge including integration with the GO Rail service. This service would require a similar investment as that provided in Stage 1.
5.0 THE IMPORTANCE OF TRANSPORTATION IN CITY BUILDING AND FOR THE CITY OF CAMBRIDGE

City Building

Waterloo Region and the City of Cambridge have recognized the importance of integrated land use and multi-modal transportation in the building of a liveable and sustainable city. The community has implemented policy and invested in infrastructure to make this vision a reality. The provision of inter-regional commuter rail service is the one component of this vision that is not within the community’s control but is a significant element required to ensure the total success of implementing this vision. Local businesses have recognized the importance of this transportation link for continued economic growth and prosperity.

Highway Network

Cambridge’s location is serviced by a network of regional and provincial highways. Cambridge’s main transportation attribute is its location on “Main Street, Ontario”, the MacDonald Cartier Freeway (Highway 401) which supports the supply chain of businesses contributing to the provincial economy. Cambridge is well situated along this Continental Gateway corridor to service Canada’s industrial heartland and provide exports which support the national economy through the Ontario/U.S. gateways at Niagara, Windsor and Sarnia.

“The easier it is for people to get here ... the more it’ll grow our attractions and hotel business.”
- Minto Schneider, general manager of the Waterloo Regional Tourism and Marketing Corporation
Cambridge’s only direct connection to the GTA is the regularly congested Highway 401 which impedes goods movement, mobility of the labour force, business opportunities and economic activity between Cambridge and the GTA. The designation of the Niagara Escarpment as a World Biosphere Reserve by UNESCO limits the opportunity for any additional freeway connection.

**Bus Service**

There are currently 18 GO Transit buses that connect Cambridge to Square One in Mississauga. Transfers must be made at this location to access other destinations in the GTA and the bus users are constrained by the same congestion that impacts automobile traffic. There are two GO Transit buses that provide connections to the Milton GO Train station.

Greyhound also has services to Cambridge with nine buses per day connecting to Downtown Toronto. Similar to GO Transit buses, passengers are impacted by congestion on Highway 401 and winter road conditions.

**Rail Passenger Service**

There is no rail passenger service for commuters from the Cambridge area. Currently, commuters must drive to Milton or Aldershot for rail passenger service. The Milton Station is a mere 40 km from Cambridge and a GO Rail extension is the missing link in this network. The proposed Regional Express Rail network and the missing Cambridge link is illustrated below.
This network will be further enhanced by the adapted Bus Rapid Transit corridor and future LRT connection between Cambridge and Kitchener.

There is a compelling rationale to implement rail passenger service to Cambridge:

1. Extending GO Trains to Cambridge is consistent with the hub and spoke strategy of Metrolinx to connect major growth centers with Regional Express Rail services and the extension should therefore be designated as part of the province’s RER strategy. This service would connect five Urban Growth Centres as defined in Places to Grow (Downtown Cambridge, Downtown Milton, Mississauga City Centre, Etobicoke Centre and Downtown Toronto). The completion of Grand River Transit’s ION light rail transit service to Cambridge will also connect the corridor to the Downtown Kitchener and Uptown Waterloo urban growth centres.

2. Travel time between Cambridge and Union Station would be 94 minutes compared to between 90 and 100 minutes by automobile. According to average Ontario-wide commuting time trends and reports in The Big Move, average commute times in the GTA are anticipated to increase by 15 to 33 percent by 2031 without an investment in Rapid Transit. This would bring the average peak period auto commute time between downtown Cambridge and downtown Toronto to between 103 and 133 minutes by 2031. Travel time savings for individuals and businesses are a significant indirect return on the provincial investment and there are further savings from GHG reduction and reduced costs of accidents. Train passengers will have more reliable travel especially in winter conditions and can use their travel time to increase productivity.

3. This public transit corridor is parallel and very close to Highway 401 and thus provides an excellent opportunity for road congestion relief and GHG reduction. Up to 1,200 daily auto trips would be removed from the Highway 401 corridor. Travel times for other road users (including cars with an estimated congestion penalty of $26/hr and trucks with an estimated congestion penalty of $46/hr) would be reduced thereby enhancing goods movement and supply chain management.

4. The extension is essential for the development of Urban Growth Centres in the downtowns of Milton and Cambridge, as desired by the municipalities and required by the provincial ‘Places to Grow’ plan.

5. Business and employment growth in Cambridge, Milton, Mississauga, Etobicoke and downtown Toronto will benefit from improved labour force mobility on high quality public transit in this corridor.
6. Capital costs for the extension are relatively modest and can be staged in response to growth in demand. Passenger fares will contribute significantly to operating costs and tax revenues from new jobs and intensified development will exceed the investment cost.

7. Post-secondary students and institutions such as University of Waterloo, Wilfrid Laurier, Conestoga College, Milton Education Village, University of Toronto (Toronto and Mississauga campuses) will benefit from improved connectivity.

8. Infrastructure upgrades on the CP corridor will benefit freight rail operations as well as providing congestion relief for goods movement along critical trucking routes.

9. There is already significant investment (embedded and planned) in this corridor which will be leveraged by the commitment to an extension to Cambridge. The investment in ION and in the north mainline will also be leveraged as the extension completes the connectivity required.

10. Planned investment in Highway 401 upgrades and a new GTA West corridor would be supported and leveraged by this rail transit alternative which would attract car drivers to become transit users.
Example of Intensification Opportunities in Cambridge

Note: Intensification opportunity illustrated on Hespeler Road in Cambridge
6.0 CAMBRIDGE BUSINESS CASE - SCORECARD

The scorecard process was used to identify a business case based on criteria used by Metrolinx in their project prioritization process. The Metrolinx project prioritization process uses a comprehensive and innovative methodology consisting of two key stages. The primary evaluation establishes core criteria against which the projects are scored and respond to the three lenses of The Big Move: a high quality of life, a protected environment and a prosperous and competitive economy. Then an implementation screen is considered which addresses issues of deliverability and constructability. These two stages create a project scorecard. This project scorecard then enables the Metrolinx Board to assess the project’s Strategic Fit, which allows for consideration of broader elements, such as leveraging of other projects and initiatives, project readiness and funding.

Key scorecard indicators for the extension of GO Train service from Milton to Cambridge are summarized in the table below. For each of the scorecard themes, key messages from each are summarized as follows:

1. **Prosperous Economy** – All Ontarians and Canadians will benefit from this expansion due to the enhanced mobility and economic activity that comes from the creation of a broader regional transportation network and improved goods movement.

2. **High Quality of Life** – Expansion of GO Rail will provide the necessary infrastructure to intensify, create high paying jobs and develop complete communities that are affordable, accessible and attractive.

3. **Sustainable Environment** – The extension of two-way GO Train service will provide a sustainable travel alternative to and from a rapidly growing region and reduce greenhouse gas emissions from Canada’s busiest highway corridor. A public transit alternative will contribute to the effectiveness of the Quebec-Ontario Continental Gateway.

4. **Strategic Fit** – Piloting the use of new Diesel Multiple Unit (DMU) technology to connect two of the fastest growing communities in Ontario will provide an opportunity to expand the Regional Express Rail network more broadly and cost effectively while supporting local, provincial, and federal plans and leveraging investment in transportation infrastructure.
These strategic criteria also align to the three themes identified under the Building Canada Fund: a stronger economy; a cleaner environment and strong and prosperous communities.

Additional detail on the methodology and resources used to determine the scorecard results can be found in Appendix B.

<table>
<thead>
<tr>
<th>SCORECARD INDICATOR</th>
<th>PERFORMANCE</th>
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<tbody>
<tr>
<td><strong>A High Quality of Life</strong></td>
<td></td>
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</tbody>
</table>
| **Customer Service and Market Readiness** | • 9,800 daily trips each way occur between Cambridge and Wellington County, Milton, Mississauga and Toronto<sup>3</sup>.  
• Approximately 25% of trips arriving at the Milton GO Station drive in from municipalities north and west of urban Milton (Cambridge, Waterloo, Guelph, Wellington).  
• Cambridge residents are also driving to Aldershot GO station due to higher service levels on Lakeshore line. |
| **Customer Service and Market Readiness** | • Cambridge has a large and growing population and employment base to support the GO Train service extension. Current population of 126,748 and employment of 57,025<sup>4</sup> projected to grow to 178,000 residents and 102,000 jobs by 2031.  
• Target intensification density of 150 population and employment/ha by 2031 in the urban growth centre (Galt) and intensification areas (Growth Plan and City of Cambridge Official Plan). The GO Train extension would connect two of Ontario’s fastest growing communities, Cambridge and Milton.  
• There is a potential for an additional 3.3 million square feet (306,580 sq. m.) of additional retail and service commercial space in Cambridge by 2031. This would be in addition to the existing 6.2 million of retail and service commercial floor space in the City at present<sup>5</sup>. |
| **Customer Service and Market Readiness** | • Milton is one of the fastest growing municipalities in Canada and has a large and growing population and employment base. The current population of 84,362<sup>6</sup> and employment of 48,055<sup>7</sup> is projected to grow to 238,000 residents and 114,000 jobs by 2031<sup>8</sup>.  
• Target intensification density of 200 to 250 population and employment<sup>9</sup>. Requires growth of 23,060 population and employment<sup>10</sup>. |
| **Customer Service and Market Readiness** | • Intensification is planned within an 800m radius of a proposed Cambridge Mobility Hub (combined GO Station and ION (LRT) station) and other intensification /regeneration areas.  
• Intensification and Regeneration Areas, along with potential GO and ION Station Areas will be connected. Population to grow from13,445 to |

<sup>3</sup> Source: 2011 Transportation Tomorrow Survey  
<sup>4</sup> Source: 2011 Stats Can  
<sup>5</sup> Source: The Cambridge Comprehensive Commercial Study (September 2014), prepared by Malone, Given, Parsons Ltd.  
<sup>6</sup> Source: 2011 Stats Can  
<sup>7</sup> Source: National Household Survey Profiles 2011 total labour force  
<sup>8</sup> Source: Region of Halton Official Plan, Table 1.  
<sup>9</sup> Source: Milton Intensification Study, 2010  
<sup>10</sup> Source: Milton Intensification Study, 2010
<table>
<thead>
<tr>
<th>SCORECARD INDICATOR</th>
<th>PERFORMANCE</th>
</tr>
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</table>
| Customer Service and Market Readiness          | • Intensification is planned within 800m radius of the Milton Mobility Hub. Population to grow from 2,212 to 14,445 and employment to grow from 2,215 to 5,997 by 2031.  
  • This intensification requires reduction in surface parking spaces at the Milton GO Station which is difficult and expensive to achieve but will be possible by extending GO trains to new stations to the west. |
| Regional Connectivity                           | • The extension of GO Train service from Union to Milton to Cambridge and the progressive implementation of two-way service through the Metrolinx RER strategy will provide direct rail transit connectivity for five Urban Growth Centres (as defined in Places to Grow): downtown Cambridge, downtown Milton, Mississauga City Centre (via Hurontario LRT), Etobicoke Centre and Downtown Toronto.  
  • A connection to the Downtown Kitchener and Uptown Waterloo urban growth centres from the Cambridge GO Train will be provided through the implementation of ION LRT service by the Region of Waterloo. Future rail transit connections between Downtown Cambridge and the downtowns of Guelph, and Hamilton could also be possible using DMU technology on existing rail corridors. |
| Regional Connectivity                           | • Waterloo Region has an existing population of 528,000 and employment of 269,000; projected to grow to 742,000 population and 366,000 employment by 2031.  
  • ION will provide the Region with a north south rail transit spine that will connect riders to the two GO Rail corridors once fully implemented.  
  • Grand River Transit iXpress corridors will also provide transit connections from a Cambridge GO Train to all areas of Region of Waterloo. |
| Regional Connectivity                           | • Halton Region has an existing population of 520,000 and employment of 254,000; projected to grow to 820,000 population and 390,000 employment by 2031.  
  • Just as the Lakeshore GO corridor connects Oakville/Burlington to Hamilton, this corridor can be used to connect Mississauga and Milton with Cambridge and Waterloo Region. |
| Building Communities                            | • The extension of the GO Train to Cambridge will support intensification and regeneration opportunities in Cambridge and Milton.  
  • Both Cambridge and Milton have Urban Growth Centres (Galt City Centre and Downtown Milton).  
  • Cambridge has designated the following Regeneration Areas in the Official Plan:  
  1. Preston, King Street East; |

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11 Source: City of Cambridge Planning and Development Department  
12 Source: Town of Milton BPE, June 8, 2011  
13 Source: Hemson, Growth Plan Technical Report (Table 4), 2012  
14 Source: Growth Plan 2031 B, Updated Forecast  
15 Source: Hemson, Growth Plan Technical Report (Table 1), 2012  
16 Source: Growth Plan 2031 B, Updated Forecast
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>2. Hespeler Road at Can-Amera Parkway to Clyde Road; 3. Hespeler, Queen Street West at Goebel Avenue; and 4. Galt City Centre.</td>
<td>- Milton has identified through a 2006 TOD Study a number of nodes and corridors including: 1. GO Station Node a. Main Street E and Thompson Road 2. Major Transit Node a. Ontario Street and Derry Road b. Saint Laurent and Thompson Road 3. Minor Transit Node a. Thompson and Derry Road b. Highway 4 and Derry Road c. Bronte and Derry Road d. Ontario Street and Main Street e. Highway 25 and Highway 8</td>
</tr>
</tbody>
</table>

**Social Need**
- The extension of GO Trains to Cambridge provides affordable transit to access eight post-secondary campuses along the corridor with an enrollment of 275,000 students (Waterloo University, Wilfrid Laurier University, Ryerson University, University of Toronto, Conestoga College, George Brown College, Sheridan College and the Ontario College of Art and Design) and the proposed Laurier/Conestoga campus in Milton Education Village.
- Conestoga College is looking to further expand in Cambridge and has unique apprenticeship programs that draw students from the GTA who will be attracted to its unique program. Such program specialization is consistent with Ontario’s training strategy and increases the need for enhanced transit mobility to Conestoga College in Cambridge.
- University of Waterloo, School of Architecture is located in downtown Cambridge and would also benefit from an improved rail connection.

**Social Need**
- Reduces proportion of annual household income spent on transportation (annual cost to commute from Cambridge to Toronto is $11,000 to $13,000 less if a person is using the GO Train versus owning and operating a private automobile).

**Social Need**
- Cambridge has more affordable housing than other municipalities along the corridor and the GO extension will support greater housing choice and employment opportunities (families can move to Cambridge with one household member working in Cambridge and the second in another place of work along the corridor).
- Many new Canadians have chosen to live and/or work in Cambridge and would benefit from the availability of GO Train service.

**Benefit Cost Ratio**
- Reduces up to 1,200 daily auto trips by 2021 and 1,550 daily auto trips by 2031 on the Highway 401 corridor between Cambridge and the Greater Toronto Area.

**Benefit Cost Ratio**
- GO Train services offers similar travel time to driving between Cambridge and downtown Toronto (94 minute on GO Train versus 90 to 100 minute
driving during normal congested conditions). GO Rail also provides greater reliability for commuters compared to driving as congestion and incidents occur on the highway. Rail versus car trip reliability and safety is also improved during inclement weather conditions.

- By 2031, automobile travel time is anticipated to increase by 15 to 33 percent if no improvements to the rail network are made. This will bring average peak period auto commuting time between downtown Cambridge and downtown Toronto to 103 and 133 minutes. Commuters have more relaxing productive time available to them when travelling on the train versus driving.
- Shifting commuters from auto’s to transit reduces pressure on road authorities to connect and widen road corridors passing through sensitive lands.

### A Thriving, Protected Sustainable Environment

<table>
<thead>
<tr>
<th>SCORECARD INDICATOR</th>
<th>PERFORMANCE</th>
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<tbody>
<tr>
<td>Transit Ridership Growth</td>
<td>Projected 550 to 1,200 daily riders by 2021 and 800 to 1,550 daily riders by 2031 for initial service level using four DMU trains with one new station in downtown Cambridge.</td>
</tr>
<tr>
<td>Transit Ridership Growth</td>
<td>Transit ridership projected for the initial service will increase as new stations are added at Cambridge East and in Milton/Halton and as rail service levels are increased.</td>
</tr>
<tr>
<td>Transit Ridership Growth</td>
<td>By providing a new western terminus for the Milton corridor, Cambridge stations will also benefit commuters living south and west of the Region of Waterloo.</td>
</tr>
<tr>
<td>Transit Ridership Growth</td>
<td>As the GO Rail connections to the Regional Growth Centers are supplemented by feeder services (such as ION, iXpress, all-day two-way GO Rail service between Milton and Union Station, the TTC rapid transit lines, the Hurontario LRT and local feeder transit systems) ridership on this corridor is expected to significantly increase.</td>
</tr>
<tr>
<td>Transit Ridership Growth</td>
<td>Post-secondary students are a key regional transit market and this corridor provides fast transit connections for eight college and university campuses accessible from the corridor with a total existing enrollment of 275,000 students.</td>
</tr>
<tr>
<td>Transit Ridership Growth</td>
<td>Affordable transit for workers combined with observed shifts in attitude/travel behaviour of those entering the workforce will drive the transit mode share to achieve the targets of Municipal Sustainability Plans and the Province’s Places to Grow Strategy.</td>
</tr>
<tr>
<td>Greenhouse Gas Emission Reduction</td>
<td>The Region of Waterloo has set a target to grow PM peak hour transit mode share to 15 percent by 2031. The extension of GO Rail service to Cambridge will help achieve that goal.</td>
</tr>
<tr>
<td>Greenhouse Gas Emission Reduction</td>
<td>Emission reduction with GO Rail service between Cambridge and Milton is estimated to save 1,814 kg of CO₂ emissions, daily (29% reduction).</td>
</tr>
<tr>
<td>Greenhouse Gas Emission Reduction</td>
<td>New stations on the extension will reduce auto-km for those currently driving to Milton and Aldershot stations. Estimated GHG reduction will be</td>
</tr>
</tbody>
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17 Source: Canadian Your32.com and Index of Wellbeing, April 2014
possible using rider information from Metrolinx station surveys.

### A Strong, Prosperous and Competitive Economy

#### Economic Impacts
- Provides employers in Toronto, Peel, Halton and Waterloo with improved transit access to a large regional labour force living within close proximity of the GO Rail corridor.
- Improves access to all jobs in the Region of Waterloo.
- Supports specific growth of approximately 3,500 planned jobs within walking distance of the proposed Cambridge GO Station and 3,800 jobs within walking distance of the Milton GO Station.

#### Economic Impacts
- Strong support from the Cambridge business community.
- Tourism will benefit greatly from GO Rail service to Cambridge, including network connections to Pearson International Airport.

#### Capital Investment Per Rider
- Estimated capital investment between $89 and $324 per annual rider or between $16,583 and $82,919 by 2021 per daily rider.

#### Operating Revenue/Cost Ratio
- The initial 2021 service scenario is expected to achieve an annual ridership of 135,000 to 293,000 and yield a passenger revenue of $1.2M to $2.5M.
- Operating costs for the peak service are expected to be significantly less than the annual $3.8M estimate developed (and reviewed by GO Transit staff) in the 2009 Business Case.\(^\text{18}\)
- Operating cost reductions will result from use of DMUs with lower fuel consumption and less on-board staffing (crew) levels required than is the case for a 12-car GO Train.
- The Revenue / Cost (R/C) ratio for initial service on the extension will be improved over the estimate in the 2009 Feasibility Study.

### Strategic Fit

#### Funding
- Project capital cost of $20 million to $73 million is significantly less than the $800 million plus the province will be investing to widen Highway 401 from Cambridge to the Halton boundary.
- The province is also planning to invest up to $5 billion in the GTA West highway corridor.
- The value and importance of the extension of GO Train service to Cambridge is identified in various network transportation studies. It will leverage and help prolong the highway investment and preserve capacity for the movement of goods along the critical Highway 401 corridor.
- Providing additional east west transportation capacity by introducing public transit in this existing rail corridor will lessen the need for new road crossings and lane widenings through environmentally sensitive lands.
- New and improved Highway 401 interchanges in Halton, Wellington and Waterloo provide ideal locations to intercept autos and allow drivers to continue their trip on GO Transit. Park and Ride transit facilities are possible at several locations near the new stations on the Cambridge extension.

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\(^{18}\) To be confirmed by GO Transit and CP Rail
### Scorecard Indicator: Funding
- $818M has been invested for Phase 1 of ION (Ontario support $300M, federal support $265M, Waterloo Region $250M) and a similar amount will be required to complete Stage 2 of ION to Cambridge. The Milton to Cambridge extension combined with ION will distribute Toronto/Mississauga/Halton travellers throughout Waterloo Region.

### Scorecard Indicator: Project Readiness
- Metrolinx has purchased DMU cars for the Union Pearson Express. These vehicles are suitable for operations on a freight line (FRA compliant vehicle design).
- These vehicles would be available for use on the Cambridge extension once the Georgetown South Corridor is converted to electric.
- Project can be implemented quickly with one station in downtown Cambridge and with minimal capital costs.
- Additional stations can be added as sites are finalized through an EA study and service levels can be increased as demand grows.
- Full two-way, all-day service would be the final stage.

### Scorecard Indicator: GTHA Network Advancement
- Highway 401 is the major economic transportation corridor for Ontario. Significant congestion levels are already impeding the efficient movement of goods (congestion delays valued at $46/hr for trucking, $26/hr commuters).
- Business Expansion and Foreign Direct Investment (particularly for Advanced Manufacturing and Food Industries) in the GTA West region depend on an integrated and efficient transportation network.
- Converting auto trips to transit will reduce accident rates and associated health care and insurance costs.
- The GTA West Study identifies Cambridge as a transit gateway and the extension from Milton to Cambridge as an important transit connection.
- Through the Metrolinx Regional Express Rail plan, two-way all-day service is proposed between Union and Milton with an investment up to $2 Billion.
- A further extension of GO Train service to Cambridge will support this investment and complete a rail transit network that connects to the Kitchener GO corridor via the Region of Waterloo ION LRT project.
7.0 PROPOSED GO TRAIN SERVICE

Metrolinx has purchased 18 DMU vehicles for the Union Pearson Express and with the provincial commitment to electrification on this corridor, the DMUs may be replaced by Electric Multiple Units (EMUs) and become available for other applications such as the Cambridge-Milton extension.

Adopting the DMU technology has the potential to address new and growing commuter markets and a Cambridge service extension may be an excellent opportunity to test such applications. If successful in a Milton to Cambridge service, these applications could be extended more generally throughout the GO Rail network.

A Diesel Multiple Unit (DMU) is a self-propelled rail vehicle capable of operating as a single unit or coupled together to operate in multiple unit trains. Due to their size and power to weight ratio, DMUs have better acceleration and braking characteristics than typical locomotive-hauled coach consists. DMUs in the appropriate applications will also have lower operating costs than a traditional 12-car GO Train as there will be fewer operating crew required on the DMU and energy consumption and emissions will also be lower.

The proposal for a market entry scenario connects two of the fastest growing communities in Ontario (Milton and Cambridge) with four DMU trains and with one new station in downtown Cambridge (Cambridge Central station). This scenario requires users travelling beyond Milton to transfer between the DMU and a 12-car GO Train at the Milton station. This service would include four eastbound AM peak trips and four westbound PM peak period trips for consistency with the Metrolinx traditional approach to minimum market entry for service start-up.

Since the DMUs are not required for service beyond Milton, this scenario allows for reverse transit travel in the AM and PM peak periods to accommodate Milton residents working in Cambridge. The scenario can also be used to test mid-day return trips and evening service between Milton and Cambridge. Potentially these new service strategies could be tested on even longer sections of the corridor depending on track availability between Milton and Union Station.
The initial station would be located at the existing station platform near Water Street at the north boundary of downtown Galt and connected by bus to the local transit terminal. With the current iXpress, imminent Bus Rapid Transit and a future LRT alignment planned to serve downtown Cambridge, a new multi-modal terminal would be fully integrated with the regional transit network and provide employers with increased access to the regional labour force. The province’s commitment to the Union-Milton and Kitchener corridors and the Region’s commitment to ION provide the key elements of the transit rail network for GTA West and the inclusion of the Cambridge-Milton GO Rail link completes this network.

For Cambridge Central station, the location would be planned to take full advantage of the “Urban Growth Centre” designation for downtown Cambridge specified in the Growth Plan for the Greater Golden Horseshoe. This downtown station location would be consistent with other Metrolinx Mobility Hub designations. Intensification is planned within an 800m radius of the proposed Cambridge Mobility Hub (integrated GO Train and ION station) and other intensification/regeneration areas. With GO Train service, population is projected to grow from 13,500 to 18,900 and employment to grow from 6,500 to 10,000 by 2031.

Additional stations on the Cambridge to Milton extension will be phased in as service and ridership increases. A widening, realignment and new Hwy 401 interchange project underway for Tremaine Road in Milton, the Campbellville rail yards and the proposed Highway 6 Bypass at Morriston (Puslinch) would each provide excellent access for trip diversion from Highway 401 and be relevant to the consideration of final station locations for a Cambridge GO train service extension. A second Cambridge station in the vicinity of Franklin Boulevard would provide good access to the large residential community on the east side of Cambridge that has a high proportion of commuters.

Storage of the DMU vehicles will be required at the Cambridge Central station area, or somewhere along the line preferably near this end of the service.

**Capital Costs**

Capital cost for this scenario ranges from $20M to $73M depending on the final inclusion requirements of rail corridor infrastructure costs previously carried in the 2009 Cambridge to GTA Rail Passenger Feasibility Study. These figures do not include the costs of rail equipment as the DMUs may become surplus when the airport service is electrified. With the costs of six DMUs included, the range is from $47M to $100M.

**Operational Costs**

Given that the DMU fleet will have much smaller (Tier-4 compliant) diesel engines than their heavy locomotive counterparts and that the train crew requirement will be smaller than on the 12-car locomotive hauled coach trains, it is anticipated that DMU operational costs will be significantly less than the costs for a traditional GO Train. This exact cost savings from reduced energy consumption and lower staffing levels can be estimated after commencement of the Metrolinx Union Pearson Express service once exact operating costs become available.
Ridership and Revenue

Daily ridership forecasts for this scenario are illustrated in the tables below. Annual ridership to and from Cambridge under the initial DMU service scenario is projected to reach up to 375,000 rides by 2031. These include trips made from Cambridge to all stations along the Milton line, as well as off-peak trips (mid-day and evening service between Milton and Cambridge) and reverse flow direction peak period trips between Milton and Cambridge.

Trips to Union Station continue to be significant and represent approximately 87 percent of total projected ridership along the corridor. As land use around both the Cambridge Central and Milton stations become more transit supportive, further ridership increases are anticipated. Higher transit ridership between these municipalities will also occur if there is good local transit feeder services and once two-way service is provided along the GO Rail line between Milton and Union Station. Once an intercity passenger rail service is established and station locations identified, some families will alter their live-work relations and relocate, which will also increase ridership potential between intermediate stations.

### 2021 Cambridge Passenger Rail Ridership Forecasts

<table>
<thead>
<tr>
<th>Cambridge to/from:</th>
<th>AM Peak - EB</th>
<th>PM Peak - WB</th>
<th>Off-Peak</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Milton</td>
<td>24</td>
<td>48</td>
<td>18</td>
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<tr>
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<tr>
<td>Union Station</td>
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<td>496</td>
<td>223</td>
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<tr>
<td>Total</td>
<td>272</td>
<td>595</td>
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### 2031 Cambridge Passenger Rail Ridership Forecasts

<table>
<thead>
<tr>
<th>Cambridge to/from:</th>
<th>AM Peak - EB</th>
<th>PM Peak - WB</th>
<th>Off-Peak</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Low</td>
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<tr>
<td>Milton</td>
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<td>Union Station</td>
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<tr>
<td>Total</td>
<td>393</td>
<td>770</td>
<td>378</td>
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</tr>
</tbody>
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Regional Express Rail Service

Metrolinx is planning to provide significant new travel choices including electrified, 15-minute service in core areas and two-way, all-day service on weekdays, during the evening and on weekends with a mix of all-stop and limited-stop service on GO Transit’s seven rail corridors. They plan to deliver this Regional Express Rail strategy across the GO Transit network over the next 10 years.

With two-way, all-day RER service, customers will no longer be constrained by inflexible schedules. Passengers who currently rely on GO Bus service for mid-day trips and ‘reverse commutes’ will have regular and reliable train service to get where they are going. For the typical rush hour commuter, existing peak period services to and from Union Station will be significantly expanded too.

RER calls for the electrification of a significant portion of GO Transit’s existing rail network. The service is expected to have a mixed fleet of Electric Multiple Units (EMUs), Diesel Multiple Units (DMUs), bi-level cars and electric and diesel locomotives. Train lengths will also be flexible with 12-car bi-level trains expected to accommodate rush hour service and shorter DMU trains for off-peak and weekend periods and on lower passenger volume sections of corridors.

Early analyses have shown that two-way, all-day RER service will attract more riders, increase fare revenue and make better use of GO Transit’s existing track infrastructure. RER is already successfully servicing a number of international cities. Réseau Express Régional in Paris, the Pendeltåg in Stockholm and the Bay Area Rapid Transit System (BART) in San Francisco all provide frequent, predominantly electrified and longer-distance, two-way, all-day regional trips.

The flexibility of using shorter trains for lower passenger volumes for the RER is very consistent with the proposal to use DMUs as the market entry scenario for Cambridge. In fact, early implementation of the Cambridge service would provide the ability to test DMU technology and applications prior to a system-wide implementation.

Additional technical information on the DMU strategy is included in Appendix A.
8.0 RECOMMENDED NEXT STEPS

To realize a vision of two-way all-day GO Train service between Milton and Union and the extension of GO Rail services further west to Cambridge as a complementary initiative, a number of important next steps are recommended. The recommended next steps will be important to the City of Cambridge, Region of Waterloo, Town of Milton and Region of Halton and will allow each municipality to better plan for future Mobility Hubs, determine and protect for future stations, particularly a downtown Cambridge station that is integrated with the planned ION LRT extension; and continue to promote economic development and job growth opportunities within the downtown areas of Cambridge and Milton.

The recommended next steps are as follows:

- Identify two-way, all-day GO Rail service to Milton as a Next Wave project to be implemented through the Regional Express Rail (RER) strategy within (10) years, and re-prioritized accordingly through The Big Move (2008) legislated update.
- Initiate the extension of GO Train service between Milton and Cambridge by the early testing of Diesel Multiple Unit (DMU) technology for commuter rail service as part of a pilot project.
- Include GO Train service from Milton to Cambridge as part of the Regional Express Rail (RER) Strategy.
- Include Waterloo Region as part of the Metrolinx planning area and as part of The Big Move.
- Immediately commence an Environmental Assessment (EA) study for the extension of GO Train service to Cambridge in order to identify and protect for new station locations, crossings and other corridor requirements.
- Include representatives from Waterloo Region, the City of Cambridge, Halton Region and the Town of Milton on any applicable Stakeholders Committees.
Special thanks to Richard Bain for sharing many of the images of Cambridge featured within.

“A strong public transportation network is essential for the growth and prosperity of urban communities. It provides a safe, sustainable transit option that keeps people connected across communities and stimulates economic growth”

- Cambridge Mayor, Doug Craig

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