1 Introduction

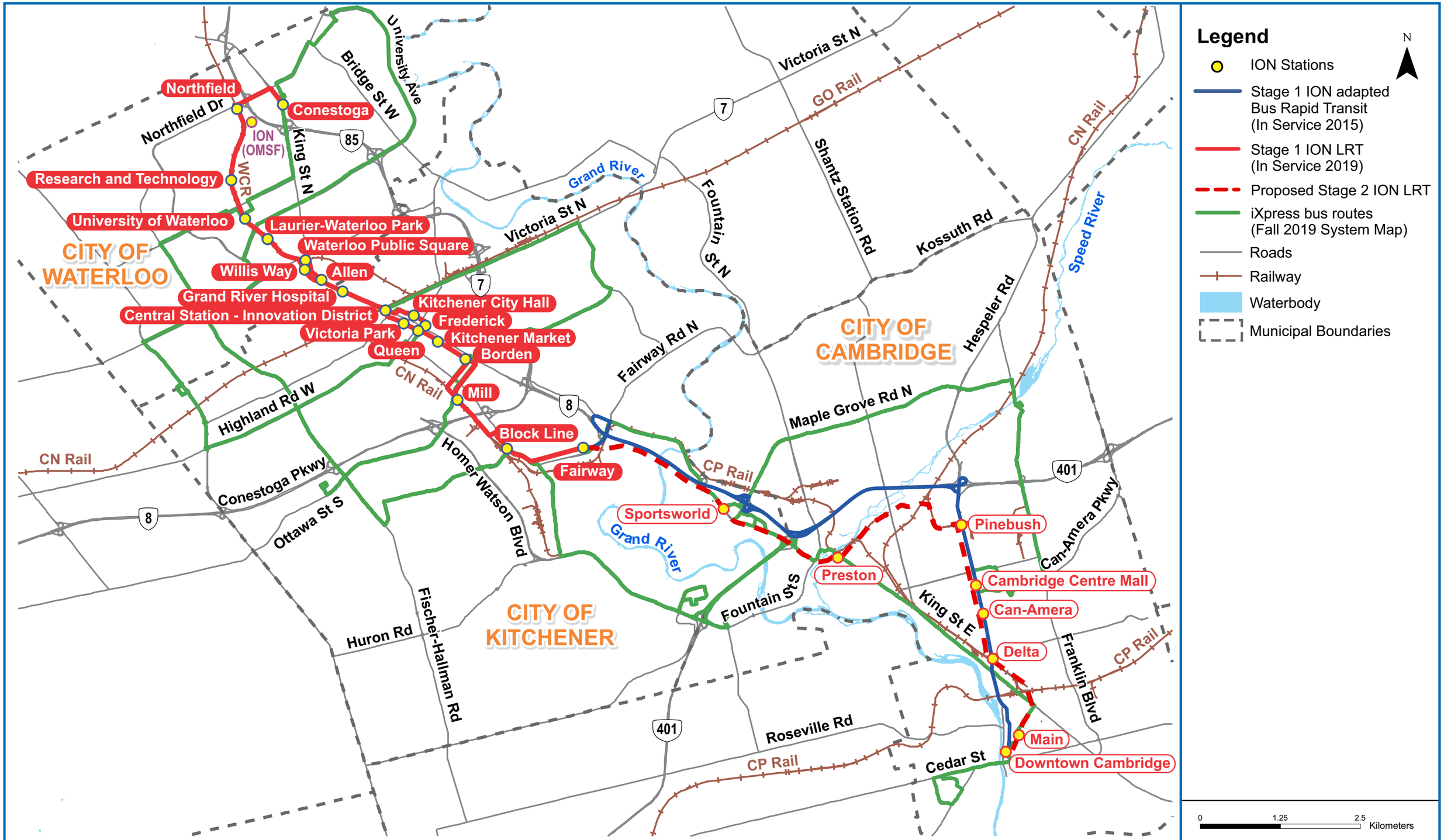
In June 2011, Region of Waterloo Council approved the implementation of a staged Light Rail Transit (LRT) system for rapid transit in Waterloo Region, to link the major urban centres of the Cities of Waterloo, Kitchener and Cambridge. In 2013 the Region's rapid transit system was given the name ION. The Region is directing more growth to the existing built-up area to make better use of land, infrastructure and services. By building up instead of out the Region will help to limit urban sprawl and reduce the environmental impacts of urban growth. ION was approved by Region of Waterloo Council to achieve two major goals: to move people, and to build community.

ION is being implemented in two stages:

- **Stage 1 ION** includes LRT from Conestoga Station in Waterloo to Fairway Station in Kitchener, and adapted Bus Rapid Transit ("aBRT", now referred to as "ION Bus") from Fairway Station to the Ainslie Bus Terminal in Downtown Cambridge. ION Bus service commenced in September 2015, and LRT commenced in June 2019.
- **Stage 2 ION** will replace the ION Bus service from Fairway Station in Kitchener to Downtown Cambridge with LRT, with 8 stations in this section of the route. This will create a continuous and seamless route across the Region's three urban centres.

The complete ION rapid transit system, shown in **Figure 1-1**, will do more than just increase transit access throughout the Region. It will also create an opportunity to build healthy and vibrant communities along the route.

This Environmental Project Report (EPR) documents the Environmental Assessment (EA) process undertaken by the Region of Waterloo for the Stage 2 ION LRT system under *Ontario Regulation (O. Reg.) 231/08 for Transit Projects and Metrolinx Undertakings* (Transit Project Assessment [TPA] Process). The TPA Process was completed for Stage 1 ION in March 2012.



Stage 2 ION: Light Rail Transit (LRT)
From Kitchener to Cambridge
Environmental Project Report

Stage 1 and 2 ION Rapid Transit System

Figure 1-1

1.1 Study Overview and Purpose

The Region of Waterloo continues to grow and is projected to experience significant population and employment growth over the next decade and beyond. With more than 300,000 new residents expected to move to Waterloo Region over the next 30 years, light rail transit is a sustainable solution to meet the community's future transportation needs.

According to Region of Waterloo estimates[1], by 2019 the population of Waterloo Region had reached 617,870 (including students who study at local post-secondary institutions). Over the past 15 years the Region's population has grown an average of 1.58 per cent per year. As the fourth largest metropolitan area in Ontario and the tenth largest in Canada, Statistics Canada recently indicated[2] that this area was the fastest growing metropolitan area in the country. Over the next 30 years, the Region's population is projected to reach 923,000 people (excluding students) and employment will increase to 470,000 by 2051. This growth cements the Region's importance as a major hub in southern Ontario. See **Figure 1-2** for further details.

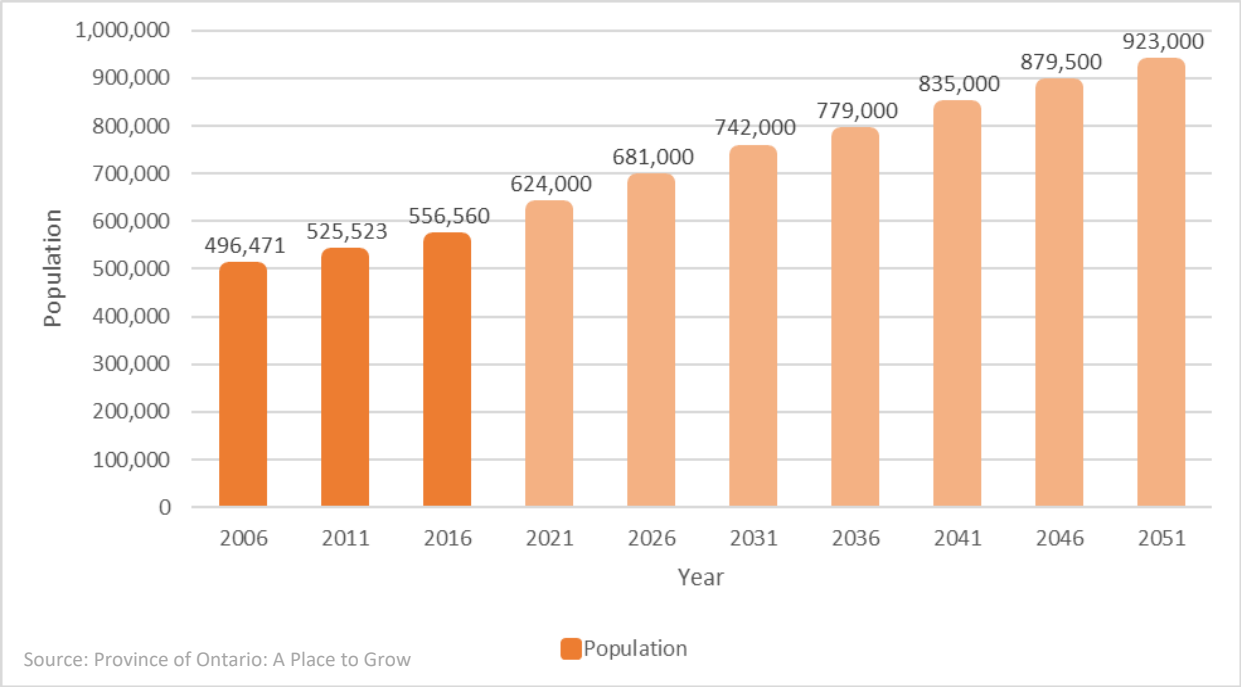


Figure 1-2: Population Growth for Waterloo Region

[1] https://www.regionofwaterloo.ca/en/regional-government/resources/Census/DOCS_ADMIN-3290126-v1-Year_end_2019_Population_and_household_Bulletin.pdf

[2] https://www150.statcan.gc.ca/n1/en/pub/11-627-m/11-627-m2020011-eng.pdf?st=3una1z_2

LRT will benefit the Region's growing communities by:

- Promoting a more sustainable form of development that encourages intensification in core areas, and minimize impacts to farmland, environmentally sensitive landscapes and water protection areas around their urban boundaries.
- Improving air quality by helping to reduce auto use, and therefore greenhouse gas emissions.
- Decreasing emissions that result from electrification of transit (i.e. switching transit riders off of diesel buses and on to vehicles powered with low-carbon electricity).
- Promoting economic development by attracting jobs and the talented people who contribute to the Region's nationally significant economy.
- Improving public health through the development of more compact urban communities that reduce travel distances and promote walking and cycling.

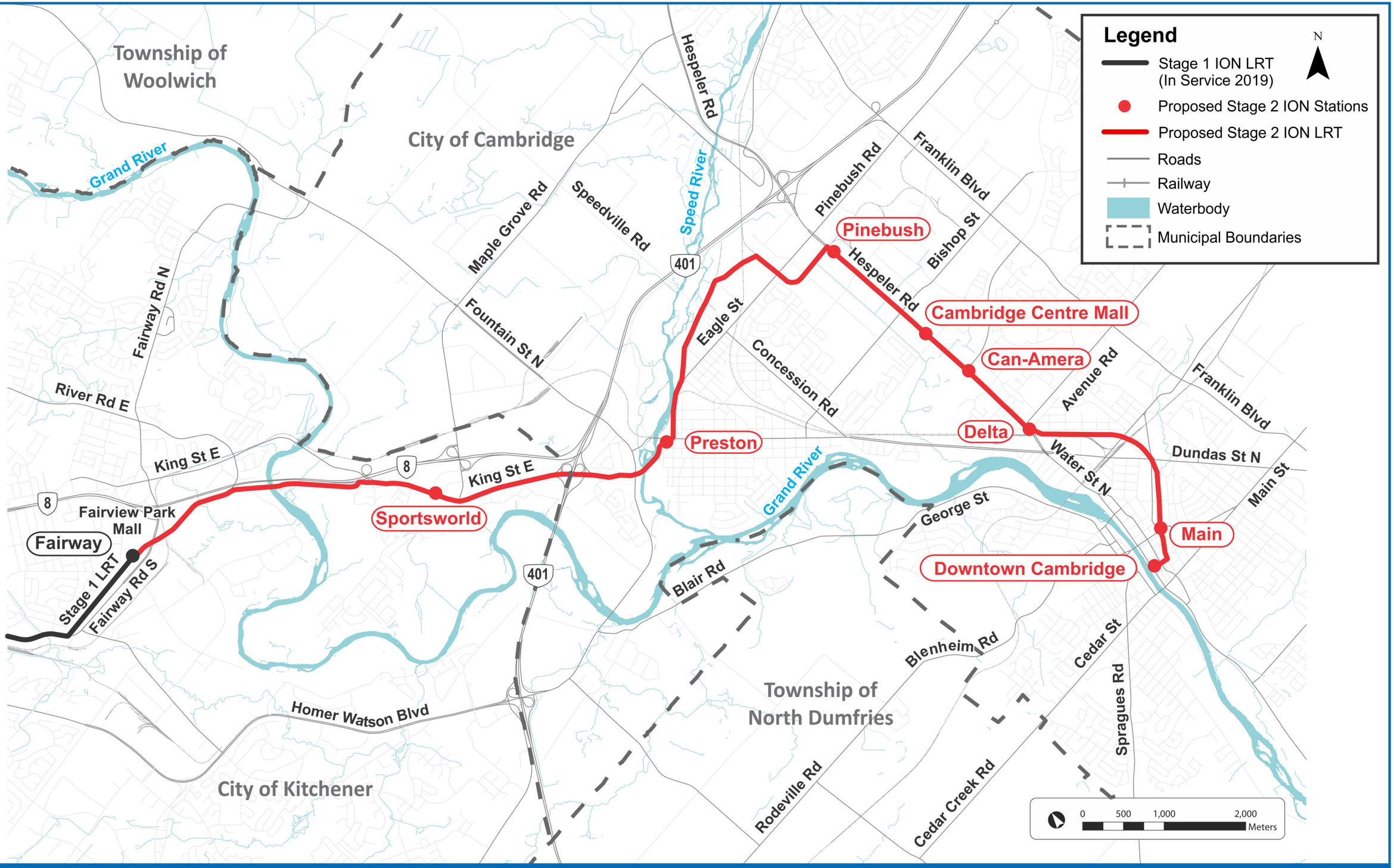
The Region recognized that a rapid transit system could help influence how long-term growth was managed and considered it a way to both move people and shape the community. The Region began a rapid transit individual environmental assessment (EA) in 2006 to identify the best possible rapid transit system for the Region, which included evaluation of a number of rapid transit technologies. Bus rapid transit (BRT) and light rail transit (LRT) were short-listed because they had the greatest potential to:

- Support the Region's redevelopment and intensification objectives;
- Optimize the use of road and railway corridors to serve major destinations; and
- Be compatible with existing and planned neighbourhoods.

In June 2009, Regional Council approved a rapid transit implementation plan. The Rapid Transit project transitioned to a Transit Project Assessment Process in November 2011. The Environmental Project Report for Stage 1 was completed in March 2012. The approved ION LRT and ION Bus systems have been constructed and are currently in operation. The purpose of this study is to complete the environmental assessment for Stage 2 of ION, which will extend LRT from Kitchener to downtown Cambridge.

1.2 Study Area

On June 5, 2019 Region of Waterloo Council endorsed the Preferred Stage 2 ION route and stations, which is located within the Central Transit Corridor between Fairway Station in the City of Kitchener and Downtown Cambridge. The Stage 2 ION route is shown in **Figure 1-3**.



Stage 2 ION: Light Rail Transit (LRT)
From Kitchener to Cambridge
Environmental Project Report

Study Area

Figure
1-3

1.3 Study Background

The current study is being carried out under the TPA Process and in accordance with O. Reg. 231/08. However, prior to starting the TPA Process, the Region studied several aspects of rapid transit over the years, as further explored in **Sections 1.3.1** to **1.3.5**.

1.3.1 Rapid Transit Environmental Assessment

The Region of Waterloo Rapid transit project was initiated as an Individual Environmental Assessment (Individual EA) in 2006. Prior to that, technical studies for a contemplated rapid transit project were prepared in 2004-2005 which concluded that rapid transit was a feasible transportation alternative and a strategic financial investment that would support the Region's economy, competitiveness and prosperity over the next 30 years, while also meeting Provincial and Regional planning goals. A detailed cost-benefit analysis was included in these studies, and was submitted to the Federal and Provincial governments in November 2005.

The Terms of Reference for the Individual EA bound the Region to completing a three (3) phase process:

- Phase 1 (Alternative Transportation Strategies) was completed in 2006;
- Phase 2 (Alternative Implementation Methods) was completed in 2009; and,
- Phase 3 (Alternative Designs and Implementation Plan) was not initiated because at that point, the study transitioned to the current TPA Process (O. Reg. 231/08).

Several technical reports were completed in support of the work undertaken for the Individual EA. These reports are available as background information from the Region and most are online at:
http://rapidtransit.regionofwaterloo.ca/en/multimedialibrary/reports-and-updates.asp

1.3.2 Transition from Individual EA to Transit Project Assessment Process

On August 20, 2008, the Region submitted the "Notice of Intent to Transition from Individual EA to TPA Process (O. Reg. 231/08)" to the then Ontario Ministry of the Environment. Thereafter, the study proceeded under the TPA Process as prescribed in O. Reg 231/08. The Notice of Commencement was issued on November 22, 2011. The TPA Process is described further in **Section 2.1**.

1.3.3 Council Endorsed LRT Route

In June 2011 following confirmation of funding from the Provincial and Federal governments, Regional Council endorsed the staged approach to implementing LRT as the preferred rapid transit solution:

- Stage 1 ION LRT from Conestoga Station Mall in Waterloo to Fairway Station in Kitchener, and ION Bus from Fairway Station in Kitchener to the Ainslie Street bus terminal in Cambridge; and,
- Stage 2 ION LRT from Fairway Station in Kitchener to Downtown Cambridge.

In addition to proceeding with the EPR and TPA process for Stage 1 ION, Council also directed that planning be commenced for implementation of Stage 2 including commencement of the TPA, property acquisition, pursuit of funding, planning for a multi-modal terminal with a potential future extension of GO Rail service to Cambridge, and other transit supportive strategies.

1.3.4 Stage 1 ION Transit Project Assessment

The Environmental Project Report (EPR) for Stage 1 ION was completed in March 2012 and can be found online at: http://rapidtransit.regionofwaterloo.ca/en/multimedialibrary/reports_2012.asp.

In addition to developing the Stage 1 ION LRT and ION bus alignments, the Stage 1 ION EPR also fully documented the process that led to the selection of a preferred technology and route for the rapid transit project which is the basis for Stage 2 of the study. The Minister of the Environment's Notice to Proceed with the transit project was issued on May 17, 2012 and the Statement of Completion was issued on May 22, 2012.

1.3.5 Commencement of Stage 2 ION Study

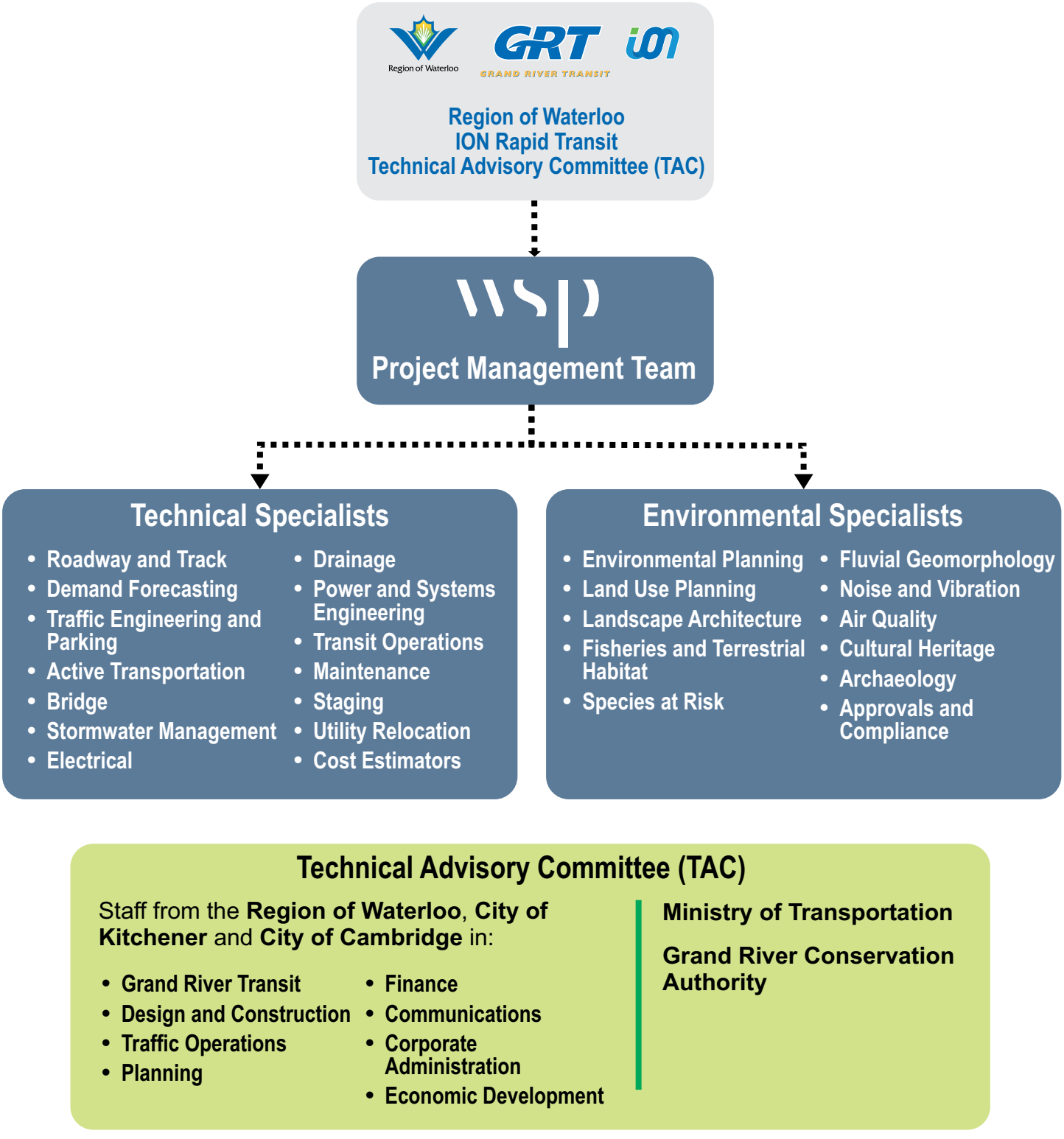
In August 2015, the Region of Waterloo commenced planning for Stage 2 ION which is the subject of this Environmental Project Report. This planning work included reviewing the alignment endorsed by Regional Council in 2011 to address new challenges and opportunities, including:

- Opportunities to reduce impacts on railway corridors, including reducing track relocation and grade separations;
- Changes in land use, new development and intensification initiatives;
- Opportunities for transit-supportive development;
- Opportunities to reduce environmental impacts;
- Need for updated existing conditions information (natural features, land use, cultural heritage); and,
- Opportunity to connect with potential future GO Transit services in Cambridge.

1.4 Project Team

The Project is being led by the Region of Waterloo's Project Team. It is made up of several Regional and City staff along with specialists in many areas, supported by a Technical Advisory Committee. The Region has hired WSP as the consultant to assist with the study, bringing technical expertise from all over North America. Refer to **Figure 1-4** for a chart illustrating the Project Team, agencies, and other contributors to the Project. Regional roadway infrastructure costs are funded entirely by the Region. Without rapid transit, the Region has estimated the need to build 500 new lane kilometres of roads. This is estimated to cost over $1.4 billion in the next 20 years to accommodate expected growth.

Project Team



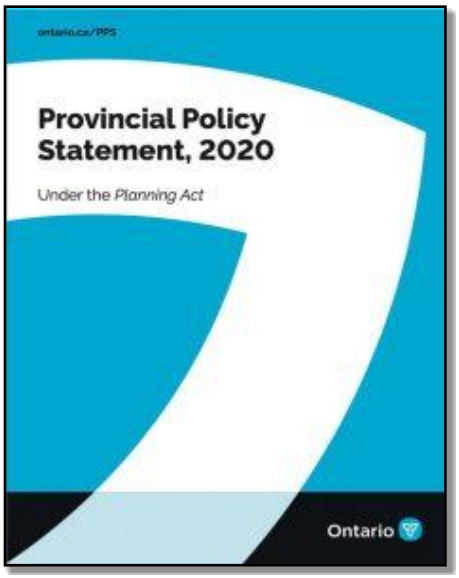
1.5 Context

On average, over the last 10 years more than 50 per cent of new development in Waterloo Region has been occurring through intensification of existing urban areas, adding more residents and generating more jobs. Specifically, in 2019, over 70 per cent of new residential units issued permits were in the built-up areas[3]. LRT encourages better use of land and efficient use of existing services and infrastructure by encouraging development in existing urban areas, limiting urban sprawl and reducing pressure on the Region's farmland and groundwater sources. More compact, intensified development enables the Region and the Cities to provide services such as water, sewer, waste and emergency services to residents in a more cost-effective manner.

Without intensification, the Region would need to plan for significant expansion of the road network through existing, mature residential neighbourhoods unless there is a shift from auto-usage to transit ridership. Regional roadway infrastructure costs are funded entirely by the Region. By addressing travel demands through a combination of roadway expansion, expanded bus service and ION LRT, the Region will help ease traffic congestion and offer residents transportation choices.

The proposed rapid transit system is consistent with Provincial and Regional planning policies and legislation that provide the framework to plan for established targets for more sustainable development and alternative modes of transportation, as described in the following sections.

1.5.1 Provincial Policy Statement



The *Provincial Policy Statement* (PPS) provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario's policy-led planning system, the PPS sets the policy foundation for regulating the development and use of land. It also supports the provincial goal to enhance the quality of life for all Ontarians. The policies of the PPS may be complemented by provincial plans or by locally-generated policies regarding matters of municipal interest. On February 28, 2020, the Ministry of Municipal Affairs and Housing released the PPS, 2020 which came into effect May 1, 2020.

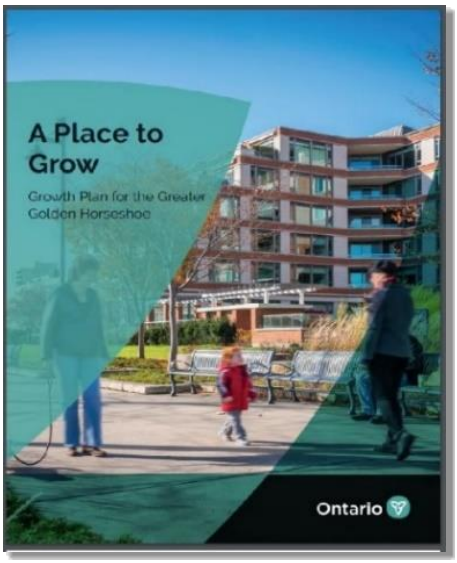
Efficient development patterns optimize the use of land, resources and public investment in infrastructure and public service facilities [see Policy 1.1.1 (e)]. The PPS notes that planning authorities shall identify appropriate locations

[3] https://www.regionofwaterloo.ca/en/regional-government/land-use-planning.aspx

and promote opportunities for transit-supportive development. Stage 2 ION meets the PPS objective of promoting transit.

It will also allow major employment, commercial and other high density land uses to be focused on sites which are well served by transit. Stage 2 ION will also meet the requirement of the PPS which encourages transit-supportive development and intensification to improve the mix of employment and housing uses to shorten commute journeys and decrease transportation congestion.

1.5.2 Growth Plan for the Greater Golden Horseshoe



A Place to Grow, *Growth Plan for the Greater Golden Horseshoe* (August 2020) is the Ontario government's initiative to plan for growth and development in the Greater Golden Horseshoe (GGH) in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life. A Place to Grow supports the development of complete communities with access to transit networks, protected employment zones and an increase in the amount and variety of housing available. Like other provincial plans, this Plan builds upon the policy foundation provided by the PPS and provides additional and more specific land use planning policies to address issues facing specific geographic areas in Ontario.

Amendment 1 to *A Place to Grow: Growth Plan for the Greater Golden Horseshoe* is now in effect. The amendment includes changes to the population and employment forecasts, the horizon year for planning, and other policies to increase housing supply, create jobs, attract business investment and better align with infrastructure. The Plan horizon is now extended to 2051 to ensure municipalities have sufficient land to support the fostering of complete communities, economic development, job creation and housing affordability. The new horizon is consistent with the long-range planning approach of previous growth plans and better aligns with the land supply requirements of the Provincial Policy Statement, 2020.

The Stage 2 ION route is identified in the Growth Plan (Schedule 5) as a “Priority Transit Corridor”. Planning will be prioritized for major transit station areas on priority transit corridors, including zoning in a manner that implements the policies of the Plan. The 2019 Plan recognizes transit as the first priority for transportation planning and investment. The transit network is to support and facilitate improved linkages between strategic growth areas and other areas planned for a mix of uses and transit-supportive densities.

Stage 2 ION helps the Region achieve the vision of A Place to Grow, where transit and active transportation are practical elements of urban transportation systems. The Growth Plan, 2006 identified 25 urban growth centres including the core areas of

Downtown Cambridge, Downtown Kitchener and Uptown Waterloo. Since the introduction of the Growth Plan, 2006 the Region of Waterloo has seen an increase in intensification within the built-up area, a greater variety of housing options (including a shift to higher-density forms of housing such as apartments), more mixed-use development in urban growth centres and other strategic growth areas, and greater integration of transit and land use planning.

1.5.3 Regional Growth Management Strategy

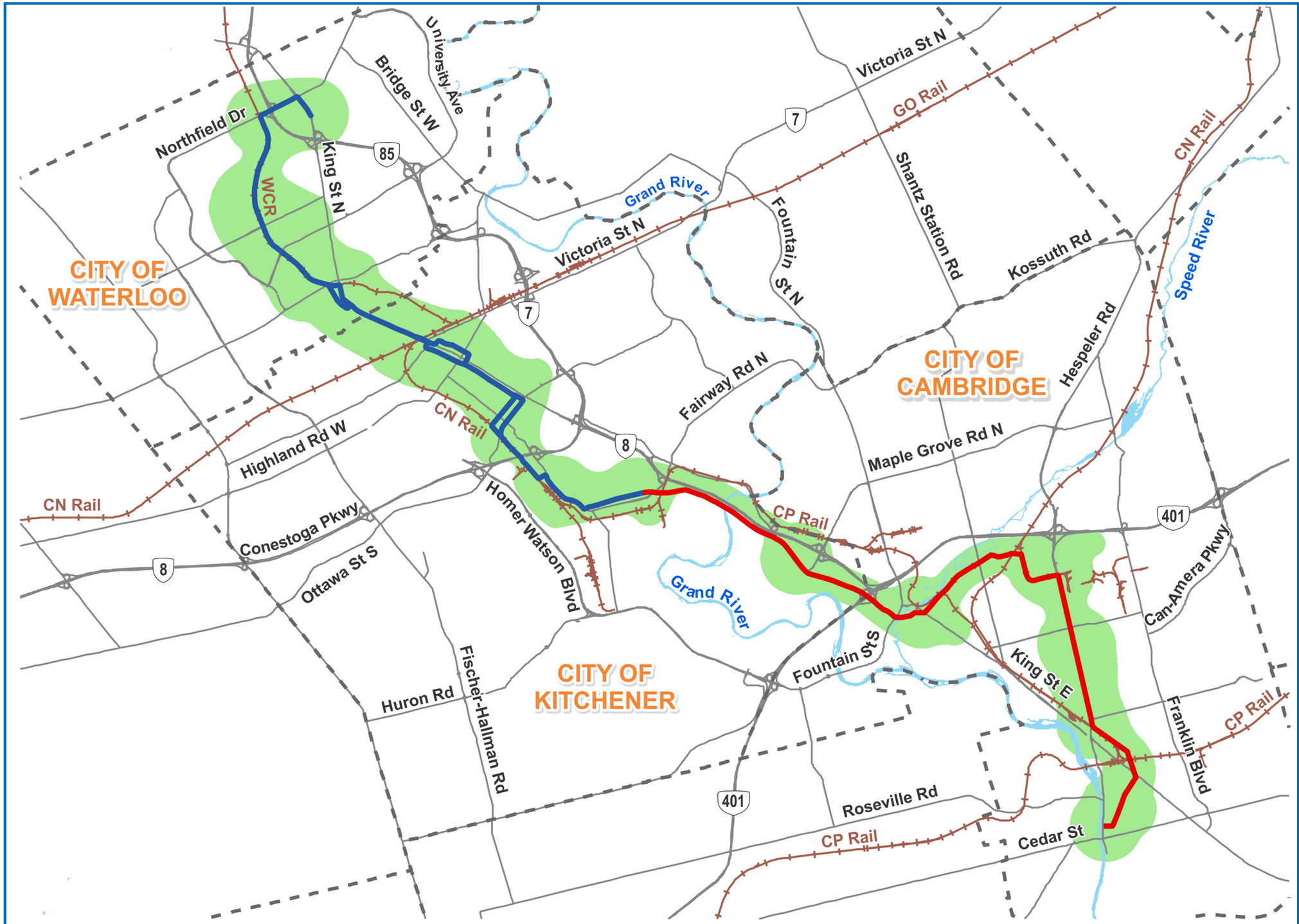
The Regional Growth Management Strategy (RGMS), entitled *Planning our Future* (2003), developed a framework to guide the long-term management of the Region of Waterloo's growth in both urban areas and rural communities. The RGMS includes six overarching goals, as outlined in **Figure 1-5**.

Figure 1-5: Regional Growth Management Strategy Overarching Goals

A key element of the RGMS was the creation of a rapid transit system to support the intensification required to help achieve the overarching goals. The RGMS also identified forward-looking initiatives that integrated land use and transportation planning. Whereas new population growth had historically spread outwards, the RGMS encourages growth in existing built up areas including along the Central Transit Corridor (CTC); see **Figure 1-6**.

The CTC is the area within approximately 800 metres of ION LRT stations, and the lands connecting these, to form a continuous corridor. The 800-metre distance is generally accepted as the distance people will walk (roughly ten minutes) to access rapid transit. The CTC connects the three Urban Growth Centres of downtown Cambridge, downtown Kitchener and uptown Waterloo, as well as 23 rapid transit station areas. The geography of the CTC includes areas within the corridor that are expected to re-urbanize over time.

The RGMS includes the need to integrate rapid transit service with cycling and pedestrian infrastructure, as well as other area transit services including Grand River Transit (GRT) buses, inter-city bus services, VIA Rail and GO Transit services, and park and ride facilities. The RGMS also recognizes the need to plan for more mixed use and compact land uses supportive of rapid transit and conventional transit services. The vision and goals of the RGMS were included in the 2015 Regional Official Plan.



Legend

N

- Stage 1 ION LRT (In Service 2019)
- Proposed Stage 2 ION LRT
- Central Transit Corridor Boundary
- Roads
- Railway
- Waterbody
- Municipal Boundaries

0 1.25 2.5 Kilometers

Stage 2 ION: Light Rail Transit (LRT)
From Kitchener to Cambridge
Environmental Project Report

Central Transit Corridor

Figure 1-6

1.5.4 Regional Official Plan (ROP)

The Regional Official Plan (2015) implements the RGMS and 2006 Growth Plan.

It includes a Planned Community Structure that is based on a system of nodes, corridors and other development areas connected by a transportation network. The Regional Official Plan anticipated a rapid transit system to help achieve the planned community structure. Map 3A identifies the CTC Environmental Assessment Study Area boundary within which an alignment would be selected. ION Stage 2 falls within this study area.

The ROP includes specific policies to plan for and implement improved transit including:

- 5.A.6: The Regional transit system will be improved on an on-going basis through the addition of rapid transit service and the preparation and implementation of the Transit Business Plan.
- 5.A.7: The Region will partner with the Province and other key stakeholders to improve the linkages between the Regional transit system and existing or planned inter-regional transit systems such as GO Transit.
- 5.A.8: Transit Corridors are Regional or Area Municipal Roads or dedicated rights-of-way outside of mixed traffic that accommodate existing or planned high frequency transit service. Wherever appropriate, Area Municipalities will adopt policies, by-laws and/or guidelines that apply the Transit Oriented Development provisions for development along Transit Corridors.

The Region is currently undertaking a review of the Regional Official Plan which will manage growth within the Region to 2051. The ROP will be updated to align with the PPS and the Growth Plan.

1.5.5 Region of Waterloo Transportation Master Plan

The Region of Waterloo's Transportation Master Plan (TMP), titled *Moving Forward* (2018) is a strategic plan which addresses the Region's long and short-term transportation needs through to 2041. It addresses active transportation (cycling and walking), public transportation and Regional road requirements, along with Regional policies to encourage and shape sustainable travel, economic growth and land use planning. The extension of ION LRT from Kitchener to Cambridge is recognized as a strategic priority, along with improvements in bus service and coverage, land use intensification, transit priority measures and flexible transit solutions for underserved and low-density areas.

LRT is intended to be a transformational transit service for the Region, and *Moving Forward* builds on ION with a frequent bus network that reduces waiting time and travel time. *Moving Forward* also identifies potential future rapid transit corridors other than Stage 2 ION.

1.6 Project Goals and Objectives

The Stage 2 ION Project goals and objectives are outlined in **Figure 1-7**.

Provide efficient infrastructure

Move more people in less space.

Enhance the Regions character and placemaking

Introduce a strong sense of identity along the rapid transit corridor to attract residents, businesses and visitors alike.

Promote transit-oriented development

Support communities that contain a full range of development densities and land uses, including those that are compact, mixed use and pedestrian-friendly.

Be compatible with adjacent communities and neighbourhoods

Transform some communities and neighbourhoods while protecting the stability of others and recognizing the need to enhance connectivity.

Integrate sustainable design

Enhance the rapid transit system with green infrastructure, designs, materials and technologies that encourage sustainability.

Serve as an investment in the Regions future

Ensure the Regions economic competitiveness by investing in more sustainable and efficient modes of transportation.

Preserve natural environments

Minimize impacts to the natural environment as much as possible and protect outlying areas from urban sprawl.

Increase transit accessibility and mobility

Provide accessible transit service to residents including those with low incomes, physical challenges, the elderly and others who do not drive.

Provide convenient and accessible rapid transit stations

Develop transit stations as activity centres, incorporating safety, comfort, aesthetics and convenience.

Engage the community

Work with the community to minimize any negative effects on residents and businesses.

Project Goals and Objectives

2 Environmental Assessment Process

2.1 Overview

This study is being conducted in accordance with *Ontario Regulation (O. Reg.) 231/08 Transit Projects and Metrolinx Undertakings*, also referred to as the *Transit Project Assessment Process* (TPA Process); see **Figure 2-1**. By following the TPA Process for certain projects, the Transit Projects Regulation exempts the proponent of the transit project (in this case the Region of Waterloo) from the requirements under Part II of the *Environmental Assessment Act* (EAA).

The TPA Process is a focused impact assessment process with prescribed requirements that include consultation, an assessment of potential positive and negative impacts of the transit project, an assessment of measures to mitigate negative impacts and documentation.

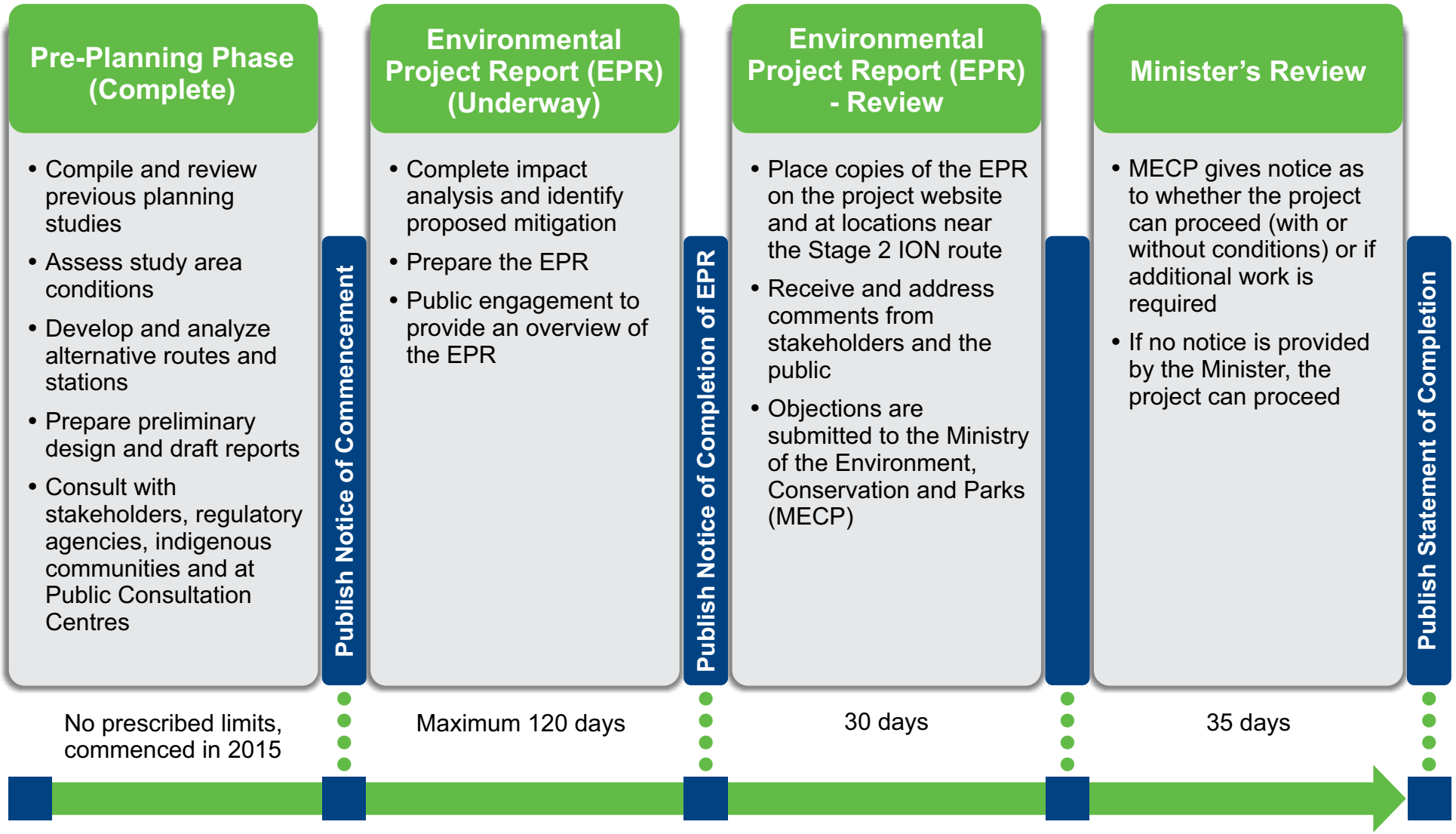
The Transit Project Regulation requires the proponent to start with a selected transit project. The Regulation does not require the proponent to look at the rationale for the transit project or alternatives to public transit (alternative solutions), or alternatives to the particular transit project being proposed. However, the Region has examined alternatives and rationale as part of the pre-planning work carried out and presented to Regional Council, local residents and the general public, Indigenous communities and the study's Technical Advisory Committee at key milestones.

The TPA Process is intended to be completed within six (6) months, including a maximum of 120 days for undertaking the EA (excluding any pre-planning work undertaken prior to formally initiating the TPA Process), 30 days for the public and agency review period and 35 days for the Ministry of the Environment, Conservation and Parks (MECP) review period. The process allows for an assessment of potential environmental impacts to be completed within 120 days.

Under the TPA Process, the Minister does not have the authority to either approve or refuse a transit project. However, the Minister may consider whether a transit project may have negative impacts on:

- Matters of provincial importance that relate to the natural environment or have cultural heritage value or interest; and
- Constitutionally protected Aboriginal or treaty rights.

Where issues related to such matters remain unresolved during the up to 120-day consultation and documentation period, the proponent can initiate a "time-out" to deal with these issues.



Stage 2 ION: Light Rail Transit (LRT)
From Kitchener to Cambridge
Environmental Project Report

Transit Study Process Under O.Reg. 231/08

Figure 2-1

Whether there is an objection or not, if the Minister acts within the 35-day period, one (1) of three (3) notices may be issued to the proponent:

- A notice to proceed with the transit project as planned in the EPR;
- A notice that requires the proponent to take further steps, which may include further study or consultation; or,
- A notice allowing the proponent to proceed with the transit project subject to conditions.

The Minister may also require that the proponent conduct additional work and revise the EPR. If, within 30 days of receiving the revised EPR, the Minister is of the opinion that it still does not appropriately address negative impacts, the Minister can terminate the TPA Process and require the proponent to comply with Part II of the EAA or to comply with an approved Class EA before proceeding with the transit project.

If the Minister issues a notice to proceed with the transit project as planned, or if the Minister does not act within the 35-day period, the proponent issues a Statement of Completion, and the transit project may proceed as planned.

Further discussion of the pre-planning activities for this study are found in **Section 3**.

2.2 Project Proponent

The Region of Waterloo is the proponent for the transit project. The EAA defines the "proponent" as a "person" who:

a) Carries out or proposes to carry out an undertaking, or

b) Is the owner or person having charge, management or control of an undertaking.

Under the EAA, "person" "includes a municipality, Her Majesty in right of Ontario, a Crown agency within the meaning of the *Crown Agency Act*, a public body, a partnership, an unincorporated joint venture and an unincorporated association".

The Region of Waterloo has led the development of the EPR, including the technical studies, as well as stakeholder and Indigenous community engagement. The Region remains committed to collaboratively carrying out the transit project as planning and design progresses.

2.3 Environmental Project Report

An Environmental Project Report (EPR) is the required documentation in the TPA Process. This EPR will be submitted to the MECP within 120 days of issuing the Notice of Commencement of the TPA Process.

The EPR documents the existing environmental conditions within the study area, describes the proposed project, the potential environmental impacts of the transit project, recommended mitigation and monitoring measures, the consultation process, and future commitments for the transit project. The appendices of this EPR include reports prepared as part of the TPA Process to address specific technical matters within the project area including natural environmental impacts, stormwater, noise and vibration, air quality, cultural heritage, archaeology, and traffic.

This EPR fulfils the requirements of Section 3.2.4 of the *Guide to Ontario's Transit Project Assessment Process* (MECP, 2014) as indicated in **Table 2-1**.

Table 2-1: Overview of Environmental Project Report Requirements

Requirement	Section
Statement of the purpose of the Project and a summary of any background information relating to the Project.	1.0
A map showing the site of the Project.	1.0
A final description of the Project including a description of the preferred method of carrying out the transit project.	4.0
A description of the local environmental conditions at the site of the Project	5.0
A description of all studies undertaken in relation to the Project, including a summary of all data collected or reviewed and a summary of all results and conclusions.	5.0
A description of any proposed measures for mitigating any negative impacts the Project might have on the environment.	6.0
A consultation record including: a description of the consultations and follow up efforts carried out with interested persons, including Indigenous communities; a list of the interested persons, including Indigenous communities who participated in the consultations; summaries of the comments submitted by interested persons including Indigenous communities; summary of any discussions with Indigenous communities including discussions of any potential impacts of the Project on constitutionally protected Aboriginal or Treaty Rights, and copies of all written comments submitted by Indigenous communities; and, a description of what the proponent did to respond to concerns expressed by interested persons including Indigenous communities.	7.0
If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of the mitigation measures.	8.2
A description of any municipal, provincial, federal, or other approvals or permits that may be required.	8.1

Requirement	Section
A description of any other design methods that were considered once the Project commenced the TPA Process.	Not Applicable
The assessments, evaluation and criteria for any impacts of the preferred method of carrying out the transit Project (described above) and any other design methods that were considered once the Project's TPA Process commenced (does not include Pre-TPA Process work).	Not Applicable
If a "time out" was taken during the TPA Process, a summary of each issue including: 1) A description of the issue. 2) A description of what the proponent did to respond to the issue and the results of those efforts. The dates that notices for the "time out" were given to the Director, MECP Environmental Approvals Branch (EAB), and the Regional Director (MECP Central Region Office).	Not Applicable

2.4 Objection Process, Minister's Review and Statement of Completion

If members of the public, regulatory agencies, other stakeholders or Indigenous communities have concerns regarding the transit project following the Notice of Completion of the EPR, they may submit an objection to the Minister. Objections must be provided during the 30-day review period for the EPR; objections received after the review period has ended will not be considered. Following the 30-day review period, the Minister has 35 days to consider whether the transit project will have a negative impact on a matter of provincial importance or a constitutionally protected Indigenous or treaty right.

Following the Minister issuing a notice to proceed, or if the Minister does not act within the 35-day period, the Region of Waterloo will issue a Statement of Completion and proceed to implementation. The Statement of Completion will indicate that the Region intends to proceed with the Project in accordance with either:

- The EPR;
- The EPR subject to conditions set out by the Minister; or
- The revised EPR.

Following submission of the Statement of Completion of the EPR to the Director of the Environmental Approvals Branch and the Regional Director of the MECP, the Project can proceed to implementation and construction.

For further details on this process, please reference the MECP *Guide for Ontario's Transit Project Assessment Process* (January 2014).

2.5 Addendum Process

The transit project presented in this EPR is not a static plan, nor is the context in which it is being assessed, reviewed, approved and constructed. O. Reg. 231/08 includes an addendum process for proponents to make changes to a transit project after the Statement of Completion is submitted to the MECP.

An addendum to the EPR may be required if Project developments during the approvals, future design phases, and construction processes result in design variations from what was assessed in the EPR. This addendum process is intended to address the possibility that in implementing a transit project, certain modifications may be made that are inconsistent with the EPR. A change that is inconsistent with the EPR is generally defined as one for which the impacts have not been accounted for in the EPR.

If a proponent wishes to make a change to a transit project that is inconsistent with the EPR, the proponent must prepare an EPR addendum.

For further details on this process, please reference the MECP *Guide for Ontario's Transit Project Assessment Process* (January 2014).

2.6 Impact Assessment Act

The *Impact Assessment Act, 2019* (IAA 2019) and associated regulations came into effect on August 28, 2019 and replaced the *Canadian Environmental Assessment Act* (2012). Under IAA 2019, a federal environmental assessment is required for "designated projects." A designated project is one that includes one or more physical activities that are set out in the regulations under IAA 2019 or by order of the Federal Minister of the Environment, Conservation and Parks.

This Project was reviewed by the Project Team against the Federal Regulations Designating Physical Activities, and the Project Team determined that the study is not "designated" and therefore will not require a federal environmental assessment.

More information about the *Impact Assessment Act* (2019) is available at the following link: https://www.canada.ca/en/impact-assessment-agency.html.

3 Pre-Planning Activities

This section summarizes the key activities undertaken in the pre-planning phase of the Transit Project Assessment. Although it is not a requirement of the TPA Process to document the rationale and planning alternatives to the particular transit project, this section provides additional context on the role of agencies, residents of the communities within the study area and the public in the determination of the Stage 2 ION route and stations. Further details are provided in **Section 7**, Consultation and Engagement.

During the pre-planning phase, the Stage 2 ION Project was defined following a series of evaluations, which included:

- Assessing Regional policies, strategies and previous Rapid Transit studies to establish the objectives for the study
- Collecting and assessing updated information about existing environmental conditions
- Developing and evaluating route alternatives and selecting the preferred route and station locations
- Conducting impact assessment and developing mitigation measures, monitoring activities, and commitments to future work
- Carrying out consultation with Indigenous, government and public stakeholders and potentially impacted property owners

3.1 Population and Ridership Forecasts

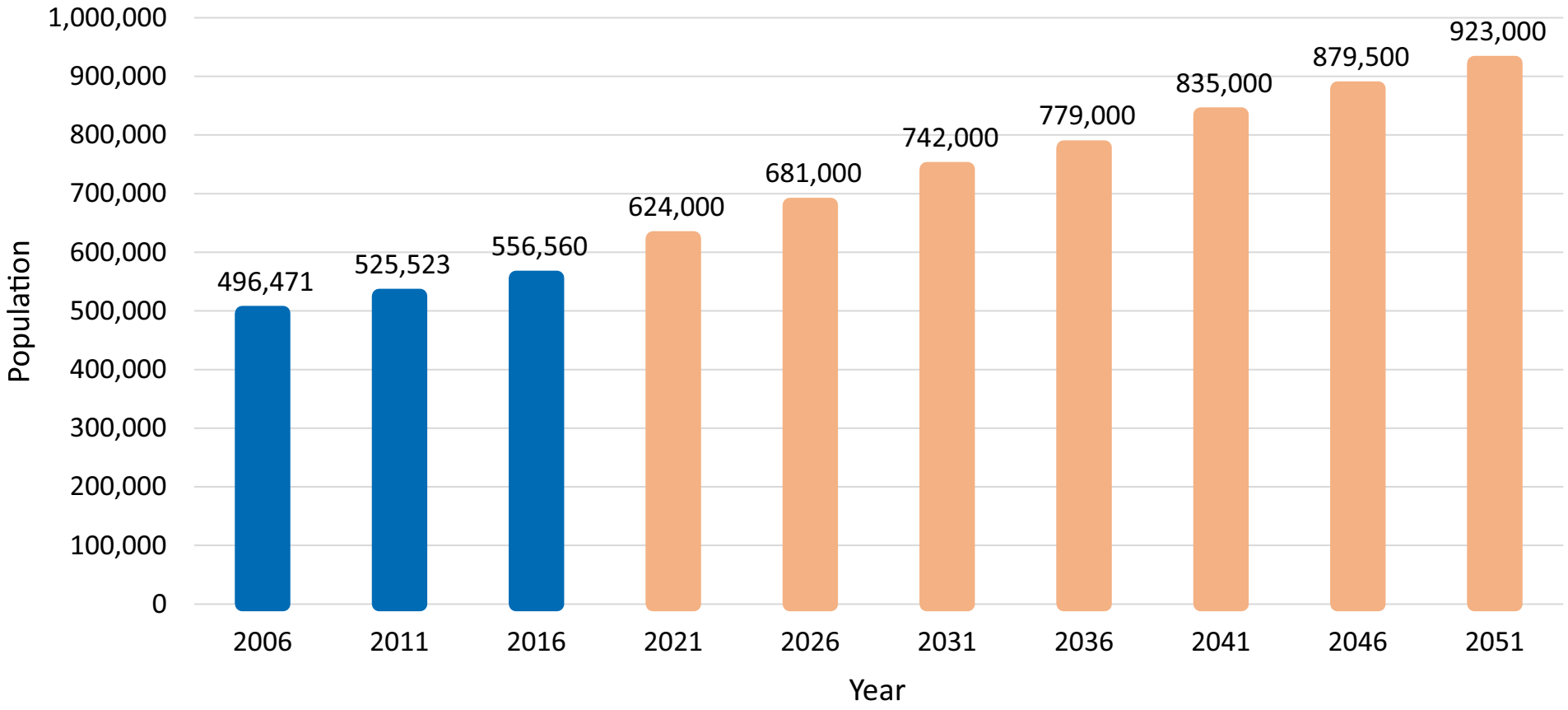
The Region of Waterloo is the fourth largest metropolitan area in Ontario and the tenth largest in Canada. Statistics Canada recently indicated[4] that this area was the fastest growing metropolitan area in the country. The Region of Waterloo is projected to experience significant population and employment growth over the next decade and beyond. According to Region of Waterloo estimates[5], by 2019 the population of Waterloo Region had reached 617,870 (including students who study at local post-secondary institutions). Over the past 15 years the Region's population has grown an average of 1.58 per cent per year. Over the next 30 years, the Region's population is projected to reach 923,000 people (excluding students) and employment will increase to 470,000 by 2051. Projected population growth for the Region is shown in **Figure 3-1**. This growth cements the Region's importance as a major hub in southern Ontario.

[4] https://www150.statcan.gc.ca/n1/en/pub/11-627-m/11-627-m2020011-eng.pdf?st=3una1z_2
[5] https://www.regionofwaterloo.ca/en/regional-government/resources/Census/DOCS_ADMIN-3290126-v1-Year_end_2019_Population_and_household_Bulletin.pdf

As the Region of Waterloo grows there will be greater demand for more housing options, and supporting facilities, amenities and services. Building more compact, higher density communities will accommodate growth while making efficient use of existing infrastructure, preserving natural areas, and protecting farm land and drinking water. Stage 2 ION will support the concentration of existing and planned residents and jobs within the Central Transit Corridor (CTC).

In 2018, investment in the CTC was strong. Continued investment in the CTC led to an increase in the assessed value of properties in the CTC, which grew to $15 billion; in 2011 the value was $10 billion. As a result, properties in the corridor contribute more to the overall taxes generated in the Region. Transit ridership in the Region increased, and in the CTC, there were 6,000 more boardings per day compared to 2017. The number of people living in the CTC has increased by over 12,500 people since 2011, a rate of 1.8 per cent annual growth. This brings the number of people living in the CTC to over 109,000 people. The increase in number of people and trips will place more demand on the transportation system.

The CTC monitoring program is a multi-year project to monitor the corridor from the baseline year of 2011 until at least 2021, after ION is constructed, opened for service, and is functioning within the community. All changes reported in the CTC monitoring reports to date have occurred in anticipation of Stage 1 ION operation, which commenced in June 2019. At the same time, bus routes were re-aligned to connect in to the LRT stations. Free service attracted 300,000 riders in the first 11 days of Stage 1 ION operation, and ridership numbers have been strong to date. Indicators published in the *Monitoring Change in the Central Transit Corridor: 2018* (Region of Waterloo, 2019) have shown the majority of growth and positive change to be occurring in Stage 1 to date, however, this may begin to shift towards Cambridge as the Stage 2 system planning moves ahead.



LEGEND:

- Regional Population (Census)
- Average of Places to Grow (Forecasted)

Source: Province of Ontario: A Place to Grow

As a part of the Grand River Transit's (GRT) network of services, ION light rail moves people and shapes the way the community grows by providing the best service possible to its customers. Driven by an increase in transit funding and transit service hours, GRT ridership grew from just over 14 million annual riders in 2007 to over 22 million annual riders in 2013. Transit ridership then declined slightly between 2014 and 2016 and has since started growing again. These trends are shown in **Figure 3-2**. The decline may be associated with lower gasoline prices, detours due to ION LRT construction, the cancellation of the contract between GRT and school boards, fare increases, and localized service reductions in 2013 and 2014.

Figure 3-2: Grand River Transit Ridership and Service (2007–2018)

Figure 3-3 provides a snapshot of the GRTs performance on a month-to-month basis. These performance measurements help identify ridership trends and evaluate efficiency and effectiveness.

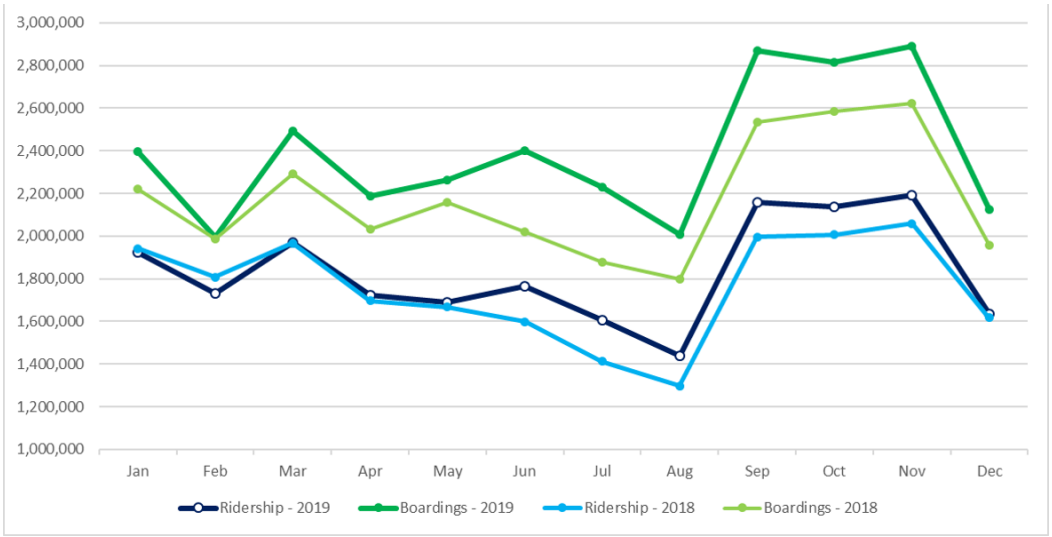


Figure 3-3: Grand River Transit Ridership and Boardings by Month for 2018 and 2019

The difference between ridership and boardings is that a ride is a paid trip, including any transfers. Boardings are how many people stepped onto a bus and a boarding does not separate out who paid a fare and who boarded with a transfer. Monthly ridership and boardings are affected by seasonal fluctuations in demand, and are typically higher in Fall and Winter school terms and lower during Summer holidays. Boardings in June 2019 were higher due to the opening of Stage 1 ION, along with the free transit service offered. More people are riding GRT buses in 2019 compared to 2018. Boardings and revenue both show steady growth over the previous year as the number of customers using GRT continues to grow.

3.2 Route Selection Process

As discussed in **Section 1.3.3** a review of the proposed route for Stage 2 ION endorsed by Regional Council in 2011 was undertaken to address various technical challenges, new development and planned intensification. In addition, the collection and assessment of updated information on existing environmental conditions, along with consultation with regulatory authorities and other stakeholders, created opportunities to potentially reduce environmental impacts.

A comprehensive examination of potential route and station alternatives was carried out in a multi-step process. Route and station alternatives were initially assessed at a screening level to identify those that:

- Offer the most direct connections to the proposed stops in order to improve travel times;
- Have a reasonable right-of-way (ROW) width to fit LRT;
- Offer re-urbanization potential around the LRT stop areas; and,
- Avoid constraints such as mature neighbourhoods or environmentally sensitive areas that would restrict opportunities to develop stations.

From these, a short list was established, and these route and station alternatives were then developed at a conceptual level to enable more detailed analysis and evaluation. The study area was divided into sections to enable comparison of route segments with common end points. Thirteen evaluation criteria were used in the comparison of the route segments within four categories as shown in **Table 3-1**.

Based on input received from the study's Technical Advisory Committee and the public, the evaluation was undertaken in several steps with the incorporation of refinements in a number of areas. Consultation with local communities and the public was conducted at several key milestones.

Full details about the development, screening, evaluation and refinement of alternatives are provided in the Information Packages prepared for the five Public Consultation Centres (PCC) held during this study, as discussed in **Section 7** and **Appendix C**.

Category	Criteria	Description
Transportation	Ability to Serve Multi-Modal Nodes	Are there good opportunities for connections between LRT, Grand River Transit (GRT), and GO services, as well as Park-and-Ride lots?
	Impact on Traffic Operations	How many new signalized intersections are required? How many existing intersections have capacity issues and would be further impacted by LRT?
	Engineering Challenges	How many freight rail, MTO interchange or highway crossings are there? How compatible or constrained are they?
	Potential Ridership	How many local transit riders use existing bus stops within 800 m of proposed LRT stops? What is the estimated LRT travel time for the segment based on length, geometry, crossings, stops, and traffic signals?
Social/Cultural Environment	Destinations Served	Are there major commercial, industrial, office, or leisure destinations within 800 m of proposed LRT stops? How many hospitals, schools or other institutional uses are there within 800 m of the stops?
	Properties Impacted	How many residential, commercial, industrial or institutional properties are impacted and how many of those could potentially require full buy-out?
	Transit and Pedestrian Supportive Land Use Policy	Does the route fit with existing planning policy, such as the Provincial Growth Plan, Official Plan, Transportation Master Plan or Zoning By-Laws?
	Cultural Heritage Impacts	How many heritage properties and buildings are there along the route?
Natural Environment	Impact on Floodplains	What area of floodplain does the route cross?
	Impact to Significant Natural Features	Does the route cross or impact any significant natural features such as wetlands, forests, watercourses or habitat for endangered/at risk species?
Economic Environment	Ability to Serve Concentrations of Employment	Will the stops provide access to existing employment areas? Is there potential for new or infill employment development within 800 m of the proposed LRT stop?
	Opportunity for Intensification and Revitalization	Will the stops serve areas that can benefit from revitalization? Is there potential for residential intensification close to the stops?
	Cost (Capital and Operating)	What is the estimated cost (in $2016) to design and build, then operate and maintain every year?

Criteria for the Review of Route and Station Alternatives

3.3 Environmental Impact Assessment

Existing environmental conditions in the study area were inventoried. Following the identification of existing conditions, an assessment of potential impacts and proposed mitigation measures was completed based on the following information:

- An assessment and evaluation of the potential impacts that the Project may have on the environment. The Project has the potential to create environmental condition changes, which may result in positive and/or negative impacts; and
- A description of proposed measures to mitigate any negative effect(s) on the environment by eliminating, reducing or managing the negative effect(s).

These activities are summarized in **Section 6**, and documented in the technical studies provided in the Appendices of this EPR. These technical studies were undertaken by experienced practitioners using industry standard techniques. The following environmental components were assessed:

- Natural Environment;
- Groundwater and Contaminated Soils;
- Drainage and Stormwater Management;
- Fluvial Geomorphology;
- Cultural and Built Heritage;
- Archaeology;
- Air Quality;
- Noise and Vibration; and
- Traffic.

3.4 Public, Stakeholder and Indigenous Community Engagement

To promote early and ongoing engagement, the Region undertook Indigenous, public and stakeholder engagement during the pre-planning phase. This included contact with key parties including, but not limited to the: City of Kitchener, City of Cambridge, potentially affected Indigenous communities, the Grand River Conservation Authority (GRCA), the Ontario Ministry of Transportation (MTO), other provincial regulatory agencies, Canadian Pacific Railway (CP Rail) and Canadian National (CN) Rail, utility companies, local residents and business owners and elected officials. In addition, five (5) rounds of public consultation centres (PCCs) were held during the pre-planning phase, as well as a focused public meeting with residents in North Cambridge (Preston) held during refinement of the route through this area.

The stakeholder engagement strategy for the Stage 2 ION Project included e-mail and letter correspondence, Technical Advisory Committee (TAC) meetings, meetings with individual agencies and municipal staff, and PCCs which included an online survey component. At the PCCs and TAC meetings, attendees reviewed Project information, provided feedback and interacted with representatives of the Region.

Table 3-2 outlines the regulatory agencies and Indigenous communities who have received specific technical studies for review in advance of the Notice of Commencement of the TPA Process.

Further details of the consultation process followed during the pre-planning phase are provided in **Section 7**.

Table 3-2: Regulatory Agency and Indigenous Community Technical Study Review during Pre-Planning Phase

Regulatory Agency	Technical Study(s) Reviewed
Ministry of the Environment, Conservation and Parks	Contamination Overview Study Noise and Vibration Report Air Quality Report
Ministry of Natural Resources and Forestry	Natural Heritage Report
Ministry of Heritage, Sport, Tourism and Culture Industries	Stage 1 Archaeological Assessment Cultural Heritage Report Cultural Heritage Evaluation Reports (CHERs)
Grand River Conservation Authority	Natural Heritage Report Preliminary Drainage and Stormwater Management Report Fluvial Geomorphology Report
City of Cambridge	Cultural Heritage Report Natural Heritage Report Contamination Overview Study Noise and Vibration Report Air Quality Report Preliminary Drainage and Stormwater Management Report Fluvial Geomorphology Report
City of Kitchener	Cultural Heritage Report Natural Heritage Report Contamination Overview Study Noise and Vibration Report Air Quality Report Preliminary Drainage and Stormwater Management Report Fluvial Geomorphology Report
Mississaugas of the Credit First Nation	Natural Heritage Report Stage 1 Archaeological Assessment
Haudenosaunee Development Institute, on behalf of the Haudenosaunee Confederacy Chiefs Council	Natural Heritage Report Stage 1 Archaeological Assessment
Six Nations of the Grand River	Natural Heritage Report Stage 1 Archaeological Assessment