



STAGE 2 ION: LIGHT RAIL TRANSIT FROM KITCHENER TO CAMBRIDGE



ENVIRONMENTAL PROJECT REPORT



APRIL 2021





NOTE: ENVIRONMENTAL PROJECT REPORT

This Environmental Project Report (EPR) is available **starting April 6, 2021**, for a 30-day public review and comment period (along with environmental and engineering studies and public meeting materials), until **May 6, 2021** at regionofwaterloo.ca/Stage2ION and Monday to Friday, 8:30 a.m. to 4:30 p.m. at (by appointment only, please call ahead to confirm the facility is open to the public):

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Your participation is an important part of this process and we welcome your input. Comments about the Project may be submitted online at engagewr.ca/Stage2ION or by contacting:

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B SPECIALIST REPORTS

- B1 – Natural Heritage Report
- B2 – Fluvial Geomorphology Report
- B3 – Drainage and Stormwater Management Report
- B4 – Contamination Overview Study
- B5 – Cultural Heritage Report
- B6 – Stage 1 Archaeological Assessment
- B7 – Air Quality Report
- B8 – Noise and Vibration Report
- B9 – Traffic Impact Assessment Report

C CONSULTATION RECORD

Master Contact List

Pre-Planning Phase Consultation and Engagement

- C1 – Public Correspondence
 - PCC 1 Summary Report
 - PCC 2 Summary Report



- PCC 3 Summary Report
- PCC 4 Summary Report
- PCC 4b Summary Report
- PCC 5 Summary Report
- Other Public Correspondence
- C2 – Agency Correspondence
 - Correspondence
 - Meeting Minutes
- C3 – Indigenous Correspondence
 - Correspondence
 - Meeting Minutes

TPA Process Phase Consultation and Engagement

- C4 – Notice of Commencement
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 - Online Engage Survey Comments
 - Email Comments
- C6 – Agency Correspondence
 - Correspondence
- C7 – Indigenous Correspondence
 - Correspondence
- C8 – Notice of Completion of Environmental Project Report

Executive Summary

ES.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. 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, shown in **Figure ES-1**.

- » **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.

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).

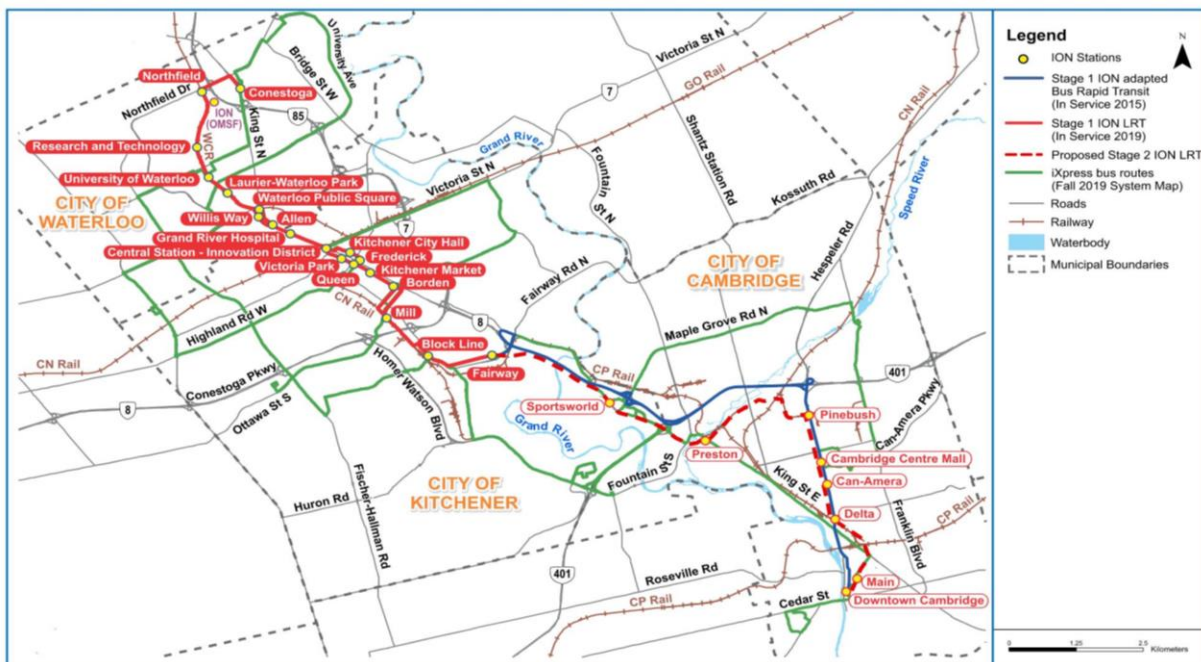


Figure ES-1: Stage 1 and 2 ION Rapid Transit System



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.

In June 2009, Regional Council approved a rapid transit implementation plan. The Environmental Project Report for Stage 1 was completed in March 2012 and 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.

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. 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.

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, these plans and policies include:

1. Provincial Policy Statement (PPS)
2. A Place to Grow (August 2020), Growth Plan for the Greater Golden Horseshoe
3. Planning our Future (2003), Regional Growth Management Strategy (RGMS)
4. Regional Official Plan (2015)
5. Moving Forward (2018), Region of Waterloo Transportation Master Plan (TMP)

Preferred Stage 2 ION Route and Stations

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. On April 14, 2020, Regional Council endorsed the preliminary design for Stage 2 ION. The Stage 2 ION route is shown in **Figure ES-2**.

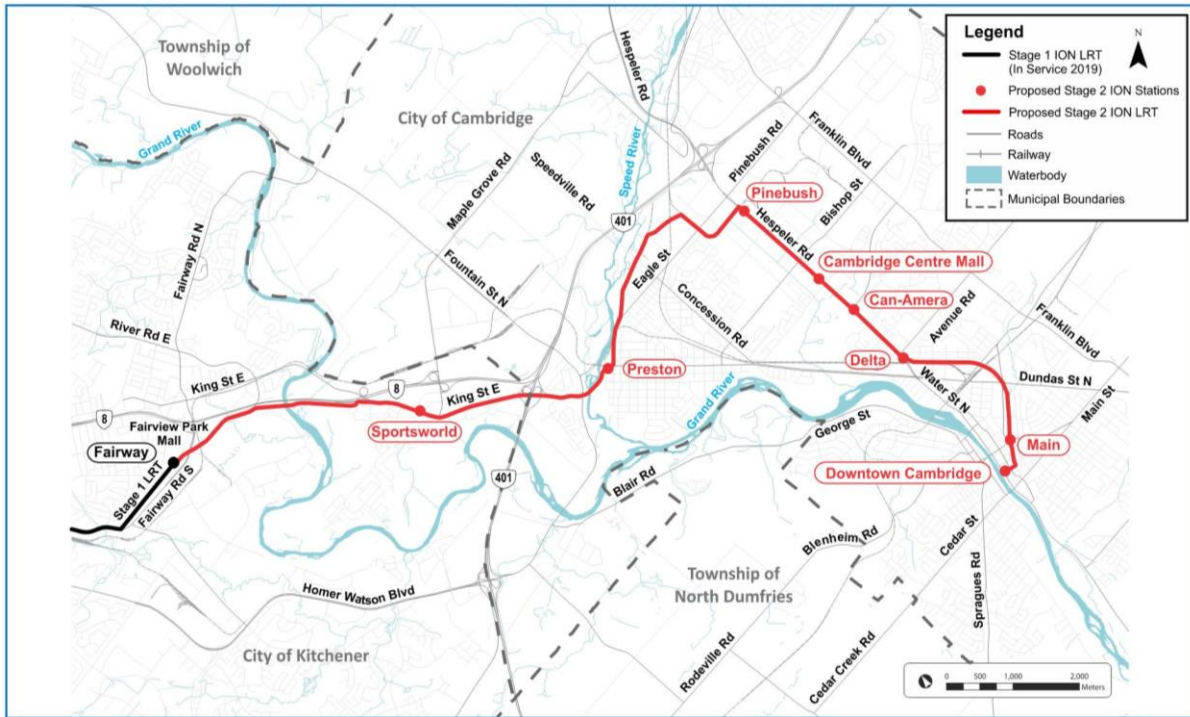


Figure ES-2: Stage 2 ION Route and Stations

ES.2 Environmental Assessment Process

The Transit Project Assessment (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. It is an approved process under Ontario’s *Environmental Assessment Act* (EAA).

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 and 35 days for review by the Minister of the Environment, Conservation and Parks (MECP). The process allows for an assessment of potential environmental impacts to be completed within 120 days.

Section 2 of the EPR provides further details on the TPA process.

ES.3 Pre-Planning Activities

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

ES.4 Project Description

Design Criteria

The design criteria for the project were established early in the study, in consultation with the study's Technical Advisory Committee (TAC). The design criteria outline standards governing the planning and design of various elements of the roadway, LRT and active transportation components.

In developing the design criteria, the following considerations were key:

- » safety of passengers, workers and the public
- » cost effectiveness for design, construction, capital infrastructures and operations
- » public and community disruptions
- » system reliability and passenger comfort
- » opportunities for development and re-development

Design criteria have been developed for:

- » LRT Runningway
- » LRT Stations
- » Grand River Transit Stops
- » Inter-Regional Transit Stops
- » Sidewalks and Active Transportation
- » General Traffic Lanes
- » Driveways and Access
- » Traffic Signals
- » Illumination
- » Utilities
- » Railway Crossings
- » Structures
- » Special Track Work
- » Traction Power Substations

Proposed Stage 2 ION Route

The Stage 2 ION route extends from the existing Stage 1 ION terminus, Fairway Station located at Fairview Park Mall, to Downtown Cambridge, a distance of approximately 18 km. ION Stations are provided at eight (8) key locations to provide access for passengers and support transfers between ION and Grand River Transit bus services. A key plan of the Stage 2 ION route and stations is shown in **Figure ES-3**.

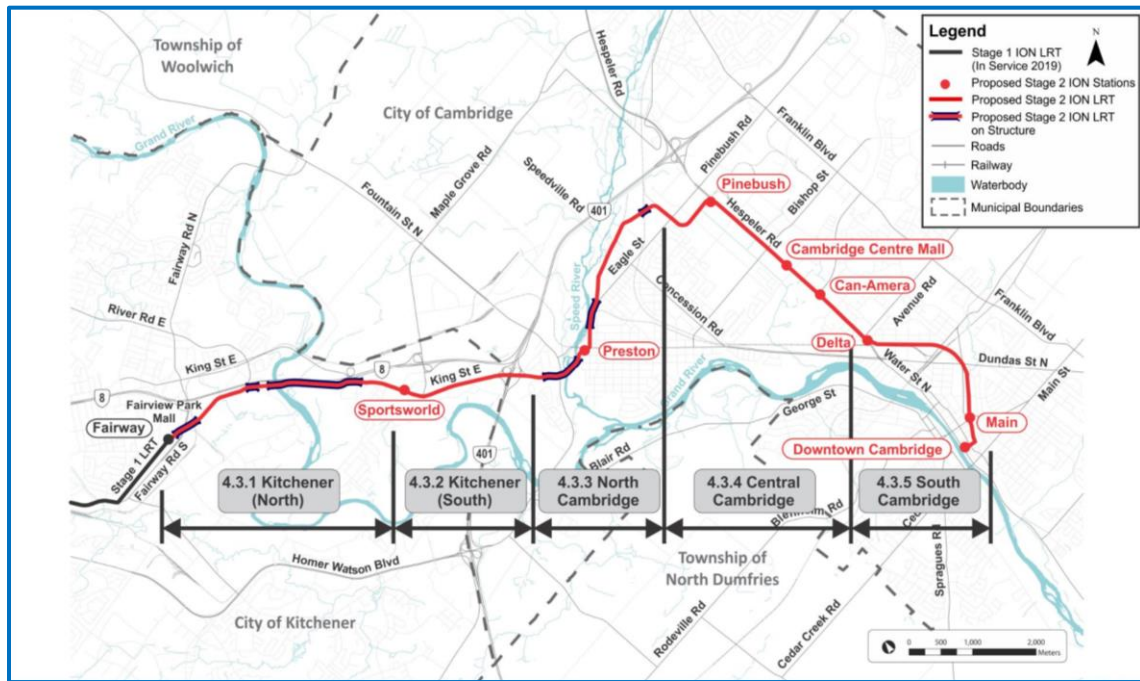


Figure ES-3: Stage 2 ION Key Plan

For presentation purposes, the route has been divided into five geographical segments which are individually discussed in **Sections 4.3.1** through **4.3.5** of the EPR.

- » **Kitchener (North) – from the Fairway ION Station to King Street south of Highway 8 (Sportsworld):** Stage 2 ION is elevated over the parking lot of Fairview Park Mall, Fairway Road and the CP Rail corridor, and then follows the planned River Road Extension (a separately approved Region of Waterloo project) to Hidden Valley Road. Stage 2 ION then follows Highway 8 to King Street, including a new crossing of the Grand River just downstream of the Highway 8 bridges. At the Highway 8/King Street interchange, Stage 2 ION crosses the southbound exit ramp and the southbound King Street lanes on a structure, and then continues at grade in the median of King Street.
- » **Kitchener (South) – from Sportsworld to Highway 401:** Stage 2 ION is located in the centre median of King Street with two lanes of general traffic in each direction and sidewalks or multi-use trails on both sides of the road. The Sportsworld ION Station is located at the intersection of King Street and Sportsworld Crossing Road. The section of King Street through the Highway 401 interchange area is under the jurisdiction of MTO and therefore has been developed to accommodate MTO design requirements for both current and planned future Highway 401 improvements.
- » **North Cambridge – from south of Highway 401 to CN Rail north of Eagle Street:** Stage 2 ION remains in the median of King Street/Shantz Hill Road from south of Highway 401 to south of Preston Parkway. From south of Preston Parkway, Stage 2 ION gradually elevates on a structure running parallel to and above the median of Shantz Hill Road, crossing over the intersection of Shantz Hill Road and Fountain Street and over the Speed

River. Stage 2 ION parallels the river to the vicinity of Chopin Drive and Queenston Road where it enters the Preston ION Station, which lies diagonally across the block at the southwest corner of King Street and Eagle Street. The alignment then crosses King Street and runs adjacent to Eagle Street. Stage 2 ION elevates to cross over the existing CP Rail corridor near Eagle Street and follows the alignment of an unused CP Rail spur which runs generally parallel to the Speed River. Near Witmer Street, Stage 2 ION exits the unused railway spur and elevates to cross the CN Rail corridor on a structure. There are a number of walking and multi-use trails in Preston Towne Centre, including the Bob McMullen Linear Trail along the Speed River. This trail, and its access points and parking areas, will not be impacted by Stage 2 ION. An at-grade vehicular and pedestrian crossing of Stage 2 ION at the end of Russ Street will be provided to maintain access to the parking area and trail access at this location.

- » **Central Cambridge – from CN Rail Crossing to North of Avenue Road:** Stage 2 ION follows an existing CN Rail industrial spur line from north of Eagle Street, crossing Eagle Street at grade, and through an existing industrial area to Hespeler Road. Stage 2 ION then crosses the southbound lanes of Hespeler Road at grade and remains in the median of Hespeler Road to Avenue Road. There are three stations on Hespeler Road within this segment: Pinebush ION Station at the CN Rail crossing, Cambridge Centre ION Station at Grand River Transit’s Cambridge Centre bus terminal and the main entrance to the Cambridge Centre retail centre, and Can-Amera ION Station at Can-Amera Parkway. The final cross-section for Hespeler Road will be confirmed by the Region of Waterloo in consultation with the City of Cambridge, but will include separated cycle facilities and sidewalks on both sides. The addition of Stage 2 ION to the median of Hespeler Road will not require widening into the Dumfries Conservation Area.
- » **South Cambridge – from Avenue Road to Bruce Street in Downtown Cambridge:** Stage 2 ION leaves the Hespeler Road corridor just north of Avenue Road and follows the CP Rail Waterloo Subdivision parallel to Norfolk Avenue, and then the former Lake Erie and Northern Railway and Great Western Railway corridor (the railway is no longer present in the corridor) across Samuelson Street at grade and beneath the CP Rail Galt Subdivision at the Grantham Rail Bridge. Stage 2 ION crosses Dundas Street through the future Dundas Street and Beverly Street roundabout (a separately approved Region of Waterloo project), and follows the west side of Mill Creek to Main Street. Stage 2 ION transitions to the median of Wellington Street at the Main Street intersection and remains in the centre of Wellington Street to Bruce Street, and on Bruce Street to Water Street. There are three stations in this segment: the Delta ION Station is located on the east side of Hespeler Road at Avenue Road; the Main Street ION Station is located north of the intersection of Main Street and Wellington Street; and the Downtown Cambridge ION Station is located on Bruce Street between Ainslie Street and Water Street. The Downtown Cambridge ION Station is the southern terminal station for Stage 2 ION, and is integrated with a proposed new on-street GRT



bus station for convenient transfers between LRT and local bus services. The existing multi-use trail along the west side of Mill Creek will be relocated to the east side of the watercourse to accommodate the Stage 2 ION runningway and will be continuous from Dundas Street to Main Street. The existing trail crossing of the CP Rail corridor at the end of Roxboro Road will also cross the Stage 2 ION runningway, and will be equipped with an automatic crossing warning system (i.e. flashing lights, bells and gates).

The EPR provides additional details on the route alignment and associated cross-sections, station locations and context specific impacts and opportunities along the corridor. Functional design plates are included in **Appendix A**.

ES.5 Existing Conditions

Existing conditions have been examined in the study area for the Preferred Stage 2 ION route, as shown in **Figure ES-2**. The existing conditions are briefly summarized below and discussed further in **Section 5** of the EPR.

Natural Environment

The Natural Heritage Report, available in **Appendix B1**, documents the results of the natural heritage investigation including data collection and analysis, field investigations, impact assessment and identification of mitigation measures for fisheries/aquatic habitat, wildlife/terrestrial habitat, vegetation, wetlands, and other designated natural areas and features.

The review of the natural environment conditions in the study area also includes an assessment of fluvial geomorphology on the major watercourses, an assessment of the existing storm sewer network and stormwater management facilities and the potential for contamination in the areas where Stage 2 ION is proposed. The Fluvial Geomorphology Report, Drainage and Stormwater Management Report and Contamination Overview Study can also be found in **Appendices B2, B3 and B4**.

Cultural Environment

Primary and secondary documentation and maps were reviewed to establish a developmental history of the study area, and to identify properties with recognized or potential cultural heritage value or interest (CHVI). This section provides an understanding of the existing cultural environment conditions, including cultural and built heritage, and archaeology. The Cultural Heritage Report and Stage 1 Archaeological Assessment are included in **Appendix B5** and **Appendix B6**.

Socio-Economic Environment

Provincial policy documents provide direction on land use, growth, infrastructure planning, trade, tourism and recreation, and environmental protection, and help dictate municipal planning policy. The existing and planned future socio-economic conditions that exist within the study corridor are summarized in this section. In addition, the existing conditions regarding noise, vibration and air quality are also addressed, and are further described in the Air Quality Report and the Noise and Vibration Report found in **Appendix B7** and **Appendix B8**.



Transportation and Utilities

The existing transportation system and utility network within the study area includes the existing road network, transit services, active transportation (cycling and pedestrian facilities), utilities (municipal and private) and railway operations. In addition, existing traffic operations on the roadways where Stage 2 ION is proposed was assessed, and further details are found in the Traffic Impact Assessment Report in **Appendix B9**.

ES.6 Impact Assessment, Mitigation and Monitoring

Impacts of Stage 2 ION have been assessed for both the construction and operation phases of the project. Generally, short-term impacts are temporary (construction related) and can be prevented or minimized through proper construction practices and site inspection, whereas long-term impacts are prevented and mitigated through site selection, design, buffer implementation, best management practices, and environmentally sensitive maintenance.

A summary of all of the impact assessments carried out can be found in **Section 6** of the EPR, under the categories of Natural Heritage, Cultural Environment, Socio-Economic Environment, Transportation and Utilities and Climate Change Considerations. Mitigation measures and monitoring commitments have been identified for the impacted features and their associated elements. **Table 6-2: Summary of Potential Impacts, Mitigation, and Commitments to Future Work and Monitoring**, provides further details on the impact assessment and proposed mitigation measures under each of the above subjects. Additional details are also found in the supporting technical studies in **Appendix B**.

ES.7 Consultation and Engagement

Consultation is an important and mandatory component of projects that are subject to O. Reg. 231/08, as the process requires meaningful consultation with persons that are considered to have an interest in the transit project. Ongoing consultation throughout a transit project allows a Project Team to:

- » Identify, inform or notify persons, including those potentially affected by the transit project;
- » Identify and assess the range of potential environmental impacts of the transit project; and
- » Respond to the concerns of interested persons, including adjacent property owners and others who may be affected by some aspect of the project.

The main types of consultation and engagement used by the Region throughout the Stage 2 ION Project include the following, which are further outlined in the EPR:

- » A regularly updated project website and social media including Twitter
- » Notification via e-mail to the project contact list, newspaper, media releases and on-street advertising



- » Consultation with Indigenous communities including Six Nations of the Grand River, Mississaugas of the Credit First Nation (MCFN, formerly the Mississaugas of the New Credit), and the Haudenosaunee Confederacy Chiefs Council (HCCC)
- » Agency Consultation including regular engagement with the study's Technical Advisory Committee (TAC) and individual meetings with other agencies
- » Meetings with property owners and community groups
- » Consultation events for interested local residents and members of the public to participate in the project's planning and to promote public awareness and knowledge of the project. This includes:
 - Five (5) rounds of Public Consultation Centres (PCCs) held in the pre-planning phase
 - Engagement during the TPA process including an online presentation with the opportunity to provide feedback on the draft EPR
- » Presentations to the Rapid Transit Steering Committee, Regional Council and Committees of Council, and Councils of the Cities of Kitchener and Cambridge

The consultation and engagement program was initiated in 2015 and continued through to the submission of this EPR. The Region will continue to engage with stakeholders during future design, construction and operational phases of the Stage 2 ION Project.

ES.8 Approvals, Monitoring and Commitments to Future Work

Implementation of this project will require municipal, Provincial, and Federal permits and approvals for certain land development and proposed infrastructure improvements. Specific permit needs will be confirmed in future study phases, when design details are confirmed, and further impact analysis work is completed.

Impact monitoring is a necessary continuation of the construction and operational application of the proposed works. It is designed to evaluate the need to review or update the environmental protection and mitigation measures during a future design phase, or to trigger the implementation of contingency plans that may include remedial measures needed to achieve the project goals and objectives.

To facilitate the implementation of Stage 2 ION, the Region proposes to:

- » Pursue property acquisitions for Stage 2 ION as properties become available on the market;
- » Encourage transit-supportive development to increase ridership throughout GRT's service areas and to expedite the extension of LRT through Cambridge;
- » Implement transit-supportive strategies in Cambridge; and
- » Seek Federal and Provincial funding for Stage 2 ION.



Glossary of Acronyms and Abbreviations

AA	Archaeological Assessment
APEC	Areas of Potential Environmental Concern
AREMA	American Railway Engineering and Maintenance-of-Way Association
BRT	Bus Rapid Transit
CHER	Cultural Heritage Evaluation Report
CHVI	Cultural Heritage Value or Interest
COS	Contamination Overview Study
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSP	Corrugated Steel Pipe
CTC	Central Transit Corridor
DFO	Department of Fisheries and Oceans Canada
EA	Environmental Assessment
EAA	Environmental Assessment Act
EPR	Environmental Project Report
ERIS	Ecolog Environmental Risk Information Services
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ESPA	Environmentally Sensitive Policy Areas
FWCA	Fish and Wildlife Conservation Act
GGH	Greater Golden Horseshoe
GHG	Greenhouse Gas
GRCA	Grand River Conservation Authority
GRT	Grand River Transit
HCD	Heritage Conservation Districts
HIA	Heritage Impact Assessment
ION Bus	Stage 1 ION adapted Bus Rapid Transit
LRT	Light Rail Transit
LRV	Light Rail Vehicle
MBCA	Migratory Birds Convention Act
MECP	Ministry of the Environment, Conservation and Parks
MHSTCI	Ministry of Heritage, Sport, Tourism and Culture Industries



MMAH	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MTO	Ministry of Transportation
MTSA	Major Transit Station Area
NHIC	Natural Heritage Information Centre
OHA	Ontario Heritage Act
O. Reg.	Ontario Regulation
PCC	Public Consultation Centre
PM _{2.5}	Fine Particulate Matter
POR	Points of Reception
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetlands
PTTW	Permit to Take Water
RGMS	Regional Growth Management Strategy
ROP	Regional Official Plan
ROW	Right-of-Way
RT	Rapid Transit
RTMP	Regional Transportation Master Plan
SAR	Species at Risk
SARA	Species at Risk Act
SWM	Stormwater Management
TDM	Transportation Demand Management
TPA	Transit Project Assessment
TTC	Toronto Transit Commission
UGC	Urban Growth Centre