

Chapter 1 – Introduction



407 TRANSITWAY – WEST OF HURONTARIO STREET TO EAST OF HIGHWAY 400

MINISTRY OF TRANSPORTATION - CENTRAL REGION

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1. INTRODUCTION

The 407 Transitway from Hurontario Street to Highway 400 project encompasses the design of an exclusive all grade-separated 24-kilometre exclusive runningway and station facilities adjacent to the 407 ETR Corridor. As one section of the full 407 Transitway, this facility will provide transit service across the greater GTA and will link a variety of major urban centres and transit intermodal hubs. The 407 Transitway will be implemented as a busway; however, the right-of-way will allow opportunity to convert to light rail transit (LRT) in the future, if needed.

This Environmental Project Report (EPR) is a document whose main purpose is to provide a comprehensive summary of each step in the study, including the identification and assessment of alignment and station alternatives, the selection of the preferred alignment and station locations, an assessment of any environmental impacts of the preferred alternative and the identification of measures to mitigate or reduce any negative impacts. Consultation activities with agencies, Indigenous and Métis communities and members of the public are also documented in this report.

1.1. 407 Transitway Background and Status

The complete planned 407 Transitway is a 150-kilometre high-speed public transit facility on a separate right-of-way. It will parallel the existing 407 ETR from the Burlington GO station (Halton) to the Highway 35/115 interchange (Durham) (**Figure 1.1**). The 407 Transitway is being designed as a Bus-Rapid-Transitway (BRT) facility with protection for possible conversion to Light-Rail-Transit (LRT). To meet rapidly growing transportation demands, a cross GTA (east-west) transit facility has been identified as a key

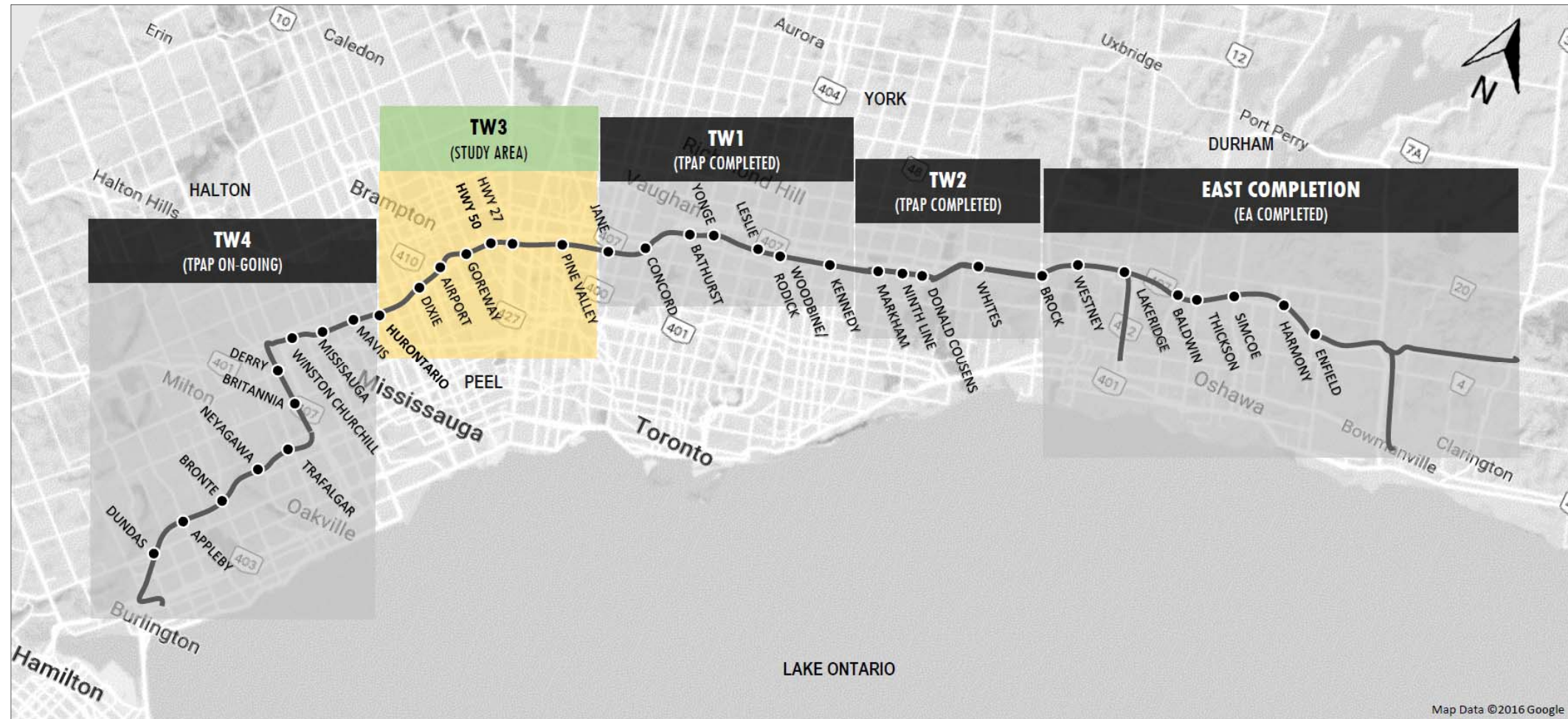
element of the future. The 407 Transitway is intended to form a northern spine parallel to the Lakeshore GO corridor that will connect the municipalities in this corridor. The 407 Transitway will also integrate with north-south transit services by providing stations for quick and convenient transfers. The 407 Transitway is a component of the official plans of the stakeholder municipalities and is part of the Province's Move Ontario 2020 Project and the Metrolinx Rapid Transit Plan.

The Ministry of Transportation (MTO) has been actively planning and protecting the required land for the 407 Transitway for the past 30 years. For the section between the Burlington GO Station and Markham Road, the Ministry completed corridor protection studies to ensure that the land required for the 407 Transitway was protected from provincial land disposal and private development activities.

MTO has received Ministry of the Environment, Conservation and Parks (MECP) approval under the Transit Project Assessment Process (TPAP) Regulation for the segments from Highway 400 to Kennedy Road (Markham) and Kennedy Road to Brock Road (Pickering) and is currently undertaking a TPAP study from Burlington GO Station to Winston Churchill Boulevard. For the section between Brock Road and the Highway 35/115 interchange, the Ministry has received Environmental Assessment (EA) approval for the 407 Transitway as part of the Highway 407 East Completion/Transitway EA study.

This current study extends from Hurontario Street (Mississauga) to Highway 400 (Vaughan). This section is covered by the MTO Transitway Corridor Protection Study (CPS) completed in December 1998 and is also designated in the Provincial Parkway Belt West Plan. MTO is seeking TPAP approval for the 407 Transitway, stations, and associated facilities for this section. The study objectives are explained below.

FIGURE 1.1: FULL 407 TRANSITWAY STUDY LIMITS



1.2. Study Purpose & Objectives

The primary purpose and objectives of the undertaking include the following:

- Enhance east-west cross-regional mobility and increase transit capacity to meet forecast travel demand.
- Offer a viable, cost-effective alternative way of moving people in the 407 ETR Corridor.
- Improve accessibility to existing/planned major urban centres/nodes, post-secondary educational institutions, and other nodes of high demand, such as: Brampton City Centre, Mississauga City Centre, and Pearson International Airport.
- Improve integration with the regional transportation network – connecting to the Spadina Subway, the future Yonge Subway Extension, GO Kitchener, Barrie, Richmond Hill and Stouffville rail lines, the future Hurontario LRT, as well as Peel, York and Durham Transit systems.

- Reduce automobile dependence and greenhouse gas emissions, contributing to climate change effects.
- Identify land protection requirements to accommodate the 407 Transitway infrastructure.

To support these objectives, the scope required that the following activities be undertaken:

- Maintain and apply the comprehensive set of approved design standards for the 407 Transitway, created and approved during the design of the Central, Highway 400 to Kennedy Road section;
- Update and develop detailed ridership estimates based on a 2041 horizon year with projections to 2051;
- Gather existing conditions and future municipal plans, and identify and evaluate alignment and station alternatives, and select preferred design;
- Conduct detailed field investigations in support of the preliminary preferred option; assess the environmental effects and develop a mitigation plan for any negative impacts generated by the

preferred design;

- Deliver a cost-effective, safe, and innovative design and staging plan for this 23-kilometre section of the 407 Transitway for busway technology that allows for conversion to light rail transit (LRT) in the future, promotes transit ridership and optimizes transit operation and integration; and,
- Recommend and present a phased implementation strategy.

1.3. Study Area

The study area encompasses the proposed section of 407 Transitway corridor from west of Hurontario Street in the City of Mississauga, in the Region of Peel to east of Highway 400 in the City of Vaughan in the Region of York. **Figure 1.2** illustrates an area of 500 meters on each side of the alignment that was covered by the study; however, the boundaries in which the environmental effects were identified and assessed; and the reason(s) why these areas were considered sufficient, is explained below:

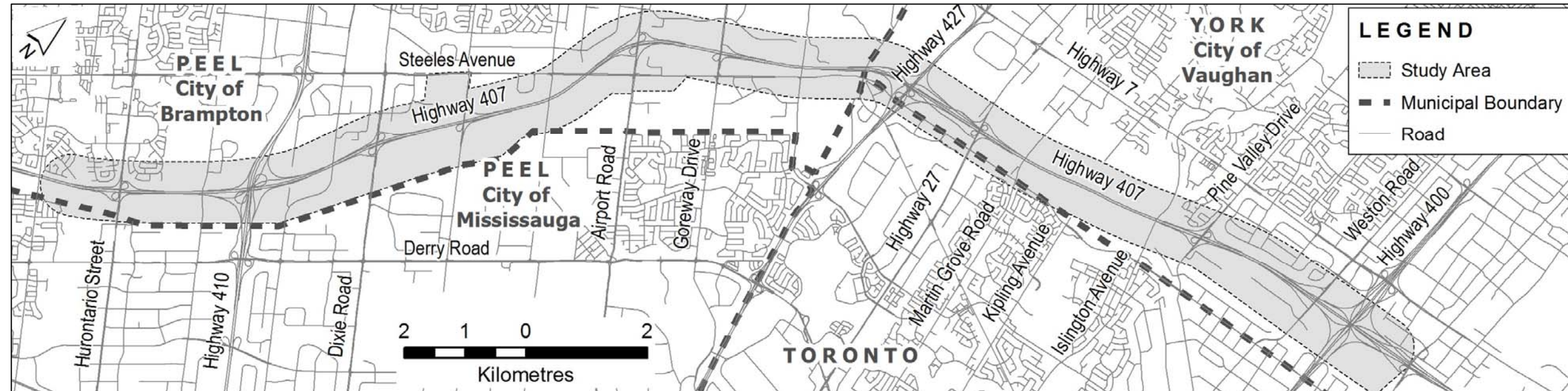
- **Terrestrial:** MTO Environmental Reference for Highway Design (2013) states that for all terrestrial ecosystems field investigations, the study area be defined as within the existing and proposed ROW and adjacent lands for 120-metres unless a sensitive receptor located more than a distance of 120-metres is likely to be adversely affected. As the majority of the anticipated impacts are footprint impacts the project team believes that the study area limits adequately address any terrestrial impacts.
- **Fish Habitat:** MTO Environmental Guide for Fish and Fish Habitat (latest version) presents minimum requirements for area of field investigation which consists of 50-metre upstream and

200-metre downstream of the limits of the proposed ROW. Further, the zone of detailed field investigation conducted for this study is greater than the area prescribed by the Guide. It consisted of 50-metre upstream and downstream. The prescribed area for this zone by the Guide is 20-metre upstream and 50-metre downstream. Please note that the upstream and downstream distance is measured from the thalweg of the stream and not the straight linear distance from the proposed ROW.

- **Groundwater:** The purpose of the Secondary Source Groundwater Assessment was to identify hydrogeological constraints to the implementation of the 407 Transitway and to assess potential impacts on existing groundwater resources. The 1-kilometre corridor study area is sufficient to identify any potential impacts and requirements for future study at a later phase.
- **Property Contamination and Waste, Archaeology, Cultural Heritage:** The potential impacts are footprint impacts in nature therefore the 1-kilometre wide corridor was determined to be adequate to identify any impacts for the implementation of the transitway.
- **Noise:** Noise Sensitive Areas were identified regardless of size and location. The study area limits cover the noise sensitive areas that will be potentially affected.
- **Air:** The physical boundary does not have any meaning. Impacts were assessed at a much larger regional scale. A detailed description is presented in the Air Quality Report regarding the study area limits.

The assessed boundaries are within the 500-metre set-back on either side of the runningway named the study area in the EPR.

FIGURE 1.2: STUDY AREA



1.4. Transit Project Assessment Process

This study was conducted following the Transit Project Assessment Process under Ontario Regulation 231/08: Transit Projects and Metrolinx Undertakings. This regulation allows proponents of all public transit projects to proceed with the TPAP process rather than as traditionally done through Part II of the *Environmental Assessment Act*. The TPAP is a fully-prescribed process in which the proponent must follow specified procedures and timeframes. The Minister of the Environment and Climate Change determines if the final transit project can proceed. This integrated TPAP approach is illustrated in **Figure 1.3**.

The study was comprised of three stages: the Planning Stage, the Pre-TPAP (Transit Project Assessment

Process), and the TPAP stage. The Environmental Project Report (EPR) encompasses the background of the project, studies, analysis, functional and initial design, evaluation of alternatives, findings and recommendations of the completed stages. Consultation was carried out throughout the process.

As per the regulation, the 6-month TPAP process is broken down into three distinct phases:

- The **120-day** consultation and Final EPR preparation period;
- The **30-day** Public, Stakeholder, Regulatory Agencies, and Indigenous and Métis Communities review period; and,
- The **35-day** period for the MECP to respond to all inquiries.

Figure 1.4 illustrates the comprehensive process as detailed by the MECP.

FIGURE 1.3: STUDY PROCESS

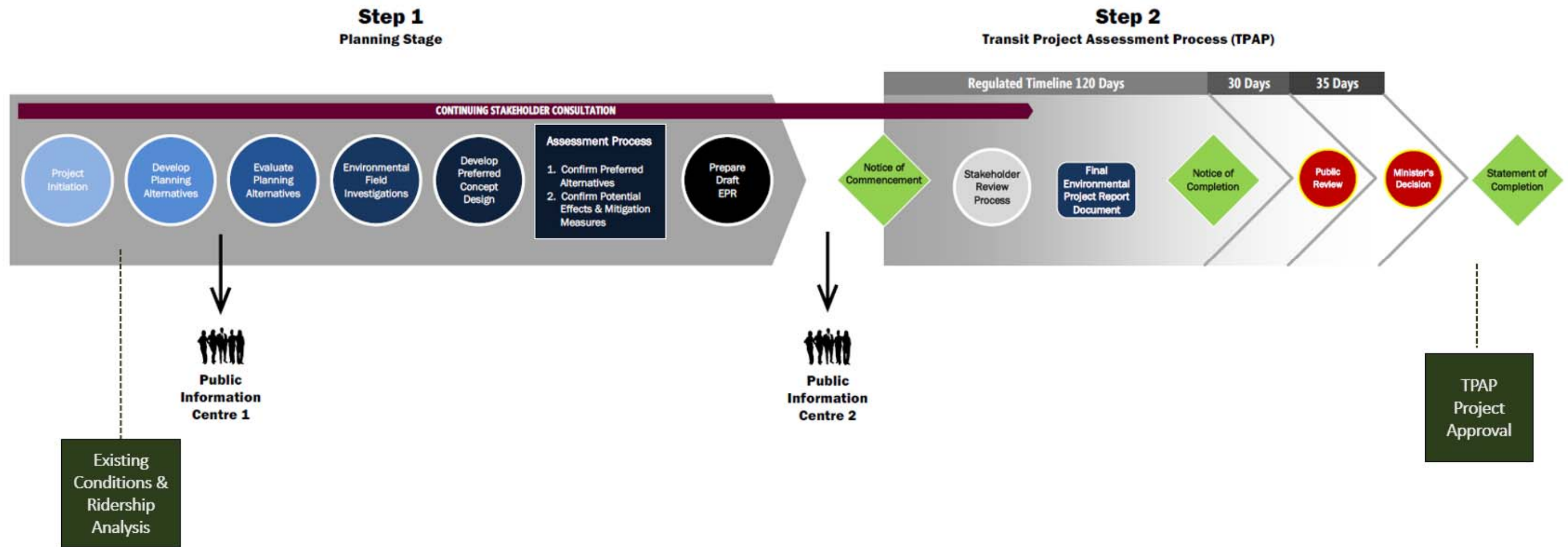
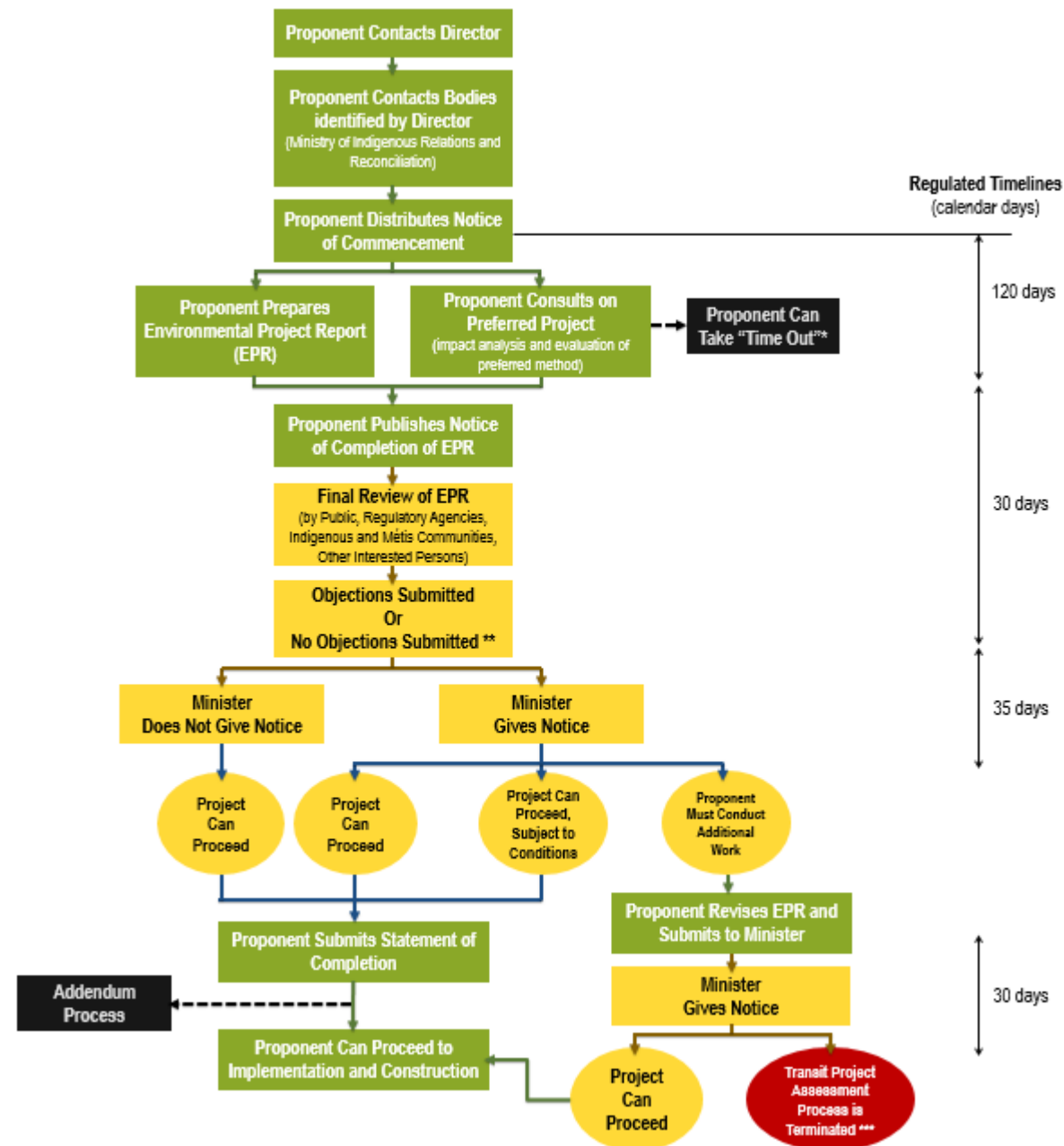


FIGURE 1.4: TPAP PROCESS



* Proponent can take a "time out" only when there is a potential negative impact on a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest or on a constitutionally protected Aboriginal or treaty right.

** Given the Minister's authority to act, concerns or objections should be on the basis that a proposed transit project may have a potential negative impact on a matter of provincial importance that relates to the natural environment or has a cultural heritage value or interest or on a constitutionally protected Aboriginal or treaty right.

*** Proponent must follow an approved class environmental assessment process (refer to Part (I.1) or the process under Part II of the *Environmental Assessment Act*.

1.5. Background and Context

1.5.1. Statutory Requirements

1.5.1.1. Provincial Legislation - Environmental Assessment Act of Ontario

As noted in **Section 1.4** above, this study followed the Transit Project Assessment Process as per the *Transit Projects and Metrolinx Undertakings, Ontario Regulation 231/08*. This 120-day consultation period started concurrently with the publication of the "Notice of Commencement of the TPAP".

1.5.1.2. Other Provincial Legislation

The 407 Transitway is subject to, and will be carried out in accordance with, all applicable provincial legislation including the *Planning Act*, the *Public Transportation and Highway Improvement Act*, the *Freedom of Information Act and Protection of Privacy Act*, the *Ontario Heritage Act*, the *Endangered Species Act*, the *Clean Water Act*, and the *Environmental Protection Act*, among others.

1.5.1.3. Federal Legislation – Canadian Environmental Assessment Act 2012

Federal environmental assessment requirements for this project were investigated early in the study process to identify and address the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)* requirements. A review of the CEAA 2012 and its regulation, the "Regulations Designating Physical Activities [gazette.gc.ca]", determined that this project is not identified as a "designated project" that requires an environmental assessment by the Canadian Environmental Assessment Agency, Canadian Nuclear Safety Commission or by the National Energy Board. Therefore, a federal environmental assessment process is not required. Nevertheless, federal agencies and their interests including Fisheries and Oceans Canada, Environment Canada, Transport Canada and others were consulted throughout the study.

1.5.2. Policy Context

Outlined below are the most relevant transportation policies documented in plans and publications by the various levels of government with influence on the planning of the 407 Transitway.

1.5.2.1. Provincial Policy Statement 2014

The Provincial Policy Statement (PPS) supports efficient development patterns to optimize the use of land, resources and public investment in infrastructure and public service facilities. Land use patterns should 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 ahead of other modes of travel. Land use patterns within urban or rural settlement areas are to be based on densities and a mix of land uses which are transit-supportive, where transit is planned, exists, or may be developed.

The PPS states that efficient use shall be made of existing and planned *infrastructure*, through the use of *transportation demand management* strategies, where feasible. As part of a *multimodal transportation system*, connectivity within and among *transportation systems* and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries. A land use pattern, density and mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and *active transportation*. Transportation and land use considerations are to be integrated at all stages of the planning process. Planning authorities are to also plan for and protect corridors and rights-of-way for *infrastructure*, including transportation, transit and electricity generation facilities and transmission systems to meet current and projected needs.

1.5.2.2. Places to Grow: Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe 2017 (The Growth Plan), replacing the Growth Plan for The Greater Golden Horseshoe of 2006, under the *Places to Grow Act*, 2005, is a framework for implementing the Government of Ontario’s vision for better managing growth in the region. The Growth Plan provides a framework for development of several policies in the areas of managing growth, general intensification, growth centers, major transit station areas and intensification corridors, employment lands, designated greenfield areas, settlement area boundary expansions, and rural areas.

Population and employment forecasts presented in the plan illustrate that population is expected to grow in Peel Region by 35% and in York Region by 43% by 2041. At such significant growth rates, the plan identifies the 407 ETR Corridor (Schedule 5) as one of the major candidates for improved higher-order transit.

The Growth Plan’s policy directions for intensification and compact urban form identify public transit as a first priority for transportation infrastructure planning and major transportation investments to reduce reliance on any single mode by encouraging the most financially and environmentally appropriate mode for trip-making; multi-modal access to jobs, housing, schools, cultural and recreation opportunities, and goods and services; and provision for the safety of system users. It sets out a regional vision for transit and seeks to align transit with growth by directing growth to *major transit station areas* and other *strategic growth areas*, including *urban growth centres*, and promoting transit investments in these areas. In order to optimize provincial investments in *higher order transit* this Plan also identifies *priority transit corridors* and the Provincial expectation that municipalities complete detailed planning for these corridors and associated *mobility hubs* to support planned service levels in a timely manner.

The level of success achieved by the 407 Transitway will be immensely affected by the degree of realization of the land use policies outlined in the Growth Plan. Achievement of the proposed high-density and mixed-used development in the 407 ETR Corridor would foster the required transit demand to support higher orders of transit. Conversely, given the mutual relationship between land use and transportation, the Growth Plan development objectives themselves will be supported by the presence of an effective transportation system including the 407 Transitway.

1.5.2.3. Move Ontario 2020

In 2007, the Province of Ontario announced “Move Ontario 2020”, a provincial plan to fund 52 transit projects in the Greater Toronto and Hamilton Area (GTHA) over a 12-year period starting in 2008. Its primary goal is to create a modern rapid transit system that moves people and goods quickly and efficiently by improving the transit services of southern Ontario’s largest transit providers. While not listed in the projects to be completed by 2020, GO service along Highway 407 was included and the Province identified the 407 ETR Corridor as one of its priorities for new rapid transit initiatives in the GTHA. Studies under the *Environmental Assessment Act*, including this study have been initiated or completed for three segments along the corridor.

1.5.2.4. The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area

On November 28, 2008, the Metrolinx Board of Directors adopted the Regional Transportation Plan (RTP). The Big Move, updated in 2012 and currently under a full review, recommends the construction of over 1,200-kilometres of rapid transit – more than triple of what exists now – so that over 80 per cent of residents in the region will live within two kilometers of rapid transit, with an emphasis on areas with large senior and low-income populations who rely on transit on a daily basis.

Two of the nine priority actions presented in the RTP are: to develop a regional rapid transit network that operates seamlessly across the GTHA and to create a system of connected mobility hubs at key intersections in the regional rapid transit network. These mobility hubs could provide travelers with access to the system, support high density development and demonstrate excellence in customer service. The first phase of the 407 Transitway is included in the second wave of projects of the Big Move shown Schedule 2 of the plan.

1.5.2.5. York Region Official Plan and Transportation Master Plan

The main purpose of York Region’s Official Plan (December 2009, updated in 2016) and Transportation Master Plan (November 2009) is to define a long-term transportation vision and integrated road and transit network plan that supports the Official Plan’s policies for growth in York Region to the year 2031. A number of policies and programs discussed in the Plan have strong focus on the 407 ETR Corridor as one of the major components in meeting the Region’s future transportation needs. The Official Plan notes that it is the policy of Council to “work with partners to complete the transit network including the 407 Transitway.” The proposed transit network illustrates expected GO Transit improvements as well as York Region rapid transit facilities integrated with the GO Transit and TTC systems. Proposed future rapid transit facilities include BRT and/or LRT systems within the Highway 7/407 ETR Corridor. The approved 407 Transitway EAs in the Region, amongst several other transit studies, serve as a foundation for the development of sustainable policies and strategy recommendations as well as the transit and roadway systems proposed for the Transportation Master Plan Update.

1.5.2.6. City of Toronto Official Plan

Adopted by the City in 2002 and by the OMB in 2006 and updated in 2015, the Official Plan does not specifically recognize the 407 ETR Corridor since it is not located within the city limits. However, the importance of an integrated transportation system and coordination in addressing planning issues amongst adjacent municipalities is emphasized in the policies outlined in the document. North-south, cross-boundary transit corridors shared by the City and York Region would be highly integrated and inter-dependent with the 407 Transitway.

Given the transit and land use policy directions outlined in their respective documents, the policies developed by York Region and the City of Toronto plans are consistent and aligned with the implementation of the 407 Transitway. Both recognize the various elements outlined in the provincial Growth Plan in terms of fostering development nodes, urban density, and inter-modal connections.

1.5.2.7. City of Mississauga Official Plan

The City's official plan adopts a new approach to land use planning that blends transportation, land use and urban design objectives. The key to the delivery of this approach is on building a multi-modal city by promoting a transportation network that connects nodes with a range of transportation modes to reduce dependency on cars for local trips; promoting transit as a priority for moving people; developing a seamless network of mobility hubs; and developing and promoting an efficient and safe transportation system for all users.

The City of Mississauga transit network forms part of the inter-regional transportation system and is to support the City's future growth. The transit network is planned around a system of linked regional and local mobility hubs, mixed use nodes and key destinations. Mississauga promotes active transportation. Mississauga is interested in working in partnership with other levels of government and other agencies to create well-connected, efficient, accessible, multi-modal transportation systems and higher order transit corridors. The City commits to work with other transit providers and agencies, such as Metrolinx, to promote transit as the preferred choice for moving people, particularly during peak travel times in the City and Region.

1.5.2.8. MiWay Five: Transit Service Plan 2016-2020

To meet the City's future growth transit - oriented strategy plan, the MiWay Five Year Plan outlines recommendations on network changes and service improvements up to and including 2020. Recommendations are designed around services that respond to travel demand for regional connectivity, city wide coverage and neighbourhood circulation. Objectives of the plan includes increase transit ridership by providing better choices and improve connectivity with neighbouring communities. The MiWay Five Year service plan features key benefits of stronger transit corridors; more frequent service on main corridors; more early morning, weekday mid- day and evening levels; more express routes between key destinations; route network integrated within the Transitway to reduce travel times; more direct and faster connections between transit hubs; improved connectivity with GO rail stations including increased travel flexibility; improved connectivity

with major employment areas particularly northwest Mississauga; improved connectivity with college and university campuses and improved connectivity with neighbouring communities.

1.5.2.9. City of Brampton Official Plan

The City of Brampton Official Plan (2006 and updated in 2013) recognizes that the community cannot continue to rely on the private automobile to meet their transportation needs. This Plan includes policies that will endeavour to increase the modal share of transit and alternative modes by improving the features - passenger and pedestrian amenities, routes, operating speeds, interregional connections, multi-use paths - that make transit and other transportation alternatives convenient, attractive and reliable. Streets will be designed to be complete streets; their design and operation will provide for the needs of all users, including pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles. In particular, the physical design of road and traffic signal systems needs to assign greater priority to accommodating the efficient movement of transit vehicles. However, a major shift from automobiles to transit use and active transportation also requires senior government funding of transit, together with proportional reductions in the many hidden subsidies for roads that promote automobile use.

The Plan includes major policies for the improvement of public transit and active transportation options and land use support through intensification in key locations. The policies in Section 4.5.4.1 of the Plan include the implementation of the 407 Transitway (Schedule C) as well as major rapid transit facilities crossing the 407 Transitway on Hurontario Street, Mississauga Road and on Airport Road serving Lester B. Pearson Airport.

1.5.2.10. Peel Region Official Plan

The Region of Peel Official Plan (December 2016) defines the intent of Regional Council in guiding population and employment growth and development in the Region of Peel. The plan establishes policies that support the expansion of transit within the Region by endorsing mixed use land development and community facilities preferably adjacent to arterial roads and/or in close proximity to transit routes. It is the policy of Regional Council (Section 5.9.2.15) "to work with Metrolinx, other Provincial agencies and Ministries, area municipalities and other regions and municipalities in the Greater Toronto and Hamilton area to implement the Metrolinx Regional Transportation Plan (RTP) and contribute to the development of the ongoing RTP," provide transportation systems that facilitate the movement of people, offer travelers a variety of mobility choices and encourage the most financially and environmentally appropriate mode for trip making. It is also council's policy to work with others to improve and ensure road linkages across municipal boundaries to accommodate the intra and inter regional movement of people and to support the regional transportation plan. The policies outlined in the Plan that endorse the creation of the places that are accessible by public transit and supported by an extensive pedestrian network, would directly support the viability of the 407 Transitway stations.

Regional Council supports the implementation of the 407 Transitway from Hurontario Street to Highway

400 as noted in Section 5.9.5.2 1 “support the implementation and protection of rapid transit corridors, as shown on Schedule G, as well as those additional higher order transit, bus rapid transit or priority transit corridors...”. The Region of Peel initiated an update to its Long-Range Transportation Plan, 2012 (LRTP) identifying the transportation challenges anticipated by the Region over the next 20 years as well as appropriate policies, strategies and a road improvement plan to address rapid growth, congestion, economic competitiveness and sustainability.

1.5.3. Past Provincial Studies along the 407 ETR Corridor

1.5.3.1. Background

In 1967, the Metropolitan Toronto and Region Transportation Study predicted that, with the prevailing growth trends, various urban areas in the Metropolitan Toronto region would eventually merge into a sprawling urban mass from Hamilton to Oshawa and north to Richmond Hill. To control growth in the region, the study contained a Parkway Belt as a key element, conceived as a multi-link linear corridor. The Parkway Belt was defined with four major goals: community identification, integration of two-tier system of urban areas, land reserve for future flexibility, and linked open space system.

The Parkway Belt was planned as a multi-purpose corridor to provide for: freeways, regional transit, electric power transmission lines, utilities, and public open space. Subsequently, legislation was introduced to establish the Parkway Belt West Planning Area (between Dundas and Markham) to stabilize land use in the area until a development plan was approved. The Parkway Belt West Plan, which received Cabinet approval in July 1978, covers the area between Burlington/Milton and Markham and includes the provincial 407 ETR and the Inter-Urban Transit corridor within the Southern Link (then the Highway 403 corridor).

A decade later in 1989, the 407 ETR Overview study (Highway 48 to Highway 35/115) assessed the traffic demands in the Greater Toronto Area and surrounding municipalities. It concluded that there was a need to protect for a network including 407 ETR easterly from Markham Road to Highway 35/115 to address deficiencies in meeting east-west travel demands; two freeway links between Highway 401 and 407 ETR (located in the Pickering/Ajax/Whitby area and near the Oshawa-Clarington boundary; and, an east-west transit corridor as far east as the proposed Oshawa-Clarington link. The study also indicated an immediate need to locate and protect these transportation corridors due to the pressure for development in these areas and recommended that route location and environmental assessment studies be carried out.

Planning for development of a high-order transit facility in the 407 ETR/Parkway Belt Corridor has continued over the past two decades. This section of the report summarizes this process by presenting a brief synopsis of the findings of each of the studies.

1.5.3.2. Protection for Transit in the Highway 407 Parkway Belt West Corridor (1989)

Due to the rapid rate of development in the 407 ETR Corridor between Mississauga and Markham, the

MTO recognized the need to review the protection for transit in the corridor. This would ensure the opportunity to provide a self-contained, high-speed east-west transit service along the corridor with relatively little impact and property costs. Hence, the objectives of this study were to determine the potential for a physical fit and the property protection requirements for the 407 Transitway, to identify costs associated with the protection, to minimize the impact on current infrastructure designs and construction schedules and to address the issue of possible joint corridor use with a proposed freight railway rationalization link at the west end of the project.

Regarding technology of the system, both subway and LRT-type vehicles were recommended, with subway being a strong candidate due to its compatibility with other subway lines in the area (i.e. Toronto Transit Commission (TTC)), and LRT having the advantage of being the cheaper alternative. The corridor adjacent to 407 ETR was recommended to provide for the majority of the property required for the 407 Transitway in order to minimize the impacts to both the hydro and utilities corridors. Descriptions of property to be protected and/or purchased and required steps for these actions were included. Furthermore, staging opportunities and the gradual introduction of a separate right-of-way for transit vehicles were also evaluated.

1.5.3.3. Need & Justification Study for the Protection of Highway 407/Parkway Belt West Transit Corridor (1992)

This report examined the urban structure, demand estimates, corridor location, operational requirements and alternatives to a 407 Transitway. According to the findings of the study, York and Peel regions were expected to experience considerable growth over the next forty years (from 1992). During this period, the pattern of travel was expected to change from a radial orientation from downtown City of Toronto to one of a more dispersed nature, including major movements within and between the two regions. As a result, the 407 Transitway was identified as a major transit spine to serve the need for improved transportation between York, Peel and the adjacent regions.

A number of transportation roles were identified for the 407 Transitway including service to longer-distance regional and interregional trips, service to shorter-distance trips between major activity centers in and adjacent to the corridor, network integration with radial GO Transit rail services and TTC rapid transit, and integration with the road network through the provision of park and ride and pick up and drop off facilities.

According to the ridership forecasts presented in this study for the morning peak hour, the peak point, peak direction volume for the 407 Transitway was in the range of 2,900 to 5,700 passengers per hour in the year 2011 and 3,700 to 7,100 passengers per hour in the year 2031. These figures supported the development of a higher-order, separate right-of-way public transport system.

The study concluded that a right-of-way for a separate fully grade separated Transitway be protected in the 407 ETR Corridor. The study recognized that such a transit system would have a relatively high degree of risk because the 407 Transitway was seen not as a conventional rapid transit facility, but a suburban, circumferential facility located in a highway corridor not directly serving a major node or downtown.

Therefore, in comparison to other rapid transit services in the Greater Toronto Area (GTA), the success of the 407 Transitway was seen as highly dependent on the realization of transit-supportive land use policies, including the fostering of activity nodes along the corridor.

Due to uncertainty about future land use in the corridor and potential demand, the study suggested a staged development approach over time in order to reduce investment capital and associated risks. Initially, a bus system was recommended that would be capable of providing incremental levels of service, starting in mixed-traffic operations, moving on to High Occupancy Vehicle (HOV) lanes and, eventually, a separate right-of-way.

1.5.3.4. Highway 7/407 Transit Planning Strategy Study: A Cooperative Strategy for Transit in the 7/407 Corridor (1996)

This study was to achieve a common vision regarding a higher-order transit system for the Highway 7/407 corridor. It identified detailed objectives of the system and potential risks and uncertainties. Additionally, the study developed an action plan for the implementation of the system, including the identification of the roles and responsibilities of various stakeholders.

A number of objectives, similar to previous plans for the 407 Transitway, were adopted addressing ridership characteristics, property protection and connections to GO Transit and TTC transit nodes. Objectives included support for land use policies aimed at the development of major regional nodes, transforming Highway 7 into a pedestrian-friendly urban street to accommodate local transit, implementing higher-order transit service in the 407 ETR Corridor for intermediate to long distance trips, providing linkages between Highway 7 and 407 ETR transit services, and providing connections to Lester B. Pearson International Airport.

The York Region HOV/Rapid Transit Study (1995) was used as the basis for transit demand forecasts. This study confirmed previous conclusions regarding the forecast growth rate and its consequences. Transit ridership forecast figures derived in this study were in the range of 10,900 to 14,800 passengers during the morning peak hour for the year 2021, considered sufficient to warrant the implementation of rapid transit in the Highway 7/407 corridor. As part of the final recommendations, undertaking a property protection study was suggested to define the property envelope within the 407 ETR Corridor including stations and access/transfer linkages.

1.5.3.5. Transitway Corridor Protection Study, Highway 407/Parkway Belt West Corridor from Highway 403 to Markham Road (1998)

The purpose of this study was to define and protect the property required for transit in the 407 ETR Corridor. Following a review of previous study findings, travel demand forecasting was carried out to provide “order-of-magnitude” 2021 and 2031 ridership forecasts for the 407 Transitway. Development activity and growth potential for population and employment were assessed and outlined along with a review of planning policies within the corridor.

The study then addressed conceptual transit operations and potential implementation strategies and

technology. These formed the basis for Transitway design criteria for initial bus-based and future LRT technologies. Using the proposed criteria, Transitway alignment alternatives were investigated leading to a recommended right-of-way alignment. The Parkway Belt West Plan was amended to designate inter-urban transit in the corridor. The report documented the study process, ridership forecasts, findings of the review of the planning context, alignment and station recommendations with plates showing the property required for Transitway alignment, stations, parking and associated uses.

1.5.3.6. Transit Corridor Priorities and Phasing Technical Report: Making Progress in Removing Roadblocks (2001)

This study developed a tool for assessing and prioritizing transit opportunities in the Greater Toronto Area (GTA). Short and long-term transit alternatives in each of the GTA transit corridors were developed based on clearly-documented criteria. There was a significant focus on transit opportunities for the 407 ETR Corridor, specific to three sections of the corridor, those being Oakville GO Transit station to Highway 50, Highway 50 to Markham Road, and Markham Road to Oshawa GO Transit station. The first two sections of this breakdown are most relevant to this study.

Extensive travel demand forecasting was presented and evaluated for the various alternatives. Morning peak hour ridership for 2011 was predicted to be about 5,200 passengers per hour per direction, with 5,600 by 2021. Transit-supportive land use and travel convenience issues, ease of implementation, significant impacts and costs were also investigated.

The study resulted in the development of the GTA and Hamilton Area Transit Plan, which builds on the strength of the existing transit system. The Plan identified the 407 ETR Corridor and its north-south connecting links to be of high importance.

1.5.3.7. Inter-Regional Bus Rapid Transit Service Study (2002)

The objective of the study was to identify a feasible interregional Bus Rapid Transit (BRT) alignment and implementation strategy that would complement and support GO Transit’s existing rail and bus network and be linked to the TTC rail network. Through examination of the Greater Toronto Transportation Authority’s (GO Transit) generic circumferential BRT Spine Line proposal, identification of feasible alignments, evaluation of TTC connecting links, assessment of infrastructure costs, and analysis of ridership forecasts, the study made final recommendations for the achievement of the most effective and efficient interregional BRT system.

The concept plan for the initial spine corridor alignment included a number of linked segments of Toronto’s major travel corridors, including the 407 Transitway between Keele Street and Markham Road. According to future ridership estimates, the 407 ETR Corridor was identified to be the third most heavily used section of the Spine Line with morning peak hour, peak direction transit volumes of 6,500 passengers by 2011, within the capabilities of a BRT operation as demonstrated by busways in operation elsewhere in the world.

1.5.3.8. Highway 407 Transitway Implementation Study (2006)

This report outlined a strategy for the staged implementation of the 407 Transitway. Criteria for the evaluation and identification of alternative segments for the 407 Transitway included: direct support of one or more of the Growth Plan's Urban Growth Centers along the corridor; potential transit ridership; connectivity with one or more GO Rail lines; connectivity with two or more 400-series corridors; opportunity for commuter parking/carpool lots; opportunity for connection with surface transit services; and adequate length to be viable as a stand-alone entity.

Transit ridership forecasts, prepared as part of the Transit Protection on 400-Series Highway System Study, suggested that 7,200 peak period peak direction transit trips are predicted for the Highway 400/Kennedy Road segment of the 407 Transitway for 2021. Following detailed evaluation, the Highway 400 to GO Unionville (Kennedy Road) segment of the 407 Transitway was identified as the most suitable high priority segment.

Potential high-priority standalone 407 Transitway stations were identified along the 407 ETR to support GO Express Bus Service and included Bronte Road, Trafalgar Road, Highway 10, Airport Road, Jane Street, Keele Street and Markham Road.

1.5.3.9. 407 Transitway from East of Highway 400 to Kennedy Road – Transit Project Assessment Process – Environmental Project Report (2011)

An Environmental Project Report (EPR) was prepared in accordance with Ontario Regulation 231/08 (Transit Projects Regulation) for the 23-kilometre central segment of a transit facility in the 407 ETR Corridor from east of Highway 400 to Kennedy Road in York Region. The 407 Transitway included the runningway, seven stations including Spadina Subway/Jane Station, GO Barrie (Concord) Station, Bathurst Station, Yonge/Richmond Hill Centre Station, Leslie Station, Rodick/Woodbine Station and Kennedy Station and an operations, maintenance and storage facility located west of Jane Street. The study identified the 407 Transitway being implemented initially as bus rapid transit (BRT) with the opportunity to convert to light rail transit (LRT) in the future.

This 23-kilometre segment was identified as the priority section of the 150-kilometre high-speed interregional facility planned to be ultimately constructed on a separate right-of-way that parallels 407 ETR from Burlington to Highway 35/115, with stations, parking and access connections. The study for this central segment followed the Transit Project Assessment Process (TPAP) and received Minister's Notice to Proceed with Transit Project under Ontario Regulation 231/08 on February 28, 2011.

1.5.3.10. 407 Transitway from East of Kennedy Road to Brock Road – Transit Project Assessment Process – Environmental Project Report (2016)

An Environmental Project Report (EPR) was prepared in accordance with Ontario Regulation 231/08 (Transit Project Regulation) for the 19.3-kilometre east segment of a transit facility along the 407 ETR Corridor through York Region, from east of Kennedy Road to east of Brock Road (407 Transitway). The

407 Transitway included the runningway and five stations including Markham Road Station, Ninth Line Station, Donald Cousens Station, Whites Road Station and Brock Station. The 407 Transitway is planned to be implemented initially as bus rapid transit (BRT) with the opportunity to convert to light rail transit (LRT) in the future.

This 19.3-kilometre segment is one section of the 150-kilometre high-speed – interregional facility planned to be constructed on a separate right-of-way that runs parallel to 407 ETR from Burlington to Highway 35/115, with stations, parking, and access connections. The study for the east segment followed the TPAP and received Minister's Notice to Proceed with Transit Project under Ontario Regulation 231/08 on March 1, 2017.

1.5.4. Related Provincial and Municipal Transportation Studies

1.5.4.1. GO Transit Year 2020 Plan

The GO Transit Year 2020 Plan (1998) presented GO Transit's roadmap for system-wide infrastructure and service improvements. It identifies increased service on the Bradford, Richmond Hill and Stouffville lines within York Region. This enhanced service may consist of up to five peak period trains combined with all day train-bus service, and the possibility of offering all-day rail service on the three corridors. Increased service on these three corridors is constrained by the fact that all three lines cross main east-west CN freight lines at grade. CN has taken the position that more service on the north-south GO Rail lines will not be permitted without grade separations of these crossings. The improvements to service and infrastructure of GO Rail lines and connectivity with the 407 Transitway have the potential to increase the effectiveness and efficiency of the inter-regional transit system in the province.

The 407 Transitway is defined as a BRT service with all-day, two-way bus service, every five minutes or better during peak and every ten minutes or better off-peak up from Oakville to Markham Road. Core service levels of all-day two-way service every 15-20 minutes or better during peak and every 30 minutes or better during off-peak is identified for Richmond Hill and Markham. Additionally, a commuter service is recommended in peak periods with peak direction rail service every 30 minutes or better with counter-peak and off-peak bus service hourly or better, intersecting 407 at the 407 Transitway, connected in urban growth centers. These types of services will act as the spine of the high-speed bus network. They also include attractive passenger facilities, designed for easy connections, as well as parking and other customer conveniences where warranted.

1.5.4.2. Metrolinx Five-Year Strategy (2015-2020)

The purpose of the 2015-2020 Metrolinx Five Year Strategy, is to provide a rolling five-year outlook on Metrolinx's plans and activities as it implements the regional transportation plan. Five priorities of the strategy are: to champion regional mobility, ensure a sustainable financial framework, expand the regional rapid transit network, ensure that Metrolinx is a trusted organization, and be a global leader in service delivery and in customer service excellence. The strategy reflects some of the same objectives found in regional and city growth and transit plans including extension of the rapid transit network by

advancing the construction of priority projects, providing convenient transfers between transit systems, developing new or enhancing multi-modal transit terminals, and to foster transit-supportive land uses to leverage public transportation investments by coordinating and stimulating development in the vicinity of transit.

The Strategy endorses the continued development of the Highway 401 and 407 corridors with high-frequency, regional transit services, serving as the primary east-west regional transit spines for the GTHA.

1.5.4.3. Highway 7 Corridor & Vaughan North-South Link: Public Transit Improvements Environmental Assessment, 2005

This study carried out an Individual Environmental Assessment of the implementation of rapid transit in the Highway 7 corridor as an element of the York Rapid Transit Plan (YRTP). The study included the evaluation of several rapid transit alignment alternatives within York Region and the identification of a preferred alternative in a separate right-of-way in (for the most part) the median of Highway 7.

Extensive data collection was conducted, including turning movement counts, intersection lane configuration, signal timings, storage lengths, access provisions and the overall operation of critical intersections. The resulting data were used for detailed analysis of existing transportation operations. The physical and operational impacts of the preferred alternative on roadway and transit capacity were evaluated as part of the study. Road network, traffic demand and intersection operations were analyzed for the 2021 horizon year. Immediate effects were also assessed on the basis of current road network and traffic volumes.

One of the objectives of this rapid transit study was to maximize inter-regional transit connectivity and provide connections to future gateways. The 407 Transitway was identified as a future inter-regional transit corridor and regarded as a positive attribute to the overall project.

1.5.4.4. York Rapid Transit Plan

The York Rapid Transit Plan (2002) is a result of recommendations made by the York Region Transportation Master Plan (updated 2016) identifying the need to expedite the development of a rapid transit network in the region. Four corridors were considered: Yonge Street, Highway 7, Vaughan North-South Link and Markham North-South Link.

Initially, this Plan resulted in the implementation of the first phase of the rapid transit service (VIVA) with queue-jump and transit priority measures on the four corridors. Currently on-going plans and designs involve implementation of the service in separate rights-of-way and ultimately conversion to LRT if required. The effect of the close proximity of the parallel Highway 7 VIVA services is of critical importance to the potential effectiveness of this project's 407 Transitway segment.

1.5.4.5. York Region Transit Five-Year Service Plans

The objective of the York Region Transit Five-Year Service Plan (2001) was to significantly improve transit

connections and the quality of transit service in order to attract new users to transit and increase the modal share of intra- and inter-regional travel.

The two general transit travel needs outlined were, travel to and from major destinations within York Region and travel to and from the City of Toronto (including high-demand destinations like York University and Seneca College as well as connections with TTC and GO Transit). The most notable transit service deficiencies in York Region included infrequent service on grid routes (resulting in poor transfer connections), no off-peak service on several core routes, no continuous service on Highway 7, and a lack of integration between Yonge Street GO Transit bus services and local bus routes.

As one of the proposed strategies in dealing with current deficiencies, the Plan indicated that the Highway 7/407 corridor along with the Yonge Street corridor should be designated as "super corridors". These would function as the two backbones of the regional route network and would have a high level of both local and limited-stop express services (at least during peak periods). Other strategies included the diversion of routes where necessary to serve key destinations, providing connections to higher-order transit services and designated transit focal points, using the freeway system during peak hours to provide fast express services where feasible, and providing a good level of service for all major north-south and east-west arterial corridors within the urbanized areas.

The objective of the most recent 2012-2016 Five-Year Service Plan is to guide YRT/VIVA through the transit system's realignment phase, while focusing on effective ridership management, matching levels of service to meet demand and improving on-time performance. It focuses on mitigating impacts of VIVANext and Spadina Subway extension construction on residents, businesses, and communities in an effort to maintain existing YRT/VIVA service levels and ridership. Another key component of the Plan is to ensure rapid transit-readiness upon completion of the rapidway and the Spadina Subway Extension.

A region-wide transit fare plan and five-year capital and operating cost projections were also introduced and discussed as a part of the overall plan.

1.5.4.6. Brampton Five Year Transit Service Plan 2013-2017

The Brampton Transit Five Year Business Plan (2013-2017) provided a framework for decisions on travel needs and to provide guidelines governing the planning and design of the overall service strategy based on Brampton's rapid growth. The Business Plan is comprised of several components including service improvements; ridership growth plan; asset management plan; customer service plan; marketing strategy and financial plan. The primary purpose is to ensure individual projects are all contributing to Brampton's vision/strategic direction and the key activities are prioritized.

1.5.4.7. High-Occupancy Vehicle Lane Policies

In May 2007, the Government of Ontario outlined several operating standards that are to be applied to the planning and operation of all 400-series highways. These include consideration for provisions of high-occupancy vehicle (HOV) lanes in the planning for any new highway corridors and construction of HOV lanes as new lines when feasible. The 407 ETR is currently not included in the provincial near- or long-

term plans for expansion of the HOV lane network since it is privately owned. However, in the York Region Transportation Master Plan, 407 ETR is considered as a HOV freeway as part of the region's transit priority network. This plan is built on several previous studies conducted by York Region, most notably the 1995 HOV/Rapid Transit Study. Both policies do not explicitly consider the existence of a grade-separated 407 Transitway and/or the operation of auto-only HOV lanes but allow for/assume the operation of transit vehicles on these lanes provide support for transit-oriented land use plans and the development of rapid transit stations.

It is indicated that potential impacts of such facilities on parallel and intersecting facilities should be considered and evaluated in forecasting ridership figures for the 407 Transitway. A study of previous HOV lane implementation and its impact on transit ridership and motorized vehicle trip rates is a good approach in evaluating these impacts.