DRAFT 2041 REGIONAL TRANSPORTATION PLAN

FOR THE GREATER TORONTO AND HAMILTON AREA

Draft for Consultation
September 2017
This version of the Draft 2041 Regional Transportation Plan (Draft RTP) was approved for consultation by the Metrolinx Board of Directors on September 14th, 2017. This Draft RTP will inform public engagement and consultations through the fall of 2017. The feedback received from residents, businesses, civic organizations, partners and stakeholders will be incorporated into a final version of the Plan, to be submitted to the Metrolinx Board of Directors for approval.

Read the Draft RTP, and learn more about the research and technical analysis behind it: www.metrolinx.com/en/regionalplanning/rtp/

Have your say on the Draft RTP: www.metrolinx.com/theplan

Send your comments by email to: theplan@metrolinx.com
These are remarkable times for transportation in the Greater Toronto and Hamilton Area (GTHA). More than $30 billion is being invested in rapid transit infrastructure over the next eight years.

Led by Metrolinx, the Eglinton Crosstown Light Rail Transit (LRT) is under construction in the City of Toronto and Viva/YRT Bus Rapid Transit (BRT) is being built in York Region. By the end of 2017, the extension of the Yonge-University Subway to Vaughan Metropolitan Centre will be complete.

The decades-long call for a permanent and fast rail link between Lester B. Pearson International Airport and downtown Toronto was answered with the completion of the UP Express.

The Regional Express Rail program, our most ambitious program yet, will transform GO Transit and the region with frequent, two-way all-day rail service, more than doubling the number of riders by 2031.

Planning and engineering design is well underway for 15 additional projects that are currently In Delivery. This includes LRT, BRT and subway expansions.

Union Station – the hub of the regional transit network – is undergoing a major expansion in order to meet the needs of the 200,000 people who use it now every workday, and the greater number who will use it in the future.

Across the Greater Toronto and Hamilton Area, fare payment has been modernized with the PRESTO fare card.

Message from the Chief Planning Officer
The work of building an integrated transportation system for the GTHA is truly underway.

When the Province of Ontario created Metrolinx as a new regional transportation agency in 2006, a generation of underinvestment in transit had resulted in a transportation crisis. Travellers in the region wanted action to address congested roads and highways, gridlocked urban streets, unreliable and inconvenient transit, and a lack of safe and well-maintained bikeways and sidewalks. With the release in 2008 of the region’s first ever transportation plan, The Big Move, Metrolinx set out a common vision for the region and a blueprint of how to transform transportation.

The ambitious expansion of transit in the GTHA is the largest in North America today. But the job is far from over. By 2041, over 10 million people will live in the region. That is comparable to the number who currently live in Paris or London. We need to plan for a future characterized not only by continued population and employment growth, but also by changing demographics (including an aging population), the changing nature of work, new transportation technologies and services, and the impacts of climate change.

In short, we cannot stop. Our plan for moving forward - the Draft 2041 Regional Transportation Plan - calls for governments to move beyond The Big Move to put people’s needs at the core of planning and operations. We need to increase the capacity to move people around the region.
But as the transportation network in the GTHA becomes more extensive and complex, travellers’ expectations will rise and transit infrastructure alone will not be sufficient to meet the needs of a growing region. Transit providers need to broaden the focus to address not just the quantity, but the quality of transit service for travellers. That means making transit more accessible, frequent, reliable, safe, comfortable and convenient.

As the only body with a regional mandate, Metrolinx is in a unique position to plan, build, operate and connect transportation in the GTHA. But we cannot do this alone. The transportation system of the future will be extensive, complex and interconnected. Implementation will require new approaches to financing and new approaches to collaborative decision-making in the region. Working with our federal, provincial and municipal partners, the private sector and stakeholders, we can create an integrated transportation system for 2041, one that is focused on delivering the best traveller experience possible.

This Draft 2041 Regional Transportation Plan is being shared to gather broad public input that can be further considered for the final Plan. It represents the choices that need to be made to create a transportation system that supports a high quality of life, a prosperous economy and a protected environment for the next 25 years. We will be actively listening to inform the development of the final Plan.

We would like to thank the Metrolinx Board of Directors for its guidance, the Provincial government for entrusting Metrolinx with this important mandate, and the many municipal officials, civic organizations, educational institutions and citizens who are taking the time to participate in this important public dialogue.

Leslie Woo
Chief Planning Officer
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Executive Summary
The Greater Toronto and Hamilton Area is one of the fastest growing regions in North America. Its dynamic economy and diverse population attract about 110,000 new residents every year and predictions are that in 25 years – by 2041 – more than 10 million people will live here. The region will look and feel very different than the region of today, just as today feels different from the region of 25 years ago. Keeping our growing and changing region moving – getting people and goods to where they need to go – will be ever more vital for the regional economy, the quality of life of those who live here, and the natural environment. To succeed in a much more complex, interconnected and challenging environment will require not only new transportation infrastructure, but also new transportation services and new ways of working together.

The Draft 2041 Regional Transportation Plan (Draft 2041 RTP) for the Greater Toronto and Hamilton Area (GTHA) is a blueprint for what needs to be done to build an integrated, regional multi-modal transportation system, one that will serve the needs of residents, businesses and institutions until 2041.

The Vision for the region in 2041 is that:

The GTHA urban region will have a transportation system that supports complete communities by firmly aligning the transportation network with land use. The system will provide travellers with convenient and reliable connections and support a high quality of life, a prosperous and competitive economy, and a protected environment.
The goals of the Plan are to achieve strong connections, complete travel experiences and sustainable communities.

The Draft 2041 RTP was developed by Metrolinx and builds on the success of the first Regional Transportation Plan - The Big Move - that was released in 2008. The Big Move catalysed today’s massive investment in rapid transit that has led to the completion of eight major transit projects:

- UP Express (Union Station - Pearson International Airport);
- Highway 7 Bus Rapid Transit (Yonge - Unionville GO);
- Davis Drive Bus Rapid Transit (Yonge - Newmarket GO);
- Mississauga Transitway (Winston Churchill - Orbiter); and
- Four GO Transit extensions (on the Kitchener, Barrie, Richmond Hill and Lakeshore West lines).

A further 16 transit projects are In Delivery, which means that they are either in the engineering design stage or under construction.

There is little doubt that The Big Move moved the yardsticks significantly for regional transportation, but the work is far from done. In a region that will continue to grow at a rapid rate, it is vital for the region’s communities, economy and the natural environment to further build out the transportation system – to increase the capacity to move people around the region. It is also important to make the best possible use of transportation assets and to provide the best traveller experience possible. All this requires that funding and decision-making approaches meet the needs of a maturing region.

The Draft 2041 Plan goes beyond (and is different from) The Big Move in that it puts traveller needs at the core of planning and operations.
This will be done through:

- providing even more people with transit that is fast, frequent and reliable;
- integrating fares and services to allow people to move seamlessly across the region;
- designing communities, transit stations and mobility hubs to support transit use and active transportation;
- anticipating and preparing for integrated mobility systems that use emerging transportation technologies and business models;
- using parking demand strategies to encourage car sharing and the use of modes other than the car;
- addressing the beginning and end of a traveller’s journey – the first- and last-mile;
- optimizing the use of roads and highways to support transit and goods movement; and
- embedding design excellence in transit planning.

To achieve the 2041 Vision and Goals, the Draft 2041 RTP is organized around five Strategies that drive action.

**Strategy 1: Complete the Delivery of Current Regional Transit Projects**

There can be no slowing down of the current multi-billion dollar commitments made to expand transit infrastructure. A major focus of the Draft 2041 RTP is the development of GO Regional Express Rail to transform the existing GO rail system from a commuter-focused service into a regional express system with frequent two-way and all-day service. The completion of 15 other transit projects that are In Delivery (under construction or in the engineering design stage) and 13 projects that are In Development (in advanced stages of planning and design) will extend the reach of convenient transit via subway, Bus Rapid Transit, Light Rail Transit and GO Transit.
Strategy 2: Connect More of the Region with Frequent Rapid Transit

A Frequent Rapid Transit Network will connect more people in the region with the places they want to go and provide an attractive alternative to driving. This will include further expansions to GO Regional Express Rail, other surface transit systems (e.g. Bus Rapid Transit and Light Rail Transit) and subways to meet travellers’ needs to 2041. Priority Bus Corridors will complete the Frequent Rapid Transit Network, bringing fast and frequent transit services to parts of the region that have not yet developed the density or ridership needed to support Light Rail Transit, Bus Rapid Transit and subway service. Meeting travellers’ needs to 2041 will require further expansions to GO Regional Express Rail, other surface transit systems and subways within the GTHA, and connections to other communities within the Greater Golden Horseshoe (GGH).

Strategy 3: Optimize the Transportation System

Optimizing the transportation system in the GTHA means making the most of what we have. First, this means integrating fares and service across the region so travellers can move seamlessly from one transit system to another without paying double fares. Traveller experience will be enhanced as transit services are provided for the “first- and last-mile” of every trip. Integrated mobility services will allow travellers to access a fully coordinated and enhanced suite of travel options from different providers. The transportation system will provide universal, barrier-free access. An enhanced system of HOV (High Occupancy Vehicle) lanes will support faster, more reliable bus service and help make carpooling more attractive. Roads and highways will be managed to support transit use.

Strategy 4: Integrate Land Use and Transportation

To achieve the vision for the region, land use decision-making must align with transportation planning and investment. The Draft 2041 RTP contains actions to better integrate land use and transportation planning, especially around transit stations and mobility hubs. Regional collaboration supported by appropriate regulatory measures will encourage the planning of communities and road networks to support transit, cycling and walking. Parking management will encourage car-sharing and prepare the region for the arrival of autonomous vehicles. A Regional Cycling Network will make it easier for cyclists to commute to work.

Strategy 5: Prepare for an Uncertain Future

We live in a time of constant and accelerated change, and need to address this in planning for transportation in the future. A provincial framework will provide guidance for the evaluation and regulation of new transportation technologies, such as automated vehicles and shuttles. Regional coordination will produce a transportation system that is resilient to flooding and other impacts of climate change. Joint actions, including a transition to low-carbon transit vehicles, will reduce Greenhouse Gas emissions. Transit providers will partner with the private sector to drive innovation in mobility.
How Will the Plan Make a Difference?

The implementation of the Draft 2041 RTP will have a profound and positive impact on travellers. Compared to today it will:

- increase the length of frequent rapid transit routes by more than 20 times;
- bring more than triple the number of residents and double the number of jobs within walking distance of frequent rapid transit;
- stabilize and in many cases improve transit travel times;
- introduce a Regional Cycling Network that will double the length of dedicated cycling facilities in the GTHA;
- double the number of walking and cycling trips; and
- move towards a goal 60% of school trips being made by walking and cycling.

Implementation of the Plan will increase access to rapid transit and improve its reliability, comfort and convenience. This will be particularly important for low income and other socio-economic groups that rely heavily on public transportation. It will improve competitiveness and productivity in the GTHA by connecting workers to employers and providing employers with access to more labour markets.

### Residents and Jobs within Walking Distance of Frequent Rapid Transit

<table>
<thead>
<tr>
<th>Year</th>
<th>People</th>
<th>Jobs</th>
<th>Within Walking Distance to Frequent Rapid Transit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>7.2 million</td>
<td>3.6 million</td>
<td>91% 9%</td>
</tr>
<tr>
<td></td>
<td>3.6 million</td>
<td></td>
<td>79% 21%</td>
</tr>
<tr>
<td>2041</td>
<td>10.1 million</td>
<td>4.8 million</td>
<td>64% 36%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>54% 46%</td>
</tr>
</tbody>
</table>

*Walking Distance is 400 m from Priority Bus, BRT and LRT lines, and 800 m from Subway and 15-minute GO stations


### Key Draft 2041 RTP Deliverables

- **FREQUENT RAPID TRANSIT NETWORK**
  - 2016: 68 km
  - 2041: 1,623 km

- **REGIONAL CYCLING NETWORK**
  - 2016: 990 km
  - 2041: 1,995 km

- **HOV LANES NETWORK**
  - 2016: 110 km*
  - 2041: 1,130 km*

*lane-km. Lane-km accounts for roadway length as well as the number of lanes in each direction.
Making it Happen

The final 2041 RTP will articulate the shared goals and actions of municipalities and other partners across the region. The scale of growth anticipated in the GTHA - a 41% increase in population between 2016 and 2041 - demands a new level of cooperation and collaboration among the Province, municipalities, transit agencies, the private sector, and residents. Implementing the 2041 RTP will require more regional mechanisms to coordinate transportation planning investment, and a regional approach to long-term funding.

Next Steps

The publication of the Draft 2041 RTP will mark the beginning of a consultation period that will extend through late fall of 2017. During the consultation period, Metrolinx will reach out to the public through its website, social media, public roundtables and events across the region.

A final draft of the Regional Transportation Plan will be informed by refined technical work and feedback from municipal partners, stakeholders and the public. It will be presented to the Metrolinx Board of Directors for approval.
Section 1: Introducing the Draft Plan
The Greater Toronto and Hamilton Area (GTHA) has emerged as one of the world’s most desirable places in which to live, work, learn and invest. Its diverse and talented population, dynamic economy and robust institutions are catalyzing significant growth, making the GTHA one of the largest and fastest-growing regions in North America. The GTHA is expected to add approximately 110,000 new residents every year to 2041, joining the 7.2 million people who live here today¹.

With this continued growth come many challenges. There will be more than 10 million people in the region by 2041. How can we move people and goods around in ways that are safe, efficient, affordable and sustainable? How can we meet the transportation needs of tomorrow’s travellers, businesses and institutions? The continued success of the region will depend on smart, timely and optimized transportation infrastructure investments. And that takes planning.

Welcome to the Draft 2041 Regional Transportation Plan for the Greater Toronto and Hamilton Area. The Plan outlines how governments and transit agencies can work together to continue building an integrated transportation system to support a high quality of life, a prosperous and competitive economy, and a protected environment in the region.

The Draft 2041 Regional Transportation Plan (Draft 2041 RTP) has been developed by Metrolinx, the provincial agency mandated with improving the coordination and integration of all modes of transportation in the GTHA. It is being released in draft...
form for review and consultation with partners, stakeholders and the public. Metrolinx is seeking input to further refine the Vision, Strategies and Priority Actions before finalizing the Plan. Once approved by the Metrolinx Board Directors, the final Plan will serve as the Board’s advice to the Province and will complete Metrolinx’s legislative requirements under the Metrolinx Act, 2006. More on the consultation process and the process for finalizing the Plan can be found in section 4, “Next Steps”.

What is the Draft 2041 Regional Transportation Plan?

The Draft 2041 RTP is the second Regional Transportation Plan developed by Metrolinx. The first - The Big Move - was released in 2008. It was focused on transforming transportation in the GTHA by identifying nine ‘Big Moves’ and ten Strategies aimed at developing and implementing an integrated multi-modal transportation plan for the GTHA. The Big Move set the stage for today’s massive investment in rapid transit and is responsible for the completion of a dedicated rail link to Pearson International Airport (UP Express), extensions to GO Transit, and Bus Rapid Transit (BRT) systems in York and Peel Regions. More detail on these improvements and 16 other projects that are In Delivery (under construction or in the engineering and design stage) can be found in section 2, “Setting the Stage for the Draft 2041 RTP”. An additional 13 projects that are In Development (in advanced stages of planning and design) will extend the reach of convenient transit via subway, Bus Rapid Transit, Light Rail Transit, and GO Transit. More detail on In Development projects can be found in section 3. A full list of all the transit projects that have been completed, are In Delivery, are In Development and have been proposed in the Plan can be found in Appendix 3.

The Draft Plan goes beyond The Big Move to put traveller needs at the core of planning and operations. It recommends continued expansion and optimization of the region’s rapid transit network. It aims to build a truly integrated transportation system for the GTHA, one that is comprehensive, connected, accessible, sustainable, and focused on people. This requires more than just the building of transit projects. It requires collective work on the “connective tissue” that will make implementation possible – the integration of planning, fares and service, and the development of new approaches to financing and collaborative decision-making in the region.

At the heart of the RTP are five Strategies that aim to:

- complete the delivery of current regional transit projects;
- connect more of the region with frequent rapid transit;
- optimize the transportation system;
- integrate land use and transportation; and
- prepare for an uncertain future.

The Vision and Goals for 2041, and the five Strategies and Priority Actions that relate to them, are presented in section 3, “The Draft 2041 RTP”.
The Draft 2041 RTP conforms to the Growth Plan for the Greater Golden Horseshoe 2017 (Growth Plan), which, together with other provincial land use policy documents, sets the policy framework for managing growth, establishing complete communities and delivering sustainable transportation choices. The Growth Plan and the RTP align to support the Province’s *Climate Change Action Plan (2016)* and the goal of a low-carbon future. All three plans work together to encourage people to travel less by car, travel over shorter distances, live closer to work, and use available resources more efficiently.

Once finalized and approved, the 2041 RTP will replace *The Big Move* and shift the planning horizon from 2031 to 2041. The outlook was extended to correspond to that of the Growth Plan and maintain the 25-year planning horizon from *The Big Move*. However, many of the data sources upon which the Plan is based are from 2011 (e.g. Statistics Canada’s Census and the Transportation Tomorrow Survey), as complete 2016 datasets are not yet available, and thus forecasts in the Draft 2041 Plan are actually over a 30-year period (2011-2041).

### Why was it developed?

Much has changed in the decade since *The Big Move* was released in 2008. Significant investments have been made in rapid transit. But along with this progress has come many challenges. The GTHA has experienced rapid population growth along with changes in demographics and the nature of work. Poverty continues to be an issue and housing affordability is an increasing concern. New transportation technologies have been developed and new disruptive business models are challenging the transportation status quo. All this means that integration and coordination of transportation planning in the region is more important than ever. It is vital that transportation dollars are well spent, and that access to transportation options is improved. The Draft 2041 RTP aims to meet these influences and challenges, which are outlined in section 2.

### How was it developed?

The Draft 2041 RTP was developed collaboratively over a two-year period with input from transportation experts, municipal planning professionals, stakeholders from across the

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**Figure 1: Regional Transportation Plan Timeline**

<table>
<thead>
<tr>
<th>The Big Move</th>
<th>Baseline Monitoring Report</th>
<th>Discussion Paper for the RTP</th>
<th>Residents’ Reference Panel</th>
<th>Draft RTP</th>
<th>Consultation</th>
<th>Final Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEC 2008</td>
<td>SEPT 2013</td>
<td>AUG 2016</td>
<td>MAR 2017</td>
<td>SEPT 2017</td>
<td>FALL 2017</td>
<td>WINTER 2017</td>
</tr>
</tbody>
</table>
region, and the lived experiences of GTHA residents (see Figure 1 for key points in the process). It is based on extensive research (a list of background reports and academic studies that were developed to inform the Draft 2041 Plan is provided in Appendix 1). It also uses some new planning approaches, including scenario planning to examine a range of possible futures, regional traveller profiles to understand travel behaviours and attitudes, and a residents’ reference panel to understand the values, issues and priorities of residents. A summary of these approaches is presented in section 3, and more detail can be found in Appendix 2.

The Strategies and Priority Actions in the Plan were identified by screening projects, programs and policy initiatives against key performance criteria, such as potential transit ridership or accessibility to jobs. The release of the RTP Discussion Paper in August 2016 enabled partners, stakeholders and the public to comment on early directions for the Draft Plan.

**What will it achieve?**

When fully implemented, the 2041 RTP will lead to an integrated and seamless transportation system for the GTHA. Importantly, it will improve the traveller experience and provide travellers with increased transportation choices. It will improve access to reliable and frequent rapid transit. By creating more travel options, it will make travel more affordable by reducing the need to own a car. These mobility benefits will be particularly important for elderly, low income and other demographic groups. It will help achieve the Province’s objectives for land use intensification and the reduction of Greenhouse Gas (GHG) emissions. It will improve competitiveness and productivity in the GTHA. More detail on the outcomes of the 2041 RTP are presented in section 3, under “How Will the Plan Make a Difference?”

**How will it be implemented?**

The RTP is a plan for the entire region and those who plan, build, maintain and operate transportation in the region. The final RTP will articulate the shared goals and actions of municipalities and other partners across the region. Implementation will require a concerted effort by all partners, a regional mechanism to coordinate transportation planning and investment, and a regional approach to long-term funding. Recommendations on implementation are presented in section 3 under “Making It Happen”.

The implementation and funding of the final RTP will be a shared responsibility of Metrolinx and its partners, including federal, provincial and municipal governments. Realizing the vision will also require the involvement of the private sector, civil society, academic partners and the public.

The final RTP will provide the strategic blueprint for Metrolinx, the Province, municipalities and transit agencies to build the integrated transportation system for the GTHA for 2041. It will also inform subsequent Metrolinx corporate strategies and how the organization executes its day-to-day work of planning, building, operating and connecting multi-modal transportation across the region.
Section 2: Setting the Stage for the Draft 2041 RTP
The Greater Toronto and Hamilton Area by the Numbers

The Regional Transportation Plan for the GTHA needs to support and reflect the region’s unique character. The region is large – one and a half times bigger than Prince Edward Island – and stretches 170 km from west to east (see Map 1). Rather than being one large urban area, the region is polycentric, with its 7.2 million people living in 30 municipalities. Land use is diverse, and includes high-density and low-density residential areas, commercial and employment lands, extensive green space, and rural and agricultural areas. The Oak Ridges Moraine and Niagara Escarpment are prominent landforms and have special status under provincial law.

There are nine municipal conventional transit agencies, eight specialized transit agencies, and one regional transit agency (Metrolinx) in the region. Figure 2 provides some key facts about the existing transportation system, which includes roads and highways, public transit, three international airports, two intermodal freight terminals and three major ports. There are about 3.55 million cars in the region and its residents take some 721 million transit trips annually.³

Thirty years ago the dominant travel pattern in the region was characterized by commuters travelling into Toronto in the mornings for work, and outward from the city in the evenings. With the growth of communities outside Toronto and the development of employment and amenities across the region, this is no longer the case. Today, there is continual movement of traffic and transit in all directions at all times of the day and night. Residents may live in Pickering and work near Pearson Airport, or live in Toronto and work in Hamilton.

As the region has grown, it has become more integrated socially and economically. It is also tied in many ways to the areas outside of the region, and the rest of the Greater Golden Horseshoe, notably the Waterloo Region, which is connected to the GTHA by a Toronto-Waterloo “technology and innovation corridor“.
<table>
<thead>
<tr>
<th><strong>Figure 2: The Region’s Transportation System: Key Facts</strong>[^1]</th>
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<tbody>
<tr>
<td><strong>490 km of regional rail and rapid transit in the GTHA</strong></td>
</tr>
<tr>
<td>Includes GO rail, subway, Scarborough RT and BRT.</td>
</tr>
<tr>
<td><strong>61 GO train stations in the GTHA</strong></td>
</tr>
<tr>
<td><strong>2.8+ million PRESTO customers</strong></td>
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<tr>
<td>Includes GO Service Area and Ottawa.</td>
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<tr>
<td><strong>721 million transit trips taken in the GTHA annually (2015)</strong></td>
</tr>
<tr>
<td><strong>66.8 million GO transit trips taken annually (2016)</strong></td>
</tr>
<tr>
<td><strong>300,000+ daily Union Station transit users</strong></td>
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<tr>
<td><strong>585 km of provincial highways within the GTHA</strong></td>
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<tr>
<td>Includes 407 ETR (107 km), Highway 407 (22 km) and Highway 412 (10 km).</td>
</tr>
<tr>
<td><strong>5 municipal expressways</strong></td>
</tr>
<tr>
<td>Don Valley Parkway, Gardiner Expressway, Allen Road, Red Hill Valley Parkway, Lincoln M. Alexander Parkway</td>
</tr>
<tr>
<td><strong>3.55 million cars owned in the GTHA (2011)</strong></td>
</tr>
<tr>
<td><strong>33 carpool lots in the GTHA</strong></td>
</tr>
<tr>
<td><strong>110 lane-km of HOV or HOT lanes</strong></td>
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<tr>
<td><strong>13.6 million daily trips made by GTHA residents (2011)</strong></td>
</tr>
<tr>
<td><strong>370 bike-share stations</strong></td>
</tr>
<tr>
<td><strong>3,500 bike-share bicycles</strong></td>
</tr>
<tr>
<td>Hamilton, Toronto</td>
</tr>
<tr>
<td><strong>3 international airports</strong></td>
</tr>
<tr>
<td>Lester B. Pearson International Airport, John C. Munro Hamilton International Airport, Billy Bishop Toronto City Airport</td>
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</tbody>
</table>

[^1]: Draft 2041 RTP for Consultation
Roles of Government in the RTP

Metrolinx

Metrolinx was created by the Province under the *Metrolinx Act, 2006*. Its role is to develop and adopt a transportation plan for the regional transportation area (currently the GTHA) and plan, co-ordinate and set priorities for its implementation. As specified in the Act, the Regional Transportation Plan must:

- take into consideration all modes of transportation, including highways, railways, local transit systems, the regional transit system, cycling and walking;
- make use of intelligent transportation systems and other innovative technologies;
- comply with the Minister’s transportation plans, policies and strategies for the province as they apply to the regional transportation area;
- comply with the prescribed provincial plans and policies;
- conform with the growth plans prepared and approved under the *Places to Grow Act, 2005* applicable in the regional transportation area;
- promote the integration of local transit systems in the regional transportation area with each other and with the regional transit system;
- work towards easing congestion and commute times in the regional transportation area;

Metrolinx also plans for and operates GO service in the GO Transit Service Area, which is established by regulation under the Act.

The GTHA and GO Transit Service Area are shown on Map 1.

Province of Ontario

The Province’s *Growth Plan for the Greater Golden Horseshoe, 2017* (the Growth Plan) issued under the *Places to Grow Act, 2005* sets out a broad vision for where and how to grow within the Greater Golden Horseshoe region, including policies on transportation planning.

Municipalities in the Greater Golden Horseshoe are also required, under the *Planning Act* and *Places to Grow Act*, to bring their official plans into conformity with the Growth Plan within legislated timeframes. This implementation mechanism is integral to the progress that continues to be made towards improving the integration of land use planning with transportation system planning.
The Growth Plan was recently updated based on a comprehensive review. The updated plan, which came into effect on July 1, 2017, includes policies to improve integration between transportation and land use planning decisions across the region, including:

- identifying Priority Transit Corridors and requiring municipalities to plan to achieve minimum density targets around Major Transit Station Areas (MTSAs) on these corridors. The Growth Plan requires that planning be prioritized for MTSAs on Priority Transit Corridors, including zoning in a manner that implements the policies of the Growth Plan;
- requiring the adoption of a Complete Streets approach when designing, refurbishing or reconstructing the existing or planned street network and of the importance of active transportation, particularly for transit;
- directing municipalities to work with transit service operators, Metrolinx and the Province to support transit service integration within and across municipal boundaries;
- promoting joint development and alternative municipal development standards, such as reduced parking standards, in order to achieve transit-supportive densities; and
- requiring municipalities to develop and implement transportation demand management policies in official plans and other planning documents.

The Minister of Transportation has a mandate to “oversee a world-class provincial transit and transportation system that moves people and goods safely, efficiently and sustainably to support a globally competitive economy and a high quality of life”. The Province’s policy priorities and the Minister’s mandate letter set the policy framework for transportation in the province and the region. The Ministry of Transportation (MTO) funds transit and transportation capital investments through its Moving Ontario Forward program and other mechanisms. The Province also provides eligible municipalities a guaranteed source of funding to improve and expand their transit services through the Gas Tax program.

The Province created Metrolinx in 2006 to provide leadership in the coordination, planning, financing, development and implementation of an integrated, multi-modal transportation network in the GTHA. The Minister sets Metrolinx’s mandate and priorities through annual mandate letters and other letters of direction, as provided through the Metrolinx Act, 2006.

The Ministry of Transportation is also developing a multi-modal transportation planning study to 2051 for the Greater Golden Horseshoe (GGH), to be completed in early 2019. The work will advance multi-modal transportation planning in the GGH and provide planning direction to transportation agencies and service providers for all modes, including highways, railways, regional transit systems, cycling, and walking. It will also include a review of the provincial HOV lane network, development of a High-Occupancy Toll (HOT) network in the GGH, and development of a goods movement network.

Municipalities

All municipalities in the GTHA have Transportation Master Plans (TMPs) with a multi-modal focus that includes transit, roads and active transportation. While they are not required by legislation, municipalities develop TMPs to complement official plans and support the integration of transportation planning with land use planning. Some municipal TMPs consider other policy areas including safety, goods movement and demand management that would also benefit from a regional lens.

Transit has been the sole purview of governments for decades, but in recent years new global private sector companies have entered the field with novel services that do not fit the traditional definitions of transit or taxis and transcend municipal boundaries. In the absence of provincial direction, municipalities are wrestling with the potential impacts of these private sector companies. With a clear policy framework covering the region, more private sector companies could potentially be induced to enter the region that support the public interest. This will increase opportunities for new partnerships and allow for consistent approaches to be used. Regional coordination can help to review and evaluate new services and technologies and, if appropriate, establish innovative partnerships to meet the travel needs of residents.

The Draft 2041 RTP builds on municipal TMPs and integrates them into a more coherent and logical plan for the whole region. Strong municipal leadership provides a foundation for some of the region-wide approaches in the Draft 2041 RTP and remains crucial for these approaches to progress.
Map 1: The GTHA and GO Service Area
The publication by Metrolinx in 2008 of The Big Move came at a time when decades of under-investment in transit had led to “congested roads and highways, gridlocked urban streets, unreliable and inconvenient transit, and a lack of safe bikeways and pedestrian pathways”. The regional rail and rapid transit system as it was in 2008 is depicted in Map 2. The Big Move - the region’s first RTP - was a call to action by municipal governments for regional coordination of transportation and a blueprint for what needed to be done together for the GTHA to succeed.

Ten years later, it is evident that The Big Move was the springboard for a historic more than $30 billion dollar investment in rapid transit. This investment is aimed at improving and expanding transit by heavy rail, including the GO RER program and UP Express, Light Rail Transit (LRT), Bus Rapid Transit (BRT) and subway throughout the GTHA. Perhaps most notably, it will fund the transformation of GO Transit from a commuter-focused service into Regional Express Rail with 15-minute service all day in both directions. Initial two-way all-day service has already been introduced on the Barrie and Stouffville lines. The introduction of half-hour service on the Lakeshore line in 2013 was the largest service expansion in GO Transit’s history.

The Big Move contained dozens of Strategies and Priority Actions that addressed all aspects of the transportation system. Work has begun on almost all the actions recommended in The Big Move, but the major focus of implementation in the last ten years has been the planning and construction of rapid transit. Significant improvements to the rapid transit network have already been made, which have improved
access, choice and level of service for travellers in the GTHA. Recently completed projects include:

- UP Express (connecting Union Station with Pearson Airport);
- Highway 7 Bus Rapid Transit (BRT) (Yonge - Unionville GO);
- Davis Drive BRT (Yonge - Newmarket GO);
- Mississauga Transitway (Winston Churchill - Orbiter); and
- four GO Transit extensions (on the Kitchener, Barrie, Richmond Hill and Lakeshore West lines).

Sixteen more transit projects are In Delivery (under construction or in the engineering design stage), as shown in Figure 3. These projects vary in scale and include GO RER, five LRTs, three BRTs, a Transitway, four GO Transit extensions and two subway extensions. These are all targeted for completion by 2024. The existing and In Delivery regional rail and rapid transit network is shown on Map 3. A list of all the transit projects that have been completed, are In Delivery, are In Development, and have been newly proposed in the Draft 2041 RTP can be found in Appendix 3.

Figure 4 highlights more of the accomplishments of The Big Move that support investments in transit infrastructure. This includes an $800 million revitalization of Union Station, the adoption of the PRESTO card system by transit agencies throughout the GTHA, the introduction of bus bypass lanes on the Don Valley Parkway and 400 series highways, and the construction of over 25 new bridges and underpasses that allow pedestrians and cyclists to cross highways, rail lines and waterways. With shovels in the ground across the region and many rapid transit projects In Delivery, it is important to ensure that these investments are completed and optimized to provide the greatest benefits to travellers.
Figure 3: Transit Projects In Delivery

Metrolinx and partners are delivering an array of new rapid transit solutions across the Greater Toronto and Hamilton Area to serve the people currently travelling in and out of the GTHA, and support the projected future growth in the region.

**GO Regional Express Rail (RER)**

The GO RER program will shift from a largely commuter system to a comprehensive regional rapid transit option. Additional stations and line extensions will bring the GO rail network to new markets which will enable seamless travel across the region. There will be service improvements on all 7 lines with 5 lines seeing electric trains running two-way all-day service every 15 minutes or better.

- Opening Year: 2024

**Mississauga Transitway**

Completion of the Mississauga Transitway across Mississauga to its western terminus, Renforth Gateway.

- From Orbitor Station to Renforth Gateway in Mississauga.
- Length: 1.4 km (Total transitway length is 18 km)
- Opening Year: 2017

**Toronto-York Spadina Subway Extension**

First extension of the subway into York Region; links Vaughan Metropolitan Centre and York University to downtown Toronto.

- From Sheppard West Station in Toronto to Highway 7 in Vaughan.
- Length: 8.6 km
- Opening Year: 2017

**Yonge BRT (North)**

Bus rapid transit along Yonge St.; connects to the Viva Davis Drive rapidway.

- From Savage Rd. to Davis Dr. in Newmarket.
- Length: 2.4 km
- Opening Year: 2018

**Yonge BRT (South)**

Bus rapid transit along Yonge St.; connects to the Viva Highway 7 rapidway and future Yonge North Subway Extension.

- From Highway 7 to 19th Ave./Gamble Rd. in Richmond Hill.
- Length: 6.5 km
- Opening Year: 2018

**Highway 7 West BRT**

Extension of the Highway 7 Viva rapidway westward; links Richmond Hill and Vaughan.

- From Yonge St. in Richmond Hill to Helen Ave. in Vaughan.
- Length: 16 km
- Opening Year: 2019

**Bloomington GO Extension**

Extension of the Richmond Hill line north to the border of Richmond Hill and Aurora.

- From Gormley Station to Bloomington Rd. and Highway 404 in Richmond Hill.
- Length: 4 km
- Opening Year: 2019
**Figure 3: Transit Projects In Delivery (continued)**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Details</th>
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</table>
| **Eglinton Crosstown LRT** | New light rail transit corridor across Eglinton Ave., including a 10 kilometre underground portion. | • From Mount Dennis to Kennedy Station in Toronto.  
• Length: 19 km  
• Opening Year: 2021 |
| **Confederation GO Extension** | Extension of the Lakeshore West line; links Stoney Creek to downtown Toronto. | • From West Harbour Station to Centennial Parkway in Hamilton.  
• Length: 9 km  
• Opening Year: 2021 |
| **Finch West LRT** | New light rail transit corridor along Finch Ave.; links the Toronto-York Spadina Subway Extension and Humber College. | • From Finch West Station to Humber College in Toronto.  
• Length: 11 km  
• Opening Year: 2021 |
| **Hurontario LRT** | New light rail transit corridor along Hurontario St.; links Port Credit to downtown Mississauga and Brampton. | • From Port Credit GO Station in Mississauga to Steeles Ave. in Brampton.  
• Length: 20 km  
• Opening Year: 2022 |
| **Niagara GO Service** | New peak-period GO rail service; links Niagara Falls to Hamilton. | • From Confederation Station in Hamilton to Niagara Falls.  
• Length: 62 km  
• Opening Year: 2023 |
| **Bowmanville GO Extension** | Extension of the Lakeshore East line; links Bowmanville and downtown Oshawa to downtown Toronto. | • From Oshawa Station to Bowmanville.  
• Length: 20 km  
• Opening Year: 2024 |
| **Hamilton B-Line LRT** | New light rail transit corridor through downtown Hamilton along Main and King Streets, and Queenston Rd. | • From McMaster University to Eastgate Square in Hamilton.  
• Length: 14 km  
• Opening Year: 2024 |
| **Scarborough Subway** | Extension of the Bloor-Danforth Subway eastward; links Scarborough and downtown Toronto. | • From Scarborough Centre to Kennedy Station in Toronto.  
• Length: 6 km  
• Opening Year: Less than 10 years |
| **Sheppard East LRT** | New light rail transit corridor along Sheppard Ave., extending rapid transit access eastward from Don Mills Station. | • From Don Mills Station to east of Morningside Ave. in Toronto.  
• Length: 13 km  
• Opening Year: Less than 10 years |
THE BIG MOVE

The Big Move set out ten strategies to achieve its Vision, Goals and Objectives. Here is a snapshot of progress to date and some key examples of actions and policies.

THE BIG MOVE STRATEGIES

1. Build a Comprehensive Regional Rapid Transit Network
2. Enhance and Expand Active Transportation
3. Improve the Efficiency of the Road and Highway Network
4. Create an Ambitious Transportation Demand Management Program
5. Create a Customer-First Transportation System
6. Implement an Integrated Transit Fare System
7. Build Communities That Are Pedestrian, Cycling and Transit-Supportive
8. Plan for Universal Access
9. Improve Goods Movement Within the GTHA and With Adjacent Regions
10. Commit to Continuous Improvement

THE STATUS OF THE BIG MOVE’S 92 ACTIONS AND POLICIES*

<table>
<thead>
<tr>
<th>Complete / Continuous</th>
<th>In Progress</th>
<th>To be Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.5%</td>
<td>62.0%</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

ACCOMPLISHMENTS

- The City of Toronto, Metrolinx and their partners are undertaking an $800 million revitalization of Union Station.
- Public transit agencies added bike racks to all GTHA transit buses (4200+).
- Metrolinx introduced priority parking for carpool users at 49 GO Transit stations.
- Bus bypass lanes were introduced to the Don Valley Parkway by the City of Toronto, and to Highway 403 and Highway 401 by the Ministry of Transportation.
- Municipalities and Metrolinx expanded the Smart Commute program to provide TDM programming for over 300 members.
- Metrolinx launched the Triplinx regional travel planning tool, and introduced the GO Passenger Charter.
- Transit agencies throughout the GTHA (and Ottawa) have adopted the PRESTO fare card system, with more than 2.8 million cards activated.
- Metrolinx and municipalities added over 25 new walking and cycling bridges and underpasses across highways, rail lines and waterways.
- Metrolinx introduced Mobility Hub Guidelines and the GO Rail Station Access Plan.
- Metrolinx established the Regional Accessibility Advisory Committee.
- Metrolinx established the multi-sectoral GTHA Urban Freight Forum and a goods movement data framework.
- Convened Planning Leaders Forum (commissioners and heads of municipal planning departments in the Greater Golden Horseshoe) for 8 years.

Map 2: 2008 Regional Rail and Rapid Transit Network

DRAFT FOR DISCUSSION
PURPOSES ONLY

[Map showing regional rail and rapid transit network with various stations and lines marked.]

- Urban Growth Centre
- GGH Built Boundary
- Greenbelt Designation
- Highway
- GO Station

Existing as of 2008

- Subway
- GO Regional Rail
Map 3: Existing and In Delivery Regional Rail and Rapid Transit Projects

For more details, see Appendix 3A and 3B.

All project definitions are subject to change based on negotiations and agreements with railway, environmental assessments, business case analysis, and further planning.

DRAFT FOR DISCUSSION PURPOSES ONLY.
Key Influences on Transportation

Many of the factors that influence transportation in the GTHA have changed since 2008 when The Big Move was developed. For example:

• growth is continuing but growth patterns are changing;
• the demographic profile of the region is changing;
• poverty is an increasing concern;
• housing has become increasingly expensive;
• the nature of work has changed;
• disruptive business models are challenging the transportation status quo;
• new transportation technologies are being developed; and
• climate change is an increasing concern.

Many factors, including ones that we cannot predict, will continue to change over the life of this plan. The Draft 2041 RTP looks beyond current conditions to consider a range of future challenges and opportunities. It also anticipates the prospect of rapid and unknown change. By understanding how the movement of people and goods might change, the Draft 2041 RTP can anticipate ways for the transportation system to remain relevant, effective and efficient under a range of possible futures.

Growth is continuing and growth patterns are changing

Over the next 25 years, the population of the GTHA is expected to grow to 10.1 million people and the number of jobs is expected to rise to 4.8 million (see Figure 5). The population growth is expected to be distributed as follows:

- **Population Growth:**
  - 2006: 6.8 million
  - 2011: 7.4 million
  - 2016: 7.9 million
  - 2041: 10.1 million

- **Employment Growth:**
  - 2006: 3.4 million
  - 2011: 3.7 million
  - 2016: 4.1 million
  - 2041: 4.8 million

Figure 5: GTHA Population and Employment Growth to 2041

growth as forecasted in the Growth Plan for the GGH is shown for GTHA municipalities in Figure 6. While most of the growth in people and jobs will continue to occur in GTHA municipalities outside of Toronto, recent trends indicate that significantly more growth is now expected to take place in Toronto than was forecasted, particularly in the downtown area. Suburban centres outside of Toronto, including designated Urban Growth Centres, may not see the concentration of growth envisioned in the provincial Growth Plan. Outside of Toronto, detached and semi-detached homes are expected to continue to dominate the housing market.

Nonetheless, higher density housing forms are becoming increasingly common in these areas, and a few significant urban centres outside of Toronto are starting to emerge.

Office employment, which is a major driver of transit use, is becoming increasingly concentrated in downtown Toronto and in a few large suburban employment centers (see Figure 7). Importantly, significant employment is also occurring outside the designated Urban Growth Centres and away from existing and planned rapid transit services. Suburban employment areas continue to be designed around the car, and are difficult to serve by transit and to navigate on foot or by bicycle.

Figure 6: Population Growth from 2011 to 2041 by Upper and Single-Tier Municipality

The concentration of growth in downtown Toronto, particularly office employment, is expected to continue, furthering the need for increased transit capacity and access to the downtown core from across the region. Nonetheless, most growth in the region is forecasted to take place outside of Toronto, and this will result in a significant increase in total trips within and between these municipalities (see Figure 8). Travel in these fast-growing travel markets outside of Toronto has traditionally been dominated by the automobile, with transit currently making up only about 4% of trips in the morning peak period (see Figure 9). Overall, 25% of population growth and 20% of growth in transit trips to 2041 is projected to be in areas of the GTHA where the current transit mode share is less than 5%.

**Demographics are changing**

Demographic projections in the GTHA are highly sensitive to immigration policy and economic trends. While the population of the region is growing rapidly, it is also changing. The number of seniors (people over 65) will double by 2035, and will increase as a proportion of the total population to almost 24% by 2041 from 14% in 2016 (see Figure 10). Understanding how this is taking place over time will help planners to plan and manage the transportation system, as different age groups have different transportation needs. Seniors are less likely to use transit, for example, which will create challenges for planning and delivering the next generation of mobility services. The population is also becoming more diverse demographically, and population growth is becoming increasingly driven by immigration. Understanding the travel preferences of a changing population will be important in planning transportation in different parts of the region, where household sizes and auto ownership rates may be changing.
Figure 8: Total Peak Period Travel Demand by Travel Market to 2041

![Bar chart showing travel demand by travel market to 2041.](image)

*6:00 - 9:00 a.m. and 3:00 - 7:00 p.m.*

Source: Greater Golden Horseshoe Model v4.

Figure 9: Current Mode Share in the Peak Period

![Pie chart showing mode share in the peak period.](image)

*6:00 - 9:00 a.m. and 3:00 - 7:00 p.m.*

Source: Greater Golden Horseshoe Model v4.
Poverty is an increasing concern

Despite some improvement since the recession of 2008, poverty is an increasing concern in the GTHA. In the Toronto region, for example, the percentage of seniors living in poverty increased from 10.5% in 2011 to 12.1% in 2014. As of 2011, more than one-third of all households and 43% of renters spent more than 30% of their income on housing, a commonly used marker of affordability. Low income households tend to depend more on transit, but are more likely to live in areas with poor access to frequent rapid transit. This can limit access to employment opportunities, health care, education, and other services.

Housing has become increasingly expensive

The cost of housing in the GTHA has risen dramatically over the past decade, which has affected housing choice in the region and had an impact on the travel and commuting patterns of residents. Rising housing prices have been a major factor in spurring the development of condominiums in downtown Toronto and elsewhere in the region where there is good access to transit. Average household sizes are decreasing in downtown Toronto. Population growth in downtown Toronto has increased the demand for transit where it is already near capacity. Congestion and other factors have affected the reliability of transit in these areas. As many families and
larger households feel priced out of the market in core areas, some are choosing to locate further away where housing is more affordable. This poses a growing transportation challenge as lower density suburban areas typically have poorer access to transit.

The relationship between the cost of housing and proximity to transit is complex. Generally, areas with better transit access have higher property values and therefore can be more expensive to live in. However, research also shows that improved transit access can lower the costs of commuting. In other words, while a resident in an area with good transit access may pay more for housing, they can lower overall living costs by using transit and reducing or eliminating the costs of car ownership. It will be increasingly important to monitor the combined affordability of housing and transportation.

The nature of work has changed

Automation and communication technologies are changing the kind of work people do, and how and where they do it. A recent study suggests that in the United Kingdom 30% of all jobs across all sectors are at risk of being automated in the next 20 years, which could cause significant unemployment. The same trends (and pressures on job retention) are found in the GTHA. The proportion of people who work a nine-to-five job is currently decreasing. A recent study found that only 50% of all workers in the GTHA held permanent, full-time jobs. Precarious employment - working one or more part-time or contract jobs to make ends meet - is the reality for many in the region, and disproportionately impacts younger and female workers, as well as new Canadians. When people work more irregular jobs, particularly in multiple locations, they are more likely to see the automobile as a better way of meeting their travel needs than transit.
Disruptive business models are challenging the transportation status quo

Broader and faster access to technology and markets has ushered in the on-demand economy that caters to the independence and instantaneous demands of consumers, bypassing traditional retailing and service providers. In the transportation sector, this poses a challenge to transit service providers, taxi companies and others to find new ways of providing services.

Perhaps the best known of these new technology companies is Uber, which started in 2009 as an internet-based alternative to traditional taxicabs, with independent drivers using their own cars. By July 2016, Uber had logged two billion rides worldwide and by 2017 had provided an estimated 60,000 rides per day in Toronto.20

Another emerging trend is the rise of Mobility as a Service (MaaS) platforms around the world. MaaS platforms are integrated mobility services available by subscription that offer the traveller the ability to access transportation services from public and private transportation providers through a unified gateway (a single app), as illustrated in Figure 11. As needed, the traveller can access public transit, ride-sharing, bike-sharing and car-sharing services. Future roles and responsibilities for these services are not yet established. To ensure that these services are accessible to all, it will be important to ensure that they operate within a strong policy framework that prioritizes walking, cycling, transit and ride-sharing over single-occupant vehicle use.

Figure 11: Mobility as a Service Concept
Many experts predict that autonomous vehicles could make mobility easier and more seamless, but they could also be extremely disruptive to transportation systems. Private automated vehicles would almost certainly result in an increase in vehicle kilometres travelled, which will worsen congestion and quality of life.

It is essential to clearly identify the public interest and the role of government in managing and adapting to these new technologies. Municipalities in the GTHA have identified a need for a coordinated, regional approach to prepare for the changes that new technologies and business models will bring.

New transportation technologies are being developed

Real-time access to information and the market potential of new technologies are rapidly changing how people make travel decisions, how they choose to travel and their expectations of the transportation system.

Autonomous vehicles (AVs) and connected vehicles are primed to have major implications on mobility and infrastructure in the GTHA. A major consulting firm predicts robo-taxis (autonomous cabs) will account for 27% of passenger travel by 2030, although other studies predict both a slower fleet turnover and higher share of private rather than shared automated vehicles. Automated shuttles (buses) were first showcased in Europe in 2014 and are being piloted all over the world, including near Montreal.
Climate change is a real and increasing concern

Transportation is both affected by the impacts of climate change and a major contributor to the problem. The impacts of climate change are already being experienced in the GTHA and experts predict that there will be hotter temperatures, more intense rainfall events, and more severe and frequent storms in the future. Figure 12 shows that the total economic cost of weather events in Canada has been increasing over time. A region that is well serviced by an integrated, multi-modal transportation system that responds to the potential impacts of climate change will be more resilient to extreme weather events. Actions such as collaboratively designing new infrastructure for a changing climate, strengthening the existing network, and updating operational protocols will help the transportation system remain operational under difficult and changing climate conditions.

Figure 12: Losses in Canada Due to Catastrophic Weather Events

In Ontario, the transportation sector is the leading source of GHG emissions - contributing 33% of total GHG emissions (see Figure 13). The Province has committed to reducing GHG emissions to 80% below 1990 levels by 2050. Implementation of the Draft 2041 RTP can play a significant role in helping to meet these reduction targets through the electrification of GO rail and the adoption of low-carbon forms of transportation.

The GO RER program will more than triple the number of rail service kilometres compared to 2016. Electrification of the system will reduce the GHG emissions from operations by almost half of what was emitted in 2016.

Source: Metrolinx, GO Regional Express Rail Initial Business Case

Figure 13: Greenhouse Gas Emissions by Economic Sector in Ontario

Regional Transportation Challenges

The Big Move set the stage for today’s massive investment in rapid transit, most of which is targeted to be in service by 2025. The Draft 2041 RTP aims to build on this. However, there are a number of transportation planning challenges that stand in the way of fully implementing the policies and actions in the Regional Transportation Plan. These are explored in this section.

The need to better integrate land use and transportation

Although the importance of integrating land use and transportation planning has long been established, decisions about land use planning, transportation planning, and investments are still often made in isolation from one another. Full integration of municipal transportation and land use plans with the RTP is voluntary, and the priorities of municipal transit and transportation investments may not always align with the RTP.

The Growth Plan sets a strong policy framework for where and how to grow and requires that municipalities plan for intensification. However, implementation requires that municipalities and the private sector work towards the same goal. Ultimately, municipal policies and market forces determine where growth is distributed within this policy framework. Competing objectives have sometimes led to jobs and services being located in areas that cannot support high-quality transit. It is then a challenge to connect these areas to the rapid transit network.

Growth does not always happen as planned. At present, significant (and more than anticipated) population and office employment growth is taking place in downtown Toronto. This is positive for access to transit and the ability to get around on foot and bicycle. At the same time, growth is not occurring as quickly as planned in some of the other Urban Growth Centres identified in the Growth Plan. The Draft 2041 RTP, which looks out 25 years, must use approaches that will be viable under a range of growth outcomes.
Notwithstanding the higher than anticipated growth in Toronto, most population and employment growth is forecasted to be in newly-urbanized areas. While travel to downtown Toronto is expected to increase, travel between suburban regions will grow even faster. Historically, this travel market has been dominated by single-occupant automobile (see Figure 9), so in the face of increasing growth it is critical to reduce the share of people driving alone in this market. If this is not achieved, the result will be higher costs for travellers and significantly more congestion and emissions region-wide, generating significant economic costs to the region.

How local communities are planned also affects the ability to achieve transportation goals. Ideally, communities should have a mix of uses at sufficiently high densities to make transit, walking and cycling viable options. However, through thousands of decisions that are made every year by many different stakeholders, development sites, roads, and streets are often designed to facilitate car and truck traffic, and not to meet the needs of transit users, pedestrians, and cyclists. The resulting streetscapes often make it inconvenient, unsafe and uncomfortable to walk or cycle, and can be difficult and expensive to change. As a result, driving remains the mode of choice for a majority of travellers.

Without significant changes to community design, new transit services will not meet their ridership targets, walking and cycling will remain marginalized, and the use of car will remain dominant.
The need to move people, not just vehicles

For much of the 20th century, transportation planning was focused on moving cars as efficiently as possible. This has resulted in streets and roads that are designed for cars as the dominant mode of transport, and which leave little room for transit, pedestrians and cyclists. Agencies and municipal departments in charge of roads, signals, parking, taxis and transit need to collaborate more closely to shift the focus to moving people as efficiently as possible, and not just vehicles. This is part of putting the needs of the traveller at the centre of transportation planning.

The need to focus on the traveller

To develop the Draft 2041 RTP, Metrolinx undertook intensive research to better understand travellers in the GTHA and their needs. This included panels, focus groups and surveys. It is clear from this research that people travelling across the region want a reliable, consistent and easy experience, no matter what mode of transport they use or what municipal boundary they have to cross. Transit services in particular often end at municipal boundaries. Despite progress being made in coordinating fares and service, decisions by transit agencies may not always prioritize the needs of travellers’ end-to-end journey experience. People care little about which system they are on or who is operating it. They simply want to get where they need to be as quickly, comfortably and reliably as possible. If transit agencies do not continually improve the effectiveness and quality of the door-to-door experience, they will fail to attract and retain travellers.
The need to integrate fares and service

With the implementation of PRESTO, travellers can now take advantage of a transit fare card that provides travellers with an easy and consistent method of payment region-wide. The next challenge is establishing and coordinating a fully integrated fare structure and set of fare products and concessions.

Most jurisdictions with fare integration have fares either by distance or zone. The main challenge of fare integration is to find a way to make it financially affordable while not imposing an undue burden on those who will have to pay more.

On a typical weekday, 21% of all trips in the region cross municipal boundaries in the morning peak period, half of which are destined to Toronto. Of trips destined to Toronto, about 49,000 trips, or 13% of all trips, use local transit (not including GO Transit), which represents about 10% of all local transit trips in the GTHA in the morning peak period. Of these, about 25% walk or drive into Toronto to access transit. The remaining 75%, or 37,000 trips, access local transit outside of Toronto and thus face a double fare. This represents 7.5% of all local transit trips in the GTHA in the morning peak period.³ Double fares make cross-boundary services less attractive and dampen demand.²⁹

Transit agencies have no formal mandate to address or incentives to address local cross-boundary travel.

The result is that communities across municipal boundaries with strong social links are often poorly served by transit or have duplicate services. This means that some travellers pay double fares for short trips, drive instead of taking transit, or avoid taking a cross-boundary trip, potentially depriving them of educational or employment opportunities. This is especially prevalent for travellers moving between Scarborough, York and Durham, those moving between Etobicoke and Mississauga, and those moving between North York and York Region.

Moving across municipal boundaries can be especially problematic for residents with disabilities. There are eight different specialized transit agencies in the GTHA and transferring between them requires long transfer windows and complicated booking processes. These transit agencies also have differing service models and eligibility practices. For example, most customers need to book independent legs of their trip with each relevant agency.

Many of the frequent rapid transit routes proposed in the Draft 2041 RTP cross municipal boundaries. Without full fare and service integration, travellers and transit agencies will not realise the full benefit of these proposed routes.

Providing Seamless Specialized Transit

During the 2015 Pan Am/Parapan Am Games, MTO coordinated with public transit agencies to ensure services were able to keep everyone moving. This included the introduction of “Call One,” an integrated booking system for users of specialized transit services who needed to travel across the region. The system eliminated the need for users to contact each separate municipal provider (e.g. Mobility Plus in York Region and Wheel-Trans in Toronto) to coordinate their trip.
The need to coordinate decision-making

Decisions about transit and transportation are made every day by all levels of government – provincial ministries, transit agencies, municipalities, and the federal government. Each of these agencies and levels of government promotes its own goals first, within its own timelines. Most agencies also assist in the meeting of regional objectives where feasible. In contrast, Metrolinx’s focus is predominantly a regional one.

Part of its focus is to ensure that each of these agencies and levels of government are working in alignment to achieve regional goals, despite their diverse mandates and responsibilities. While governments have significantly increased their support for transit over the last decade, limited progress has been made on key areas – such as fare and service integration across the entire region – that require more formal coordination and region-wide policies. Governments need to embrace new ways of working collaboratively to ensure that decision-making reflects and supports regional priorities and plans.
The need to provide sustainable and long-term funding

The Province has made an unprecedented investment (more than $30 billion) in the region’s transit infrastructure. While this committed funding will cover the capital costs of building the 16 additional rapid transit projects that are targeted for completion by 2025, it does not include maintenance and replacement costs. Additional funding will be needed for new rapid transit projects after 2025, along with the complementary and supporting initiatives that are needed to optimize the transportation system, working collaboratively with other levels of government.

Financial resilience depends on having sufficient funding sources in place and having them tied directly to the Draft 2041 RTP. Funding needs to address both capital and operating costs, and include the costs of financing and asset management. It also needs to make provisions for maintaining infrastructure assets in a state of good repair. Sustainable and reliable funding is necessary to carry out planning that takes into account what is feasible and what is likely to occur year after year (i.e. to align planning with what can be reliably delivered). Funding is further addressed in section 3 under “Making it Happen”.

Draft 2041 RTP for Consultation
Section 3: The Draft 2041 RTP
Vision and Goals

The Draft 2041 RTP holds firm to the original vision of The Big Move, but now refines it into the following more concise statement:

VISION 2041

The GTHA urban region will have a transportation system that supports complete communities by firmly aligning the transportation network with land use. The system will provide travellers with convenient and reliable connections and support a high quality of life, a prosperous and competitive economy and a protected environment.

Under this overall Vision, the Draft 2041 RTP adopts the following Goals:

• **Strong Connections**
  Connecting people to all the places that can make their lives better such as homes, jobs, community services, parks and open spaces, recreation, and cultural activities.

• **Complete Travel Experiences**
  Designing an easy, safe and comfortable travel experience that meets the diverse needs of travellers.

• **Sustainable Communities**
  Investing in the transportation system not only today but also for future generations, by supporting land use intensification, climate resiliency, and a low-carbon footprint, while leveraging innovation.

Integral to the Vision for 2041 is the notion of a people-centred transportation system. The system will make people’s lives better by providing travellers with choices. The traveller can ask themselves, “Should I take the GO train or carpool with my co-worker? Should I take the LRT or bike-share? Should I walk or take the local bus to the Express Bus stop? Should I let the GTHA transportation app plan my route and way of travelling?”

The transit system of 2041 will be convenient, reliable, and safe. Some parts of the system will run rapidly and frequently, allowing people to move quickly over long distances. Other parts will provide local access and 24-hour service for those who work nights or like to stay out late. The system will provide universal access for travellers with disabilities and will be affordable for low income travellers who need it most. The system will sustain the communities and businesses in the GTHA and minimize the impact of transportation on the natural environment.
Preparing the Draft 2041 RTP

As noted in section 1, the Draft 2041 RTP was developed collaboratively over a two-year period with input and expertise from municipal planning professionals, stakeholders from across the region, and the lived experiences of GTHA residents. It is based on extensive research on a wide range of current issues, including active transportation, climate change resiliency, transportation demand management, intelligent transportation systems, goods movement, and more. A full list of background reports and academic studies that were developed to inform the Plan is provided in Appendix 1. See Appendix 2D for an overview of the Draft 2041 Plan evaluation process.

Strategies and Priority Actions were identified by screening projects, programs, and policy initiatives against key performance criteria. The Strategies and Priority Actions were developed with consideration of the passenger transportation hierarchy in

Ontario’s Transit-Supportive Guidelines, which is intended to promote a shift in travel behaviour across all modes, while recognizing diverse needs of travellers. The transportation hierarchy includes (from most desirable to less desirable): trip avoidance or shortening; active transportation, such as walking and cycling; transit; ride-sharing, such as carpooling, vanpooling, car-sharing, ride-sourcing and taxis; and single-occupant vehicles.

Metrolinx also used three new approaches in developing the Draft 2041 RTP: 1) scenario planning, 2) a Residents’ Reference Panel, and 3) the development of regional traveller profiles. An overview of these new approaches is presented below, and more detail can be found in Appendix 2.

Setting the Stage with Transit-Supportive Guidelines

The Ministry of Transportation is helping communities create a region that is supportive of transit with its best practice guidelines for transit-oriented development, urban design and transit operations, drawing from experiences of communities in Ontario, elsewhere in North America, and abroad.
Scenario Planning

While the Draft 2041 RTP has been developed in conformity with Growth Plan population and employment forecasts and policy directions for where and how the region will grow, Metrolinx also tested the strategies and actions against six alternative potential future scenarios, including economic decline, the rapid adoption of emerging technologies, and extreme climate change (see Figure 14).

The alternative scenarios were developed based on a scan of current literature and experience in other jurisdictions. They varied the assumptions (compared to a “business as usual” case) for the amount and distribution of population and employment across the region, the nature of employment, and the amount, cost and modes of travel in the region.\(^{31}\)

The risks associated with each of the six alternative future scenarios were assessed by evaluating each scenario against a range of possible configurations for the future transportation system. The analysis showed that investing in transit operations as well as infrastructure, integrating land use and transportation to support transit, and comprehensive mobility pricing led to the most resilient overall outcomes.\(^{31}\) More details on the development of the scenarios and results of the resiliency assessment can be found in Appendix 2A.
Figure 14: Alternative Futures used in Scenario Planning

Alternative Scenarios have been modelled to consider how the Draft Plan’s strategies can be resilient and flexible under a range of possible future conditions. Scenario planning is a tool to help manage the risk of trends unfolding differently than forecasted.

**Rapid Growth of Core Areas**
Infrastructure in our largest and busiest cities, already having well-used and congested systems, could become increasingly stressed. In this scenario, suburban commuters could face longer travel times due to congestion, and parking supplies could shrink.

**Rapid Adoption of Emerging Technologies**
Autonomous and electric vehicles, for example, could create a tolerance for longer commutes and increases in vehicle trips, adding to congestion. In this scenario, people may choose other modes over transit, in favour of the independence and comfort.

**On-Demand Economy**
The rise of the casual or “gig economy” could create dispersed and lower density employment clusters, potentially making some fixed infrastructure and services less efficient and responsive. In this scenario, people could become more reliant on technology to make travel decisions and would be more likely to ride-share.

**User-Pay Economy**
The entry of private companies into the transportation sector could potentially dilute the cost-recovery of conventional transportation systems, and increase travel costs for those who can least afford it. In this scenario, low- and medium-income people would be more likely to choose walking and cycling options over vehicle travel, and live closer to work when feasible.

**Extreme Climate Change**
Infrastructure costs and service interruptions could increase rapidly, with more frequent and severe weather events such as storms and extreme temperatures. In this scenario, people could take transit less, and conflicts between vehicles and pedestrians could increase with congestion.

**Economic Decline**
The convergence of domestic and global trends, such as a changing markets and decreasing levels of immigration, could threaten the region’s ability to continually invest in our transportation and other infrastructure and services. In this scenario, people may find driving longer distances an attractive option due to less congestion and transit service reductions.
Residents’ Reference Panel

In spring 2017, Metrolinx convened a panel of residents from across the GTHA to provide input into the Draft RTP. Thirty-six participants reflecting the diversity of the region were selected to take part from over 280 who applied. Over the course of five intensive full-day sessions, the participants volunteered their time to enthusiastically learn about regional transportation, services and policies, consider different perspectives, weigh different priorities and recommend a course of action.

The participants identified six values that they felt should guide the development of the region’s transportation system. These are:

- convenience and reliability;
- safety;
- affordability and cost-effectiveness;
- environmental sustainability;
- comfort and good design; and
- long-term planning and economic growth.

In their report, the panel made seven recommendations on the need for Metrolinx and its partners to do the following:

- **Connectivity, convenience and integration**: Improve coordination of routes and schedules, integrate transit fares across the region, and make PRESTO more convenient.

- **Equity and accessibility**: Ensure barrier free access across all facets of the transportation journey for all users and implement discounts or subsidies for low-income residents.

- **Health, comfort and safety**: Improve infrastructure, lighting, amenities and operations to improve health, comfort, and safety of users and employees.

- **A well-planned region**: Strengthen the regional transportation governance model to promote greater alignment among municipal, regional and provincial priorities, achieve greater collaboration between operators, and expedite the delivery of major transportation projects.
• **Exemplary environmental footprint**: Encourage the use of public transit and active transportation by whatever means are found to be most effective, improve air quality inside and around stations and corridors, and increase procurement from suppliers with environmental certifications.

• **Prosperity and competitiveness**: Identify regional nodes where expanded transit services and a mix of other land uses can be developed, leverage emerging technologies to make the system more efficient, and facilitate the efficient movement of goods and people by better utilizing existing road infrastructure.

• **Public awareness and communication**: Enhance the profile of regional transportation planning, provide periodic updates on transit expansion for distribution to residents in the region, create campaigns to promote new services and plans, raise the profile of transit operations outside Toronto, and make transportation policy the third pillar in a successful, healthy and prosperous society.

See Appendix 2B for more detail on the Panel’s recommendations.
Regional Traveller Personas

To better understand the travel behaviours and attitudes of people in the GTHA, Metrolinx undertook extensive qualitative and quantitative research to better understand the various types of residents, how they travel, and their perceptions of different modes of transportation. Over 8,500 people were surveyed and several focus groups were held. The feedback was used to develop six regional traveller profiles - archetypes of regional travellers - to lend insight and provide a lens through which proposed actions in the RTP could be filtered. The surveys and focus groups were used to generate synthetic demographic profiles for the personas and generated information on how much they travelled, how and why they travelled, and their use of and attitudes towards public transit and active transportation.

One of the major conclusions of this research is that the mode of transport people choose - whether to drive, walk, cycle or take transit - is determined by more than just travel time. The choice of mode of travel is informed by a person’s situation - where they live, for example - and their attitudes towards public transit and active transportation. Key determinants are perceptions of safety, convenience, comfort and predictability, as well as the speed of travel. The research revealed that most travellers are generally satisfied with travel in the region, but they often found it to be slow, stressful and not well-integrated. Transit is often viewed negatively compared to driving, and is not seen as a first choice for getting around, especially outside the urban core. See Appendix 2C for more detailed profiles of the Regional Traveller Personas.
Strategies and Priority Actions

The Draft 2041 RTP calls for moving beyond The Big Move with five strategies to:

- complete the delivery of current regional transit projects;
- connect more of the region with frequent rapid transit;
- optimize the transportation system to make the best possible use of existing and future transit and transportation assets;
- integrate land use and transportation; and
- prepare for an uncertain future.

Priority Actions are provided under each of these five Strategies to achieve the vision and goals of the Draft 2041 RTP. The Strategies and Priority Actions are informed by the research carried out and the input received from municipal planning professionals, stakeholders from across the region, and GTHA residents.
Strategy 1: Complete the Delivery of Current Regional Transit Projects

The Big Move set in motion a historic expansion of rapid transit infrastructure across the region. Starting with the early successes of the “Quick Wins” program, followed by the “Top Transit Priorities” and the provincial Moving Ontario Forward program, more than $30 billion in investments in rapid transit has been committed for projects. Eight of these projects have been completed and 16 others are In Delivery (under construction or in the engineering design stage). A list of projects In Delivery is shown in Figure 3.

This infrastructure will build on the considerable assets already found in the region, including Union Station in downtown Toronto and the Lester B. Pearson International Airport area, both of which have significant employment in the surrounding areas and as such will remain a focus for improved transit investment. These key projects will provide significant benefits to the people, businesses and institutions in the GTHA, connecting people to more places by transit and making transit a more viable option.

In order to sustain the momentum, the Draft 2041 RTP includes recommendations to:

- complete the delivery of regional transit projects that are currently In Delivery and In Development; and
- modify some of the projects from The Big Move to reflect more up-to-date information.

Continue building GO Regional Express Rail to transform transit

GO Regional Express Rail is a major focus of the Province’s Moving Ontario Forward commitment. GO RER is underway and will transform the existing GO rail system from a commuter-focused service into a two-way all-day service (see Map 3 and Figure 15). The Draft 2041 RTP emphasizes both the need to continue building GO Regional Express Rail (Strategy 1) and expanding it beyond 2025 (see Strategy 2).

By 2025, the 10-year $16 billion GO RER program will double GO train service during peak periods and quadruple service during off-peak periods. Electrification will bring substantial benefits in terms of reducing both transit operation costs and environmental impacts, and improving travel speed. All seven GO corridors will see service improvements, of which five corridors will have electric trains running every 15 minutes or better in both directions all day. Travellers will save time through the provision of faster, more frequent transit.
Improved rapid transit service is coming to the GTHA with Metrolinx’s GO Regional Express Rail (GO RER) program. As new subway, light rail transit and bus rapid transit are built across the region, the GO RER program will transform the existing GO rail system into the backbone of an integrated regional rapid transit network.

Since its launch in 1967, the GO Rail system has focused on the suburb-to-downtown commuter market, with diesel locomotive-hauled trains operating primarily in the peak period and in the peak direction. The system has undergone incremental expansions in frequency, span and extent of service since its inception in 1967, most notably the introduction of 30-minute two-way all-day service on the Lakeshore lines in 2013.

The 10-year GO RER program represents a fundamental transformation of GO rail system from a largely commuter system to a comprehensive regional rapid transit option. Infrastructure expansion, including new tracks, bridges, signals and fleet, will enable the doubling of peak period GO train service and quadrupling of off-peak service by 2024. All seven corridors will see service improvements, with five corridors seeing electric trains running every 15 minutes or better in both directions throughout the day. Additional stations and line extensions will bring the GO rail network to new markets, and new connections to rapid and local transit will enable seamless travel across the region.

NEW STATIONS INCLUDED IN THE GO RER PROGRAM:

- Bloor-Davenport
- Breslau
- Don Yard/Unilever
- Finch
- Gerrard
- Innisfil
- Kirby
- Lawrence East
- Liberty Village
- Mulock
- Spadina
- St. Clair West

GO RER will reduce travel times and give people more ways to get where they want to go with:

- Trains up to **every 15 minutes**
- Service in both directions
- Faster electric trains

4X more off-peak, evening and weekend service

2X more weekday rush-hour service
Additional stations and line extensions will expand the user base for GO rail services and will provide new seamless connections to other rapid and local transit. New stations are being added to the existing 64 stations. These stations also have the potential to attract new development and intensification in existing communities.

To support GO RER beyond 2025, governments and transit providers will need to develop a plan to address rail service capacity at Union Station. This will need to be coordinated with the near-term planning for GO RER.

Continue building LRT, BRT and subway projects that are In Delivery

In addition to GO RER, the Province’s Moving Ontario Forward program also includes a commitment to build 15 LRT, BRT and subway projects. These projects, which vary in scale, are currently In Delivery (under construction or in the engineering design stage). These include five LRTs (Eglinton Crosstown, Sheppard East, Finch West, Hamilton B-Line and Hurontario), three BRTs (Highway 7 West, Young North and Yonge South), the Mississauga Transitway, four GO Transit extensions, and two subway extensions (Toronto-York Spadina and Scarborough), as shown in Figure 3 and Map 3. These projects, together with GO RER, will expand rapid transit services to 2025 and form the foundation upon which to base the future Frequent Rapid Transit Network (see Strategy 2).

Advance key rapid transit projects that are In Development

The next generation of regional transit projects – the projects that are In Development (in advanced stages of planning and design) – are required to meet the needs of the region in the near term. Thirteen projects have received significant planning and design commitment from various levels of government (federal, provincial and municipal). These projects are listed in Figure 16 and illustrated on Map 4. They include the Relief Line, the Yonge subway extension, and various BRT and LRT lines.

Coordinate with High Speed Rail Projects

The Ministry of Transportation (MTO) has been studying High Speed Rail for several years in the context of improving connections within Ontario as well as to the global economy through international gateway hubs. In spring 2017, the Province announced its intention to move ahead with preliminary design and environmental assessment of a High Speed Rail corridor between Toronto and Windsor that will take into account the GO RER expansion program.

VIA Rail has recently announced its intention to pursue a High Frequency Rail project that would be focused on the Quebec City-to-Toronto corridor.

Extensive collaboration will be needed to ensure that the Province’s High Speed Rail and VIA’s High Frequency Rail projects are complementary to Regional Express Rail and its implementation timelines.
Priority Actions for Strategy 1, Complete the Delivery of Current Regional Transit Projects

1.1 Complete the building of projects in delivery, as shown on Map 3, including the GO Regional Express Rail program, the Hurontario, Eglinton, Hamilton and Finch LRTs, and the York VIVA BRTs, ensuring delivery by 2025.

1.2 Advance the transit projects that are in development, as shown on Map 4.

1.3 Strengthen Union Station’s capacity as the centre of GO Regional Express Rail to accommodate the growth of GO RER beyond 2025:

- In consultation with the City of Toronto, the provincial and federal governments develop a plan to address rail service capacity at Union Station to accommodate the growth of GO RER beyond 2025; and

- Ensure that all decisions regarding improvements to Union Station and adjacent areas are consistent with and protect for the long-term.

1.4 Coordinate with the Province, the federal government and VIA Rail Canada on High Speed Rail and High Frequency Rail initiatives, the optimization of shared resources such as Union Station and rail corridors, and the integration of services for a seamless traveller experience.
Planning is underway for the next rapid transit projects to be delivered in the Greater Toronto and Hamilton Area. These new corridors and extensions will complement the existing network, and continue the momentum of North America’s largest rapid transit expansion program.

**Brampton Queen St. BRT/LRT**
Upgrade of existing Queen St. Zum to rapid transit; links downtown Brampton and York Region.
- From Downtown Terminal in Brampton to Highway 50 at the Vaughan border.
- Length: 13 km

**Dundas BRT**
New bus rapid transit corridor along Dundas St.; links Toronto, Mississauga and Oakville.
- From Kipling Station in Toronto to Bronte Rd. in Oakville.
- Length: 22 km

**Dundas West Priority Bus**
Priority Bus along Dundas St.; links Burlington with Oakville and the Dundas BRT.
- From Brant St. in Burlington to Bronte Rd. in Oakville.
- Length: 18 km

**Durham-Scarborough BRT**
Upgrade of existing DRT Pulse service to bus rapid transit along Highway 2; links downtown Oshawa and Scarborough.
- From Simcoe St. in Oshawa to Scarborough Centre in Toronto.
- Length: 36 km

**Eglinton East LRT**
Extension of Eglinton Crosstown LRT eastward; links Kennedy Station, University of Toronto Scarborough and Sheppard Ave.
- From Kennedy Station to Sheppard Ave. East in Toronto.
- Length: 10.7 km

**Eglinton West LRT**
Extension of the Eglinton Crosstown LRT westward to Pearson Airport.
- From Mt. Dennis in Toronto to Renforth Gateway and Pearson Airport in Mississauga.
- Length: 12 km

**Highway 7 East BRT Extension**
Extension of the Highway 7 rapidway eastward; linking Unionville and Cornell.
- From Unionville GO Station to Cornell in Markham.
- Length: 5.5 km

**Highway 7 West BRT Extension**
Extension of the Highway 7 Viva rapidway eastward; links Vaughan and Brampton.
- From Helen St. in Vaughan to Highway 50 at the Brampton border.
- Length: 11.5 km

**Relief Line Subway**
New subway line linking downtown Toronto, the Bloor-Danforth Subway and Sheppard Ave.; will manage congestion on the Yonge Subway Line.*
- From Osgoode Station to Sheppard Ave. East in Toronto.
- Length: 18 km

* Length, alignment, station locations and technology for Relief Line North (Danforth Ave. to Sheppard Ave.) to be determined through the Relief Line North Project Assessment.

**Waterfront East LRT**
New light rail transit corridor along the waterfront; links downtown Toronto, the Port Lands and the Beach.
- From Union Station to Coxwell Ave. in Toronto.
- Length: 7 km

**Waterfront West LRT**
New light rail transit corridor along the waterfront; links downtown Toronto and Port Credit.
- From Union Station in Toronto to Port Credit GO Station in Mississauga.
- Length: 22.3 km

**Yonge BRT (Richmond Hill, Aurora, Newmarket)**
Bus Rapid Transit along Yonge St.; links Richmond Hill, Aurora and Newmarket.
- From 19th Ave. in Richmond Hill to Mulock Dr. in Newmarket.
- Length: 14.5 km

**Yonge North Subway Extension**
Extension of the Yonge Subway north into York Region; links Richmond Hill to Downtown Toronto.
- From Finch Station in Toronto to Highway 7 in Richmond Hill.
- Length: 7.4 km
Map 4: Rapid Transit Projects In Development

- Richmond Hill / Langstaff
- Milton
- Newmarket Centre
- LBPI Airport
- Vaughan Metropolitan Centre
- Pickering
- Mississauga Centre
- Oakville
- Markham Centre
- Burlington Downtown
- Hamilton Regional Centre
- Oshawa
- Brampton Yonge-Eglinton
- Downtown Toronto
- North York Centre
- Etobicoke Centre
- Scarborough Centre

All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning.
Strategy 2: Connect More of the Region with Frequent Rapid Transit

The expansion of convenient, fast and frequent rapid transit across the region currently underway will provide travellers with good alternatives to driving, in particular for trips to and from downtown Toronto. Strategy 2 is focused on extending the reach of frequent rapid transit and connecting the various parts of the GTHA with a Frequent Rapid Transit Network. With Regional Express Rail and the subway as the spine of the Network, the FRTN will connect urban centres, employment nodes and regional destinations with Priority Bus, Frequent Regional Express Bus and additional LRT and BRT projects.

Develop a complete Frequent Rapid Transit Network across the GTHA

The Draft Plan proposes an ambitious program to develop a Frequent Rapid Transit Network (FRTN) across the GTHA to provide high quality transit to more people in more places (see Maps 5 and 6). The FRTN would connect existing and planned subway, RER, LRT, BRT and priority bus services to form an interconnected system that will allow people to travel quickly and seamlessly across the GTHA.

Many regions in North America have an established Frequent Transit Network that provides a base grid of service every 10 to 15 minutes. Examples include TransLink’s Frequent Transit Network in the Vancouver metropolitan region and TriMet’s Frequent Service Network in the Portland metropolitan region. The Toronto Transit Commission (TTC) also operates a network of frequent bus and streetcar services. The FRTN goes beyond just frequent service to provide high quality, fast and reliable service across the GTHA.

Toronto Improves Surface Transit

In 2015, the Toronto Transit Commission launched its 10-Minute-or-Better service network for all streetcar routes and 52 bus routes. Additionally, in 2017 the TTC launched service improvements on five new and eight existing express bus routes as a part of an overall strategy to improve and enhance service.
The FRTN is a logical approach to the problem of moving people efficiently in a polycentric region (a region with multiple population centres). It includes a variety of transit services, depending on conditions in any given market area. Areas with slower growth and lower densities need different approaches than those with higher growth and higher densities. The FRTN will be most effective when residential and employment areas are located close to transit stations and where travellers can easily walk to home or work.

As shown in Figure 17, the FRTN will ensure:

- frequent 15 minute or better service, all day, seven days a week;
- reliable service due to separation from traffic and signal priority measures;
- high speed due to wide spacing of stops; and
- efficient transfers between routes, enabling a traveller to get anywhere in the GTHA easily and reliably without looking at a schedule.
As illustrated in Figure 18, the FRTN will be comprised of the following elements:

- existing rapid transit (see Map 2);
- 15-minute all-day GO RER service and other recently completed and In Delivery rapid transit projects (see Map 3);
- expansion of 15-minute GO RER beyond 2025 (see Map 6);
- transit projects that are In Development (see Map 4);
- additional LRT, BRT and subway projects to meet the needs of the region to 2041 (see Maps 5 and 6);
- Priority Bus Corridors (see Maps 5 and 6); and
- Frequent Regional Express Bus routes (see Maps 5, 6 and 7).

The FRTN consists of high-demand transit corridors of regional significance that connect Urban Growth Centres, key Mobility Hubs and areas of high population or employment density in the GTHA. It will fill gaps in the regional network, and provide improved transit service throughout the region, including in the lowest income areas where it is needed most. A key strategy will be the use of managed lanes to provide protection for transit from mixed traffic, transit signal priority, and other improvements.

Gaps in connectivity will need to be addressed through service integration, including the connection of local bus services to the FRTN.

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**Figure 18: Components of the Frequent Rapid Transit Network**

[Diagram showing the components of the FRTN, including GO 15-minute all-day service, Frequent Regional Express Bus, Subway & Transitway, LRT & BRT, Priority Bus, Local Transit Service, and Local transit supports the FRTN.]
The FRTN would in some cases replace existing local services and in other cases need to work alongside existing services, which may need to continue to provide local stops while the FRTN service would make fewer stops.

The FRTN will focus on providing a consistent and seamless traveller experience regardless of who operates the various parts of the system. Close collaboration among Metrolinx, the Province, municipalities and transit operators will be key to establishing priorities, identifying roles and responsibilities and knitting the region together with Frequent Rapid Transit.

**Add more 15-minute GO RER after 2025**

Building on the GO RER program currently underway, the Draft 2041 RTP calls for the expansion of the 15-minute, two-way all-day GO rail network to include service on the Milton line, which will require extensive infrastructure investments and be subject to a review of physical constraints. The Draft 2041 Plan also calls for extensions of 15-minute service on the Barrie, Stouffville and Lakeshore East and West lines (see Map 6). Implementation of these proposed extensions would be subject to negotiations with freight rail operators, in particular where the corridors are not in public ownership.

Further work would be undertaken to assess the need for new stations on the network as part of the implementation, including updating the new stations analysis that was conducted for the RER program.

The GO RER program can be a catalyst for how people use rapid transit in the region and a strong anchor for the FRTN. It will generate positive benefits over costs, meaning that for every dollar the program costs, it will generate further economic benefits.\(^{38}\)
Build additional LRT, BRT and subway projects

In addition to the transit projects that are In Delivery and In Development, the Draft 2041 RTP recommends that several new LRT, BRT and subway projects be built by 2041. These are needed to fill key gaps in the rapid transit network and address capacity needs forecasted to 2041. These are illustrated on Maps 5 and 6. Most of these projects were identified in The Big Move for 2031 and they continue to be needed as the plan horizon is extended.

Develop Priority Bus Corridors

Many parts of the GTHA are some distance from existing, In Delivery, In Development and proposed LRT, BRT, subway and rail facilities. To address these gaps in the system, the Draft 2041 RTP recommends the creation of Priority Bus corridors (see Map 6). These are a practical and affordable way of providing fast, frequent and reliable transit service to more people without the need for fully dedicated infrastructure (see Figure 19). Priority Bus corridors will complement the BRT, LRT, subway and 15-minute RER projects that are In Delivery and In Development and fill out the complete FRTN. Cities such as Houston (US), Los Angeles (US), London (UK) and Sydney (AU) have reinvented their bus networks to include high-performing priority bus services and in so doing, have attracted more riders (see Figure 20).

The Priority Bus system for the GTHA will build on strong local bus services such as the key Züm routes in Brampton and Viva in York Region that feature some of the characteristics of the Priority Bus corridor concept.

Priority Bus services run quickly and reliably using transit priority measures such as queue jump lanes, signal priority at intersections, semi-exclusive or shared rights-of-way (such as HOV lanes), and wider spacing between stops. Different priority measures can be applied to different corridors based on local conditions to ensure reliability and ensure that speeds are faster than mixed traffic operations.

Travel Times Reduced in Mississauga with Bus Rapid Transit

This 18 km transitway, opened in 2014, allows buses to run unhindered by general traffic, and connects to the TTC subway system, Mississauga City Centre and employment hubs like the Pearson International Airport corporate centre. Upon full implementation, the BRT will serve 5 million riders annually with time savings of 15-18 minutes per trip, heated waiting areas, WiFi, full accessibility, and bicycle lockers at each of its 12 stations.
Advantages of Priority Bus corridors include:

- They are a cost-effective way of providing new rapid transit access to many travellers. They can be implemented quickly but implementation needs to be consistent with and concurrent with the development of GO RER.

- Priority Bus corridors provide infrastructure that is flexible enough to support a variety of technologies and vehicle types over time such as shared shuttles. Buses and bus routes can run in both BRT and Priority Bus corridors, which provides flexibility in planning routes. For example, a single bus route could run along a BRT corridor through a higher density area and into a Priority Bus corridor in a lower density area, without requiring a transfer. They can evolve into fully dedicated transit corridors (such as BRTs) as ridership grows.

- Priority Bus corridors allow corridor development to be accelerated where needed and service to be adjusted to meet demand. Population and employment growth may arrive on a different timeline than forecasted, and some parts of the region may grow more or less than anticipated. Where transit demand increases, more intensive interventions can be considered for Priority Bus corridors, such as greater separation from auto traffic or larger stations with more amenities. In addition, corridors that are protected by their inclusion in the Priority Bus system can be used in different ways in the future. New technology can also be introduced rapidly. For example, as the technology advances automated shuttles could share transit corridors.

- The capital costs for developing Priority Bus corridors are expected to be considerably lower than an equivalent BRT or LRT system. A roll-out of the Priority Bus system could begin immediately and be completed within 10 years after capital and operating funds for the network are secured. Then at fixed intervals of 5 or 10 years, the state of the network and the performance of individual routes would be reviewed to determine where adjustments, particularly enhancements, were appropriate.

In short, Priority Bus services can provide benefits to people living outside the high density parts of the region and to communities that are not currently serviced with frequent rapid transit. A comparison of Priority Bus with Bus Rapid Transit (BRT) is shown in Figure 21. The creation of the Priority Bus system will require an implementation strategy that addresses priorities, roles and responsibilities.
### Seattle, RapidRide
- Runs no less than every 10 minutes during peak commuting hours and every 15 minutes on weekends and during most off-peak hours.
- Services fewer stops for faster travel.
- Makes extensive use of Transit Signal Priority technology to the signals – shortening a red light, or extending a green light – to ensure buses remain on schedule, even in mixed traffic.
- On some lines, uses queue jump lanes to bypass traffic.
- Utilizes roadway improvements such as HOV lanes, bus bumpouts.
- Contactless smart card is used for off-board payment enabling all-door boarding.
- Real time passenger information at the stations shows time until the next bus arrives.
- Automated Vehicle Location system determines buses’ actual location on the route.

### Portland Metropolitan Area, The Vine
- Peak frequency – 10 minutes; off peak – 15-30 minutes; weekends – 15-30 minute headways.
- Operates in mixed with curbside stations.
- Transit Signal Priority allows Vine buses to communicate with the signal system along the route.
- Off-board Fare Collection: Customers may pre-purchase fares at ticket vending machines at each station before boarding which will speed up boarding.
- Low-floor buses in combination with raised station platforms for level boarding.
- Stations are located are approximately 1/3 mile (0.54 km) apart.
- Stations include real-time arrival signs.

### Los Angeles, Metro Rapid
- Express bus service with bus rapid transit characteristics.
- Operates in mixed environments and HOV lanes.
- Has fewer stops than the local bus service.
- Rapid stops located only at major intersections and transfer points.
- Signal priority is used within the City of Los Angeles boundaries.
- Operates five days a week, with a maximum of 10-minute peak headways and 20-minute midday and evening headways. Some rapid routes operate on weekends as well.

### Sydney, Metrobus
- No timetable required – high-frequency service running seven days a week.
- 10-minute frequency during peak periods, every 15 minutes during the weekday off-peak, and 20 minutes in the evening and on weekends.
- Uses HOV lanes and transit signal priority.
- Spaces between stops are increased.
- Easy connections – Metrobus services stop at major bus and rail interchanges.
- Wheelchair-friendly – entry and priority seating make Metrobus very accessible.
- Each bus features the latest environmental controls to reduce greenhouse gas emissions.
### Figure 21: Key Characteristics of Priority Bus and BRT

<table>
<thead>
<tr>
<th>BRT</th>
<th>Shared</th>
<th>Priority Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully exclusive right-of-way</td>
<td>Minimum 10 - 15 minute headway, all day</td>
<td>Enforced HOV/Bus lane</td>
</tr>
<tr>
<td>Two-way median aligned busway</td>
<td>Wider station spacing (0.3 - 1 km)</td>
<td>Aligned to curb (typical)</td>
</tr>
<tr>
<td>Highest average operating speeds</td>
<td>Signal priority along corridor</td>
<td>Queue jump lanes</td>
</tr>
<tr>
<td>Left turn prohibitions</td>
<td>Regionally significant, high-demand corridor</td>
<td>Higher average operating speed than mixed-traffic operation</td>
</tr>
<tr>
<td>Platform-level boarding</td>
<td>Reliable, with minimal bunching</td>
<td></td>
</tr>
<tr>
<td>Multiple routes using the corridor</td>
<td>Off-board fare collection, all-door boarding</td>
<td></td>
</tr>
<tr>
<td>Passing lane at stations</td>
<td>Well maintained infrastructure</td>
<td></td>
</tr>
<tr>
<td>Supporting bicycle infrastructure</td>
<td>Good pavement quality</td>
<td></td>
</tr>
<tr>
<td>Bike parking</td>
<td>Safe, comfortable, accessible stations</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from The Institute for Transportation and Development Policy, *The BRT Standard*, 2016.
Develop coordinated Regional Express Bus routes

With the implementation of RER and the delivery of all-day service on the majority of the GO Rail corridors, GO Bus services can be used in different ways. Routes will be restructured to link transit hubs and Urban Growth Centres, so that travellers can make trips on transit without needing to travel to a downtown hub. Regional Express Buses are meant to serve the regional transit needs of areas not well connected by the regional rail network, typically over longer distances but less frequently than routes on the FRTN.

Frequent Regional Express buses are intended to serve core areas of the region not served by 15-minute GO RER. They would run at 15 minute service levels all day, typically on highways in HOV lanes, and as such are considered to be part of the Frequent Rapid Transit Network. Most of these proposed routes would be able to access HOV lanes on the 400-series highways and thus will be able to provide superior service compared to what is provided today. The proposed Frequent Regional Express Bus and Regional Express Bus routes are shown in Map 7.

Develop a regional 24-hour transit network (night bus / streetcar network)

The provision of 24-hour transit service is becoming more important as the regional economy becomes increasingly diversified and precarious employment becomes more prevalent. Currently, only the City of Toronto (and TTC) has a 24-hour bus/streetcar network.

With increasing housing costs, lower-income households are likely to become more dispersed throughout the region and be located farther away from good quality transit. Lower-income households are more likely to rely on transit, and members of low income households are more likely to hold part-time or contract jobs. A reliable 24-hour transit network throughout the region would help to improve access to employment and other opportunities for people who need it most, while making it easier for people who depend on transit to get around in a 24-hour society. While the 24-hour transit network would be comprised of routes offered by the various operators in the GTHA, it would be designed to function as an integrated and connected system.

Strengthen and support local transit services

Although the Draft 2041 RTP will significantly increase the number of people that live within walking distance of Frequent Rapid Transit, most people will still need to access the FRTN using local transit or another mode. Local transit services thus play an important role in supporting the FRTN. They also carry the majority of all transit riders, including low income groups, and carry the majority of transit riders during off-peak periods (i.e. mid-day, weekends and evenings).
There are many important local transit routes operated by transit agencies across the GTHA that carry significant numbers of riders but are not part of the FRTN. The spines of the FRTN are routes of regional significance, but that does not preclude local transit agencies and municipalities from implementing transit priority measures on routes of local significance.

The streetcar network in Toronto in particular, along with several bus routes, plays an important role in connecting significant numbers of people to jobs, shopping, entertainment, education and other services. Many Toronto residents rely on transit for their daily travel needs. About 45% of households in downtown Toronto and 20% of households in the rest of Toronto do not own a car (see Figure 22). Several individual TTC streetcar and bus routes carry more riders on an average day than are carried by some entire transit systems in the GTHA. Given the importance of these routes, many of which run along important east-west arteries through the centre of downtown Toronto, the largest concentration of employment in Canada, they could potentially also be considered for inclusion in the FRTN. With protection from traffic, wider spacing between stops, and traffic signal priority, they could provide a reliable and fast connection through the heart of the city for tens of thousands of daily users.

The City of Toronto is currently piloting a project on King Street that would prioritize streetcars along the central portion of the route, the results of which could provide insight into the feasibility and effectiveness of implementing transit priority measures in dense urban areas.

GO Transit Service outside the GTHA

Metrolinx’s mandate includes providing GO rail and bus services to municipalities in the GO Transit Service Areas outside the GTHA. Increased service levels are currently in delivery and anticipated to increase to support implementation of the Growth Plan. Planning for GO Transit infrastructure and services will continue to consider the needs of the outer ring and coordinate with local municipal plans on station area access and development.

Züming Along

Since 2010, Brampton Transit has increased transit ridership by boosting service levels and introducing Züm, a network of five express routes with limited stops to improve speed. Züm uses state-of-the-art buses and customer-focused technologies to improve the attractiveness of the service. Infrastructure that enables transit signal priority was implemented to improve reliability. The number of riders has increased 72% from 12.3 million riders in 2009 (prior to Züm) to 21.2 million riders in 2015.

Figure 22: Average Number of Vehicles per Household in the GTHA

Source: Data Management Group, 2011 Transportation Tomorrow Survey.
**Improve airport access by transit**

Lester B. Pearson International Airport is the busiest airport in Canada, and the airport and its surrounding area has the second highest concentration of jobs in the GTHA. The Union Pearson Express and improved local and regional bus services have introduced new transportation options for airport passengers, employees, and those that work in the vicinity of the airport. Proposed linkages through the Eglinton West LRT and the Finch West LRT will further enhance transportation options. At this time, however, travel to the region’s airport areas, in particular, Pearson International Airport and John C. Munro Hamilton International Airport, is still dominated by auto use.

Changing the dominance of the car requires the development of more attractive and integrated transit services and improving connectivity by transit and active transportation. Implementing such change will require coordination with the many stakeholders responsible for these critical hubs of employment, commerce and tourism.

The Greater Toronto Airport Authority (GTAA) has recently brought forward a plan for a new Regional Transportation Centre at Pearson Airport to support ongoing airport growth and strengthen the airport’s role as a catalyst for regional economic development. As proposed, this new Regional Transportation Centre has the potential to boost transit access to the airport as well as the surrounding employment area, and better connect the airport with surrounding communities and the larger region.
2.1 Implement a comprehensive and integrated Frequent Rapid Transit Network by 2041 that includes:

- Existing subway, transitway and BRT services;
- 15-minute GO Regional Express Rail on the Lakeshore East and West, Kitchener, Stouffville and Barrie Corridors, In Delivery for 2025 (see Map 3);
- BRT and LRT projects that are In Delivery, as shown on Map 3;
- Projects that are In Development (see Map 4);
- Additional transit infrastructure improvements to resolve key gaps (proposed new LRT and BRT projects, see Maps 5 and 6);
- Additional 15-minute GO Regional Express Rail services beyond 2025 (see Maps 5 and 6);
- A Priority Bus system that connects existing and planned rapid transit, LRT and BRT (see Maps 5 and 6); and
- Frequent Regional Express Bus services (see maps 5, 6 and 7).

2.2 Develop complementary bus services:

- Strengthen and support the ability of local transit to provide reliable service in urban areas where demand for transit is high, and to connect to the Frequent Rapid Transit Network;
- Develop and implement a regional 24-Hour Transit Network composed of strategic routes to address growing off-peak markets and destinations; and
- Deliver a regional Express Bus Network to serve long-distance transit markets not served by GO Regional Express Rail (see Map 7).

2.3 Improve access to airports, prioritizing transit for passengers and workers:

- Coordinate with the Greater Toronto Airports Authority, Ports Toronto, the John C. Munro Hamilton International Airport and the federal government on ground transportation plans to the region’s airports and surrounding areas; and
- Support the planning and implementation of Pearson Airport’s Regional Transportation Centre to facilitate enhanced transit access to the airport, and enable Pearson and the Airport Employment Area to continue to support economic growth throughout the GTHA.
All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning.

The Frequent Rapid Transit Network

Characteristics
- Frequent (10-15 minute all-day service)
- Reliable (e.g. signal priority, protection from traffic)
- Fast (e.g. wider spacing between stops)
- Efficient transfers between services

Examples
- Subway
- Bus/Rapid Transit
- Light Rail Transit
- GO Rail 15-minute two-way all-day service
- Priority Bus

See Map 6 for the detailed network
The FRTN includes all proposed projects shown on this map together with the projects shown on maps 3 and 4.

All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning.

For more details, see Appendix 3D.

The FRTN includes all proposed projects shown on this map together with the projects shown on maps 3 and 4.

All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning.

For more details, see Appendix 3D.
Map 7: Proposed 2041 HOV & Regional Express Bus Network

All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning.
Strategy 3: Optimize the Transportation System

Optimizing the transportation system in the GTHA means making the best possible use of existing and future transportation assets. This includes integrating fares and services, planning for the first- and last-mile of the traveller’s journey, improving the traveller experience, providing universal access, using design excellence in planning, improving safety, and using roads and highways wisely.

Integrate fares and services

The Draft 2041 RTP calls for the provision of seamless services for travellers. This means integrating fares, services, schedules, and payments. The expansion of regional rapid transit in the GTHA makes addressing fare integration a pressing issue, and even more so with the vision of the FRTN that is characterized by a fully integrated network of services that cross multiple boundaries.

To date, progress on integrating elements of transit fares (including fare levels, fare structure, transfers, products, concessions and payment methods) has been limited and voluntary. Transit agencies outside Toronto have been working to better integrate their services, and they typically recognize each other’s transfers. With the PRESTO card, a traveller can make a seamless transfer from a transit agency outside of the City of Toronto to GO Transit.

There is much potential for increased cross-boundary ridership, but significant barriers exist to operating cross-boundary services, particularly at the Toronto border. These barriers need to be addressed and Metrolinx has done extensive work in this area.

There are currently 11 different ways fares are determined in the GTHA, with each transit service provider setting its own rules and prices. There are also different co-fare arrangements when travelers move between different transit service providers. This has created complex fare rules and fare barriers that discourage transit riders from using multiple transit systems.

One major barrier is that users generally have to pay two fares when crossing into Toronto and changing between transit systems, including changing from GO to the TTC. About 50,000 riders a day coming into Toronto on transit in the morning peak period currently pay two fares for their trip in transferring from GO or another transit agency to the TTC.3 This creates a barrier that discourages transit use and leads to people driving or getting dropped off across municipal boundaries to avoid paying two fares. The cost involved can deprive residents of educational or employment opportunities.

Another barrier is that there can be differing fares for services that cover the same basic route. As an example, GO base fares are significantly higher than the fares of other transit options that serve the same corridor (e.g. Kipling to Union). Also there are differences with loyalty programs and passes offered by transit agencies, each of which have their own unique ways to reward and encourage frequent ridership.
Investigations into transit use by income have revealed that transit is critical to the mobility of people with limited income. Equitable access and affordability of transit will need to be a key consideration of the GTHA fare strategy.

Further fare and service integration will require a new level of collaboration, decision-making, and funding that balances regional coordination and local autonomy and ensures that the needs of low-income users are clearly addressed. A more formal process is needed to engage all GTHA transit operators. Without such coordination, it will be impossible to create a completely integrated transportation system.

**Plan for the first- and last-mile**

The completion of new rapid transit projects will bring quality rapid transit closer to many more residents and jobs. Maximizing the use of these new services will require a renewed emphasis on the first- and last-mile of every trip. It is not sustainable to rely primarily on travellers driving to transit stations and providing them with free parking. Other solutions are needed.

The Toronto transit system is well-known for its comprehensive system of bus and streetcar routes that connect to the subway system. Across the region, local transit routes can be similarly connected to the FRTN.

The 2016 GO Rail Station Access Plan set targets for reducing the growth in parking requirements at GO stations. It also provides direction on access improvements to increase multi-modal connections from GO Transit stations to key destinations. This could use a range of options such as conventional and micro-transit, carpooling, walking and cycling. In the Access Plan, station access improvements provide direct access to the platform, not just the station, prioritizing access by transit over single occupant vehicles. Similar approaches will be needed at other rapid transit stations. A highly collaborative region-wide approach to the first- and last-mile is needed to provide travellers with the necessary range of options.

Figure 23 shows the anticipated increase in GO rail ridership to 2031 with the implementation of GO RER, and the substantial shift in the proportion of transit, carpooling, and active transportation (from 38% to 62%) that will be required to accommodate the increased number of trips, given limitations in parking supply.
Focus on the traveller experience

More is needed to improve the transportation experience from the traveller’s standpoint. Transit should be reliable and on time. Transit fares and routes should be easier to navigate. Real-time travel information as well as payment and self-serve options need to be expanded. Treating journeys as door-to-door trips that use various modes of transportation and may cross municipal boundaries will help move the region toward seamless integration. Traveller safety and convenience should remain at the centre of all decisions.

Creating a quality traveller experience is central to the Draft 2041 RTP. It recommends development of a Mobility as a Service (MaaS) system. This is a system in which travellers can access a suite of travel options (e.g. transit, car share, bike share and taxi) from different providers through a single app. The integrated mobility system could include trip planning and payment, possibly on a subscription basis. In a MaaS system, existing and non-traditional service providers can partner to address traveller priorities, tailoring them to individual needs. Metrolinx can play a leadership role in enabling or coordinating the activities of different public and private providers.

Integrated Mobility

Whim, a MaaS app, was launched in Helsinki in 2016 and provides access to public transportation and taxis using a mobile app. Users can find all the routes, fees, tickets, timetables, booking and travel options in one place.

Source: [http://maas.global/](http://maas.global/)

Figure 23: Shift in GO Station Access Mode Required to Accommodate Growth in GO Rail Trips to 2031

Source: Metrolinx, GO Rail Station Access Plan, 2016.
Provide universal access

Transit plays a critical role in allowing people to have affordable access to employment opportunities, health care, education, recreation, shopping, and other needs. Universal and barrier-free access is a core component of an integrated regional transportation network that considers conventional and paratransit services. Emerging technologies and the quality of design for universal access are levers to optimize benefits for all travellers. The Draft 2041 RTP emphasizes universal access principles, as well as considerations for the aging population.

Embed design excellence in transportation planning

Design excellence has not historically been a core component of the transportation or transit industry in Ontario. Metrolinx has incorporated the concepts of design excellence in architecture, urban design and landscape architecture in the development of its transit projects (such as the Eglinton Crosstown LRT), and has also integrated public art.

Integrated design excellence goes beyond the visual aspect to knit together all of the built fabric in a transportation system. It includes everything from a universal signage and wayfinding system so travellers can find their way easily, to providing cross-platform transfers so that the traveller does not have to negotiate steps or stairs when changing from one transit service to another.

If incorporated into planning from the outset, supported throughout, and done properly, there is no cost premium to improving the look and feel of transit. Improving the quality of architecture, urban design and landscape architecture in the transportation system of the GTHA can help deliver a higher quality, seamless traveller experience that makes transit the preferred mode.

Make safety a priority

The Draft 2041 RTP aims for a transportation system that is convenient, reliable, comfortable, and safe for travellers. While the GTHA transportation system remains one of the safest in the world, too many serious injuries and fatalities occur each year, especially among cyclists, pedestrians and children. These are often preventable through programs aimed at activities such as drinking and driving or texting and driving.

Ontario is a leader in road safety, developing legislation, programs and standards. Recent acts, such as the Safer School Zones Act, 2017 and the Making Ontario’s Roads Safer Act, 2015 have: increased penalties in the areas of impaired driving, distracted driving, and cyclist and pedestrian safety; helped municipalities target unsafe drivers and protect children, seniors, other pedestrians and cyclists; and given municipalities more tools to fight speeding and dangerous driving. Education of all road users is an effective strategy, as well as the provision of protected bike lanes and setting lower speed limits on roads.

Focus on Accessibility in Durham

Durham Regional Transit’s bus fleet became 100% accessible in 2014. More than 75% of previously inaccessible bus stops were paved by 2014, making it easier for all transit users to get on board.
Some jurisdictions have taken a systems approach to reducing injuries and fatalities from transportation through the concept of “Vision Zero”. This is a multi-pronged approach that involves not only transportation planners and engineers, but public health, police services, community groups and others to work towards the goal of zero fatalities and serious injuries. It asks that stakeholders look closely at how well they are working together, and emphasizes that although road design is at the core of safer streets, safer speeds, safer vehicles and safer practices are also important (see Figure 24).

Today in the GTHA, data on casualties and serious injuries from transportation are not systematically collected or analyzed at a regional level. Safety programs are typically fragmented, limiting their reach and effectiveness. Prevention of serious injuries and fatalities requires a spectrum of strategies, including changing policies and practices, educating providers, increasing collaboration, and increasing individual knowledge.

The Draft 2041 RTP recommends incorporating the Vision Zero framework into regional transportation. A broad, multi-stakeholder approach to transportation safety can yield significant improvements in both transportation safety and travellers’ perceptions of safety.

**Figure 24: Principles of Vision Zero**

**Vision Zero**

Vision Zero is a concept invented in Sweden whereby governments aim to reduce transportation fatalities to zero.

It takes a system-wide approach to address all factors that lead to fatalities by focusing on both preventing collisions through a combination of prevention programs and good design, and ensuring that any accidents that do occur are not fatal through design and regulatory standards.

Several governments at all levels have adopted Vision Zero strategies, including the City of Toronto.

**Principles**

- No loss of life is acceptable.
- Traffic fatalities and serious injuries are preventable.
- We all make mistakes.
- We are physically vulnerable when involved in motor vehicle collisions.
- Eliminating fatalities and serious injuries is a shared responsibility between road users and those who design and maintain our roadways.
Re-invent Transportation Demand Management

Managing and shifting demand is key to unlocking the benefits of new investments in transportation infrastructure and services. Transportation Demand Management (TDM) strategies aim to reduce and shift travel to best use the available capacity of the transportation system. It uses a variety of tools, including vanpooling, high occupancy vehicle lanes, shifting the time of travel, telecommuting and park-and-ride (see Figure 25). TDM provides a high return on investment.

Carpooling is a well-known TDM strategy. The Metrolinx Smart Commute program, which supports the use of carpooling, has expanded to over 300 employers with initiatives such as carpool ride-matching, discounted travel passes, and telework arrangements. TDM strategies are being incorporated into municipal policies and plans.

There is also an opportunity to apply new approaches and technologies to TDM, and enter into innovative partnerships with third-party mobility service providers and technology companies. Jurisdictions such as the San Francisco Bay Area, London (UK) and Paris have achieved significant results with tools such as differential peak/off-peak fares, parking charges, HOV lanes and mandatory TDM programs for large sites and employers.44 Some municipalities in the GTHA are now requiring Transportation Demand Management plans as part of the development process to ensure that new developments provide people with alternative options to driving.

The Draft 2041 RTP recommends actions to improve TDM programs and make them more attractive to travellers.

Figure 25: The Concept of Transportation Demand Management

TDM through MyTrip

MyTrip is a TDM pilot program operating in York Region. The aim of the program is to encourage residents in six newly developed neighbourhoods to make sustainable travel choices (transit, cycling and walking).
**Expand the HOV Network**

The Draft 2041 RTP calls for an extensive High Occupancy Vehicle (HOV) network on all the 400-series highways, as well as the Gardiner Expressway and the Don Valley Parkway, to prioritize vehicles – particularly transit vehicles – that are carrying more than one occupant. A regional approach will encourage higher-occupancy travel, support faster, more reliable bus service and help to make solo driving less attractive. The recent experience with HOV lanes during the Pan Am/Parapan Am Games in the GTHA demonstrated a clear benefit for GO Bus riders in reducing delay associated with highway congestion, leading to a more reliable and attractive transit service (see Figure 26).

HOV lanes can be built on existing highways, and do not necessarily require road widening. They are also flexible, and could be used in the future for shared shuttles or other shared services. In certain locations where residual capacity remains, it may also be appropriate to introduce High Occupancy Toll (HOT) lanes, which allow single-occupant vehicles to pay a fee for the use of a managed lane typically reserved for buses and carpoolers. Although road tolls or vehicle charges for all kilometres travelled can deliver a reduction in congestion, they remain one of the most challenging mechanisms for all decision-makers, because of their high profile, unpopularity with drivers, and questions about fairness. The Ministry of Transportation has recently initiated a High Occupancy Toll (HOT) lane pilot program on Highway 427 and the QEW.

![Figure 26: GO Bus Passenger Time Savings with HOV Lanes during Pan Am Games](source: Metrolinx GO Planning)
Manage roads and highways to support transit

The Province and municipalities in the GTHA have made progress in managing roads and highways to support transit through the expansion of the HOV network on highways and arterial roads.

The reliability and speed of bus service can be further supported through Intelligent Transportation Systems (ITS) that use technology and data to manage congestion and improve speed and reliability.

Currently, existing systems are fragmented and not integrated across the region. The Draft 2041 RTP presents an opportunity to strategically plan, deploy, integrate and operate ITS in the region to support the management of traffic and the implementation of the FRTN, including on different ITS tools that can be employed, depending on the context, and area shown in Figure 27. Some of the most effective transportation corridors integrate a number of different ITS components into a “Smart Corridor.”

Figure 27: Potential ITS Tools

Peel’s Leadership in Goods Movement

The Region of Peel’s Goods Movement Strategic Plan was updated in 2017 with nine new actions to encourage the efficient transportation of goods within the region. The plan is supported by Peel’s Goods Movement Task Force, a public-private table that meets regularly on the efficiency, competitiveness, and sustainability of Peel Region.
In general, there is considerable room for improved collaboration among provincial and municipal agencies and departments in charge of roads, signals, parking, taxis and transit to design and operate a road and highway system that is more efficient, and focused on moving people, not just vehicles.46

**Optimize the highway and major road and rail network for goods movement**

The efficient movement of goods and services in the GTHA is essential to the region’s economic prosperity and quality of life. This is often not recognized by the general public and not sufficiently recognized in public policy. A staggering amount – an estimated $3.5 billion worth – of goods is moved by rail and truck in the GTHA every day.47 Goods movement is anticipated to increase by approximately 35% between 2016 and 2041 as the region continues to grow.48

In a multi-modal transportation system, it is essential to identify how to move both goods and people effectively using shared infrastructure that serves both. Optimizing the highway and major road network for goods movement will support the efficient, reliable and safe movement of goods while reducing costs and environmental impacts.

This optimization requires an understanding of where freight is being moved and the nature of goods being shipped within the region and beyond. Providing reliable connections for trucks and other modes to access important intermodal yards and freight clusters – areas with high concentrations of land uses related to logistics, warehousing and the movement of cargo – will help ensure that goods can move more efficiently throughout the region.

Innovative ways of improving freight logistics – potentially including the development of urban freight hubs and the use of transit stations as pick-up locations for small parcels, and moving freight outside of traditional peak times – could reduce the need for door-to-door delivery in urban cores. The use of bicycle delivery, where appropriate, will reduce the environmental impact of delivery vehicles. Taken together, these measures can help reduce conflicts with other vehicles while maintaining the region’s economic competitiveness.

The Ministry of Transportation and several regions, notably Peel Region, have done significant work in the area of goods movement. The Draft 2041 RTP recommends collaboration between the public and private sectors to develop a Regional Strategic Goods Movement Network and other actions to enhance the movement of goods (see Figure 28 and Map 8).
With the GTHA experiencing sustained rapid growth, the region's rail corridors also are experiencing pressure and increased demand for both freight and passenger uses. As the Province and Metrolinx continue to increase GO service, planning must consider long term needs for moving people and goods, including opportunities to separate passenger and freight rail services on existing or potential new rail corridors.

The need to examine the separation of rail services, particularly on segments of the GO Transit network not in public ownership, is due not only to increasing passenger and freight rail volumes, but also potential challenges in operating different types of trains (diesel and electric) with different physical qualities in the same corridor after the electrification of the corridor.

Proceeding with freight rationalization will entail close cooperation of all levels of government with private freight rail operators, as well as community consultation. MTO’s GGH Transportation Plan will consider a number of issues to enhance freight movement in the GGH, including freight rationalization, particularly if additional rail infrastructure is required to expand rail service.
### 3.1 Advance the integration of services and fares:

- Remove barriers to creating an integrated fare system to support seamless and consistent travel for passengers across municipal boundaries;
- To ensure progress toward seamless travel and increase ridership, take a regional view of price setting and concessions for transit and the development of innovative fare products; and
- Form a formal working group of all GTHA transit operators to share customer experience objectives that would become part of new regional transit investments and the regional transit network in general.

### 3.2 Expand first- and last-mile choices for all transit stations:

- Fully implement the GO Rail Station Access Plan (2016);
- Invest in first-mile last-mile (FMLM) solutions to maximize all-season access to and from all rapid transit stations, including, but not limited to priority transit access, pedestrian access to workplaces and destinations nearby, improved on-demand services including carpooling, taxis, and micro-transit services, on and off-site bicycle facilities, car-share and bike-share programs;
- Address barriers to Metrolinx funding FMLM solutions outside of stations; and
- Recover the cost of parking at GO stations to help shift trips to modes that do not require parking, and allow more people to access new train services.

### 3.3 Set consistent high-quality standards for the traveller experience:

- Focus on reliable service as a first priority for attracting customers to transit, emphasizing transit priority measures;
- Provide travellers with:
  - real-time information;
  - well-designed places including shade, shelters, paving, seating, clear sightlines and lighting;
  - consistent wayfinding across mediums;
  - all-season maintenance of sidewalks, bike lanes and paths;
  - on-demand service connectivity; and
  - concession fares.
- Ensure that design excellence in architecture, urban design and landscape architecture enhances the transportation experience;
- Establish a GTHA Regional Customer Service Advisory Committee to advise the Metrolinx Board of Directors on issues impacting the traveller experience; and
- Establish a “Let Metrolinx Know” panel, modelled after the Let GO Know Panel, comprised of a random selection of GTHA travellers who would regularly be available to participate in surveys and focus groups to advise on customer service issues.

### 3.4 Develop and implement a Mobility as a Service (MaaS) strategy:

- Continually evolve the PRESTO fare payment system to support inter-regional travel with a range of fare products and self-service options. Migration to an account-based system will allow customers to access PRESTO via traditional PRESTO cards, credit cards, limited use electronic tickets and mobile wallets; and
- Fully integrate regional multi-modal trip planning and fare payment into a MaaS platform, incorporating and encouraging mobility options including, but not limited to, transit, bike-sharing, carpooling and ride-sharing.

### 3.5 Place universal access at the centre of all transportation planning and designing activities:

- Foster an accessible network of conventional and paratransit providers, where riders can transfer between options, easily and conveniently, even across boundaries;
• Develop an integrated regional booking platform for specialized transit trips across the region;
• Ensure that on-demand services meet the needs of a diverse range of travellers;
• Provide leadership and ensure consistency in accessibility design for transportation services and facilities across the region;
• Work with regional partners to assess and address challenges to transit access, and to address unintended consequences of transit investment, such as increases in housing costs along transit corridors; and
• Develop a regional framework for addressing the affordability of transportation for low-income groups.

3.6 Eliminate transportation fatalities and serious injuries as part of a regional “Vision Zero” program:

• Incorporate the Vision Zero framework into regional transportation planning by developing a regional approach to transportation design standards, speed limits, and public education with the aim of zero serious transportation-related injuries and fatalities.

3.7 Make Transportation Demand Management (TDM) a priority:

• Advance workplace TDM programming and encourage private sector leadership, participation and investment with mandated participation by large employers, institutions and other venues that generate a significant number of trips;
• Develop new approaches to TDM delivery from the fields of service design and behavioural economics;
• Reinvigorate carpooling with a compelling and user-friendly regional online platform integrated to trip planning and payment tools; remove regulatory obstacles to user incentives to drive participation;
• Deliver TDM programming to support all new rapid transit services, station areas, and areas impacted by major construction and events;
• Develop incentives for off-peak travel to reduce peak demand and, in the case of transit, to grow off-peak ridership;
• Continue to explore how pricing of mobility (including parking, road pricing and HOT lanes and off-peak fares) could be used to shift travel behaviour; and
• Remove obstacles to vanpooling.

3.8 Expand the HOV network:

• Complete a seamless HOV network on all regional highways in the GTHA, encouraging higher-occupancy travel and supporting faster, more reliable bus service (see Map 7);
• Incentivize ridesharing using the HOV network for trips that are difficult to make by transit or active transportation; and
• Continue the implementation of HOT lanes on HOV lanes where there is excess capacity.

3.9 Further integrate road and transit planning and operations:

• Building on early progress, invest in the regional coordination and deployment of ITS/smart corridors to support effective congestion management and transit priority operations; and
• Within each municipality and where municipal and provincial roads interface, create formal task forces or groups to coordinate the planning and operations of transit, roads and on-street parking.
3.10 Further define and support a Regional Goods Movement System:

- Advance collaboration between the public and private sector to support implementation of the Regional Strategic Goods Movement Network (See Map 8) to link goods-generating activity centres, intermodal terminals and regional gateways;
- Study goods movement priority features for new and existing freight corridors, including but not limited to intelligent lane utilization and truck-only lanes;
- Support development of innovative freight hubs, including planning for and protecting complementary land uses near freight hubs. Consider the use of transit stations as a pick-up location for small parcels and support other innovative urban freight hubs to reduce door-to-door delivery. Explore and implement flexible freight delivery times, including off-peak delivery, where applicable;
- Establish a GTHA urban freight data collection program including monitoring of freight flows in the GTHA; and
- Expand awareness and education efforts regarding goods movement planning, design and operational issues, with particular reference to the impact of e-commerce (and potential innovations in delivery, such as the use of bicycle couriers for urban deliveries) on the volume and nature of freight delivery in the region.

3.11 Promote integrated planning for rail corridors:

- GGH transportation agencies/operators, municipalities, the federal government and the private sector work with MTO in its investigation of the potential for shared use (passenger and goods movement) of critical rail corridors in the GTHA; and
- Where corridor capacity studies indicate separation of uses is required, develop and promote plans for freight rationalization.
All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning. Freight cluster definitions do not necessarily correspond to official land use designations.
Strategy 4: Integrate Land Use and Transportation

Transportation decisions have land use impacts and how we design and plan our region has an impact on transportation. As the transportation system expands, there is a great opportunity to create more complete and connected communities that are supportive of transit, walking and cycling. Many of the actions to achieve these ends will require legislative action.

Better integrate land use and transportation planning

The more than $30 billion investment in transit arising from The Big Move will deliver more rapid and frequent transit service across the region over the next 10 years. These investments provide opportunities to:

• realize the provincial Growth Plan vision for intensification and complete communities and meet Growth Plan intensification targets for Major Transit Station Areas and Urban Growth Centres;
• attract new employment, a key driver of transit ridership, by investing in transit to create the conditions needed to induce new office developments nearby;
• locate new regionally significant services and public institutions near frequent transit services; and
• advance Mobility Hub development by strengthening the partnerships required through the land use planning process and the transit project development process.

Where and how transit stations are developed is key to establishing an integrated transportation system in the GTHA. In our polycentric region, transit stations link up people with jobs, schools, work and amenities. Achieving enough density around stations is necessary to ensure that there is significant two-way ridership on RER.

Integrated station development, where stations are integrated with commercial, residential or office uses, is ultimately the most desirable approach for station development or redevelopment. The Yonge Subway corridor includes several examples of integrated development, but this has been slow to progress elsewhere. The experience of the last decade has pointed to a need for greater integration of development into transit project planning and procurement, and clear delineation of the roles and responsibilities of all parties – public and private – in optimizing the potential of these unique locations.

The Growth Plan now sets density targets for development around stations on Priority Transit Corridors (projects In Delivery). Accordingly, these Major Transit Station Areas will need to be designed to coordinate both their transportation and intensification roles. This will ensure that the areas around major transit stations can develop to higher densities and provide options for station access options that are primarily focused on walking, cycling and transit. Planning and development around transit stations needs to involve provincial and municipal stakeholders, along with transit agencies and the private sector.
Metrolinx currently provides occasional input to the Province’s review of upper- and single-tier municipal official plans. Metrolinx can request to review planning applications submitted to municipalities and other planning documents (e.g. secondary plans and zoning by-law amendments), but there is no formal protocol to guide this process and ensure alignment with the Draft 2041 RTP. The Draft 2041 RTP recommends the development of such a protocol.

Currently, municipal land use decisions and the Draft 2041 RTP are both required to conform with the Growth Plan. This is intended to ensure that development and transit investments support the provincial vision for growth. However, it is voluntary for municipalities to integrate municipal transportation plans with the RTP.

The Draft 2041 RTP recommends that the Province use existing provisions of the Metrolinx Act to direct municipal transportation plans. While some progress has been made through collaboration, transportation and land use decisions made by ministries, municipalities and private owners need to be better coordinated to fully achieve the Province’s vision for growth for the GTHA. With true transportation and land use integration, intensification would be more consistently aligned with transit-enabled sites rather than those that are car-dependent.

The Metrolinx Act (2006) provides for the development of a Transportation Planning Policy Statement (TPPS) that would mandate the alignment of municipal planning with the Draft 2041 RTP. The TPPS would provide more specific transportation policy direction than is in the Growth Plan.

Enacting this regulation would give the Strategies and Priority Actions in the RTP legislated status amongst other provincial and municipal land use plans, thus supporting closer alignment of transportation and land use plans. Its purpose is not to duplicate the Growth Plan, but rather to provide improved linkages between the Regional Transportation Plan and the land use and transportation decisions needed to support its implementation (e.g. parking, roads, station access, transit service and mobility hub development).

The Metrolinx Act also contains a provision that allows the Minister of Transportation to require municipalities to develop Transportation Master Plans (TMPs) and specify what they should consider. Currently, the development of TMPs is optional, although all municipalities in the GTHA have them.

The TPPS, through official plans, TMPs, secondary plans, and decisions on planning applications would help to direct city-building decisions relating to mobility hub development, road and street capacity, and the design of transit station areas to more fully align with where rapid transit exists and is planned, and to make the movement of people a priority for the development of the region’s roads. The TPPS could also provide policy direction towards regional coordination in areas of common interest, such as road design for autonomous vehicles and goods movement, and parking policy.
Currently, municipal TMPs are not mandated by the Province, only consider and apply to their respective municipality, and have no specific status in legislation. The Draft 2041 RTP recommends creation of a TPPS and the re-examination of the legislative and regulatory status, role and design of Transportation Master Plans. Alternatively, some of the elements of the Draft 2041 RTP could potentially be achieved through the Growth Plan, which would need to be updated to reflect additional details from the Draft 2041 RTP. However, a TPPS would provide a stronger tie-in directly to TMPs, which set directions for transit and roads.

Together with policy levers, investments in transit can be a tool to achieve desired development outcomes. In 2016, Metrolinx approved the location of the new stations on four corridors for GO RER and SmartTrack. Along with these recommendations, Metrolinx requested, “that municipalities where these recommended new stations are located provide resolutions… demonstrating their commitment to implementing transit supportive land uses around stations, and sustainable station access”.

The Growth Plan prioritizes planning of Major Transit Station Areas on Priority Transit Corridors (projects In Delivery), directing residential and employment growth to support the achievement of a more compact built form, and maximize the number of potential transit users within walking distance. Mobility Hubs are intended to integrate the various modes of transportation and accommodate an intensive concentration of places to live, work, shop or play. Mobility hubs on Priority Transit Corridors are shown on Map 3.

Since 2009, 43 of the 51 mobility hubs identified in The Big Move have experienced residential and employment growth, with the median growth rate approximately double that of the region’s overall growth. However, progress toward the support of transit in the region’s Mobility Hubs varies greatly in terms of density, form, function, and rapid transit phasing. With the continued expansion of the region’s Frequent Rapid Transit Network, these Mobility Hubs present a vital opportunity to maximize the benefits of transit investments and establish a regional transit network that is well-connected.

Metrolinx’s Mobility Hub Guidelines (2011) are a tool for all parties to address the existing and anticipated opportunities and challenges of integrating transportation and development functions at these important locations.

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**Oakville Plans for a Vibrant Mobility Hub**

The Town of Oakville developed a Midtown Oakville Strategy to envision a vibrant urban centre for people to live and work. The strategy, based on the policy framework set out in The Big Move and the Growth Plan, consists of an environmental assessment, parking strategy, and urban design guidelines. The strategy re-imagines Oakville’s Midtown as a mixed-use, transit-oriented community centred on the region’s second busiest GO station.

**Advance the system of connected Mobility Hubs**

First introduced in The Big Move, Mobility Hubs are Major Transit Station Areas of particular significance in the region because of their existing or planned frequent rapid transit service and development potential.
Design to encourage walking and cycling

Making walking and cycling safe and accessible is a cornerstone of developing a complete community and achieving the intensification goals of the Growth Plan. On average, 22% of trips today are short enough to be made by walking, and 56% of trips are short enough to be cycled.49 And yet, on average, only 11% of trips are made by walking and cycling in the GTHA.

Walking and cycling is highly dependent on density, the built form, the local environment, and the overall perception of the attractiveness, convenience, and safety of the journey. In Toronto, for example, the share of walking and cycling trips that start and end in the downtown area is over 50%, and has grown significantly in the last decade. Many areas in the GTHA are not conducive to walking, particularly in suburban employment areas and in some older post-war residential neighbourhoods. While many destinations and jobs are located within a walking distance of frequent transit, walking is deterred by a lack of well-maintained, well-lit and connected sidewalks. To encourage walking from transit stops, buildings need to be conveniently located close to the road, with pathways linking the road and the building entrance. The street network should provide as many direct routing options as possible. An example of a neighbourhood with a street network that was reconfigured from an auto-oriented design to a more pedestrian friendly design is shown in Figure 29.

Making it Easy to Walk

With the construction of a fully-enclosed pedestrian bridge that spans 14 lanes of Highway 401, pedestrians can now walk easily from the Pickering GO station to new office development in the city centre.
The Draft 2041 RTP includes a number of actions aimed at significantly increasing the number of walking and cycling trips made by travellers. The investment to support active transportation is relatively small compared to that needed for rapid transit and highway projects, but the impacts can be significant. For example, by improving the pedestrian environment near regional and rapid transit stations with all-season maintenance of sidewalks, the need for costly parking can be reduced as walking becomes a more viable option for those living close to a station.

The development of a TPPS would be a step towards aligning the Province’s goals for land use intensification and complete streets in the Growth Plan with supporting policy for the design of roads and streets to prioritize walking and cycling.

Develop a Regional Cycling Network

There are many barriers to increasing commuting by bicycle. These include the lack of separated bike lanes, discontinuities in existing cycling networks, physical barriers such as highways, and the built form in many parts of the region that is not conducive to cycling. Cycling infrastructure can be developed at a relatively low cost and can provide a high return on investment. The Draft 2041 RTP recommends the development of a Regional Cycling Network, which would provide a cohesive network of regional corridors and local routes designed to facilitate cycling commuter trips. The Network was designed in coordination with the province-wide cycling network, CycleON.

Hamilton gets Moving on Two Wheels

The City of Hamilton’s cycling master plan is being implemented with its Cannon Street Cycle Track pilot project, a 3 km two-way physically separated lane that opened in 2014, and the “SoBi” bike-sharing system which provides a fleet of 825 bikes and 130 docking stations across the city.

Figure 29: Street Network Before and After Pedestrian-Friendly Redesign

Source: Adapted from the City of Toronto Six Points Interchange Reconfiguration Project.
The focus of the Regional Cycling Network is to provide people with more access to protected bike lanes along heavily travelled corridors for commuter purposes, especially in crossing municipal boundaries and for longer trip distances. Achieving it will require the Province, municipalities and transit operators to establish common standards for design and funding.50

Regional corridors would provide the spine that links local routes and facilities. They will:

- bring cycling facilities closer to more people;
- cross municipal boundaries;
- link Urban Growth Centres and other regional centres; and
- connect to regional and rapid transit stations.

When complete, the Regional Cycling Network will provide:

- high-quality infrastructure, including painted lanes or full separation from motor vehicle traffic where posted speeds exceed 60 km/h and a paved riding surface;
- consistent, clear wayfinding signage; and
- direct routes and those that cross physical barriers such as 400-series highways, waterways and other fixed landmarks.

The key principles of the Regional Cycling Network are illustrated in Figure 30 and the proposed network is shown on Map 9.
Address parking management in land use planning

Free or inexpensive parking encourages driving, even when alternatives exist. Often too much parking is mandated, making development more expensive than necessary. Although The Big Move made recommendations for updating municipal parking and zoning by-laws, there has been inconsistent advancement of parking management across the region. A comprehensive approach to identify best practices for parking management is even more necessary today as on-demand services and autonomous vehicles will likely change how much on and off-street parking is needed and how it is used, in particular versus pick-up and drop-off spaces. Parking demand management can also be applied to transit stations, for example, by identifying a maximum number of parking spaces that will be made available at new stations.

The land use planning process - through development applications, secondary plans or zoning - can shape parking supply by ensuring that residential and commercial site design enables more walking, cycling, car-sharing and transit use. The Draft 2041 RTP recommends actions to address both parking supply and demand management in the land use planning process.
The Draft 2041 RTP presents an opportunity to make parking management a regional priority, and to develop common parking standards, guidelines and supply forecasts that municipalities can apply in the planning and regulating of off-street parking. Parking standards and guidelines need to be regionally coordinated but be responsive to specific characteristics of each type of location. Parking policies should be considered in the context of alternatives, including deliveries and pick-up and drop-off improvements, and encourage innovations such as car-sharing and dynamic parking pricing. A variety of best practices can be introduced in order to educate the public, coordinate the provision of off-street parking with transit expansion, and develop region-wide approaches.

A host of “quick wins” that could be implemented region-wide include promoting shared parking, unbundling parking from development, providing bike parking, and providing preferential parking for car-sharing, electric vehicles, and car-pools.

Parking policy will need to also support reducing environmental impacts, for example through innovations in the design of parking spaces, and approaches to reducing heat islands, run-off and salt use.

**Encourage students to walk and cycle to school**

School-related trips account for 20% of morning peak period travel by GTHA residents. Since 1986, the proportion of students being driven or driving to school has more than doubled, and active transportation to school has steadily declined, contributing to additional traffic and decreased physical activity. The Draft 2041 RTP contains actions to advance active and sustainable school travel (ASST), with the goal of 60% of students walking or cycling to school. This will contribute to improved health, safety and the environment today, and provide impetus for turning today’s children and youth into tomorrow’s pedestrians, cyclists and transit users.
Priority Actions for Strategy 4, Integrate Land Use and Transportation

4.1 The Province should review the legislative and regulatory linkages between the provincial and municipal planning framework to fully achieve the objectives of the Growth Plan and the Regional Transportation Plan:

- Identify all legislative, regulatory, fiscal, and other, opportunities to require integrated land use and transportation decision-making by all stakeholders in the GGH;
- Enact the regulations in the Metrolinx Act (2006) to create a Transportation Planning Policy Statement to provide the RTP with the legislative status it needs in order to achieve regional goals for land use and transportation integration;
- Enact the regulations in the Metrolinx Act (2006) to formalize the role and status of municipal Transportation Master Plans to align with provincial land use and transportation objectives, including the Draft 2041 RTP; and
- Develop a protocol for Metrolinx to review and provide input to secondary plans, publicly-funded development plans and large-scale planning applications to ensure alignment with the regional transit investments and the Draft 2041 RTP.

4.2 Make provincial investments for transit projects contingent on corresponding transit-supportive planning by municipalities being in place.

4.3 Focus development on Mobility Hubs and Major Transit Station Areas along Priority Transit Corridors:

- Work collaboratively with the Province and municipalities to create enforceable station area plans that catalyze desired land uses at stations and prevent uses that are incompatible or fail to fulfill the potential of the lands;
- Systematically co-locate publicly-funded institutions and facilities near transit with walking and cycling-supportive infrastructure;
- Integrate joint development early in rapid transit project planning and into procurement schedules, utilizing new partnerships between the public and private sector;
- Enable Metrolinx to play a leading role in development and redevelopment around stations to fulfil the objectives of the Growth Plan and the Draft 2041 RTP;
- Enable Metrolinx to acquire land around stations for the purpose of transit-oriented development;

4.4 Evaluate financial and policy-based incentives and disincentives to support transit-oriented development.

- Review current financial and economic incentives and disincentives to desired development and develop new tools to incent transit supportive land use;
- Update the Mobility Hub Guidelines to address emerging challenges and opportunities related to the integration of land use and transportation, and incorporate new tools and guidance for planning mobility hubs; and

- Update the network of mobility hubs in conjunction with the Mobility Hub Guidelines to reflect the Frequent Rapid Transit Network, Growth Plan, municipal plans and 2041 population, employment and transit ridership forecasts.

4.4 Evaluate financial and policy-based incentives and disincentives to support transit-oriented development.

Work collaboratively to build on and develop regional and site-specific measures and tools to encourage development that helps meet growth management and transportation objectives.
4.5 Plan and design communities including development and redevelopment sites and public rights-of-way that support and promote a shift in travel behaviours to the maximum extent that is feasible, consistent with Ontario’s passenger transportation hierarchy:

- Develop region-wide standards for highways, roads and streets to consistently reflect the passenger transportation hierarchy;
- Develop shared investment criteria in cycling facilities centred on cycling potential and connectivity, consistent with regional and local plans;
- Adopt a Complete Streets approach to infrastructure project delivery when new rail, station and transit projects are undertaken, to deliver pedestrian and cycling access as part of the infrastructure investment; and
- Expand and promote bike-share in locations where there is an opportunity to meet existing demand and grow cycling use.

4.6 Complete the regional commuter cycling network:

- Plan, design, and construct a Regional Cycling Network (see Map 9) to create new connections in areas with high cycling potential to rapid transit stations, between Urban Growth Centres and across boundaries.

4.7 Embed Transportation Demand Management into land use planning and development:

- Require long-term sustainable TDM plans through the development process to ensure that development is designed from the outset to reflect the passenger transportation hierarchy, with realistic implementation plans; and
- Leverage the development process to generate dedicated funding for TDM programming.
4.8 Rethink the future of parking:

- Coordinate the development of a region-wide policy that:
  - provide guidelines and encourages best practices in parking management;
  - identifies common goals for on and off-street parking management, especially near transit stations;
  - supports shared land use and transportation objectives;
  - acknowledges the varied urban, suburban and rural contexts of the GTHA;
  - anticipates AVs and shared mobility;
  - incorporates environmentally-friendly features;
  - can be leveraged for local policy making; and
  - includes public education and demonstrates the benefit of new parking practices;

- Coordinate station area parking requirements with the expansion of transit infrastructure and services (e.g. amend applicable transit station area by-laws as a condition for transit station approval to support local mode share targets). Zoning standards should be reviewed, with the expectation that minimum parking requirements will be reduced, particularly in transit-supportive neighbourhoods;

- Adopt a region-wide approach to parking management for the arrival of shared mobility and autonomous vehicles; and

- Research and regularly publish existing parking-related data and emerging trends to improve parking planning and management.

4.9 Work with ministries, school boards, municipalities, service providers, non-governmental organizations and other stakeholders to establish school travel programs for Kindergarten to Grade 12 to encourage the development of future generations of pedestrians and cyclists:

- Continue to advance active and sustainable school travel (ASST) through regional coordination and delivery of the school travel program. Adopt approaches that are location-specific to ensure that solutions involving walking, cycling and transit are tailored to each community;

- Expand the resources and community capacity available to advance ASST within the GTHA, including to high school students; and

- Develop policies, plans and standards that prioritize active and sustainable trips for children and youth within school areas and the broader community (e.g. to recreational facilities such as community sports and arts facilities).
Map 9: Proposed 2041 Regional Cycling Network

All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis, and further planning.
Strategy 5: Prepare for an Uncertain Future

It is not enough merely to complete delivery of current regional transit projects, connect more of the region with frequent rapid transit, optimize the transportation system, and integrate land use and transportation in the GTHA. Metrolinx and its partners must prepare for an uncertain future.

Prepare for new business models and technologies

Disruption is already here. Just as cars reshaped cities, rapidly changing transportation business models and technologies will again change metropolitan areas. Business models like car sharing and ride-sourcing are already blurring the lines between public and private transportation. Municipalities already have authority to regulate private transportation companies; however, a regional approach that addresses cross-boundary travel could provide a more seamless experience. Furthermore, advancements in automation and robotics are making autonomous vehicles (AVs) – including shared mobility vehicles – a reality. Although there is uncertainty about how quickly this technology will be adopted, AVs are expected to dramatically change how people and goods are moved and impact both the transportation and land use systems. Ontario has launched a pilot to allow for the testing of AVs on roads under certain conditions, with growing participation.

While there are limits as to how well planners can predict the future, the Draft 2041 RTP was developed by considering a range of possible futures. It emphasizes strategies that are adaptive, so that adjustments can be made as these disruptive technologies become more prevalent.

New mobility systems provide more detailed data that can be used to plan and support ways of better meeting traveller needs. However, there are data privacy issues associated with these new mobility systems, particularly as the private sector increases its role in collecting transportation data.

The Draft 2041 RTP addresses the need for all levels of government to work together to protect the public interest while fostering innovation and partnerships that can create new or improved services for travellers.

Be prepared for accelerated change

We live in a time of accelerated change characterized by economic and political uncertainties, climate change, generational shifts and technological advances. Governments will be challenged by these influences, and transportation systems need to be responsive and flexible to ensure they are resilient.

By addressing these challenges and harnessing the opportunities associated with new technologies, the reach and effectiveness of the transportation network can be improved. The Draft 2041 RTP addresses regional approaches that will need to be used to prepare for accelerated change.

Going Mobile

In 2016, Burlington Transit launched a mobile-friendly website, complete with real-time bus data. Travellers can now use their mobile phone to view a live map that shows the exact location of their bus.
Build resilience to climate change

As noted in section 2, the impacts of climate change are already being experienced in the GTHA. Experts predict the region will experience hotter temperatures, more intense rainfall events, and more severe and frequent storms in the future. A region that is well serviced by alternative modes of transportation will be more resilient to potential travel disruptions caused by such extreme weather events. The Draft 2041 RTP addresses how resiliency to climate change can be built into the regional transportation system by designing for the weather of the future, updating infrastructure to withstand the impacts of climate change, and developing policies and protocols to respond to extreme weather events.

Reduce Greenhouse Gas emissions

As noted in section 2, transportation is the leading source of Greenhouse Gas (GHG) emissions in Ontario, being responsible for 33% of total emissions (2013).

Reducing GHG emissions from the transportation sector will require that three strategies pursued concurrently:

- promote modal shift and reduce vehicle travel demand through land use changes, improvements to transit services and street design, new transportation demand management programs, and making it easy to shift from driving to walking, cycling and transit;driving to walking, cycling and transit;
- encourage more energy efficient driving behaviour and improve the energy efficiency of vehicles; and
- reduce fuel carbon content by substituting gasoline and diesel with alternative fuels that have lower carbon content, such as biofuels, hydrogen, or low-carbon sources of electricity.

A bold strategy for low-carbon transportation is needed to achieve the ambitious Provincial goal of reducing GHG emissions to 80% below 1990 levels by 2050. This will require increased collaboration with all levels of government. In the GTHA, transit agencies can contribute to improved efficiency by introducing low-carbon vehicles such as electric buses.

Use big data to optimize infrastructure and improve services

“Big data” is the term often used to refer to the massive volume of structured and unstructured data collected by companies and institutions today. Typically the volume is so large that it is difficult to process using traditional database and software techniques. As the GTHA transportation system grows and changes, providers are collecting significantly more data on freight, vehicle and traveller movements through sources such as mobile phones and third party apps.

Perspectives on Environmental Sustainability

“An environmentally sustainable regional transportation system is designed to reduce our reliance on fossil fuels and minimize air and noise pollution. It maximizes the use of technological innovations and sustainable materials to increase durability and efficiency, and reduce waste.”

Final Report of the Residents’ Reference Panel on the Regional Transportation Plan
However, these data are currently collected by separate agencies, companies and mobility providers. While transportation data have historically been collected by the public sector, the role of private sector firms is evolving as mobility companies and mobile phone providers increasingly collect large amounts of data. Big data presents opportunities to develop and track new metrics that support regional transportation policy objectives. However, with an increasing number and variety of data collectors, there is a risk that transportation planners will not have access to the right data at the right time. Increased cooperation between the public and private sectors would address this.

The Draft 2041 RTP recommends the development of a regional big data strategy for transportation. By identifying relevant data, bringing it together and sharing it with each other, agencies can better target resources where they are most needed, use infrastructure more efficiently and improve services for travellers. The use of big data needs to prioritize the protection of privacy and security of data.

**Leverage innovation**

In the GTHA and around the world, private sector firms are increasingly providing innovative services that can complement or enhance existing public services provided by the public sector. The providers of new mobility services will not replace transit agencies that provide frequent, high capacity public transit. However, through strategic partnerships there may be opportunities to develop services that increase ridership and efficiency, while maintaining commitments to transparency and value. Transportation agencies around the world are finding a fresh approach to partnering with third parties and/or procuring their services is necessary to close the gap between current practices and the anticipated potential for on-demand transit.

To benefit from the innovations offered by private sector mobility companies, agencies need to break down barriers, provide for flexibility in procurement and develop processes that respond quickly to opportunities and changing conditions. It is critical for the public sector to experiment and share lessons learned. The Draft 2041 RTP identifies how partnering for innovation can be used to embrace new services, tools and business models.
Priority Actions for Strategy 5, Prepare for an Uncertain Future

5.1 Develop a regional framework for on-demand and shared mobility that complements the provincial framework:

- Work collaboratively to review provincial and local regulations and policies impacting new mobility services to enable innovation while meeting the needs of people in the GTHA;
- Proactively test and evaluate new services and technologies (including micro-transit, on-demand, and shared mobility) in emerging markets where conventional transit and active transportation are not meeting demand; and
- Coordinate and establish partnerships that complement existing and committed transit services.

5.2 Develop a region-wide plan for autonomous mobility:

- The Province to develop a suite of regulations, policies and actions to prepare for, test and ensure the safe operation of autonomous vehicle (AV) technologies; and
- Update transportation and building standards to anticipate for AVs (e.g. parking design).

5.3 Coordinate across the region to address climate resiliency of the transportation system:

- Plan and build a transportation system that can continue to operate in extreme weather events brought by climate change;
- Design infrastructure and strengthen existing infrastructure to resist extreme weather;
- Ensure that the management of existing infrastructure assets, and the design and construction of future assets, are climate resilient; and
- Adopt policies and procedures coordinated among all transportation stakeholders (e.g. roads, transit, emergency management) to respond to extreme weather events.

5.4 Proactively prepare for a future with low-carbon mobility options:

- Address transportation climate mitigation by aligning regional and local efforts with international, federal, provincial efforts to meet the Paris Climate Change Accord and meet Ontario’s goal of reducing GHG emissions to 80% below 1990 levels by 2050;
- Continue supporting compact and mixed-use development, complete streets and other measures that help reduce travel distances;
- Deploy infrastructure to support electric vehicle use throughout the public and private transportation systems of the region;
- Invest in the transition to low-carbon public and private vehicle fleets, including transit vehicles; and
- Further collaborate among governments to enhance fuel efficiency and increase availability of low-carbon fuels.
5.5 Develop a regional transportation big data strategy:

- Create a regional transportation big data portal, providing consistent and transparent data collection, management and reporting;
- Establish regional transportation data sourcing, formatting, privacy, security, ownership and reporting standards;
- Identify and acquire new transportation data for planning and operations (e.g. crowdsourced traffic data); and
- Advance coordination and standardization of transportation forecasting, modelling and business case methodologies to support decision-making and evaluation.

5.6 Partner for innovation:

- Drive innovation in mobility, focusing on new services, tools and business models
- Develop outcome-based approaches beyond traditional procurement and formal partnerships:
  - identify and leverage companies with innovative products and services that can benefit travellers or improve operations;
  - remove barriers to partnerships, e.g. overly rigid procurement rules;
  - pilot, test and minimize the risk associated with new ideas, products and approaches; and
  - explore innovative funding and financing options including loans and loan guarantees.
How Will the Plan Make a Difference?

The Strategies and Priority Actions in the Draft 2041 RTP provide a blueprint for achieving the vision and goals for the GTHA. What will happen if we don’t implement the projects, programs and policies contained in the Draft 2041 Plan? As population and employment grow, travel demand will increase significantly, adding pressure to an already strained transportation system. Without new transit initiatives that can attract new users, congestion will get much worse.

What will the Draft 2041 RTP achieve if implemented? To understand this Metrolinx compared the impacts of the following scenarios:

- the 2011 base year;
- a 2041 “do minimum” option in which only the projects that are currently under construction are completed; and
- full implementation of the Draft 2041 RTP.

Full implementation of the Draft 2041 RTP will increase the length of the Frequent Rapid Transit Network by more than 20 times, introduce a regional cycling network that will double the length of dedicated cycling facilities in the GTHA, and add over 900 lane-kilometres of HOV lanes to the region’s highway network.

As illustrated in Table 1, the Draft 2041 RTP will provide significant benefits to people living in the GTHA. It will increase the reach of frequent rapid transit service to many more residents of the GTHA and provide greatly improved access to jobs and other services that people rely on throughout the region.

Delivery of the Draft 2041 RTP will provide the average GTHA resident with access to 290,000 more job opportunities within one hour commute by transit. The percentage of people that live within walking distance of Frequent Rapid Transit will increase by four times, and the percentage of jobs that are within walking distance of Frequent Rapid Transit will double (see Figure 31).

Figure 31: Residents and Jobs within Walking Distance of Frequent Rapid Transit

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*Walking Distance is 400 m from Priority Bus, BRT and LRT lines, and 800 m from Subway and 15-minute GO stations

### Table 1: Draft 2041 RTP Deliverables and Outcomes

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<td></td>
<td>HOV / HOT Lanes¹</td>
<td>Total length of HOV or HOT lanes will increase by over 1,000 lane-km</td>
<td>73 lane-km</td>
<td>110 lane-km</td>
<td>1,130 lane-km</td>
<td>+1,057 lane-km</td>
</tr>
<tr>
<td><strong>PLAN OUTCOMES</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>People Near Transit²</td>
<td>The fraction of people that live within walking distance of frequent rapid transit will increase by 3.5 times</td>
<td>9%</td>
<td>11%</td>
<td>36%</td>
<td>3.8x</td>
</tr>
<tr>
<td></td>
<td>Jobs Near Transit²</td>
<td>The fraction of all jobs that are within walking distance of frequent rapid transit will double</td>
<td>21%</td>
<td>21%</td>
<td>46%</td>
<td>2.2x</td>
</tr>
<tr>
<td></td>
<td>Jobs Accessible within 60 minutes By Transit²</td>
<td>The average GTHA resident will have access to 290,000 more jobs within 1 hour by transit</td>
<td>740,000</td>
<td>620,000</td>
<td>1,030,000</td>
<td>+290,000</td>
</tr>
<tr>
<td></td>
<td>% of GTHA Jobs Accessible within 60 minutes By Transit²</td>
<td>The % of all jobs available to the average GTHA resident in 60 minutes by transit will remain stable, but 7 percentage points greater than it would be in the Do Minimum scenario</td>
<td>22%</td>
<td>13%</td>
<td>21%</td>
<td>stable</td>
</tr>
<tr>
<td></td>
<td>Transit Trips³</td>
<td>There will be about 700,000 more transit trips during the daily peak periods</td>
<td>1.2 million</td>
<td>1.6 million</td>
<td>1.9 million</td>
<td>+700,000</td>
</tr>
<tr>
<td></td>
<td>Transit Mode Share⁴</td>
<td>Transit mode share will increase slightly, but would decrease by 2 percentage points in the Do Minimum scenario</td>
<td>14.2%</td>
<td>12.2%</td>
<td>14.7%</td>
<td>+0.5 points</td>
</tr>
<tr>
<td></td>
<td>Active Trips³</td>
<td>The number of walking and cycling trips will double in the morning peak period</td>
<td>740,000</td>
<td>1,020,000</td>
<td>1,380,000</td>
<td>+640,000</td>
</tr>
<tr>
<td></td>
<td>Active Mode Share⁴</td>
<td>Active mode share will increase 2.1 percentage points during the peak periods</td>
<td>8.5%</td>
<td>7.8%</td>
<td>10.6%</td>
<td>+2.1 points</td>
</tr>
<tr>
<td></td>
<td>Transit Travel Time³</td>
<td>Average transit travel time in the GTHA will decrease slightly, while the region sees significant growth</td>
<td>41 minutes</td>
<td>46 minutes</td>
<td>39 minutes</td>
<td>-2 minutes</td>
</tr>
<tr>
<td></td>
<td>Congested Driving⁵</td>
<td>Congested vehicle kilometres travelled will decrease by 3 million kilometres compared to the Do Minimum scenario</td>
<td>3.7 million</td>
<td>11.1 million</td>
<td>8.2 million</td>
<td>+4.5 million</td>
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<tr>
<td></td>
<td>Environmental Impact</td>
<td>Greenhouse gas emissions per capita from auto driver trips will decrease by 40%</td>
<td>2.7 tonnes</td>
<td>1.6 tonnes</td>
<td>1.5 tonnes</td>
<td>-1.2 tonnes</td>
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¹ Lane-km accounts for roadway length as well as the number of lanes in each direction.
² Walking Distance is 400 m from Priority Bus, BRT and LRT, and 800 m from Subway and Frequent Regional Rail.
³ Represents trips made between 6:45 a.m. - 8:45 a.m.
⁴ Represents trips in the morning and afternoon peak periods (6:00 - 9:00 a.m. and 3:00 - 7:00 p.m.).
⁵ Represents trips made in the morning peak hour.
Implementation of the Draft 2041 RTP will result in 700,000 more transit trips in the GTHA during the peak periods, which represents a 55% increase over 2011. As shown in Figure 32, this growth ranges between a 39% increase in Toronto where transit is already strong, to a 137% increase for trips between GTHA municipalities outside of Toronto, where more potential for new ridership exists.

The 2041 RTP will also result in significant ridership growth. As shown in Figure 33, the percentage of travel mode share for active transportation and transit will increase across all travel markets. By integrating transit services with population and employment growth, even more significant gains in transit mode share can be realised. Significant increases in mode share are forecasted for Urban Growth Centres, for example.

With full implementation of the 2041 RTP, average transit time will also decrease despite the increase in population (Figure 34). In the “do minimum” scenario, transit travel times will be worse, outside of Toronto, further depressing relatively low transit mode shares.

The 2041 RTP will have a significant impact on congestion in comparison to the “do minimum” scenario, resulting in 3 million fewer vehicle kilometers travelled in congested conditions by 2041. This congestion reduction and improvements in automobile fuel efficiency will contribute to a 40% decrease in per capita GHG emissions from automobile trips. Achieving the goal of making all transit vehicles low emission will result in even greater overall emissions reductions.

**Figure 32: Increase in Transit Trips by Travel Market**

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<th>2011</th>
<th>2041 Minimum</th>
<th>2041 Plan</th>
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<tr>
<td>Within Toronto</td>
<td>0.4</td>
<td>+26%</td>
<td>+39%</td>
</tr>
<tr>
<td>Between Toronto and Rest of GTHA</td>
<td>0.8</td>
<td>+17%</td>
<td>+54%</td>
</tr>
<tr>
<td>Within GTHA Outside Toronto</td>
<td>1.2</td>
<td>+66%</td>
<td>+137%</td>
</tr>
<tr>
<td>GTHA Total</td>
<td>2.0</td>
<td>+29%</td>
<td>+55%</td>
</tr>
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</table>

* During the peak periods, 6:00 a.m. - 9:00 a.m. and 3:00 p.m. - 7:00 p.m.

Source: Greater Golden Horseshoe Model v4.
Implementation of the Draft 2041 Plan will also support an increase in active travel, with walking and cycling trips doubling from 2011.

For individual travellers, implementation of the integrated transportation system will increase access to rapid transit and improve reliability. These mobility benefits are particularly important for low income, and other socio-demographic groups that heavily rely on public transportation.

In terms of the regional economy, implementation of the integrated transportation system will improve the GTHA’s competitiveness and productivity by:

- connecting workers to employers and allowing for specialization of skills; and
- providing business with access to more markets and facilitating connections between suppliers and purchasers.

Additional economic benefits will come from the construction of transit infrastructure and its operations, which support jobs in construction, supply chain, and service industries.

Cumulatively, the outcomes are far-reaching and highly beneficial for the GTHA when the 2041 RTP is fully implemented.
Making it Happen

Regional Decision-Making

The Greater Toronto and Hamilton Region, with its growing population and booming economy, is becoming one of the world’s great urban areas. It is already noted for its liveability, dynamic business environment, world-class universities, diverse cultural institutions and healthy environment. But the scale of growth that is expected by 2041 – a 41% increase in population over 2016 – and the location of much of that growth in greenfield areas pose enormous challenges. Many people will need to travel long distances and because of the changing nature of work, commuters will be moving in all directions at different times of the day. Continued growth demands a maturation of the region with respect to its structure (built form, open space, infrastructure) and social infrastructure and services (schools, hospitals, libraries). It also requires new ways of decision-making (regional collaboration on prioritization, integration, planning) and new ways of ensuring financial sustainability (financing, funding and revenue-generating models).

Building a comprehensive and integrated multi-modal transportation system is a vital part of ensuring that the region can effectively deal with future growth and continue to prosper. But the complex transportation system of the future can’t be built without addressing some hard facts. The current way of making decisions about transportation in the region is fragmented and inconsistent. The funding of transportation systems is unpredictable, uncoordinated and without a plan for sustainability. To ensure success and ensure that money is spent wisely, it is imperative to re-think how decisions about regional transportation are made and how the transportation system is financed. In short, we need the right structures and tools to achieve effective regional action on transportation.
A complex stakeholder landscape

Metrolinx is the only agency in the GTHA with a regional mandate to address transportation issues. While Metrolinx is responsible for developing the Draft 2041 RTP, other stakeholders play a major role in determining its success. It is only through the complementary policies, actions and investments of others that the vision for the transportation system in 2041 can be achieved.

Success of the Draft 2041 RTP should be broadly defined. It extends beyond traditional operational measures to include economic measures, benefits to people, congestion management and positive environmental outcomes.

Metrolinx and its partners have made significant progress working together to plan, design and implement projects. But we are moving to a much more complex, integrated regional transportation system. Accordingly, it is necessary to deal with tough issues, like how to integrate fares and services and how to benefit from new technologies and business models. This requires a new level of regional collaboration and coordination. Other cities and regions facing similar challenges are providing ideas on how to knit a polycentric region together in a way that recognizes local interests and contributes to regional goals.
Great strides can be made by formalizing voluntary processes and improving coordination among provincial and municipal planning and transportation departments, transit agencies and Metrolinx. This will improve decision-making, the efficiency of implementation and the provision of traveller-centric service. Summaries of reports on funding and governance in the GTHA can be found in Appendix 4A, and examples of case studies outlining approaches taken by other jurisdictions can be found in Appendix 4B.

**Reviewing coordination**

Regional agreement on approaches to decision-making will help accelerate the development of transportation infrastructure projects and remove duplication. More consistency in decision-making could be achieved by working together to:

- clearly identify roles and responsibilities on who plans, designs and approves various aspects of transportation projects and services;
- establish agreed upon standards of evidence, methods of forecasting, and publication of methods for project evaluation to guide discussions among provincial and municipal stakeholders; and
- identify clear stage gates (or decision points) to advance major projects from inception to realization.

Currently, there is no formal gathering of elected municipal and provincial officials on matters of transportation or land use in the region. Periodic meetings of planning officials would help implement the 2041 RTP vision and provide direction to agencies and departments involved in land use and transportation in the region.

Changes to existing decision-making processes and structures will need to be implemented with the full support of the Province and municipal partners, such as those involving changes to provincial legislation.

**Planning area**

The Metrolinx planning area was established by the Province to increase coordination and integration on transportation matters among Hamilton, Halton, Peel, York, Toronto and Durham. The GO Transit service area defines a larger region in which Metrolinx provides regional transit services. The Greater Golden Horseshoe is an even larger region for which the Province sets growth management policies. Today, these overlapping areas function as a single regional economy with regional natural systems that also function at the scale of the broader region.
These differing geographic areas makes coordination between plans difficult. Metrolinx has heard from some municipalities outside the RTP planning area that they would like Metrolinx to expand its planning role to their communities, and Metrolinx recommends that the Province consider this as the region continues growing and as the extent of GO rail and bus service to these communities increases.

**Organizational capacity**

As the GTHA continues to grow and the transportation system of the region becomes more complex and more interconnected, it will be important to ensure that transit agencies and municipalities across the region have the organizational capacity to deal with planning, building, maintaining and operating a system that is increasingly complex and interconnected. Organizational capacity refers to having the right people, with the right skills, doing the right things along with the right processes, systems, tools and infrastructure aligned with the right goals.

Metrolinx has already taken steps to expand its capacity to do this through recent reviews of organizational functions including operations, capital projects, marketing, customer experience, and planning. Changes to the mandate of Metrolinx required to implement actions in this plan, such as enabling Metrolinx to play a leading role in the redevelopment around stations (Priority Action 4.3) would require provincial approval and would need to address organizational capacity and risk management.

**Monitoring and reporting**

Even the best of plans need to be revisited periodically so that progress can be assessed, outcomes can be monitored, and strategies can be adapted as needed. In a time of rapid change it is even more important to do this. The Draft 2041 RTP includes a recommendation for periodic reporting and review.
6.1 Review regional transportation decision-making processes to best ensure that elected municipal leaders contribute effectively to decision-making related to, the interface between region-wide transportation and land use, and fare and service integration.

6.2 Establish a formalized mechanism that convenes provincial and municipal land use and transportation planning officials with a goal to identify opportunities and make recommendations to improve the integration of land use and transportation.

6.3 Establish a formalized mechanism that convenes the appropriate provincial and municipal officials to identify region-wide policies, standards and tools to attain excellence in the provision of the traveller experience, including fare and service integration.

6.4 Align the Metrolinx planning area, the GO Transit Service Area and the Growth Plan Area to the Greater Golden Horseshoe.

6.5 In consultation with partners, stakeholders and the general public report on progress on implementing the RTP and review the RTP every five years; technical updates can be done in the intervening years if necessary.
Funding the Plan

Funding transportation in a maturing region

As noted earlier, more than $30 billion has already been committed by the Province for 16 regional transit projects that are In Delivery and are shown on Map 3, “Existing and In Delivery Transit Network”.

The complex, integrated regional transportation system envisioned in the Draft 2041 RTP contains dozens of new transit projects – some big and some small. The preliminary estimate of the capital costs for these projects is $45 billion over 25 years. (Note that these are order of magnitude estimates). This $45 billion represents the next generation of investment and is in addition to the more than $30 billion that has already been committed. It is needed to fund:

- projects In Development that are currently in the planning and design stage (estimated at $20 billion);
- investments in other rapid transit infrastructure (estimated at $23 billion); and
- other infrastructure, e.g., walking and cycling infrastructure including station access infrastructure (estimated at $2 billion).

In addition to the above-noted capital costs, successful implementation will also require operating funding for transit services, fare and service integration and active transportation programs. The preliminary net operating funding requirement for the Draft 2041 RTP (over and above what is needed to operate existing services and the In Delivery projects) is estimated to be approximately $1 billion annually. This represents the necessary subsidy, above and beyond fares paid by transit users, to fund routine infrastructure maintenance, but not the replacement of vehicles or major rail rehabilitation.

Full costing of projects – a component of subsequent business case analyses – will need to also consider the operating, maintenance and financing costs associated with each project. One consideration that will be examined during the business case analyses is the full costing of new transit service (construction and financing costs, new vehicle costs, and operating and maintenance costs). Figure 35 displays the per-kilometre total cost by different transit technologies.

![Figure 35: 60 Year Life-Cycle Costs Per Kilometre of New Transit By Mode](source: Metrolinx Planning Analytics)
Principles for a long-term funding strategy

With its commitment of more than $30 billion in significant new transportation funding, the Province has put the region in a strong position for the near- to medium-term. Implementation of the 2041 RTP and operation of the transportation system to 2041 will require continued funding support from all levels of governments - federal, provincial and municipal. Governments need to continue to collaborate to make this long-term commitment.

Regardless of form or source, best practices suggest that transportation funding needs to:

- be sufficient;
- be sustainable (i.e., consistent, predictable and reliable over time);
- be transparent;
- be accountable;
- be easy to implement and administer;
- be fair across the region and among income groups and sectors;
- encourage less reliance on the automobile;
- align with available revenue tools at each level;
- be coordinated across transportation modes;
- be linked to projects, programs and policies that change behavior in a positive way;
- minimize economic impacts and distortions; and
- reinforce provincial and municipal transportation and land use policies and plans.

These principles reflect the key criteria identified in the Metrolinx Investment Strategy in 2013 and the 2013 GTHA Transit Investment Advisory Panel which continue to be relevant looking out to 2041 (see Appendix 4A for more details).

At present, municipalities have limited tools for funding transit. As the transit system in the GTHA expands and changes, it is necessary to look at additional funding approaches.

As examples of such approaches, the Draft 2041 RTP proposes the use of strategies to reduce the demand for parking and the creation of an extensive HOV network that gives priority to transit vehicles and vehicles carrying additional passengers. One strategy to reduce demand for parking is to charge for it at transit stations where it is currently free. Revenues generated from parking at transit stations and revenues from HOT lanes, if used could be reinvested in transportation infrastructure to support the transit system. This is a case where funding is linked to policies that change behavior in a way that is positive for the environment and which are supportive of transit.
Evidence-based planning

Metrolinx has championed the use of evidence-based decision making through business cases, such as those done for the Eglinton Crosstown Light Rail Transit, GO Regional Express Rail, Scarborough Rapid Transit and the Yonge North Subway Extension. Business case results are one of the key inputs for decision-making. Each business case looks at high-level options to address a specific need or opportunity and considers a range of factors, such as travel time, convenience and other passenger benefits; capital and operating costs; environmental, economic, social and community impacts; and alignment with current policy goals.

Metrolinx has also prioritized the development of a business case framework, including guidance documents and training, to support progress on evidence-based decision making across Metrolinx. This guidance will enhance the development of robust business cases to help decision makers ensure that major investments are a good use of public funds and consistent with transit priorities. This represents a model for the evaluation of transportation projects across the region.

Metrolinx uses a standardized Prioritization Framework in order to inform its advice to government on the order of investment in projects from The Big Move. The framework includes each project’s relative costs and benefits as well as implementation consideration and project interdependencies.

The evaluation criteria used in the analysis is guided by the three lenses of sustainability including: a high quality of life; a thriving and protected environment; and a strong, prosperous and competitive economy.

Information from relevant Business Case Analysis work is used wherever available as an important input to this process. Outcomes of the prioritization criteria and Business Case Analysis are then evaluated against an implementation screen to reflect funding, existing level of design and active transportation and urban design considerations. The technical analysis of each project is then grouped into implementation scenarios to study interdependencies, phasing and fiscal timelines. These implementation scenarios are then considered for strategic fit by the Metrolinx Board in its advice to the Government.

Metrolinx is committed to maintaining best practices in its analysis and regularly reviews the Prioritization Framework to improve its outcomes and to incorporate emerging data sources. The framework was originally approved by the Metrolinx Board in November 2010 and was comprehensively reviewed and updated in August 2014. In addition, Metrolinx also consistently updates its Business Case Guidance to reflect new research and data availability. Business Case Analysis and prioritization will be a key focus of implementation planning that will occur following the finalization of the 2041 RTP.
Funding the Plan

6.6 Ensure that funding for the development and long-term maintenance and operation of an integrated transportation system is in place over the duration of the RTP, based on sound principles of governance and public finance, balancing regional coordination and local autonomy:

- Update the Metrolinx Investment Strategy to identify sustainable and sufficient funding for transportation capital and operations over the life of the Draft 2041 RTP;

- Align transportation funding in the region with the RTP to ensure consistency with regional objectives; and

- Earmark specific funding for collaborative initiatives that enhance seamlessness.

6.7 Establish agreed upon standards of evidence, methods of forecasting, and publication of methods for project evaluation to guide discussions among provincial and municipal stakeholders.

6.8 Use rigorous business case analysis to support decisions on the implementation of the RTP projects, including consideration of long term operating, maintenance and financing costs.

6.9 Review Metrolinx’s ability to fund initiatives that support implementation of the RTP, such as off-property station access improvements and regional first-mile last-mile initiatives.
Section 4: Next Steps
Public posting

The Metrolinx Board of Directors approved the Draft 2041 RTP for public consultation on September 14th, 2017. The Draft 2041 RTP is available online at: www.metrolinx.com/en/regionalplanning/rtp/

Consultation and engagement

The consultation period will extend through the fall of 2017.

During the consultation period, Metrolinx will be engaging residents, businesses, civic organizations, partners and other stakeholders through our website, social media, public roundtables and events across the region. The Draft 2041 RTP is also on the Province’s Environmental Registry as an information item.

Finalizing and implementing the 2041 Regional Transportation Plan

Informed by the consultations and further technical work, a final draft of the RTP will be presented to the Metrolinx Board of Directors in December 2017.

Implementation planning to identify processes, roles and responsibilities, phasing, funding, and other key considerations is also underway to support the region in achieving the vision for the GTHA’s transportation system, as presented in the Regional Transportation Plan.

Read the Draft 2041 RTP, and learn more about the research and technical analysis behind it: www.metrolinx.com/en/regionalplanning/rtp/

Have your say on the Draft 2041 RTP: www.metrolinx.com/theplan

Send your comments by email to: theplan@metrolinx.com
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- Ontario Places to Grow Image Bank
- Toronto Transit Commission
- York Region Transit
- Region of Peel
- Region of Durham
- City of Hamilton
- Town of Milton
- Canadian Urban Transit Association
Glossary

**Active Transportation:** As defined in the Provincial Policy Statement (2014) human-powered travel, including but not limited to, walking, cycling, inline skating and travel with the use of mobility aids, including motorized wheelchairs and other power-assisted devices moving at a comparable speed.

**Autonomous Vehicles (AVs):** Vehicles including cars and buses using an assortment of on-vehicle sensors and connected technology to take over some or all aspects of the task of driving. Partially automated vehicle features include parking, lane-change assistance, and collision avoidance. Fully automated vehicles operate all driving functions without the intervention of a human driver. May be personally-owned (PAVs) or shared (SAVs). Can include driverless taxis. See **Connected Vehicles**.

**Big data:** Large datasets that support predictive and user behaviour analytics, including geo-referencing of data about individual travel patterns. Big data can inform transportation research and analysis, and provide personalized products and services.

**Bike Lane:** A bike lane on an urban roadway that is delineated by a lane line on pavement and with signage; typically operates one-way for exclusive use by cyclists, regulated by local by-law and the Highway Traffic Act. “Bike lane” is an alternative to the variety of terms used by GTHA municipalities including “bicycle lane”, “Class 11 pathway”, and “delineated cycle lane”. See **Separated Bike Lane**.

**Bike-Sharing:** A type of Shared Mobility that refers to the shared use of a bicycle or fleet of bicycles by multiple users that are available on-demand and allow for flexible rental periods and payment structures (e.g. single-use or as part of a subscription). Typically, users access bikes through a network of tech-enabled stations which are often located in higher density areas or near transit stations. See **Shared Mobility** and **First-Mile Last-Mile**.

**Bus Rapid Transit (BRT):** Transit infrastructure and service with buses running in their own exclusive right-of-way, fully separated from traffic, with signal priority measures in place and longer spacing between stops than conventional bus routes (typically 500 metres - 1 kilometre) to maintain higher average speeds and ensure reliability of the service. See **Regional Express Bus**, **Priority Bus** and **Priority Transit Corridor**.
Car-Sharing: A type of Shared Mobility that provides members with 24-hour access to a fleet of vehicles that are available on-demand and allow for flexible rental periods and payment structures (e.g. single-use or as part of a subscription). Services can be two-way, requiring customers to borrow and return the vehicle to the same location, or one-way, allowing customers to pick up and drop off vehicles at different locations within a designated service area. See Shared Mobility.

Connected Vehicles: Vehicles that are enabled to communicate with other vehicles, mobile electronic devices, and connected road infrastructure (e.g., traffic signals). Many vehicles already use some connected technology, such as GPS-enabled navigation systems. See Autonomous Vehicles, Intelligent Transportation Systems, and Transportation Systems Management.

Complete Communities: As in the Growth Plan for the Greater Golden Horseshoe (2017), places such as mixed-use neighbourhoods or other areas within cities, towns, and settlement areas that offer and support opportunities for people of all ages and abilities to conveniently access most of the necessities for daily living, including an appropriate mix of jobs, local stores, and services, a full range of housing, transportation options and public service facilities. Complete communities are age-friendly and may take different shapes and forms appropriate to their contexts.

Complete Streets: As in the Growth Plan for the Greater Golden Horseshoe (2017), streets planned to balance the needs of all road users, including pedestrians, cyclists, transit-users, and motorists. A complete streets approach also involves design, operation, and maintenance of roadways to enable safe, convenient, and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

Design Excellence: A strategy to deliver seamless delivery of integrated transportation systems to the traveler. It is inclusive of architecture, urban design, landscape architecture, signage and wayfinding, and art integration. Design Excellence encompasses all of the touch points of the traveller including delivery of: universal access and accessibility, fare integration, safety and comfort, trip planning and integrated technology.

First-Mile Last-Mile (FMLM): FMLM describes the challenge of getting people to and from transit stations, mobility hubs, and fixed-route transit services from their home, workplace or other major destination, such as a sports facility or hospital.
Alternatives to driving and parking a car can be advanced with, for example, programs that support car-pooling; well-maintained infrastructure that facilitates walking, cycling, and priority transit access; and initiatives that support new mobility, like on-demand shuttle services.

FMLM can also describe moving goods to and from major intermodal hubs, such as rail yards and airports, to their final destination, such as retail stores, restaurants or even customers’ homes.

**Freight Cluster**: As per Ontario’s Freight-Supportive Guidelines (2016), groupings of similar uses intended to minimize potential conflicts along freight routes, corridors, and the type of on-coming traffic that transport trucks may encounter when exiting or entering a site.

**Frequent Rapid Transit Network (FRTN)**: A seamless and reliable network of transit services running at least every 10-15 minutes all-day, every day. The FRTN will consist of transit routes and corridors that ensure fast and reliable service through the use of dedicated infrastructure, design elements, and other supporting investments as required (e.g., full grade separation, exclusive right-of-way, wider stop spacing than conventional transit routes, signal priority, or other transportation systems management measures). The FRTN proposed for the GTHA will allow transit users to make efficient transfers between routes on the network, which includes subways, transitways, Bus Rapid Transit, Light Rail Transit, Regional Express Rail, and Priority Bus corridors.

**Frequent Rapid Transit Network** updates the term “Regional Rapid Transit” used in *The Big Move* (2008) Regional Transportation Plan.

**Greater Golden Horseshoe (GGH)**: As in the Growth Plan for the Greater Golden Horseshoe (2017), the geographic area identified as the Greater Golden Horseshoe Growth Plan area in Ontario Regulation 416/05 under the Places to Grow Act, 2005.

**Growth Plan for the Greater Golden Horseshoe**: A long-term provincial plan that works together with the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Niagara Escarpment Plan to manage growth, build complete communities, curb sprawl and protect the natural environment.
**High Occupancy Toll (HOT) Lane**: A High Occupancy Vehicle (HOV) lane that single occupant vehicles are also permitted to use by paying a toll. See [High Occupancy Vehicle Lane](#).

**High Occupancy Vehicle (HOV) Lane**: A lane of roadway that is typically designated for use only by vehicles with a specified minimum number of occupants (including transit vehicles). May also be used to support Priority Bus routes.

**Integrated Mobility**: A practice that describes the unification of different transportation modes and mobility providers into a network connecting travelers from their trip origin to their final destination through seamless connections supported by the use of barrier-free planning, design, infrastructure and technology solutions (e.g. integrated payment, Mobility as a Service, real-time information and trip planning across multiple modes). See [Mobility as a Service](#) and [New Mobility](#).

**Intelligent Transportation System (ITS)**: A form of Transportation Systems Management that uses real-time information technology to provide traffic-responsive, area-wide traffic control and information that allows transportation providers to optimize system operations and enables travellers to use the system more efficiently, effectively, and conveniently. ITS includes planning, deployment, integration and operations to provide a cohesive, end-to-end solution for all transportation users, including traveller information and electronic payment. See [Transit Priority Measures](#) and [Transportation Systems Management](#).

**Intermodal Facilities**: As in Ontario’s Freight-Supportive Guidelines (2016), a location where transfers between modes can be made as part of a single journey. For example, a typical freight intermodal facility is a rail yard where containers are transferred between trucks and trains.

**Light Rail Transit (LRT)**: Transit infrastructure and services consisting of light rail vehicles running in an exclusive right-of-way, fully separated from traffic, with signal priority measures in place and longer spacing between stops than conventional transit routes (typically 500 metres – 1 kilometre) to maintain higher average speeds and ensure reliability of the service. See [Priority Transit Corridor](#).

**Local Transit**: A passenger transit system that is operated principally within an upper-tier, lower-tier or single-tier municipality.

Public transit in the GTHA is provided by Burlington Transit, Brampton Transit, Durham Region Transit, GO Transit, Hamilton Street Railway, Milton Transit, MiWay (Mississauga Transit), Oakville Transit, the Toronto Transit Commission and York Region Transit/VIVA.
**Low-Carbon:** In the transportation sector, refers to vehicles that produce minimal greenhouse gas emissions through improved efficiency and adoption of electric and alternative-fuel vehicle technologies. Reducing Greenhouse Gas emissions from the transportation sector typically focusses on minimizing travel and shifting to more environmentally sustainable modes, technologies, and fuels.

**Mobility as a Service:** A New Mobility technology that describes the integration of various transport services including public transit, bike or car-sharing, taxis, ride-sourcing and other forms of Shared Mobility that are bundled together and consumed on a subscription basis to meet the particular needs of individuals. See **New Mobility** and **Shared Mobility**.

**Major Transit Station Area:** As in the Growth Plan for the GGH (2017), the area including and around any existing or planned higher order transit station or stop within a settlement area; or the area including and around a major bus depot in an urban core. Major transit station areas generally are defined as the area within an approximate 500 m radius of a transit station, representing about a 10-minute walk. See **Mobility Hubs**.

**Micro-transit:** A type of Shared Mobility that refers to small scale, flexible transportation services, using shuttles or vans, to provide rides that are often ordered on-demand with a mobile app or website with dynamically-generated, rather than fixed, routes. Multiple passengers share trips with others who have similar routes or destinations. See **Shared Mobility** and **On-Demand Mobility**.

**Mobility Hubs:** Major Transit Station Areas where multiple modes of transportation meet and have a high-density mix of land uses that encourages and supports transit use and active transportation. Mobility hubs are at the intersection of two or more Frequent Rapid Transit Network routes, are designed to support a high number of transit boardings and alightings, and facilitate seamless, efficient transfers between modes. They have a high concentration of jobs, residences, public services, and other transit-supportive land uses, or the potential to develop into areas with a high-density of mixed land uses. See **Major Transit Station Area**.

**Mode Share:** The percentage of person-trips made by one mode of travel relative to the total number of trips made by all modes.

This term is derived from that provided by the Growth Plan for the Greater Golden Horseshoe, 2017 for “Modal Share”, i.e. The percentage of person-trips or of freight movements made by one travel mode, relative to the total number of such trips made by all modes.
Multi-modal: More than one mode of transportation used for a person-trip, such as cycling or driving to a transit station.

This term is derived from that provided by the Growth Plan for the Greater Golden Horseshoe, 2017 for “Multi-modal”, i.e. Relating to the availability or use of more than one form of transportation, such as automobiles, walking, cycling, buses, rapid transit, rail (such as commuter and freight), trucks, air, and marine. (Based on the PPS, 2014 and modified for this Plan.)

New Mobility: A term to describe the suite of emerging transportation services and that are enabled through the development and convergence of technologies (e.g. smartphones, real-time data, autonomous and connected vehicles) and business models (e.g. Shared Mobility and Mobility-as-a-Service). See Autonomous Vehicles, Connected Vehicles, Mobility as a Service, and Shared Mobility.

On-Demand Mobility: Shared mobility services that are provided to the user within a short time period upon request, either by telephone or mobile electronic device. See Shared Mobility.

Outer Ring: The geographic area consisting of the Cities of Barrie, Brantford, Guelph, Kawartha Lakes, Orillia, and Peterborough; the Counties of Brant, Dufferin, Haldimand, Northumberland, Peterborough, Simcoe, and Wellington; and the Regions of Niagara and Waterloo. This term is derived from that provided by the Growth Plan for the Greater Golden Horseshoe, 2017

Priority Bus: Bus transit service running fully or partially in a semi-exclusive right-of-way, providing some protection from mixed-traffic, and using transit priority measures and other design elements to ensure reliability and maintain higher than average speeds (e.g. signal priority, queue jump lanes, HOV lanes and wider spacing between stops). Service operates reliably and frequently (at least every 15 minutes) all-day without the need for dedicated infrastructure. See Bus Rapid Transit, Regional Express Bus, Frequent Rapid Transit Network, and Priority Transit Corridor.

Priority Transit Corridor: As in the Growth Plan for the Greater Golden Horseshoe (2017), Schedule 5, or as further identified by the Province for the purpose of implementing the Growth Plan. Also see Growth Plan Policy 2.24 “Transit Corridors and Station Areas”.

Rail Facilities: Rail corridors, rail sidings, train stations, intermodal facilities, rail yards and associated uses, and designated lands for future rail facilities. See Intermodal Facilities.
**Regional Cycling Network:** A network of commuter-oriented cycling routes and dedicated infrastructure that supports longer-distance trips (typically greater than 5 km), supports cycling trips across municipal boundaries and between Urban Growth Centres, and provides connections to rapid transit stations. Infrastructure may include bike lanes, cycle tracks, and multi-use trails.

**Regional Express Bus:** Transit service consisting of buses running primarily along highways and typically connecting two or more significant destinations separated by longer distances than would normally be travelled on a conventional transit route. Operating speeds are typically significantly higher than conventional transit, with limited stops or wider stop spacing (typically 2-8 km). Significant destinations include urban centres, transportation hubs and large institutions. Express buses may also run along heavily travelled corridors to provide faster service over long distances. See Bus Rapid Transit, Priority Bus and Priority Transit Corridors.

**Regional Express Rail (RER):** The ten-year (to 2024) GO Regional Express Rail (RER) program is a suite of infrastructure and service improvements that will transform GO rail from a largely commuter system to a comprehensive regional rapid transit service. Infrastructure expansion, including new tracks, bridges, signals and rolling stock, will provide for increased peak period service on all existing GO rail routes and the addition electric train service running every 15-minutes or better in both directions throughout the day on five of seven corridors. By 2024, peak period train service will double and off-peak train service will quadruple.

**Regional Transportation System:** As in the Provincial Policy Statement, 2014, the multi-modal transportation system, including all of the municipalities of the Greater Toronto and Hamilton Area and the broader GO Transit service area, consisting of services and infrastructure such as, “facilities, corridors and rights-of-way for the movement of people and goods, and associated transportation facilities including transit stops and stations, sidewalks, cycle lanes, bus lanes, high occupancy vehicle lanes, rail facilities, parking facilities, park-and-ride lots, service centres, rest stops, vehicle inspection stations, inter-modal facilities, harbours, airports, marine facilities, ferries, canals and associated facilities such as storage and maintenance”.

**Ride-sourcing:** A type of Shared Mobility that refers to service providers that use an online or app-based platform to connect passengers with drivers of personal, non-commercial vehicles. Operators can also be known as Transportation Network Companies or Private Transportation Companies. See Shared Mobility and On-Demand Mobility.
Ride-sharing: A type of Shared Mobility that refers to both traditional carpooling and dynamic carpooling where passengers with a common destination share a vehicle and the costs of a trip. Traditional carpool drivers provide a pre-organized ride for a passenger based on having a common final destination, such as a shared workplace. Dynamic carpooling relies on real-time connectivity between drivers and passengers to book trips on-demand based on the passenger having an origin and destination that aligns with a driver’s pre-determined route. See Shared Mobility and On-Demand Mobility.

Separated Bike Lane: A bike lane that is protected from general-purpose travel lanes on a roadway by a partial or full barrier. Separated bike lanes are often describe as “dedicated” or “protected” bike lanes or “cycle tracks”. See Bike Lane.

Shared Mobility: A type of New Mobility that refers to a broad set of transportation services and business models that are shared among users, such as Bike-Sharing, Car-Sharing, Micro-Transit, Ride-Sourcing, and Ride-Sharing. See New Mobility.

Specialized Transit: Also referred to as “paratransit” or “custom transit”, it provides door-to-door service to eligible individuals with disabilities, and seniors who are not able to use conventional transit for all or part of their travels. Specialized transit works with conventional transit service providers to form a broader accessible transit network. It is usually funded and delivered by a municipality.

Transit Priority Measures: Techniques designed to minimize delays for buses or rail vehicles at intersections and along congested roads to provide a faster, more reliable trip. Transit priority measures include HOV lanes, bus-only lanes, signal priority and queue jump lanes. See Intelligent Transportation Systems, Priority Transit Corridor and Transportation Systems Management.

Transit-Supportive Development: Land uses and urban form designed to make transit more viable and attractive. It often refers to compact, mixed-use development that has a high level of employment and residential density.

Transportation Demand Management (TDM): As in the Provincial Policy Statement (2014), a set of strategies that result in more efficient use of the transportation system by influencing travel behaviour by mode, time of day, frequency, trip length, regulation, route, or cost. Examples include: carpooling, vanpooling, and shuttle buses; parking management; site design and on-site facilities that support transit and walking; bicycle facilities and programs; pricing (road tolls and/or transit discounts); flexible working hours and telecommuting; high occupancy vehicle lanes; park-and-ride; incentives for ride-sharing, using transit, walking and cycling initiatives to discourage drive-alone trips.
**Transportation Systems Management (TSM):** A set of operational strategies that improve the safety, performance and efficiency of the existing transportation network and infrastructure through the management and operation of integrated, intermodal surface transportation systems, including technology, services, and processes. Intelligent Transportation Systems (ITS) is considered a specific form of TSM. See Intelligent Transportation Systems.

**Urban Growth Centres (UGCs):** As in the Growth Plan for the Greater Golden Horseshoe (2017), Schedule 4, twenty-five downtown areas that are intended to be mixed-use, high-density, and transit-supportive focal points for residential and employment growth and intensification in a municipality.

**Vision Zero:** Vision Zero aims to achieve transportation systems with no fatalities or serious injuries using a variety of interventions. These include engineering for safer street design, enforcing laws such as speeding or impairment that have a significant correlation to fatalities or major injuries, and educating drivers, cyclists and pedestrians on safety measures and the impacts of law-breaking.

**Vehicle Kilometres Travelled (VKT):** A measure of roadway use, commonly used in estimating congestion, that reflects the distance that an individual drives, or, more typically, the cumulative distance driven by all vehicles in an urban region during a specified period of time. VKT can reflect the link between land use and transportation. Land uses that are further away from each other result in longer trip lengths, more traffic on roadways and more vehicle kilometres travelled, for example.

**Wayfinding:** An orientation system consisting of signage, mapping, and the provision of other information that enables travellers to choose a preferred route, monitor their journey and recognize when they have arrived. Wayfinding systems may be designed to guide people through a complex built environment such as a transportation hub or as an aid to navigate a transit or cycling network.
End Notes

3 University of Toronto Data Management Group. 2011 Transportation Tomorrow Survey.
5 Ontario Ministry of Transportation. www.gghtransport2051.ca (as of September, 2017).
16 CANECA. Regional Express Rail’s Impact on Housing Affordability in the Greater Golden Horseshoe, 2016.
29 Metrolinx. Greater Toronto and Hamilton Area Fare Integration - Stage 2 Report 1: Fare Integration Concept Development Report, 2016.
39 Segments not yet converted to full BRT, but benefiting from priority measures and operational enhancements.
40 SDG. Transportation Study of the Pearson Airport Area, 2015.
42 WSP. New Mobility Background Paper, 2016.
44 SDG. Transportation Demand Management Background Paper, 2015.
46 WSP. Regional Road Network Background Study, 2017.
49 SDG. Active Transportation Background Paper, 2015.
Appendices
### Appendices

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APPENDIX 1:
Metrolinx Technical Reports and Academic Background Research

The review and update of the Regional Transportation Plan was informed by extensive technical analysis, as well as independent research conducted through partnerships with Canadian universities. Studies and research papers are published on Metrolinx’s website.

Appendix 1A: Metrolinx Technical Studies


* Forthcoming (Fall 2017)
Appendix 1B: Academic Background Research


Buliung, Ron. Phase 1: Children’s Independent Mobility in the Greater Toronto and Hamilton Area: Setting the Stage. 2014.

Buliung, Ron. Phase 2: Children’s Independent Mobility Across the City of Toronto. 2014.

Cassello, Jeff. Quantitative TDM Assessment in a Large Metropolitan Area: Greater Toronto and Hamilton Area. 2015.

Cassello, Jeff and Hall, Daniel. Activity Centre: Integration of the Planning and Operations of Public Transit in the GTHA. 2013.


Mahmoud, Mohamed S., Habib, Khandker N. and Shalaby, Amer. Demand Modelling of Cross-Regional Intermodal Commuting Trips in the Greater Toronto and Hamilton Area. 2014.


Walks, Alan. Assessing and Measuring the Factors Affecting Mobility, Transportation, Accessibility, and Social Need: Barriers to Travel among Those with Low Income and Other Vulnerable Groups. 2015.
APPENDIX 2: Developing the Draft 2041 Plan

Appendix 2A: Scenario Development

While the Draft 2041 Plan has been developed in alignment with the Growth Plan for the Greater Golden Horseshoe, 2017 (Growth Plan) population and employment forecasts and policy directions for where and how the region will grow, the Strategies and Priority Actions were also tested against a number of alternative potential future scenarios. Each scenario is based on a core broad conceptual idea of a possible alternate future, which shape and influence key demographic, economic, technology and environmental indicators that are used to measure the impacts of each scenario on travel in the region. The alternative future scenarios used in developing the Draft 2041 Plan are as follows:

**Rapid Adoption of Emerging Technologies:** A future driven by the rapid adoption of new technologies such as virtual reality used for telecommuting, automation of employment (both service and office employment) and autonomous and connected vehicles.

**Rapid Growth of Core Areas:** A future where the importance of diversity and creative culture fuel heavy growth focused in urban centres.

**Extreme Climate Change:** A future where the impacts of climate change are experienced earlier than anticipated, such as increasingly frequent and extreme weather events.

**On-Demand Economy:** A future where on-demand culture permeates the job market to the point where few individuals hold a single full-time job and most piece together casual work and a variety of “gigs.”

**User-Pay Economy:** A future where consumers pay the full cost of their travel and other living expenses (e.g. parking, road maintenance and construction, utilities).

**Economic Decline:** A future where the region is no longer a prime location for immigration.

The scenario process provided insight into the types of strategies that would be most resilient in the face of uncertainty.
Resiliency Assessment

The six scenarios were considered as part of a resiliency assessment of the potential strategies for the Draft 2041 Plan. Each scenario changed the assumptions compared to a baseline future case in which the distribution and growth of population and employment across the region in 2041 was consistent with the Growth Plan. Other trends, such as the nature of employment (i.e. job types) and the amount and costs of travel in the region by mode, were treated as a continuation of existing trends, i.e. “business as usual” (see Figure 2A-1).1

In the base case, travel costs are assumed to be stable in real terms (i.e. any increase is at the annual rate of inflation).

These changes led to different predicted travel demand. The scenarios were not intended to be mutually exclusive; they recognize that advances in technology could happen concurrently with an expansion of the on-demand economy, or economic decline could (and would likely) occur in an extreme climate change scenario. Each was selected to showcase what might happen if an existing trend was amplified.

Six different combinations of alternative transportation, land-use and pricing strategies for the future transportation system were created and tested under the six alternative future scenarios to determine which would be the most resilient to all possible futures. The six potential strategies that were tested each focused on investing resources into distinct areas of emphasis:

- Infrastructure
- Operations/optimization
- Active transportation
- Pricing and transportation demand management
- Targeted pricing with equity considerations
- Transit-oriented land use

The strategies were evaluated under different future scenarios and given a composite score based on how well they performed against seven criteria:

- Increase in non-auto mode share
- Decrease in congested vehicle kilometres travelled
- Emissions reductions
- Improvement to transport equity and access
- Reduction in transit travel time
- Efficient movement of goods
- Improvement to quality of life and health

The resulting composite score for each strategy under all alternative future scenarios is shown in Figure 2A-2, compared to the score each strategy received under the base future scenario. The better performing strategies are those with high scores under both the base future and alternative futures. In the face of such high levels of uncertainty, the resiliency assessment showed that emphasizing transit operations rather than fixed infrastructure, planning for transit-supportive land-use, and introducing pricing led to the best overall outcomes across the six scenarios. As the analysis was high-level, the results would vary with more specific information about the strategies. For instance, targeted pricing as a generic strategy under-performed on the transport equity and access measure, but a specific pricing program (e.g. weekly or monthly caps for residents or a rebate for low-income families) would garner a higher overall score.

While an economic evaluation of each strategy was not undertaken, many other regions have found operational improvements are more cost-effective than infrastructure expansion (and BRT is more cost effective than LRT), although corridors with particularly high demand do merit rail investment. Litman, T. Evaluating Public Transit Benefits and Costs: Best Practice Guidebook 2017.
Modelling the Scenarios

In addition to the more qualitative resiliency assessment shown in Figure 2A-2, the six scenarios were combined to create two contrasting scenarios for modelling purposes in order to quantitatively assess the resiliency of the future base Draft 2041 Plan.

These two contrasting scenarios effectively represent a high- and a low-demand scenario that bracket the baseline future case, in which the distribution and growth of population and employment across the region in 2041 was consistent with the Growth Plan. The costs of travel in the region by mode were treated as a continuation of existing trends, i.e. “business as usual.”

Feedback received from key stakeholders on the six initial scenarios highlighted the need to recognize that the scenarios are not mutually exclusive.

In order to generate the high- and low-demand scenarios, different aspects of the six scenarios were combined. The high growth “Boom” scenario incorporates aspects of Rapid Growth of Core Areas, the Rapid Adoption of Emerging Technologies and the User-Pay Economy. The low demand “Decline” scenario incorporates aspects of Economic Decline, Extreme Climate Change and the On-Demand Economy (see Figure 2A-3).
Figure 2A-3: Linkages between Scenarios

- Rapid growth of core areas
- Rapid adoption of emerging technologies
- User-pay economy

Boom (Growing Pains)

- Economic decline
- On-demand economy
- Extreme climate change

Decline (Moving Out of the GTHA)
The Growth Plan forecasts were modified in these scenarios as follows:

**In the Boom scenario:**
- Regional population was 14% higher than the official Growth Plan forecasts,
- Regional employment was 9.6% higher, and
- Toronto’s growth was more extreme with employment 25% higher than the official Growth Plan figures.
- In addition, the Boom scenario assumed considerable growth in the outer ring beyond the Greenbelt.
  - It also assumed a 5% reduction in auto operating costs to reflect the impact of a high penetration of automated vehicles.

**In the Decline scenario:**
- Employment dropped substantially, 13% lower than 2011 levels and 47% below the expected 2041 level.
- The Decline scenario assumed a 5% increase in auto operating costs, reflecting the worsened condition of the road network, as well as a 5% increase in toll rates and a 5% increase in transit fares above inflation, as the higher maintenance costs (e.g. due to climate change impacts) would be covered by fewer travellers throughout the region.

Parking costs and parking supply did not vary between the base future forecast and the Boom and Decline scenarios.

In addition to the Boom and Decline scenarios, a third scenario was modelled that reflects how housing and employment market forces would distribute population and employment across the GTHA in the absence of the Growth Plan controls and allowing development to occur in new greenfield areas (the “Market” scenario).

The model outcomes for the Boom, Decline, and Market scenarios are shown compared to the Draft 2041 Plan under baseline future conditions in Table 2A-1.

This scenario was extreme in the sense that the population was fixed at 2011 levels but aged to reflect the increase in the senior population expected by 2041.

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3 In addition to road tolls on the 407 ETR, all future networks included High Occupancy Toll (HOT) lanes combined with HOV lanes in selected corridors. The network that represents the Draft 2041 Plan included over 1100 lane-km of HOV/HOT lanes.
### Table 2A-1: Model Outcomes of Various Land Use Scenarios on the Draft 2041 Plan

<table>
<thead>
<tr>
<th>THEME</th>
<th>INDICATOR</th>
<th>DESCRIPTION</th>
<th>2041 PLAN (BASELINE FUTURE)</th>
<th>SCENARIO RESULTS</th>
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<tr>
<td></td>
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<td>2041 MARKET</td>
<td>2041 DECLINE</td>
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<td>LAND USE ASSUMPTIONS</td>
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<tr>
<td>GTHA Population (Millions)</td>
<td>In the decline scenario the population of the GTHA is similar to what it was in 2011, but percentage of seniors increases</td>
<td>10.1</td>
<td>10.1</td>
<td>6.5</td>
</tr>
<tr>
<td>GTHA Employment (Millions)</td>
<td>In the decline scenario, employment in the GTHA is similar to what it was in 2011</td>
<td>4.8</td>
<td>4.8</td>
<td>2.6</td>
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<tr>
<td>Concentration of population in Toronto</td>
<td>In the decline scenario, a significantly higher proportion of the population live in Toronto</td>
<td></td>
<td>34%</td>
<td>34%</td>
</tr>
<tr>
<td>Concentration of employment in downtown Toronto</td>
<td>In the boom and decline scenarios, jobs are more concentrated in downtown Toronto, comparable to the market trend scenario</td>
<td></td>
<td>12%</td>
<td>14%</td>
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<tr>
<td>PLAN OUTCOMES</td>
<td></td>
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<tr>
<td>TRANSIT ACCESS</td>
<td>People Near Transit¹</td>
<td>The fraction of people that live within walking distance of frequent rapid transit is comparable across all three scenarios</td>
<td>36%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Jobs Near Transit¹</td>
<td>The fraction of all jobs that are within walking distance of frequent rapid transit follows the concentration of employment in downtown Toronto</td>
<td>46%</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Jobs Accessible within 60 minutes By Transit¹</td>
<td>The average GTHA resident will have access to fewer jobs within 1 hour by transit in the decline scenario, and more in the boom scenario</td>
<td>1,030,000</td>
<td>1,040,000</td>
</tr>
<tr>
<td></td>
<td>% of GTHA Jobs Accessible within 60 minutes By Transit¹</td>
<td>The average GTHA resident will have access to a greater proportion of all jobs in the GTHA in the decline scenario</td>
<td>21%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Transit Trips¹</td>
<td>The number of transit trips in the region generally follows regional population and employment</td>
<td>1.9 million</td>
<td>2.0 million</td>
</tr>
<tr>
<td></td>
<td>Transit Mode Share¹</td>
<td>Transit mode share improves the most in the decline scenario, largely because driving costs are higher</td>
<td>14.7%</td>
<td>15.5%</td>
</tr>
<tr>
<td></td>
<td>Active Trips²</td>
<td>The number of active trips in the region generally follows regional population and employment</td>
<td>1,380,000</td>
<td>1,370,000</td>
</tr>
<tr>
<td></td>
<td>Active Mode Share³</td>
<td>The decline scenario has the highest proportion of walking and cycling trips</td>
<td>10.6%</td>
<td>10.6%</td>
</tr>
<tr>
<td></td>
<td>Transit Travel Time²</td>
<td>Rail travel times are comparable in all scenarios, but bus travel is faster in the decline scenario due to less highway congestion</td>
<td>39 minutes</td>
<td>40 minutes</td>
</tr>
<tr>
<td></td>
<td>Congested Driving⁴</td>
<td>Congested vehicle kilometres travelled are far lower in the decline scenario, since all travel, including driving, is reduced</td>
<td>8.2 million</td>
<td>8.3 million</td>
</tr>
<tr>
<td></td>
<td>Environmental Impact</td>
<td>Greenhouse gas emissions per capita from auto driver trips are lowest in the boom scenario</td>
<td>1.54 tonnes</td>
<td>1.54 tonnes</td>
</tr>
</tbody>
</table>

¹ Walking Distance is 400 m from Priority Bus, BRT and LRT, and 800 m from Subway and Frequent Regional Rail.
² Represents trips made between 6:45 a.m. - 8:45 a.m.
³ Represents trips in the morning and afternoon peak periods (6:00-9:00 a.m. and 3:00-7:00 p.m.)
⁴ Represents trips made in the morning peak hour.
In spring 2017, Metrolinx convened a Resident’s Reference Panel made up of residents from across the Greater Toronto and Hamilton Area to provide input into the Draft 2041 Plan. Thousands of invitations were sent out to residents, and final participants were randomly selected from amongst the respondents to reflect the diversity of the region. Over the course of five full-day sessions, the Panel’s task was to learn about regional transportation, services and policies, consider different perspectives, weigh priorities, and recommend a course of action.

Panelists worked through their values, issues, and priorities to present a set of recommendations to Metrolinx. The Panel made recommendations in seven key areas, provided on page A-14.

The report and video of the Residents’ Reference Panel will be available in fall 2017 on Metrolinx’s website.
Recommendations of the Residents’ Reference Panel

1) Connectivity, Convenience and Integration

Today, disconnected transportation services lead to longer, more frustrating commutes that discourage the use of transit.

In the next five years, Metrolinx and its partners should:
- Actively coordinate routes and schedules among all 11 GTHA transit agencies;
- Integrate all intermodal information into the Triplinx app to help solve the first- and last-mile issue. This should include fares, real-time service and traffic updates, parking availability, bike-share services, cycling facilities, and potential on-demand micro-transit services;
- Make PRESTO more convenient. Possible improvements could include more machines, the ability to purchase and load cards anywhere and on the mobile app with no 24-hour delay, and the ability to pre-load monthly passes; and
- Integrate transit fares across the system. The panel endorsed a fare-by-distance structure with four conditions:
  - A low-cost flat fare within a “virtual zone” within a certain radius from the start of every trip;
  - Discounts for trips made during off-peak hours; and
  - Maintaining existing discounts for students, seniors, and families travelling together, and
  - Applying monthly passes or fare caps through the PRESTO card.

In the long term, Metrolinx and its partners should:
- Pursue amendments to legislation such as the City of Toronto Act in order to remove barriers to service integration; and
- Create direct connections between regional hubs so that passengers do not always have to connect at Union Station.

2) Equity and Accessibility

Today, consistency of accessible infrastructure across the transportation system is lacking, and the system faces increasing pressure with changing demographics, including an aging population and non-English-speaking newcomers.

In the next five years, Metrolinx and its partners should:
- Improve all facets of the transportation journey to ensure barrier-free access for all populations. This includes support for active transportation users, families with children, non-English speakers, and differently-abled individuals.

In the long term, Metrolinx and its partners should:
- Implement new discounts or subsidies for low-income residents in a simple yet discreet manner through the universal PRESTO fare card.

3) Health, Comfort and Safety

Today, transportation options in the GTHA are not as comfortable or as safe as they could be for all users.
In the next five years, Metrolinx and its partners should:
• Improve infrastructure for active transportation, including an expanded network of protected bike lanes, particularly to key transit hubs;
• Improve lighting in parking lots and at crosswalks; and
• Increase the availability of washrooms and potable water at transit stations.

In the long term, Metrolinx and its partners should:
• Install emergency buttons and/or bus shelters at bus stops where safety is of particular concern; and
• Anticipate the possible need to increase the visibility of security at subway entry points.

4) A Well-Planned Region

Today, our regionally fragmented transportation-planning structure appears to delay decision-making and cause bottlenecks that impede implementation. This frustrates residents who want to see quicker, evidence-based decision-making and action.

In the next five years, Metrolinx and its partners should:
• Strengthen the regional transportation governance model in order to promote greater alignment between municipal, regional, and provincial priorities, reinforce the need for greater cooperation and coordination between operators, and expedite the delivery of major transportation projects.

In the long term, Metrolinx and its partners should:
• Prioritize transit expansion in areas of high employment and residential density, keeping economic viability in mind.

5) Exemplary Environmental Footprint

Today, it is important for everyone to help meet and exceed emissions reduction targets in accordance with our national goals, in a manner that enhances current and future residents’ quality of life without negatively impacting the environment or deterring investment.

In the next five years, Metrolinx and its partners should:
• Encourage the use of public transit and active transportation by whatever means are found to be the most effective, including rewards programs, monthly fare caps, and subsidized discounts; and
• Improve air quality inside and around stations and corridors through the increased use of greener, enhanced ventilation and filtration, and better maintenance of vehicles and stations.

In the long term, Metrolinx and its partners should:
• Increase procurement from suppliers with environmental certifications.
6) Prosperity and Competitiveness

Today, congestion is a barrier to prosperity and growth. Transportation plans are not fully aligned with economic development outside downtown Toronto. As a result, they fail to leverage the economic activity in these areas.

In the next five years, Metrolinx and its partners should:
- Identify regional nodes where expanded transit services and a mix of other land uses can be developed, considering partnerships with existing businesses and leasing space to retailers.

In the long term, Metrolinx and its partners should:
- Utilize emerging technologies (such as autonomous vehicles) to make the system more efficient where possible; and
- Facilitate the efficient movement of goods and people by better utilizing existing road infrastructure (such as dedicated transit lanes).

7) Public Awareness and Communication

Today, most residents do not understand why they should get out of their cars to use public transit, walk or cycle. Residents are insufficiently informed about ongoing or future projects and strategies as well as associated benefits. As a result, those critical of transit have disproportionately shaped public opinion.

In the next five years, Metrolinx and its partners should:
- Enhance the profile of regional transportation planning by promoting user benefits associated with ongoing projects, new investments, and behaviour change;
- “Own its space” and use existing transit and real estate assets to communicate to current users; and
- Launch an annual or biannual update about transit expansion that can be distributed to all GTHA residents.

In the long term, Metrolinx and its partners should:
- Create specialized campaigns to promote any new services or plans, including fare integration;
- Raise the profile of transit options outside of Toronto; and
- Elevate the status of transportation policy to that of health and education, making it the third pillar in a successful, healthy, and prosperous society.
Appendix 2C: Regional Personas: Profiles

To better understand travel behaviours and attitudes toward transportation in the GTHA, Metrolinx worked with Northstar Research Partners to conduct a survey of over 8,500 people and hold numerous focus groups across the region. Feedback was used to develop six regional traveller personas - a typology that can provide insight into the travel behaviour and preferences of GTHA residents, and a lens through which the strategies of the Draft 2041 Plan could be viewed.

Summary Profiles of the Six Regional Personas

Generally, across the region, residents’ perceptions of safety, convenience, comfort, predictability, cost and speed of travel determine the mode they choose – whether to drive, walk, cycle or take transit. While most travellers are generally satisfied with travel in the region, they often find it to be slow, stressful and not well-integrated. Transit is often viewed negatively compared to driving, and not viewed as a first choice for getting around. More detailed descriptions of the behaviour and preferences of the six personas are found in Figure 2C-1.

1. Time and Balance Seekers

Time and Balance Seekers (TBSs) are hard-working and family-oriented, and rely primarily on the car. They are open to non-auto options, but have concerns about the safety and cleanliness of public transit, and want to enjoy the trip and arrive quickly at their destination in order to have more time for themselves and their family. TBSs are receptive to GO rail transit, particularly for commuting and going into Toronto for fun. TBSs want travel in the GTHA to be quick, safe, convenient, and enjoyable. Ultimately, it should give them freedom, time for themselves, and more time for friends and family.

2. Traditional Suburban Travellers

Suburban and car-dedicated, Traditional Suburban Travellers (TSTs) are the least likely to consider other modes. The car is convenient and comfortable, and provides freedom and control. Their interest is in car-friendly approaches that reduce the stress and frustrations they experience while driving for most of their activities. TSTs are the most challenging to motivate to change their current travel behaviour, given their dependence on, and loyalty to, their cars.
3. Frustrated Solution Seekers

Frustrated Solution Seekers (FSSs) are educated, affluent suburban drivers who would like to use other modes, but prefer the convenience and reliability of a car. FSSs are typically female, and travel into Toronto for work. When it comes to getting around, FSSs mostly drive, as it is seen as quick, door-to-door, and gives them their own space, but is often stressful. They are looking for a “first and last mile” solution that fits their needs and schedules. They are open to the GO train, but do not find the current transit system to be seamless or integrated. FSSs want to take public transit and walk, but right now see driving as the only option for getting where they need to be, when they need to be there.

4. Connected Optimizing Urbanites

Connected Optimizing Urbanites (COUs) are young, active, city-dwelling professionals who frequently travel around the region. They take a variety of modes but are looking for quick, convenient and direct connections. They are seeking an integrated transportation system that uses technology. Most often male, COUs take transit but do not really enjoy it, and seek alternatives like ride-sourcing, which provides the 24/7 door-to-door service and connectivity they seek. These are mostly likely to be the early adopters of new transportation technologies, including autonomous vehicles.

5. Satisfied Mature Urbanite

Satisfied Mature Urbanites (SMUs) are older, Toronto-dwelling residents who do not travel very far outside their community. They feel that they have many transportation options and are largely satisfied. They are often female and most likely retired, although many still work in the city. SMUs have a relatively small transportation footprint. They are environmentalists and prefer walking or taking public transit. For the most part, they are very satisfied with transportation in the region, feeling that they are well-served by the wide array of options. They are less interested in new technological innovations (although they do anticipate that technology will help improve travel) and are reticent about the introduction of autonomous vehicles for themselves. They want travel in the GTHA to always be getting better, easier, and more reliable.

6. Aspiring Young Traveller

Aspiring Young Travellers (AYTs) are young, active, and loving life in the city. While they have many positive associations with car travel, they look to public transit, rides with others, and active transportation to get where they need to go. AYT’s are likely to continue using these modes. While price may be a barrier to taking transit for all travel, AYTs are looking for better system integration and technologies that make travel more predictable, easier, and faster.
Figure 2C-1 Regional Personas

**TIME & BALANCE SEEKERS**
Established, busy, & looking for balance
19% of population
- Equal split [47% male]
- Middle-aged [avg. 42.9 yrs old]

- More likely to identify as Asian [15%]
- More likely to be interested in technology
- Homebody, ambitious, techie
  Concerned about the environment, crime, & cleanliness
  Busy and like trying new things
  More likely to be on Facebook and stream radio

- More likely to:
  - Drive most of the time [67% share of trips]
  - Use Zipcar [12%]

- Take more trips...
  - In a week than others [26.8 trips]
  - To commute to work than others [5.4 trips]

**TRAVEL ATTITUDES**
- Enjoy travelling in the region
- Like driving because it gives me more time to spend with friends/family
- Top pain point for driving is that it’s expensive
- Think travel should be fun
  - Think subway and bus are crowded and dirty
  - More positive about GO Train, like that they can avoid traffic and be productive on the train

**FOR ME, TRAVEL IN THE GTHA SHOULD BE...**
Quick, safe, convenient, and enjoyable. Ultimately, it should give me freedom, time for myself, and more time for friends and family.

**TRADITIONAL SUBURBAN TRAVELLERS**
Older, content, & set in their ways
15% of population
- Equal split [47% male]
- Older [avg. 52.5 yrs old]

- Married [68%] with no kids in household
- More likely to have kids [38%]
- More likely to have one car [44%]

- Higher HH income [avg. $100.6k]
- More likely to be retired [28%]

- Most likely to live & work outside Toronto [68%] in suburban areas [57%]

- Homebody, sports fan, animal lover
  Risk averse, value punctuality, cleanliness, & having personal space
  Least interested in technology & least active online

- More likely to:
  - Own 2 cars [44% have 2]
  - Drive [89% share of trips]
  - Travel far distances for work

- Least likely to:
  - Travel in the City of Toronto
  - Take and consider modes other than car
  - Higher number of trips to:
  - Run errands [6.7 trips]

**TRAVEL BEHAVIOUR**
- Most likely to:
  - Occasionally walk or take local bus
  - Use rental car [8%]

- To commute to work than others [5.4 trips]
- In a week than others [26.8 trips]

**FOR ME, TRAVEL IN THE GTHA SHOULD BE...**
More car friendly! I’d like to see policies put in place to reduce my stress and frustration when driving through the region and find ways to make it faster.
FOR ME, TRAVEL IN THE GTHA SHOULD BE...
Seamless, integrated, and work on my schedule – I want to take public transit and walk, but right now, I see driving as my only option for getting me where I need to be, when I need to be there.

FOR ME, TRAVEL IN THE GTHA SHOULD BE...
Completely integrated, running 24/7, and should incorporate new technologies that optimize how people use transportation.

Figure 2C-1 Regional Personas

<table>
<thead>
<tr>
<th>FRUSTRATED SOLUTION SEEKERS</th>
<th>CONNECTED OPTIMIZING URBANITES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELL-EDUCATED, HOMEBOIES, &amp; LOOKING FOR LESS STRESS</td>
<td>YOUNG, AMBITIOUS, &amp; TECHNOLOGY-FOCUSED</td>
</tr>
<tr>
<td>15% of population</td>
<td>22% of population</td>
</tr>
<tr>
<td>Skew female (59%)</td>
<td>Younger (avg. 33.3 yrs old)</td>
</tr>
<tr>
<td>Married (71%) with kids in household (27%)</td>
<td>More likely to work in Toronto &amp; live elsewhere (15%)</td>
</tr>
<tr>
<td>Highest HH income (avg. $108.9K)</td>
<td>Most likely to have a university or post grad degree (60%)</td>
</tr>
<tr>
<td>More likely to live in suburban areas (57%)</td>
<td>More likely to work from home (45%)</td>
</tr>
<tr>
<td>Homebody, intellectual, animal lover</td>
<td>Value punctuality, risk averse, &amp; like having personal space</td>
</tr>
</tbody>
</table>

TRAVEL BEHAVIOUR

- More likely to:
  - Own 2 cars (42% have 2)
  - Drive (76% share of trips)
- Less likely to:
  - Own a TTC Metropass (5%)
  - Entertainment (2.7 trips)

TRAVEL ATTITUDES

- Think travel in the GTHA is stressful & slow
- Looking for a solution that fits my needs and schedule
- Feel that the TTC is crowded

- Care about being on time
- Like the GO Train, and that I can choose how to spend my time and be productive

Techie, athlete, fashionista
Spontaneous, knowledgeable about technology, & concerned about safety

TRAVEL BEHAVIOUR

- More likely to:
  - Have a TTC Metropass (27%) or other monthly transit pass (5%)
  - Consider travelling by car sharing/sourcing (52%) & by bicycle (38%)
- Less likely to:
  - Consider travelling by car (65%)

TRAVEL ATTITUDES

- Think travel in the GTHA is safe and pleasant
- Care most about getting good value and comfort

Like the convenience of cars (taxis & ride-sharing) but don’t enjoy driving myself
Find the GO Train expensive & inconvenient

Appendix
Draft 2041 RTP for Consultation
### Figure 2C-1 Regional Personas

**SATISFIED MATURE URBANITES**  
MATURE, MULTI-MODAL, & MONEY-CONSCIOUS  
11% of population

- Skew female (57%)
- Oldest Persona (avg. 56.7 yrs old)
- No kids in the household (16%)
- More likely to live and work in Toronto (44%)

**As Homebody, animal lover, environmentalist**  
**Value punctuality, concerned about the environment, & careful with money**

**TRAVEL BEHAVIOUR**

- Likely to take many modes:
  - Most likely to walk (15% share of trips)
  - Take the subway (11%)
  - Take local bus (9%)

- Less likely to:
  - Drive (50% share of trips)

**TRAVEL ATTITUDES**

- Enjoy travelling in the region and say it is safe
- Safety is most important
- Feel positively about the GO Train, find it relaxing

**ASPIRING YOUNG TRAVELLERS**  
YOUNG, ACTIVE, & LOVING LIFE IN THE CITY  
18% of population

- Skew female (57%)
- Youngest Persona (avg. 25.8 yrs old)
- More likely to be on Facebook and stream radio
- Busy and like trying new things

**More likely to identify as...**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Asian</th>
<th>Black/African Canadian</th>
<th>South East Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>17%</td>
<td>8%</td>
<td>6%</td>
</tr>
</tbody>
</table>

**TRAVEL BEHAVIOUR**

- More likely to:
  - Consider taking public transit and active modes
  - Run errands (6.9 trips)

- Less likely to:
  - Drive (43% share of trips)
  - Own a car (22% don’t have one)

**TRAVEL ATTITUDES**

- Price sensitive
- Value punctuality & reliability
- Appreciate the social aspect of TTC travel

**FOR ME, TRAVEL IN THE GTHA SHOULD BE...**

Always getting better, easier, more reliable, and have more options that get me where I want to go. It should also be as environmentally friendly as possible.

**FOR ME, TRAVEL IN THE GTHA SHOULD BE...**

Less expensive, better integrated, fast, reliable, predictable, and aligned with my schedule. The systems need to be more modern and should leverage technology to make trip planning easier.
Appendix 2D: Draft 2041 Plan Evaluation Process

This appendix provides an overview of the process followed to evaluate initiatives - projects, programs and policies - for the Draft 2041 Plan. Figure 2D-1 provides a schematic overview. Municipal input was incorporated throughout the process at key points, including:

- a review of the “long list” (Step 1);
- feedback toward developing and refining the Portfolios (Step 4), the Priority Actions (Step 6) and the Draft Transit Networks (Steps 8 and 10); and
- feedback on technical background papers

As shown in Figure 2D-1, steps 1 through 4 present the development of preliminary portfolios, starting with the generation of the long list. The long list is an inventory of potential projects, programs and policies generated to develop the Draft 2041 Portfolios, and more broadly, to support the development of Strategies and Priority Actions for the Draft 2041 Plan and subsequent implementation planning. The long list includes projects from The Big Move (2008), technical reports, academic research, Metrolinx studies and best practice reviews undertaken to support the legislated review of the RTP, as well as from municipal transportation master plans, official plans, transit plans, and local studies.

The first stage of screening (step 2) required initiatives to meet all of the eligibility criteria, to ensure it was regionally significant and supportive of the early draft RTP vision, goals and objectives. The initiatives were then put through a qualitative assessment (step 3) where the initiatives were scored against 20 criteria that aligned with the early draft vision, goals and objectives assigned (either individually or as part of a bundle) and were assigned to a preliminary portfolio.

The portfolios represent 5 key strategic areas of emphasis:

- A. Infrastructure
- B. Operations/optimization
- C. Active transportation
- D. Pricing and demand management
- E. Transit-oriented land use

Universal Actions - low-cost, high-impact initiatives that provide region-wide benefits and would be supportive of all portfolios were included in each portfolio. Universal Actions were drawn from the long list.

The results of the portfolio analysis (Step 5) shaped the initial strategic approach for the Draft 2041 Plan: a combination of operations/optimization, pricing and demand management, and transit-oriented land use.

The outcome of the portfolio analysis was the Preliminary Transit Network (Step 6A) and a set of Priority Actions (Step 6B). The performance of the Preliminary Transit Network was assessed using demand modelling and a resiliency assessment (Step 7), resulting in the Draft Transit Network (Step 8), which was further reviewed with additional demand modelling and scenario testing (Step 12). Appendix 2A contains more detailed discussion of the scenarios and their role in sensitivity testing and resiliency testing of the Draft 2041 Plan, and for further detail see Navigating Uncertainty: Exploration of Alternative Futures for the GTHA.

The portfolio analysis work was complemented by a systematic analysis of area- and corridor-level regional transit needs. This exercise which built upon the Transit Needs and Opportunities Background Paper, ran in parallel and is represented as Steps 2 and 9 through 11. Transit projects from the long list and municipal feedback were evaluated against a set of criteria, including existing and future land uses, areas of social needs, flows, existing demand and transit competitiveness with auto. For further detail see the Regional Transit Network Planning Study.

Projects that best fulfilled the area and corridor needs, and worked best together as part of a comprehensive regional frequent rapid transit network, were combined into a proposed network (Step 11).

The transit networks that emerged from the two processes were reviewed and synthesized into the Draft 2041 Frequent Rapid Transit Network (Step 13) in the Draft 2041 Plan.

For the modelling results, please refer to Table 2A-1 in Appendix 2A.
Long List

Projects, programs and policies from The Big Move, municipal plans and submissions and background analysis

1 Demand modelling was undertaken using the Greater Golden Horseshoe model (version 4), a model that Metrolinx and the Province use to guide planning and investment decisions.

2 See Regional Transit Network Planning Study
# APPENDIX 3:
List of Transit Projects

## Appendix 3A: Projects Completed 2008-2017 (Map 3)

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kitchener GO Extension (Georgetown GO - Kitchener GO)</td>
</tr>
<tr>
<td>2</td>
<td>Barrie GO Extension (Barrie South GO - Allandale GO)</td>
</tr>
<tr>
<td>3</td>
<td>West Harbour GO Extension (Aldershot GO - West Harbour GO)</td>
</tr>
<tr>
<td>4</td>
<td>Mississauga Transitway (Winston Churchill Blvd. - Orbitor Dr.)</td>
</tr>
<tr>
<td>5</td>
<td>Highway 7 East BRT (Yonge St.- Unionville GO)</td>
</tr>
<tr>
<td>6</td>
<td>Davis Drive BRT (Yonge St. - Newmarket GO)</td>
</tr>
<tr>
<td>7</td>
<td>UP Express (Union Station - Toronto Pearson International Airport)</td>
</tr>
<tr>
<td>8</td>
<td>Gormley GO Extension (Richmond Hill GO - Gormley GO)</td>
</tr>
</tbody>
</table>
## Appendix 3B: Projects In Delivery (Map 3)

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Toronto-York Spadina Subway Extension (Sheppard Ave. – Highway 7)</td>
</tr>
<tr>
<td>10</td>
<td>Mississauga Transitway (Orbitor Dr. – Renforth Dr.)</td>
</tr>
<tr>
<td>11</td>
<td>Eglinton Crosstown LRT (Weston Rd. – Kennedy Station)</td>
</tr>
<tr>
<td>12</td>
<td>Sheppard East LRT (Don Mills Station – Morningside Ave.)</td>
</tr>
<tr>
<td>13</td>
<td>Finch West LRT (Finch West Station – Humber College)</td>
</tr>
<tr>
<td>14</td>
<td>Scarborough Subway (Kennedy Station – Scarborough Town Centre)</td>
</tr>
<tr>
<td>15</td>
<td>Hamilton B-Line LRT (McMaster University – Eastgate Mall)</td>
</tr>
<tr>
<td>16</td>
<td>Highway 7 West BRT (Helen St. – Yonge St.)</td>
</tr>
<tr>
<td>17</td>
<td>Hurontario LRT (Port Credit GO – Steeles Ave.)</td>
</tr>
<tr>
<td>18</td>
<td>Yonge BRT (North) (Mulock Dr. – Davis Dr.)</td>
</tr>
<tr>
<td>19</td>
<td>Yonge BRT (South) (Highway 7 – 19th Ave.)</td>
</tr>
<tr>
<td>20</td>
<td>Bloomington GO Extension (Gormley GO – Bloomington GO)</td>
</tr>
<tr>
<td>21</td>
<td>Bowmanville GO Extension (West of Oshawa GO – Martin Rd.)</td>
</tr>
<tr>
<td>22</td>
<td>Confederation GO Extension (West Harbour GO – Confederation GO)</td>
</tr>
<tr>
<td>23</td>
<td>Niagara GO Service (Confederation GO – Niagara Falls GO)</td>
</tr>
<tr>
<td>24</td>
<td>Lakeshore West All-Day GO Service (Aldershot GO – Hamilton GO)</td>
</tr>
<tr>
<td>25</td>
<td>Barrie All-Day GO Service (Aurora GO – Allandale Waterfront GO)</td>
</tr>
<tr>
<td>26</td>
<td>Kitchener All-Day GO Service (Mount Pleasant GO – Kitchener GO)</td>
</tr>
<tr>
<td>27</td>
<td>Stouffville All-Day GO Service (Unionville GO – Mt. Joy GO)</td>
</tr>
<tr>
<td>28</td>
<td>Kitchener 15-min GO Service (Union Station – Mount Pleasant GO)</td>
</tr>
<tr>
<td>29</td>
<td>Barrie 15-min GO Service (Union Station – Aurora GO)</td>
</tr>
<tr>
<td>30</td>
<td>Stouffville 15-min GO Service (Union Station – Unionville GO)</td>
</tr>
<tr>
<td>31</td>
<td>Lakeshore West 15-min GO Service (Union Station – Aldershot GO)</td>
</tr>
<tr>
<td>32</td>
<td>Lakeshore East 15-min GO Service (Union Station – Oshawa GO)</td>
</tr>
</tbody>
</table>
Appendix 3C: Projects In Development (Map 4)

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Dundas West Priority Bus (Bronte Rd. - Brant St.)</td>
</tr>
<tr>
<td>34</td>
<td>Dundas BRT (Kipling Station - Bronte Rd.)</td>
</tr>
<tr>
<td>35</td>
<td>Brampton Queen St. BRT (Main St. - Highway 50)</td>
</tr>
<tr>
<td>36</td>
<td>Eglinton West LRT (Weston Rd. - Toronto Pearson International Airport)</td>
</tr>
<tr>
<td>37</td>
<td>Highway 7 West BRT Extension (Highway 50 - Helen St.)</td>
</tr>
<tr>
<td>38</td>
<td>Waterfront West LRT (Union Station - Port Credit GO)</td>
</tr>
<tr>
<td>39</td>
<td>Waterfront East LRT (Union Station - Coxwell Ave.)</td>
</tr>
<tr>
<td>40</td>
<td>Relief Line Subway (Sheppard Ave. - Osgoode Station)</td>
</tr>
<tr>
<td>41</td>
<td>Yonge North Subway Extension (Finch Station - Highway 7)</td>
</tr>
<tr>
<td>42</td>
<td>Yonge BRT (Richmond Hill, Aurora, Newmarket) (19th Ave. - Mulock Dr.)</td>
</tr>
<tr>
<td>43</td>
<td>Eglinton East LRT (Kennedy Station - Sheppard Ave.)</td>
</tr>
<tr>
<td>44</td>
<td>Highway 7 East BRT Extension (Unionville GO - Donald Cousens Pkwy.)</td>
</tr>
<tr>
<td>45</td>
<td>Durham-Scarborough BRT (Scarborough Centre - Simcoe St.)</td>
</tr>
</tbody>
</table>

Appendix 3D: Other Projects Proposed in the Draft 2041 Plan (Map 6)

GO Rail

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>Lakeshore West 15-min GO Service Extension (Aldershot GO - Hamilton GO)</td>
</tr>
<tr>
<td>53</td>
<td>Milton 15-min GO Service (Union Station - Milton GO)</td>
</tr>
<tr>
<td>88</td>
<td>Barrie 15-min GO Service Extension (Aurora GO - East Gwillimbury GO)</td>
</tr>
<tr>
<td>89</td>
<td>Stouffville 15-min GO Service Extension (Unionville GO - Mt. Joy GO)</td>
</tr>
<tr>
<td>90</td>
<td>Richmond Hill All-Day GO Service (Union Station - Richmond Hill GO)</td>
</tr>
<tr>
<td>97</td>
<td>Lakeshore East 15-min GO Service Extension (to Downtown Oshawa GO)</td>
</tr>
<tr>
<td>100</td>
<td>Lakeshore East All-Day GO Service (Downtown Oshawa GO - Martin Rd.)</td>
</tr>
</tbody>
</table>
### Subway

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>Line 2 Subway and Bloor-Yonge Station Capacity Enhancements</td>
</tr>
<tr>
<td>74</td>
<td>Sheppard Subway West Extension (Sheppard Station - Sheppard West Station)</td>
</tr>
</tbody>
</table>

### BRT / LRT

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
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</thead>
<tbody>
<tr>
<td>47</td>
<td>Hamilton A-Line BRT (West Harbour GO - Rymal Rd.)</td>
</tr>
<tr>
<td>54</td>
<td>Trafalgar BRT/LRT (Oakville GO - Highway 407)</td>
</tr>
<tr>
<td>61</td>
<td>Downtown Mississauga Transitway &amp; Terminal (Mavis Rd. - Hurontario St.)</td>
</tr>
<tr>
<td>62</td>
<td>Brampton Main BRT/LRT (Steeles Ave. - Brampton GO)</td>
</tr>
<tr>
<td>70</td>
<td>Finch West LRT West Extension (Humber College - Toronto Pearson International Airport)</td>
</tr>
<tr>
<td>71</td>
<td>Jane North BRT/LRT (Highway 7 - Major MacKenzie Dr.)</td>
</tr>
<tr>
<td>72</td>
<td>Jane South BRT/LRT (Bloor St. - Steeles Ave.)</td>
</tr>
<tr>
<td>75</td>
<td>Steeles BRT/LRT (Pioneer Village Station - Milliken GO)</td>
</tr>
<tr>
<td>76</td>
<td>Finch West LRT East Extension (Finch West Station - Finch Station)</td>
</tr>
<tr>
<td>77</td>
<td>Leslie North BRT/LRT (Highway 7 - Major MacKenzie Dr.)</td>
</tr>
<tr>
<td>78</td>
<td>Don Mills/Leslie BRT/LRT (Sheppard Ave. - Highway 7)</td>
</tr>
<tr>
<td>79</td>
<td>McCowan South BRT/LRT (Ellesmere Rd. - Steeles Ave.)</td>
</tr>
<tr>
<td>81</td>
<td>Sheppard East LRT Extension (Morningside Ave. - Meadowvale Rd.)</td>
</tr>
<tr>
<td>83</td>
<td>Malvern Connection (Sheppard Ave. &amp; Morningside Ave. - Markham Rd. via McLevin Ave.) Note this is a continuation of the Eglinton East LRT service</td>
</tr>
<tr>
<td>85</td>
<td>Major MacKenzie BRT/LRT (Jane St. - Leslie St.)</td>
</tr>
<tr>
<td>98</td>
<td>Simcoe BRT/LRT (Downtown Oshawa GO - Highway 407)</td>
</tr>
</tbody>
</table>
## Priority Bus

<table>
<thead>
<tr>
<th>Map #</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Hamilton A-Line South Priority Bus (Rymal Rd. – Hamilton Munro International Airport)</td>
</tr>
<tr>
<td>49</td>
<td>Dundas Connector Priority Bus (McMaster University – Downtown Dundas)</td>
</tr>
<tr>
<td>50</td>
<td>Hamilton L-Line Priority Bus (Downtown Hamilton – Waterdown)</td>
</tr>
<tr>
<td>51</td>
<td>Hamilton S-Line Priority Bus (Ancaster Business Park – Confederation GO)</td>
</tr>
<tr>
<td>52</td>
<td>Hamilton Mohawk T-Line Priority Bus (Centre Mall – Meadowlands Terminal)</td>
</tr>
<tr>
<td>55</td>
<td>Brant Priority Bus (Lakeshore Rd. – Dundas St.)</td>
</tr>
<tr>
<td>56</td>
<td>Bronte/Regional Road #25 Priority Bus (Bronte GO – Steeles Ave.)</td>
</tr>
<tr>
<td>57</td>
<td>Derry Priority Bus (Airport Rd. – Highway 407)</td>
</tr>
<tr>
<td>58</td>
<td>Harvester/Speers/Cornwall Priority Bus (Waterdown Rd. – Port Credit GO)</td>
</tr>
<tr>
<td>59</td>
<td>Milton Main Priority Bus (Ontario St. – Steeles Ave.)</td>
</tr>
<tr>
<td>60</td>
<td>Trafalgar North Priority Bus (Highway 407 – Milton GO)</td>
</tr>
<tr>
<td>63</td>
<td>Britannia-Matheson Priority Bus (Highway 407 – Renforth Dr.)</td>
</tr>
<tr>
<td>64</td>
<td>Hurontario North/Mayfield Priority Bus (Brampton GO – Dixie Rd.)</td>
</tr>
<tr>
<td>65</td>
<td>Dixie Priority Bus (Lakeshore Rd. – Steeles Ave.)</td>
</tr>
<tr>
<td>66</td>
<td>Airport Road Priority Bus (Castlemore Ave. – Toronto Pearson International Airport)</td>
</tr>
<tr>
<td>67</td>
<td>Erin Mills Priority Bus (Clarkson GO – Steeles Ave.)</td>
</tr>
<tr>
<td>68</td>
<td>Bovaird/Castlemore Priority Bus (Mount Pleasant GO – Highway 427)</td>
</tr>
<tr>
<td>69</td>
<td>Steeles West Priority Bus (Mississauga Rd. – Humber College)</td>
</tr>
<tr>
<td>80</td>
<td>McCowan North Priority Bus (Steeles Ave. – Highway 7)</td>
</tr>
<tr>
<td>82</td>
<td>Kingston Priority Bus (Victoria Park Station – Eglinton Ave.)</td>
</tr>
<tr>
<td>84</td>
<td>Major MacKenzie West Priority Bus (Leslie St. – Donald Cousens Pkwy.)</td>
</tr>
<tr>
<td>86</td>
<td>Major MacKenzie East Priority Bus (Highway 427 – Jane St.)</td>
</tr>
<tr>
<td>87</td>
<td>Green Lane Priority Bus (Davis Dr. – East Gwillimbury GO)</td>
</tr>
<tr>
<td>91</td>
<td>Steeles/Taunton Priority Bus (Milliken GO – Townline Rd.)</td>
</tr>
<tr>
<td>92</td>
<td>Whites Priority Bus (Highway 407 – Pickering GO)</td>
</tr>
<tr>
<td>93</td>
<td>Brock Rd. Priority Bus (Bayly St. – Highway 7)</td>
</tr>
<tr>
<td>94</td>
<td>Westney Priority Bus (Bayly St. – Highway 2)</td>
</tr>
<tr>
<td>95</td>
<td>Bayly Priority Bus (Pickering GO – Whitby GO)</td>
</tr>
<tr>
<td>96</td>
<td>Brock St./Baldwin Priority Bus (Whitby GO – Brawley Rd.)</td>
</tr>
<tr>
<td>99</td>
<td>Highway 2 Priority Bus (Simcoe St. – Martin Rd.)</td>
</tr>
</tbody>
</table>
Appendix 3E: Projects beyond 2041 (Not mapped)

<table>
<thead>
<tr>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolton GO Rail Service (Union Station - Bolton)</td>
</tr>
<tr>
<td>Crosstown GO Rail Service (Dundas St. - Summerhill)</td>
</tr>
<tr>
<td>Havelock GO Rail Service (Union Station/Summerhill - Locust Hill)</td>
</tr>
<tr>
<td>Seaton GO Rail service (Union Station/Summerhill - Seaton)</td>
</tr>
<tr>
<td>Richmond Hill 15-minute GO Service (Union Station - Richmond Hill GO)</td>
</tr>
<tr>
<td>Highway 407 Transitway (Hurontario Rd. - Brock Rd.)</td>
</tr>
<tr>
<td>Relief Line Subway West Extension (Osgoode Station - Bloor West)</td>
</tr>
</tbody>
</table>

All project definitions are subject to change based on negotiations and agreements with railways, environmental assessments, business case analysis and further planning.
APPENDIX 4: 
Transportation Funding and Governance

Appendix 4A: 
Reports on Funding and Governance in the GTHA

Funding Principles:

Investment Strategy (Metrolinx, 2013)

The 2013 Metrolinx Investment Strategy identified the following principles for new revenue:

- **Dedication of revenues to specific outcomes:** At all times the public should be able to see exactly what they are paying for and have an assurance that funds are not diverted to other priorities.

- **Equity across the region:** All parts of the region should benefit from the investment in transit and transportation infrastructure. No community should be left behind.

- **Accountability and transparency:** When implementing the Investment Strategy, tools and project delivery progress should be visible and the results publicly reported on a regular basis, including how funds are being collected, managed and spent.

- **Fairness:** The costs and benefits of the Investment Strategy should be distributed fairly across all population groups in all parts of the GTHA. Tools should be selected so that no one group pays too much or benefits too little.
Making the Move (The GTHA Transit Investment Strategy Advisory Panel, 2013)

The Advisory Panel report that followed the Metrolinx Investment Strategy proposed the following criteria:

- **Sufficient and sustainable revenue:** Building more than $50 billion in new transit investment and keeping those projects operational once complete is expensive. New revenue tools must be introduced to generate sufficient funds to support transit projects over the entire usable life of an asset, typically ranging from 25 to 50 years.

- **Fairness across regions and among income groups and sectors:** No region should be unfairly impacted by the choice of new revenue tools, nor should any one sector or income group. Options should aim to strike a fair balance where all sectors that benefit from transit contribute. The Province has already committed to ensuring that parts of the province outside of the GTHA will not have to pay for transit expansion within the GTHA.

- **Easy to implement and administer:** The Panel recognizes that the government has a responsibility to collect funds in the most cost-effective manner and to keep the costs of compliance as low as possible. Selection of a new revenue source with high administration and implementation costs would be counter-productive.

- **Provides choice and encourages less reliance on the automobile:** The Panel favoured revenue sources that contribute to reduced congestion and greater choice and encourage alternatives to the car. Some revenue tools have the ability to affect travel behaviour and, by extension, the performance of the GTHA’s transportation network. Selected revenue tools should send price signals that encourage efficient travel choices.

- **Minimizes economic impacts and distortions:** The tools must not act as significant disincentives to business investment or reduce the region’s ability to attract human capital in today’s global economy. Any significant change in revenue tools should be phased-in to allow time for the economy to adjust.

- **Ensures accountability and transparency:** All of the research, stakeholder submissions, and public consultations demonstrate that new revenue raised for transit and transportation-related activities must be dedicated in a transparent manner. The ability to monitor spending and track the progress of individual projects against plan is essential.
Governance Models:

Build Regional Transportation Now - Discussion Paper on Governance (Toronto Board of Trade, 2014)

- **Improved Status Quo Model**: An enhanced status quo scenario would maintain existing transit authorities, but would seek to enhance regional integration and planning along with improved transit decision-making through a number of changes and reforms to existing system.

- **Provincial Agency Model**: Upload all policy and planning, infrastructure expansion and project management, and transit operations and maintenance responsibilities now undertaken by multiple bodies to a single agency. Potentially this could mean amalgamation of GO Transit, TTC and other local transit authorities under an expanded Metrolinx or other provincial ministry, department or agency. The agency would be politically accountable to a minister (e.g. Minister of Transportation).

- **Municipal Special Purpose Body Models**: Consolidation of all policy and planning, infrastructure expansion and project management and transit operations and maintenance to a single agency. Potentially this could mean amalgamation of Metrolinx, GO Transit, TTC and all local transit authorities under one municipally appointed special purpose body. Such a body could be accountable to a board of directors comprised of the regional chairs (Durham, Halton, Peel, and York) and the mayors of Hamilton and Toronto, which would have responsibility for approving all major policy decisions such as overall strategy, finance, etc.
Appendix 4B:
Jurisdictional Scan - Governance Models

Canada and the United States:

Vancouver - TransLink
TransLink is Metro Vancouver’s regional transportation authority, and the first North American transportation authority responsible for planning, financing and managing all public transit, major regional roads, and bridges. Together with partners, stakeholders and its operating companies, TransLink plans and manages the region’s transportation system as a whole. It is governed by the Mayors’ Council on Regional Transportation and its own board of directors, which includes the provincial minister responsible for TransLink, representatives of the Mayors’ Council, the Vancouver Board of Trade, and others appointed by the Mayors’ Council.

Metro Vancouver is a political body and corporate entity operating under provincial legislation as a regional district with four “greater boards” that deliver regional services, policy and political leadership on behalf of 23 members. The federation of 21 municipalities, one electoral area and one Treaty First Nation collaboratively plans for and delivers regional-scale services, including public transit and planning for urban growth. The regional district is itself governed by a Board of Directors of elected officials from each local authority.

Created in 1999, Translink shares responsibility for major roads, bridges and regional cycling with municipalities in Metro Vancouver, and also provides services through agreements with other municipalities.

TransLink’s services are funded by taxation revenue (property, fuel and parking taxes), a hydro levy, and user fees (transit fares and bridge tolls).

Montreal - Autorité Régionale de Transport Métropolitain

The Autorité Régionale de Transport Métropolitain (ARTM) or Metropolitan Regional Transportation Authority, is an umbrella organization that manages and integrates roads and public transportation in Greater Montreal. The organization was created by the Government of Quebec on June 1, 2017, along with the Réseau de Transport Métropolitain (RMT), its operating branch, which replaced the Agence Métropolitaine de Transport (AMT). The two new organizations represent a regional transit authority responsible of administering service contracts for the entire region, and an entity in charge of operating the metropolitan transit network.
Under the new governance structure, the number of parties responsible for planning and providing fixed-route and paratransit services has been reduced to four operators to support coherent service planning across the region, and to provide accessible, reliable and efficient services. The region now has an authority that can act on multiple transport modes and propose integrated mobility solutions.

The new model clarifies the role of each level of governance. At the political level, the Communauté Métropolitaine de Montréal (CMM) approves capital programs, strategic plans and policies on transit funding. The ARTM plans, finances and organizes the transit services that will be delivered by the operators under contract. The ARTM will also develop carpooling and active transportation, and propose standards regarding the management of the metropolitan arterial network. Its Board of Directors will consist primarily of independent transit experts.

Funding for public transit in the Montreal region primarily comes from the provincial Land Transportation Network Fund, which mainly includes revenues from a fuel tax, driver’s licence and vehicle registration fees, municipal contributions, a portion of revenues from Québec’s greenhouse gas emissions cap-and-trade system; and user fees in the form of transit fares.

**Chicago - Regional Transportation Authority**

The Regional Transportation Authority (RTA) provides transit planning and oversees local transportation operators in the Chicago metropolitan area, including the Chicago Transit Authority (CTA), Metra (the suburban rail system) and Pace (the suburban bus system). The RTA has transportation authority for six counties, including the City of Chicago. It also implements projects, administers grant programs and develops plans aimed at growing ridership and improving mobility. The RTA also provides technical and analytical expertise to municipalities and transportation agencies across the region in support of local public transit initiatives.

The RTA Board consists of 16 directors, five of which are appointed by the Mayor of the City of Chicago, and ten of which are representatives from the surrounding counties. The Board Chair, its 16th member, is elected by the Board.

The RTA operating budget is funded from different sources: fares and other operating revenue, the RTA sales tax imposed in the region, a Public Transportation Fund comprised of the state matching a percentage of RTA sales tax dollars collected, a real estate transfer tax and state funding for paratransit, and additional assistance from the State of Illinois.
About half of capital funding is provided by the federal government, while a CTA Transit Tax Increment Financing funds account, RTA bond proceeds and service funds make up the remainder.

It is important to note that the RTA is not the Metropolitan Planning Organization (MPO) for the Chicago metropolitan area.

The Chicago Metropolitan Agency for Planning (CMAP) is the MPO. As the MPO, CMAP is responsible for developing the long-range transportation plan for the region, and in order to be eligible for federal funding, major capital projects, including transit projects, must be included in this fiscally-constrained long-range transportation plan.

**England and Germany:**

**London - Transport for London**

Transport for London (TfL) is a local government body responsible for the transport system in Greater London, comprising 33 local government districts. TfL has responsibility for London’s main road routes, rail networks, trams, buses, taxis, cycling network, and river services. The services are provided by a combination of wholly owned subsidiary companies (principally London Underground), private sector franchisees (the remaining rail services, trams and most buses) and licensees (some buses, taxis and river services).

TfL is also responsible, jointly with the national Department for Transport (DfT), for commissioning the construction of the new Crossrail line, and will be responsible for franchising its operation once completed.

TfL is controlled by a board whose members are appointed by the Mayor of London. The body is organised into corporate services and three main directorates, each with responsibility for different aspects and modes of transport. TfL is funded from four main sources: fares (the largest source); grant funding from the DfT and Greater London Authority (GLA), borrowing, and other income, including advertising, property rental and congestion charging.

**Berlin - Verkehrsverbund Berlin-Brandenburg**

The Verkehrsverbund Berlin-Brandenburg (VBB) is a transport association run by public transport providers in the German states of Berlin and Brandenburg. It is a private limited company owned jointly by the states of Berlin and Brandenburg, and the 18 counties and cities of Brandenburg. It coordinates the services of 40 public transport companies, the introduction and development of a common fare system and the improvement and quality control of services. It also assists with planning, tendering and managing regional railways.
A Verkehrsverbund is a regional governance model common in German and Swiss planning organizations. Similar to Metropolitan Planning Organizations in the United States, they provide capital and some operating funding to local transit operators, and are able to coordinate and integrate fares and schedules so that transfers between different operators are as seamless as possible. Local entities maintain control over details of the implementation of policies. Routes, schedules and fares are ultimately regional responsibilities. They also support a structure that combines efficiencies of a single regional transit provider with elements of local control.

**Australia:**

**Sydney - Transport for New South Wales**

Transport for New South Wales (NSW) was established in November 2011 as the lead agency for integrating the transport system, and improving the quality of transport services in NSW. Transport for NSW is an important component of the NSW Government’s whole-of-government reform to restore economic growth, improve service delivery, renovate infrastructure, strengthen communities, and restore accountability to government. It reports to the Minister of Transportation and an Advisory Board.

Transport for NSW promotes the integration of all transport modes and coordination across all stages of transport planning and decision-making. It is intended that the operating agencies will become increasingly engaged as part of a fully integrated transport system that offers a quality, seamless travel experience to customers. Responsibilities include strategy, planning, policy, regulation, funding allocation and other non-service delivery functions for all modes of transport in the Region including road, rail, ferry, light rail, point to point, regional air, cycling and walking.

In recent years the organization has brought together the planning and decision-making functions within Transport for NSW from operating agencies, designed new structures to enable collaboration, and consolidated the transport budget as part of Transport for NSW. It also created the Long Term Transport Master Plan, which provides the opportunity to adopt governance arrangements for long term planning that will further reinforce the strengths of customer-focused and integrated transport planning, operation and delivery.
APPENDIX 5:
Additional Resources

Accessibility

Big data

Climate change

Complete streets
Fare payment

Fare integration
Metrolinx. GTHA Fare Integration Concept Evaluation Backgrounder. 2016.

First and last mile

Goods movement

Health and safety
Medical Officers of Health in the Greater Toronto and Hamilton Area (Hamilton, Peel, Simcoe, Muskoka and Toronto). Improving Health by Design - a Call for Healthy Communities. 2014.

Intelligent transportation systems
ITS Canada. Surface Transportation-Related Technological Innovation in Canada and Abroad. 2015.

Managed lanes


**Mobility hubs**


**New mobility**


Nisen, M. *The 9-to-5 Office Workday is Dying in America*. Quartz. 2015.


**New models**


**Parking**


**Pearson Airport area, Union Station, High-speed rail**


Planning studies, business cases, data sources

Metrolinx. Business Case Analyses. 2017
University of Toronto Data Management Group. 2011 Travel Survey Summaries for the Greater Toronto and Hamilton Area. 2014.

Public transit

Transportation Association of Canada. Primer on Transportation Funding and Governance in Canada’s Large Metropolitan Areas. 2013.

School travel

Metrolinx, Green Communities Canada and University of Toronto. The Costs and Benefits of School Travel Planning Projects in Ontario, Canada. 2014.
StudentMoveTO. An Overview of Early Findings. 2016.

Transportation demand management

**User experience**


**Provincial policy and guidelines**


Other relevant sources
(Includes those cited in Plan Discussion Paper, August 2016)


Sivak, M., & Schoettle, B. Recent Decreases in the Proportion of Persons with a Driver’s License across All Age Groups. University of Michigan Transportation Research Institute. 2016.


APPENDIX 6:  
Consolidated Draft 2041 Plan Priority Actions

Priority Actions for Strategy 1  
Complete the Delivery of Current Regional Transit Projects

1.1 Complete the building of projects In Delivery, as shown on Map 3, including the GO Regional Express Rail program, the Hurontario, Eglinton, Hamilton and Finch LRTs, and the York VIVA BRTs, ensuring delivery by 2025.

1.2 Advance the transit projects that are In Development, as shown on Map 4.

1.3 Strengthen Union Station’s capacity as the centre of GO Regional Express Rail to accommodate the growth of GO RER beyond 2025:

- In consultation with the City of Toronto, the provincial and federal governments develop a plan to address rail service capacity at Union Station to accommodate the growth of GO RER beyond 2025; and
- Ensure that all decisions regarding improvements to Union Station and adjacent areas are consistent with and protect for the long-term.

1.4 Coordinate with the Province, the federal government and VIA Rail Canada on High Speed Rail and High Frequency Rail initiatives, the optimization of shared resources such as Union Station and rail corridors, and the integration of services for a seamless traveller experience.
Priority Actions for Strategy 2
Connect More of the Region with Frequent Rapid Transit

2.1 Implement a comprehensive and integrated Frequent Rapid Transit Network by 2041 that includes:

- Existing subway, transitway and BRT services;
- 15-minute GO Regional Express Rail on the Lakeshore East and West, Kitchener, Stouffville and Barrie Corridors, In Delivery for 2025 (see Map 3);
- BRT and LRT projects that are In Delivery, as shown on Map 3;
- Projects that are In Development (see Map 4);
- Additional transit infrastructure improvements to resolve key gaps (proposed new LRT and BRT projects, see Maps 5 and 6);
- Additional 15-minute GO Regional Express Rail services beyond 2025 (see Maps 5 and 6);
- A Priority Bus system that connects existing and planned rapid transit, LRT and BRT (see Maps 5 and 6); and
- Frequent Regional Express Bus services (see Maps 5, 6 and 7).

2.2 Develop complementary bus services:

- Strengthen and support the ability of local transit to provide reliable service in urban areas where demand for transit is high, and to connect to the Frequent Rapid Transit Network;
- Develop and implement a regional 24-Hour Transit Network composed of strategic routes to address growing off-peak markets and destinations; and
- Deliver a regional Express Bus Network to serve long-distance transit markets not served by GO Regional Express Rail (see Map 7).

2.3 Improve access to airports, prioritizing transit for passengers and workers:

- Coordinate with the Greater Toronto Airports Authority, Ports Toronto, the John C. Munro Hamilton International Airport and the federal government on ground transportation plans to the region’s airports and surrounding areas; and
- Support the planning and implementation of Pearson Airport’s Regional Transportation Centre to facilitate enhanced transit access to the airport, and enable Pearson and the Airport Employment Area to continue to support economic growth throughout the GTHA.
Priority Actions for Strategy 3:
Optimize the Transportation System

3.1 Advance the integration of services and fares:

• Remove barriers to creating an integrated fare system to support seamless and consistent travel for passengers across municipal boundaries;
• To ensure progress toward seamless travel and increase ridership, take a regional view of price setting and concessions for transit and the development of innovative fare products; and
• Form a formal working group of all GTHA transit operators to share customer experience objectives that would become part of new regional transit investments and the regional transit network in general.

3.2 Expand first- and last-mile choices for all transit stations:

• Fully implement the GO Rail Station Access Plan (2016);
• Invest in first-mile last-mile (FMLM) solutions to maximize all-season access to and from all rapid transit stations, including, but not limited to priority transit access, pedestrian access to workplaces and destinations nearby, improved on-demand services including carpooling, taxis, and micro-transit services, on and off-site bicycle facilities, car-share and bike-share programs;
• Address barriers to Metrolinx funding FMLM solutions outside of stations; and
• Recover the cost of parking at GO stations to help shift trips to modes that do not require parking, and allow more people to access new train services.

3.3 Set consistent high-quality standards for the traveller experience:

• Focus on reliable service as a first priority for attracting customers to transit, emphasizing transit priority measures;
• Provide travellers with:
  - real-time information;
  - well-designed places including shade, shelters, paving, seating, clear sightlines and lighting;
  - consistent wayfinding across mediums;
  - all-season maintenance of sidewalks, bike lanes and paths;
  - on-demand service connectivity; and
  - concession fares.
• Ensure that design excellence in architecture, urban design and landscape architecture enhances the transportation experience;
• Establish a GTHA Regional Customer Service Advisory Committee to advise the Metrolinx Board of Directors on issues impacting the traveller experience; and
• Establish a “Let Metrolinx Know” panel, modelled after the Let GO Know Panel, comprised of a random selection of GTHA travellers who would regularly be available to participate in surveys and focus groups to advise on customer service issues.
3.4 Develop and implement a Mobility as a Service (MaaS) strategy:

- Continually evolve the PRESTO fare payment system to support inter-regional travel with a range of fare products and self-service options. Migration to an account-based system will allow customers to access PRESTO via traditional PRESTO cards, credit cards, limited use electronic tickets and mobile wallets; and
- Fully integrate regional multi-modal trip planning and fare payment into a MaaS platform, incorporating and encouraging mobility options including, but not limited to, transit, bike-sharing, carpooling and ride-sharing.

3.5 Place universal access at the centre of all transportation planning and designing activities:

- Foster an accessible network of conventional and paratransit providers, where riders can transfer between options, easily and conveniently, even across boundaries;
- Develop an integrated regional booking platform for specialized transit trips across the region;
- Ensure that on-demand services meet the needs of a diverse range of travellers;
- Provide leadership and ensure consistency in accessibility design for transportation services and facilities across the region;
- Work with regional partners to assess and address challenges to transit access, and to address unintended consequences of transit investment, such as increases in housing costs along transit corridors; and
- Develop a regional framework for addressing affordability of transportation for low-income groups.

3.6 Eliminate transportation fatalities and serious injuries as part of a regional “Vision Zero” program:

- Incorporate the Vision Zero framework into regional transportation planning by developing a regional approach to transportation design standards, speed limits, and public education with the aim of zero serious transportation-related injuries and fatalities.

3.7 Make Transportation Demand Management (TDM) a priority:

- Advance workplace TDM programming and encourage private sector leadership, participation and investment with mandated participation by large employers, institutions and other venues that generate a significant number of trips;
- Develop new approaches to TDM delivery from the fields of service design and behavioural economics;
- Reinvigorate carpooling with a compelling and user-friendly regional online platform integrated to trip planning and payment tools; remove regulatory obstacles to user incentives to drive participation;
- Deliver TDM programming to support all new rapid transit services, station areas, and areas impacted by major construction and events;
- Develop incentives for off-peak travel, including transit use, to grow ridership and reduce peak demand;
- Continue to explore how pricing of mobility (including parking, road pricing and HOT lanes and off-peak fares) could be used to shift travel behaviour; and
- Remove obstacles to vanpooling.
3.8 Expand the HOV network:

- Complete a seamless HOV network on all regional highways in the GTHA, encouraging higher-occupancy travel and supporting faster, more reliable bus service (see Map 7);
- Incentivize ride-sharing using the HOV network for trips that are difficult to make by transit or active transportation; and
- Continue the implementation of HOT lanes on HOV lanes where there is excess capacity.

3.9 Further integrate road and transit planning and operations:

- Building on early progress, invest in the regional coordination and deployment of ITS.smart corridors to support effective congestion management and transit priority operations; and
- Within each municipality and where municipal and provincial roads interface, create formal task forces or groups to coordinate the planning and operations of transit, roads and on-street parking.

3.10 Further define and support a Regional Goods Movement System:

- Advance collaboration between the public and private sector to support implementation of the Regional Strategic Goods Movement Network (See Map 8) to link goods-generating activity centres, intermodal terminals and regional gateways;
- Study goods movement priority features for new and existing freight corridors, including but not limited to intelligent lane utilization and truck-only lanes;
- Support development of innovative freight hubs, including planning for and protecting complementary land uses near freight hubs. Consider the use of transit stations as a pick-up location for small parcels and support other innovative urban freight hubs to reduce door-to-door delivery. Explore and implement flexible freight delivery times, including off-peak delivery, where applicable;
- Establish a GTHA urban freight data collection program including monitoring of freight flows in the GTHA; and
- Expand awareness and education efforts regarding goods movement planning, design and operational issues, with particular reference to the impact of e-commerce (and potential innovations in delivery, such as the use of bicycle couriers for urban deliveries) on the volume and nature of freight delivery in the region.

3.11 Promote integrated planning for rail corridors:

- GGH transportation agencies/operators, municipalities, the federal government and the private sector work with MTO in its investigation of the potential for shared use (passenger and goods movement) of critical rail corridors in the GTHA; and
- Where corridor capacity studies indicate separation of uses is required, develop and promote plans for freight rationalization.
Priority Actions for Strategy 4
Integrate Land Use and Transportation

4.1 The Province should review the legislative and regulatory linkages between the provincial and municipal planning framework to fully achieve the objectives of the Growth Plan and the Regional Transportation Plan:

- Identify all legislative, regulatory, fiscal, and other, opportunities to require integrated land use and transportation decision-making by all stakeholders in the GGH;
- Enact the regulations in the *Metrolinx Act* (2006) to create a Transportation Planning Policy Statement to provide the RTP with the legislative status it needs in order to achieve regional goals for land use and transportation integration;
- Enact the regulations in the *Metrolinx Act* (2006) to formalize the role and status of municipal Transportation Master Plans to align with provincial land use and transportation objectives, including the RTP; and
- Develop a protocol for Metrolinx to review and provide input to secondary plans, publicly-funded development plans and large-scale planning applications to ensure alignment with the regional transit investments and the RTP.

4.2 Make provincial investments for transit projects contingent on corresponding transit-supportive planning by municipalities being in place.

4.3 Focus development on Mobility Hubs and Major Transit Station Areas along Priority Transit Corridors:

- Work collaboratively with the Province and municipalities to create enforceable station area plans that catalyze desired land uses at stations and prevent uses that are incompatible or fail to fulfill the potential of the lands;
- Systematically co-locate publicly-funded institutions and facilities near transit with walking and cycling-supportive infrastructure;
- Integrate joint development early in rapid transit project planning and into procurement schedules, utilizing new partnerships between the public and private sector;
- Enable Metrolinx to play a leading role in development and redevelopment around stations to fulfill the objectives of the Growth Plan and the RTP;
- Enable Metrolinx to acquire land around stations for the purpose of transit-oriented development;
- Review current financial and economic incentives and disincentives to desired development and develop new tools to incent transit supportive land use;
- Update the Mobility Hub Guidelines to address emerging challenges and opportunities related to the integration of land use and transportation, and incorporate new tools and guidance for planning mobility hubs; and
- Update the network of mobility hubs in conjunction with the Mobility Hub Guidelines to reflect the Frequent Rapid Transit Network, Growth Plan, municipal plans and 2041 population, employment and transit ridership forecasts.
4.4 Evaluate financial and policy-based incentives and disincentives to support transit-oriented development. Work collaboratively to build on and develop regional and site-specific measures and tools to encourage development that helps meet growth management and transportation objectives.

4.5 Plan and design communities including development and redevelopment sites and public rights-of-way that support and promote a shift in travel behaviours to the maximum extent that is feasible, consistent with Ontario’s passenger transportation hierarchy:

- Develop region-wide standards for highways, roads and streets to consistently reflect the passenger transportation hierarchy;
- Develop shared investment criteria in cycling facilities centred on cycling potential and connectivity, consistent with regional and local plans;
- Adopt a Complete Streets approach to infrastructure project delivery when new rail, station and transit projects are undertaken, to deliver pedestrian and cycling access as part of the infrastructure investment; and
- Expand and promote bike-share in locations where there is an opportunity to meet existing demand and grow cycling use.

4.6 Complete the regional commuter cycling network:

- Plan, design, and construct a Regional Cycling Network (see Map 9) to create new connections in areas with high cycling potential to rapid transit stations, between Urban Growth Centres and across boundaries.

4.7 Embed Transportation Demand Management into land use planning and development:

- Require long-term sustainable TDM plans through the development process to ensure that development is designed from the outset to reflect the passenger transportation hierarchy, with realistic implementation plans; and
- Leverage the development process to generate dedicated funding for TDM programming.

4.8 Rethink the future of parking:

- Coordinate the development of a region-wide policy that:
  - provides guidelines and encourages best practices in parking management;
  - identifies common goals for on and off-street parking management, especially near transit stations;
  - supports shared land use and transportation objectives;
  - acknowledges the varied urban, suburban and rural contexts of the GTHA;
  - anticipates AVs and shared mobility;
  - incorporates environmentally-friendly features
  - can be leveraged for local policy making; and
  - includes public education and demonstrates the benefit of new parking practices.
- Coordinate station area parking requirements with the expansion of transit infrastructure and
services (e.g. amend applicable transit station area by-laws as a condition for transit station approval to support local mode share targets). Zoning standards should be reviewed, with the expectation that minimum parking requirements will be reduced, particularly in transit-supportive neighbourhoods;

- Adopt a region-wide approach to parking management for the arrival of shared mobility and autonomous vehicles; and
- Research and regularly publish existing parking-related data and emerging trends to improve parking planning and management.

4.9 Work with ministries, school boards, municipalities, service providers, non-governmental organizations and other stakeholders to establish school travel programs for Kindergarten to Grade 12 to encourage the development of future generations of pedestrians and cyclists:

- Continue to advance active and sustainable school travel (ASST) through regional coordination and delivery of the school travel program. Adopt approaches that are location-specific to ensure that solutions involving walking, cycling and transit are tailored to each community;
- Expand the resources and community capacity available to advance ASST within the GTHA, including to high school students; and
- Develop policies, plans and standards that prioritize active and sustainable trips for children and youth within school areas and the broader community (e.g. to recreational facilities such as community sports and arts facilities).
Priority Actions for Strategy 5
Prepare for an Uncertain Future

5.1 Develop a regional framework for on-demand and shared mobility that complements the provincial framework:

- Work collaboratively to review provincial and local regulations and policies impacting new mobility services to enable innovation while meeting the needs of people in the GTHA;
- Proactively test and evaluate new services and technologies (including micro-transit, on-demand, and shared mobility) in emerging markets where conventional transit and active transportation are not meeting demand; and
- Coordinate and establish partnerships that complement existing and committed transit services.

5.2 Develop a region-wide plan for autonomous mobility:

- The Province to develop a suite of regulations, policies and actions to prepare for, test and ensure the safe operation of autonomous vehicle (AV) technologies; and
- Update transportation and building standards to anticipate for AVs (e.g. parking design).

5.3 Coordinate across the region to address climate resiliency of the transportation system:

- Plan and build a transportation system that can continue to operate in extreme weather events brought by climate change;
- Design infrastructure and strengthen existing infrastructure to resist extreme weather;
- Ensure that the management of existing infrastructure assets, and the design and construction of future assets, are climate resilient; and
- Adopt policies and procedures coordinated among all transportation stakeholders (e.g. roads, transit, emergency management) to respond to extreme weather events.

5.4 Proactively prepare for a future with low-carbon mobility options:

- Address transportation climate mitigation by aligning regional and local efforts with international, federal, provincial efforts to meet the Paris Climate Change Accord and meet Ontario’s goal of reducing GHG emissions to 80% below 1990 levels by 2050;
- Continue supporting compact and mixed-use development, complete streets and other measures that help reduce travel distances;
- Deploy infrastructure to support electric vehicle use throughout the public and private transportation systems of the region;
- Invest in the transition to low-carbon public and private vehicle fleets, including transit vehicles; and
- Further collaborate among governments to enhance fuel efficiency and increase availability of low-carbon fuels.
5.5 **Develop a regional transportation big data strategy:**

- Create a regional transportation big data portal, providing consistent and transparent data collection, management and reporting;
- Establish regional transportation data sourcing, formatting, privacy, security, ownership and reporting standards;
- Identify and acquire new transportation data for planning and operations (e.g. crowdsourced traffic data); and
- Advance coordination and standardization of transportation forecasting, modelling and business case methodologies to support decision-making and evaluation.

5.6 **Partner for innovation:**

- Drive innovation in mobility, focusing on new services, tools and business models. Develop outcome-based approaches beyond traditional procurement and formal partnerships:
  - identify and leverage companies with innovative products and services that can benefit travellers or improve operations;
  - remove barriers to partnerships, e.g. overly rigid procurement rules;
  - pilot, test and minimize the risk associated with new ideas, products and approaches; and
  - explore innovative funding and financing options including loans and loan guarantees.
Regional Decision-Making

6.1 Review regional transportation decision-making processes to best ensure that elected municipal leaders contribute effectively to decision-making related to the interface between region-wide transportation and land use, and fare and service integration.

6.2 Establish a formalized mechanism that convenes provincial and municipal land use and transportation planning officials with a goal to identify opportunities and make recommendations to improve the integration of land use and transportation.

6.3 Establish a formalized mechanism that convenes the appropriate provincial and municipal officials to identify region-wide policies, standards and tools to attain excellence in the provision of the traveller experience, including fare and service integration.

6.4 Align the Metrolinx planning area, the GO Transit Service Area and the Growth Plan Area to the Greater Golden Horseshoe.

6.5 In consultation with partners, stakeholders and the general public report on progress on implementing the RTP and review the RTP every five years; technical updates can be done in the intervening years if necessary.
Funding the Plan

6.6 Ensure that funding for the development and long-term maintenance and operation of an integrated transportation system is in place over the duration of the RTP, based on sound principles of governance and public finance, balancing regional coordination and local autonomy:

- Update the Metrolinx Investment Strategy to identify sustainable and sufficient funding for transportation capital and operations over the life of the RTP;
- Align transportation funding in the region with the RTP to ensure consistency with regional objectives; and
- Earmark specific funding for collaborative initiatives that enhance seamlessness.

6.7 Establish agreed upon standards of evidence, methods of forecasting, and publication of methods for project evaluation to guide discussions among provincial and municipal stakeholders.

6.8 Use rigorous business case analysis to support decisions on the implementation of the RTP projects, including consideration of long-term operating, maintenance and financing costs.

6.9 Review Metrolinx’s ability to fund initiatives that support implementation of the RTP, such as off-property station access improvements and regional first-mile last-mile initiatives.