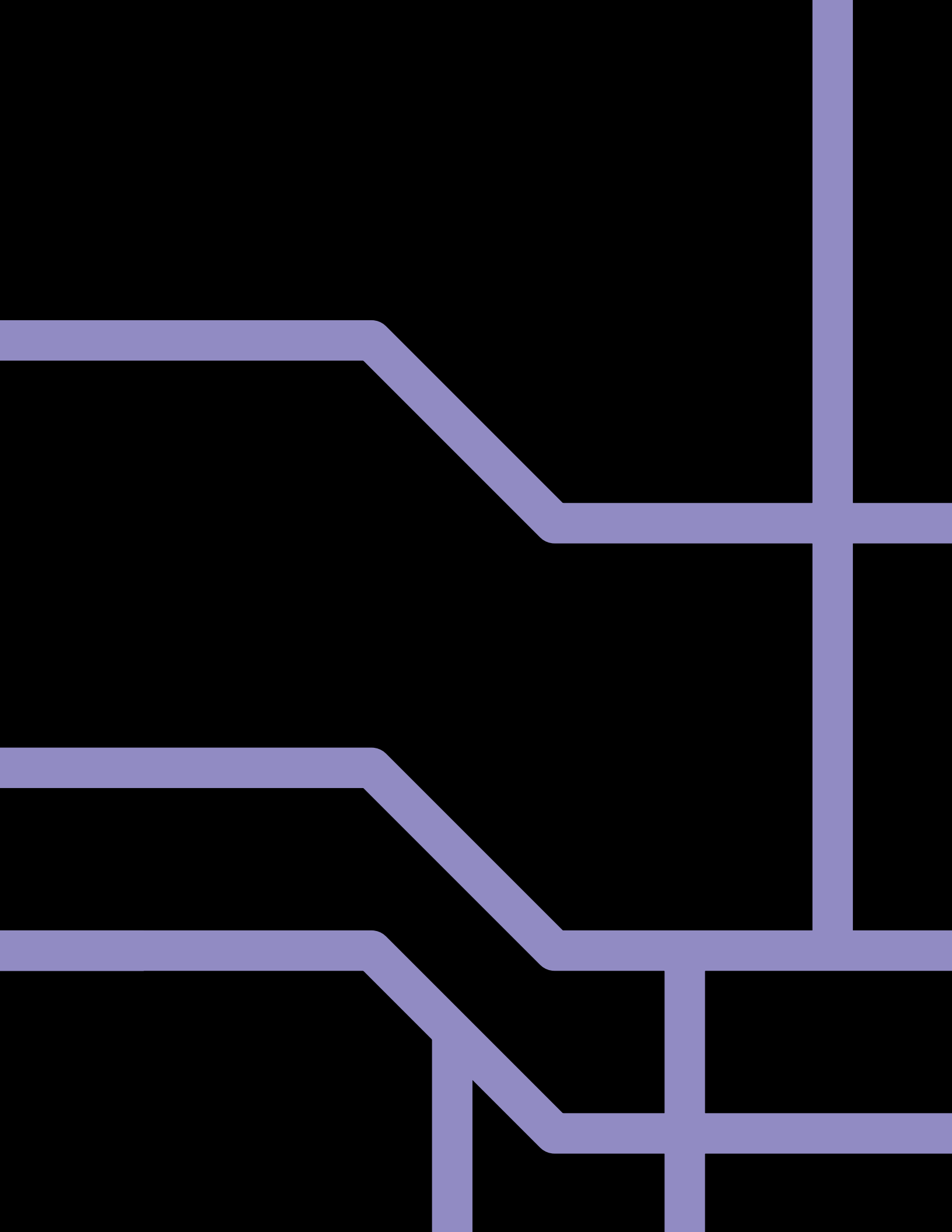


1

Introduction





What is the 2041 Regional Transportation 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 have made the GTHA one of the largest and fastest-growing regions in North America. About 110,000 new residents are expected every year through 2041, joining the 7.2 million people already here today.²

This substantial growth—to more than 10 million people by 2041—will bring many challenges. How will we move people and goods in ways that are safe, efficient, affordable and sustainable? How will we meet the transportation needs of tomorrow's travellers, businesses and institutions? The region's continued success will depend on smart, timely and optimized transportation infrastructure investments—and that takes planning.

This 2041 Regional Transportation Plan (2041 RTP) for the GTHA outlines how governments and transit agencies will work together to continue building an integrated transportation system that supports a high quality of life, a prosperous and competitive economy, and a protected environment. The 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 represents the advice of the Metrolinx Board to the Province, and fulfils Metrolinx's legislative requirements under the *Metrolinx Act, 2006*.

The 2041 RTP is the second transportation plan for the GTHA developed by Metrolinx. The first—known as *The Big Move*—was released in 2008, and focused on transforming transportation in the GTHA through nine 'Big Moves' and ten strategies to create an integrated multimodal transportation system. *The Big Move* set the stage for today's massive investments in rapid transit, and was the foundation for completing a dedicated rail link to Pearson International Airport (UP Express), GO Transit expansions, and bus rapid transit (BRT) systems in the Regions of Peel and York. These transit projects will be vital to keep our region moving while minimizing congestion and harmful automobile emissions.

Chapter 2 provides detail on the fourteen rapid transit projects that are 'In Delivery' (i.e., those under construction or in the engineering design stage). Chapter 3 offers information on thirteen additional 'In Development' projects (i.e., those in advanced stages of planning and design) that will extend the reach of subways, BRT, light rail transit (LRT) and GO Transit. Appendix 3 contains a complete list of all recently completed, In Delivery and In Development transit projects, plus those that are newly proposed in the 2041 RTP.

The 2041 RTP builds on *The Big Move* by putting the needs of travellers at the core of transportation planning and operations. It aims to build a truly integrated transportation system for the GTHA—one that is comprehensive, connected, accessible, sustainable and focused on people—and one that supports safe streets, active transportation and healthy communities. This will require more than simply expanding and optimizing the rapid transit network; it will require collective work to integrate planning, transit fares and service, and to develop new approaches to financing and collaborative decision-making in the region.

At the heart of the RTP are five Strategies:

- Complete the delivery of current regional transit projects;
- Connect more of the region with frequent rapid transit;
- Optimize the transportation system;
- Integrate transportation and land use; 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 Chapter 3, “Vision, Goals, Strategies and Priority Actions”.

The 2041 RTP conforms to the *Growth Plan for the Greater Golden Horseshoe, 2017 (The Growth Plan)*, which, together with the *Greenbelt Plan (2017)* and other provincial land-use policy documents,³ sets the policy framework for managing growth, establishing complete communities and delivering sustainable transportation choices. The 2041 RTP goes beyond the *Growth Plan* to provide more detailed strategies and actions for the GTHA’s entire transportation system. The *Growth Plan* and the 2041 RTP align to support the Ontario’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, make shorter trips, live closer to work, and use available resources more efficiently.

The 2041 RTP uses the *Growth Plan*’s planning horizon of 2041, which is ten years later than the 2031 horizon used in *The Big Move*. However, because some key data sources used to develop the plan are from 2011, as 2016 data were not yet available (e.g., the Canadian Census and the Transportation Tomorrow Survey), it relies on forecasts made for 2041 using a 2011 base year.

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 progress continues to be accompanied by challenges. The GTHA has experienced rapid population growth along with shifts 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 disruptive business models are challenging the status quo. All this means that integrating and coordinating transportation planning across the GTHA is more important than ever. It is vital that transportation dollars are well spent, and that access to transportation options is improved. Chapter 3 explains how the 2041 RTP addresses these influences and challenges.

Figure 1: Regional Transportation Plan timeline





How was it developed?

The 2041 RTP has been developed collaboratively over a two-year period, with input from transportation experts, municipal planning professionals, stakeholders from across the region, and the lived experiences of GTHA residents (see Figure 1 for key points in the process). It also incorporates the forecasts and policy directions of the *Growth Plan*, and extensive research into a wide range of strategies to improve the traveller experience in the region, including active transportation, climate change resiliency, transportation demand management (TDM), intelligent transportation systems (ITS), and goods movement. Appendix 1 contains a list of background reports and academic studies that informed the plan, while Appendix 2 offers more details on the entire process of developing this plan.

Metrolinx developed this plan's Strategies and Priority Actions by weighing alternative projects, programs and policies against key objectives and performance criteria such as transit ridership growth and accessibility to jobs. In addition, Metrolinx used three innovative tools to inform and enrich the 2041 RTP:

- **Scenario planning**—To evaluate the plan’s resiliency, Metrolinx tested the recommended strategies and priority actions against six future scenarios. Those scenarios (which included potential economic decline, the rapid adoption of emerging technologies, and extreme climate change) involved varied assumptions about the amount and distribution of population and employment growth, the nature of employment, and the quality of travel choices.⁴
- **Residents’ Reference Panel**—Metrolinx invited 36 volunteer residents, reflecting the GTHA’s diversity, to learn about regional transportation, weigh priorities and make recommendations. Panel members identified six guiding values: convenience and reliability, safety, affordability and cost-effectiveness, environmental sustainability, comfort and good design, and long-term planning and economic growth.
- **Regional traveller profiles**—Metrolinx conducted surveys and focus groups to understand how GTHA residents travel and their perceptions of travel in the region.⁵ It used the survey information to create six detailed profiles of fictional travellers— based on how much they travel, how and why they travel, and their attitudes towards public transit and active transportation—that served as lenses to assess possible actions.

More information on the tools used to develop the 2041 RTP can be found in Appendix 2, as well as in the *2041 Regional Transportation Plan Evaluation Process Background*, which details how individual components of the plan were assessed.

Development of this plan involved two major points of broad public consultation. First, Metrolinx released a *Discussion Paper for the Next Regional Transportation Plan* in August 2016, inviting partners, stakeholders and the public to comment on its suggested directions. Second, a Draft 2041 RTP was released on September 29, 2017, followed by a six-week review period during which Metrolinx led a multi-pronged engagement process involving the general public, stakeholders, municipal councils, municipal staff and provincial ministries.



What will it achieve?

Full implementation of the 2041 RTP will lead to an integrated and seamless transportation system for the GTHA. It will improve the traveller experience and offer enhanced transportation choices. It will improve access to reliable and frequent rapid transit, and will make travel more affordable by reducing the need to own a car—benefits of particular importance for elderly and low-income residents. The 2041 RTP will help achieve the Province’s objectives for land use intensification and the reduction of greenhouse gas (GHG) emissions. It will offer health benefits from a reduction in air pollution and an increase in active transportation, and will improve economic competitiveness and productivity in the GTHA. Chapter 3 offers more detail on key expected outcomes.





How will it be implemented?

The 2041 RTP is a plan for the entire region and those who plan, build, maintain and operate its transportation system. It articulates the goals shared by Metrolinx, the Province, and the GTHA's municipalities and transit agencies, and the actions required to work towards achieving an integrated transportation system. It will also inform Metrolinx's internal corporate strategies, and guide the organization in its day-to-day work of planning, building, operating and connecting multimodal transportation across the region.

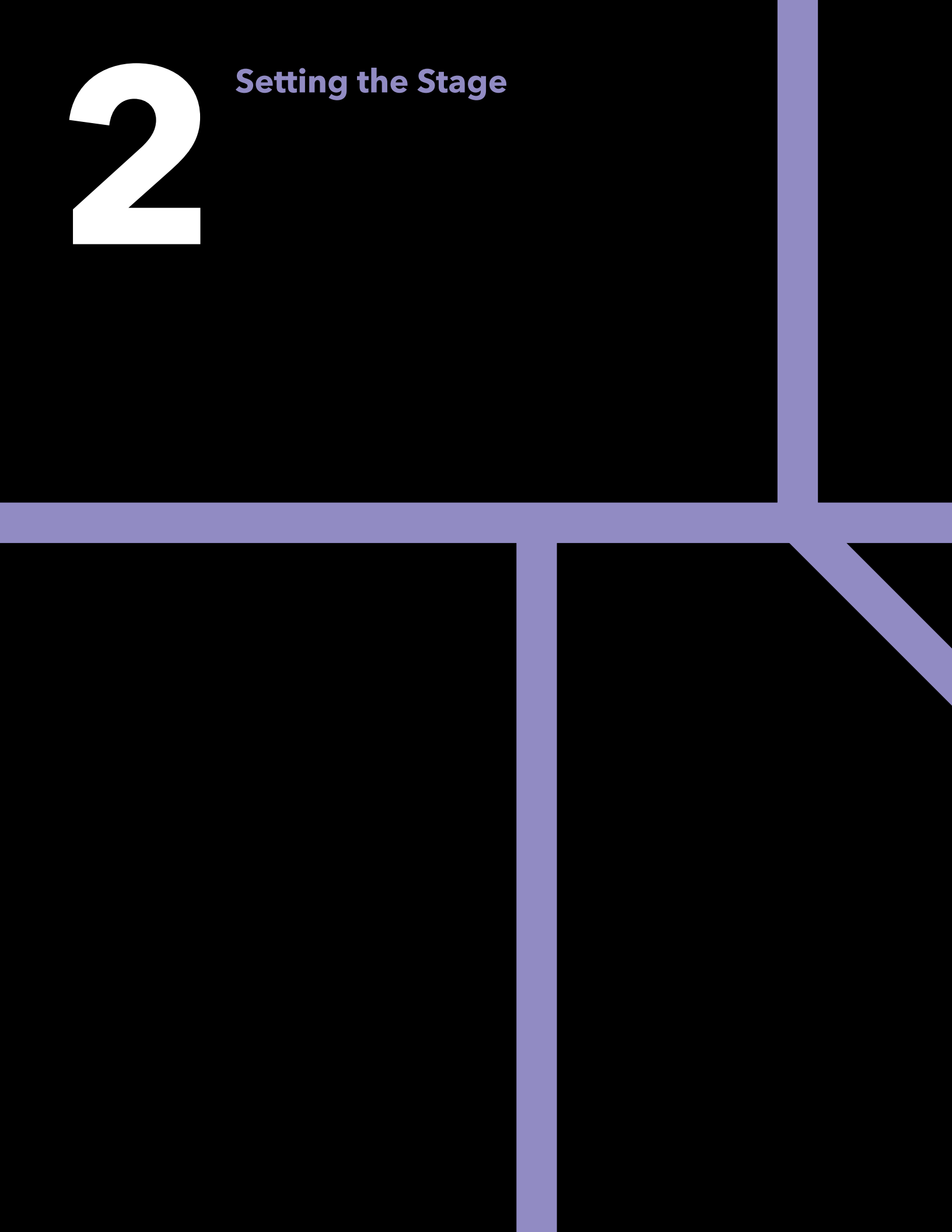
Implementing the 2041 RTP will require a concerted effort by all partners, a regional mechanism to coordinate transportation planning and investment, and a regional approach to long-term funding. Implementation and funding are shared responsibilities of Metrolinx and its partners, including federal, provincial and municipal governments. Realizing the Vision will also require the involvement of the private sector, NGOs and other civic organizations, academic partners and the general public.

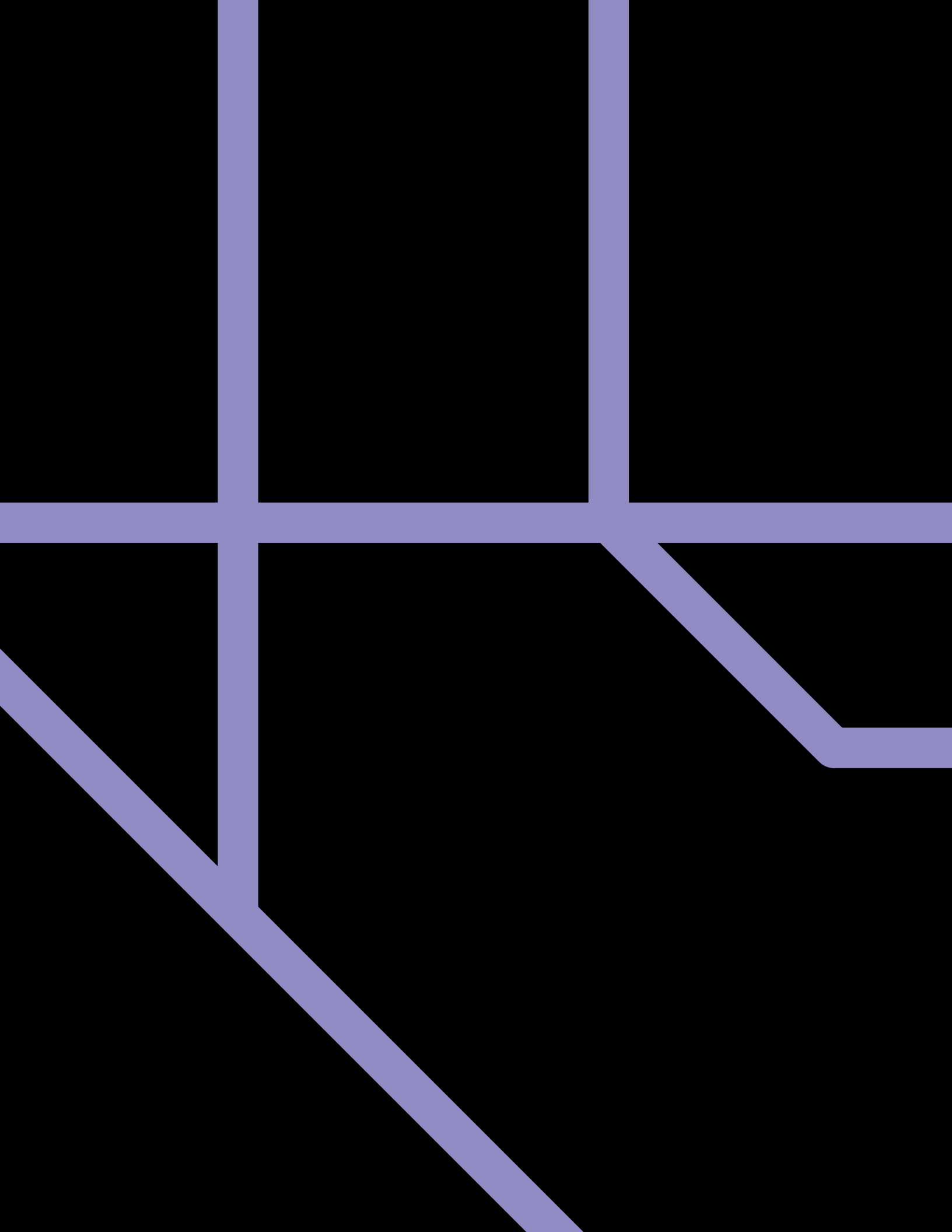
Metrolinx has developed a paper entitled *Making It Happen* that explores analysis and engagement options to help implement the 2041 RTP. It discusses key issues including:

- best practices for project prioritization;
- criteria for evaluating project benefits;
- project interdependencies and bundling;
- early implementation actions;
- how all levels of government can be part of decision-making; and
- strategies for municipal and provincial collaboration.

2

Setting the Stage







An overview of transportation in the GTHA

The 2041 RTP needs to support and reflect the GTHA's unique character. The region is large—50% bigger than Prince Edward Island—and stretches 170 km from west to east (see Map 1). Its 7.2 million people live in 30 municipalities. It 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 with special status under provincial law.

There are nine conventional municipal 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 3.64 million cars in the region, and its residents take about 728 million transit trips annually.⁶

Thirty years ago, the region's dominant travel pattern 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, traffic and transit move 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 GTHA has grown, it has become more integrated socially and economically. It also has stronger ties to the rest of the Greater Golden Horseshoe (GGH), notably to the Region of Waterloo via the "Toronto-Waterloo Innovation Corridor". The health and prosperity of this inter-regional technology cluster depends in part on having strong transportation connections.

Figure 2:
Key Facts about the GTHA's
transportation system⁷



500 km

of regional rail
and rapid transit
in the GTHA

Includes GO rail, subway,
Scarborough RT and BRT.



61

GO train stations
in the GTHA



300,000+

daily Union Station
transit users



69.2

million GO transit trips
taken annually (2016)



3.2+

million PRESTO
customers

Includes GO service Area
and Ottawa.



5

municipal
expressways

Don Valley Parkway, Gardiner
Expressway, Allen Road, Red
Hill Valley Parkway, Lincoln M.
Alexander Parkway



728

million transit trips taken in the GTHA annually (2016)



585 km

of provincial highways within the GTHA

Includes 407 ETR (107 km), Highway 407 (22 km) and Highway 412 (10 km).



3.64

million cars owned in the GTHA (2016)



33

carpool lots in the GTHA



110

lane-km of HOV or HOT lanes



13.3

million daily trips made by GTHA residents (2016)



1.2

million daily walk and cycle trips made by GTHA residents (2016)



400+

bike-share stations

3,575

bike-share bicycles

Hamilton, Toronto



4,900

buses and streetcars

1,462

subway and GO train cars

Government roles in the Regional Transportation Plan

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 to coordinate and set priorities for its implementation. As specified in the *Metrolinx Act, 2006*, the Regional Transportation Plan must:

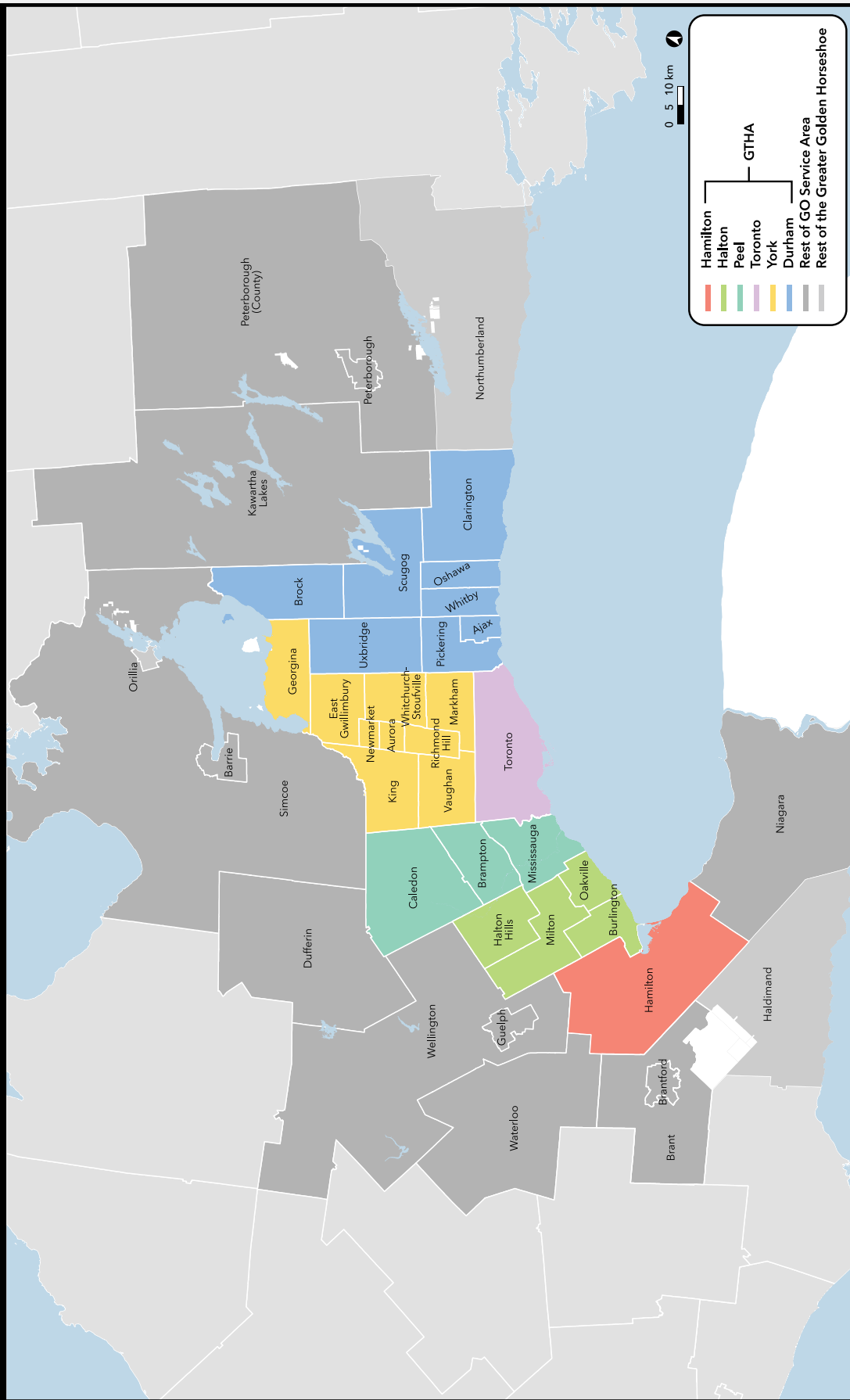
- take into consideration all modes of transportation, including highways, railways, local transit systems, the regional transit system, cycling and walking;
- make use of intelligent transportation systems and other innovative technologies;
- comply with the Minister's transportation plans, policies 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;
- work towards reducing transportation-related air pollutants and greenhouse gas emissions in the regional transportation area; and
- promote transit-supportive development to increase transit ridership and to support the viability and optimization of transit infrastructure.

Metrolinx also plans for and operates GO Transit service in the GO Transit service area (see Map 1), which is established by regulation under the *Metrolinx Act, 2006*.





Map 1: The GTHA and GO Transit service area





Province of Ontario

The *Provincial Policy Statement, 2017* (PPS) provides province-wide policy direction on matters of provincial interest to land use planning and development.

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 growth will occur in the GGH, and includes policies on transportation planning.

Municipalities in the GGH are required, under the *Planning Act* and the *Places to Grow Act, 2005* to bring their official plans into conformity with the *Growth Plan* within legislated timeframes. This implementation mechanism is integral to the integration of transportation system planning with land use planning.

The *Growth Plan* was recently updated based on a comprehensive review. The updated plan, which came into effect on July 1, 2017, sets out a broad vision for transportation within the GGH. It 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 for minimum density targets around Major Transit Station Areas in these corridors, and to prioritize planning for those areas including zoning that implements *Growth Plan* policies;
- requiring the adoption of a complete streets approach when designing, refurbishing or reconstructing existing or planned streets and street networks, and highlighting the importance of active transportation, particularly for transit;

- directing municipalities to work with transit service operators, the Province, Metrolinx where applicable and each other 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 TDM 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. Funding public transit is a key focus of the Province’s *Long-Term Infrastructure Plan*, released in November 2017. The Province also provides eligible municipalities a predictable and stable 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, multimodal transportation network in the GTHA. The Minister sets Metrolinx's priorities through annual mandate letters and other letters of direction, as provided through the *Metrolinx Act, 2006*. Metrolinx has a mandate to develop and adopt a transportation plan that must comply with the prescribed provincial plans and policies and conform with the growth plans prepared and approved under the *Places to Grow Act, 2005* within the GTHA.

The MTO is developing a long-term multimodal transportation plan for 2051 for the Greater Golden Horseshoe (*GGH Transportation Plan*).⁸ The work will provide direction to transportation agencies and service providers for all modes, including highways, railways, regional transit, cycling and walking. Along with the *Growth Plan* and other provincial plans, the *GGH Transportation Plan* aims to support broader government objectives such as economic growth and prosperity, health and equity, environmental sustainability, resiliency and adaption to climate change.

The GGH Transportation Plan

MTO is currently undertaking a planning study for transportation infrastructure and policy strategies to 2051, as well as a long-term transportation vision for 2071.

This plan will include provincial transportation policies and strategies to optimize mobility across the GGH, including:

- *goods movement (cross-border);*
- *long-distance and international travel;*
- *transit and transportation linkages between the GTHA and the broader GGH region;*
- *strategies to optimize the efficiency of existing networks; and*
- *strategies to prepare for emerging mobility models and technologies, such as automated vehicles, aerial drones, and mobility as a service models, and how these will change the way people and goods move in the region.*

Municipalities

Most GTHA municipalities have developed a multimodal Transportation Master Plan (TMP) that addresses transit, roads and active transportation; others include detailed transportation networks and policies in their official plans. While they are not required to do so by legislation, municipalities develop TMPs to complement official plans and support the integration of transportation planning with land use planning. Some municipal TMPs also consider policy areas such as safety, goods movement and TDM that would benefit from a regional lens.

In recent years new global companies have started to offer mobility services that do not fit the traditional definitions of transit or taxis, and which transcend municipal boundaries. Governments are now having to determine what the potential impacts of these services will be. Clear regional policy would encourage consistency among municipalities, a step that could induce more companies to enter the market.

The 2041 RTP builds on municipal TMPs and official plans (OPs) and integrates them into a coherent and logical plan for the whole region. Strong municipal leadership provides a foundation for some of the region-wide approaches in this plan, and remains crucial to the success of these approaches.





The Big Move legacy

The Big Move in 2008 came at a time when decades of underinvestment 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”.⁹ Map 2 shows the regional rail and rapid transit system as it was then.

Ten years later, it is evident that *The Big Move* was the springboard for a historic investment of more than \$30 billion. This investment is improving and expanding all rapid transit throughout the GTHA. Perhaps most notably, it is funding the transformation of GO Transit from a commuter-focused service into a two-way, all-day service, with 15-minute service on many parts of the network. The introduction of half-hour service on the Lakeshore line in 2013 was the largest service expansion in GO Transit’s history, and two-way all-day service has already been introduced on the Barrie, Kitchener and Stouffville lines.

The Big Move contained dozens of strategies and priority actions for all aspects of the transportation system. Work has begun on almost all the recommended actions, but the major focus of implementation has been the planning and construction of rapid transit. Significant improvements to the rapid transit network are improving access, choice and level of service for travellers across the GTHA. Recently completed projects include:

- UP Express (connecting Union Station with Pearson International Airport);
- Highway 7 BRT (Yonge - Unionville GO);
- Davis Drive BRT (Yonge - Newmarket GO);
- Toronto York Spadina Subway Extension;
- Mississauga Transitway (Winston Churchill - Renforth); and
- four GO Transit extensions (Kitchener, Barrie, Richmond Hill and Lakeshore West lines).

Fourteen more transit projects are in delivery (Figure 3).¹⁰ These projects include GO RER, five LRTs, three BRTs, four GO Transit extensions and a subway extension. All are targeted for completion by 2024. Map 3 shows the existing and In Delivery regional rail and rapid transit network. Appendix 3 contains a full list of the transit projects that have been completed since 2008, are In Delivery, In Development, or proposed in this plan.

Figure 4 highlights more of the accomplishments of *The Big Move*. They include 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 more than 25 new bridges and underpasses that allow pedestrians and cyclists to cross highways, rail lines and waterways. With many rapid transit projects underway and shovels in the ground across the region, it is important to ensure that these investments are completed and optimized to maximize their benefits for travellers.

Figure 3:
In Delivery transit projects

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



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.
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



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 to Steeles Ave.

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



Figure 4: Projects from The Big Move that support investments in transit infrastructure

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 Status of the Big Move’s 92 Actions and Policies*

31.5%
**Complete/
Continuous**

62%
In Progress

6.5%
To be Initiated

The Big Move Strategies

Accomplishments



Build a comprehensive regional rapid transit network

- The City of Toronto, Metrolinx and their partners are undertaking an \$800 million **revitalization of Union Station**.

- Transit agencies throughout the GTHA (and Ottawa) have adopted the **PRESTO fare card** system, with more than 3.2 million cards activated.



Enhance and expand active transportation

- Public transit agencies added **bike racks** to all GTHA transit buses (4200+).

- Metrolinx and municipalities added over 25 new **walking and cycling bridges and underpasses** across highways, rail lines and waterways.



Improve the efficiency of the road and highway network

- Metrolinx introduced **priority parking for carpool users** at 49 GO Transit stations.

- Metrolinx introduced Mobility Hub Guidelines and the GO Rail Station Access Plan.



Create an ambitious transportation demand management program

- **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.

- Metrolinx established the Regional Accessibility Advisory Committee.



Create a customer-first transportation system

- Municipalities and Metrolinx **expanded the Smart Commute** program to provide TDM programming for over 300 members.

- Metrolinx established the multi-sectoral GTHA Urban Freight Forum and a goods movement data framework.



Implement an integrated transit fare system

- Metrolinx launched the **Triplinx** regional travel planning tool, and introduced the **GO Passenger Charter**.

- Convened the Planning Leaders Forum (commissioners and heads of municipal planning departments in the Greater Golden Horseshoe) for 8 years.



Build communities that are pedestrian, cycling and transit-supportive



Plan for universal access



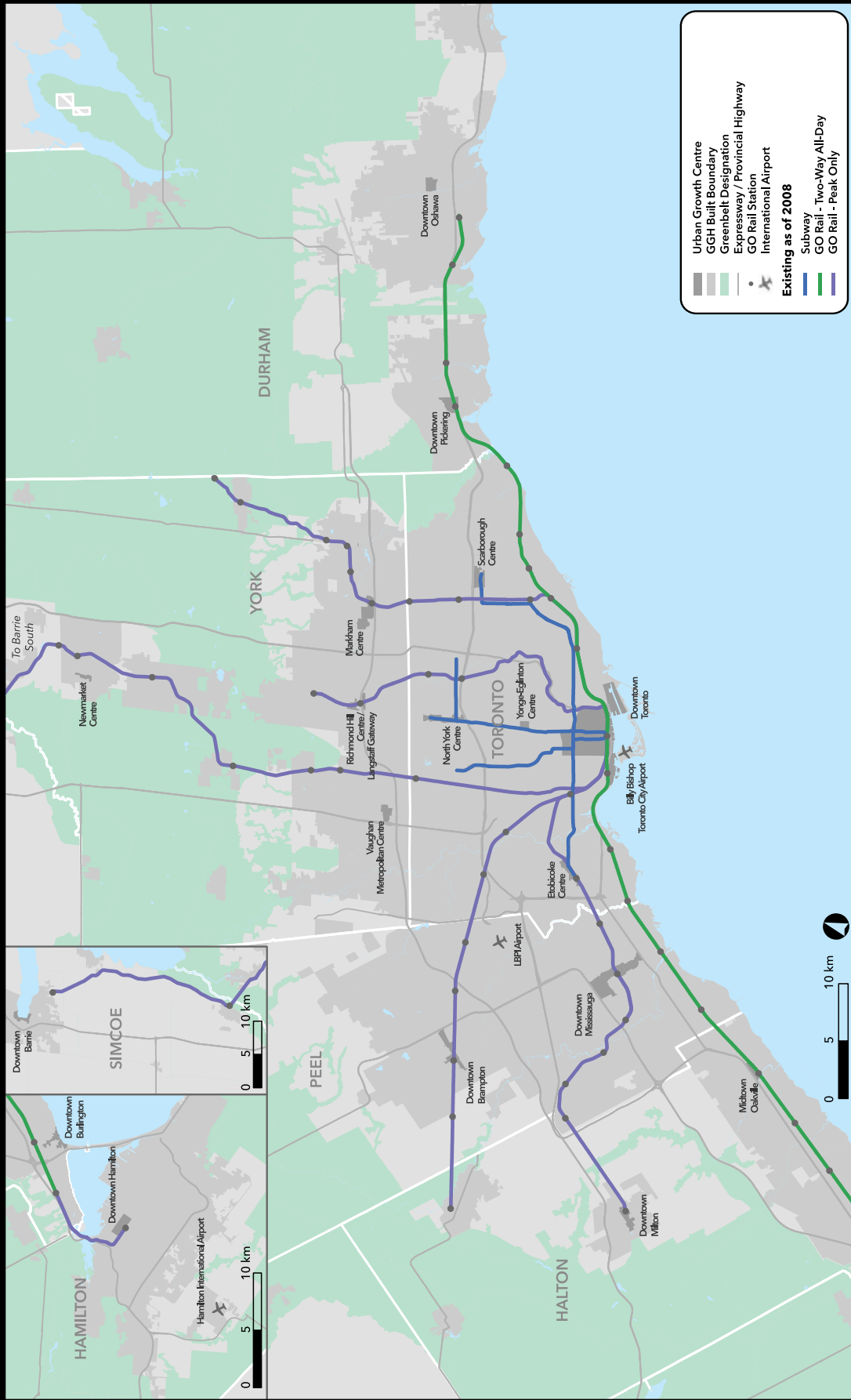
Improve goods movement within the GTHA and with adjacent regions



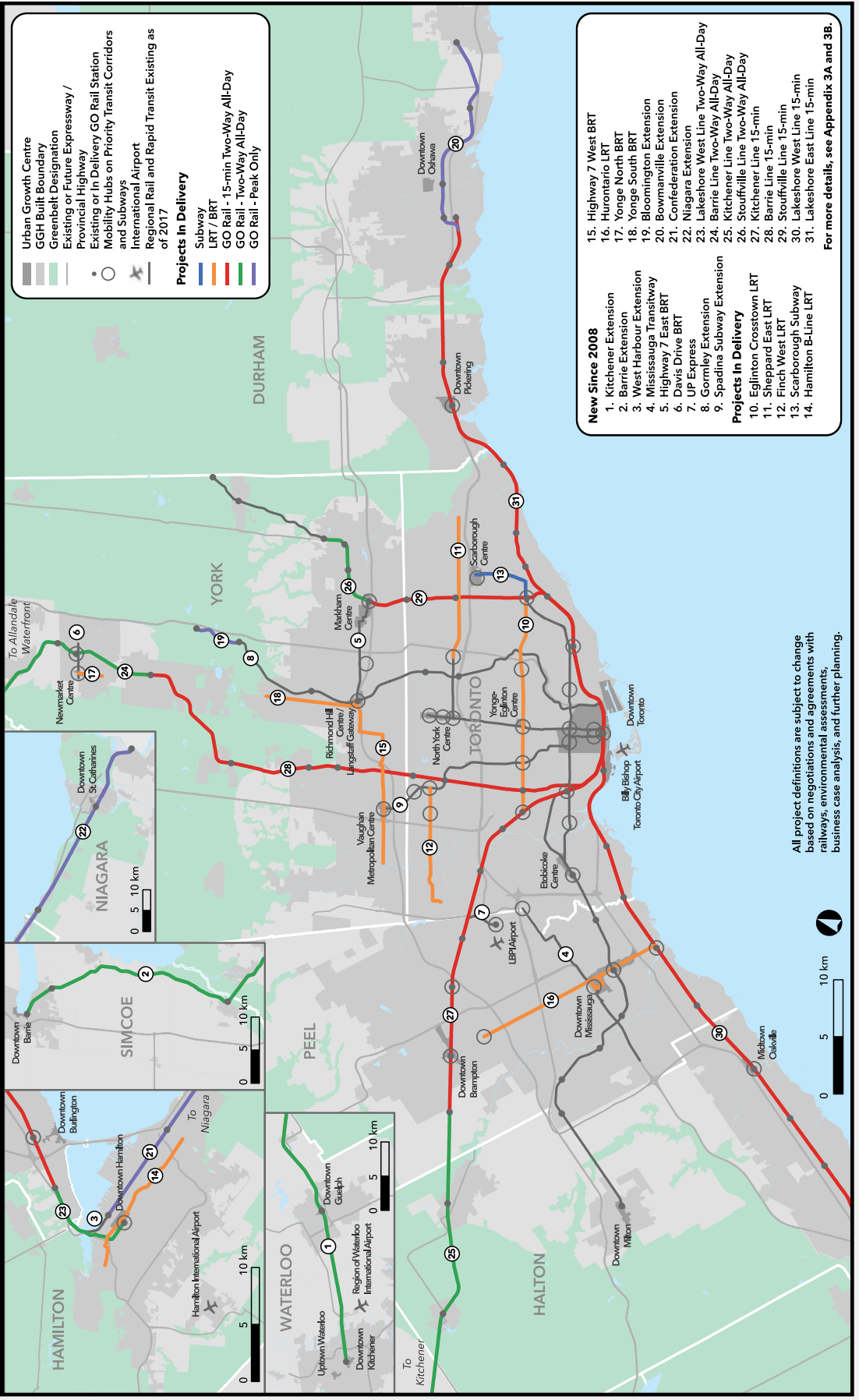
Commit to continuous improvement

*For more details, please see *The Big Move Baseline Monitoring Report and Supporting Documents, 2013* and *The Big Move Priority Action and Supporting Policy Review, 2016*. Available at: <http://www.metrolinx.com/en/regionalplanning/rtp/review.aspx>

Map 2: 2008 Regional rail and rapid transit network



Map 3: Existing and In Delivery regional rail and rapid transit projects



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 3A and 3B.



Key influences on transportation

The future will be one of rapid and unpredictable change, filled with a range of challenges and opportunities. This plan acknowledges that there will be unpredictables that may either accelerate or stunt progress. The 2041 RTP must build in the ability to remain relevant, effective and efficient under a range of possible futures.

This section examines several factors that are expected to influence transportation in the GTHA over the life of this plan:

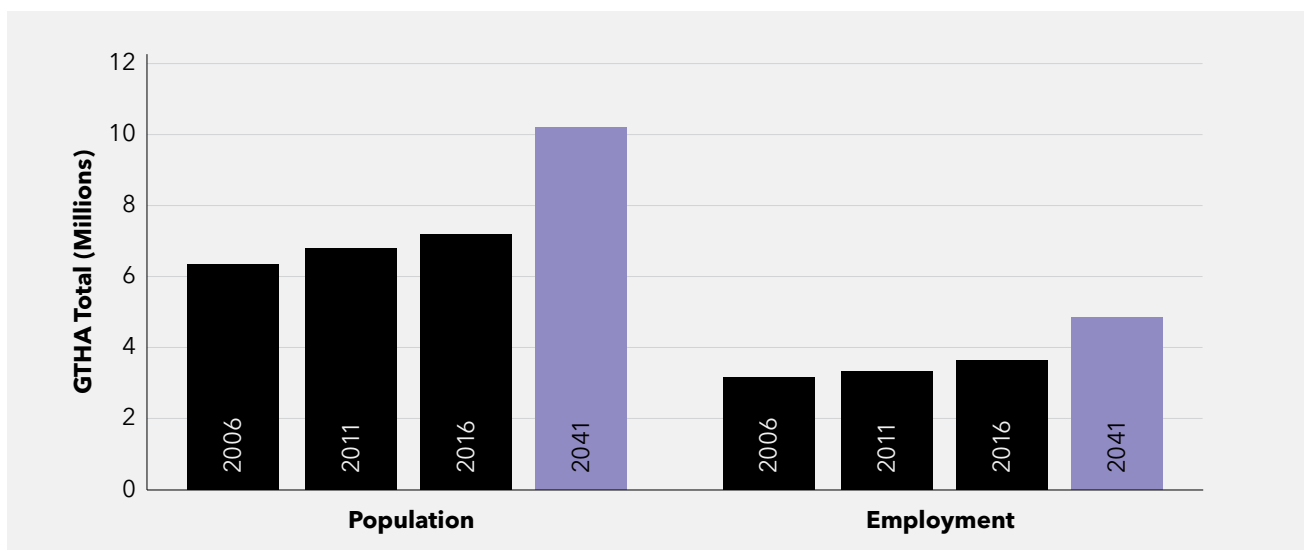
- growth is continuing and growth patterns are changing;
- the demographic profile of the region is changing;
- poverty is becoming more prevalent;
- housing has become increasingly expensive;
- the nature of work is changing;
- disruptive business models are challenging the transportation status quo;
- new transportation technologies are emerging; and
- climate change is a real and increasing concern.

Growth is continuing and growth patterns are changing

Over the next 25 years, the GTHA is expected to grow to 10.1 million people and the number of jobs is expected to rise to 4.8 million¹¹ (see Figure 5). The *Growth Plan* contains population and employment forecasts for individual municipalities that those municipalities must use to plan and manage their growth. These forecasts, and policy directions for where and how future growth must be accommodated, enable the coordination of region-wide growth management. In order to account for demographic and economic changes, the *Growth Plan* forecasts are reviewed at least every five years in consultation with municipalities.

While most population and job growth to 2041 will occur in GTHA municipalities outside Toronto (see Figure 6), significantly more growth than previously forecasted is now expected to take place in Toronto, particularly downtown.¹³ Suburban centres outside Toronto, including designated Urban Growth Centres, may not see the concentration of growth as quickly as envisioned in the *Growth Plan*. Outside Toronto, detached and semi-detached homes are expected to continue to dominate the housing market; still, higher-density housing is becoming increasingly common in these areas, and significant urban centres outside Toronto are starting to emerge.

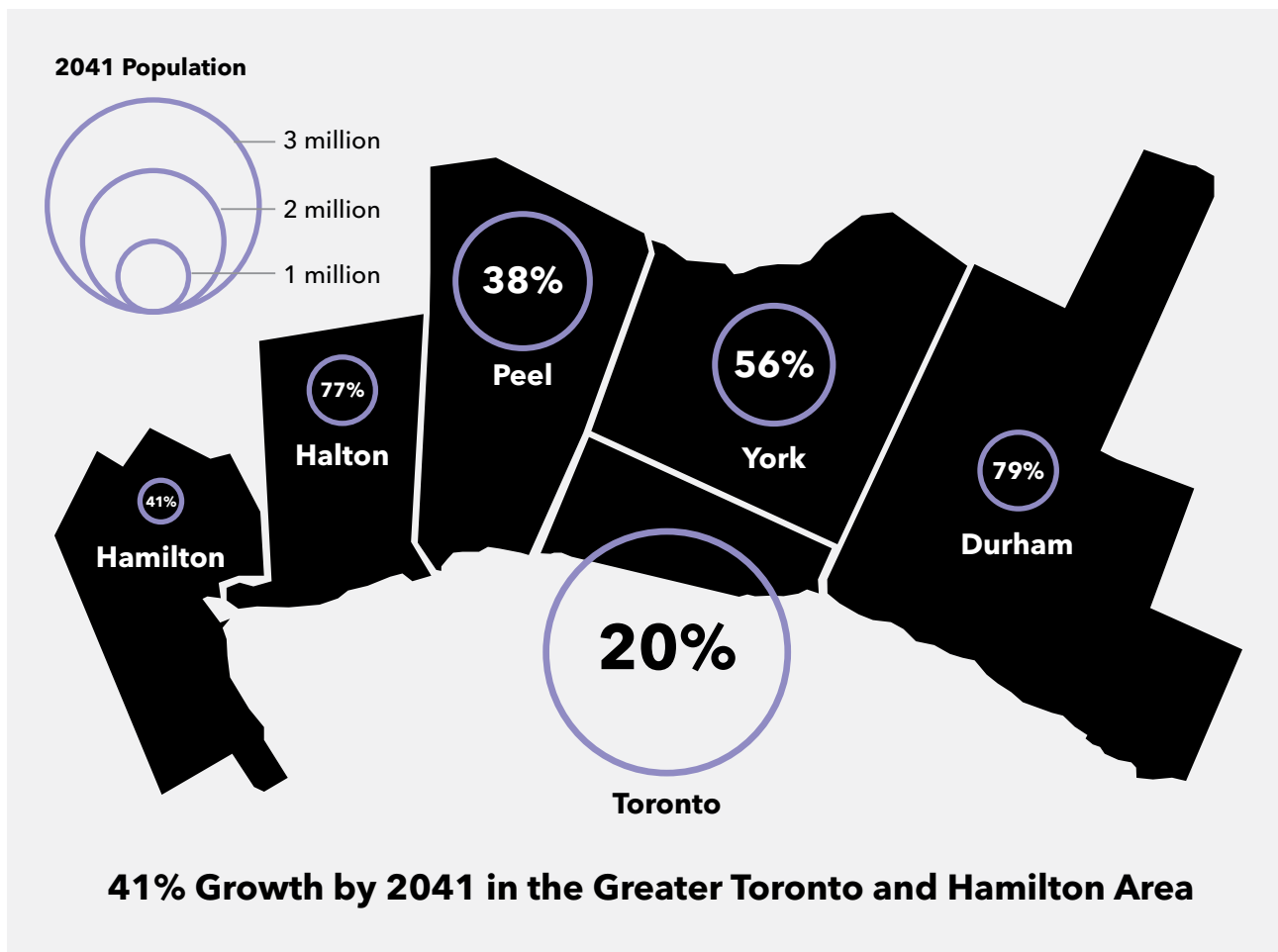
Figure 5: GTHA population and employment growth, 2006-2041¹²



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).¹⁴ Importantly, significant employment growth 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, which are difficult to serve by transit and to navigate on foot or by bicycle.

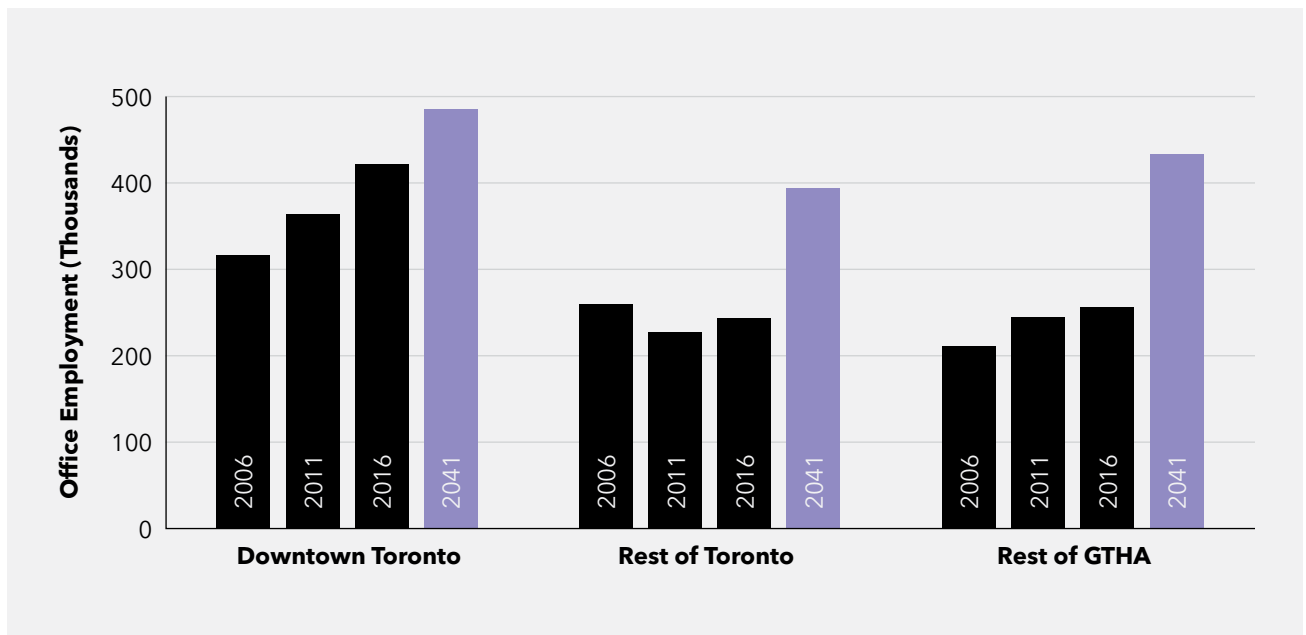
The concentration of growth in downtown Toronto, particularly of office employment, is expected to continue, furthering the need for increased transit capacity and access to downtown from across the region. Nonetheless, most growth in the region is forecasted to take place outside Toronto, resulting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

Figure 6: Population growth by upper and single-tier municipality, 2016-2041



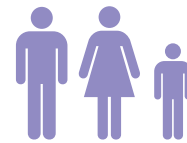
Source: Statistics Canada 2016 Census; *Growth Plan for the Greater Golden Horseshoe, 2017*.

Figure 7: Growth in office employment, 2006-2041¹⁵



The demographic profile of the region is 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 at least 65 years old will double by 2035, and seniors as a proportion of the total population will increase from 14% in 2016 to almost 24% by 2041 (see Figure 10).¹⁶ Understanding this shift will help us plan and manage the transportation system, because different age groups have different transportation needs.¹⁷ Seniors are less likely to use transit, for example, which will create challenges for the next generation of mobility services. The GTHA's population is also becoming more diverse, with population growth increasingly driven by immigration.¹⁸ Understanding the travel preferences of the future population will be important in planning for parts of the region where household sizes and auto ownership rates could change over time.



25%

of new population growth is projected to be in areas where the current transit mode share is below 5%



40%

of the GTHA population will be in areas where the transit and active mode share will increase by at least 5%

Figure 8: Total peak period travel demand by travel market, 2011 and 2041

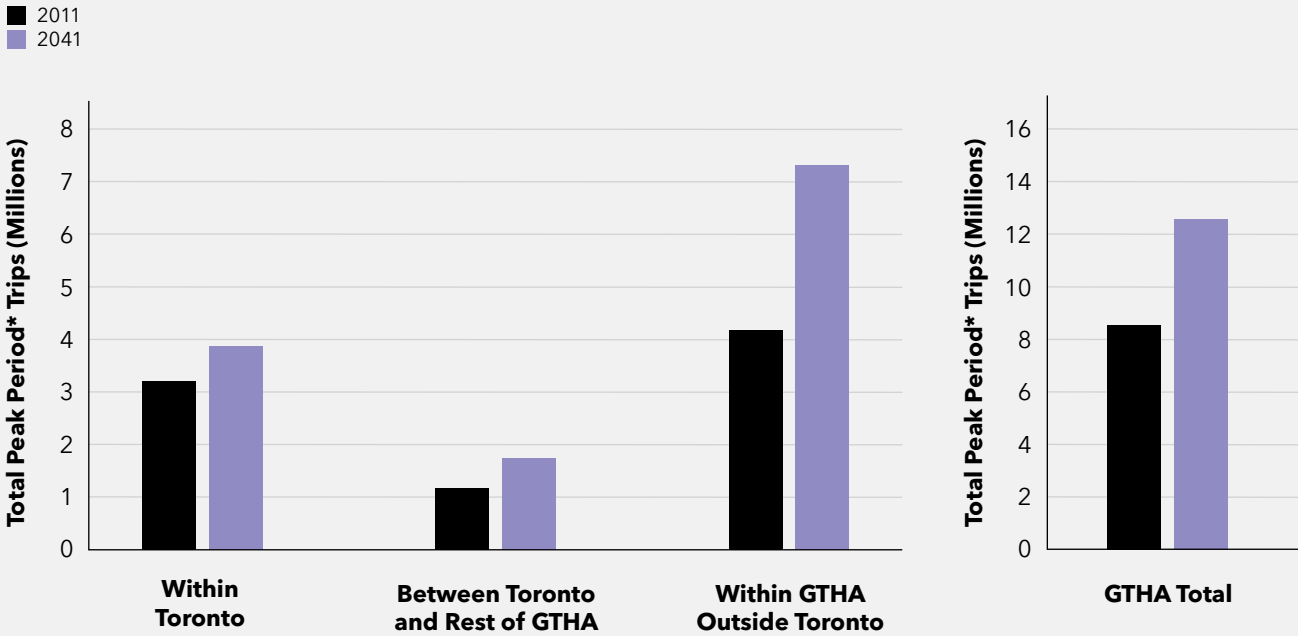
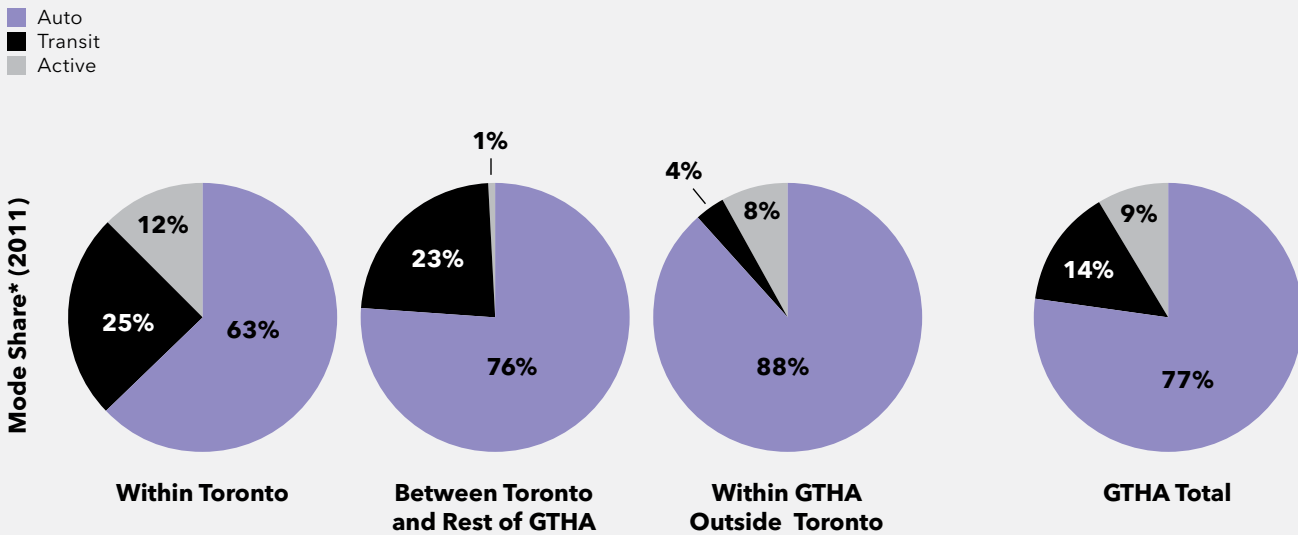
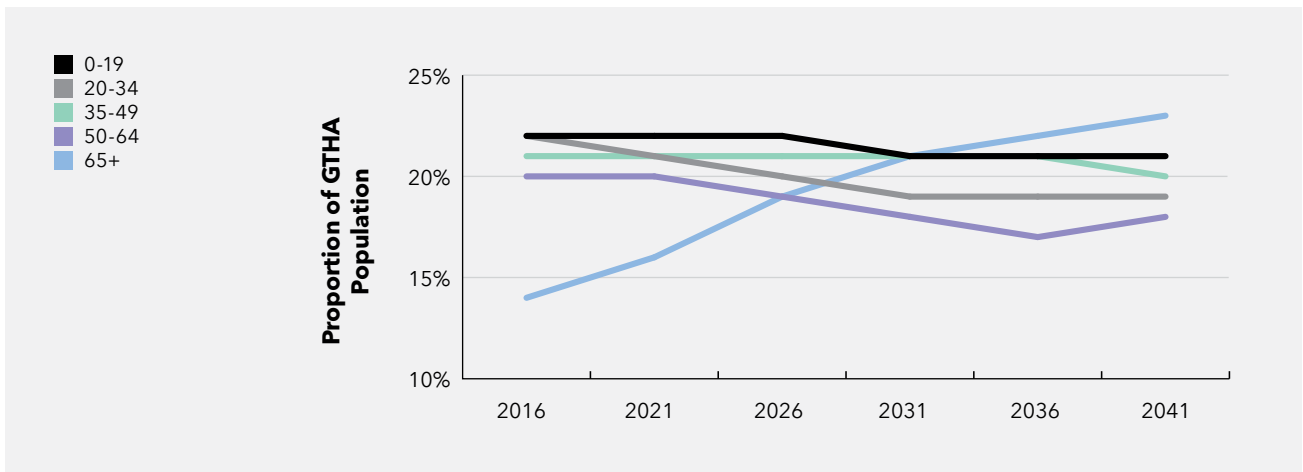


Figure 9: Peak period mode shares, 2011



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

Figure 10: Proportion of GTHA population by age group, 2016-2041



Source: Ontario Ministry of Finance Population Projections, 2017.

Poverty is becoming more prevalent

Despite some improvement since the recession of 2008, poverty is becoming more common in the GTHA. In Toronto, for example, the proportion of seniors living in poverty increased from 10.5% in 2011 to 12.1% in 2014.¹⁹ In 2011, more than one-third of all households and 43% of renters spent more than 30% of their income on housing,²⁰ a common marker of affordability. Low-income households tend to depend more on transit, but are also 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,²¹ which has affected housing choice in the region and 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 other areas in the region with good access to transit. In downtown Toronto, the average household size is decreasing,²² but population growth has increased the demand for transit where it is already near capacity, and where congestion and other factors have affected transit's reliability. As many families and larger households feel priced out of the housing market in core areas, some are choosing to locate further away where housing is more affordable. This poses a growing transportation challenge because 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 values²³ and can be more expensive to live in. However, research also shows that improved transit access can lower the cost of commuting.²⁴ In other words, while a resident in an area with good transit access may pay more for housing, they can reduce their 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 is changing

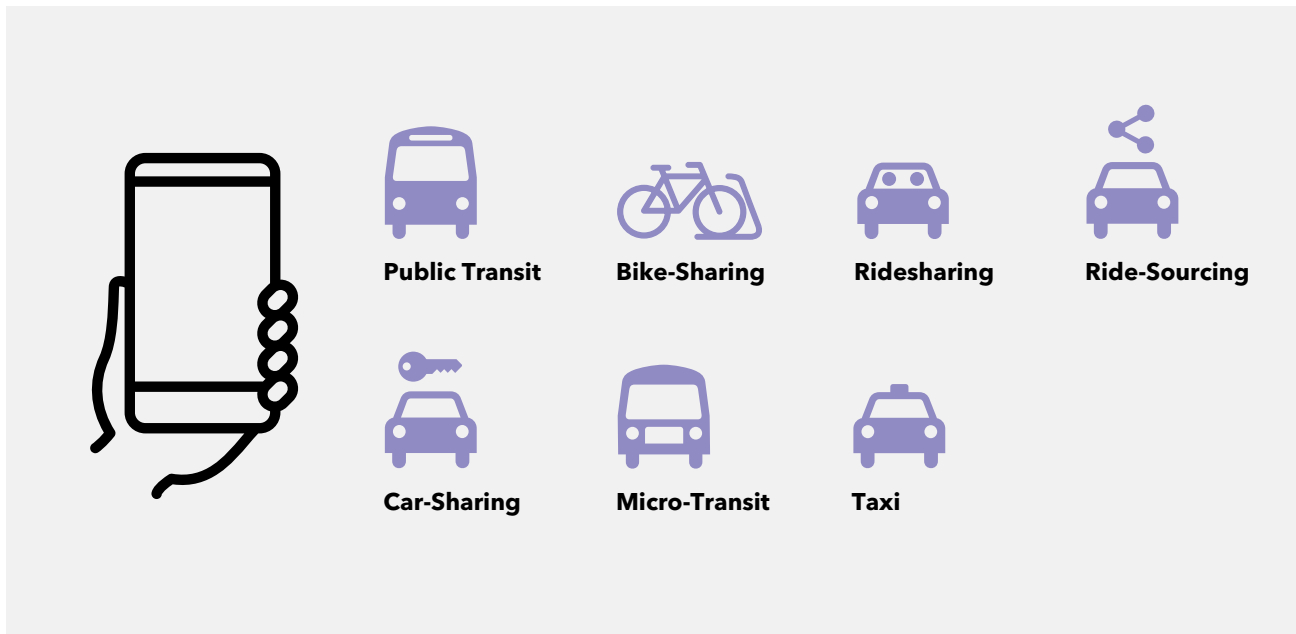
Automation and communication technologies are changing the kind of work people do, and how and where they do it. A recent study suggested that in the United Kingdom 30% of all jobs are at risk of being automated in the next 20 years, which could cause significant unemployment.²⁵ The same trends and resulting pressures on job retention are found in the GTHA. The proportion of people who work a nine-to-five job is decreasing,²⁶ and a recent study found that only 50% of GTHA workers hold permanent, full-time jobs.²⁷ Precarious employment—working one or more part-time or contract jobs to make ends meet—is the reality for many residents, and disproportionately impacts younger and female workers, as well as new Canadians.²⁸ When people work more irregular jobs, particularly in multiple locations, they are more likely to see the automobile as a better way of getting around than transit.

Disruptive business models are challenging the transportation status quo

Broader, faster access to technology and markets has ushered in the on-demand economy that caters to the independence and instantaneous demands of consumers. A well-known example 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 in 2017 provided an estimated 60,000 daily rides in Toronto.²⁹

Another emerging trend is the rise of mobility as a service (MaaS) platforms around the world. These MaaS platforms are integrated mobility services available by subscription, and offer travellers access to public and private transportation services—public transit, taxi, car rental, ride-sourcing, ridesharing, car-sharing and bike-sharing through a single app (Figure 11). The future roles and responsibilities of public organizations in planning for and delivering these services have not been established.

Figure 11: Mobility as a service concept





New transportation technologies are emerging

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

Autonomous and connected vehicles are primed to have major implications on mobility. Some experts predict that robo-taxis (autonomous cabs) will account for 27% of passenger travel by 2030;³⁰ other studies predict a slower fleet turnover and higher share of private, rather than shared, autonomous vehicles.³¹ Autonomous shuttle buses were first showcased in Europe in 2014 and are being piloted around the world, including near Montreal.

Many experts predict that autonomous vehicles could make mobility easier, safer and more seamless, improving mobility options in areas not well served by transit. They could also be extremely disruptive—creating inequitable access to services, impacting the workforce, and drawing customers away from transit systems. The arrival of private autonomous vehicles will almost certainly result in an increase in vehicle-kilometres travelled, which will worsen road congestion.³² Autonomous vehicles could also change how and where goods move in the region, and how businesses function.

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.



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. Climate change impacts 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.³³ The total economic cost of weather events in Canada is increasing over time (Figure 12). A region with an integrated, multimodal transportation system will be more resilient to extreme weather events. Designing new infrastructure for a changing climate, strengthening existing networks, and updating operational protocols will all help the transportation system function well under difficult and changing climate conditions.

In Ontario, the transportation sector is the leading source of GHG emissions, representing 33% of the total (Figure 13).³⁴ In its *Climate Change Action Plan (2016-2020)* the Province committed to reducing GHG emissions to 80% below 1990 levels by 2050.³⁵ Efforts to reduce GHG emissions usually have the benefit of reducing other air contaminants and improving air quality. Implementation of the 2041 RTP can play a significant role in helping meet these reduction targets through the electrification of GO Rail and the adoption of low-carbon forms of transportation. Metrolinx's *Sustainability Strategy* outlines the specific steps the organization will take to meet its sustainability goals.³⁶

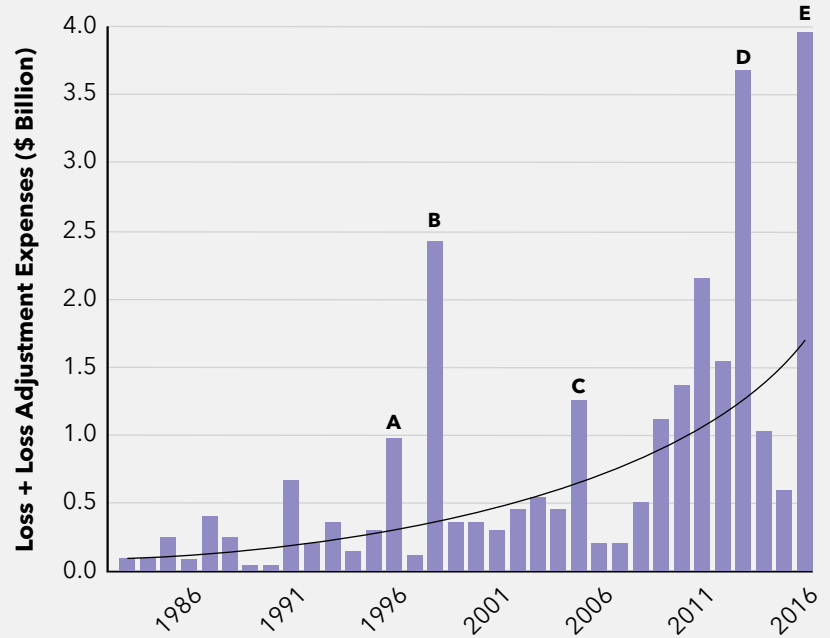
Reducing greenhouse gas emissions

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 12: Losses in Canada due to catastrophic weather events

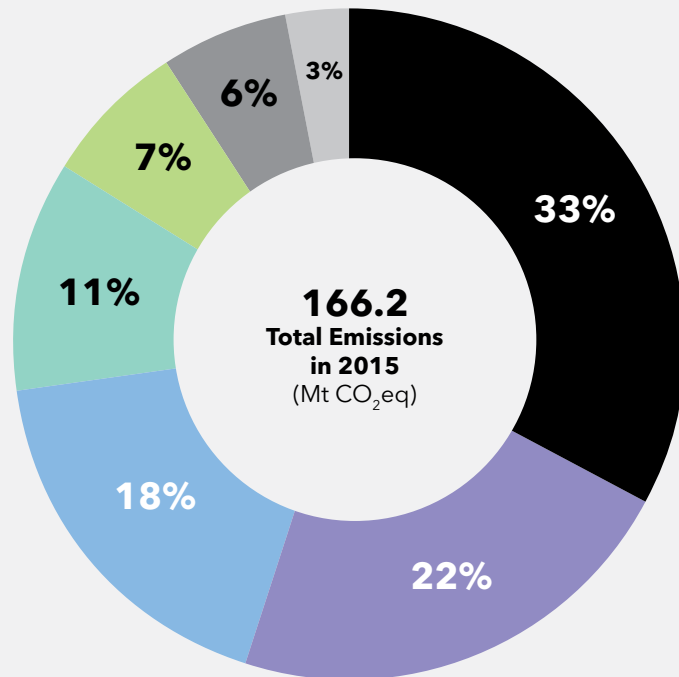
- A** Quebec Floods
- B** Eastern Ice Storm
- C** Ontario Wind and Rain
- D** Alberta and Toronto Floods
- E** Fort McMurray Fire
- Estimated Trend



Source: Insurance Bureau of Canada, *Facts of the Property and Casualty Insurance Industry in Canada, 2017*.

Figure 13: Greenhouse gas emissions by economic sector in Ontario

- Transportation
- Buildings
- Heavy Industry
- Waste & Others
- Agriculture
- Oil and Gas
- Electricity



Source: Environment and Climate Change Canada, *National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in Canada, 2017*.



Regional challenges

The Big Move set the stage for today's massive investments in rapid transit, and the 2041 RTP aims to build on these successes. However, there are a number of challenges that stand in the way of fully implementing the policies and actions in the Regional Transportation Plan. These are explored in this section.

Stronger integration of transportation and land use

Although the importance of integrating transportation planning with land use has long been established, decisions about land use planning, transportation planning, and investments are still often made in isolation. Full integration of municipal transportation and land use plans with the 2041 RTP is voluntary, and the priorities of municipal transit and transportation investments may not always be aligned.

The Growth Plan sets a strong policy framework for where and how to grow, and requires that municipalities plan for intensification. However, its implementation requires that municipalities and the private sector work towards the same goal. Ultimately, municipal policies and market forces jointly determine where growth is distributed. Competing objectives have sometimes led to jobs and services being located in areas that cannot support high-quality transit.³⁷ It is then a challenge to connect these areas to the rapid transit network.

Growth does not always happen as planned. At present, more than anticipated population and office employment growth is taking place in downtown Toronto.³⁸ This is positive for transit use, walking and cycling. 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 2041 RTP 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.³⁹ While travel to downtown Toronto is expected to increase, travel between suburban regions will grow even faster (see Figure 8).⁴⁰ Historically, this travel market has been dominated by single-occupant automobile use (see Figure 9), so in the face of increasing growth it is critical to reduce the share of people who drive alone. Otherwise, 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 our ability to achieve transportation goals. Communities with a mix of uses and sufficiently high densities can create the opportunity to walk, bike or take transit. However, many new roads and developments are designed to give preference to the movement of cars and trucks rather than transit users, pedestrians and cyclists. Without significant changes to community design practices, new transit services will not grow ridership, and active transportation will remain inconvenient, unsafe and uncomfortable.

Moving people, not just vehicles

For much of the twentieth century, transportation planning focused on moving cars as efficiently as possible. This resulted in streets that are designed for cars, with little room for transit vehicles, pedestrians and cyclists. Agencies in charge of roads, signals, parking, taxis and transit need to collaborate more closely to focus on moving people, not just vehicles, as efficiently as possible.

Focusing on the traveller

To develop the 2041 RTP, Metrolinx undertook intensive research—including panels, focus groups and surveys—to better understand travellers in the GTHA and their needs.⁴¹ It is clear that people travelling across the region have high expectations and want to have consistent, reliable, convenient, clean and low-cost travel options regardless of their preferred mode and what municipal boundaries they cross. People care little about what system they are on or who operates it—they simply want to get where they are going as quickly, comfortably and reliably as possible. Despite progress being made in coordinating fares and service, decisions by individual transit agencies may not always prioritize travellers' end-to-end journey experience. Ultimately, this means they may fail to attract and retain travellers.



Integrating fares and service

With the implementation of the PRESTO fare card, transit users have an easy and consistent way to pay fares across the region. The next challenge is establishing and coordinating a fully integrated fare structure and set of fare products and concessions. Most jurisdictions with fare integration use either zone- or distance-based fares. The main challenge of fare integration will be to find a way to preserve affordability and avoid placing an undue burden on transit users who will have to pay more.

Transit services often end at municipal borders, creating barriers to traveling by transit across municipal boundaries. 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.⁴² Double fares make cross-boundary transit services less attractive and reduce demand.⁴³ Double fares especially impact low-income residents who are dependent on transit. Fare and service barriers may cause low income residents to avoid making cross-boundary trips entirely, potentially depriving them of educational or employment opportunities and access to services. Most transit agencies in the GTHA have individual co-fare agreements with adjacent service providers. These agreements make cross-boundary trips more affordable for travellers.

GTHA transit systems developed around communities contained within municipal boundaries, but as those communities have grown people cross their boundaries more often. Today, many neighbouring communities with strong social and economic links have poor cross-border transit connections, and this can discourage transit use even where co-fare agreements exist. This is especially true for travellers between Scarborough, York and Durham, between Etobicoke and Mississauga, and between North York and York Region. Many of the frequent rapid transit routes proposed in the 2041 RTP cross municipal boundaries, and their benefits can be maximized through better fare and service integration.

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

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.

Coordinating decision-making

Decisions about transit and transportation are made daily at all levels of government. Most agencies work to support regional objectives, where feasible, but in some cases it can be a challenge to reconcile regional and local goals. In contrast, Metrolinx's focus is predominantly a regional one. Part of its focus is to ensure that others are working in alignment to achieve regional goals, despite their diverse mandates and responsibilities. Governments have significantly increased their support for transit over the last decade and progress has been made on key areas such as regional fare and service integration, yet more formal coordination and region-wide policies are required. All GTHA governments need to embrace new ways of working collaboratively to ensure that decision-making reflects and supports regional priorities and plans.

Additionally, the GTHA, the larger GO Transit service area, and the even larger GGH are overlapping areas that function as a single regional economy. Metrolinx has heard from some municipalities outside the RTP planning area that they would like Metrolinx to have a planning role in their communities, especially as it relates to the expansion of GO services.



Providing sustainable and long-term funding

The Province of Ontario has made an unprecedented investment—more than \$30 billion—in the GTHA’s transit infrastructure. While this committed funding will cover the capital costs of building fourteen rapid transit projects by 2025, it does not include maintenance and replacement costs. Additional funding from all levels of government will be needed to enable additional rapid transit projects after 2025 and to optimize the transportation system in collaboration with other levels of government.

Financial resilience requires sufficient funding sources that are tied directly to the 2041 RTP. Funding must address capital and operating costs, financing and asset management costs, and the costs of maintaining infrastructure assets in a state of good repair. Sustainable and reliable funding is required to align planning with what can be reliably delivered, year after year.

These important implementation issues of funding and decision-making are discussed further in the *Making It Happen* paper.