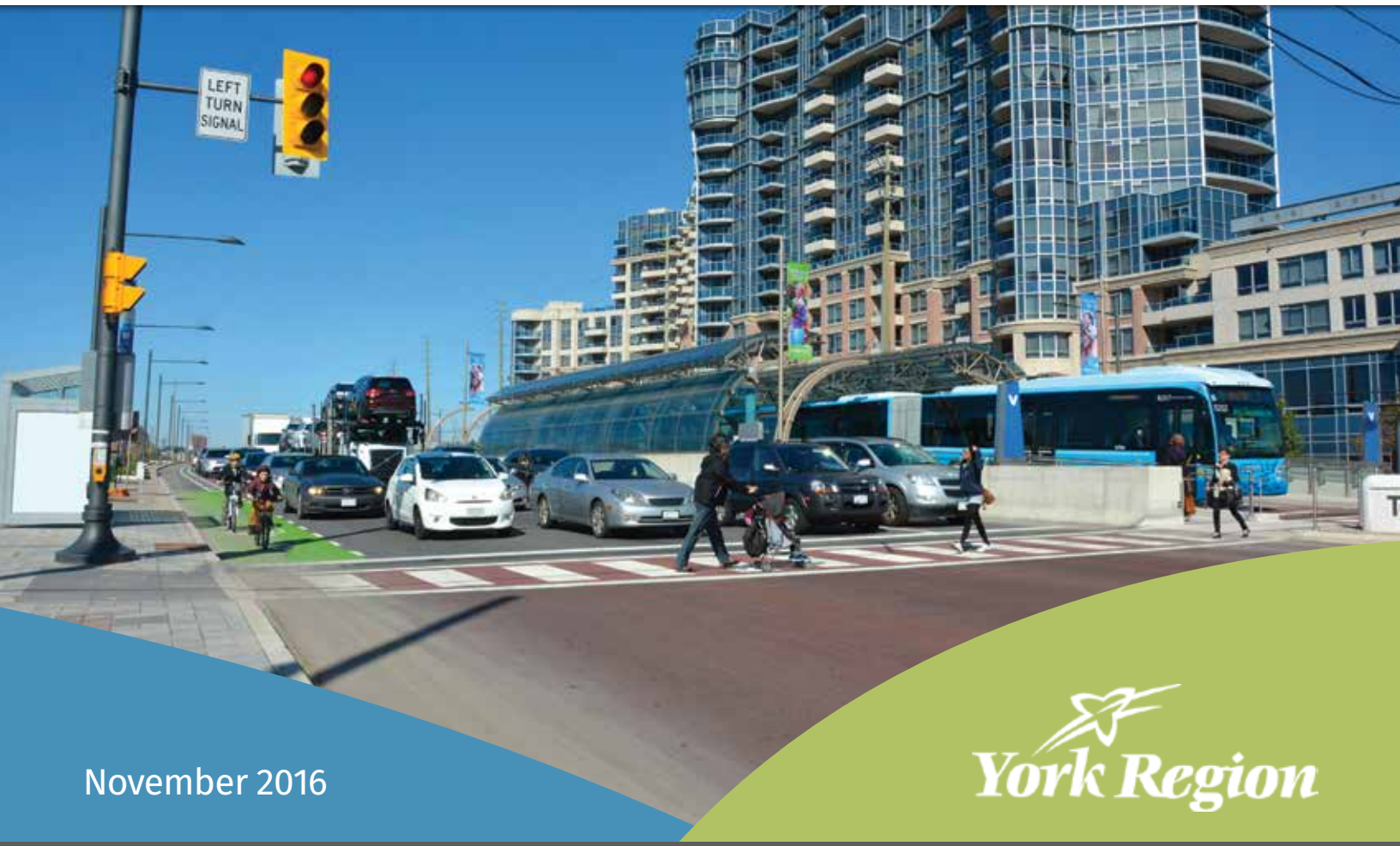
The Regional Municipality of York

Transportation Master Plan



November 2016

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A Message from York Region Chairman and CEO and Members of Regional Council

The ability to travel efficiently throughout York Region by car, by public transit or by bicycle is critically important to our residents and is a priority of Regional Council. As a result, it is imperative to update our Transportation Master Plan on a regular basis. This document is a roadmap that allows us to plan for future growth and support vibrant, connected and sustainable communities.

The updated Transportation Master Plan maps out our extensive transportation network from today until 2041. It considers our immediate and long-term needs and proposes the best ways to expand and rehabilitate our regional road network, to add bus and subway infrastructure, and grow our network of bicycle paths. By properly planning and investing in transit and transportation we can drive job creation and grow our economy by attracting new businesses. We can accommodate even more individuals and families who want to make York Region home. At the same time, we can improve our environment and enhance our quality of life.

The many improvements set out in the Transportation Master Plan will take time to implement and will require significant financial resources. However, Regional Council will continue to make progress in partnership with our senior funding partners at Queen's Park and in Ottawa. Our commitment to improve transit and transportation in York Region is absolute. I encourage you to review these pages and see where the Region is heading in the days, months and years to come.

Sincerely,

Wayne Emmerson
Chairman and CEO
Regional Municipality of York

Mayor
Margaret Quirk
Town of Georgina

Regional Councillor
Danny Wheeler
Town of Georgina

Mayor
Geoffrey Dawe
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Town of Whitchurch-Stouffville

Addressing York Region's Mobility Needs to 2041 and Beyond

The future success of York Region as the number one destination within the Greater Toronto and Hamilton Area (GTHA) for people to live, work and play is dependent on the Region's ability to build an interconnected system of mobility. This update to the Transportation Master Plan (TMP) sets out the infrastructure and policy requirements to enable the Region to build and maintain such a system. This includes additional transit infrastructure, roads infrastructure and a system of sidewalks and trails to further enable active transportation. The TMP provides a 25-year outlook to respond to the following challenge:

> *To create an advanced interconnected system of mobility in the Greater Toronto and Hamilton Area (GTHA) in order to give York Region residents and businesses a competitive advantage, making York Region the best place to live, work and play in the GTHA.*

Since 1971, York Region's population has increased nearly seven-fold. Approximately 1.2 million people in 2015 now call York Region home, with an additional 630,000 people expected to move into York Region by 2041. Alongside this population growth, York Region is forecast to add approximately 325,000 jobs, which will spur significant economic activity and increase the resiliency of York Region's economy. An optimistic and dynamic future is predicted for York Region. It is also a challenging future raising pointed questions about the capacity of our current transportation service delivery model to safeguard the quality of life residents, businesses and visitors enjoy while accommodating such dramatic growth.

Foundations

An interconnected mobility system that encourages active transportation, and is supported by compact, complete communities is essential to creating a healthy, economically-vibrant, socially-connected and sustainable Region. The delivery of this interconnected system of mobility is supported by the progressive objectives, policies and actions embedded in many of the Region's Council-approved plans and documents, including Vision 2051, the York Region Official Plan (2010), the 2015 to 2019 Strategic Plan, as well as the previous 2002 and 2009 Transportation Master Plans and the 2008 Pedestrian and Cycling Master Plan. The TMP update builds on this existing foundation to deliver transportation projects and programs that will continue to improve mobility and provide options for residents and businesses as well as position the Region to respond to emerging issues, policy changes and trends in the future.

Current and Future Conditions

Traffic congestion continues to be identified as the top issue facing York Region residents according to an annual survey conducted by an independent third party organization. Furthermore, in that same survey, residents identified traffic as the greatest threat to quality of life in York Region, followed closely by the high rate of development taking place. There is still a very strong reliance on use of a vehicle to meet travel needs. The existing Regional road network consists of more than 4,100 lane-kilometres of urban and rural roads that carry more than six billion vehicle-kilometres of travel annually. The TMP provides a detailed overview of a number of issues that may affect future travel demand in York Region and also outlines how the Region will continue to address future growth, respond to emerging trends in transportation, improve options for sustainable travel and manage the road network effectively.

Objectives

Engagement was central to the development of this Plan. The objectives of the TMP were developed based on the Region's foundational documents, extensive consultation with stakeholders, the public and the Transportation Master Plan Advisory Task Force (Task Force) and will support the delivery of an interconnected system of mobility.

The Task Force, chaired by the Regional Chairman and Chief Executive Officer and made up of members of Regional Council, was formed to provide advice and guidance related to local issues and critical pieces of the Master Plan. It served as an advisory body to Council, providing feedback to Regional staff in the development of policies for the TMP. The Task Force has been instrumental in the development and refinement of the TMP's five objectives:

Objective 1 – Create a World Class Transit System

York Region will have a World Class Transit System when there is a seamless interconnected system of subways, rapidways, a frequent transit network and other services that meet the needs of all York Region residents and businesses. This system will help to direct growth to Centres and Corridors and ensure a compact, mixed-use built form that minimizes the need for travel and reduces dependence on single occupant vehicles.

Objective 2 – Develop a Road Network Fit for the Future

A Road Network Fit for the Future will use technology and innovation to optimize the road network by leading in traffic management, urban design and providing opportunities to support all modes of travel within the Region's right-of-way, including transit, driving, cycling and walking.

Objective 3 – Integrate Active Transportation in Urban Areas

Focusing on improving the viability of active transportation in York Region's urban areas is vital to ensuring a sustainable transportation system for the future. The Region recognizes the benefits of providing a variety of active transportation options, including improved health of residents, better air quality and reduced greenhouse gas emissions, a more connected and efficient transportation network, reduced traffic congestion and less dependence on the automobile.

Objective 4 – Maximize the Potential of Employment Areas

Through technology and partnerships, the Region will identify opportunities to efficiently and safely move employees and goods around and through York Region to support ongoing economic growth.

Objective 5 – Make the Last Mile Work

The "last mile" refers to the point or moment when consumer decisions are actually made. It refers to the tactics used to increase adoption of transit and active transportation while lowering the amount of single occupant vehicle use especially during peak periods.

Policies Areas

There are five main policy areas developed as part of this TMP that will enable the Region to deliver an interconnected system of mobility to serve residents and businesses of York Region to 2041 and beyond.

Policy Area 1 – Finer Grid Network

Currently, the Regional road network is built on two-kilometre concession blocks, with a limited number of continuous collector roads spanning between Regional roads. This results in limited route options for people to reach destinations throughout the Region and contributes to congestion on the existing Regional road network.

Working with the Province and local municipalities to plan for and protect a series of mid-block highway crossings and continuous collector roads in York Region will provide alternate routes for vehicles, cyclists and pedestrians to reach destinations more quickly and safely. It will also better manage congestion by spreading traffic throughout the network.

The Region will be responsible for environmental assessments, design, construction, operation and ownership of all future 400-series highway crossings. The Region will be responsible for environmental assessments, design and construction of future interchange ramp extensions, with local municipalities responsible for operation and ownership. The Region will provide financial assistance and support to local municipalities for mitigating/bridging barriers (watercourses, railways, etc.) in the major collector road network for new and existing development areas. The Region will avoid implementation of new turning restrictions and vehicle-type restrictions on the Regional road system, except those required for network optimization and asset preservation purposes.

Policy Area 2 – Corridor Evolution

Regional streets are designed to accommodate a variety of travel modes, including transit vehicles, passenger cars, cyclists, pedestrians and trucks. As the transportation network continues to focus on the movement of people, the design and operation of Regional roads will continue to change over time.

The Region will ensure the most effective use of road space and financial resources over the long term by designing and operating Regional streets to maximize capacity to move people. This proposed policy principle will support the Region's ability to meet the mobility needs of today's users, while ensuring the corridor can be adapted in the future to meet changing travel needs.

The Region will develop a policy to permit redesignation of general purpose traffic lanes to HOV/Transit lanes or reserved bus lanes after established thresholds are met.

Policy Area 3 – Commuter Parking Management

Providing opportunities for residents to park their vehicles on the fringes of urban areas and access different modes of travel for part of their trips, such as transit or car sharing, will enable people to make choices about how they move around and through York Region. The outcome of this strategy is anticipated to be a lower number of auto trips accessing and parking at key destinations in the urban centres, including employment areas and transportation hubs/stations.

The Region will partner with other agencies and the private sector to conduct an in-depth study that informs the Region's strategy in providing commuter parking in order to ensure that the transportation network is being planned comprehensively to support travel needs of residents in the future. It will provide direction regarding on-street parking. The Region will identify and implement pilot projects, including the use of paid parking.

Policy Area 4 – Goods Movement Network

The Regional road network accommodates significant volumes of truck traffic, due in part to increasing economic activity in the Region and the presence of major rail facilities, highway corridors and distribution centres in the southern municipalities. As York Region becomes more urban, with a combination of industrial, commercial and residential land uses, conflicts between road users are more challenging to resolve.

The absence of a goods movement strategy and identification of priority routes in York Region has resulted in a goods movement service not currently aligned with adjacent municipalities or industry best practices.

Developing a Goods Movement Strategy will enable the Region to work in partnership with other agencies and the trucking industry to develop solutions that meet the needs of all residents and stakeholders, and will continue to attract investment, create jobs and foster economic growth in York Region.

Policy Area 5 – Boulevard Jurisdiction

The Municipal Act, 2001 determines which services are the responsibility of the Region and those to be provided by local municipalities. On Regional roads, local municipalities are currently responsible for construction and maintenance of some major boulevard elements, such as sidewalks, multi-use paths and illumination, while the Region is responsible for building and maintaining roadway elements primarily between curbs. The division of responsibility creates public confusion and issues with consistency around construction and maintenance of sidewalks,

street lights and streetscape elements on Regional roads. With the current split in jurisdictional responsibility, significant gaps continue to exist in the provision of sidewalks and illumination along Regional roads. Working with local municipalities to transfer responsibility to the Region for construction and maintenance of these boulevard elements will ensure that residents are best served with continuous sidewalks, consistent street lighting and context-sensitive streetscape elements on Regional roads.

The Region is responsible for delivery of public transit service in York Region. Transit users typically begin and end their trips as pedestrians or cyclists and use Regional roads to access transit stops and stations. As the Region continues to expand transit service, providing continuous sidewalks and illumination will ensure residents have safe and accessible routes to transit stops, stations and destinations.

Networks

Networks presented within this TMP represent the ultimate build-out of the transit, roads, active transportation and goods movement networks to the year 2041. The TMP forms part of the Region's long-term investment strategy that will enable the Region to keep up with the pace of growth in a manner that is sustainable and responsible. To meet evolving needs of York Region's growing population, networks will be phased in over the next 25 years. In addition, this TMP is required to undergo a regular review as part of legislated Official Plan and Development Charge Bylaw updates. Phasing for implementation of the networks is presented in detail within the TMP.

This TMP has followed the Municipal Class Environmental Assessment (EA) Master Plan process thereby fulfilling the requirements of Phases 1 and 2 of EA requirements for roads. The Municipal Class EA process recognizes that it is beneficial to begin the planning process for infrastructure by considering groups of related projects or overall systems before dealing with project specific issues. Master Plans provide for this system-wide approach to infrastructure planning and, at the same time, integrate environmental assessment principles.

Implementation and Action Plan

The inter-jurisdictional nature of mobility in the GTHA will continue to increase the complexity of service delivery in York Region. Further, the success of the Region's TMP will be heavily dependent on leveraging successful partnerships with other levels of government. The Province's recent commitment to deliver Regional Express Rail within the next 10 years and to build new Provincial highway facilities will require continued cooperation with Metrolinx, Ontario Ministry of Transportation and other Provincial ministries.

In the coming years, the Region will also be looking to collaborate more closely with local municipalities to deliver services in a more efficient way. This TMP identifies several key policy changes that will require the support and ongoing involvement of local municipal elected officials and staff. With multiple levels of government having jurisdiction over various components of the transportation network, a partnership approach will be the best way to ensure the delivery of an interconnected system of mobility for residents of York Region.

Funding the Plan

The recommended networks and related programs will require $8.9 billion for transit and $7.6 billion for road related capital expenditures to 2041. Requirements for State of Good Repair of transportation infrastructure over this same time period are estimated to be $5.6 billion.

Governments around the world, including the Province of Ontario and the Region, are facing challenges with respect to funding infrastructure and other programs. New sources of funding and new ways of delivering services will need to be explored to ensure the continued affordability and sustainability of the system for all users. The Region currently funds Roads and Transit capital costs with a combination of development charges, tax levy and funding from other levels of government, including grants. Operating costs are primarily funded through a combination of operating revenues and tax levy.

In conjunction with other levels of government, the Region is exploring a number of alternative funding options to determine the most appropriate methods to fill the funding gap for building and maintaining the transportation system needed to service residents in the long-term. Options currently being investigated include: introducing a land transfer tax, land value capture, road pricing, sales taxes, vehicle licensing and registration fees and parking-related charges. The Region will continue to work in partnership with other levels of government, institutions, the private sector and the public to find funding solutions and infrastructure delivery methods that provide the most efficient and effective results.

Performance Monitoring and Key Performance Indicators

Performance measurement is a key aspect of ensuring objectives and initiatives are being met in the years following this TMP update. Ongoing monitoring and evaluation helps determine the effectiveness of the objectives, policies and program improvements moving forward.

The Region is developing a framework to evaluate and report on the progress and effectiveness of the TMP. The framework of indicators will be structured to align with the Region's Vision 2051, the York Region Official Plan (2010) and the strategic objectives of this TMP. Accurately evaluating the progress, effectiveness and implementation of the TMP will help ensure the Region is on the right track moving forward so that residents and stakeholders know where the Region is headed.

Recommendations

Recommendations in this TMP update support the Region's efforts to create an advanced interconnected system of mobility in the GTHA and include more than 120 policies, actions and major initiatives governed around five objectives of the TMP to address growing transportation needs. Policies and actions presented in the TMP will provide the basic principles and specific steps that will guide actions of the Region to achieve the objectives of the TMP. The big moves presented here are the key actions identified, which have the potential to transform the delivery of transportation services and mobility in York Region to 2041 and beyond:

Objective 1 – Create a World Class Transit System

The following major initiatives support creation of a world class transit system:

- Maximize the potential of Regional Express Rail
- Improve transit frequency and coverage through implementation of the Frequent Transit Network
- Complete Viva network (rapidways and new service corridors)
- Extend the Yonge North Subway to Richmond Hill Centre and study further subway expansions with partners
- Deliver the YRT/Viva 5-Year Service Plan
- Develop an implementation plan for the expansion of Park 'N' Ride facilities with transit connections to urban centres
- Support the freeway bus network and future provincial transitway corridors
- Improve service and fare integration with partner/neighbouring transit systems (e.g., GO Transit, TTC, Durham, Brampton)

Objective 2 – Develop a Road Network Fit for the Future

The following major initiatives support development of a road network fit for the future:

- Utilize technology to improve efficiency of the road network
- Expand high occupancy vehicle/transit network
- Develop the finer grid road network
- Build context sensitive multimodal corridors
- Incorporate flexibility in corridors
- Maximize the person carrying capacity through corridor evolution
- Complete the Langstaff Road Missing Link
- Build missing links and new roads
- Widen and urbanize roads in new growth areas
- Eliminate pinch points and bottlenecks

Objective 3 – Integrate Active Transportation in Urban Areas

The following major initiatives support integration of active transportation in urban areas:

- Accelerate active transportation infrastructure that connects communities to transit spines, major destinations and Regional Centres
- Support the last mile
- Complete gaps in sidewalks
- Develop a trails strategy to provide a network of greenways
- Build comfortable and convenient cycling infrastructure that appeals to a broad range of ages and abilities
- Work with MTO to make highway interchanges pedestrian and cycle friendly
- Complete Lake to Lake Cycling Route and walking trail and prioritize projects that support connectivity in urban areas

Objective 4 – Maximize the Potential of Employment Areas

The following major initiatives support maximizing the potential of employment areas:

- Complete the Langstaff Road Missing Link
- Designate a Strategic Goods Movement Network
- Protect for and implement ramp extensions and interchanges
- Improve connectivity to 400-series highways

Objective 5 – Make the Last Mile Work

The following major initiatives support making the last mile work:

- Provide safe and convenient walking/cycling opportunities to mobility hubs
- Manage parking supply and demand with innovation, pricing and technology
- Support transit-oriented development
- Embrace emerging technologies and the sharing economy to improve convenience and mobility
- Educate and encourage the public on their mobility options through strategies, programs and incentives that support non-auto travel

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Chapter 1 Introduction

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1.0 Introduction

1.1 Purpose of the Plan

The Transportation Master Plan (TMP) informs The Regional Municipality of York's (the Region) long-term investment plan that will enable the Region to keep up with the pace of growth in a manner that is sustainable and responsible. The TMP provides a 25-year outlook and provides progressive policy and network recommendations in order to respond to the following challenge:

> *To create an advanced interconnected system of mobility in the Greater Toronto and Hamilton Area (GTHA) in order to give York Region residents and businesses a competitive advantage, making York Region the best place to live, work and play in the GTHA.*

York Region is part of the GTHA. It has a two-tier municipal governance structure, with services provided by the Region and local municipal governments. As of 2015, York Region is home to approximately 1.2 million people within an area of 1,776 square kilometres, stretching from Steeles Avenue in the south to Lake Simcoe in the north. York Region had approximately 577,500 jobs as of mid-year 2015.

This document is an update to the 2009 Transportation Master Plan and the 2008 Pedestrian and Cycling Master Plan (PCMP). It is the Region's plan to achieve the transportation related goals of Vision 2051, the objectives of the York Region Official Plan (2010) and the 2015 to 2019 Strategic Plan. This TMP is shaped by Provincial policy, aligned with existing Regional and local policies and informed by stakeholder input. It will guide planning and investment in the Region's transportation network, policy implementation and service development.

A family cycling along the Nokiidaa Trail

York Region's success has been, and will continue to be, tied to an effective transportation system for moving people and goods. Planning for mobility in a rapidly changing region is a challenge. York Region is one of Canada's fastest growing areas and one of the most diverse in terms of physical geography, people and economies. York Region is projected to grow by 630,000 people and 325,000 jobs by 2041, making it home to 1.8 million people and 900,000 jobs. The Region's transportation networks must be optimized and expanded to meet this growth in a fiscally and environmentally sustainable manner.

Expansion of Regional roads alone will not solve congestion issues and in many cases it is not a possibility due to constrained rights of way. Across York Region, transit and active modes are increasingly competing for road space and challenging conventional expectations for free-flowing traffic movement. **Map 1** (located in the Maps section) illustrates the current and planned urban structure while **Exhibit 1.1** shows York Region in context with the Greater Toronto Area (GTA).

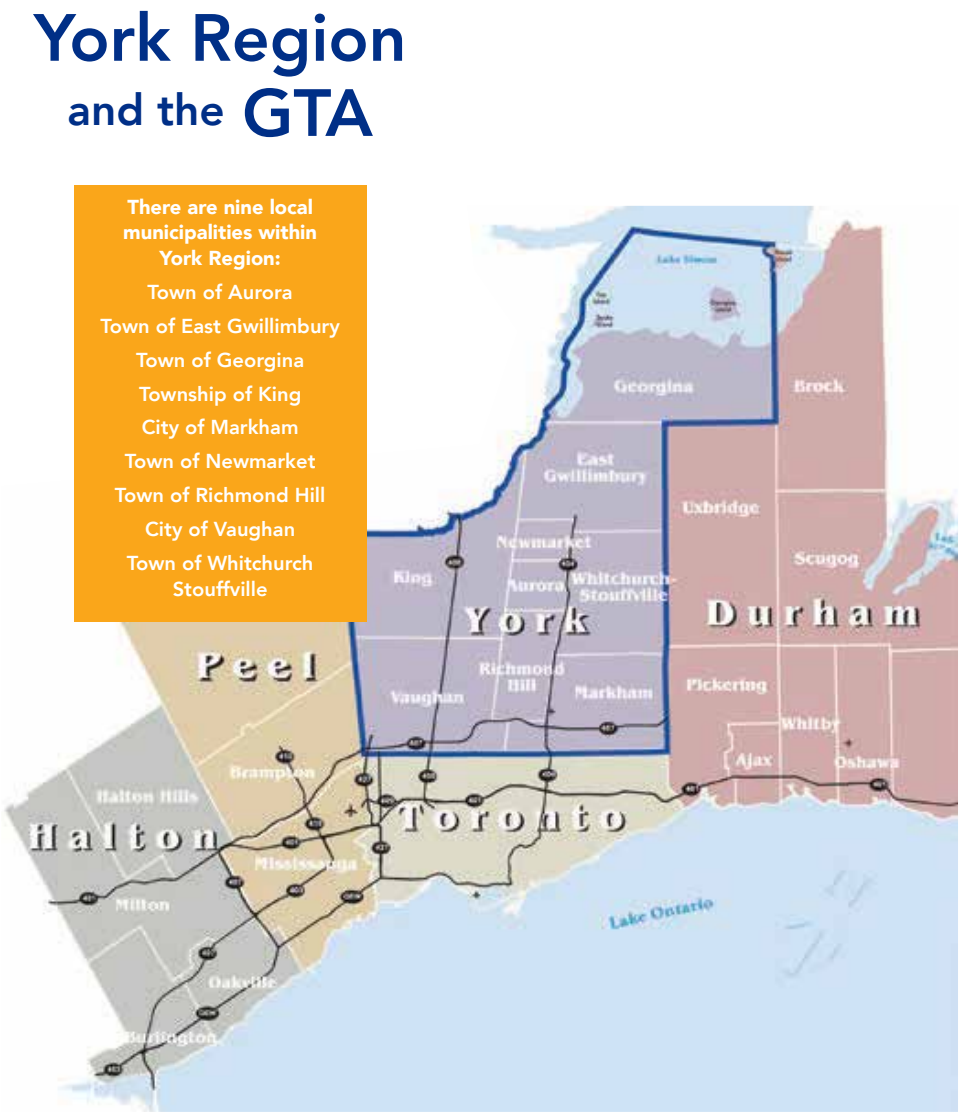


Exhibit 1.1: *York Region and the GTA*

1.0 Introduction

Travel demand is increasing more rapidly than infrastructure is constructed. A paradigm shift is required to accommodate mobility needs and improve quality of life in York Region. This TMP builds upon the strong foundations set by previous Master Plans. The previous Master Plan, completed in 2009, built upon the Master Plan completed in 2002. These Master Plans took a progressive approach to integrating land use and transportation, with a focus on rapid transit corridors. Previous plans also served to emphasize the importance of walking and cycling as integral to complete and healthy communities. The 2008 PCMP provided the necessary steps and tools for the Region and its partners to implement and maintain pedestrian and cycling facilities.

A key focus of previous plans was on building new and expanded infrastructure (roads, bridges, transit facilities, rapidways and cycling lanes). The Region has achieved success in meeting many objectives established by the 2009 TMP and the 2008 Pedestrian and Cycling Master Plan (PCMP). These plans are now being realized, most visibly through the opening of dedicated bus rapidways on Highway 7, Davis Drive and in the near future Yonge Street as well as the extension of the subway to the Vaughan Metropolitan Centre.

Viva celebrated its 10th Anniversary in 2015 and York Region is beginning to see the transformation of its urban Centres and Corridors to complete communities where people can live, work and play.

Bicycle lane and pavement treatment projects to enhance cycling and walking experience

Despite these achievements, the Region is falling behind the pace of growth. There are still many projects from past plans to complete to reduce congestion and improve mobility in York Region. These include the Yonge North Subway Extension to Richmond Hill and several major road corridor improvements identified in the Ten-Year Roads Capital Plan.

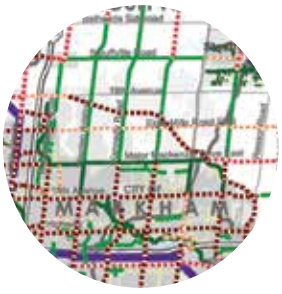


***Exhibit 1.2:** Transportation Master Plan update - integration of road, transit and cycling*

While the foundations established in the 2008 PCMP and 2009 TMP are still valid, there are a number of policy, investment and behavioural changes that must be addressed in this update to the TMP. The Province announced new initiatives to further expand transit services in York Region including Regional Express Rail (RER), which will provide all day, two-way service to Aurora on the Barrie GO Transit rail corridor and Unionville on the Stouffville GO Transit rail corridor. Other changes include new technologies that use real time data to better manage congestion and initiatives to better serve "the first and last mile". The "first and last mile" is a term that refers to the first or last portion of a trip to a rapid transit station, a carpool lot, school, home, place of employment or entertainment. The last mile is also important for goods movement. For example, it would include getting goods from an intermodal rail facility or airport to a distribution centre or retail store. This is a challenge given York Region's current urban form and evolving transportation networks.

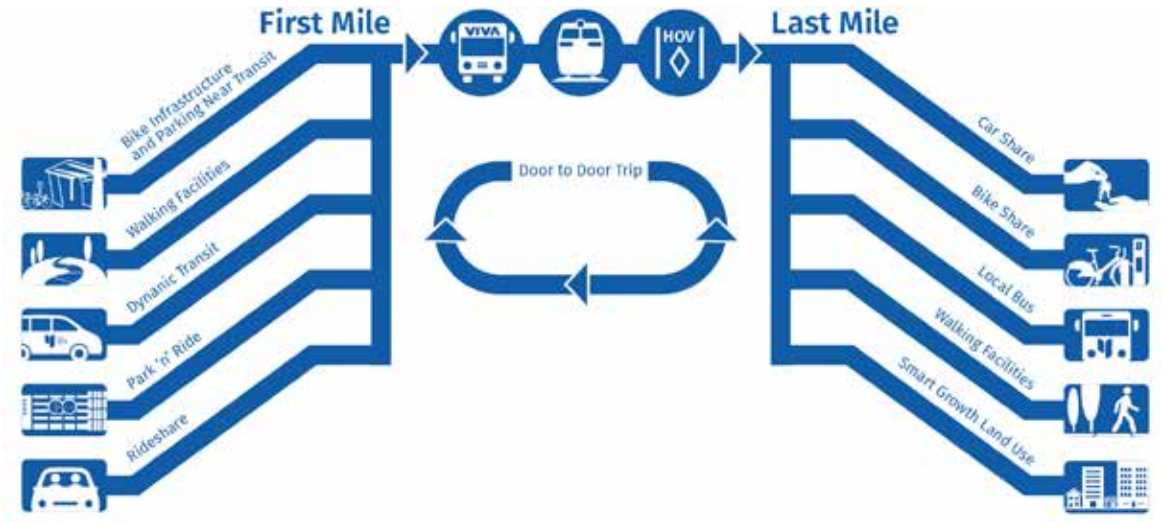


Exhibit 1.3: *Representation of options for complete trips*

More so than ever, technology is influencing how people travel and the options that are available to them. Technology has made it more convenient for people to plan their trips to take advantage of the best mode for any given trip. Rapid changes in technology are also causing disruptions in how people move around and the choices they make. Disruptive mobility is opening up entirely different travel options such as carsharing, dynamic carpooling, demand-responsive transit shuttles, connected vehicles, smart corridors and in the longer term, autonomous vehicles. This disruption results in non-government and unregulated agencies providing these services. This represents both an opportunity and a threat for transportation in York Region, and is therefore a consideration in this TMP.

This TMP provides a comprehensive action-oriented plan to:

- *Support Regional growth and intensification*
- *Enable consumer choice from a suite of travel options*
- *Prepare for change in philosophies, priorities, challenges, technologies and expectations*
- *Create a seamless, interconnected system of mobility where the focus is on innovation to develop a transportation system for tomorrow*

1.2 Building an Interconnected System of Mobility

York Region is supported by an extensive network of transit routes, local and regional roads, provincial highways and active transportation infrastructure. See **Exhibit 1.4** for the status of mobility infrastructure as of the end of 2015.

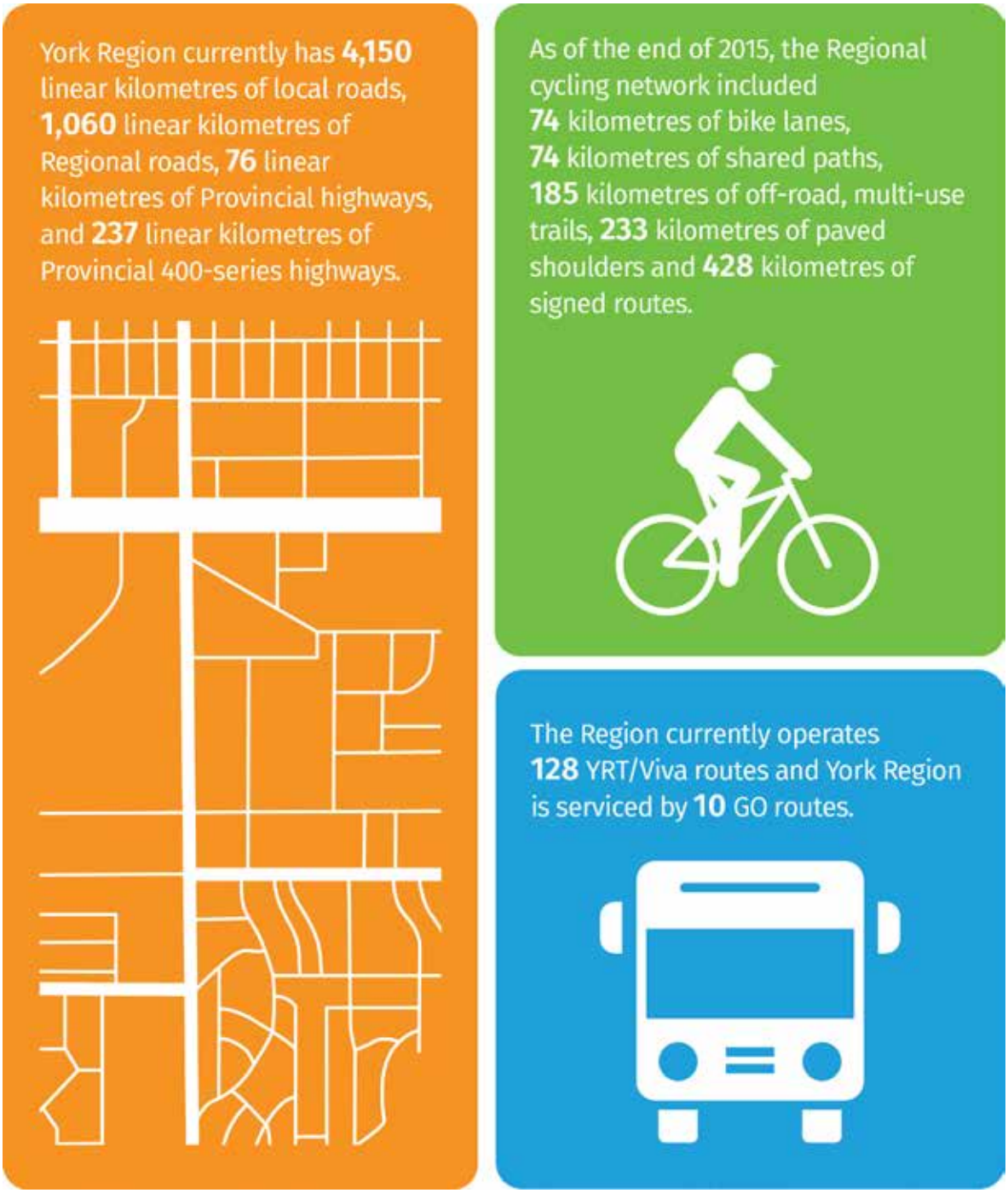


Exhibit 1.4: *Mobility infrastructure in York Region as of 2015*

The future success of York Region as the number one destination within the GTHA for people to live, work and play is dependent on the Region's ability to build an interconnected system of mobility. This TMP update sets out the infrastructure and policy updates to enable the Region to build and maintain such a system. This includes additional transit infrastructure, roads infrastructure and a system of sidewalks and trails to further enable active transportation. This will allow people to be able to connect to different systems together seamlessly and easily, with more enhanced service levels and more options around mobility where the choice of mode of transportation may be decided half-way through one trip.

Exhibit 1.5 shows the interconnectivity of the Region's infrastructure systems and how they serve to create complete communities.

Exhibit 1.5: Interconnectivity of the Region's infrastructure systems

1.3 Engagement

This TMP has been developed for York Region's existing and future residents, stakeholders and employers. Engagement was a key component to its development. The Region reached out to various demographics and users of the transportation system to understand their concerns and vision for the future of transportation in York Region. This included engaging York Region residents at events such as open houses, fairs, providing kiosks in community centres, setting up pop ups at GO stations and malls, and having a significant presence on social media including the twitter handle **#yoursay**.

Through these engagement strategies, the Region was able to reach 150,000 people and received approximately 2,000 pieces of unique and rich feedback from the community. Public input was sought at critical stages including the TMP foundations, developing the transportation strategy and the draft networks.

Major engagement activities included:

- Three rounds of public open houses in November 2014, May 2015 and November/ December 2015
- Two online surveys utilizing the Metroquest online engagement tool
- Targeted public outreach activities at fairs, festivals and major events

Staff actively engaged with:

- Active transportation representatives, including a one-day workshop and focus groups
- First Nations and Métis representatives, including a 2-day information session combined with the York Region Official Plan Review and the Water and Wastewater Master Plan
- The Building Industry and Land Development Association (BILD) (York Region Chapter)
- Local municipal staff and elected officials, including two rounds of individual meetings, two rounds of presentations to Council/Committee of the Whole and presentations to the Municipal Liaison Committee
- The Toronto and Region Conservation Authority and the Lake Simcoe and Region Conservation Authority
- The Provincial Government, including Metrolinx and the Ministry of Transportation
- Members of the Technical Advisory Committee
- Parks Canada

This TMP was also guided by a Transportation Master Plan Advisory Task Force (Task Force), chaired by the Regional Chairman and Chief Executive Officer and made up of members of Regional Council. The Task Force was formed to provide advice and guidance related to local issues as well as to provide guidance on the critical pieces of the TMP. It served as an advisory body to Council to provide feedback to Region staff in the development of transit and transportation policies for the TMP. The Task Force has been instrumental in the development and refinement of the TMP's five objectives, network development tactics, policy principles and transportation networks.

Details and specific outcomes of the TMP engagement process are provided in the Consultation and Engagement Summary Report.

1.3.1 Local Municipalities and Partnerships

In preparing this TMP, considerable effort was taken to ensure that its policies and projects align with key issues and priorities of the nine municipalities that make up York Region: the Cities of Vaughan and Markham, King Township, and the Towns of Aurora, Newmarket, Whitchurch-Stouffville, Richmond Hill, Georgina and East Gwillimbury. This included reviewing municipal transportation plans, where available, and two rounds of meetings with key representatives from municipal planning and engineering departments, presentations to local Councils and meetings with local Councillors.

Strong partnerships with local municipalities will be essential for the success of many of this TMP's recommendations including new mid-block crossings, improved pedestrian and cycling networks and transportation demand management initiatives. Similarly, partnerships with the Province on #CycleOn (2013), Ontario's 20-Year cycling strategy and neighbouring municipalities including the City of Toronto, Simcoe County and the Regions of Peel and Durham will be important in other areas.

1.4 Accessibility for Ontarians with Disabilities Act

The Accessibility for Ontarians with Disabilities Act (AODA) was established in 2005 and is a law that sets out a process for developing and enforcing accessibility standards. Ontario is the first province and one of the first jurisdictions in the world to enact specific legislation establishing a goal and time-frame for accessibility. It is also the first jurisdiction to legislate accessibility reporting and to establish standards so people with disabilities can participate more actively in their communities. The recommendations for the TMP will consider accessibility requirements and universal accessibility in accordance with the AODA.

The entire York Region Transit fleet is 100 per cent accessible

1.5 Implementing Mechanisms

This TMP is part of an ongoing review cycle. The TMP is reviewed approximately every five years to ensure continued conformity with Vision 2051, the York Region Official Plan and the current Strategic Plan. It also addresses changes in trends and emerging issues since the last update.

Building on a strong foundation and an analysis of current and future trends, a series of strategies have been developed to ensure mobility needs are met over the short, medium and long term. Within these strategies are a number of key policy directions which will be implemented through follow-on planning processes including updates to the York Region Official Plan. Development of detailed action plans to implement the TMP policies and strategies will be completed as part of next steps once the TMP is complete.

The implementation of physical changes to the transportation networks will be an ongoing process. Programming of projects will be refined through the annual budget process that includes review of 20-year capital requirements, taking into account affordability and deliverability. As discussed in detail in Chapter 10, the implementation of road and transit projects must follow the Municipal Class Environmental Assessment process and Transit Project Assessment Process (TPAP).

It is important to recognize that the TMP is a living document. Regular monitoring and reporting of the status of these various actions will be a key part of implementing this TMP. Ongoing public and stakeholder engagement will continue to inform the implementation of the plan.

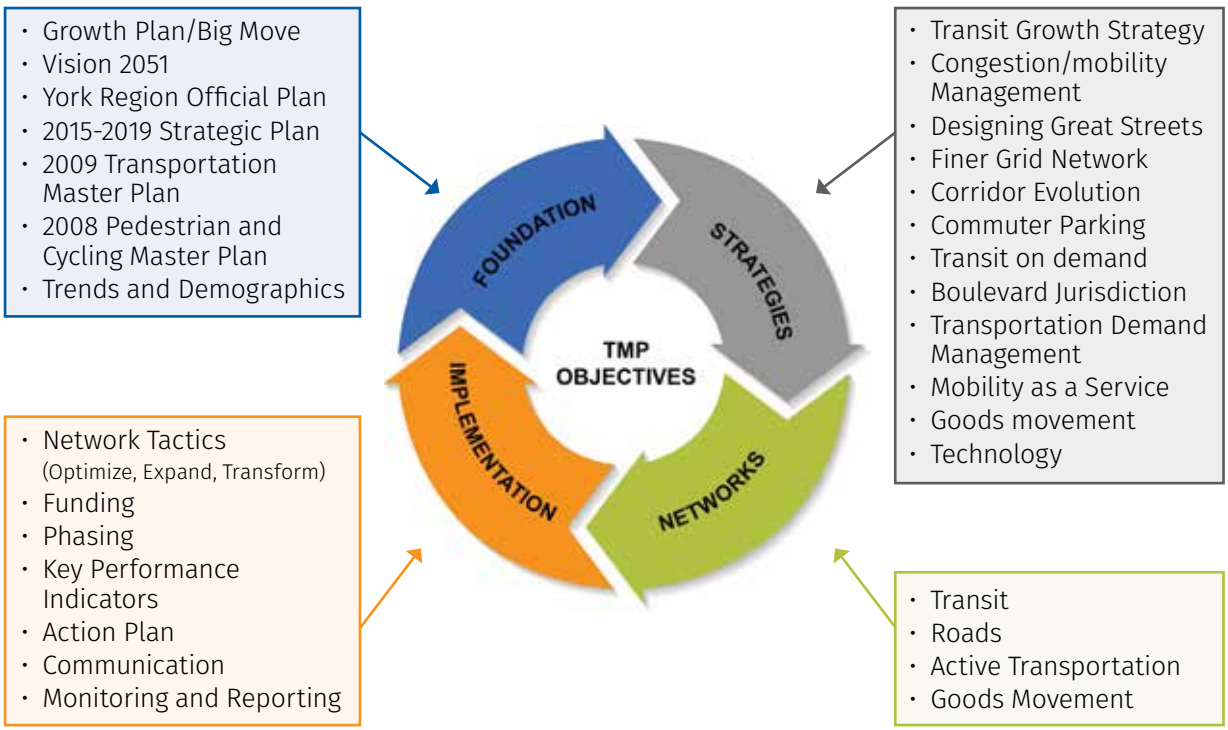


***Exhibit 1.6:** Development of the TMP*

1.6 How this Document is Organized

This document is structured into the following key chapters:

Chapter 2 – Current and Future Conditions - this chapter describes the current state of the Region's transportation networks, congestion levels and mobility challenges as well as the projected state by 2041 with the Provincially-approved growth forecast.

Chapter 3 – Foundations – this provides information regarding the key background and supporting documents in shaping the vision for transportation and mobility in York Region.

Chapter 4 – Objective 1 – Create a World Class Transit System – this chapter describes what it means for York Region to have a World Class Transit System, what policies will be required, what actions must be taken and what the big moves are.

Chapter 5 – Objective 2 – Develop a Road Network Fit for the Future - this chapter describes what it means for York Region to have a road network fit for the future, what policies will be required, what actions must be taken and what the big moves are.

Chapter 6 – Objective 3 – Integrate Active Transportation in Urban Areas - this chapter describes how the Region will integrate active transportation in urban areas, what policies will be required, what actions must be taken and what the big moves are.

Chapter 7 – Objective 4 – Maximize the Potential of Employment Areas - this chapter describes how the Region will maximize the potential of employment areas, what policies will be required, what actions must be taken and what the big moves are.

Chapter 8 – Objective 5 – Make the Last Mile Work - this chapter describes how the Region will influence demand for mobility services and how it will encourage residents and employees to increase adoption of transit and active transportation while lowering the amount of single occupant vehicle use, what policies will be required, what actions must be taken and what the big moves are.

Chapter 9 – Network Prioritization and Phasing – this chapter provides a description of the network prioritization process and presents the recommended phasing for transit, road and cycling network improvements.

Chapter 10 – Implementation and Action Plan– this chapter describes the key steps and concepts necessary for successful implementation of this Master Plan.

What is a Policy? The policies will set the basic guiding principles that will guide the actions of the Region to achieve the objectives of the TMP.

What is an Action? The actions represent the specific steps the Region will follow to achieve the objectives of the TMP.

What is a Big Move? The big moves proposed in this TMP are the key actions out of each of the key policy areas that have the potential to really transform transportation and mobility in York Region to 2041 and beyond.

Chapter 2 Current and Future Conditions

In this chapter:

2.0 Current and Future Conditions

2.1 Existing Conditions and Trends

2.1.1 Transportation System Overview

The existing Regional road network **Map 2** (located in the Maps section) consists of approximately 3,200 lane-kilometres of urban and rural roads that carry more than six billion vehicle-kilometres of travel annually. In 2015, approximately 22.1 million passengers rode York Region Transit and Viva services shown in **Map 3** (located in the Maps section).

As of 2015, within York Region there were:

- 4,150 linear kilometres of local roads
- 1,060 linear kilometres of Regional roads
- 76 linear kilometres of Provincial highways
- 237 linear kilometres of Provincial 400 series highways

The Region owns and maintains the majority of the roads in York Region as well as some former Provincial highways. The alignment of the arterial roads generally follows a two kilometre concession road grid system.

In 2015, the Regional cycling network **Map 4** (located in the Maps section) included:

- 74 kilometres of bike lanes
- 74 kilometres of shared Paths (in boulevard)
- 185 kilometres of off-road multi-use trails
- 233 kilometres of paved shoulders
- 428 kilometres of signed routes

These facilities are owned and maintained by the Region, local municipalities or conservation authorities.

Pedestrian facilities are comprised of sidewalks and trails together with amenities such as street furniture. The majority of Regional roads in the urbanized area have sidewalks on at least one side shown in **Map 5** (located in the Maps section).

Exhibit 2.1 provides a summary of how the Regional transportation system has changed since the 2009 TMP.

	2009	2014	Growth 2009-2014
Active Transportation Network			
Bike lanes (one-way km)	4	32	28 (+700%)
Paved shoulders (centreline km)	NA	243	243 (NA)
Multi-use path (linear km)	63*	43	154 (+244%)
Boulevard trails (linear km)		174	
Sidewalks (linear km)	486	683	197 (+41%)
Total	***553***	***1,175***	***622 (+112%)***
Local Transit Network			
YRT service hours	838,649	971,943	133,294 (+16%)
Viva service hours	237,910	257,473	19,563 (+8%)
Total service hours	***1,076,559***	***1,229,416***	***152,857 (+14%)***
GO Rail Network			
Richmond Hill rail corridor a.m. peak trips	4	5	1 (+25%)
Barrie rail corridor a.m. peak trips	4	5	1 (+25%)
Stouffville rail corridor a.m. peak trips	5	7	2 (+40%)
Total a.m. peak trips	***13***	***17***	***4 (+31%)***
Richmond Hill rail corridor a.m. peak seats	6,340	7,700	1,360 (+21%)
Barrie rail corridor a.m. peak seats	7,925	11,704	3,779 (+48%)
Stouffville rail corridor a.m. peak seats	6,340	8,008	1,668 (+26%)
Total a.m. peak seats	***20,605***	***27,412***	***6,807 (+33%)***
Road Network			
6-lane roads (km)	40	46	6 (+15%)
4-lane roads (km)	375	424	49 (+13%)
2-lane roads (km)	692	648	-44 (-6%)
Total linear km	***1,050***	***1,090***	***40 (+4%)***
Total lane-km	***3,399***	***3,532***	***133 (4%)***

* *2009 data only available for combined "Multi-use path" and "Boulevard trails"*

Exhibit 2.1: *Transportation supply trends – 2009 to 2014*

2.1.2 Mobility

Mobility is providing residents and businesses with ease of access to the places they want to go. The future cost of this mobility may not be like it is today.

Transportation continues to be identified as the single most important issue facing York Region in annual Environics surveys. Transportation has been an increasingly important local issue for fifteen years. Results of the most recent survey indicate that 80% of residents believe commutes greater than 45 minutes are too long. 46% of residents would support construction during evenings and weekends in order to minimize impacts to traffic while 58% of residents would use commuter parking lots and York Region express shuttles if it reduces travel time.

There is a strong reliance on the automobile in York Region. Now and in 2041, two out of three people will still drive to work. Roads are often heavily congested during peak periods as most vehicles carry a single occupant and often to destinations outside of York Region.

Trucks on Wellington Street in Aurora, 2015

Overall travel trends are showing that travel patterns are becoming more varied. There are more intra-regional trips, or those trips that are contained within York Region, and a greater share of trips that are not destined for work or school are occurring in the morning peak period. Between 2006 to 2011, the distance to work among residents that both live and work in York Region has decreased, versus the increase experienced between 2001 and 2006. Although auto dependency is growing, travel by more sustainable modes has grown faster than car use, proportionally speaking. Transit is becoming a more competitive option, especially for people commuting to downtown Toronto and the number of cycling trips has increased due to investment in cycling infrastructure.

Exhibit 2.2 summarizes some other trends that are influencing travel behaviour in York Region:

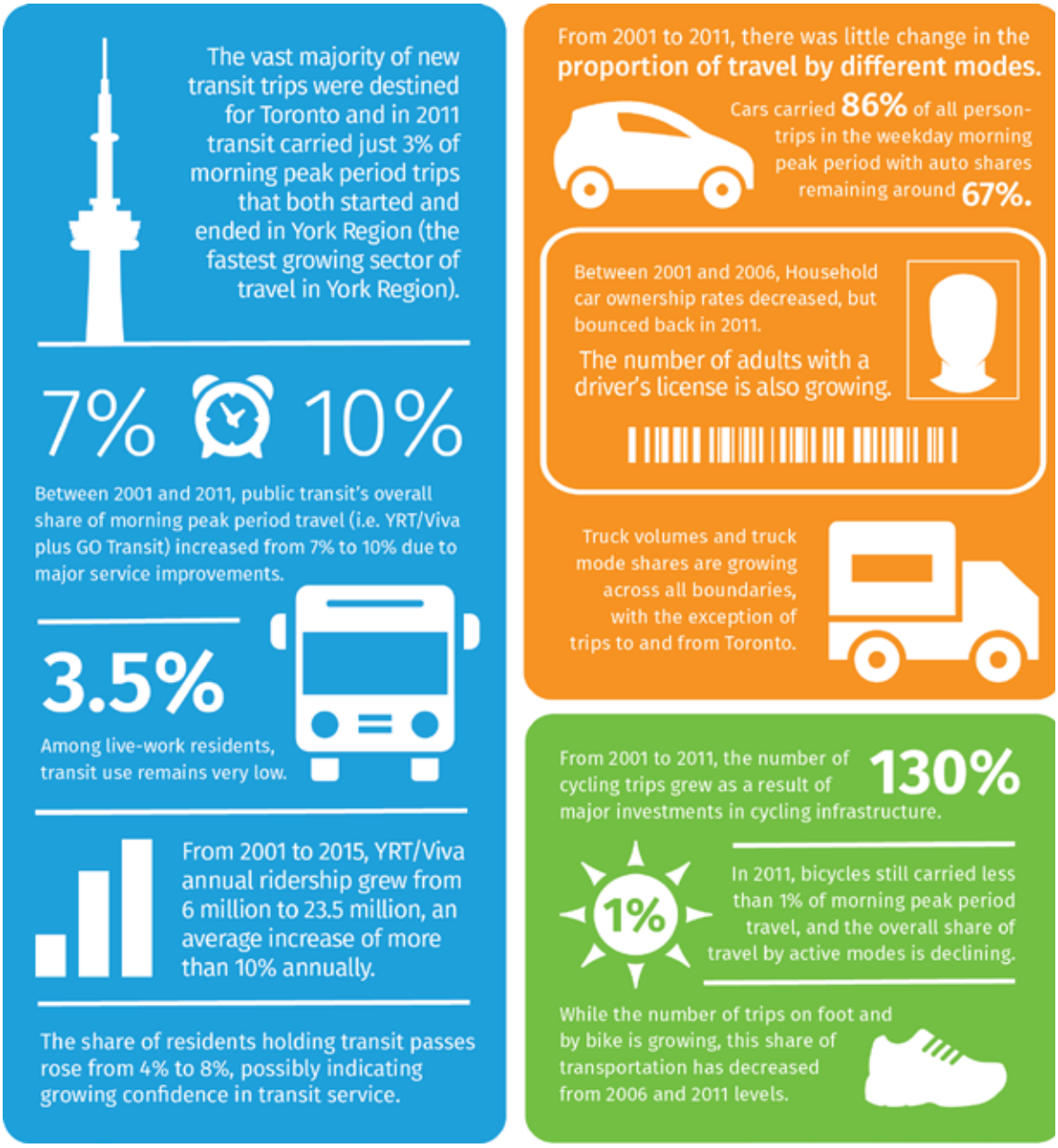


Exhibit 2.2: *Travel trends in York Region*

Trends From Transportation for Tomorrow Survey and 2011 Cordon Count Survey	2001	2006	2011
REGION-WIDE TRAVEL PATTERNS			
Number of daily trips	1.6 M	1.9 M (+13%)	2.2 M (+20%)
Number of morning peak trips	415,300	486,500 (+17%)	576,300 (+18%)
% of daily trips during morning peak	24%	25%	25%
Number of daily trips per person (age 11+)	2.7	2.5	2.5
Average distance to work (straight line km)	16.5	16.8	17.0
...among live-work residents	...10.8	...11.0	...10.6
...among those destined for Downtown Toronto	...26.4	...26.4	...27.0
...among those destined for outside York Region	...16.3	...16.6	...16.6
% residents who live and work in York Region	52%	54%	55%
% self-contained trips	63%	64%	66%
% a.m. peak trips not for work or school	26%	32%	32%
TRANSIT-FIRST			
AM Peak transit mode split	7.0%	8.6%	10%
...among live-work residents	...2.5%	...3.2%	...3.5%
...among those destined for Downtown Toronto	...56%	...68%	...75%
YRT/VIVA Revenue Ridership (per CUTA)	8.4 M	17.1 M	19.8 M
% people holding a transit pass	4%	5%	8%
Number of transit trips per capita	0.12	0.15	0.17
WALKING AND CYCLING			
Daily walk + bike trips	65,400	74,100 (+13%)	88,800 (+20%)
% walk mode share for trips 5km or less	7.9%	8.8%	7.5%
% bike mode share for trips 10km or less	0.4%	0.4%	0.6%
% car trips that are 2km or less	26%	26%	27%
Number of auto trips < 2km	375,400	420,200 (+12%)	507,000 (+20%)
EVIDENCE OF AUTO DEPENDENT CHOICES			
% AM peak trips by auto driver	67%	66%	67%
% daily work trips made by car	87%	86%	86%
% daily non-work trips made by car	97%	96%	96%
Number of cars per household	1.90	1.84	1.89
% householders with 2+ cars	69%	66%	67%
% people with driver's license (24-65)	-	67%	70%
% < 24 with a driver's license	78%	-	73%
Auto occupancy	1.16	-	1.16
GOODS MOVEMENT			
Trucks York - Toronto	6.0%	-	5.4%
Trucks York - Peel	7.0%	-	9.1%
Trucks York - Durham	11%	-	13%
Trucks York - Simcoe	8.0%	-	11%

***Exhibit 2.3:** Key travel demand and mobility trends*

How we Travel, by Trip Distance[1]

Percentage of Trips by Distance (all day)

Exhibit 2.4

How Our Children Travel to School[1]

Percentage of Trips to School (a.m. peak, under 19 years old)

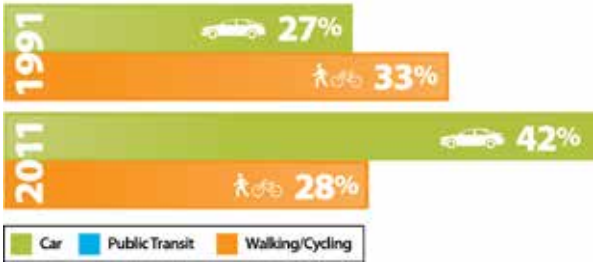


Exhibit 2.5

Average Length of Trip to Work[1]

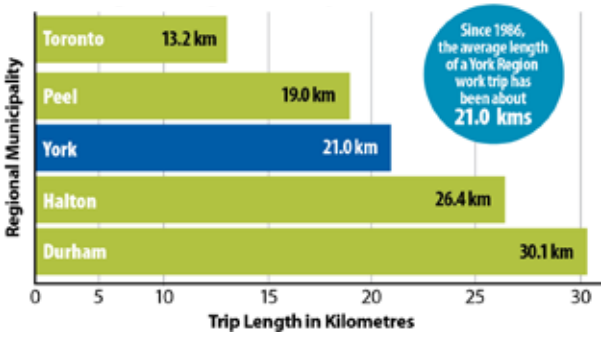


Exhibit 2.6

Travel Times to Work[2]

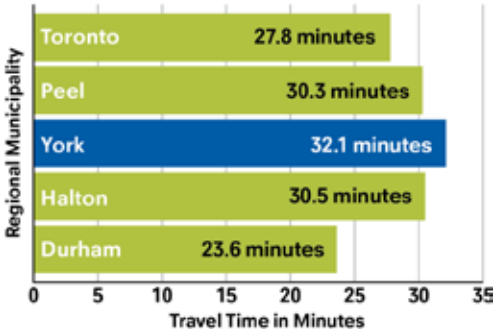


Exhibit 2.7

Fewer Young People are Driving[1]

Percentage of 16 to 24 Year Olds with Driver's Licenses

Exhibit 2.8

We Drive Less as We Age[1]

Percentage of Drivers by Age Group

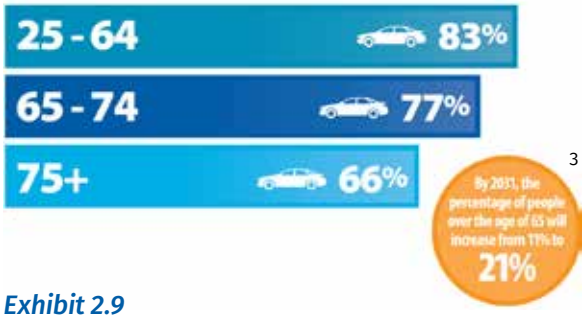


Exhibit 2.9

2.1.3 Commuting Patterns

The development of large employment centres throughout York Region means that more residents can both live and work in York Region. The proportion of commutes beginning and ending in York Region has increased from 42% to 53% over the past 20 years. This is expected to continue to increase faster than travelling outside York Region.

While the proportion of internal commutes by York Region residents is growing, growing numbers of people still travel into or out of York Region every day. For outbound commuters, the City of Toronto remains a primary destination due in part to a recent increase in downtown office space and GO rail service improvements. Trips to Peel Region are also significant, and from 2001 to 2011 the number of morning peak period trips from York Region to Peel Region grew twice as fast as those coming the other way. Peel and Durham Regions were the fastest-growing sources of inbound commuters to York Region while the volume of inbound trips from Toronto held constant.

Where We Work

Exhibit 2.10

How we get to Work

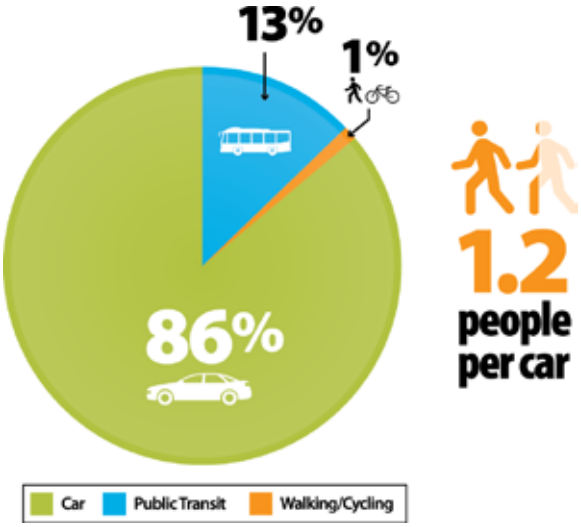


Exhibit 2.11

2.1.4 Housing and Affordability

In the last 14 years, there has been a rise in the number of people living below the poverty line in York Region. The income split has increased and housing is not as affordable. From 2002 to 2012, median house prices went up by 87%, while median hourly wages only rose by 26%.

The Region has many initiatives to combat the increase in income split including the "Make Rental Happen" initiative which strives to create a mix of housing that offers options for all income levels. The Region has forecasted a household growth of more than 50% between 2016 and 2041. Approximately 60% of these new households will be apartments and row homes which will include rental and market price housing.

Based on the current average proportion of rental housing in upper-tier GTA municipalities, a minimum of 17.5 percent (34,000 units) of new growth to 2041 should be rental units, 18,000 of which should be newly constructed purpose-built rental units.

In order to have these rental homes be accessible to those who need them, transportation needs to be readily available. The TMP works to make sure that the communities built for affordable housing will also have access to reliable transit.

2.1.5 Natural Environment

York Region has many natural heritage features. They include the Oak Ridges Moraine, the Greenbelt and numerous Areas of Natural and Scientific Interest (ANSIs), Environmentally Sensitive Areas (ESAs), lakes, watercourses, wetlands and woodlots. The Region currently manages 120 kilometres of trails in 18 public forest tracts in addition to 50,000 street trees on Regional roads and planting trees on Regional right-of-ways. **Map 6** (located in the Maps section) shows the environmentally-significant areas and areas of natural and scientific interest in York Region. Further maps showing the Regional greenlands system, key hydrologic features, woodlands, wellhead protection areas, Oak Ridges Moraine aquifer vulnerability areas and watershed boundaries as well as agricultural and rural areas are included in the York Region Official Plan and were referenced in the development of this TMP.

Natural heritage features, along with forestry, agriculture, source water areas, are a key consideration in the evaluation of road and transit projects. Potential conflict areas have been avoided where possible, as guided by Provincial legislation. The project sheets in Background Report E identify natural heritage features along and adjacent to each project corridor and provide an assessment of potential conflicts.

York Region's Greening Strategy Action Plan was created in order to produce and maintain healthy natural environments that will foster strong and sustainable communities now and in the future. The Greening Strategy provides a context for Regional decision-making that supports a natural environment. One part of its environmental land securement plan is to create natural heritage trail linkages. This plan connects to Objective 3: Integrate Active Transportation in Urban Areas of the TMP. The Greening Strategy will be used to implement projects that support Regional natural trail linkages and Active Transportation.

The recent report by the Advisory Panel on the Coordinated Review of the Growth Plan for the Greater Golden Horseshoe, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Niagara Escarpment Plan, emphasizes the need to continue to advocate for the protection of the natural and cultural heritage[4].

A cyclist using the Nokiidaa Trail bridge in Aurora

2.1.6 Transportation and Health Linkages

Transportation and land use planning decisions affect many health and equity outcomes. There is a growing body of research that the design of transportation systems and availability of a variety of travel options in a community affects the public's health through travel mode choices. The transportation system that offers many transportation options, especially a safe network of active transportation facilities with connections to public transit, provides the greatest opportunities for supporting active lives to promote and protect health. In addition, the more people that can be encouraged to use public transit as opposed to the single occupant vehicle, the greater will be the reduction in exposure to traffic-related air pollution and noise, leading to improvements in air quality and health. The design of roads is also an important factor for protecting all users from injuries, especially the most vulnerable users such as pedestrians and cyclists.

Exhibit 2.12: *Active transportation and transit use contribute to healthier communities*

In York Region, access to the natural environment is a significant opportunity to promote improved physical and mental health. Approximately half of York Region's land area is designated as greenbelt area or rural area, within easy access of urban residents. It is critical to protect these areas and provide improved linkages for walking and cycling.

2.1.7 Climate Change

Climate change is a major issue with impacts on communities, health, the environment and local and regional economies. In 2015, 190 countries signed the Paris Agreement which aims to hold global temperature increases to 2˚C above pre-industrial levels. Canada has expressed support for an even more ambitious target of 1.5˚C above pre-industrial levels.

Achieving reductions in greenhouse gas emissions requires aggressive action to shift travel to more efficient modes and technologies. In 2013, transportation accounted for 23% of Canada's greenhouse gas emissions. In Ontario, this figure rises to 35% where transportation emissions are the single-largest source. Increased transit and active transportation use will help alleviate congestion, reduce local air pollution and offer a viable low-carbon transportation alternative[5].

Many of the impacts of climate change on transportation systems are already visible. These include:

- More travel disruptions due to flooding, winter storms, road washouts
- Increased pavement damage from higher temperatures and freeze-thaw cycles
- Increased maintenance requirements for roads, medians and boulevards including hardscape and vegetative materials

Fleet and Transit fuels contributed two thirds of greenhouse gas emissions from Regional operations in 2014. Electrifying the Region's fleet, including Transit, will reduce emissions significantly and further reduce the Region's contribution to climate change. Strategies recommended in this TMP to shift travel to more sustainable modes will further help to reduce York Region's contribution to climate change.

The Region is increasing its efforts to combat climate change, including adopting best practices for infrastructure design. Other strategies include:

- Improve hydrological data collection
- Use of models and monitoring localized effects
- More frequent monitoring and maintenance
- Improve bridge, road and culvert design to be more climate change resistant

2.1.8 New technologies

In 2002 less than a third of Canadians subscribed to mobile phones. True smartphones were years away and hybrid vehicles were just entering the market. Today, more than half of Canadians own a smartphone. Most drivers have access to GPS navigation. Transit arrival information is offered in real time and taxis can be hailed, tracked and paid for using handheld devices. These trends are fundamentally changing the way people live, work and travel.

The rapid increase in the use of mobile devices for personal use and work has increased the potential for digital disruption across many industries. In early 2010, several technology companies introduced applications (apps) that were advertised as "ridesharing". Ridesharing has been controversial, variously criticized as lacking adequate regulation, insurance, licensure and training. Ridesharing services can dramatically impact how transportation services are delivered in York Region and around the world. The Region is actively participating in studies and will take advantage of these services where they can enhance Regional services in a more efficient and economical way.

There have also been and continue to be considerable advances in automotive technologies including autonomous vehicles and connected vehicles. Connected vehicles include those with vehicle-to-vehicle, vehicle-to-infrastructure and vehicle-to-device communications systems to support safety, mobility and environmental applications. This goes well beyond merely providing entertainment and the ability to complete wireless phone calls.

Autonomous, or driverless, vehicles are currently in various stages of development with predictions of availability in the market in approximately five to ten years. The Region will need to work with various partners to be able to accommodate these vehicles in the transportation network.

This TMP does not predict future technological shifts. It does consider recent and imminent advances that optimize, expand and transform ways of delivering services, encouraging sustainable travel modes and operating the transportation system more efficiently (e.g., Intelligent Traffic Systems) while maintaining flexibility to accommodate future technological advancements. Smartphone applications (apps) and autonomous vehicles are among the most significant changes on the horizon.

New and emerging technologies will shape transportation solutions

2.2 Future Conditions and Implications

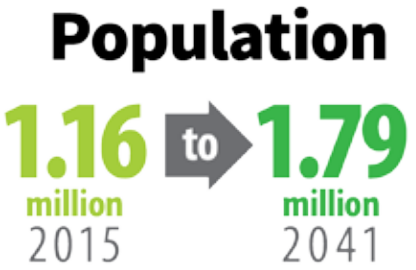
This section reviews a number of issues that affect the future of travel demand in York Region and the Region's ability to serve it effectively. These issues are grouped under four main themes:

- Addressing future growth
- Responding to transportation trends
- Improving options for sustainable travel
- Managing the road network

2.2.1 Addressing Future Growth

Population and employment forecasts. York Region is the third-largest municipality in Ontario and one of the fastest growing urban regions in Canada. It is home to almost 1.2 million people. York Region is projected to continue its trend of rapid growth and urbanization, particularly in the southern municipalities to 2041. In urban areas, this growth will lead to greater road congestion and transit demands. In rural areas, growth will have more diverse consequences as some areas will face development pressures while others are protected by the Greenbelt.

Based on Provincial growth targets, the Region expects its population to grow by over 50% when compared with 2015 (from 1.2 million to 1.79 million) and its employment by over 55% (from 580,000 to 900,000) by 2041 . Most future population growth will occur in the southern municipalities of Richmond Hill, Vaughan and Markham. The fastest growing municipality will be in the north, East Gwillimbury. It will transform from a largely rural municipality to a moderately-sized city of more than 95,000 people by 2041. Employment will continue to be largely concentrated in the south, with the majority of growth forecast for Markham, Vaughan, and Richmond Hill.



York Region is projected to maintain its jobs to worker ratio of 0.50 jobs/resident to 2041. Ensuring there are ample jobs in York Region is critical to keeping commute distances reasonable while balancing travel flows into and out of York Region. Maintaining existing employment and attracting new high quality jobs is contingent on a well-functioning transportation system.

Commuting patterns. The proportion of commutes beginning and ending in York Region has grown from 42% to 53% over the past 20 years and is expected to continue to grow faster than the proportion of commutes leaving York Region. This trend represents an opportunity to carry future commuters on transit. A large proportion of future employment growth will occur in Regional Centres and Corridors, which will offer high-quality transit service and a reduced reliance on car travel.

While the proportion of internal commutes by York Region residents is increasing, growing numbers of people still travel into or out of York Region every day. This is still expected to grow, though not by as much as trips within York Region.

Travel Patterns will Change Substantially

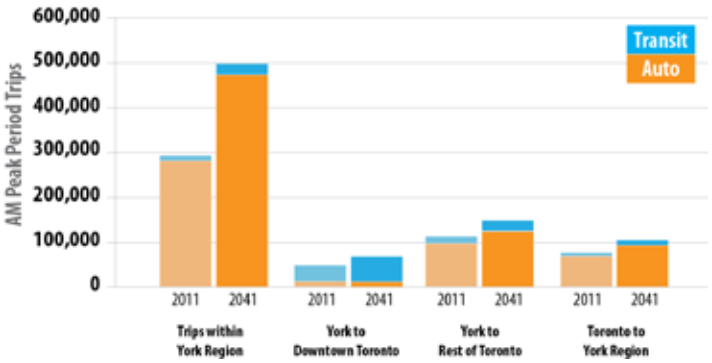


Exhibit 2.13

Travel Patterns are Changing

More people are living and working locally, increasing trips within York Region

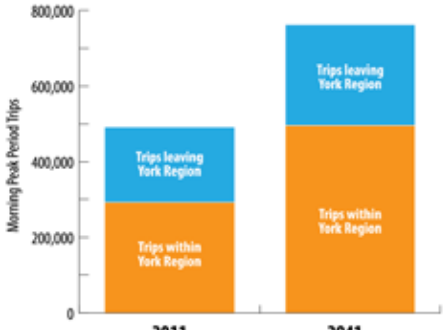


Exhibit 2.14

2.2.2 Responding to Transportation Trends

Demographic change. In recent decades, York Region's growth has been fuelled by families seeking a mix of housing choices. They will continue to drive growth, amplified by the fact that "echo boomers" who grew up in older suburbs of York Region will begin their own families and may seek a similar lifestyle in new development areas. New residents of these communities will face longer commute times and relatively fewer options for transit and active transportation as opposed to those in Regional Centres and Corridors.

At the same time, millennials are changing prevailing trends in both housing and transportation behaviour. A research document released by the American Public Transportation Association (APTA) confirms that due to several variables, including economic dislocation, technological change, demographic shifts and a desire to live in more urban environments, there has been an increase in public transit use and use of alternative transportation modes among millennials. A recent survey conducted by Zipcar states that 72% of people aged 18-34 claim that losing their mobile phone, computer, or television would have a greater impact on their life than losing their car.

Many residents of older communities are approaching retirement. They are more active and affluent than previous generations of retirees and some will remain in their homes while others look to downsize while staying in the same community. Over time, they will need better non-driving travel options in order to maintain their access to health care and other services. They will be joined by another group that is becoming less reliant on cars and more reliant on public transit—namely, young adults.

Immigration will remain a large source of York Region's population growth. York Region is home to many first- and second-generation Canadians, many of whom face transportation challenges in addition to language barriers or lower incomes.

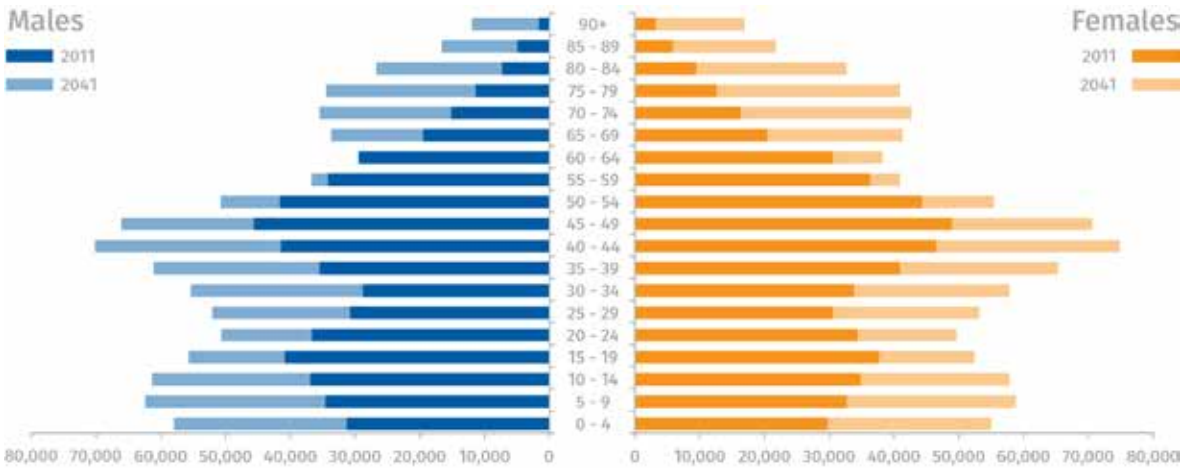


Exhibit 2.15: *York Region age distribution — 2011 and 2041*

2.2.3 Improving Options for Sustainable Travel

Limitations on travel choice. In many parts of York Region development patterns pose a challenge to providing attractive and efficient alternatives to driving. In mature communities, it is difficult to retrofit existing street patterns and land uses to better support transit, walking and cycling. In newer communities, which increasingly offer mixed uses, transit-supportive densities and walkable streets, continuing barriers to choice include inadequate transit service and auto-dependent design of major retail and employment destinations. Existing barriers such as 400-series highways, railway corridors, missing road links and incomplete collector road networks also serve as impediments.

Moving forward, the Region will support designing communities that incorporate active transportation and enable access to transit. This TMP also identifies strategies for improving connectivity and transit access in existing neighbourhoods through a finer grid strategy and integrating active transportation in urban areas.

Active transportation. York Region has an extensive network of walking and cycling facilities. More improvements are planned to 2041 to increase the share of active transportation trips, especially during peak commuting periods. Sidewalk coverage in York Region is high within new urban developments and many existing neighbourhoods with walking facilities that separate pedestrians from traffic. Improvements along major arterial roads and at major intersections, where high traffic volumes and speeds contribute to low levels of pedestrian comfort, will enable more active transportation. Better sidewalk and trail systems are needed to connect neighbourhoods to major destinations without relying on arterial roads.

Cyclists recognize that arterial roads may offer the fastest route between two points though many are deterred from using them by a lack of separation from high volumes of fast-moving traffic. A more continuous network of cycling facilities separated from busy traffic is planned, particularly in urbanizing neighbourhoods with increasing densities. For pedestrians as well as cyclists, minimizing circuitous road networks that make it difficult to enter or exit neighbourhoods will help remove another barrier to increasing active transportation.

Cyclists and pedestrian using Tom Taylor Trail in Newmarket

Local transit. The Region has improved transit choices by investing heavily in vivaNext, the Toronto-York Spadina Subway Extension and expanded transit service hours. York Region Transit (YRT) has been supported by GO Transit's expanded bus and rail service, with Highway 407 bus service offering an attractive choice for long-distance east-west trips. Transit access remains a challenge in many communities where walking routes to transit stops can be unattractive or inaccessible. GO Transit relies heavily on Park 'N' Ride and YRT/Viva will explore similar approaches while also improving access to transit for pedestrians and cyclists including limiting the use of traffic calming measures that discourage low floor buses from travelling through neighbourhoods.

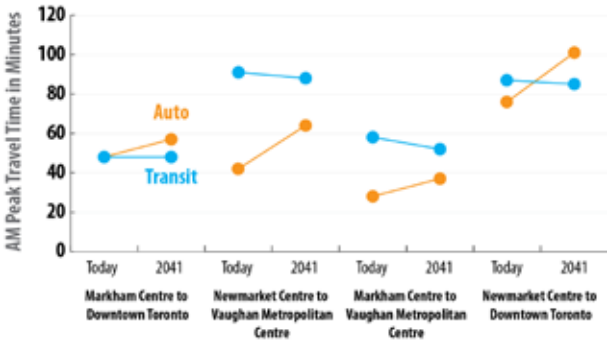


Exhibit 2.16: ***Despite expanding road capacity travel times by car will worsen.*** *More people are living and working locally, increasing trips within York Region*

York Region Transit's (YRT/Viva) 2016-2020 Strategic Plan includes work towards expanding the transit network to match population and employment growth, adapt to changing travel movements and trends and increase system productivity. This includes transitioning YRT/Viva services to a Frequent Transit Network along key corridors in the urban areas of York Region. Frequent service and improved connections are anticipated to grow ridership in southern York Region. Completing discontinuous sidewalks and improving access to transit stops present other opportunities for the Region to increase transit ridership. Increasing the number of dedicated bus lanes will provide improved service levels, especially when compared to bus routes operating in mixed traffic.

GTHA transit coordination. The past decade has seen vigorous investment in transit across the GTHA, with the introduction of Metrolinx's "the Big Move" in 2008 supporting inter-regional transit connections and integration. Momentum continues to build for further work including a Yonge North Subway Extension to Richmond Hill, the Regional Express Rail (RER) network of high-frequency electric rail service across the GTHA and SmartTrack routes on the Kitchener, Lakeshore and Stouffville rail corridors. An extension of the Richmond Hill GO rail corridor to Gormley is expected in 2016. These projects would dramatically increase connectivity between York Region and the rest of the GTHA, representing a significant paradigm shift for transit.

2.2.4 Managing the Road Network

Traffic Congestion. Congested road networks are a growing issue across York Region and the GTHA due to dispersed travel patterns, established auto-dependent communities and inadequate sustainable travel choices. Expansion of Regional roads alone will not solve congestion issues and in many cases it is not possible due to constrained rights-of-way. Across York Region, transit and active modes are increasingly competing for road space and challenging conventional expectations for free-flowing traffic movement.

A coordinated approach that considers alternative pricing models, congestion management tools, improved transit service frequency, innovative uses of technology and education will be key tools to manage and reduce congestion going forward. Shifting travel demand to more sustainable modes through improvements in transit service levels, access to transit, managing parking and this coordinated approach using technology and education will enable the Region to encourage more sustainable travel choices.

Governance. Local municipalities are currently responsible for providing boulevard elements within the rights-of-way of Regional roads including sidewalks, trails and pedestrian amenities and illumination except illumination at intersections. This separation of jurisdictions makes it difficult for the Region to improve access to transit, viability of cycling and conditions for walking and cycling.

VivaNext on Highway 7 in the City of Markham

The Region supports municipal active transportation projects in Regional road corridors through its Pedestrian and Cycling Municipal Partnership Program (PCMPP) and its Municipal Streetscape Partnership Program (MSPP). The PCMPP shares up to half the cost of local pedestrian and cycling projects serving a Regional need. The MSPP shares up to half the cost of locally-initiated streetscape enhancements on Regional roads. A review of the current governance of Regional road rights-of-way will be an important step in removing this obstacle to making active modes a more popular choice for York Region residents.

Chapter 3 Foundations

In this chapter:

3.0 Foundations

The TMP is directed by a number of key Provincial, Regional and local municipal policies that set a strong foundation to manage growth while building strong, healthy and sustainable communities.

3.1 Provincial Policies and Plans

Where York Region will grow, when it will grow and how that growth will be serviced by Provincial highway and transit infrastructure is largely driven by a range of Provincial plans, policies and programs. The following Provincial plans, policies and programs influence the recommendations of the TMP:

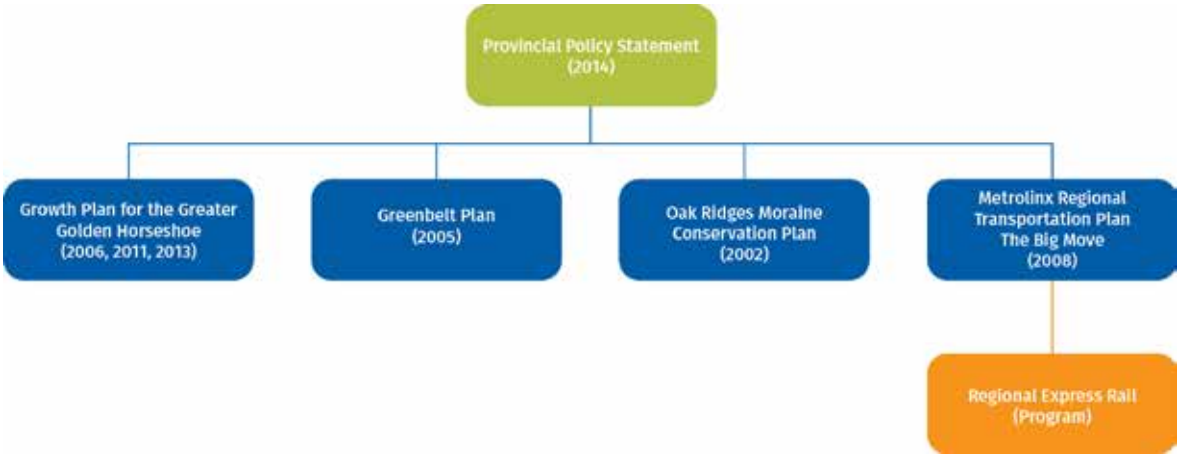


Exhibit 3.1: Provincial plans, policies and programs

Provincial Policy Statement (PPS), 2014: These are the Province's policies on land use planning to promote strong communities, a strong economy and a clean and healthy environment. It requires transportation systems that are safe, energy efficient, facilitate the efficient movement of people and goods and maximize the use of existing infrastructure. The Region is required to plan and protect for future corridors and major goods movement facilities.

Oak Ridges Moraine Conservation Plan (ORMCP), 2002: This is the Province's ecologically based plan to provide land use and resource management direction in an effort to protect the Oak Ridges Moraine from the increasing pressures of growth and competing land uses. All Regional and local plans must conform to the ORMCP. Section 41 provides conditions for transportation, infrastructure and utilities that must be fulfilled prior to their approval and protects for trail systems that provide non-motorized access to the Moraine.

Growth Plan for the Greater Golden Horseshoe (2006, 2011, 2013): Adopted under the Places to Grow Act (2005), this Plan is a comprehensive, 25-year strategy that sets clear standards for growth and development to build stronger and more prosperous communities. One of its cornerstones is the goal of reducing traffic congestion by directing growth to connected, built up areas while improving access to a greater range of transportation options, including transit and highway systems for moving people and goods.

Greenbelt Plan, 2005: Adopted under the Greenbelt Act (2005), the Greenbelt Plan protects environmentally sensitive and sensitive agricultural land in the Greater Golden Horseshoe from urban development and sprawl. The Plan is a cornerstone of the Growth Plan that identifies where growth should not occur and how new or expanding infrastructure should be designed and constructed to mitigate negative environmental impacts. York Region is a total of 176,200 hectares (1,776 square kilometres) with the Greenbelt comprising 7,200 hectares. 69% of York Region's land base is within the Oak Ridges Moraine and the Greenbelt (38% of land within the Greenbelt and 31% within the Oak Ridges Moraine).

Metrolinx Regional Transportation Plan (The Big Move, 2008): Adopted under the Greater Toronto Transportation Authority Act (2006), now the Metrolinx Act, this Plan provides clear goals and objectives for a future transportation system that is seamless, coordinated, efficient, equitable and user-centred. It also contains Strategies, Priority Actions and Supporting Policies that are needed to achieve this vision, as well as an Investment Strategy to finance the transportation system over the short- and long-term.

Some key recommendations include a network of more than 1,200 kilometres of rapid transit facilities, including the following York Region corridors: Highway 7, Yonge Street, McCowan Road and Don Mills; the extension of the Yonge North Subway Extension and the Toronto York Spadina Subway Extension; and the Highway 407 Transitway. The plan also identified upgrades and extensions to three existing GO rail corridors in York Region, as well as the future rail corridors to Bolton and Havelock.

3.2 Review of Key Provincial Plans

In February 2014, the Province initiated the coordinated review of key Provincial land use plans, including the Growth Plan for the Greater Golden Horseshoe, the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan. On May 10, 2016, the Province released its proposed amendments to these plans. These proposed amendments include an increase in intensification to 60% from 40% and greenfield density increases to 80 people and jobs per hectare from 50 people and jobs per hectare. The Province will gather feedback through public open houses conducted in May and June 2016. This will inform the final revisions to these plans.

While the assumptions and direction used in the 2016 TMP are based on the approved Provincial Policies and Plans including the PPS (2014), the Growth Plan for the Greater Golden Horseshoe (2006, consolidated 2013), the Greenbelt Plan (2005) and the ORMCP (2002) the Region is reviewing and assessing the proposed changes.

Since the Province has not yet completed its review of these key plans nor issued any final decisions, the Region examined three possible growth scenarios (40% intensification, 50% intensification and 'no urban boundary expansion') in developing the TMP. Analysis of the impacts of these three scenarios can be found in Section 9.0.

Metrolinx is conducting a full review of the Big Move: The Regional Transportation Plan, as required by the Metrolinx Act. This will lead to a new plan in 2017.

3.3 Regional Policies and Plans

The Region's Vision 2051, York Region Official Plan and Strategic Plan provide a solid foundation of policies and strategies that are directly linked to the TMP Update. **Exhibit 3.2** demonstrates the hierarchy of planning and how the TMP aligns with Regional plans.

Exhibit 3.2: *York Region's hierarchy of planning and accountability framework*

3.3.1 Vision 2051

Legislative and land use policy changes and disruptions, including changing trends and innovation, will influence the way York Region will grow and do business. To respond to the increasing pressures on York Region's transportation system and infrastructure as well as significant growth, Vision 2051 is the long-term strategy that establishes priorities and actions to guide decision making at the Region. Vision 2051's eight key goal areas include:

- A place where everyone can thrive
- Liveable cities and complete communities
- A resilient natural environment and agricultural system
- Appropriate housing for all ages and stages
- An innovation economy
- Interconnected systems for mobility
- Living sustainably
- Open and responsive government

Vision 2051 envisions a seamless, multimodal transportation network in York Region that encourages more healthy and active travel. Vision 2051 directly influences the development of the goals and objectives of this TMP Update.

3.3.2 York Region Official Plan (2010)

The York Region Official Plan (2010) aligns with Vision 2051 and includes detailed policies that directly guide the development of the TMP Update. This framework of progressive and sustainable objectives and policies provides a strong foundation for the development of the future transportation network through this TMP Update. The TMP Update will then help to inform policy updates to the York Region Official Plan to ensure that the Region will continue to meet the evolving needs of residents and workers.

Specific York Region Official Plan objectives and policies that directly guide the TMP Update are reflected in Chapters 5 and 7 of the Official Plan. Chapter 5, "An Urbanizing Region", includes City building policies and directions related to complete, healthy communities. It supports well-designed communities that have integrated greenspace, pedestrian and transit networks and that offer a variety of housing, transportation, human services and employment choices. Chapter 7, "Servicing Our Population", is focused on moving people and goods and making efficient use of existing and future transportation infrastructure through a comprehensive Transportation Demand Management program that promotes walking, cycling, transit use and a per capita reduction in trips taken.

The York Region Official Plan (2010) provides a strong policy foundation for the future transportation network by establishing a number of key policies that guide the actions and strategies in this TMP. These key policies are to:

- Reduce auto dependence by planning communities where people can meet all or most of their daily needs (i.e., live, work, play and learn)
- Reduce automobile dependence by enhancing opportunities for residents and workers to walk, cycle, take transit and carpool
- Create an active transportation system and programs that encourage walking, cycling and transit use
- Provide transit service that is convenient and accessible to all residents and workers of the Region
- Ensure streets support all modes of transportation
- Promote a linked and efficient network for goods movement that minimizes conflict with sensitive land uses
- Plan and protect future urban and rural streets to accommodate transportation demands

Pedestrians in York Region

3.3.3 York Region's Municipal Comprehensive Review

The TMP is part of an integrated process for planning York Region's growth, infrastructure and financial frameworks and the 2016 Update has been developed in parallel with the Regional Municipal Comprehensive Review (MCR). The MCR, completed by the Region, is a comprehensive review of the policies in the Growth Plan for the Greater Golden Horseshoe, the population and employment forecasts of the Growth Plan Amendment 2 (June 2013), population growth by local municipality and completes a Regional land supply and demand analysis to determine a Land Budget. It also includes a comprehensive review of existing York Region Official Plan policies.

The population and employment forecasts used for this TMP are consistent with the forecasts developed through the MCR in order to properly assess and plan for the Region's long-term infrastructure requirements and to determine where and when the infrastructure is required. The TMP will provide the basis for transportation-related policy updates to the York Region Official Plan through the MCR process. Further, the background work for the next Development Charge Bylaw will be based on these updated growth forecasts and policies.

3.3.4 2015 to 2019 Strategic Plan

The 2015 to 2019 Strategic Plan builds on the success of the 2011 to 2015 Strategic Plan which set out to achieve balance between delivery of services required for growth with delivery of services of community supports. It identifies areas requiring critical focus and aligns with the current term of Council.

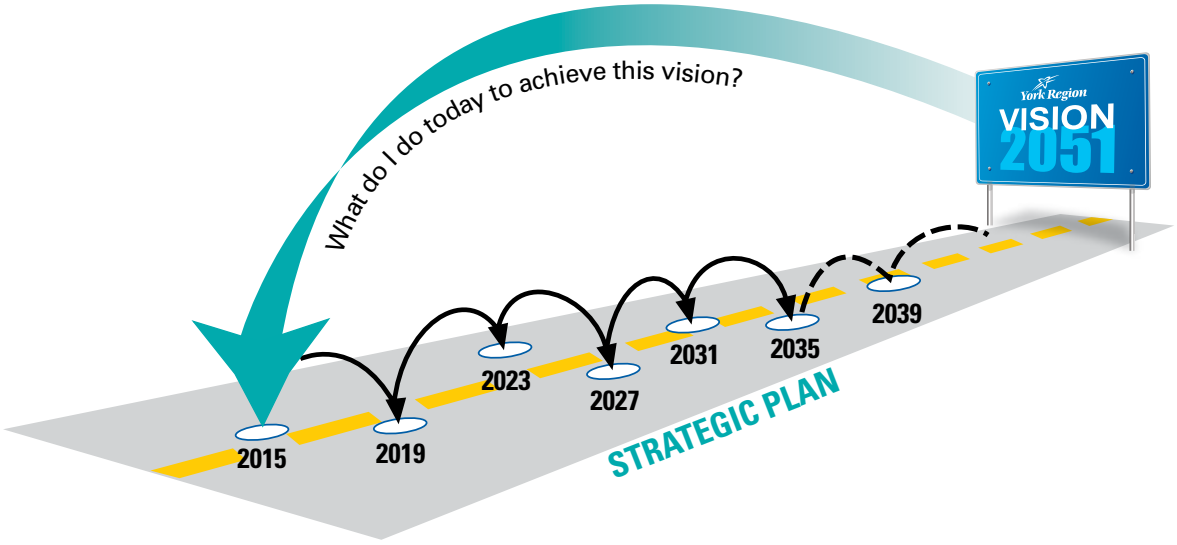


Exhibit 3.3: *The relationship between Vision 2051 and the 2015 to 2019 Strategic Plan*

The Strategic Plan acts as a roadmap to achieve Vision 2051. It focuses on four key areas, including:

Livability, health and social well-being of residents.

The need to protect and sustain the natural and built environment as well as to reduce ecological impacts.

The need to encourage and sustain economic growth and vitality in York Region.

Financial sustainability, openness, accountability, accessibility, transparency and reliability of Regional government and its related programs and services.

The TMP Update strives to support the goals of the 2015 – 2019 Strategic Plan in the following manner:

- ***Support community health and well-being.*** The TMP will support an aging and diversifying population, improve affordable and accessible options for daily travel, encourage physical activity that prevents obesity and chronic illness and minimize exposure to transportation-related air pollutants.
- ***Manage environmentally sustainable growth.*** The TMP will maximize demand for non-automobile travel, support smart growth policies and practices, protect and enhance green spaces and minimize greenhouse gas emissions that contribute to climate change.
- ***Strengthen York Region's economy.*** The TMP will encourage commercial development that creates jobs, reduces "out-commuting", enables lifestyles desirable to knowledge workers and allows the efficient movement of people and goods.
- ***Provide responsible and efficient public service.*** The Region is committed to delivering value for money in the provision of transportation facilities and services. This means that it will plan a transportation system that is affordable, maximizes return on investment, relies on stable and predictable funding sources and considers full life-cycle costs.

3.3.5 2002 and 2009 Transportation Master Plan

This TMP Update builds on the foundation of the Region's Master Plan approved in 2009 and on the previous TMP, completed in 2002. The award winning 2002 TMP recognized that York Region's planned growth to 2031 could not be accommodated by improvements to the road network alone. The 2002 TMP further recognized that a major increase in travel by public

transit and active transportation was essential, including a target to double the average transit use (or modal split) during the morning peak. To achieve the significant increase in modal split, the 2002 TMP recommended major improvements to transit service including the provision of Bus Rapid Transit along the Yonge Street and Highway 7 corridors and connections to the TTC subway system, including extensions of the Yonge Street and Spadina Subway system to Highway 7. The Region has made significant strides in meeting many of these goals. These improvements can be seen across the networks, including sections of the Viva rapid transit corridors operational along sections of Highway 7 in Markham and Richmond Hill and along Davis Drive in Newmarket, High Occupancy Vehicle lanes along Dufferin Street, and the extension of the Spadina Subway from Downsview Station to the Vaughan Metropolitan Centre at Highway 7 and 400 that is nearing completion.

The 2009 TMP built upon the strong framework of roads and transit improvements established in the 2002 TMP to address changes in Provincial legislation that set clear standards for how new development must occur across the GTA, including the Provincial Growth Plan for the Greater Golden Horseshoe, Greenbelt Act, Oak Ridge's Moraine Conservation Plan, and Metrolinx Big Move and set out practical transportation solutions that would:

- Preserve and enhance York Region's sustainable natural environment
- Support York Region's economic vitality
- Encourage healthier neighborhoods and communities

The recommended solutions identified in the Region's 2009 TMP supported "putting pedestrians and transit first" and included more than 100 policies, strategies and bold directions governed around 11 Sustainability Principles to address Regional growth. These policies, strategies and directions recognized that, more than ever, the benefits of sustainable transportation choices such as transit and active transportation and how communities are built should be given priority over building new or expanding existing roadways. The 11 Sustainability Principles were:

- Integrate Transportation Land Use and Design
- Protect and Enhance York Region's Environment and Cultural Heritage
- Adopt an Energy Efficient Transportation System
- Implement and Support Transportation Demand Management
- Implement and Support Transportation Supply Management
- Put Pedestrians and Transit First
- Support Economic Vitality
- Further Encourage Communications, Consultation and Engagement
- Ensure Fiscal Sustainability and Equitable Funding
- Conduct ongoing Performance Measurement and Monitoring
- Provide Access and Mobility for Everyone

The 2009 TMP reinforced the need to reduce the number of single-occupant vehicles through strategies that enhance and increase the accessibility of public transit, promote sustainable development and provide alternative travel options. It included 20 bold directions that place greater emphasis on transit-oriented and mixed-use development (TOD/MUD), transportation demand management (TDM), parking pricing policies, intelligent

transportation systems (ITS), walkable built environments, traveller information, carpool incentives and reinforcing Council's policy to limit six-lane road widening projects except where warranted for HOV lanes.

Exhibit 3.4 summarizes progress on some of the policies and strategies recommended in the 2009 TMP. Work related to transit, roads, TDM and marketing and education is well underway, while several areas including goods movement, funding and environmental protection still require further action.

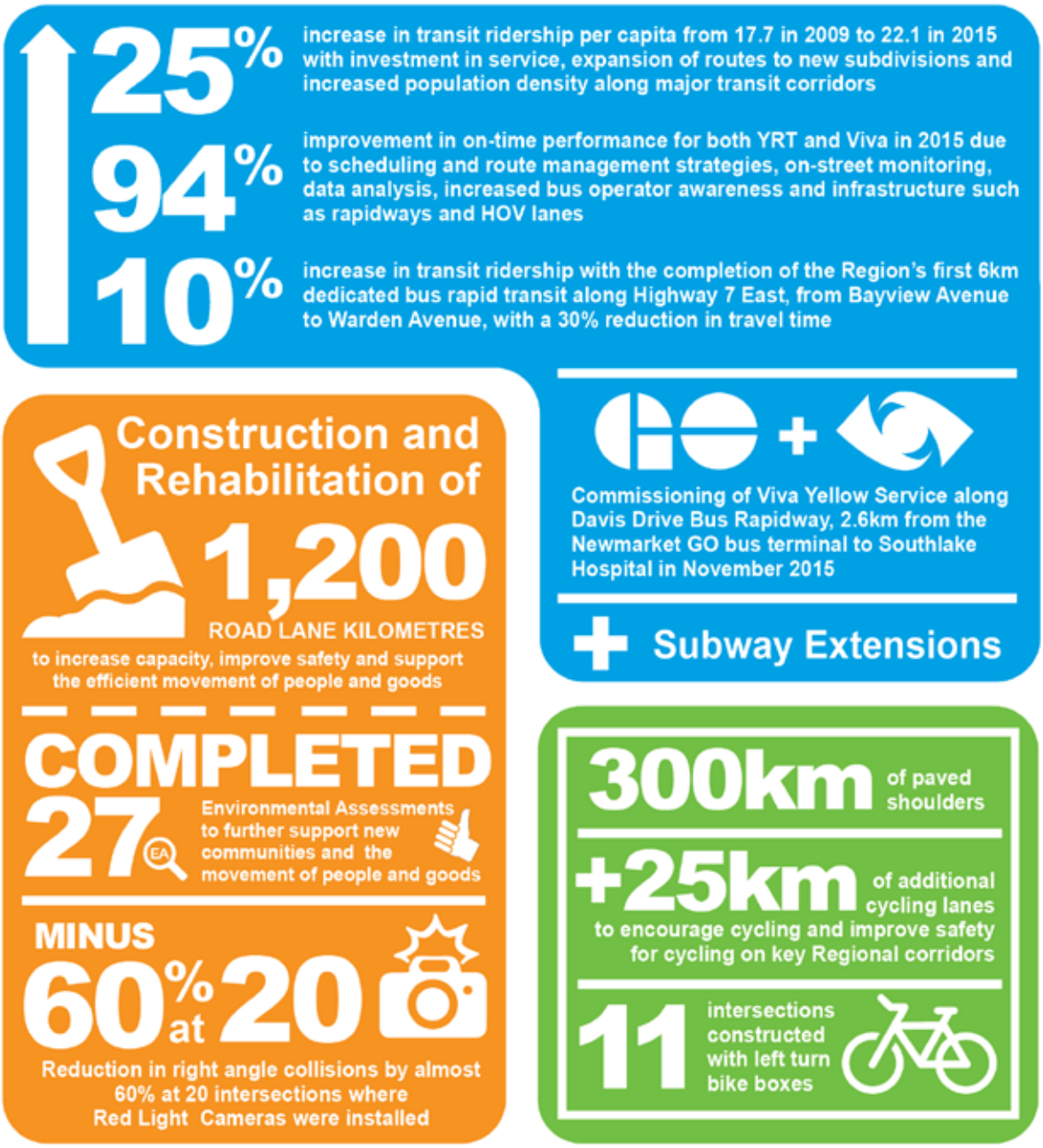


Exhibit 3.4: *Summary of progress on 2009 TMP policies and strategies*

The 2009 TMP introduced policies and actions to protect and enhance the natural environment and cultural heritage. Many of the policies and actions are included in the York Region Official Plan (2010). This includes specific policies related to planning infrastructure to avoid the Regional Greenlands System, careful management of stormwater through innovative techniques, coordinating projects and reducing the overall need for infrastructure. It is also an objective of the York Region Official Plan to identify, protect and enhance the Regional Greenlands System and its functions to ensure a healthy natural heritage system rich in biodiversity. The policy direction of Council within Section 2.1 of the Official Plan confirms that projects shall be sensitive to and enhance the features of the Regional Greenlands System.

3.3.6 2008 Pedestrian and Cycling Master Plan

The Region completed a Pedestrian and Cycling Master Plan (PCMP) in 2008 to accompany the TMP as a result of the acknowledgment in the 2002 TMP that road improvements alone would not support Regional growth to 2031 and beyond. The PCMP proposed a network of connecting pedestrian facilities such as sidewalks and pathways and a Regional cycling network to connect cycling trails and major destinations.

The PCMP was instrumental in developing Regional design guidelines to incorporate cycling lanes and multi-use facilities as components of Regional road widening and resurfacing projects. It also facilitated infrastructure enhancements such as bicycle racks on YRT/Viva buses and at transit stops and stations.

Phase 1 and 2 of implementation of the Pedestrian and Cycling Master Plan included:

***Exhibit 3.5:** 2008 Pedestrian and Cycling Master Plan initiatives*

Results accomplished since the approval of the 2008 PCMP are shown in **Exhibit 3.6.**

	2009	2014	GROWTH 2009-2014 (%)
ACTIVE TRANSPORTATION NETWORK			
Bike Lanes (one-way km)	4	32	28 (+700%)
Paved shoulders (centreline km)	-	243	243 (-)
Multi-use path (linear km)	63	43	154 (+41%)
Boulevard Trails (linear km)		174	
Sidewalks (linear km)	486	683	197 (+41%)
Total	*553*	*1,175*	*622 (+112%)*

***Exhibit 3.6:** Achievements in Active Transportation*

The PCMP conceived York Region's Lake to Lake Cycling and Walking Trail (Route). Approved in June 2013, the Route is a linear off and on-road route serving as the north-south spine for York Region's cycling network, extending from Lake Simcoe in the north to Lake Ontario in the south. The Route consists of a main spine and potential secondary routes or branches such as the Humber River Trail and Rouge Park Trail. The Route serves to encourage active transportation with a design that supports recreational and family users. It may also serve as a route for some commuter cyclists in parts of York Region. The Route's one-way distance is 90 kilometres of multi-use pathways, routes and bridges within the Towns of Georgina, East Gwillimbury, Newmarket, Aurora, Richmond Hill and the City of Markham. Both off- and on-road facility types are applied where appropriate, taking into consideration the primary users' integration with local and adjacent municipal plans.

Example of potential future Lake to Lake Cycling Route and Walking Trail

3.4 Linking Foundations and Objectives

Several progressive objectives, policies and actions are embedded in many of the Region's Council-approved plans and policies that support the development of new or updated policies and actions in the TMP Update. The Region's Vision 2051, York Region Official Plan (2010), 2015 to 2019 Strategic Plan, 2002 and 2009 Master Plans as well as the 2008 PCMP include the necessary foundation to support the direction of this TMP Update, providing the long-term framework for making smarter decisions that fully evaluate economic, environmental and community considerations. This "triple bottom line approach" is reflected in the TMP objectives and the evaluation of specific projects. The TMP Update builds on this existing policy framework to deliver transportation projects and programs that will continue to improve mobility for residents and businesses as well as position the Region to respond to emerging issues, policy changes and trends. It is based on five key objectives that align with the strategic priorities of the Region's Vision 2051, the York Region Official Plan (2010) and the 2015 to 2019 Strategic Plan.

3.4.1 Objective 1 – Create a World Class Transit System

York Region will have a World Class Transit System when it has a seamless interconnected system of subways, rapidways, a frequent transit network and other services that meet the needs of all York Region residents and businesses. This World Class Transit System will help improve the overall customer experience and unlock development opportunities in York Region and will be the envy of other transit systems within the GTHA.

3.4.2 Objective 2 – Develop a Road Network Fit for the Future

A Road Network Fit for the Future will use technology and innovation to optimize the road network by leading in traffic management, urban design and provide opportunities to support all modes of travel within the Region's right-of-way.

The road network supports local, regional and provincial economies by carrying people, cars, cyclists, buses and commercial vehicles. Roads are an integral part of the public transit system and are important for the movement of goods by linking rail and air transport systems. The Region's road network is the foundation upon which transit and active transportation services are built.

3.4.3 Objective 3 – Integrate Active Transportation in Urban Areas

Focused attention on improving the viability of active transportation in York Region's urban areas is key to ensuring sustainable transportation alternatives.

The Region is supporting and encouraging a change in personal travel choices and providing a range of transportation options. The Region recognizes many benefits of a variety of transportation options, alternative modes of transportation, including improved health to residents, improved air quality and reduced greenhouse gas emissions, a more connected and efficient transportation network, reduced traffic congestion and reduced dependence on the automobile. The promotion of alternative travel modes such as walking, cycling, transit and carpooling will help the Region reach its sustainable transportation objectives to reduce single-occupant vehicle trips.

3.4.4 Objective 4 – Maximize the Potential of Employment Areas

Through technology and partnerships, the Region will identify opportunities to efficiently and safely move employees and goods to and from York Region. Providing effective transportation options for people working in employment areas is critical to economic viability.

3.4.5 Objective 5 – Make the Last Mile Work

The "last mile" refers to the point or moment when consumer decisions are actually made. It refers to the tactics used to increase adoption of transit and active transportation while lowering the amount of single occupant vehicle use especially during peak periods.

Exhibit 3.7 is a schematic illustration of how the objectives of the TMP align with key Council-approved documents.

Council Plans	Objective/Policy Area	Create a World Class Transit Network	Develop a Road Network Fit for the Future	Integrate Active Transportation in Urban Areas	Maximize the Potential of Employment Areas	Make the Last Mile Work
VISION 2051	A Place where everyone can thrive	✓	✓	✓	✓	✓
	Liveable Cities and Complete Communities	✓	✓	✓	✓	✓
	A resilient Natural Environment and Agricultural System	✓	✓	✓		
	Appropriate Housing for all Ages and Stages	✓	✓	✓		✓
	An Innovation Economy	✓	✓	✓	✓	✓
	Interconnected systems for Mobility	✓	✓	✓	✓	✓
	Living Sustainably	✓	✓	✓	✓	✓
	Open and Responsive Governance	✓	✓	✓	✓	✓
YORK REGION OFFICIAL PLAN	Create high-quality, sustainable communities	✓	✓	✓	✓	✓
	Achieve complete, diverse, compact, vibrant, integrated and well-designed Regional Centres that serve as focal points for housing, employment, cultural and community facilities and transit connections	✓		✓	✓	✓
	Achieve attractive and vibrant urban Regional Corridors that link Regional Centres	✓	✓	✓		✓
	Ensure York Region's new community areas prioritize people, sustainability and livability	✓		✓		✓

Exhibit 3.7: TMP objectives and alignment with foundational documents

Council Plans	Objective/Policy Area	Create a World Class Transit Network	Develop a Road Network Fit for the Future	Integrate Active Transportation in Urban Areas	Maximize the Potential of Employment Areas	Make the Last Mile Work
YORK REGION OFFICIAL PLAN	Reduce automobile dependence by enhancing opportunities for residents and workers to walk, cycle, take transit and carpool	✓	✓	✓		✓
	Create an active transportation system and programs that encourage walking, cycling and the use of public transit	✓	✓	✓		✓
	Provide transit service that is convenient and accessible to all residents and workers of York Region	✓			✓	✓
	Ensure streets support all modes of transportation including walking, cycling, transit, automobile use and the efficient movement of goods	✓	✓	✓	✓	✓
	Plan and protect future urban and rural streets to accommodate transportation demands		✓	✓		
	Promote a linked and efficient network for goods movement that supports economic vitality and minimizes conflicts with sensitive land uses	✓	✓		✓	✓
2015-2019 STRATEGIC PLAN	Strengthen York Region's Economy	✓	✓	✓	✓	✓
	Support Community Health and Well-Being	✓	✓	✓		✓
	Manage Environmentally Sustainable Growth	✓	✓	✓	✓	✓
	Provide Responsive and Efficient Public Service	✓	✓	✓	✓	✓

***Exhibit 3.7:** TMP objectives and alignment with foundational documents*

Chapter **4**

Objective 1

Create a World Class Transit System

In this chapter:

4.0 Objective 1

Create a World Class Transit System

The Region needs to maximize investment in transit by leveraging rapid transit corridors and by getting more people to use existing services. Transit is a much more efficient use of road space, enabling moving more people with fewer vehicles especially where the existing roadway cannot be expanded, reducing congestion and is accessible to people of all ages, stages and incomes.

Creating an integrated, comprehensive transit system is critical to the functioning of communities, as well as the economic well-being of York Region. This requires investments in new infrastructure focusing on rapid transit corridors as well as strong policies to promote and facilitate transit-oriented development. By integrating these transportation and land use objectives, the Region will help support the overall provincial policies for growth as outlined in the Provincial Policy Statement.

This objective outlines how the Region will build on past successes to create even more attractive rapid, conventional and specialized transit services that are better integrated with other modes and with services offered by other jurisdictions. Operating transit in York Region is challenging because of regional variations and its vast service area. The Region's approach to transit cannot be a "one size fits all". It will require that the Region innovate and leverage partnerships to create a world class transit system.

The outcome will help manage traffic congestion by providing increased access to a greater range of transportation options. It will also help support the viability of employment and make York Region more attractive to people and businesses.

Rendering of the future Yonge Street in Richmond Hill

By offering a high-quality transit service that allows residents to rely less on their cars, public transit will strengthen York Region's transportation system by securing more viable options in the future. Expanding rapid transit and making conventional services more competitive will allow YRT/Viva to attract more transit users and reduce the demand for car travel. The Region will also work to more seamlessly integrate its transit services with those offered by GO Transit, the Toronto Transit Commission, Brampton Transit and Durham Region Transit.

The Region currently operates a conventional transit bus service (YRT), including specialized transit services, and a Rapid Transit network (Viva). Mobility Plus is YRT's door-to-door shared ride accessible transit service for people with disabilities who meet specific eligibility criteria. Viva bus rapid transit (BRT) services operate in dedicated rights-of-way (rapidways) and in mixed traffic with transit priority measures. The Proposed 2041 Transit Network **Map 7** (located in the Maps section) identifies current and future corridors for Viva BRT services.

Intensification along major transit corridors is also a cornerstone of the Province's Growth Plan. Intensifying compatible land uses around rapid transit stations and main corridors is vital to generating ridership and boosting transit productivity.

> ***What we heard:***
>
> *"Buses need to be more frequent"*
> *"Improve integration between YRT and GO Transit"*
> *"Build the Yonge Subway Extension"*
> *"We need a distance-based transit fare system"*
> *"Walking to transit stops takes too long"*

4.1 Benefits

A world class transit system will provide York Region residents and businesses with the following benefits:

- Reduced congestion
- Improved air quality
- Greater sustainable options for travelling
- An attractive region in which people can live, work and play

4.2 Assumptions

The Toronto York Spadina Subway Extension is expected to become operational by the end of 2017. This will necessitate a restructuring of the YRT/Viva services to provide connections to the new subway stations.

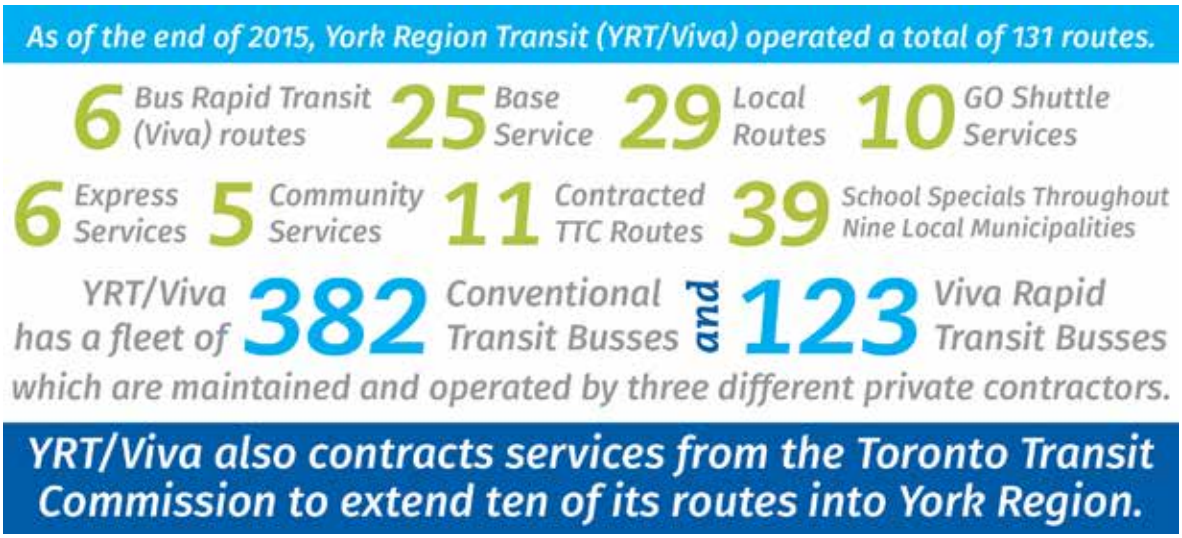


Exhibit 4.1: *Transit in York Region as of the end of 2015*

YRT/Viva operates into the following terminals: Promenade Mall, Vaughan Mills Mall, York University, Richmond Hill Centre Terminal, Bernard Terminal, Finch GO Bus Terminal, Newmarket GO Bus Terminal and the Highway 404/Davis Drive Park 'N' Ride.

4.2.1 Provincial Infrastructure Plans

Regional Express Rail (RER): In 2015, Metrolinx announced its plan to introduce RER within ten years. Under this program, York Region will have GO Transit RER service, providing two-way, 15 minute service to Aurora on the Barrie Corridor and Unionville on the Stouffville corridor. New two-way hourly service to Allendale Waterfront on the Barrie GO rail corridor and Mount Joy on the Stouffville GO rail corridor during midday, evenings and weekends will be introduced. The Richmond Hill rail corridor will receive peak period service improvements however the current plan does not include off-peak service due to capacity constraints and environmental considerations resulting from freight services on the rail corridor. The RER program also identifies several new stations to be confirmed through detailed studies. The improvements are to be in place by 2026 according to current Metrolinx plans.

In response to these pending major changes to GO corridors, the Region has initiated the Transit Optimization Program (TOPs). A major goal of the TOPs program is to facilitate collaboration between the Region, Metrolinx and local municipalities with respect to the development, implementation and operation of RER. The TOPs initiative will address coordination needed due to road/rail grade separations and level crossings, existing and new GO Stations, YRT/Viva service increases to support RER and fare integration. It also creates a framework for the Region, Metrolinx and Transport Canada to work to address and mitigate impacts due to whistles blowing as the RER program is implemented and GO rail service increases.

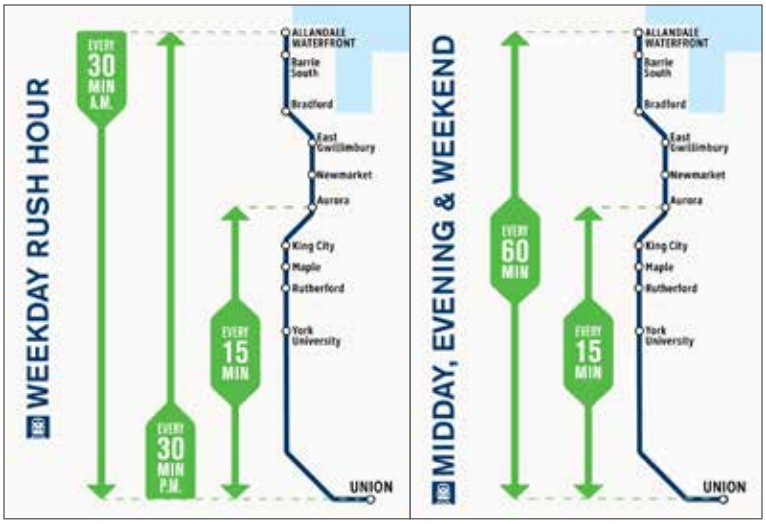
Richmond Hill Rail Corridor

Weekday rush hour

15-minute service from Richmond Hill to Union Station in the morning

15-minute service from Union Station to Richmond Hill in the afternoon/evening

Barrie Rail Corridor



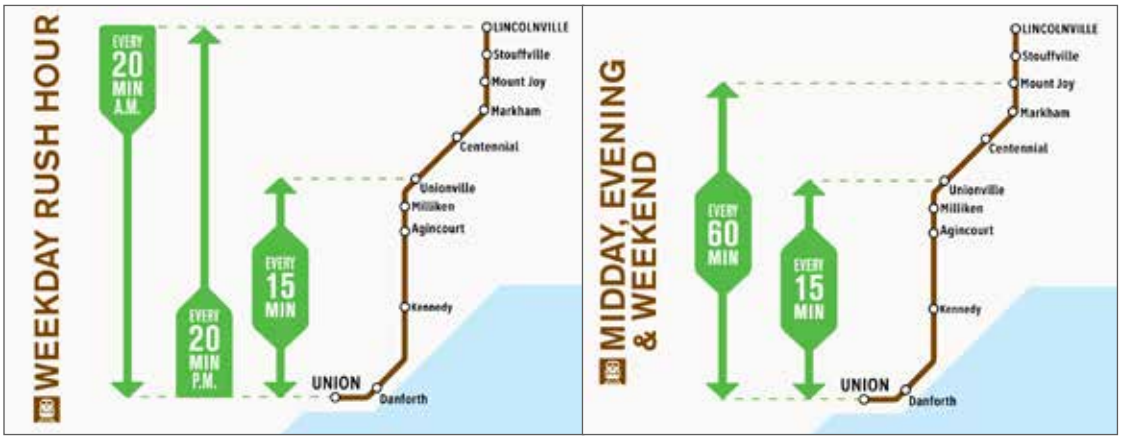
Weekday rush hour

15-minute, two-way service between Aurora and Union Station

Midday, evening and weekend

15-minute, two-way service between Aurora and Union Station

Stouffville Rail Corridor



Weekday rush hour

15-minute, two-way service between Unionville and Union Station

20-minute service from Lincolnville to Union Station in the morning and from Union Station to Lincolnville in the afternoon/evening

Midday, evening and weekend

15-minute, two-way service between Unionville and Union Station

60-minute, two-way service between Mount Joy and Union Station

Exhibit 4.2: *Regional Express Rail services coming to York Region by 2026*

New GO Stations: Metrolinx is currently in the process of conducting a 'New Stations Analysis'. The process initially examined some 150 potential stations across the GO service area and has narrowed the list to approximately 50 sites for detailed analysis. Within York Region, the Metrolinx study identifies seven potential new GO Stations. On the Barrie GO rail corridor, potential new stations include Concord, Kirby Road, 15th Sideroad and Mulock Drive. On the Richmond Hill GO rail corridor two new stations are identified at John Street/Greenlane and 16th Avenue, in addition to the new stations at Gormley and Bloomington Road which are underway. On the Stouffville GO rail corridor, a potential new station is identified at 14th Avenue. York Region is working with Metrolinx to further assess the feasibility of these new stations.

In addition to potential new stations identified by Metrolinx, the TMP has further identified additional stations to accommodate growth to 2041. These include a potential station at Major Mackenzie Drive on the Stouffville GO rail corridor and two potential stations on the Richmond Hill GO rail corridor at 19th Avenue and Aurora Road. Further work is required, in cooperation with Metrolinx, to assess these potential locations.

Other GO Corridors: The Bolton rail corridor was identified as a new GO Rail corridor in the 2009 TMP and Metrolinx's The Big Move. As part of an update to The Big Move in 2013, the GO Bolton rail corridor was moved from the 15-year plan to the 25-year plan. This reflected the 2010 Bolton Feasibility Study that concluded 2031 ridership would be very modest in relation to the high capital cost of double-tracking the line. The same update also moved the implementation of GO service from Union Station to Locust Hill, along the Havelock Subdivision in east Markham, from the 15-year plan to the 25-year plan due to modest projected ridership and significant infrastructure and operational challenges related to the Agincourt rail yards. The TMP recommends that both the Bolton rail corridor and Havelock rail corridor continue to be protected for future GO service.

407 Transitway: The Ministry of Transportation is advancing detailed planning for the 407 Transitway, which is proposed as a 150 km long high-speed interregional transit facility to be ultimately constructed on a separate right-of-way parallel to Highway 407 from Burlington to Highway 35/115 in Whitby. The 407 Transitway is planned to be implemented initially as bus rapid transit with the opportunity to convert it to light rail transit in the future.

The Ministry of Transportation has advanced the 407 Transitway planning through York Region in three sections:

- West section - extends from Hurontario Street in the City of Brampton to east of Highway 400 in the City of Vaughan
- Central section - extends from east of Highway 400 in the City of Vaughan to Kennedy Road in the City of Markham
- East section - from Kennedy Road in the City of Markham to Brock Road in the City of Pickering

The Ministry of Transportation completed the environmental assessment (Transit Project Assessment Process under O.Reg. 231/08) for the central section in 2011. The approved environmental assessment identifies seven transit stations including:

- Jane Station
- GO Barrie (Concord) Station
- Bathurst Station
- Yonge Station
- Leslie Station
- Woodbine/Rodick Station
- Kennedy Station

In October 2015, the Ministry of Transportation initiated a pre-planning and preliminary design study for the west section in advance of initiating the Transit Project Assessment Process. In August 2016, the Ministry of Transportation initiated the Transit Project Assessment Process for the east section. These studies are ongoing.

4.3 Strategies

4.3.1 Ridership Growth Strategy

Ridership Growth. The Region has seen significant growth in transit ridership over the past two decades. Annual transit trips on YRT/Viva have nearly tripled since 2002, as have the number of trips per capita. This ridership growth is a result of continued service increases, and more recently, the opening of rapidways on Highway 7 and Davis Drive.

In order to see continued ridership growth, the Region will need to address several challenges including increasing transit market shares for trips that start and end in York Region, a market which traditionally has lower shares than trips to Toronto.

Increasing operating costs create pressures to raise fares, which may impact ridership growth. "Moving to 2020", YRT/Viva's 2016-2020 Strategic Plan, presents a plan to address transit needs over the next five years, including examining innovative transit alternatives and establishing a new fare structure. Additional work is required to ensure that all opportunities to leverage investments made in transit to date are examined, and to identify new ways to grow ridership in a financially sustainable manner.

Over the last decade, the Province, through key policy and financial decisions, has increased the expectation of transit service providers to help manage growth in an economical and environmentally-sustainable manner. In order to respond to these increased pressures, a YRT/Viva Ridership Growth Strategy will provide a comprehensive suite of initiatives and actions focused on encouraging more people to take transit. The Strategy will focus on implementing and maintaining an improved quality, level and/or reliability of services and facilities to increase transit ridership while growing sustainably. The Strategy will highlight:

- A profile of transit ridership and resident needs, including what factors drive transit ridership and regional spatial variations

- Land use and transit integration
- Recommendations and investment opportunities to increase service levels on existing routes that will improve service reliability and reduce passenger waiting times
- A comprehensive, phased approach to new transit service improvements, fare initiatives, parking management and incentives as well as new or improved facilities, including technology advancements
- Opportunities for coordination and integration among transit operators in adjacent municipalities, jurisdictions and private transit/rideshare operators
- A cost-benefit analysis to determine what options have the greatest benefits to increase ridership in a fiscally responsible manner
- Short- and long-term investment and funding requirements to reflect operating and capital needs
- Performance measures to assess how the growth objectives and targets are being met
- Marketing, education and communication strategies

Service Guidelines. The YRT/Viva 2016-2020 Strategic Plan details service guidelines that are used to design new services and to evaluate and adjust existing services. They address the following service characteristics and performance indicators for YRT/Viva services:

- Maximum walking distance to a bus stop in both urban and rural areas
- Average bus stop spacing for Viva routes, express routes and other routes (base, local, shuttle and community bus)
- Span of service (i.e. hours and days of service)
- Minimum service frequency by route type, weekday/weekend and time period and for regional differences (rural versus urban)
- Design and maximum operating passenger loading, as a percentage of seated capacity
- Criteria for the introduction of new services in developing areas
- Performance targets for the overall system (i.e. service hours per capita, ridership per capita, ridership per operating hour and cost recovery)

The service guidelines also address key Mobility Plus characteristics including service area, hours and days of service and performance targets for ridership per operating hour and on-time arrival.

Rapid Transit. Rapid transit corridors identified for the Proposed 2041 Transit Network **Map 7** (located in the Maps section) build on the original vivaNext Plan (Yonge Street, Highway 7 and Davis Drive) to include the Viva Network Expansion Plan (Jane Street, Major Mackenzie Drive and Leslie Street/Don Mills Road) and future rapid transit corridors to accommodate growth to 2041 (Major Mackenzie Drive East, Green Lane, Yonge Street north of Davis Drive and Woodbine Avenue).

Intensifying compatible land uses around rapid transit stations is critical to generating ridership and boosting transit productivity. In order to achieve this, the Region will designate and protect rights-of-way for rapid transit corridors. The Region will continue to protect the potential for conversion of Viva BRT rapidways to Light Rail Transit (LRT) operation sometime after 2041. This will be reviewed as part of subsequent Master Plan updates.

The Region will review and update the Viva Network Expansion Plan (VNEP) to improve and expand Viva services outside the rapidway network as needed to meet the demands of growing population and employment.

Yonge North Subway Extension. The Yonge North Subway Extension is the critical missing link in the dedicated Regional rapid transit system. It is a vital gap in creating a seamless transit network in the GTHA and remains a top priority the Region and the TMP. To service this section of Yonge Street presently requires approximately 2,500 bus trips per day travelling between Richmond Hill Centre and Finch Subway Station.

This would extend the subway 7.4 kilometres north from Finch Station to Richmond Hill Centre (RHC) at Highway 7 and includes five stations, two intermodal terminals and 2,000 commuter parking spaces. The Yonge North Subway Extension is ready to move to full engineering and design with construction to follow.

The Yonge North Subway Extension fuels a proposed 48,000 people and 31,000 jobs at the Richmond Hill/Langstaff Urban Growth Centre anchor hub. The project would produce lasting economic stimulus, especially during construction, creating up to 21,800 person-years of employment.

With a potential daily ridership of 165,000 (or 2 people/second), the project serves a demonstrated need and meets the Province's smart growth objectives related to the intensification and development planned for the Richmond Hill/Langstaff Urban Growth Centre. In this key mobility hub, the project will create a "Union Station of the North" by linking GO service, subway service, bus rapid transit and BRT/express service along Highway 407 ETR and integrating with RER.

More than $10 million has been invested to date for studies and comprehensive community consultations for the Yonge North Subway Extension project. This investment builds on the more than $3 billion in senior government investment in York Region rapid transit. It aligns with Federal, Provincial and Municipal priorities to stimulate the economy, to support the middle class and to reduce greenhouse gas emissions.

Subway Extensions Study. The York Region Official Plan is based on maximizing development in its centres and corridors. Extending the Yonge North Subway and Toronto-York Spadina Subway Extension (TYSSE) further north has the potential to further facilitate growth and intensification in southern York Region. It is noteworthy that the City of Vaughan's recently approved Official Plan identifies a northerly extension of the Spadina subway to Major Mackenzie Drive. Extending the Yonge subway north of Richmond Hill Centre could also address projected capacity shortfalls on the BRT system, as well as constraint points in historic areas.

Further study of these potential subway extensions is required, including an assessment of the operational impacts on the entire subway system and potential connection between the Yonge Subway and TYSSE. Given the uncertainty of these subway extensions, they are considered to be beyond the 2041 horizon. The future study would help identify the property protection needed for these corridors.

Frequent Transit Network. The Proposed 2041 Transit Network Map identifies a Frequent Transit Network (FTN) in urban areas of York Region. Located in key corridors, FTN routes will offer reliable services that are so frequent, customers do not need to use a schedule. The FTN route structure will consider the Viva Network Expansion Plan (VNEP) and future stages of Viva development, as well as the need to connect to TTC subway stations and GO's future RER program. FTN routes would continue to be complemented by other YRT Local, Express, Shuttle and Community Bus services.

The YRT/Viva 2016-2020 Strategic Plan details the first five years of FTN implementation. The FTN will ultimately offer service frequencies of 15 minutes or less from 6:00 a.m. to 10:00 p.m., seven days a week. The FTN will be implemented in multiple phases, with the initial phase (2016 to 2020) offering 15-minute service during weekday rush hours.

Feedback from residents has identified that the reliability of the Region's conventional transit system is a weakness that needs to be addressed. Since many FTN routes will operate on congested roads in mixed traffic, the achievement of high service frequencies and reliability will require that delay to buses be minimized through the use of transit priority measures including reserved lanes for buses or high-occupancy vehicles (HOVs) and special traffic signals or queue jumps at intersections. The FTN is critical to support the BRT network.

Mobility Plus. YRT's door-to-door shared ride accessible transit service for people with disabilities who meet specific eligibility criteria is Mobility Plus. Growth in the demand for Mobility Plus services, and in the operating costs of those services, has led the Region to pursue the following productivity improvements:

- Improving vehicle utilization through greater integration of Mobility Plus with other YRT/Viva services
- Restructuring Shuttle and Community Bus services so that routes and schedules better meet customer needs and attract more riders
- Adjusting areas, days and hours of service to be comparable with conventional bus routes and accommodating travel requests outside those limits on a trip-by-trip basis

The Region will continue to offer Mobility Plus services for persons with disabilities and pursue initiatives that improve productivity and integration with other YRT/Viva services.

Low Demand Transit Strategy. YRT/Viva has been piloting Dial-a-Ride services in several areas. After booking a ride in advance, customers are picked up by an accessible vehicle. Some Dial-a-Ride services will pick up and drop off customers at any street address in a fixed area, while others only serve existing bus stops on particular transit routes. By 2017, YRT will introduce a new form of Dial-a-Ride service provided by Mobility Plus in defined rural, suburban and urban areas where low levels of transit demand exist.

Building on YRT/Viva's Dial-a-Ride experience, the Low Demand Transit Strategy will define boundaries between low-demand and high-demand areas in each municipality, offer a combination of services (e.g. conventional services, Dial-a-Ride routes and zones, Mobility Plus services) in low-demand areas, explore sharing economy technology and partnership solutions as well as improve information and communications promoting travel options in those areas.

Regional Integration. Road networks within the GTHA are seamlessly connected, without barriers between municipal jurisdictions. There is substantial demand for travel between York Region and the rest of the GTHA, most notably to and from the City of Toronto and Peel and Durham Regions. Transit demands to downtown Toronto are served by GO Transit rail and bus services, while transit demands to midtown Toronto and North York are primarily served through YRT/Viva and TTC. There are growing demands between Markham and Scarborough and between Vaughan and North Etobicoke, which are not adequately served by existing transit routes. With the significant demand of York Region residents to travel to external destinations, it is critical that cross-border routes, services and fares are clearly understood and integrated throughout the GTHA.

To achieve true regional mobility, public transit services—including cross-border routes and fares—should be similarly integrated. Metrolinx is currently working on a fare integration strategy. York Region will continue to work with Metrolinx in support of this initiative.

Integration with GO Transit. The Proposed 2041 Transit Network **Map 7** (located in Maps section) identifies GO Transit's current commuter rail corridors, as well as several planned future extensions.

One of GO Transit's major upcoming initiatives is the RER program. By 2026, GO Transit will upgrade rail services to an all-day, two-way schedule with intervals of 15 to 20 minutes during peak periods (30 minutes during off-peak times) on the Barrie Go rail corridor (Union Station to Aurora Station) and Stouffville GO rail corridor (Union Station to Unionville Station). This is a significant improvement from existing GO Transit rail services that operate with frequencies of 30 minutes or less in peak periods and peak directions only, with counter-peak and off-peak bus services every 60 minutes or less. By 2026, there will be more frequent rush-hour service from Monday to Friday on the Richmond Hill Go rail corridor. Service will be increased to 15-minute intervals from Richmond Hill to Union Station in the morning and 15-minute intervals from Union Station to Richmond Hill in the afternoon/evening.

To ensure an integrated regional transit network, YRT/Viva will align its services to GO Transit's RER schedule. Since many GO Stations are found in York Region development hubs, improved integration and greater transit ridership may also help reduce local parking demands. YRT/Viva customers currently pay a reduced fare of $0.75 when transferring to/from GO Transit services.

GO Transit currently provides highway bus service on Highway 404, Highway 400 and Highway 407, as well as a service to Uxbridge. These services are limited and are designed to provide off-peak services when GO trains are not operating.

The Province of Ontario's plans to expand the Highway HOV network and introduce High-Occupancy Toll (HOT) lanes will significantly improve the viability and attractiveness of highway bus services. The Region's proposed interim solutions to allow buses to travel on the paved shoulders on Highways 404 and 400 would allow buses to avoid congestion. The Region will work with the Province to explore the feasibility of this proposed solution.

The TMP recommends the enhancement of highway bus services to provide greater connectivity for York Region residents. These services would be operated by GO Transit and/or YRT/Viva.

Conversion to LRT. The Region expects to convert some or all of Viva rapidways into higher-capacity light rail facilities after the 2041 horizon. LRT systems typically attract more riders than BRT systems however the creation of additional transfers (e.g. by replacing express bus routes with hub-and-spoke combinations of local bus and LRT routes) can dampen ridership gains. Conversion from BRT to LRT would imply substantial capital costs and service disruptions during construction. These costs would have to be weighed against the possible operating cost savings and ridership gains. Fixed LRT routes are much more difficult to change than BRT routes. LRT may be more supportive than BRT of land use intensification around rapid transit stations. LRT systems operate on electricity and generate fewer local air emissions than diesel or hybrid buses, have lower operating costs and increase daily average ridership. The pace at which bus technologies evolve toward full electrification will determine how long this advantage of LRT technology remains.

4.3.2 Transit Connections Strategy

First and last mile connections. One of the major functions of rapid transit stations and other transit service hubs is to allow travellers to change modes either to or from transit. This is part of serving the "first and last mile" or the relatively short leg of a complete journey that lies between transit and the origin or destination, particularly in areas with transit-oriented development or other higher-density land uses.

For active transportation users. In built-up areas, active transportation may be the most common method by which customers arrive at major transit stations. Safe, comfortable and visible routes for walking and cycling to transit are essential to attracting active transportation users. There are other features at transit stations and stops themselves that can make walking and cycling to or from transit more attractive including:

- Bike channels on staircases to make it easier for cyclists to bring their bikes into or out of stations
- Bicycle parking, including lockers or other secure storage facilities
- Bikesharing services, which enable quick and convenient access to destinations up to several kilometres away
- Maps of the station and surrounding area that show major destinations, recommended walking routes within one kilometre and cycling routes within three kilometres

Commuter using a combined mode of transportation

For automobile users. Features at major transit stations and hubs can make it more convenient for auto users to include transit as part of their journey:

- Park 'N' Ride facilities (see the next subsection) serve drivers who want to leave their car and take transit for the next leg of their journey
- Drop-off and pick-up zones serve automobile passengers (including taxi or ride-hailing passengers) while removing cars from roadways where temporary stopping can impact safety and congestion
- Carshare vehicles are another option for transit customers to continue their journey. They can be especially valuable in suburban areas where local transit routes may not be an attractive option for time-pressed users (e.g. people travelling for business) who arrive by rapid transit. Dedicated space for carshare vehicles at transit stations can support their use

4.3.3 Fare and Service Integration Strategy

Fares. Passenger fares provide important financial support for transit service delivery and are a key component of YRT/Viva's revenue stream. YRT/Viva fare levels and categories seek a balance between recovering operational costs and attracting ridership, while also enabling regional coordination and minimizing impacts on customers who are least able to pay.

The Region periodically reviews its fare structure to ensure simplicity while meeting the Region's revenue targets. The Region will launch a review of YRT/Viva's fare strategy in 2016 to address cost-recovery objectives, system-wide PRESTO smart card implementation, the possibility of integration with other transit providers and customers' ability to pay, including an assessment of program opportunities. These may contain a universal pass for post-secondary students and a low-income fare category for seniors.

During the development of any major service changes, YRT/Viva engages multiple stakeholder groups. After all stakeholder feedback is collected and reviewed, the recommended initiatives are finalized. During the stakeholder consultation process, various stakeholder groups throughout all municipalities within York Region are engaged through a combination of meetings, workshops, outreach sessions, on-board surveys and Public Information Centres (PICs). This will be a critical component of the review of the fare structure as the Region continues to improve the customer experience.

Fare and Service Integration. Passengers transferring between YRT/Viva and the TTC must currently pay a full extra fare while passengers transferring to Brampton Transit and Durham Transit benefit from co-fares. A separate TTC fare is required for passengers travelling to and from Toronto with the exception of the Viva orange services where passengers can board at York University and points northward with a TTC fare.

YRT/Viva services also run "closed door" while operating in the City of Toronto. For example, the Viva green service heading to Don Mills station cannot pick-up passengers within the City of Toronto on route to that station. On northbound trips, YRT/Viva buses are permitted to pick up at any stop when travelling to York Region however cannot drop off passengers within the City of Toronto.

GO train in York Region

In order to address fare and service integration issues, Metrolinx initiated a comprehensive study in 2015 to develop principles for fare and service integration and to evaluate potential alternatives. Three proposed 'fare structure concepts' were developed reflecting these principles which are to be further refined and evaluated. The three concepts are measured distance-based fares, zone-based fares and a hybrid fare structure. Alternatives involving GTHA-wide flat fares and measured distance fares for local services were eliminated from consideration. Consideration of the remaining alternatives is ongoing.

Expansion of the PRESTO smart card system (which is expected to be implemented on TTC routes by the end of 2016) will serve to enable fare integration and relieve travellers of having to carry fare media for two different transit systems.

4.3.4 Commuter Parking Management

Providing opportunities for residents to park their vehicles on the fringes of urban areas and access different modes of travel for part of their trips, including transit or car sharing, will enable people to make choices about how they move around and through York Region. A Regional Parking Strategy is expected to provide sustainable parking solutions and options that will ultimately result in a lower number of auto trips accessing parking at key destinations in urban centres, including employment areas and transportation hubs and stations.

Commuter Parking Management will require the Region to partner with other agencies and the private sector to conduct further study to inform the strategy. It will ensure that comprehensive planning of the transportation network will support the travel needs of residents in the future.

Parking Management. In urban areas, parking consumes a significant portion of land and financial resources. Effective parking policies and programs can lead to a more efficient use of both public and private resources and can encourage development and economic growth while supporting the achievement of transportation objectives (e.g. modal shift away from automobiles). Major areas of focus for municipal governments include zoning bylaw regulations on the quantity, location and design of parking for individual developments and facilities and regulations for publicly provided off-street and on-street parking.

Currently, local municipalities play the primary role in parking management. They include parking-related policies in their Official Plans and secondary plans, apply zoning bylaws to new development and govern on-street parking on local roads. While the Region plays a secondary role, it does have two major functions that relate closely to parking:

- Regional growth management, which involves directing growth to intensification areas including Regional Centres and Corridors where the intensity, mix and form of new developments shape parking requirements. In these areas, public parking facilities do not yet exist but they can be an effective way to reduce the footprint of private developments and support community activities. Local municipalities can also lower parking requirements, promote shared parking strategies and offer parking reductions in exchange for the provision of carpool, carshare and bicycle parking.
- Making sustainable travel options more attractive, including measures like providing Park 'N' Ride lots, carpool parking lots and on-street parking on Regional roads, to support comfortable walking and cycling environments. The impact of these improvements would be greater with simultaneous measures to reduce the availability of plentiful and inexpensive parking in walkable, transit-oriented areas (e.g. Regional Centres and Corridors).

Park 'N' Ride. Park 'N' Ride facilities make transit use more accessible to customers who live in areas without transit service, or for whom it is more convenient to reach a Viva corridor or other high-quality transit service by driving a car, rather than taking a feeder bus. Park 'N' Ride facilities play an important role in supporting transit ridership and represent a large potential market for new riders.

Exhibit 4.3: *Park 'N' Ride lots in York Region*

YRT/Viva currently offers seven Park 'N' Ride facilities in three communities: Aurora (one at Aurora Community Centre), Markham (five at Denison Market Square, First Markham Place, Markham Village Community Centre, Markville Mall, Thornhill Community Centre) and Vaughan (one, at Al Palladini Community Centre). These seven lots have been established by agreement with third parties on properties owned and operated by others. These arrangements can be cost-effective compared to the construction and operation of Region-owned Park 'N' Ride lots. These agreements will have to be monitored and adjusted over time to address any capacity or other issues as they arise and as transit use changes.

To build ridership and improve the role of

automobile-based access to transit, YRT/Viva will develop a Park 'N' Ride implementation plan. Through demand analysis and public consultation, it will identify recommended improvements and expansions to existing facilities and determine the number, location, size and cost of new Park 'N' Ride lots. The plan will also recommend a user pricing strategy.

4.3.5 Accessibility

Accessibility. YRT/Viva works continually to provide and improve accessible transit services for York Region residents, to identify and remove barriers faced by existing and potential transit customers and to meet or exceed requirements of the Accessibility for Ontarians with Disabilities Act (AODA). YRT/Viva's efforts are shaped through ongoing consultation with the public, engagement with York Region's Accessibility Advisory Committee (YRAAC) and the Region's 2015-2021 Multi-Year Accessibility Plan strategy to prevent and remove barriers for people with disabilities.

Mobility Plus services are one important component of YRT/Viva's accessible transit offering and are vital to people whose disabilities prevent them from using conventional transit. In addition, all conventional YRT/Viva buses are equipped with low floors and/or an extendable ramp. Every vehicle has designated accessible seating available near the front, marked with the accessible symbol or "Priority Seating". For customers with visual or hearing impairments, every vehicle also has on-board audio equipment and variable message signs that automatically announce "next stop" information 200 metres ahead of each stop.

More than 80% of YRT/Viva stops are accessible and at other stops the bus operator will allow users of mobility devices to board or disembark at the nearest location that is safe and acceptable to both the operator and customer.

Transit rider in a wheelchair safely boarding a Viva bus

4.3.6 Advanced Technologies

Advanced Technologies. YRT/Viva continues to implement new technology systems to enhance customer service, improve passenger and driver safety, optimize operational performance and provide passengers with real-time bus arrival information. A program to install Wi-Fi on YRT/Viva buses is commencing and will provide riders with an enhanced service as well as real-time access to transit schedules and notices.

Future technological advances that will benefit transit will focus on the provision of on-demand mobility. The advent and wide-spread adoption of smart phone technology and its various applications has stimulated the advancement of several new tech-enabled transportation modes and services. Advancements in this technology have enabled ridesharing and demand responsive services to be dynamic and user-friendly while optimizing scheduling and service logistics.

In recent years, the electrification of heavy duty transit vehicles has advanced to a point where it is reasonable to predict that a consistent and competitive supply of electric buses will be a viable option starting close to 2030.

Within the horizon of this TMP, autonomous vehicles will most likely become a mainstream mode of travel. This presents both challenges and opportunities for current transit systems. Autonomous vehicles have the potential to address some of the first-mile, last mile challenges with accessing rapid transit and the GO rail network yet may also compete with transit for some types of trips. Their potential use by public transit services could also be explored.

Safety and Security. The safety and security of customers, staff and the general public are a priority for YRT/Viva. Members of a dedicated Transit Enforcement team, consisting of Special Constables and fare media inspectors, patrol the YRT/Viva system to monitor fare payments and customer behaviour. Special Constables have the powers of a Peace Officer to enforce the Criminal Code of Canada and other related federal statutes on YRT/Viva and affiliated properties. They provide customer assistance, ensure the correct payment of fares, respond to emergency issues, enforce Region bylaws applicable to transit and issue notices of offence, summonses and notices of court appearances.

YRT/Viva vehicles and properties are outfitted with security cameras intended to deter vandalism and provide evidence of incidents that occur on vehicles or at terminals. Together with vehicle communication systems, these technologies help create a safer environment.

4.3.7 Transit Oriented Development

Transit Oriented Development. Transit-Oriented Development (TOD) is a planning and design approach that recognizes the relationship between land use and the potential for effective and efficient transit service. TOD meets the needs of transit users, thereby generating ridership and enabling transit service improvements. It also makes efficient use of land, supports walking and cycling and provides a greater concentration of opportunities for residents to meet their daily needs.

TOD is a key component of the Region's plan to develop its Centres and Corridors. In 2006, Regional Council adopted TOD Guidelines to help shape land use planning and approvals by the Region and its local municipal partners. Those guidelines are structured around six key themes: pedestrians, parking, land use, built form, connections and implementation.

Best practices in TOD are evolving continuously and experiences from across North America offer much to inform local initiatives. While the Region's TOD guidelines provide strategic direction, the optimal solution for each development must be found through collaboration, creativity and willingness by stakeholders to try new approaches. TOD success will arise from a supportive culture within government and the development community—a culture that is fostered by both vision and leadership.

The Region will review its policies and strategies to enable acceleration of TOD near rapid transit stations.

Mobility Hubs. Mobility Hubs are major transit stations and the surrounding areas. These areas have significant levels of planned transit service, high residential and employment development potential within an approximately 800m radius of the rapid transit station. They are places of connectivity where different modes of transportation – from walking to rapid transit – come together seamlessly and where there is an intensive concentration of working, living, shopping and/or playing. There are currently six Mobility Hubs defined in the Metrolinx Regional Transportation Plan in York Region. They are Vaughan Metropolitan Centre, Langstaff/Richmond Hill Gateway, Leslie-407, Markham Centre, Newmarket Centre and Newmarket GO. York Region will continue to work with Metrolinx and the local municipalities to advance the planning and implementation of Mobility Hubs.

4.4 Recommendations

This update to the TMP recommends the following policies, actions and major initiatives to support the creation of a world class transit system in York Region.

4.4.1 Policies

The Region will:

- P1 Continue to advocate senior levels of government to fund the Yonge North Subway Extension to Richmond Hill Centre
- P2 Provide opportunities for residents to park their vehicles on the fringes of urban areas and access different methods of travel for part of their trips, including transit or carsharing
- P3 Advocate for an expedited implementation of a new GTHA-wide fare structure comprised of flat fares for local transit in combination with distance based fares for rapid transit and regional transit
- P4 Continue to facilitate Mobility Plus connections with specialized and conventional transportation services in adjacent municipalities
- P5 Continue to improve accessibility in the Region's transportation system
- P6 Continue to improve infrastructure and services that protect the safety and security of the general public and YRT/Viva customers and staff
- P7 Continue to advocate for increased GO bus services on Highways 404 and 400 in combination with the implementation of HOV or HOT lanes on these highways

P8 Continue to work with GO Transit to inform and promote the use of integrated regional transit services

4.4.2 Actions

The Region will:

A1 Implement the Rapid Transit network as shown on **Map 7** (located in the Maps section)

A2 Regularly update the Viva Network Expansion Plan (VNEP) to improve and expand Viva services outside the rapidway network

A3 Deliver a program of transit priority measures including, but not limited to, reserved bus or high-occupancy vehicle (HOV) lanes that maximize the speed and reliability of Frequent Transit Network (FTN) routes that operate on shared rights-of-way

A4 Undertake a Ridership Growth Strategy to evaluate opportunities for increasing transit ridership within a fiscally-sustainable framework

A5 Implement a Low Demand Transit Strategy that clarifies and improves the family of services offered to transit customers in low demand areas

A6 Launch a review of YRT/Viva's fare strategy in 2016 to address cost-recovery objectives, system-wide PRESTO implementation and customers' ability to pay options

A7 Restructure existing YRT/Viva services to improve access to GO Transit stations, supporting GO Transit's all-day schedules and the Regional Express Rail (RER) program

A8 Work with Metrolinx/GO Transit to coordinate the delivery of highway bus services while recognizing these services have potentially lower cost recovery ratios than conventional YRT services

A9 Through the established Transit Optimization Program (TOPs), work with Metrolinx/GO Transit to ensure the successful introduction of RER

A10 Develop service and fare integration agreements with Brampton Transit (Region of Peel), Durham Region Transit (Region of Durham) and Metrolinx

A11 Work with TTC to improve the customer experience on cross-boundary trips, integrate YRT/Viva routes and fares with future subway extensions, optimize efficiency of contracted cross-border services and explore new opportunities for cross-border routes such as between Markham and Scarborough

A12 Develop a Commuter Parking Management Strategy that:

- Develops (in partnership with Metrolinx, MTO and/or local municipalities) new commuter parking lots in strategic areas of York Region that support reduced auto travel and increase transit ridership and use of existing and proposed HOV/transit lanes
- Establishes a governance model for Regional Parking Management
- Provides direction regarding on-street parking on Regional roads
- Identifies and implements pilot projects, including the use of paid parking

A13 Develop an implementation plan that identifies actions, timelines and resources for the modification and expansion of Park 'N' Ride facilities

A14 Work with partners toward the creation of additional Park 'N' Ride facilities to serve YRT/Viva customers, and possibly carpoolers, using lands either leased or owned by the Region

A15 Periodically update service guidelines and performance indicators to inform customer expectations and enable effective planning and operational decisions

A16 Review and update Rapid Transit station design guidelines to integrate features that maximize safety, comfort and convenience for transit

A17 Work with local municipalities and other stakeholders to develop a strategy that maximizes the year-round accessibility of all YRT/Viva stops by 2026

A18 Collaborate with Metrolinx, the City of Toronto and the TTC to study a possible subway extension in the Jane Street, Major Mackenzie Drive and Yonge Street corridors, linking the Spadina and Yonge Street Subways

4.4.3 Big Moves

The following major initiatives support creation of a world class transit system:

- Maximize the potential of Regional Express Rail
- Improve transit frequency and coverage through implementation of the Frequent Transit Network
- Complete Viva network (rapidways and new service corridors)
- Extend the Yonge North Subway to Richmond Hill Centre and study further subway expansions with partners
- Deliver the YRT/Viva 2016-2020 Strategic Plan
- Develop an implementation plan for the expansion of Park 'N' Ride facilities with transit connections to urban centres
- Support the freeway bus network and future provincial transitway corridors
- Improve service and fare integration with partner/neighbouring transit systems (e.g., GO Transit, TTC, Durham, Brampton)

Chapter 5

Objective 2

Develop a Road Network Fit for the Future

In this chapter:

5.0 Objective 2

Develop a Road Network Fit for the Future

This chapter identifies policy, planning, design and operational strategies to create a more robust, efficient, flexible, responsive and safe Regional road network that will serve all users.

York Region's road network plays a foundational role in providing an interconnected system of mobility, enabling the provision of YRT/Viva's transit services. Regional roads impact everyone that travels anywhere in York Region outside their immediate neighbourhood. They represent a significant public space and consume a substantial portion of the Region's budget. The smooth delivery and operation of York Region's road network is critical to economic health and quality of life. Planning, designing, constructing, operating and maintaining Regional roads in a manner that is consistent with the principles underlying this plan will be fundamental to achieving its goals.

Increasing traffic congestion is a threat to York Region's livability and economic competitiveness. History has demonstrated that simply expanding the road network will not solve congestion issues. The Region needs to make better use of roads today while also building smarter roads for tomorrow. This will be achieved by taking advantage of technological advancements and incorporating several important policy priorities—public health and safety, the need to accommodate transit and active modes on Regional roads and emerging environmental concerns. New approaches to using public rights-of-way, such as the concept of complete streets, will help the Region take a balanced approach to encouraging alternative modes and managing congestion. Other steps to improve the connectivity of Regional and local collector road networks will also have an important role.

See **Map 8** for the Proposed 2041 Road Network, with proposed phasing in **Map 16** through **Map 19** (located in Maps section) .

> ***What we heard:***
>
> *"HOV toll lanes where the toll is reduced by the number of occupants in the vehicle"*
> *"Connect east-west roads that are currently disconnected"*
> *"We need pedestrian oriented sidewalks and boulevards"*
> *"Fewer traffic lights and more roundabouts"*
> *"Many roads need to be widened and intersections improved"*

5.1 Benefits

A road network fit for the future will provide York Region residents and businesses with the following benefits:

- Maximizing the ability to move more people through the provision of HOV and transit priority lanes
- Providing the flexibility to adapt to technological changes in travel and accommodate future corridor needs
- Supporting the efficient movement of goods and services through implementation of key corridors
- Supporting communities and managing congestion by providing new and expanded Regional roads
- Providing greater travel route choices with a finer grid road network
- Connecting missing links in the road network by removing physical barriers and providing grade separations
- Managing congestion and optimizing the road network through intelligent transportation systems
- Designing urban streets as public spaces that contribute to achieving livable and vibrant communities that enhance the natural environment and support pedestrian safety
- Preparing the network for communication of information to vehicles (autonomous vehicles)

5.2 Assumptions

As of 2015, within York Region there were:

- 4,150 linear kilometres of local roads
- 1,060 linear kilometres of Regional roads
- 76 linear kilometres of Provincial highways
- 237 linear kilometres of Provincial 400 series highways

The safety of all Regional roads and intersections is appraised yearly and an annual report provides an understanding of Regional road safety trends to support the planning and execution of coordinated law enforcement, road safety improvements and public education campaigns. Regional staff review and address all traffic safety related inquiries and concerns in a timely manner.

The Region recognizes that the efficient operation of its road network is critical to economic health and quality of life and will strive to protect it as travel demands and congestion rise over time. Steps to create a finer grid and integrate HOV or reserved transit lanes into Regional roads are part of the solution.

5.2.1 Provincial Infrastructure Plans

GTA West: The GTA West highway corridor would extend from Highway 401 in Halton Region to Highway 400 in York Region. While Provincial route planning and Environmental Assessment work on the corridor has been put on hold, it remains an important project for York Region. Its benefits would include better access to employment areas in the City of Vaughan, alleviate pressure on east-west Regional roads and provide an alternate route to Highways 400 and 401. This TMP assumes that GTA West will be in place by 2041.

Highway 427 Extension: An extension of Highway 427 to Major Mackenzie Drive expected to be completed in 2020 will feature eight lanes between Highway 7 and Rutherford Road and six lanes between Rutherford Road and Major Mackenzie Drive. A 15.5 kilometre stretch of dedicated High Occupancy Toll (HOT) lanes with electronic tolling in both directions on Highway 427, from south of Highway 409 (in Toronto) to north of Rutherford Road, will open in 2021. The stretch of Highway 427 in York Region from Steeles Avenue to north of Rutherford Road will have HOT lanes in both directions. This plan assumes a further extension to the GTA West corridor by 2041. While a northward extension to Barrie has been previously suggested by MTO, no formal plans exist and this TMP does not assume it will occur by 2041.

Highway 400/404 Link: This would provide a connection between Highway 400 and Highway 404 in East Gwillimbury. Its benefits include creation of a more resilient network by connecting the two major north-south highways. It would reduce the need for the Region to expand Queensville Sideroad and would reduce traffic congestion on Regional roads, including Highway 9, Green Lane and Yonge Street. An Environmental Assessment for the Highway 400/404 Link was approved in 2002 and designated as a Controlled Access Highway under the Public Transportation and Highways Improvement Act. It is not identified in the current Provincial Growth Plan for 2031. Given the project's benefits to the Regional network, this TMP assumes it will be in place by 2041.

Highway 404 northward extension to Highways 48 and 12: A Highway 404 extension to the York Durham Boundary is not identified in the Provincial Growth Plan but is included in the York Region Official Plan. Similar to the Highway 400/404 Link, the Environmental Assessment for the extension of Highway 404 to Highways 48 and 12 was approved in 2002 and designated as a Controlled Access Highway under the Public Transportation and Highways Improvement Act. This TMP will continue to protect this corridor and assumes it will be in place by 2041.

New interchanges: This TMP assumes that several new or improved interchanges on Highways 400, 404 and 407 as well as ramp extensions will be in place by 2041. Sensitivity tests have been undertaken to assess the implications of these interchanges on the Region's road needs.

Highway 407 transitway: The Highway 407 transitway is a grade-separated bus rapid transit (BRT) corridor parallel to Highway 407 across York Region. This project was identified in The Big Move however it is not included on Metrolinx's "Next Wave" project list and timing remains uncertain. The TMP will continue to protect this corridor and assumes it will be in place by 2041.

5.3 Strategies

5.3.1 Corridor Evolution Strategy

Regional streets are designed to accommodate a variety of travel modes, including passenger cars, transit vehicles, cyclists, pedestrians and trucks. As the transportation network continues to focus on the movement of people, the design and operation of Regional roads will continue to change over time to optimize the people-moving capacity of Regional rights-of-way to reflect and support their adjacent built environments and to preserve the efficient use of financial resources.

The Region will ensure the most effective use of road space and financial resources over the long term by designing and operating Regional streets to maximize the capacity to move people. This proposed policy principle will support the Region's ability to meet the mobility needs of today's users while ensuring corridors can be adapted in the future to meet changing travel needs, including High Occupancy Vehicle (HOV)/Transit lanes and new technologies including autonomous and connected vehicles.

Single occupant vehicles (SOV) are an inefficient use of road space. A key principle behind corridor evolution is to give other more sustainable transportation modes priority wherever possible, resulting in a shift in demand to those more efficient modes and away from SOVs.

Four-lane arterial roads. Regional roads with an existing or proposed four-lane cross-section play several roles:

- Ensuring a continuous grid of multimodal streets within the urban area
- Facilitating active transportation improvements as part of road construction
- Expanding vehicular travel capacity to serve population and employment growth
- Providing safe road connections between communities and between adjacent municipalities

Six-lane arterial roads. Regional roads with an existing or proposed six-lane cross-section provide both mobility and access by all modes. Notably, they represent an opportunity to support the proposed rapid transit network by giving priority to buses and other HOVs in parallel corridors. The Region may convert two general-purpose lanes to HOV lanes if the combined volume of passengers (including transit vehicles) exceeds a minimum number (e.g. 1,000 persons per hour in the peak direction) on existing six-lane roads. Widening arterial roads that are currently only four-lanes wide to six lanes through the addition of two new HOV lanes would be implemented when the road is widened in accordance with policy direction from Regional Council.

5.3.2 Finer Grid Network Strategy

The wide, two-kilometre spacing of much of the Region's arterial road network is an outdated concession road design used more than a century ago. Many of York Region's communities are contained in blocks bounded by former concession roads which now carry the bulk of through traffic. In some areas, access from Regional roads into neighbourhoods tends to be through congested intersections with a limited number of mid-block collector roads. Newer communities tend to be planned with more numerous points of access with

collector road systems designed to prevent through travel. Exceptions include the City of Vaughan's Vellore Village and the City of Markham's Cornell Neighbourhood that feature a finer grid of collector and local streets.

Development of a finer grid Regional road network will allow the Region to improve the attractiveness and efficiency of transit routes within communities, improve walkability within and between adjacent neighbourhoods and reduce congestion at community access points along arterial roads. For example, a finer grid network could mean that collector and Regional roads are one kilometre apart as opposed to two kilometres. Users would have additional route options and potentially get to their destination faster.

Designating major collector roads. It is the intent of this plan to result in a more connected, continuous network of "major collector" roads under the jurisdiction of local municipalities in order to complement and preserve the function of the Regional road network. Ideally, there would be one major collector in each direction (north-south and east-west) per concession block that would allow continuous travel across it. The primary role of major collectors will be to provide safe and convenient connections for transit vehicles, cyclists and pedestrians. The actual designation of streets will be identified in a road classification study that will require coordination and consultation with local municipalities.

The implementation of this policy will require coordination between the Region and local municipalities to ensure that local plans and community interests are addressed in the development of the transportation network. This will require a context-sensitive approach rather than "one-size-fits-all" to address local municipal needs.

Crossing Physical Barriers. The construction of new major collector roads connecting communities that are separated by physical barriers, such as the 400-series highway, watercourse or railway line, is another element of the finer grid network. Some examples of mid-block crossings go back many years in the Region's transportation and community plans including:

- The need for mid-concession crossing of Highway 400 through OPA 400 in the City of Vaughan in 1995
- Protection for at-grade crossings of Highway 407 at Cedar Avenue and Birchmount Road through the construction of the freeway (1997)
- 404 North Employment Lands Secondary Plan in the City of Markham in 2006

The Regional importance of these crossings in the development of a continuous collector road system was further recognized with the inclusion of Regional funding for collector road crossings of 400 series highways in the 2003 Regional Development Charge Bylaw. This importance was emphasized with the adoption of a Regional Policy for Funding Collector Road Crossings of 400-series highways in 2006 where the Region provides financial assistance to local municipalities by funding one-third of the capital infrastructure cost. As the Region continues to intensify its existing urban areas and the development of new communities, it is important that the Region take a leadership role to implement crossings of 400-series highway, watercourse or railway lines and remove these barriers to the local transportation network.

Similar to the Municipal Partnership Programs for streetscape and active transportation (see Section 6.3.1), a Finer Grid Partnership Program is recommended in the TMP Update to encourage and help local municipalities to build continuous collector roads that face significant physical barriers such as water courses and railway tracks. An application process and set of program guidelines with qualifying criteria will be developed. Based on the successful experience of the Region's other partnership programs, the recommended Finer Grid Partnership Program would benefit both local municipal and Regional transportation networks.

Extending interchange ramps. At some interchanges on 400-series highways the off-ramps terminate where they intersect with Regional roads. Extension of these ramps would provide direct access to nearby development areas. The Region will take a leadership role in pursuing such ramp extensions, where traffic thresholds warrant, in collaboration with local municipalities.

Missing links. The Regional road network is set on a grid with several missing links, leading to circuitous routing by users and contributing to more congestion. This TMP strives to fix the gaps and complete the grid network by planning for construction of the following Regional road connections:

- Kirby Road (Dufferin Street to Bathurst Street)
- Langstaff Road (Jane Street to Keele Street)
- Teston Road (west of Dufferin Street)
- 15th Sideroad (east and west of Jane Street)

Road Classification. This plan does not classify roads into sub-groups. The Region intends to create a classification of arterial and collector roads. A study is required to investigate and confirm the respective roles of each designation, in consultation with local municipalities.

Road Assumptions. As York Region grows, there is an ongoing need to regularly review the function of the road network. In some instances, roads currently under the jurisdiction of local municipalities will need to take on a more Regional role while other roads operated by the Region may better serve local needs.

The Regional Road Assumption Policy sets out the criteria for road jurisdiction transfers. Two key principles on which the policy is based on are:

1. Regional roads serve more than a vehicular traffic capacity function; they are diverse and support other functions including walking, cycling, transit and movement of goods
2. Transparency and accountability to all stakeholders; consideration should be given to local conditions as well as financial and operational factors in addition to road network factors

Key criteria for a road to be considered for a jurisdiction transfer are as follows.

- Supporting the Region's longer-term plans (TMP, York Region Official Plan and Vision 2051)
- Arterial road with cross boundary/inter-regional/inter-municipal function
- Logical connection in the Regional road network where a gap exists
- Key link to Provincial highway system
- Existing or planned rapid transit route or connection to major transit hub

The policy also considers the condition of the existing corridor, environmental criteria and financial and operating criteria.

Based on the road network assessment carried out as part of this TMP, as well as a review of the above policy, the following road corridors are candidates to be added to the Regional road network:

- 15th Sideroad from Weston Road to Keele Street
- King Vaughan Road from Pine Valley Drive to Yonge Street, including re-alignment at Jefferson Sideroad
- Kirby Road from Highway 27 to Bathurst Street
- Elgin Mills Road from Woodbine Avenue to Highway 48
- Pine Valley Drive from Teston Road to King-Vaughan Road
- Yonge Street from Major Mackenzie Drive to Elgin Mills Road
- Yonge Street from Industrial Parkway South to Orchard Heights Boulevard
- 19th Avenue between Leslie Street and the future Donald Cousens Parkway extension
- Highway 50/Caledon Line between Kirby Road and 17th Sideroad

Access management. The Region's "Access Guideline for Regional Roads" addresses the location and design of public road and entrance connections to Regional roads, as well as land use, subdivision and site design practices. These guidelines help preserve community character, advance economic development goals, protect the substantial public investment in roads and provide a degree of context sensitivity. This guideline is almost a decade old and requires review to ensure consistency with emerging best practices in street design to support all road users, including pedestrians, cyclists and transit riders.

Turning and vehicle restrictions. The smooth operation of York Region's road network is critical to economic health and quality of life. The connectivity of the road network must be protected. In general, these goals are impeded by turning restrictions at intersections and restrictions on the use of Regional roads by certain vehicle types. These restrictions will be reviewed and future use minimized.

On-street parking. To date, the Region's approach to on-street parking on Regional roads has been to permit it unless expressly prohibited. This approach has become unwieldy as development intensifies. This plan recommends a reverse approach that will limit on-street parking to areas where it is both warranted and appropriate.

Provincial Highways. Ontario's Ministry of Transportation has proposed or committed to the planning and design of a number of new highways of importance and benefit to York Region. These include the GTA West corridor, the Highway 400/404 Link, extension of Highway 404 and extension of Highway 427. The Region's transit and HOV lane networks would benefit from priority being given to buses and other HOVs on Highways 404 and 400.

Working with the Province and local municipalities to plan for and protect a series of mid-block highway crossings and continuous collector roads in new community areas and within existing communities will provide alternate routes for vehicles, cyclists and pedestrians to reach destinations more quickly and safely. It will allow the Region to better manage congestion by spreading traffic throughout the network.

5.3.3 Designing Great Streets Strategy

Street design plays an important role in city building and the establishment of a sense of 'place.' Evolving best practices call for cross-disciplinary collaboration and approaches to street design that not only integrate boulevard and roadway design but also recognize the unique attributes of different places and land use contexts. This approach is often called Context Sensitive Solutions (CSS). It seeks to provide greater mobility for all users and contribute to a greater integration of land use and community. Street design is now considered an integral component in the built form, urban design, public realm, health, safety and vibrancy of the community. It is also considered a key mechanism through which to promote sustainability and protection of the environment.

The Region developed a guideline for incorporating context sensitive solutions in the planning and design of streets. The vision for Designing Great Streets is "to create vibrant streets for York Region that provide a range of safe and reliable transportation options while responding to the adjacent land uses and the needs of the community." Designing Great Streets will:

1. Guide solutions to reflect the context
2. Guide the process to reflect the transitioning role of the road
3. Plan projects in collaboration with the community
4. Plan for multiple transportation modes to promote sustainable, flexible solutions
5. Use sound professional judgment to determine priorities for street design

Great Street Design Typologies

The guidelines in Designing Great Streets introduce six street typologies and design solutions for each type to characterize Regional roads. It outlines a process for developing context sensitive designs that engages the public and stakeholders and fits into the Municipal Class Environmental Assessment (Class EA) processes. The six street types are:

- Urban Centre—providing transit priority, active transportation and vehicular movement to support high-density residential, institutional and mixed uses
- Urban Avenue—providing transit priority, active transportation and Regional vehicular movement to support residential, commercial, institutional, industrial and mixed uses
- Main Street—providing local transit connections, active transportation and vehicular movement to support residential, commercial, institutional, open space, historical and mixed uses
- Connector—providing Regional vehicular movement, goods movement, transit priority and active transportation to support residential, commercial and industrial (suburban) uses
- Rural Road—providing Regional and inter-regional vehicular movement, goods movement and active transportation to support agricultural, institutional, industrial and open space uses
- Rural Hamlet—providing regional and inter-regional vehicular movement, goods movement and active transportation to support commercial, residential, open space and historic uses

Example of an Urban Centre typology (Davis Drive)

Along with the typologies, a Toolbox was created for roadway and boulevard planning. This Toolbox was implemented in conjunction with a decision making process that helps designers select an appropriate road cross-section for a project that takes into consideration the local community environment. This includes road cross-section elements such as lane widths, boulevard widths, inclusion of turn lanes and other features that have an effect on the creation of pedestrian-supportive streets.

Streetscape Design and Context Sensitive Design

Streetscape can contribute to better air quality, safety and encourage active transportation which can improve public health. Streetscape design creates safe, functional, active and vibrant streets that provide facilities for walking, cycling, transit use, recreational use and social interaction. The successful coordination of these elements is what creates good public realm, which is all that falls within the public property lines including roads, sidewalks, street trees and gathering spaces. Streetscape creates attractive and safe streets, which are the cornerstone to livable communities with a distinct sense of place in York Region. (See york.ca – streetscape program).

The design guidelines in Designing Great Streets outline best practices for boulevard and roadway elements found on Regional roads. Both are critical to creating a cohesive street design that functions effectively within its context. Boulevard elements are those located between the curb and the building frontage of a street. Roadway elements are those found between the two curbs. Streetscape design and context sensitive design are critical components of both the roadway and boulevard elements that ensure all road users are accommodated.

It will be important to consider strategies that elevate the quality of streetscapes with a focus on pedestrians in implementing the road and transit network improvements recommended in this plan. This includes strategies that minimize intrusion of utility poles, consideration of low-impact development (LID) which minimizes storm water runoff and designs that maximize accessibility for persons of all ages and abilities.

People in different communities perceive road functions differently even though the traditional function of roads is to accommodate vehicular traffic. In each different community, the roadway may need to be designed differently to reflect the unique characteristics, functions and safety of the facilities. The Region's urban approach to designing streets is to move people not vehicles.

Streetscape median on Highway 7 in the City of Markham

Multimodal levels of service. The street design process involves trade-offs among features that benefit different road users—pedestrians, cyclists, transit passengers and car or truck drivers. Targets and tools for maximizing level of service for motorized traffic (based on vehicle delay and volume-to-capacity ratios) have guided street design for decades, frequently at the expense of other road users for whom a comparable measure has not been established.

The goal of strengthening the role of Regional roads in serving modes other than motor vehicles will be more easily met by integrating the following level of service measures into street design processes:

- For pedestrians—exposure and delay to pedestrians when crossing at signalized intersections
- For cyclists—perceived levels of comfort and security when cycling on or off road
- For transit passengers—delay to transit customers relative to motor vehicle users

The relative weights assigned to level of service measures for all modes would vary by context (e.g. urban, suburban and rural). For example, it will be more important to provide high levels of service for cyclists on roads that are designated cycling network elements and for pedestrians along main streets, in Regional Centres and near schools and parks. This will help improve safety for all road users.

Implementation

Working with Stakeholders. York Region and its nine local municipalities share responsibility for the planning, design and construction of road projects. As a result, the implementation of Designing Great Streets will require continued coordination between the Region and local municipalities. The Region will also take the lead on public consultation and the involvement of partners and stakeholders including local Conservation Authorities, community groups and relevant provincial bodies. The Region must also ensure that the street design process is coordinated with development approvals to ensure that any upgrades made to the boulevard as part of redevelopment or infill are in line with future expectations for overall street design.

The approach outlined in Designing Great Streets is integrated with the Class Environmental Assessment planning and design process for ease of application, clarity and to confirm decisions made.

The Decision Making Process. The decision making process for context sensitive solutions has been developed to guide designers through a flexible process to assess the long-term goals for Regional roads, as well as design roads that prioritizes and supports all modes of transportation in a growing urban environment. Implementation of the road typologies and the decision making framework will guide the design of Regional roads that provide multimodal transportation options, while supporting community development and adjacent land uses.

The recommendations in this process will be realized through the street design process as Regional roads undergo redesign, upgrading or regular maintenance.

This integrated design process is an iterative process in which the needs of the various modes of transportation (pedestrians, cyclists, automobiles, trucks, transit and emergency services) and infrastructure systems (water, wastewater, storm water, energy and communication) are considered and evaluated. This process is intended to draw on a range of expertise and professional judgment to build consensus amongst the project design team for selection of the most appropriate roadway cross-section. Consultation with local municipalities and various stakeholders is also encouraged.

Exhibit 5.1: *Designing great streets decision making process*

Maintenance and Operations. Best practices for maintenance and operations ensure cost-effectiveness, longevity and safety for transportation infrastructure. The lifecycle and maintenance of a road are key concerns for street designers, affecting long-term cost, environmental sustainability and the perceived quality of the place and experience.

In addition to current methods, best practices for maintenance and operations include:

- A program of inspections whereby the condition of the transportation assets are regularly monitored, documented and assessed
- Implementation of a preventative maintenance program to optimize the life of the asset
- Implementation of a sustainable funding program to facilitate planned replacement of the asset at the end of its life cycle

Development Approvals. A strategic direction for the Region is to evaluate new development on the basis of improving overall mobility, as opposed to a traditional road-focused evaluation, consistent with the goals of the York Region Official Plan and objectives of this TMP. This multimodal evaluation approach is outlined in the Region's new Transportation Mobility Guidelines for Development. Multimodal levels of service will be reflected in the Region's process for requiring, reviewing and approving Transportation Mobility Studies submitted by development applicants. These assessments identify multimodal impacts of new developments on the transportation system at both a site and neighbourhood level. These guidelines focus on transit and active transportation measures, in addition to road capacity, to mitigate travel demands from new development at the site and neighbourhood level. The Transportation Mobility Guidelines is an update to the Region's existing Transportation Impact Study Guidelines (2007) which is expected to be finalized by the end of 2016.

5.3.4 Congestion Management

Traffic congestion occurs when traffic demands exceed the capacity of the roadway. It is exemplified by slow moving or stopped traffic and added delays.

Congestion may be expressed in terms of travel time. For example, one may take the difference in travel times for the same trip in congested and in free flow conditions. Although such a definition is generally well understood by most people and can be readily measured, it should be noted that the presence of congestion is not necessarily indicative of a negative condition. For example, congested roads may be indicative of vibrancy and activity in a given area. Further, congestion may be the result of local economic health and prosperity.

York Region continues to experience growth in population and jobs, resulting in increasing demand on the Region's road network. Growth in travel demand has not been met with corresponding expansion of transportation infrastructure (e.g. for roads, cycling, etc.), since it would be unrealistic to continue providing sufficient road capacity indefinitely. The resulting deficit between the demand for travel and the ability to provide sufficient capacity results in traffic congestion, which is increasing on roads in York Region.

Congestion has a significant cost on society and productivity. In fact, studies conducted as early as ten years ago found that the cost of excess congestion (i.e., excess travel time) in the GTHA amounted to approximately $20 million each day over and above what the 'optimal' level of traffic would incur.[6] In terms of combined delay and increased vehicle operating costs, congestion costs commuters as much as $3.3 billion annually. The cost to the GTHA's local economy due to lost economic output and resulting job loss was an additional $2.7 billion[7]. Moving forward, these costs to GTHA commuters and to the economy will increase to $7.8 billion and $7.2 billion, respectively, by 2031.[8]

Travel time studies conducted by the Ontario Ministry of Transportation (MTO) continue to show that the Cities of Markham and Vaughan and the Town of Richmond Hill have some of the highest travel time indices (TTI) in the GTA. TTI is a comparison between peak period and free flow speeds to indicate additional travel time required during peak periods. For example, a TTI of 3.0 indicates that a motorist's trip will take three times longer during peak periods than during off peak.[9]

Some of the primary results of MTO's 2014 Travel Time study found that:[10]

- The majority of the slower segments were in the southern portion of York Region near Highway 7
- Among surveyed corridors, 9% had TTI values above 2.0 during the morning peak period. This means that on 9% of the corridors, the expected travel time was more than double the travel time at free flow speed
- Among the surveyed corridors, 25% had TTI values above 2.0 during the afternoon peak period

Despite the significant economic cost of congestion, people may more easily relate to its impacts when they realize that their time can be used doing something more productive than sitting in gridlock. As congestion becomes more prominent as the key issue among York Region residents, it is important for the TMP to identify initiatives or programs that address congestion and its effect on residents' quality of life. These initiatives will help to better manage growing concerns about congestion-related delays which are most apparent in York Region's more urbanized southern and central areas. These areas are characterized by busy arterials, bottlenecks and congested travel nodes such as those areas immediately surrounding GO train stations.

To better manage and address congestion, the Region is in the process of developing a Congestion Management Plan (CMP). The purpose of this plan is to develop a set of actions intended to manage congestion, improve the reliability of travel across York Region and respond to York Region's mobility needs with an emphasis on short- to medium-term initiatives (i.e., within 5 years). Although the scope of the TMP will range over a longer term, the separate CMP will 'fill the gap' by identifying operational improvements to benefit the Region's transportation network in the meantime.

With the emerging trend toward finding ways for people to move differently (e.g., across a wider variety of modes), the CMP is an integral component of the Region's broader efforts toward effective transportation planning.

The Region will continue to invest in all transportation modes to provide travel choices and manage congestion.

Current Congestion Management Initiatives. The Region has adopted various initiatives aimed at managing traffic congestion:

- Coordinated Traffic Signal Timing
- Special Traffic Signal Operations, e.g.:
    - → Viva rapidway corridors
    - → Transit Signal Priority (TSP)
    - → Emergency Vehicle Pre-emption
    - → Adaptive Control
- Traffic Management Centre systems, e.g.:
    - → Traffic Signal Control System
    - → Advanced Traffic Management System (ATMS)
    - → Closed Circuit Television (CCTV) Cameras
    - → School Zone Flasher System
- Bluetooth Detection Systems (pilot)
- Permanent Variable Message Signs
- Emergency Detour Routes
- Preparing for Connected and Autonomous Vehicles
- Pinch Points and Bottlenecks Assessment

Exploring Innovative Approaches to Congestion Management. Based on preliminary findings of the Region's Congestion Management Plan, consideration shall be made toward exploring the following approaches as potential solutions to better manage traffic in the Region. Please refer to the final Congestion Management Plan, expected to be released in the first half of 2017 for more details.

Video Analytics and Incident Detection. Video analytics is the computerized processing and analysis of video to obtain traffic data. The process begins with video being captured by a camera, which is then analyzed by software to identify the presence of vehicles that are tracked and counted as they pass through a camera's viewing range. Such technology allows the ability to detect the presence of vehicles waiting at a traffic signal while further measuring and recording traffic volumes, speeds and occupancy on a lane-by-lane basis.

Drones. Despite current scrutiny being directed towards operational and regulatory considerations, the use of unmanned aerial vehicles (UAVs) – commonly referred to as drones – is of great interest as a tool for traffic management. Drones are remotely controlled and are typically equipped with cameras providing real-time video streams for simultaneous viewing. The high vantage point and maneuverability afforded by drone-mounted cameras can allow effective viewing of roadways from an aerial perspective, which can be of significant benefit while monitoring congestion or when confirming congestion-causing incidents.

Drone with mounted camera

Road Pricing. As a measure for managing traffic demand, road pricing refers to the application of fees when motorists use a roadway, effectively helping to reduce traffic demand. Such fees may be based on distance, time or a combination of both, and may vary depending on demand and/or congestion levels at different times of the day, or different days of the week.

Road pricing initiatives in North America have been typically implemented on freeways, bridges or reserved lanes (i.e., due to the presence of intersections and other potentially conflicting access points). Nonetheless, the Region will undertake initial investigations to help determine the feasibility of implementing such initiatives on its arterial roads.

Unified Traffic Control. Unified traffic control represents the integration of different traffic control operations into a single system. Although the size and magnitude of such integration can vary and depend on various considerations, unified traffic control can be implemented on a single corridor, across an entire network or throughout multiple jurisdictions.

The benefits of integrated traffic control was well demonstrated when such an initiative was successfully developed and implemented for the 2015 Toronto Pan Am Games for which Region was involved as an active partner. In this instance, video feeds, traffic data and incident information from sources throughout the GTHA was streamed to a Unified Traffic Control Centre (UTTC) where representatives from various key agencies and jurisdictions used traffic data to relay useful information back to their respective jurisdictions.

York Region's Centralized Traffic Control Centre

Connected and Autonomous Vehicles. An emerging new era of vehicle design and operation is based on the concept of "connected vehicles" that are able to communicate with other vehicles, smartphones, traffic signals and more. Vehicle manufacturers and other companies are creating and testing a range of technologies that range from safety-oriented driver warning systems, to semi-autonomous cars and trucks, to fully autonomous (even driverless) vehicles. Ultimately, some observers expect that the potential of connected vehicles will lead the transformation of vehicle manufacturers into mobility service providers that offer customized, subscription-based portfolios of multimodal travel options. There are many challenges lying in the way of such a vision, with road safety and public acceptance foremost among them. In addition, regulations governing the use of autonomous vehicles may be necessary to limit the potential for negative impacts on congestion and pollution.

A ***connected vehicle (CV)*** is an automobile enabled with wireless vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I) and/or infrastructure-to-vehicle (I2V) communications. Such technology enables connectivity:[11]

- Among vehicles to enable crash prevention
- Between vehicles and the infrastructure to enable safety, mobility and environmental benefits
- Among vehicles, infrastructure and wireless devices to provide continuous real-time connectivity to all system users

V2V communication is primarily focused on improving safety. For example, V2V facilitates:

- Crash avoidance: adjacent connected vehicles warning drivers of an imminent collision
- Do not pass warnings: a vehicle warning a driver of an oncoming vehicle if the driver is attempting to pass
- Control loss warnings: warning drivers if a nearby vehicle has lost control

Although they also have the potential to improve safety, V2I and I2V technology further allows an opportunity for advanced methods of congestion management. For example, enabled vehicles would be able to communicate with traffic control devices and ITS systems to aid motorists in making better informed traffic decisions on the roadway. Potential V2I and I2V technologies include:

- Traffic control device messages: imminent changes in state would be communicated by traffic control devices to vehicles
- Relay of congestion related information: sensors along the roadway would inform drivers via their connected vehicle if they were approaching congestion
- Road conditions: real-time road surface conditions would be wirelessly available to connected vehicles

Conceptual image of connected vehicles

An ***autonomous vehicle (AV)*** is a vehicle capable of sensing its immediate environment and navigating without human input. The level of autonomy can vary, with the highest level of autonomy being represented by self-driving vehicles. Although several AV features are currently available in the marketplace, ongoing research is being conducted toward developing higher levels of autonomy.

AVs will likely demonstrate various wide ranging impacts on land use, car ownership and travel modes. For example,

- Parking lots and driveways may be relocated away from homes and businesses once cars can drive away and park themselves
- Mobility as a Service (MaaS) may negate the need for vehicle ownership as many modes of travel (rental cars, ride share, bicycles, transit, trains and taxis) will be available through 'transportation plans' purchased on a monthly basis
- AVs may revolutionize traffic control and management strategies since human error would be virtually non-existent and incidents would become rare occurrences
- Vehicles would be able to travel at much faster speeds and likely increase the capacity of roadways given the ability of vehicles to safely drive much closer together

Despite ongoing regulatory review and investigation regarding insurance and liability concerns, the Region is currently in the process of upgrading some traffic signal infrastructure to accommodate this emerging technology. Upgraded equipment will support V2I and I2V messaging.

The Region will endeavour to monitor and assess these technologies moving forward as well as their potential benefits and impacts.

Autonomous vehicle

Addressing Traffic Pinch Points and Bottlenecks. Pinch points and bottlenecks are intersections or short lengths of road at which traffic congestion exists and reduces the efficient operation of the lanes. Mitigating these physical pinch points and bottlenecks from the network will manage areas of localized congestion, and enhance the corridor's capacity. In addition to being more cost-effective than widening long stretches of road, these projects can improve efficiency for all road users by reducing traffic conflicts. An annual program to address traffic bottlenecks is one way to manage congestion proactively.

5.4 Recommendations

This update to the TMP recommends the following policies, actions and major initiatives to support development of a road network fit for the future in York Region.

5.4.1 Policies

The Region will:

Corridor Evolution

- P9 Plan, design and operate the Regional road network to efficiently move the most people and goods
- P10 Plan for and protect corridors and rights-of-ways for transportation, transit and infrastructure corridors and facilities to meet current and projected needs
- P11 Develop a policy to permit conversion of general purpose traffic lanes to HOV/Transit lanes or reserved bus lanes once established thresholds are met
- P12 Consider widening four-lane Regional roads to six-lanes when minimum thresholds are met for both total vehicle volumes and HOV passenger volumes (including transit) and reserve the two new lanes for HOV
- P13 Consider converting two general-purpose traffic lanes to HOV lanes on six-lane Regional roads, if minimum thresholds for HOV passenger volumes (including transit) are met
- P14 Continue to require that when widening a road from four-lanes to six-lanes the additional lanes must be designated for HOV/Transit use
- P15 Plan new transportation facilities to avoid, where possible, significant natural heritage features, including the habitats of threatened and endangered species, greenways, wetlands, woodlands, areas of natural and scientific interest, wellhead protection zones and natural hazard areas

Finer Grid

- P16 Be responsible for environmental assessments, design, construction, operation and ownership of all future 400-series highway crossings

P17 Be responsible for environmental assessments, design and construction of future interchange ramp extensions, with local municipalities responsible for operation and ownership

P18 Provide financial assistance and support to local municipalities for mitigating/bridging barriers (watercourses, railways, etc.) in the major collector road network for new and existing development areas

P19 Avoid new turning and vehicle restrictions on Regional roads and consider the removal of existing restrictions unless necessary for network optimization or asset preservation

Great Streets

P20 Adopt Great Street Design Typologies

Congestion Management

P21 Support any work by MTO toward the addition of HOV or shoulder bus lanes on Highway 404 and Highway 400

P22 Continue to require Transportation Mobility Studies to be submitted with development applications to apply multimodal levels of service in the identification of developer-funded measures to mitigate negative impacts on pedestrians, cyclists, transit passengers and motor vehicle users

P23 Ensure transportation networks are designed to be climate resilient and minimize exposure to transportation-related air pollution

5.4.2 Actions

The Region will:

A19 Update the Region's Transportation Impact Study Guidelines for Development Applications to emphasize the goals for sustainable transportation

A20 Develop HOV and transit passenger volume thresholds for any proposed road widening to six-lanes

A21 Develop HOV and transit passenger volume thresholds for converting existing general purpose lanes to HOV/Transit lanes or reserved bus lanes on existing four-lane and six-lane roads

A22 Define the infrastructure requirements for roads, transit and active infrastructure networks including 400-series highway crossings and ramp extensions

A23 Work with MTO to advance the planning and design of the GTA West corridor and Highway 400/404 Link as well as extensions to Highways 404 and 427

A24 Undertake a Road Classification Study that, among other outcomes, will assign a context sensitive street type to each Regional road segment

- A25 Review and update Regional street design guidelines, standards and processes to better integrate the context sensitive solutions toolbox and better serve community needs
- A26 Review and update the Region's "Access Guideline for Regional Roads" to ensure a balance between safe, efficient traffic movement and the needs of pedestrians, cyclists, transit users and adjacent development
- A27 Integrate Great Street Design process into Capital Planning and Delivery
- A28 Develop an Arterial Road Classification Study to establish the role and function of the Major Arterial, Minor Arterial and Major Collector road network in York Region. Major Arterial and Minor Arterial roads should remain under the Region's jurisdiction. Major Collector roads should remain under local jurisdiction. The Arterial Classification Study should establish the Region's interest and role in protecting the transportation function provided by the Major Collector Road system
- A29 Review existing turning restrictions and vehicle type restrictions on the Regional road network and consider removal of these restrictions where they are not warranted for network optimization or asset preservation purposes
- A30 Establish a Development Charge funded reserve to support establishment of a finer grid network
- A31 Develop a long term congestion management plan that incorporates existing and emerging technologies to optimize, expand and transform the people moving capacity of Regional corridors
- A32 Review the Region's "ITS Strategic Plan" and develop a new Advanced Traffic Management Systems Plan that applies existing and emerging technologies to optimize the movement of people and vehicles on Regional roads
- A33 Update relevant bylaws to prohibit parking on Regional roads unless explicitly permitted by signs. Consideration will be given to ensure a balance between the available right-of-way, the safety and mobility needs of all road users and the nature of adjacent land uses
- A34 Consider the introduction of stormwater management and water balance measures to counter the adverse impacts of urbanization
- A35 Coordinate the Region's road and transit networks, as well as planning regimes with the local and adjacent municipalities, to minimize infrastructure needs and enhance natural heritage and environmental features and functions
- A36 Improve environmental functions and habitat connectivity through upgrades of existing crossing structures that are sized as 'eco-passages' to facilitate wildlife movement
- A37 Design transportation facilities to celebrate the environment, through preservation of view corridors, design of bridges to highlight the presence of watercourses and other elements

A38 Review and update the Region's maintenance management policies and practices to ensure that these minimize damage to the natural environment while still providing a safe transportation environment

A39 Utilize Environmental Best Management Practices to minimize the impact of road construction on the environment

A40 Develop environmental protection measures for transportation system elements to reduce vehicular-animal interaction and impact on animal pathways

A41 In rural areas, consider roadside plantings to discourage habitat immediately adjacent to infrastructure that would conflict with wildlife

A42 Enhance, preserve and maintain greenways to the extent possible in accordance with Provincial legislation requirements

A43 Work with the local municipalities and developers to minimize the effects of parking facilities on the natural environment

A44 Introduce roadside warning signs in areas of significant wildlife movement

A45 Implement temporary or seasonal speed limits in high wildlife mortality zones

A46 Develop a roadway directional lighting strategy that avoids too much lighting in environmentally vulnerable sites

A47 Identify and prioritize a list of projects to address traffic bottlenecks in the network

A48 Conduct before and after studies for traffic pinch point and bottleneck projects to quantify the improvements

5.4.3 Big Moves

The following major initiatives support development of a road network fit for the future:

- Utilize technology to improve efficiency of the road network
- Expand high occupancy vehicle/transit network
- Develop the finer grid road network
- Build context sensitive multimodal corridors
- Incorporate flexibility in corridors
- Maximize the person carrying capacity through corridor evolution
- Complete the Langstaff Missing Link
- Build missing links and new roads
- Widen and urbanize roads in new growth areas
- Eliminate pinch points and bottlenecks

Chapter 6

Objective 3

Integrate Active Transportation in Urban Areas

In this chapter:

6.0 Objective 3

Integrate Active Transportation in Urban Areas

Active transportation includes many active modes and methods of travel including walking, running, cycling, in-line skating and non-mechanized scooters and wheelchairs. Walking and cycling are fundamental to healthy and sustainable communities. The Region is in its infancy in the development of its Active Transportation Network. This creates some challenges because pedestrians and cyclists represent the minority. Nevertheless, without building the infrastructure, it is unlikely that active transportation use will increase in York Region. The TMP aims to make active transportation more comfortable, safe and convenient, and to help residents choose walking and cycling more frequently to meet their daily travel needs. This TMP integrates key elements of the Region's 2008 Pedestrian and Cycling Master Plan (PCMP) and strengthens the Region's role in providing on- and off-road facilities for walking and cycling. It focuses on building regional networks, improving connections within Urban Growth Centres and to major destinations, improving access to public transit services and encouraging consistency among local municipalities in the delivery of active transportation infrastructure.

Perceptions of walking and cycling are highly tied to context sensitive design. Pedestrians are the most vulnerable roads users and need to be accommodated through designs that reduce traffic speeds, increase separation from cars and focus on quality of the street environment. People are more likely to walk or cycle when they feel comfortable.

This chapter identifies ways to make walking and cycling more attractive, safer and a more common choice for daily travel by York Region residents.

What we heard:

"Infill cycling network projects are important for building a connected network"
"I like the fact that Yonge Street will have a continuous cycling facility"
"Cross 400-series Highways more frequently for the benefit of pedestrians and cyclists"
"Pedestrian walkways should be raised over busy intersections"
"Implement a core network of east-west and north-south commuter routes"
"Put cycling facilities off-road to improve safety"

6.1 Benefits

Integrating active transportation in urban areas would provide York Region residents and businesses with the following benefits:

- Making sustainable travel choices more attractive and viable with a more connected cycling network
- Improving access to transit by completing missing links in the cycling and sidewalk network
- Promoting an active and healthy lifestyle by providing safer, walkable routes to schools and other key destinations
- Connecting key destinations and urban areas by prioritizing cycling links
- Supporting cycling tourism with greater connections to recreational trails
- Connecting local and adjacent trail systems with a comprehensive on- and off-road cycling network
- Addressing the needs of a greater range of cyclists by aligning facility types

6.2 Assumptions

The Region's Pedestrian and Cycling Master Plan, completed in 2008, set out a vision for a Regional-wide active transportation network integrated with local municipal pedestrian and cycling infrastructure and public transit. Since 2008, the Region has made significant strides in advancing active transportation infrastructure. The network has grown by 154 kilometres of multi-use trails, 28 kilometres of bike lanes and 243 kilometres of paved shoulders.

Active transportation programs and infrastructure in York Region often involve other jurisdictions including Metrolinx and local municipalities. Some projects also require integration or interaction with the Province on #CycleOn (2013), Ontario's 20-year cycling strategy, and neighbouring municipalities including the City of Toronto, Durham Region, Peel Region and Simcoe County, or with the Toronto and Region Conservation Authority or the Lake Simcoe and Region Conservation Authority.

Collaboration is essential to planning and operating an active transportation networks in York Region. Committees consisting of key stakeholders will be established to coordinate integration matters, develop design standards across jurisdictions and develop co-funding arrangements between the Region and its partners.

All YRT and Viva buses now have bicycle racks on the front. Each rack holds up to two bikes and is designed for easy loading and unloading. Customers can bring their bicycles with them on YRT/Viva routes and use the bicycle racks on front of the buses for no additional charge. The bike racks are part of YRT/Viva Bike 'n' Bus program and is part of the Metrolinx BikeLinx program for the GTHA in partnership with Smart Commute.

Customer loading his bicycle on bus bicycle rack

6.3 Strategies

6.3.1 Municipal Partnership Programs

The Region's experience with partnership programs has been demonstrated through the successful implementation of the Municipal Streetscape Partnership Program (MSPP) and the Pedestrian/Cycling Municipal Partnership Program (PCMPP). These Programs are unique cost-sharing initiatives to benefit local municipalities by encouraging the creation of attractive, vibrant, active and livable communities.

The MSPP commits up to $1 million annually towards streetscape enhancements to improve the public realm on Regional streets in local communities. In 2013, the Region approved a record of $1.5 million in contributions. The operation, maintenance and long-term rehabilitation of the enhanced streetscape features are the responsibility of the local municipality. A total of 32 projects with a Regional commitment of more than $7.7 million have been approved for funding since the launch of the MSPP in 2006. The MSPP funding of $7.7 million is leveraging a total of $18.4 million in local streetscape projects meeting Regional objectives.

The PCMPP launched in 2007 was modeled after the MSPP and has an annual budget of $500,000. This Program assists in cost sharing up to 50% of the capital costs of locally-initiated active transportation projects to improve walking and cycling in York Region. Since its launch, 33 projects have been approved with a funding commitment totaling $5 million to local municipalities and stakeholders for the implementation of active transportation facilities. The funding commitment of $5 million is leveraging a total of $20 million in active transportation facilities that meet Regional objectives.

A similar Finer Grid Partnership Program is recommended in the TMP Update to encourage and help local municipalities to build continuous collector roads that face significant physical barriers such as water courses and railway tracks. An application process and set of program guidelines with qualifying criteria will be developed.

Based on the successful experience of the Region's other partnership programs, the recommended Finer Grid Partnership Program would benefit both local municipal and Regional transportation networks immensely.

6.3.2 Boulevard Jurisdiction Strategy

The Municipal Act, 2001 determines which services are the responsibility of the Region and those to be provided by local municipalities. On Regional roads, local municipalities are responsible for construction and maintenance of some major boulevard elements including sidewalks and illumination. The Region is currently responsible for building and maintaining roadway elements primarily between curbs. The division of responsibility creates public confusion and issues with consistency. Significant gaps exist in the provision of sidewalks and illumination along Regional roads.

The majority of Regional roads have a sidewalk on at least one side with many new communities offering additional walking facilities such as sidewalks on local roads and trail connections. However, there are gaps along major arterial roads and at intersections where high traffic volumes and speeds contribute to low levels of perceived pedestrian comfort. Additional sidewalks and trails are needed to connect neighbourhoods to major destinations and provide access to transit. **Map 5** (located in Maps section) shows the sidewalk gaps and potential active transportation connections on the Regional road network.

A key area that this impacts is the provision and accessibility of transit services. Transit users typically begin and end their trips as pedestrians or cyclists and use Regional roads to access transit stops and stations. As the Region continues to expand transit services and enable residents of all ages and abilities to access these services, providing continuous sidewalks and illumination will ensure residents have safe and accessible routes to transit stops, stations and destinations.

The Region's 2008 PCMP recommended active transportation facilities be constructed in the boulevards of Regional roads. This included multi-use paths for all forms of active transportation and cycle tracks. Local municipalities have no clear responsibility for building or maintaining in-boulevard facilities other than traditional sidewalks and trails. The Region is proposing to take over jurisdiction of boulevards and sidewalks to improve on- and off-road pedestrian connections to transit stops and terminals, employment centres, schools and recreational/leisure and commercial destinations.

6.3.3 Urbanization Strategy

Urbanization is the conversion of ditches to storm sewers, barrier curbs and grading in preparation of installing sidewalks. This may include adding two metres of asphalt for bicycle lanes. The Region currently urbanizes segments of Regional roads based on the Ten-Year Roads Capital Plan. If there is not a project in the Ten-Year Capital Plan then there is no formal program to urbanize individual road segments. Urbanization to provide a platform for sidewalks has been an ad-hoc process where local municipalities make requests and an application for Development Charge credits is submitted to the Region when urbanization projects have been completed.

A framework for an urbanization and sidewalk implementation strategy is required with the responsibility of all the boulevard elements on Regional Roads residing with the Region. This Urbanization Strategy should develop a prioritization model to apply and determine the criteria and parameters for objectively selecting the ranking of urbanization projects on an annual basis. Key elements in the model could include surrounding population/employment, pedestrian and cycling activity, proximity to transit stops, proximity to schools and points of interest, traffic volumes, posted speed and adjacent urbanized segments and gaps.

6.3.4 "First and Last Mile" Connections Strategy

The "first and last mile" is a term that refers to the first or last portion of a trip to a rapid transit station, a carpool lot, school, home, place of employment or entertainment. The Region is exploring ways to make the "first and last mile" less auto dependent, enabling the use of more sustainable modes of travel.

Unionville GO train station parking lot and bicycle parking in the City of Markham

Connections to Public Transit. Successful public transit systems need to offer safe and accessible connections to transit stops and stations for both pedestrians and cyclists.

Key factors include:

- The directness of walking and cycling routes
- The use of wayfinding to ensure that routes are clear to users
- The design of buildings and open spaces (both public and private) for aesthetics and personal security
- The provision of amenities such as trees, benches, shade structures, lighting and bicycle parking

Walking Facilities. Walking has tremendous public health and environmental benefits. The Region is committed to making walking more attractive through well designed and properly maintained sidewalks and multi-use paths. Fixing discontinuous sidewalks will encourage walking trips. Where sidewalks do exist, the pedestrian environment can be enhanced through amenities including benches, trees and low-level lighting. The Region will conduct an inventory of facilities in order to prioritize the gaps and develop an action plan to remove those gaps. It is important to have an accurate sidewalk inventory for York Region. The Region will undertake a sidewalk data collection and mapping exercise to ensure availability of municipal and regional data in one central database.

Strategic Cycling Network. Historically, cycling facilities are provided as roads are reconstructed per the Ten-Year Roads Capital Plan. The resulting cycling network often lacks connectivity and coherence. In order to achieve the objectives of the TMP, a more rigorous, complementary approach to network build-out is needed in addition to continued support for education and promotion. It is considered critical to accelerate the implementation of the cycling network by developing a shorter term Strategic Cycling Network.

The intent of the Strategic Cycling Network is to provide a prioritized network for implementation over the shorter-term (10-Year horizon). While the ultimate cycling network provides the overall vision for the Region, the strategic network aims to provide a high-quality, connected short-term network to support modal shift now.

The Strategic Cycling Network is a short- to medium- term strategy based on several components:

- Planned Capital Investment – In keeping with on-going practice, the Ten-Year Roads Capital Plan provides an opportunity to provide cycling facilities as roads are reconstructed. In addition to links identified in the Capital Plan, new transit corridors with funding are included in the network.
- Regional Trail Spines – For such a geographically large region, a regionally connected trail network will form the backbone of the active transportation network, supporting a wide variety of users. The regionally significant trail network forms the basis of the Strategic Cycling Network. The Regional Trails Strategy will be developed outside of the scope of the Strategic Cycling Network which only considers facilities within a roadway right of way.

- Key Infill Corridors – These infill links are the primary new components of the strategic network, identified to enhance connectivity to key destinations, specifically:
  - → Regional Centres – Regional Centres have been designated as nodes of commercial, employment and residential activity in York Region. In addition, these areas are intended to support multimodal connections, with major transit investments. Ensuring strong active transportation networks are available in these Regional Centres is important to achieve Regional goals
  - → Major transit – Access to major transit via active transportation enhances the value of investment in both transit and active transportation
  - → External cycling networks – Connecting to networks outside of York Region, particularly to the City of Toronto, is critical to ensuring a connected network that supports commuting

The Proposed Cycling Network for 2041 is in **Map 9**. The strategic 10-year network and its components are illustrated in **Map 10** (located in the Maps section).

Cycling facilities. Network facility types for the Strategic Cycling Network were assigned based on the following three categories:

Shared – Shared facilities include roadways or streets where cyclists and motorists use the same road space. Types of shared facilities include signed routes, bicycle boulevards or shared lanes ("sharrows"). Since cyclists and motorists share the same space, these facilities are appropriate on streets with low traffic volumes and/or low speeds.

Dedicated – Designated or dedicated facilities are those that provide space on the road intended for use by cyclists only. They are generally adjacent to motor vehicle lanes and defined by pavement markings. In urban areas, dedicated facilities typically include bike lanes and buffered bike lanes while paved shoulders provide dedicated space on rural roads.

Separated – Separated bikeways are separated from traffic by more than just a painted line. Separation may consist of bollards or delineators, mountable or barrier curbs, planters, concrete medians, etc. Types of separated facilities can include cycle tracks, raised bike lanes, or multi-use trails. These facilities improve safety and comfort for cyclists along higher-speed, busy roadways.

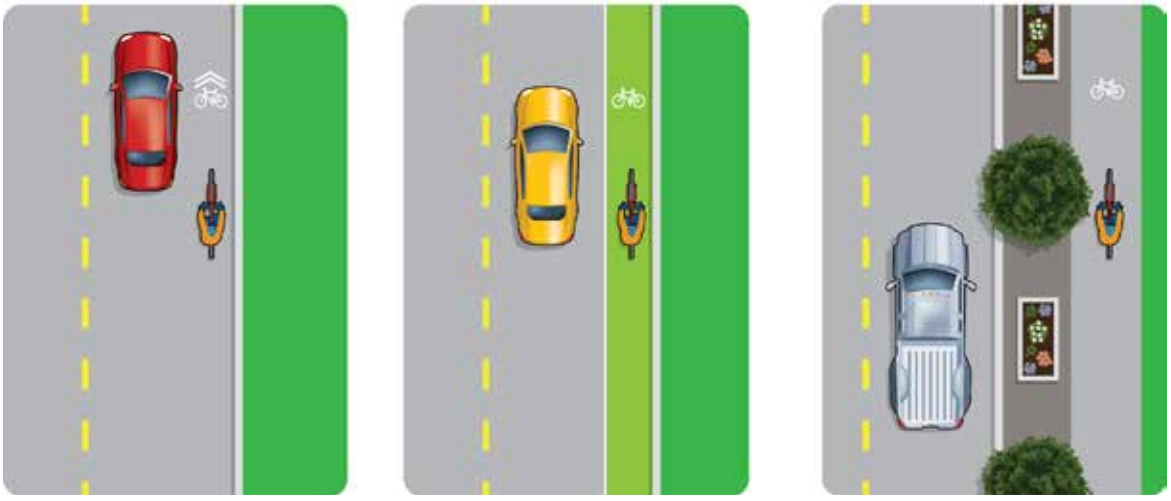


Exhibit 6.1: *Cycling facility options*

Determining higher-order facility types based on these roadway characteristics is consistent with the philosophy presented in Ontario Traffic Manual Book 18: Cycling Facilities (OTM Book 18). On urban roads, classes of facilities were assigned based on the roadway characteristics including Annual Average Daily Traffic (AADT), number of lanes and operating speeds. This means that in each case the facility class is based on the appropriate degree of separation for cyclists.

By determining the facility class, rather than a specific facility type (i.e. cycle track or bicycle lane) the user experience is established. This allows for improved flexibility as projects move into planning and design phases without compromising the intended quality of the facility as it relates to traffic characteristics along the corridor. As part of the development of the Strategic Cycling Network, staff from the Region will be directly involved in the planning and design phases of these projects to ensure that facilities are of a high quality and meet the objectives of the TMP. It is also noted that the Region is currently undertaking an initiative to develop design standards for pedestrian and cycling facilities, which will provide more guidance on facility selection type.

The assigned facility type represents the minimum desirable facility class. A higher order facility would also be acceptable. Instances where the decision may be made to provide a higher order cycling facility along a corridor include routes which serve school-aged children, routes that provide access to an important community destination such as a school, hospital, community centre or major retail centre or where the roadway design changes significantly from what was originally envisioned.

In the case of the strategic network, no shared facilities were warranted due to the generally high volumes and speeds of the roadways. Additional review may be required to compare the facility types against those that have already been committed as part of the capital planning process.

6.3.5 Regional Trails Strategy

A system of off-road trails serves both transportation and recreation needs by linking neighbourhoods in York Region. Trails allow cyclists and pedestrians to bypass busy streets, reduce exposure to traffic related air pollution and traverse natural barriers to reach key destinations. Trail users may have to make inconvenient detours to find safe crossings of increasingly congested Regional roads. They can also be hindered by gaps in the network and inconsistent designs between trails owned by different jurisdictions.

The existing trails network in York Region is comprised of a wide variety of facility types ranging from footpaths to major multi-use off-road paths such as the Nokiidaa Trail links that three communities (Aurora, Newmarket and East Gwillimbury). Certain routes include both on-road and off-road facilities (i.e. Lake to Lake Route, the Greenbelt Route).

With the exception of portions of the trail system that utilize Regional roads, the majority of the trail system is under the jurisdiction of local municipalities. Other agencies and organizations such as the Toronto and Region Conservation Authority, Parks Canada and friends of the Greenbelt are leading the planning and development of trails within their area of interest. The overall goal of a consistent, integrated network of trails serving a Regional purpose will require strong leadership and collaboration among the responsible agencies.

6.0 Objective 3
Integrate Active Transportation in Urban Areas

A key role for the Region is to promote the development of trails that support greater levels of active transportation that complement the on-road cycling and pedestrian networks, particularly those that connect urban areas.

Identifying a conceptual Regional trails network will help prioritize funding and cost sharing opportunities for trails projects within the various municipalities and agencies. The TMP identifies three key Regional trail spines in **Map 9** (located in the Maps section) that have been identified in previous studies. These include:

- The Lake to Lake trail, which spans 90 kilometres in York Region and another 25 kilometres in the City of Toronto, consists of mostly off-street, multi-use pathways, with some on-street portions on lower speed roads
- The Greenbelt Route, which traverses the greenbelt through King Township, and the Towns of Aurora and Whitchurch-Stouffville, is comprised of both on-road and off-road facilities
- An east-west trail system that would utilize the Hydro corridor in southern York Region has been identified in the City of Markham's Pathways & Trails Master Plan

Complementing these Regional spines are the Regionally-significant facilities identified in local municipal plans. Potential trails, or classes of facilities that could form a Regionally-significant trails network are listed in **Exhibit 6.2.** These are suggested trails and classes subject to input from local municipalities.

It is recommended that the Regional Trails Strategy be developed to evolve over time as more detailed planning exercises are carried out in the various municipalities without existing trails plans. The strategy could be informed by a Regional Trails Coordinating Committee or similar advisory group which would consider the phasing of the various trail links and determine how they will contribute to the Ten-Year Strategic Cycling Network. This can be aligned with the trail planning currently underway by Parks Canada for the Rouge National Urban Park.

Guided trails in Rouge National Urban Park

LOCAL MUNICIPALITY	REFERENCE	REGIONALLY-SIGNIFICANT TRAILS
Aurora	Aurora Trail Master Plan (2011)	All Town-Wide Spine Trails (Off-Road): • Nokiidaa Trail • Greenbelt Route • Lake-to-Lake Route • Oak Ridges Trail
East Gwillimbury	East Gwillimbury Active Transportation & Trails Master Plan (2012)	Multi-Use Trails: • Nokiidaa Trail • Lake to Lake Route • Sutton-Zephyr Rail Trail
Georgina	Town of Georgina Trails & Active Transportation Master Plan (2014)	• Lake to Lake Cycling Route and Walking Trail
King	Township of King Trails Master Plan (2015)	• Hydro Corridor Trails • Greenbelt Route • Oak Ridges Trail
Markham	Pathways & Trails Master Plan (2009)	All Type I Primary Multi-Use Town Wide Pathways: • Rouge Valley Trail • Lake to Lake Cycling Route and Walking Trail • Future Rouge National Urban Park
Newmarket	OPA 11	• Lake to Lake Cycling Route and Walking Trail (Nokiidaa) • Greenbelt Route • Oak Ridges Trail
Richmond Hill	Trails Master Plan (2004)	• Lake to Lake Cycling Route and Walking Trail • Oak Ridges Corridor Park
Vaughan	Pedestrian & Bicycle Master Plan Study (2007)	• Community Multi-Use Recreational Pathway • Bartley Smith Greenway • William Granger Greenway
Whitchurch-Stouffville	Transportation Master Plan (in progress)	• Greenbelt Route • Oak Ridges Trail

***Exhibit 6.2:** Regionally-significant trails by local municipality*

6.3.6 Network Improvements Strategy

Safety improvements. Safe, comfortable environments for active transportation are vital to encouraging more healthy and sustainable lifestyles. Perceived levels of safety are among the strongest determinants of whether people will choose to travel on foot or by bicycle. Cars are often seen as the safest option, particularly for trips along busy Regional Roads.

Historically, collisions between vehicles and either pedestrians or cyclists in York Region have been more likely at locations with lower levels of service for walking or cycling. Missing sidewalks in urban areas, complex intersection design and unclear signage or way-finding all contribute to the problem. A lack of awareness and training can leave some users unprepared to deal with potential conflicts on the road.

Pavement treatment projects to enhance walking experience

Improving active transportation infrastructure is an important part of the Region's role in making the streets safer for non-motorized trips. Greater consistency in design, pavement markings, signage and way-finding can help users find and navigate safe routes.

The advancement of connected vehicle technologies has the potential to improve safety for pedestrians and cyclists. Cars can already detect other vehicles, pedestrians and objects in blind spots and the next logical step may be to install devices on bikes to make this connection more direct. Pedestrians and cyclists could also be connected to the traffic signal system to provide, for example, extended walk times for an elderly person.

Technologies are also available to improve way-finding and trip planning for active transportation modes. Such technologies can plan routes based on user preferences and skill levels. Such technologies rely heavily on data on the quality of facilities.

In-boulevard green colour treatment left turn bike box on Highway 7

6.3.7 Education and Promotion Strategy

The Region complements the provision of active transportation facilities by raising awareness and understanding of active transportation options among residents. It supports education about safe practices and the provision of information about the most sustainable travel options for various trips.

Surveys have shown that many York Region residents do not view walking and cycling as viable transportation options, even for short trips. The Region's approach to counter this perception will be improving awareness among a wider cross-section of residents through partnerships with diverse organizations including York Region Public Health, tourism operators, employers and advocacy groups.

6.4 Recommendations

This update to the TMP recommends the following policies, actions and major initiatives to support the integration of active transportation in urban areas.

6.4.1 Policies

The Region will:

- P24 Continue to participate in the Municipal Liaison Committee with the objectives of sharing information among jurisdictions, enabling integrated active transportation planning and highlighting issues where Regional integration has significant benefits
- P25 Collaborate with local municipalities as they develop and implement their own plans to improve active transportation
- P26 Continue to work with local municipalities, Toronto and Region Conservation Authority, the Lake Simcoe Region Conservation Authority, Parks Canada, Ontario Parks and other stakeholders to advance the development of a Regional Trails System. Regional trails should be designed and developed to a high standard, consistent across York Region, forming a network of safe and comfortable trails for multiple active transportation users
- P27 The Region will assume responsibility for planning, design, construction, operation and ownership of boulevard elements within Regional rights-of-way, including sidewalks, cycling facilities, illumination and streetscape design
- P28 Prepare a strategy to allocate development charges levied for constructing in-boulevard infrastructure along Regional roads to the level of government responsible for the construction
- P29 Collaborate with local municipalities to identify missing links and substandard elements in the sidewalk network along transit routes and within Regional Centres and Corridors and to develop a shared strategy for correcting deficiencies
- P30 Promote safer road use through the use of clear, consistent signage and way-finding for drivers, pedestrians and cyclists
- P31 Collaborate with local municipalities, schools and school boards to assess schools using York Region's Safety and Traffic Circulation at School Sites Guidelines and help them plan and implement remedial measures at schools where necessary
- P32 Include paved shoulders for cyclists as part of all new construction and rehabilitation projects and consider them for inclusion in resurfacing projects on Regional roads in rural areas
- P33 Maintain a 10-Year Capital Plan for the proactive implementation of strategic cycling facilities in Regional rights-of-way, giving priority to cycling network elements in areas of high demand

P34 Collaborate with local municipalities, non-governmental organizations and advocacy groups in the promotion of active transportation programs and special events, such as Bike Month, Bike to School Week and Bike to Work Day

P35 Designate Regionally-significant cycling routes and require consistent design standards and connectivity between them

6.4.2 Actions

The Region will:

A49 Develop an Active Transportation Charter that describes what kinds of active transportation facilities residents can expect (with an emphasis on Regional Centres and Corridors), what criteria will be used to prioritize and schedule their implementation and what standards will guide their construction and maintenance

A50 Create and chair a Regional Trails Coordinating Committee, with representatives of local municipalities that will designate a network of strategic Regional trails and oversee a program to improve their continuity, design and maintenance

A51 Work with local municipalities to assume planning, design, construction, maintenance and jurisdictional responsibility for boulevard elements within the Regional rights-of-way, including sidewalks, cycling facilities, illumination and streetscape design

A52 Develop streetscape design standards for Regional roads to improve the walking environments through features such as benches, trees and lighting

A53 Undertake a sidewalk data collection and mapping exercise

A54 Continue to work with local municipalities on design considerations for Regional boulevards

A55 Integrate walking and cycling infrastructure needs into the Region's Ten-Year Roads Capital Plan so that opportunities for seamless, low-cost development of active transportation infrastructure are captured

A56 Update the Region's guidelines and standards for the design of pedestrian and cycling facilities, including mid-block crossings, in view of relevant best practices and recent amendments to the Ontario Highway Traffic Act, keeping in mind the objective of consistent application by local municipalities

A57 Establish targets for reducing collisions involving pedestrians and cyclists on Regional roads, conduct an annual review of collisions involving pedestrians and cyclists by location and maintain a multi-year action plan to improve safety at identified hotspots through improved infrastructure design, signs, markings and education

A58 Collaborate with local municipalities to prepare an Active Transportation Signage and Way-finding Strategy for York Region that includes goals, principles, guidelines and an implementation plan

A59 Develop a strategy to provide safe crossing locations on Regional roads wherever they intersect with Regionally-significant trails and to provide way-finding measures that encourage their use

A60 Develop a transit station way-finding plan – sign routes up to one kilometre from stations with distances and walking times

A61 Create a dedicated, sustained source of Regional funding for the construction and maintenance of active transportation facilities on Regional roads

A62 Update the existing Development Charge funded reserve for the urbanization of Regional Roads to include sidewalks, cycling facilities, illumination and streetscape design

A63 Review the Region's criteria for setting Regional street design speeds and posted speed limits for consistency with the objective of promoting active transportation as an element of livable communities

6.4.3 Big Moves

The following major initiatives support integration of active transportation in urban areas:

- Accelerate active transportation infrastructure that connects communities to transit spines and Regional Centres
- Support the last mile
- Complete gaps in sidewalks
- Develop a trails strategy to provide a network of greenways
- Build comfortable and convenient cycling infrastructure that appeals to a broad range of ages and abilities
- Work with MTO to make highway interchanges pedestrian and cycle friendly
- Complete Lake to Lake Cycling Route and walking trail and prioritize projects that support connectivity in urban areas

Chapter 7

Objective 4

Maximize the Potential of Employment Areas

In this chapter:

7.0 Objective 4

Maximize the Potential of Employment Areas

This chapter outlines the Region's role in maximizing the potential of employment areas, facilitating efficient goods movement and making better connections to our employment areas.

York Region, specifically the Markham-Richmond Hill office node represents one of the three major office areas in the GTHA and accounts for 48 percent of all office space in York Region. In addition, the City of Vaughan has vital manufacturing and industrial significance to York Region. With more than 325,000 more jobs expected in York Region by 2041, and approximately half of these jobs to be office, transportation to these office-related and industrial nodes are important to ensure that York Region remains competitive in attracting this employment.

Understanding the needs of employment is complex because employers and employees need a mix of different transportation options and land use amenities to thrive. It is also complex because different types of employment such as office, manufacturing and distribution have vastly different needs. As part of the development of this Plan, the Region consulted with businesses and developers to understand their needs, including transit-oriented planning, last mile solutions and rapid transit improvements.

The potential of RER to increase the viability of employment areas is significant. RER will provide transit users a rapid, frequent transit service to employment areas not previously serviced by rapid transit.

What we heard:

"Need to connect Langstaff Road across the CN MacMillan yard"

"Regional roads are for all traffic, including trucks, and safety for all modes should remain a priority"

"Intermodal hubs (e.g. CP and CN) and communities/corridors with through truck movements (Bloomington Road) are areas of concern in regards to congestion"

"A Goods Movement Strategy is needed to address the key generators for commercial vehicle traffic"

7.1 Benefits

Maximizing the potential of employment areas would provide York Region residents and businesses with the following benefits:

- An understanding of which corridors give goods movement priority
- A clear Goods Movement policy and road hierarchy will provide clarity regarding the function and design of Regional roads to support efficient goods movement
- Increased understanding about the importance of efficient goods movement to York Region's economy, to managing congestion and the environment
- Ensuring that trucks can easily access 400-series highways and their destinations support growth of the York Region's economy
- Accessibility to employment lands will enable continued growth in York Region
- Providing reliable, quality transit service to employment areas will help maximize their potential

7.2 Assumptions

Regional roads connect major 400-series highways to employment areas and communities and therefore must support all modes of transportation. As a result, there are often conflicts between users of Regional roads, impacting safety, congestion, the environment and the economy.

York Region Official Plan policies support a context sensitive, linked and efficient goods movement network. There is currently a lack of clarity around which corridors are prioritized to facilitate the safe and efficient movement of goods to and from key origins and destinations including Provincial highways, intermodal rail yards and commercial/industrial employment areas.

7.3 Strategies

York Region's economy is growing and freight activity continues to increase around the major rail facilities, highways and distribution centres in York Region's southern municipalities. The increasing need to move goods (especially by truck) and the lack of designated priority truck routes have created conflicts between York Region's industrial and commercial areas and residential communities.

A comprehensive Goods Movement Strategy will facilitate alignment with industry best practices and with the policies and practices of adjacent municipalities. This strategy will guide the Region in working with other jurisdictions and the freight industry to develop solutions that meet the needs of businesses and residents and that continue to attract investment and create jobs.

The Goods Movement Strategy will address:

- Strategies related to land-use, freight demand management and other innovations that better meet the needs of industry while protecting residential areas
- A strategic network of truck routes that help prioritize improvements, while recognizing that all Regional roads are intended to move all types of vehicles
- A data collection program that increases the Region's understanding of the freight sector's needs and impacts

Support for Employment Areas. York Region depends on its employment areas for economic development and to provide jobs for residents. It is important that freight carriers can access these areas efficiently and that goods movement activities do not create conflicts with sensitive adjacent land uses.

One approach that has been taken by some GTHA businesses, and may become more popular as congestion grows, is to shift loading and delivery times to early morning, evening or overnight periods, commonly referred to as Off-Peak Deliveries (OPD). Moving freight activities to off-peak times is a form of freight demand management that can reduce costs for shippers and carriers. However, nearby residences can be disturbed by added noise outside regular business hours. Experience has shown that noise mitigation practices, such as curtained loading bays, can help. MTO's experience with a pilot promotion of OPD during the 2015 Pan Am Games provides information that will be used to further explore this alternative in addition to consultation with a wide range of stakeholders.

The best time to minimize conflicts between residential and commercial areas is at the land use planning stage. MTO's Freight-supportive Guidelines include strategies for land use planning and design to maximize flexibility and productivity for businesses while preserving quality of life in nearby neighbourhoods.

Other innovations in freight movement revolve around the "last mile," or the final leg of a journey between a freight hub (e.g. intermodal facility or courier depot) and the final destination (e.g., store, factory or home). The last mile of a freight trip can be disproportionately costly for shippers due to congestion and lack of loading zones on some streets and can have significant community impacts including the disruption caused by heavy trucks in residential districts. There is considerable innovation occurring around last mile solutions. For example, urban distribution centres consolidate goods from multiple carriers into a single vehicle to reduce the number of trucks on the road, combining deliveries or pick-ups from individual carriers.

7.3.1 Goods Movement Strategy

The Regional road network accommodates significant volumes of truck traffic. This is a result of increasing economic activity in York Region as well as the presence of major rail corridors and two intermodal facilities. As York Region becomes more urban, with a combination of industrial, commercial and residential land uses, conflicts between road users are more challenging to resolve.

A tractor trailer at the Woodbine Avenue/Bloomington Road intersection

A Goods Movement Strategy is an industry best practice and will enable the Region to align its policies with adjacent municipalities. It will enable the Region to work in partnership with other agencies and the trucking industry to develop solutions that meet the needs of all residents and stakeholders attracting investment, jobs and foster economic growth.

Strategic Goods Movement Network. All Regional roads are intended to carry trucks, and are part of the general goods movement network. The identification of a more limited number of Regional roads as part of a Strategic Goods Movement Network (SGMN) can promote preferred haul routes, prioritize road investments and highlight corridors that could benefit most from the application of freight-supportive street design standards and land use planning. In general, truck routes are intended to permit and focus the movement of trucks carrying hazardous goods, pick-up and delivery vehicles, and heavy or long combination vehicles.

The SGMN **Map 11** (located in the Maps section) designated in this plan identifies all Regional roads as either highway goods movement corridors, primary arterial goods movement corridors, or secondary goods movement corridors. **Exhibit 7.1** presents the criteria for corridor designations. The SGMN also shows the locations of proposed new or improved freeway interchanges.

CLASSIFICATION AND DESCRIPTION	TYPICAL VOLUMES	ACCOMMODATION OF TRUCKS
Highway goods movement corridors • 400 series freeways and secondary highways	• More than 3,000 trucks per day • More than 5% medium and heavy trucks	• Mixed traffic • May have HOV lanes or shoulder transit lanes
Primary arterial goods movement corridors • Urban arterials serving employment and industrial lands	• More than 2,500 trucks per 8-hour period • More than 10% medium and heavy trucks	• Mixed traffic • Generally future six-lane corridors • Minimal overlap with rapid transit corridors • Consider truck-only design elements in special cases
Secondary arterial goods movement corridors • All other Regional arterial roads	• Fewer than 2,500 trucks per 8-hour period • Fewer than 10% medium and heavy trucks	• Mixed traffic

Exhibit 7.1: *Criteria for goods movement corridor designation*

7.3.2 Data Collection and Analysis Strategy

Data Collection and Analysis. In recent decades a lack of information on freight activities has hindered governments in their desire to support the goods movement industry. Without knowing who is shipping or carrying which goods by what mode, where and when, public sector stakeholders have had limited ability to understand the industry's needs and to identify, evaluate and implement solutions.

Information on goods movement is becoming more available. The Ministry of Transportation's Commercial Vehicle Survey (CVS) is an ongoing program that included data collection at seven sites in York Region in 2012, including at the CN and CP intermodal facilities. Continued effort to gather and assess data on freight activity will assist the Region in developing the necessary policies and strategies to effectively manage the interconnected system of mobility in York Region. This will support economic development and improve the livability of York Region.

7.4 Recommendations

This update to the TMP recommends the following policies, actions and major initiatives to support maximizing the potential of employment areas.

7.4.1 Policies

The Region will:

- P36 Identify and protect a Regional Strategic Goods Movement Network on Regional Roads, especially near intermodal facilities where feasible
- P37 Continue to recognize the importance of efficient movement of goods to the economic prosperity of the Region
- P38 Work with freight stakeholders to permit off-peak delivery practices through supportive policies, regulations and design standards while ensuring that nearby residents are protected from unwanted noise
- P39 Review Street Design Guidelines to ensure minimum structural, geometric and operational requirements for Regional roads to support goods movement
- P40 Create an inventory of actual deficiencies (e.g. load or turning restrictions, vertical clearances, turning radii) that could be remedied through stand-alone projects or in conjunction with other work
- P41 Ensure that sufficient rights-of-way are protected to provide safe and efficient truck access to intermodal facilities and other major freight hubs
- P42 Protect major goods movement facilities and corridors for the long term, where applicable
- P43 Continue to build broader strategic partnerships across the GTHA by becoming a member of the Southern Ontario Gateway Council
- P44 Request the participation of the Province of Ontario and Government of Canada in funding the construction of the Langstaff Road missing link
- P45 Work with the Ministry of Transportation to ensure continuous data collection on goods movement in York Region as part of their Commercial Vehicle Survey (CVS) program

7.4.2 Actions

The Region will:

A64 Develop a Goods Movement Strategy in consultation with other levels of government, agencies, rail authorities, the Ontario Trucking Association and the private sector. The Goods Movement Strategy will:

- Define the Region's role in supporting goods movement
- Identify demand management measures to reduce the impact of goods movement during peak travel periods
- Confirm a hierarchy/network of goods movement corridors, recognizing that all Regional roads are intended to move all types of vehicles

A65 Review land use policies and development approval processes for opportunities to integrate freight-supportive planning strategies, including related criteria for the evaluation of land use plans and development applications

A66 Review land use policies in the vicinity of facilities to promote energy conservation, efficiency, improved air quality and climate change initiatives so that their long-term operation and economic role is protected, where applicable/feasible

A67 Create and facilitate meetings of a York Region goods movement roundtable that involves representatives from all levels of government, industry stakeholders and key freight, rail and air agencies to improve mutual understanding of freight-related challenges, identify possible solutions and promote collaboration and partnerships in York Region

A68 Designate all Regional roads as truck routes according to the classification shown on the Strategic Goods Movement Network **Map 11** (located in the Maps section) and work with the freight industry to focus truck activity on higher-order goods movement corridors

A69 Monitor truck volumes on Regional roads, including journeys entering and leaving York Region, using conventional approaches as well as intelligent transportation system (ITS) tools. These efforts can provide early identification of challenges related to specific routes, intersections or employment areas

A70 Monitor the speed and reliability of travel on primary arterial goods movement corridors and consider opportunities to accelerate road improvements on corridors that do not meet acceptable thresholds

A71 Collaborate with other governments on a GTHA-wide initiative to collect data on freight industry activities

A72 Conduct freight audits on zones that are major generators of truck movements

A73 Participate in studies to review and assess impacts of the CN/CP missing rail link

A74 Partner with MTO in 2017/2018 to undertake an update to the Commercial Vehicle Survey undertaken in York Region in 2012

7.4.3 Big Moves

The following major initiatives support maximizing the potential of employment areas:

- Complete the Langstaff Road "Missing Link"
- Designate a Strategic Goods Movement Network
- Protect for and implement ramp extensions and interchanges
- Improve connectivity to 400-series highways

Chapter 8

Objective 5

Make the Last Mile Work

In this chapter:

8.0 Objective 5
Make the Last Mile Work

This chapter addresses the potential to influence travel choices by better integrating transportation and the built environment, applying transportation demand management techniques and utilizing new technologies and innovations. It also includes how to encourage and facilitate sustainable behaviours by York Region residents, a concept presented as "the last mile"[12]. Completion of necessary network and system improvements, including the Frequent Transit Network and Viva Rapidways will enable the Region to develop programs that change default decisions regarding sustainable transportation.

Improving transit, road, walking and cycling infrastructure is only part of the Region's response to its transportation challenges. Influencing travel choices will also involve making changes to the nature of land use through a more integrated approach with transportation planning. Compact, complete communities with a supportive land use mix, density and design will make walking and cycling more attractive, enable efficient transit service, reduce trip lengths and combat congestion. The Region has many planning tools that can shape land use. Collaboration with local municipalities will be critical to improve both access and mobility.

The Region also recognizes that changes to the built environment must be accompanied by transportation demand management (TDM) initiatives that build individuals' awareness and understanding of their travel options, shape their preferences and encourage them to try new ways of travelling. For this reason, the TMP integrates key elements of the Region's TDM Implementation Strategy and calls for the Region to lead local municipalities and non-governmental stakeholders in programs to strengthen development approvals, public education and outreach to workplaces, schools and families.

Continuous innovation at a global level means the "sharing economy" is now part of the public transportation dialogue. Conventional and peer-to-peer carsharing, dynamic ridesharing and car-hailing technologies and other new technologies and services will all play an increasing role in the future of mobility. The Region will monitor, assess and leverage the new choices they offer to both individuals and businesses.

> ***What we heard:***
>
> *"Quality cycling connections are an important part of addressing the 'last mile'"*
> *"Need to have smaller shuttle buses to get people to and from GO stations"*

8.1 Benefits

Making the last mile work would provide York Region residents and businesses with the following benefits:

- A seamless transportation system
- Personalized and user–oriented services
- Door to door trip planning
- Lower "hassle" costs
- Reduced carbon footprint
- Improved air quality
- Reduced congestion and overall travel time

There are benefits to the Region as well:

- Reduces the use of single occupant vehicles
- Optimizes existing and new infrastructure
- Supports transit use and increases ridership
- Creates a more reliable transportation system
- Efficient allocation of resources based on actual needs of customers
- Provides additional information to enable better decisions going forward
- Reduces congestion
- Manages growth sustainably
- Supports community health and wellbeing

8.2 Assumptions

Transportation is at a tipping point as the world urbanizes and becomes more complex with advances in technology and changes in how people move throughout York Region. With rapid advancements in technology, there is an opportunity to improve mobility more immediately and at lower costs than have been possible in the past.

Technological advancements including smartphone apps will greatly assist the Region as it develops new tools and techniques to assist residents and businesses to make transit and active transportation their first choice. This can include apps that make it easier for people to plan and pay for their transit trips.

The Region will continue to monitor and adapt to emerging technologies to create the most cost effective and efficient suite of services to further develop an interconnected system of mobility within York Region.

8.3 Strategies

There are a number of strategies that have been advanced in other jurisdictions that serve as examples for the Region to explore.

8.3.1 Mobility as a Service

Originally developed in Finland and Sweden, Mobility as a Service seamlessly combines a variety of transportation modes and services from different providers into a single intuitive mobile phone application that manages everything from travel planning to payments. It envisions door-to-door services such as public and private transit, bikeshare, rideshare, carshare, vanpool, taxi, employer commuter benefits, electric scooter/bike lease, pay-by-phone parking and future robo-taxis. It provides a more customer-centred experience while improving the efficiency of the entire transportation system.

For example, in Finland a person could have unlimited use of all modes of travel depending on the package of mobility they choose, similar to the concept of a monthly smartphone plan. A monthly fee will allow users to choose any combination of modes. A taxi can pick them up at their front door, take them to a subway and then they can take a bikeshare to their workplace. All can be done seamlessly in an app for a flat monthly cost. The app can be used to plan and pay for the entire trip.

8.3.2 Innovation Strategy

Shared Mobility. A rapidly growing "sharing economy" has been brought about by the advent of wireless communications and mobile applications and by the emergence of a tech-savvy population that is open to conducting informal transactions. It has several manifestations in the transportation sector:

- Conventional carsharing allows members to rent vehicles for short periods based on per-minute, per-hour and/or per-kilometre rates. While originally a community-based, cooperative paradigm, it has also attracted corporate backers including large car rental companies
- Peer-to-peer carsharing is an emerging practice that allows member drivers to rent out their own cars when not in use to other members
- Conventional ridesharing, such as that facilitated through workplaces by Metrolinx's Smart Commute program, aims to establish a regular schedule of drivers and passengers (with possibly alternating roles) travelling together to a routine destination. If money changes hands, it typically only covers out-of-pocket fuel and parking costs
- Dynamic carpooling uses mobile communications to match drivers and passengers in real time for as little as a single shared trip that may or may not involve payment
- Car-hailing involves paid, independent drivers using their own cars to respond to ride requests administered through a central broker (e.g. Uber). This model is similar to conventional taxi service except that it is still generally unregulated, including in York Region

To the extent that these shared mobility options (and others that may arise in future) make it easier for individuals to get around York Region without owning a private vehicle, they join public transit, walking, cycling and taxis as important alternatives to auto ownership and dependence. The Region has little direct influence over the legality or operation of these activities (with the exception of conventional carsharing and ridesharing).

Connected Vehicle Technologies. An emerging new era of vehicle design and operation is based on the concept of "connected vehicles" that are able to communicate with other vehicles, smartphones, traffic signals and more. Vehicle manufacturers and other companies are creating and testing a range of technologies that range from safety-oriented driver warning systems, to semi-autonomous cars and trucks, to fully autonomous (even driverless) vehicles. Ultimately, some observers expect that the potential of connected vehicles will lead the transformation of vehicle manufacturers into mobility service providers that offer customized, subscription-based portfolios of multimodal travel options. The Region will monitor these developments and will adapt its network to accommodate these new technologies as appropriate.

Electric vehicles. The commercial availability of electric vehicles (EVs) is increasing rapidly. EVs significantly reduce air emissions and greenhouse gas emissions. In December 2015, the Province of Ontario announced a program to provide grants to encourage the public and private sector to build electric charging stations with the goal of creating a system of fast-charging stations. The Region could establish itself as an EV friendly-community by building charging stations at its facilities and along road corridors.

Mobi-Prize. As transportation issues get more complex and communities become more urbanized, more sustainable and innovative solutions will be needed to respond to the most challenging transportation issues. Investors and entrepreneurs will need support in developing these solutions. Mobi-Prize is a crowd-sourcing platform that provides a global network of new mobility innovators the opportunity to win an award and provides resources in exchange for solutions for complex transportation problems. It is designed to find, promote, connect and support entrepreneurs, investors and accelerators in the New Mobility space as well as advance New Mobility enterprise that will supply the future of transportation.

TransportationCamp. TransportationCamp is an "unconference" bringing together transportation professionals, technologists and others interested in transportation and technology. The session topics and activities are suggested by the attendees. In addition to talks and presentations from key industry players, TransportationCamp provides an opportunity for every attendee to be a participant in shaping and leading the event.

As with other modes, there are significant opportunities for technology to both enable and promote active transportation. One emerging area is the coupling of the collection of bicycle and pedestrian activity with behavioural change strategies. Real time data counters, strategically placed at key locations, provide continuous information to users on how many people are walking or cycling through an area. This can be enhanced by providing personalized information and rewards through technologies such as Radio-Frequency Identification (RFID).

8.3.3 Transportation Demand Management

Transportation Demand Management (TDM) is about reducing the need to travel and influencing the time, route or mode of travel to promote more sustainable choices. By using alternative travel options to single-occupant car trips, the Region is able to make better and more efficient use of infrastructure. This approach works to redistribute demand on the transportation network by shifting demand to other modes of travel and away from the busiest travel periods. This helps reduce travel times, traffic congestion and vehicle emissions.

In 2013, the Region's TDM Implementation Strategy presented an extensive and detailed suite of TDM policies and initiatives that would involve the Region and several partners. Its recommendations addressed subjects including communications, outreach to residents, schools and workplaces, parking management, development approvals and internal governance.

TDM Leadership and Collaboration. A great number of stakeholders are involved in TDM across York Region. They include Metrolinx, various Regional departments (including transit, planning and public health), local municipalities, transportation management associations and school boards. The Region has played a key leadership role among these organizations in the past and will continue to do so.

Workplace TDM Programs. Smart Commute is a program conducted through partnerships between Metrolinx, regional and local municipalities and non-governmental organizations. Across the GTHA, there are 13 Smart Commute organizations working to engage employers and deliver services that encourage sustainable commuting choices by their employees. Three are in York Region: Smart Commute Central York; Smart Commute North Toronto, Vaughan; and Smart Commute Markham, Richmond Hill. These organizations have varying operational frameworks, but deliver common tools to member workplaces including site assessments, carpool ridematching services, Emergency Ride Home reimbursements, discounted transit pass programs, telework support, special events and promotions and performance measurement. All three receive annual financial support from the Region, local municipalities and Metrolinx.

Workplace TDM programs, including participation in Smart Commute activities, can be a condition of approvals given to new developments.

School TDM Programs. School travel plans encourage families to choose active and sustainable modes of travel to and from school. The development of a school travel plan can involve a wide range of stakeholders and can lead to educational and promotional measures, as well as the removal of policy, infrastructure or safety barriers. The benefits include more physical activity for children and adults, reduced traffic congestion, improved air quality, enhanced neighbourhood safety and greater social connectedness.

The York Region Active and Safe Routes to School Committee was formed in 1998. It is an inter-sectoral group of community organizations that share the common goal of increasing active travel to and from school, chaired by York Region Public Health. By 2015, after several years of pilot projects and capacity building efforts, 44 publicly-funded elementary schools in York Region have engaged in the school travel planning approach and one local municipality has a School Travel Planning policy in place.

Residential TDM Programs. The innovative MyTrip pilot program is being conducted over 2015 and 2016 in six new and growing communities. The project (a partnership of the Region, the City of Vaughan, City of Markham and the Town of Richmond Hill) uses individualized marketing techniques to encourage residents to use sustainable travel options. It seeks to understand their travel needs and patterns, to explore the available options and identify what works best for them. MyTrip measures are likely to include community events, workshops, meetings with individual households, online tools and take-home information packages.

Residential TDM programs can also be an outcome of approvals given to new subdivisions or multi-family residential buildings. The Region has been working to test and evaluate their potential.

Supporting TDM Through Development Approvals. The development approvals process allows local and regional governments to influence how new developments are designed, built and how they operate (if only to a limited extent). This leverage allows them to require, negotiate or encourage the integration of TDM-supportive features into new developments of various types (residential, commercial, retail or institutional) and scales (single sites or subdivisions).

The Region has limited powers to require or encourage developers to incorporate specific infrastructure or program elements into their projects other than through its Official Plan policies, review of subdivision applications and transportation impact study guidelines for developments that need to access Regional roads. Local municipalities have much greater ability to require (e.g. through zoning bylaws) or negotiate for (e.g. through conditions of agreement) what they want. The Region will work collaboratively with local municipalities to make new developments more supportive of TDM goals.

The Region covers some of the costs for residential TDM programs through its residential Roads Development Charge. The Region has tested the impact of free pre-loaded PRESTO cards, travel information packages and social marketing techniques as part of this program. It has also been collecting development charges from commercial, industrial and institutional development. This fund is currently supporting the Region's annual contribution to local Smart Commute organizations.

The Region will focus on shaping residential and commercial developments and employment areas to support TDM in conjunction with local municipalities. It will remain sensitive to the context of developments (i.e. their locations in Regional Centres and Corridors, other urban areas or rural settings). It will emphasize the importance of achieving positive site design and infrastructure features such as minimal automobile parking, quality pedestrian linkages, adequate secure bicycle storage, showers and change rooms for active commuters and preferential carpool parking spaces. It will also seek to secure developer commitments to either fund or deliver supportive programming, such as the provision of free pre-loaded PRESTO cards to new condominium owners, carsharing services or advance payment of Smart Commute membership for commercial tenants where possible. The Region will consider the experience of its peers (including the Regions of Peel and Waterloo and the City of Hamilton) that have conducted studies and developed tools and processes (e.g. checklists, templates, scorecards, guidelines, model conditions) that strengthen development approvals from a TDM perspective.

Cyclist and pedestrian crossing a Regional intersection

8.3.4 Complete Communities Strategy

A complete community is one that welcomes residents of all "ages and stages," by offering opportunity, equity and accessibility to children, youth, adults and seniors. When examined through a transportation lens, complete communities reduce residents' reliance on cars by offering multimodal travel options. This allows residents to meet daily needs through shorter trips and can support health by reducing congestion and air pollution and increasing active transportation.

From a land use planning perspective, complete communities provide live-work opportunities and offer a variety of housing choices in addition to a full range of destination types within easy reach. Buildings and outdoor spaces (both private and public) offer high degrees of safety, comfort and attractiveness "built in" to walking, cycling and public transit. Parking management makes sustainable travel choices more competitive and minimizes the impacts of at-grade parking on the pedestrian environment.

From a transportation planning perspective, complete communities offer fine-grained and interconnected multimodal networks that connect homes to transit, schools, shops and services. They are designed to minimize natural or built-form barriers to efficient walking, cycling and transit routes.

8.3.5 Transportation User Pricing

The principle of "user pay" for transportation as for other utilities including energy and water consumption is sound. Economists agree that free resources are used inefficiently.

Transit fares pay for a portion of the direct operating costs of transit trips in York Region. In comparison, the costs paid by drivers are indirect (i.e. fuel taxes and licensing fees are not directly related to a driver's use of roads). The taxes and fees are collected by governments that do not provide or maintain the roads on which most driving occurs (i.e. provincial/federal fees and taxes do not support local/regional infrastructure and services).

After several decades during which the free use of roads has been commonly viewed as a "right" of drivers, there is now a growing recognition among elected officials of the need to charge road users directly for their consumption of public resources and for the external impacts of their driving. There is an active public dialogue about intergovernmental alignment, technical mechanisms, measures to gain public support and steps to mitigate impacts and inequities that may be experienced by sensitive socio-economic or geographic populations. In view of the GTHA's integrated transportation system and economy, provincial leadership would be required to legislate or regulate and coordinate a coherent approach to road use charging that could involve dozens of government agencies.

Parking (as discussed in Section 4.3.4) is another realm where pricing signals provide an opportunity to influence individual travel choices. Free parking creates a disconnect between the cost of providing a resource and the cost of using it, whether provided by public or private entities. The Region has very limited powers to influence parking pricing except at its own facilities.

8.4 Recommendations

This update to the TMP recommends the following policies, actions and major initiatives to support making the last mile work.

8.4.1 Policies

The Region will:

- P46 Collaborate with one or more local municipalities and Metrolinx to refine and demonstrate the concept of "mobility hubs" or community spaces where intensive land uses are combined with the widest range of mobility options
- P47 Work with local municipalities to proactively review ways to make existing communities more complete through interventions addressing both land use and transportation systems
- P48 Support implementation of requirement for new community areas to have a development mix, density and design that supports short trips, offers attractive environments for walking, cycling and transit users and minimizes surface parking
- P49 Support implementation of mobility plans required for new community areas to ensure connected, accessible, multimodal transportation networks that prioritize access and circulation for walking, cycling and transit users

8.0 Objective 5
Make the Last Mile Work

- **P50** Continue to emphasize and inform the key role of TOD in shaping York Region
- **P51** Maintain and strengthen the Region's role as the leading voice for TDM policies and programs in York Region
- **P52** Collaborate with local municipalities to apply guidelines that maximize the TDM supportiveness of new developments across York Region
- **P53** Continue to apply development charges that enable the delivery of TDM programs and services to new commercial and residential developments after initial occupancy
- **P54** Support and participate in a constructive dialogue on road pricing among governments, the business sector and general public across the GTHA and support education, research and demonstration that are essential to effective, efficient and equitable road pricing in the long term
- **P55** Continue to support and promote local Smart Commute, workplace programs organizations and investigate ways for the Region to leverage the Smart Commute identity without drawing on the resources of those organizations
- **P56** Collaborate with local municipalities and the provincial government to monitor the growth and development of shared mobility options (i.e. different forms of carsharing and ridesharing) with a particular interest in their impacts on road safety and the potential to reduce traffic demands
- **P57** Collaborate with provincial and federal governments to monitor vehicle technologies that pose opportunities or challenges for sustainable travel behaviours with the goal of increasing choice, service and safety while minimizing growth in vehicle-kilometres travelled, emissions and congestion
- **P58** Continue to lead (via York Region Public Health) the York Region Active and Safe Routes to School Committee and to coordinate the efforts of Regional and local municipal transportation departments, school boards, school administrations and school communities to deliver needed resources, services and infrastructure
- **P59** Continue to support and collaborate with local municipalities to develop and implement municipal school travel planning policies
- **P60** Continue to advocate for the school travel planning approach and work with all interested publicly funded Elementary schools in York Region to develop school travel plans
- **P61** Consider opportunities for engaging directly with individuals and families to encourage sustainable travel choices, in order to maximize future uptake of facilities and services for walking, cycling, carpooling and public transit
- **P62** Work to create a system of electric vehicle charging stations throughout York Region by installing fast-charging stations at Regional facilities and along Regional corridors
- **P63** Support new active transportation infrastructure through marketing, promotion and education of transportation options

8.4.2 Actions

The Region will:

- **A75** Establish a York Region TDM Coordinating Committee comprised of public-sector and non-governmental stakeholders. Convene and chair regular meetings of the committee to set mutual priorities, share information and coordinate actions related to TDM policies, programs and projects across York Region
- **A76** Conduct a study to develop a consensus among the Region and local municipalities regarding requirements for context-sensitive, TDM-supportive features of new developments and an optimal approach to achieving them through the development approvals process
- **A77** Work with partners to review the service area boundaries of local Smart Commute organizations and investigate changes that could better match demands with the available resources
- **A78** Lead local municipalities in the development of a Regional Parking Strategy that supports intensification and that considers the establishment of a Regional Parking Authority or municipal parking authority framework that makes sustainable travel options more attractive across York Region
- **A79** Collaborate with local municipalities in establishing a Regional Parking Roundtable as a forum to share information and coordinate action in areas of mutual interest
- **A80** Establish a network of Park 'N' Ride lots across the Region to serve YRT/Viva. Such lots may also serve carpoolers and could be on lands either leased or owned by the Region
- **A81** Study the possibility of implementing a fee for employee parking at businesses in York Region that are served by the Frequent Transit Network. This would have to be done in consultation and coordination with businesses in York Region. The revenues from parking could be used to improve and offer incentives for non-driving commuting choices
- **A82** Review and update the Region's TOD guidelines and provide appropriate incentives for developers to meet or exceed the guidelines with the assistance of local municipalities
- **A83** Assess the costs and benefits of the MyTrip pilot program of individualized travel planning upon its completion and identify an implementation strategy for expanding the program across York Region

8.4.3 Big Moves

The following major initiatives support making the last mile work:

- Provide safe and convenient walking/cycling opportunities to mobility hubs
- Manage parking supply and demand with innovation, pricing and technology
- Support transit-oriented development
- Embrace emerging technologies and the sharing economy to improve convenience and mobility
- Implement TDM Strategy

Chapter 9

Network
Prioritization and Phasing

In this chapter:

9.0 Network
Prioritization and Phasing

By 2041, York Region will be home to almost 1.8 million people and 900,000 jobs. To achieve this, growth has to be balanced with protecting agricultural and natural heritage areas.

The TMP considered the impacts of three growth scenarios on travel patterns and network performance. Since the total growth for York Region is the same under all scenarios, overall travel demands are similar. Comparing the 40% intensification scenario, a 50% intensification scenario and a "No Urban Boundary Expansion Scenario" (65% intensification), the following is projected:

40% Intensification

This means that 40% of all growth will be within the existing built-up area. Additional growth will be accommodated within the designated urban lands and will require expansion of the urban boundary by about 2,500 hectares. Growth will continue in much the same pattern as the past 10-15 years. A larger portion of growth will be in new community areas with some access to amenities and transit.

This scenario was used as the basis for assessing future transportation needs as identified in the TMP. It supports the build out of planned rapid transit corridors, Regional Express Rail and improvements to support active transportation.

50% Intensification

This means 50% of growth will be within the existing built-up area. Additional growth will be accommodated within the designated urban lands and will require expansion of the urban boundary by approximately 1,200 hectares. Growth will continue to be fairly dense and primarily focused in Regional Centres and Corridors with additional growth in new community areas. There will be better access to transit and housing options as well as amenities that are closer to home and work.

Compared to the 40% intensification scenario, this scenario results in:

- 2% more transit trips in 2041 due to higher densities in existing and planned areas
- 1.2% reduction in auto vehicle-km travelled due to more compact development and higher transit share
- 5% fewer road sections that are severely congested
- Further justification for planned rapid transit corridors and extension of the Yonge North Subway
- Improved cost recovery of transit services proposed for designated growth areas

No Urban Expansion

This means that all growth will be accommodated within existing built-up and designated urban areas, especially between 2026 and 2031. New growth will be denser and focused in Regional Centres and Corridors (along Yonge Street, Highway 7 and Davis Drive). This will result in more services, amenities, increased transit and active transportation facilities in vibrant centres of activity.

Compared to the 40% intensification scenario, this scenario results in:

- 2.5% more transit trips in 2041 due to higher densities in existing and planned areas
- 2% reduction in auto vehicle-km travelled due to more compact development and higher transit share
- 6% fewer road sections that are severely congested
- Reduced or postponement of the need for certain roadway expansion projects in new growth areas including North Markham, North Vaughan and East Gwillimbury
- Potential for accelerated implementation of rapid transit corridors on the remaining sections of Yonge Street and Highway 7, as well as new corridors on Major Mackenzie, Leslie Street, Woodbine Avenue and Steeles Avenue

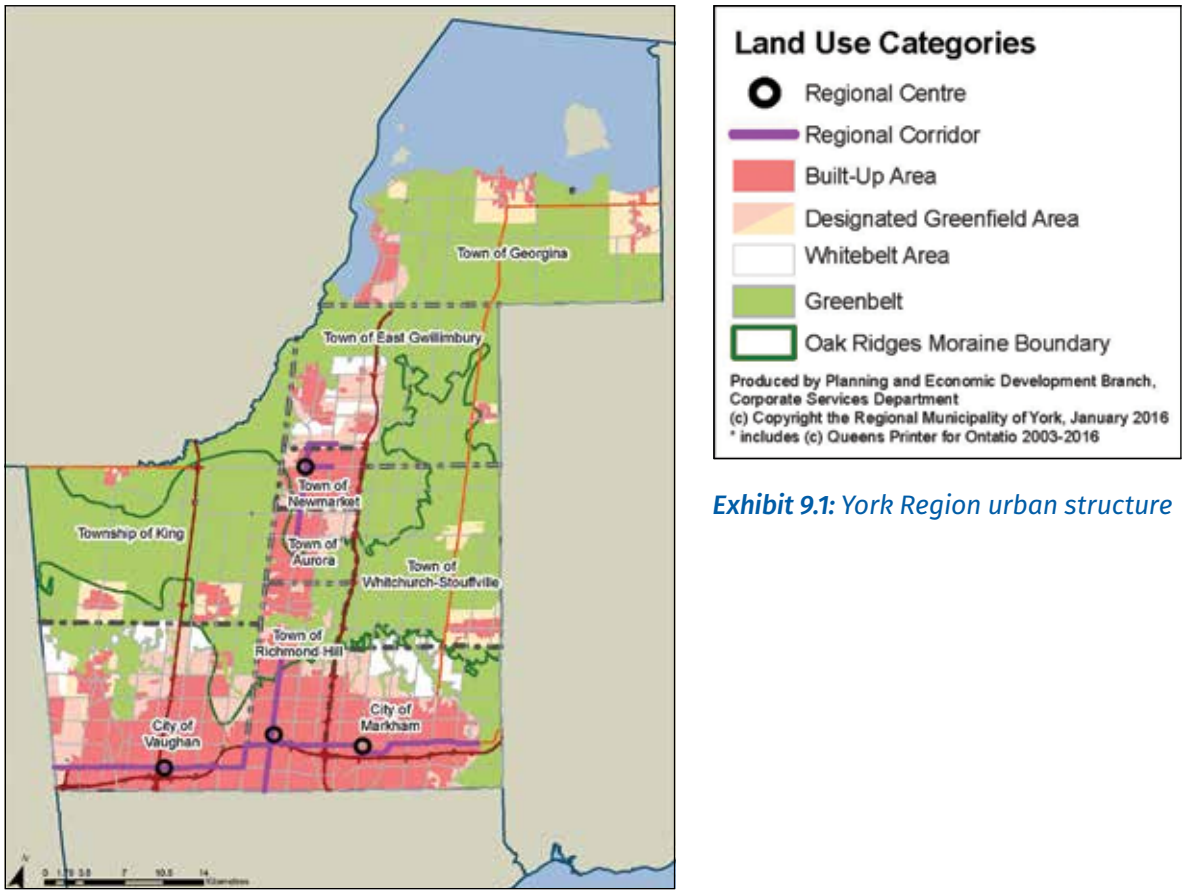


***Exhibit 9.1:** York Region urban structure*

Exhibit 9.1 identifies where growth has been and can be accommodated in York Region.

Dark pink *represents existing urban areas where new development will occur in the form of intensification.*

Light pink *represents areas already designated to accommodate urban development which have not been built or only partially built.*

White *represents those areas where expansions to the existing urban boundary could be considered.*

Green *represents areas of York Region that are protected through Provincial Plans including the Oak Ridges Moraine Conservation Plan and Greenbelt Plan.*

9.1 Prioritization Model

The Region has prioritized, planned and allocated the proposed investments of this TMP into building an interconnected system of mobility through the use of a priority setting model and prioritization process. The priority setting model was initially developed to prioritize projects identified in the 2002 Transportation Master Plan as a result of the many competing transportation needs in a fiscally-constrained environment. The priority setting model has been updated and refined multiple times since as the criteria and weighting were revised and adjusted to address emerging priorities, pressures and other factors. For this TMP, the Region revamped the priority setting model to improve and enhance the process with a further focus on an evidence-based, quantitative model for identifying optimized project priorities.

In order to determine the most appropriate timing for various projects identified in this plan, projects were evaluated on a two kilometre by two kilometre segment basis using consistent criteria. The model identified transportation needs and potential benefits of each project. The results of the prioritization model informed the prioritization process and enabled grouping of projects into phases by in-service need in five-year increments (to 2021, 2026, 2031, 2036 and 2041).

9.2 Transit Network Phasing

The Proposed 2041 Transit Network is illustrated on **Map 7** with the associated phasing provided on **Maps 12** through **Map 15** (located in the Maps section).

The proposed network builds on investment in the Toronto-York Spadina Subway Extension, the first wave of vivaNext rapidways, Regional Express Rail and YRT/Viva Frequent Transit Network service expansion.

Key elements of the phased transit network are discussed below.

9.2.1 Yonge North Subway Extension

The Yonge North Subway Extension is the critical missing link in the dedicated Regional rapid transit system, a vital gap in creating a seamless transit network in the GTHA and remains a top priority for the Region in the TMP.The 2015 Yonge Relief Network Study report to the Metrolinx Board of Directors recommended that Metrolinx work with the Region, City

of Toronto and the TTC to advance the project development of the Yonge North Subway Extension to 15% preliminary design and engineering.

The Region is currently awaiting the Provincial funding announcement confirming the funding allocation for the approved preliminary engineering program and continues to pursue both Provincial and Federal funding for additional engineering, design and capital construction. Region and York Region Rapid Transit Corporation staff continue to meet and work with Metrolinx and City of Toronto staff to assess the impacts of the various municipal transportation planning initiatives throughout the GTHA to ensure that Yonge North Subway Extension retains its critical status as the Region's number one transportation project.

9.2.2 Rapid Transit Corridors

Rapid transit corridors identified in the proposed 2041 Transit Network build on the original vivaNext Plan (Yonge Street, Highway 7 and Davis Drive) to include the Viva Network Expansion Plan (Jane Street, Major Mackenzie Drive and Leslie Street/Don Mills Road) and future rapid transit corridors to accommodate growth to 2041 (Major Mackenzie Drive East, Green Lane, Yonge Street north of Davis Drive and Woodbine Avenue).

Yonge Street Rapid Transit Corridor. The vivaNext rapidway from Highway 7 to 19th Avenue is currently under construction, with the exception of the historic core of Richmond Hill from Major Mackenzie Drive to Levendale Avenue where service will remain in mixed traffic operations. In addition, construction is underway on the Yonge Street Rapidway from Davis Drive to Savage Road at the south end of Newmarket.

Construction of a dedicated rapidway from 19th Avenue/Gamble Road to south of Mulock Drive (excluding downtown Aurora) is not included in the Metrolinx Next Wave projects but will be required to support continued growth in York Region. The TMP Update recommends full dedicated rapid transit on this segment of Yonge Street by 2041.

Yonge Street north of Davis Drive is planned for widening to six lanes as part of the approved Ten-Year Roads Capital Plan. This widening is to accommodate High Occupancy Vehicle lanes and is being designed to allow for conversion to a dedicated rapidway in the future.

The constrained segments of the Yonge Street rapid transit corridor through downtown Aurora and downtown Richmond Hill pose a challenge for improving transit trip times and maximizing service reliability.

Given the importance of the Yonge Street rapid transit corridor within York Region's overall transit network, the TMP update recommends a special study to consider the best approach to improve transit service and enable quick operation through these areas, while at the same time, protecting the heritage of downtown Aurora and downtown Richmond Hill. This will involve partnerships with the Towns of Aurora and Richmond Hill.

Highway 7 Rapid Transit Corridor. In western Vaughan, a key constraint along the Highway 7 rapid transit corridor occurs near Islington Avenue. This TMP Update proposes eliminating this pinch point with construction of a median rapidway plus six traffic lanes through this area (Helen Street west to Kipling Avenue). The TMP Update proposes this corridor evolve to rapidway with a phased implementation of the needed improvements. By 2031 the section of Highway 7 between Helen Street and Highway 27 needs to operate as a rapidway. By 2027 the section of Highway 7 between Helen Street and Kipling Avenue needs to operate as a 6-lane transit/HOV corridor. Prior to 2027 operational improvements will be studied and improvements implemented to prioritize transit, improve traffic flow and enable the future major expansion projects.

From Helen Street east to Highway 400, this rapidway segment is a Metrolinx First Wave funded project and scheduled to be completed by 2019. East of Highway 400 to Bowes Road, the rapidway is under construction and is being coordinated with the opening of the Toronto-York Spadina Subway Extension in late 2017. Once these segments are completed, there will be a continuous rapidway from Helen Street in the City of Vaughan to Unionville Station in the City of Markham, with the exception of a mixed traffic segment from Bathurst Street to Bayview Avenue.

This TMP Update includes extending the Highway 7 rapidway from Unionville Station to Cornell Terminal in the east. The environmental assessment identifies a median rapidway plus four general purpose lanes.

Jane Street. Jane Street is part of the Viva Network Expansion Plan with curbside stations being constructed between Highway 7 and Major Mackenzie starting in 2018. Jane Street was identified for widening to six lanes in the 2009 Plan. Rapid transit along Jane Street will provide a service connection with the Toronto-York Spadina Subway Extension.

The TMP Update proposes that this corridor evolve to rapidway by 2041 with Viva service expansion in mixed traffic for the initial stage followed by road widening to six lanes for HOV/transit as an intermediate stage. The 2041 network includes rapidway plus four general purpose lanes between Highway 7 and Major Mackenzie Drive.

Leslie Street/Don Mills Road. Leslie Street is also part of the Viva Network Expansion Plan with curbside stations being constructed in 2018 between Steeles Avenue and Major Mackenzie Drive. The TMP Update recommends rapid transit by 2041. The ultimate timing and technology for this rapid transit corridor is influenced by the Don Mills rapid transit plan in the City of Toronto. An environmental assessment was begun in 2009 but put on hold pending further network planning through this TMP Update as well as the City of Toronto and Metrolinx.

Major Mackenzie Drive. The central section of Major Mackenzie Drive, from Jane Street to Leslie Street, is part of the Viva Network Expansion Plan with curbside stations being constructed starting in 2018. The central section connects the Jane Street rapid transit corridor and the Leslie Street rapid transit corridor. The central section should be extended to Woodbine Avenue to also connect with the potential rapid transit corridor on Woodbine Avenue. Two areas of constraint along this corridor are the sections east and west of Keele Street (Maple) and east of Yonge Street (Richmond Hill).

The TMP Update assumes rapidway plus four general purpose lanes. Re-designating traffic lanes for rapidway through constrained sections should be considered within the 2041 horizon.

Woodbine Avenue. Woodbine Avenue is a potential rapid transit corridor connecting the future Buttonville development as well as the Highway 404/7 employment node. North of Highway 7, Woodbine Avenue has been identified for widening to six lanes and potentially dedicated rapid transit. The corridor is constrained through the historic area of Buttonville so alternative alignments for transit may need to be considered.

South of Highway 7, Woodbine Avenue is a six lane corridor. The TMP Update recommends converting the outside lanes to High Occupancy Vehicle/Transit while protecting for the potential for full rapidway. The need for full rapidway is influenced by the timing of rapid transit on Leslie Street and redevelopment along the Woodbine Avenue corridor.

Steeles Avenue. Steeles Avenue was identified as a rapid transit corridor in the Metrolinx Big Move as well as the 2009 TMP. The Steeles Avenue Rapid Transit project was also reviewed as part of the recent City of Toronto "Feeling Congested" process, including implementation of rapid transit from Black Creek Pioneer Village Station (Spadina Subway Extension) to Milliken Station (Stouffville GO Rail corridor). The plans provide for the inclusion of bus rapid transit on Steeles Avenue from Jane Street east to the Durham boundary.

Green Lane. A phased approach for Green Lane from Yonge Street to the East Gwillimbury GO Station is proposed. Green Lane west of the GO station will be widened to six lanes providing for curbside rapid transit and High Occupancy Vehicle lanes. The timing of the Highway 400-404 link and completion of a planned four lane east-west collector road north of Green Lane, from Bathurst Street to the Harry Walker Parkway Extension, will inform the final timing of widening of Green Lane to six lanes.

9.2.3 Conversion to LRT

After the 2041 horizon of this TMP, the Region expects to convert some or all Viva rapidways into higher-capacity light rail facilities. Key issues that could influence the timing of this include:

- LRT systems typically attract more riders than BRT systems but the creation of additional transfers (e.g. by replacing express bus routes with hub-and-spoke combinations of local bus and LRT routes) can dampen ridership gains
- Conversion from BRT to LRT would require substantial capital costs and service disruptions during construction. These costs would have to be weighed against the possible operating cost savings
- Fixed LRT routes are much more difficult to change than BRT routes
- LRT systems operate on electricity and generate fewer local air emissions than diesel or hybrid buses. The pace at which bus technologies evolve toward full electrification will determine how long this advantage of LRT technology remains

9.2.4 GO Rail Network

The 2041 GO rail network includes significant service improvements on the three existing GO Transit rail corridors (Barrie, Richmond Hill and Stouffville) plus new service on the Mactier Subdivision to Bolton and the Havelock Subdivision rail corridor to Locust Hill in the City of Markham.

Regional Express Rail will bring more frequent, two-way GO service to York Region

The Province has committed to implementing the first phase of Regional Express Rail within ten years. This will include 15 minute two-way all day service to Unionville on the Stouffville rail corridor and to Aurora on the Barrie rail corridor. The 2041 recommended network includes extensions of Regional Express Rail service to Major Mackenzie Drive on the Stouffville rail corridor and Green Lane on the Barrie rail corridor to service new growth areas in Markham and East Gwillimbury.

New GO Stations. Metrolinx is currently in the process of conducting a 'New Stations Analysis'. Within York Region, the Metrolinx study identifies seven potential new GO Stations. On the Barrie GO rail corridor, these include Concord, Kirby Road, 15th Sideroad and Mulock Drive. On the Richmond Hill GO rail corridor two new stations are identified at John Street/Greenlane and 16th Avenue, in addition to the new stations at Gormley and Bloomington Road which are underway. On the Stouffville GO rail corridor, a potential new station is identified at 14th Avenue. York Region is working with Metrolinx to further assess the feasibility of these new stations.

In addition to potential new stations identified by Metrolinx, the TMP has further identified additional stations to accommodate growth to 2041. These include a potential station at Major Mackenzie Drive on the Stouffville GO rail corridor and two potential stations on the Richmond Hill GO rail corridor at 19th Avenue and Aurora Road. Further work is required, in cooperation with Metrolinx, to assess these potential locations.

9.3 Road Network Phasing

The Proposed 2041 Road Network is illustrated on **Map 8** with the associated phasing provided on **Maps 16** through **Map 19** (located in the Maps section).

The focus of the proposed road network is to make strategic road improvements that add capacity, address traffic bottlenecks, complete missing links and optimize system performance.

9.3.1 Four-lane Roads

As York Region's urban areas expand to accommodate population and employment growth to 2041, there will be a need to improve the existing network of roads serving new communities. The expansion of the four-lane network in a phased manner to coincide with development will achieve a number of objectives including:

- Ensuring a continuous grid of multimodal streets within the growing urban area
- Facilitating active transportation improvements, as part of road construction, consistent with the Region's context sensitive solutions approach
- Expanding capacity in line with population and employment growth
- Improving connectivity and efficiency of roads that serve longer distance trips between communities and between adjacent municipalities

9.3.2 Major Arterial Network

Maximizing person-carrying capacity on the arterial road network is essential to accommodate growth and manage congestion. In addition to providing rapid transit, approaches for maximizing person-carrying capacity include introducing transit priority measures and adding or converting existing general purpose lanes to High Occupancy Vehicle (HOV) lanes.

Traffic congestion on Rutherford Road in the City of Vaughan

The proposed six-lane road network supports the proposed rapid transit network by expanding capacity in parallel corridors to provide for HOV and/or transit priority lanes.

The six-lane network is based on the Region's existing policy of expanding capacity beyond four lanes only for the addition of HOV or transit-only lanes. Additional lanes would generally begin as HOV lanes and then be converted to transit-only lanes where volumes/ridership warrant conversion.

For existing six-lane corridors, lanes could be converted to HOV or transit-only lanes if/when thresholds for combined transit and HOV volume are met. This conversion supports mode shift from single occupant vehicles to transit and HOV usage in the corridor.

9.3.3 Special Study Areas

The road network and phasing maps identify four special study areas:

Woodbine Avenue. Woodbine Avenue between Highway 7 and 16th Avenue is an area that will be subject to significant change given the redevelopment of Buttonville Airport. The TMP identified a need to widen Woodbine Avenue to six lanes to address vehicular demands however the existing Buttonville heritage area is recognized as a key constraint to widening. At the same time, Woodbine Avenue is also a candidate for rapid transit to support the transit-oriented development of Buttonville and to provide an effective north-south transit option connecting residential areas in north Markham to employment areas to the south.

As plans for Buttonville are advanced, further assessment of alternatives for this corridor will be analyzed respecting the many trade-offs in terms of capacity expansion, rapid transit provision and heritage protection.

Pine Valley Drive. The missing link of Pine Valley Drive between Langstaff and Rutherford Road creates challenges for network connectivity in the western part of Vaughan. This missing link has been the subject of study since before the 2009 TMP.

In February 2006 the Ministry of the Environment and Climate Change approved the EA Terms of Reference for the Pine Valley Drive Corridor, including a condition stipulating that any alternative through the Boyd Conservation Area could not be considered in the EA. Based on the approved EA Terms of Reference for the Pine Valley Drive Transportation Corridor, the Western Vaughan Individual Environmental Assessment (IEA) was initiated in 2007 to explore alternatives to address the transportation deficiencies in western Vaughan to the 2031 horizon year. The study area for the Western Vaughan IEA was bounded by Steeles Avenue to the south, Teston Road to the north, Highway 50 to the west and Highway 400 to the east. The Western Vaughan IEA was completed in 2011 and approved by the Ministry of the Environment and Climate Change in July 2012.

Subsequent to the Minister's Decision on the EA Terms of Reference which excluded the consideration of any alternative through the Boyd Conservation Area, the City of Vaughan declared the original road allowance of Pine Valley Drive between Rutherford Road and Club House Road as surplus lands and authorized the conveyance of those lands to the Toronto and Region Conservation Authority for the purpose of the protection and enhancement of the surrounding natural environment. The subject lands were conveyed by the City of Vaughan to the Toronto and Region Conservation Authority in 2009.

Analysis undertaken as part of this TMP, which includes 10 years of additional growth to the 2041 horizon year, indicates that there will be transportation deficiencies in north-south capacity in the Pine Valley Drive corridor area. In recognition of this need and respecting that no options for connecting Pine Valley on the traditional grid are viable, a future study is recommended to examine solutions to 2041.

Davis Drive Area. The general area to the north and south of Southlake Regional Health Centre and east of Main Street to Leslie Street is constrained in terms of network capacity. This area will be subject to further analysis undertaken jointly by the Town of Newmarket and the Region to address broader north/south and east/west capacity and collector network improvements both within and outside the Urban Centres. The study will include

a detailed analysis to identify a preferred option for a direct connection between Prospect Street and Bayview Parkway as well as necessary modifications to signalized intersections. The study may be conducted as part of a Mobility Hub Station Area Plan.

The increasing frequency of crossings of GO Trains across Davis Drive and the associated delays to both cars and transit vehicles have been identified as key issues and follow-on studies are needed to explore alternative solutions.

Kirby Road. Kirby Road is currently a two-lane rural local municipal road providing east-west access through North Vaughan. It forms the northern boundary of the Block 41 and Block 27 expansion areas and, as a result, is part of the future urban area. While Kirby Road is largely continuous, there is a missing link between Bathurst Street and Dufferin Street.

Various plans, including the City of Vaughan Transportation Master Plan, have identified the Kirby Road missing link as a deficiency. This deficiency is related to both capacity and connectivity. The impact of the Kirby missing link on connectivity will increase over time as development in northern Vaughan proceeds. Kirby Road is also part of an emerging east-west link comprised of Donald Cousens Parkway, 19th Avenue, Gamble Road and the potential GTA West corridor. There is also a potential future GO Station at Keele Street.

Despite the growing importance of Kirby Road, it is also recognized that the missing link traverses largely undeveloped lands including an Environmentally Significant Area and an Area of Natural and Scientific Interest. As such, it is proposed that this area be identified for a special study to further evaluate potential solutions to address transportation needs in the context of environmental protection.

15th Sideroad. 15th Sideroad is a two-lane rural concession road that runs east-west parallel to and north of King Road. At Bathurst Street, 15th Sideroad connects directly opposite Bloomington Road which extends east to the York/Durham Boundary. From Bathurst Street west to Keele Street, 15th Sideroad is under the jurisdiction of York Region. West of Keele Street, 15th Sideroad is under the jurisdiction of the Township of King and is discontinuous between Keele Street and Jane Street and is discontinuous again at Highway 400.

There is a growing need to improve east-west road capacity in the central part of York Region. 15th Sideroad is one of the corridors short-listed in the Mid-York East-West Transportation Improvements Feasibility Study completed by the Region in 2012. The Feasibility Study recommended that the short-listed corridor alternatives be further considered in a future environmental assessment.

The TMP has identified the missing road segment of 15th Sideroad between Keele Street and Jane Street as a deficiency in the road network. This deficiency is related to both capacity and connectivity. The TMP recognizes that the 15th Sideroad missing segment traverses largely undeveloped lands including an Environmentally-Significant Area and an Area of Natural and Scientific Interest. As such, it is proposed that this area be identified for a special study to further evaluate potential solutions to address transportation needs in the context of environmental protection.

9.3.4 Mid-block Crossings

The wide, two-kilometre spacing of York Region's arterial road network is an outdated concession road system developed more than a century ago. Many of York Region's communities are contained in blocks bounded by former concession roads, which now carry the bulk of traffic. In some areas, access from Regional roads into neighborhoods tends to be through congested intersections with a limited number of mid-block collector roads. Development of a finer-grid Regional road network will allow the Region to improve the attractiveness and efficiency of transit routes within communities, improve walkability within and between adjacent neighborhoods and reduce congestion at community access points along arterial roads. A finer grid network would mean that collector and Regional roads are one kilometre apart or less. All travel modes would have additional route options and reduced travel time.

Working with MTO and local municipalities, the Region will play a role in the protection and delivery of a series of mid-block crossings over both Highway 400 and Highway 404. Mid-block crossings will be programmed as part of the Region's rolling 10-Year Capital Construction Program according to need and prioritization among all required roads-related capital improvements.

In consideration of the impacts that mid-block crossings may potentially have on established communities, the Region will continue to work alongside local municipalities to ensure that a collaborative and context-sensitive approach is applied to the design of any future mid-block crossings. This approach will ensure that the safe movement of pedestrians, cyclists and transit vehicles will be accommodated and that the structure will be compatible with adjacent existing residential communities.

In the long-term, the Region will continue to protect for a future mid-block crossing over Highway 400 in Block 32, between Rutherford Road and Major Mackenzie Drive in Vaughan. A mid-block collector road crossing of Highway 400 in this location will provide additional east-west connectivity to help relieve congestion and provide mobility options for residents of established communities and planned new communities. It will also support other future land use changes, such as the new hospital.

Understanding that a number of capacity upgrades are required to help ease congestion in the short-term, such as the expansion of Rutherford Road and Major Mackenzie Drive and the extension of Bass Pro Mills Drive, the TMP proposes to deliver the Block 32 crossing within the 2031 to 2041 time horizon.

9.3.5 Missing Links

The Regional road network is set on a grid with several missing links, leading to circuitous routing by users and contributing to more congestion and emissions. The TMP strives to fix the gaps and complete the grid network by planning for construction of these missing road connections.

In response to input provided by Toronto and Region Conservation Authority, the Region will ensure that all new crossings of the Natural Heritage System, including Teston Road between Keele and Dufferin Street, Kirby Road between Bathurst Street and Dufferin Street and 15th Sideroad between Keele Street and Highway 400, will undertake environmental assessments. These assessments will include a detailed network analysis to support the need for the project and an analysis of alternative solutions (i.e., revisit Phases 1 and 2 of the MEA Class EA process at the project specific EA phase), subject to the transfer of road jurisdiction from the local municipality to the Region, where applicable.

During the EA phase for new crossings of the Natural Heritage System, the Region will work with Toronto and Region Conservation Authority and other stakeholders to look at opportunities to design crossings using innovative approaches for mitigation of impacts to the Natural Heritage System, including restoration and compensation for losses, where applicable.

9.4 Cycling Network Phasing

The TMP integrates key elements of the Region's 2008 PCMP and strengthens the Region's role in providing on-road and off-road facilities for walking and cycling.

The Proposed 2041 Cycling Network is presented in **Map 9** (located in the Maps section). It focuses on building Regional networks, improving connections within Regional centres and to major destinations, improving access to public transit services and encouraging consistency among Regional road corridors.

The TMP recommends accelerating the implementation of the cycling network by developing a shorter term Proposed Ten Year Cycling Network presented in **Map 10** (located in the Maps section). The intent of the Proposed Ten Year Cycling Network is to provide a prioritized network for implementation over the shorter-term (ten-year horizon). While the ultimate cycling network provides the overall vision for York Region, the strategic network aims to provide a high-quality, connected short-term network to support immediate modal shifts.

Chapter 10 Implementation and Action Plan

In this chapter:

10.0 Implementation and Action Plan

10.1 Implementation Process

10.1.1 How we get from 2016 to 2041

The TMP provides direction in a number of cross-cutting areas to both guide and enable its successful implementation. Foremost among these is the need to collaborate effectively with other levels of government, institutions, the private sector and the general public. The Region will also need to seek stable, adequate funding for the TMP's many infrastructure and service elements. As it implements the plan, the Region will strive to meet high levels of environmental protection and to inform and consult with residents and stakeholders in a meaningful way. Finally, the TMP will identify ways that the Region can both optimize its success and maintain accountability by monitoring and reporting on its actions and their outcomes over time.

10.1.2 Project Delivery and Integration with Environmental Assessment Process

Environmental Assessment (EA) legislation requires the Region to identify and mitigate impacts of transportation construction projects on all aspects of the environment. All projects identified in the TMP are subject to various EA legislation and processes including:

- Ontario Environmental Assessment Act
- Ontario Regulation 231/08 - Transit Project Assessment Process, 2008
- Municipal Engineers Association Municipal Class Environmental Assessment, October 2000 (Class EA, amended 2007, 2011 and 2015)
- Canadian Environmental Assessment Act, 2012 (CEAA)

All municipal transportation infrastructure projects are subject to requirements under the Environmental Assessment Act. For most road projects, these requirements are addressed through completion of a Municipal Class EA. For transit infrastructure, the requirements of the Environmental Assessment Act can be addressed through completion of a Municipal Class EA or through the Transit Project Assessment Process (O.Reg. 231/08). Any project involving federal land or funding is subject to the requirements of the CEAA.

This TMP has followed the Municipal Class EA Master Plan process thereby fulfilling the requirements of Phases 1 and 2 of the Municipal Class EA process for roads including the identification of problems and opportunities and the selection of preferred solutions. Project sheets for each infrastructure project describing its impacts and the rationale for the preferred alternative are included in Background Report E. The TMP and its background technical reports will become supporting documents for future EA work. Projects that have not completed the EA process will require additional study including public and stakeholder consultation before design and construction can proceed.

The Municipal Class EA process recognizes that it is beneficial to begin the planning process for infrastructure by considering groups of related projects or overall systems before dealing with project specific issues. Master Plans provide for this system-wide approach to infrastructure planning and, at the same time, integrate environmental assessment principles.

Projects that are limited in scale and have few/minimal environmental effects are categorized in the Municipal Class EA under Schedule A and A+ and are pre-approved and can proceed to implementation. Examples include installation of traffic signals, operational improvements at specific locations including turning lanes, construction of new parking lots below a specified cost threshold, re-designation of existing traffic lanes, construction of a transit loop, construction of sidewalks and bike paths.

Projects that have the potential for some adverse environmental effects are categorized in the Municipal Class EA under Schedule B, making available a Project File for public review is required to fulfill the requirements of the Municipal Class EA process. This can be done at the completion of a Master Plan. The majority of Schedule B projects are typically integrated within larger capital projects and the resulting larger project generally falls under Schedule C of the Municipal Class EA. Therefore, public filing of Schedule B projects will be addressed subsequent to completion of this TMP as needed. Examples of Schedule B projects include reconstruction and expansion of small water crossings and construction of new roads that cost less than $2.4 million.

Projects that have the potential for significant adverse environmental effects are categorized in the Municipal Class EA under Schedule C. Additional study is required following completion of the TMP in order to fulfill Phases 3 and 4 of the Municipal Class EA for these projects. This will include development of alternative design concepts for the preferred solution and completion of an Environmental Study Report. During the follow-on Class EA process, Phases 1 and 2 that have been addressed during the Master Plan can be revisited if warranted by significant changes to existing conditions or changes to background assumptions that were not anticipated during the Master Plan process.

A significant amount of effort has gone into ensuring that the TMP addresses environmental assessment planning principles. Project specific information is summarized on project sheets for each proposed capital project, including the project need and justification, alternatives considered, the preferred alternative, summary of the existing environment and potential impacts to sensitive environmental features. Integral to this has been the consideration of natural environmental factors at the broader network planning level and at the more detailed project specific level.

10.1.3 Road Right of Way Protection

The basic road allowance width of Regional roads is provided in York Region Official Plan Map 12 (to support Transit/High Occupancy Vehicle (HOV) lanes, cycling facilities, rapid transit, additional transit priority measures and road widening). The Regional road system is coordinated with the Provincial and local municipal road systems to protect the right-of-way for future system improvements and to recognize that the required rights-of-way will include pedestrian and bicycle movements, as well as above and below ground utilities.

10.2 Effects of the Plan

10.2.1 Mobility

Meeting the mobility needs of existing and future residents and workers of York Region will require a combination of investments in transportation networks to increase capacity and policies to manage demand including encouraging use of alternative modes of travel.

Between now and 2041, York Region's population and employment will increase by 50% and 55% respectively. In comparison, the plan proposes to increase the total lane-kilometres of Regional roads from approximately 3,200 km to 3,900 km, or 22%. The percentage increase in lane kilometres is approximately 26% when planned provincial facilities are factored in. See **Exhibit 10.1** for a summary of the proposed changes to the road network in York Region.

This measured increase in road capacity is a reflection of the key objectives of the plan to leverage investments in rapid transit, maximize the efficiency of the existing road network through congestion management and make active transportation a more convenient option. Widening of four lane roads to six lane roads will create a network of HOV lanes and support the Frequent Transit Network where traffic volumes warrant.

		Existing (2015)	Future (2041)
JURISDICTION	**TYPE**	**LANE-KM**	**LANE-KM**
Regional	2-Lane	1,294	855
Regional	4-Lane	1,588	1,959
Regional	6-Lane	316	1,078
	Subtotal	***3,198***	***3,892***
Non-regional (upload candidate)	2-lane	82	26
Non-regional (upload candidate)	4-lane	0	165
Non-regional (upload candidate)	6-lane	0	13
	Subtotal	***82***	***204***
Toronto (Steeles Ave)	2-lane	14	0
Toronto (Steeles Ave)	4-lane	79	122
Toronto (Steeles Ave)	6-lane	76	54
	Subtotal	***170***	***176***
Provincial	2-lane Highway	15	11
Provincial	4-lane Highway	14	83
Provincial	Multi-lane Freeway	966	1,279
	Subtotal	***995***	***1,373***
	Total	***4,445***	***5,644***

Exhibit 10.1: *Summary of road network changes*

Despite investments in road capacity, it can be expected that travel times by auto will still increase over time. This is to be expected and may form part of the overall strategy to encourage more sustainable travel choices.

Exhibit 10.2 provides a snapshot of the implications of the TMP compared to the current situation, a 2041 Do Nothing (minimum investment) scenario and 2041 base scenario (committed improvements). (See Background Report C - Future Needs Assessment Report for description of Base Scenario). Results are presented by short, medium and longer trips and reflect the different types of travel that York Region residents and employees make.

For short trips less than 5 kilometres, travel by transit will improve compared to today, largely a result of increases in transit service levels and expansion of the frequent transit network. For short trips, travel by auto may still be faster than transit but this does not account for the cost and inconvenience of finding parking, nor does it account for strategies that will promote healthy lifestyles.

For medium distance trips, travel by transit will become more attractive as a result of the recommended plan. Improvements will be greater for residents and employees living and/or working on rapid transit corridors. On average, travel times by automobile will degrade slightly under the recommended plan, but not as significant as would be the case under the 2041 Do Nothing scenario which would see a 60-75% increase in auto travel times. In congested areas, travel by transit will be competitive with automobiles.

For longer distance trips, such as trips from York Region to Downtown Toronto, the effect of investments in subways, RER and rapid transit corridors is evident. Transit is already highly competitive for many longer distance trips and its attractiveness will continue to improve relative to automobiles as GTHA-wide congestion increases.

INDICATOR	EXISTING	2041 DO NOTHING	2041 BASE	2041 RECOMMENDED
Short (0-5 km)				
Transit travel time	23	27	22	20
Auto travel time	5	8	7	6
Transit Mode Share	4.0%	4.0%	6.0%	6.5%
Medium (5-15 km)				
Transit travel time	49	49	42	40
Auto travel time	15	24	20	17
Transit Mode Share	4.5%	4.5%	5.6%	7.0%
Long (> 15 km)				
Transit travel time	75	86	70	67
Auto travel time	35	61	50	42
Transit Mode Share	17.0%	17%	24.0%	25.0%

Exhibit 10.2: *Impacts of plan on mobility (average trip time in minutes and transit mode share)*

10.2.2 Natural Environment and Cultural Heritage

As outlined in Chapter 2, protecting the natural environment was a key consideration in developing the TMP. Key strategies identified in the TMP which serve to reduce the impact of the transportation system on the natural environment include:

- Continued investment in rapid transit corridors which is critical to meeting intensification targets and supporting complete communities
- Adopting a corridor evolution approach which is based on moving more people using less space and only expanding road capacity when thresholds are met
- A congestion management plan which optimizes the efficiency of existing infrastructure
- Strategies to manage transportation demand by focusing on "the last mile"

Follow-on Environmental Assessments will serve to further assess the localized impacts of specific projects on the natural environment and required mitigation measures. These impacts would include water quality, quantity and mitigation with respect to storm water management.

Project sheets included in Background Report E serve to identify potential impacts going beyond the normal level of detail for a Master Plan.

10.2.3 Air Quality and Greenhouse Gas Emissions

Improvements in vehicle technologies have greatly reduced emissions of criteria air contaminants. Ontario's 2014 Air Quality Report shows that air quality has improved significantly over the past ten years, especially for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and carbon monoxide (CO) – pollutants emitted by vehicles, as well as fine particulate matter ($PM_{2.5}$). Emissions of nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and carbon monoxide (CO) are all down by more than 40% since 2004. Transportation related emissions are projected to continue on a downward trend despite the projected increase in the number of vehicles. As there is no acceptable level of exposure, there is still a significant concern because of the health impacts from local traffic-related air pollution.

Historically, the assessment of air quality impacts have been undertaken for each road and transportation project as part of Phase 3 of the Class EA process. These assessments look at the effects of the individual project on air quality, in comparison to background conditions. The TMP recommends a preferred solution that focuses on improving travel mode shares for transit, walking and cycling which will have a positive effect on air quality in York Region.

Greenhouse gas emissions (GHG) also remain a major concern. Even with projected improvements in fuel efficiency and mode shifts to transit, walking and cycling, GHG emissions from transportation are projected to increase by 45% by 2041 in absolute terms. On a per capita basis, GHG emissions are projected to decrease by 14%. The Ministry of Environment and Climate Change are currently working on guidelines for incorporating consideration of climate change in environmental assessments.

10.2.4 Communities

Transportation has many direct and indirect impacts on communities. Aspects of this TMP that will have a positive impact on communities include:

- Completion of missing links and new interchanges which will help reduce short-cutting through nearby neighbourhoods where such connections are missing
- Implementation of the finer grid network strategy
- Expansion of pedestrian, cycling and trail networks
- Adoption of a Designing Great Streets strategy and associated design typologies
- Identification and protection of road and transit corridors required for the long term

Despite these positive impacts, it is essential to recognize potential negative impacts. Many projects will require property acquisition, the extent of which can only be determined through detailed corridor planning and design. Impacts to communities may also occur as a result of converting existing rural two lanes roads to urban cross-sections.

As with natural and cultural heritage, Phase 3 of the EA process will serve to refine the identification of community impacts and make recommendations for mitigation.

10.2.5 Economy

An efficient and interconnected transportation system that provides a range of travel options is critical to maintaining the economic competitiveness of York Region. The TMP is based on the need to accommodate approximately 325,000 additional jobs by 2041. Maximizing the potential of employment areas is one of the five key objectives of this plan.

As detailed in Section 10.3, the TMP will require an investment of $22 billion for transit, road and active transportation infrastructure between now and 2041. These investments will result in significant economic gains at the regional, provincial and national level. A 2012 report prepared for Metrolinx on Big Move Implementation Economics[13] cites that the direct and indirect economic impacts resulting from $2.47 billion of capital investments in public transit across Canada in 2007 lead to an increase in economic output of $3.7 billion, implying a multiplier of 1.49 (excluding induced effects). It can be expected that a similar multiplier would apply to investments in transit in York Region.

A more recent study prepared by the Centre for Economic Analysis[14] concluded that a $1 billion investment in Ontario's infrastructure is estimated to generate approximately 85,000 jobs in the province. A $1 billion investment in Ontario's infrastructure was also shown to generate an additional $1.7 billion in provincial taxation revenue and $1.6 billion in federal revenue.

Investments in transportation capacity, coupled with demand management strategies, will also reduce congestion levels and the associated negative economic impacts. It is estimated that congestion in the GTHA costs business and residents $6 billion every year[15].

Investments in transit, walking and cycling infrastructure will also reduce household expenditures on transportation by ensuring residents can select the most cost effective mode of transportation. Households that are able to reduce car ownership as a result will realize further savings.

10.2.6 Collaboration and Communication

The success of the Region's TMP is heavily dependent on partnerships with other levels of government. The implementation of Regional Express Rail and new provincial highway facilities will require continued cooperation with Metrolinx and the Ontario Ministry of Transportation. Throughout the implementation of these major infrastructure projects, it is important to keep residents, staff and key stakeholders informed and aware of short term impacts.

More so than ever, cooperation is required from local municipalities. This TMP identifies several key policy changes that will require the support and ongoing involvement of local municipal staff. Initiatives around active transportation, Travel Demand Management and last-mile solutions will involve policy changes and actions that cross-over traditional jurisdictional responsibilities.

10.2.7 Asset Management and Lifecycle Costing

Over the last decade, there has been growing concern about the financial sustainability of community infrastructure. Infrastructure assets, particular transportation assets, present unique challenges.

- Their condition and longevity can be difficult to determine
- Financing needs can be large, requiring planning for large peaks and troughs in expenditures for renewing and replacing such assets
- Demand for new and improved services adds to planning and financing complexity

This TMP has estimated the incremental cost of maintaining and rehabilitating new transportation infrastructure (or expanded transportation infrastructure) needed to serve growth consistent with Provincial requirements, Regional Council's adopted Asset Management Policy and the 2013 Transportation Asset Management Strategy. The costing approach accounts for minor and major rehabilitation of road projects over time and, together with estimated capital and operating costs, allows for an overall lifecycle cost for each project to be calculated.

Umphrey Bridge rehabilitation

10.3 Costs of the Plan

The proposed elements comprising the transportation networks and associated programs represents a significant investment. This investment is required to meet the needs of a growing region.

10.3.1 Capital Costs of the Plan

The recommended networks and related programs will require $8.9 billion for transit and $7.6 billion for road related expenditures. These represent gross costs, excluding contributions from senior levels of government. A breakdown of the costs is provided below.

COMPONENT	ESTIMATED TOTAL CAPITAL COST
vivaNext Rapidways, Bus Rapid Transit corridors	$4,975 million
Yonge Subway (north of Steeles)	$3,090 million
Transit facilities/fleet (expansion)	$823 million
Transit subtotal	***$8,888 million***
Roads	$7,460 million
Cycling and Major Trails	$126 million
Roads subtotal	***$7,586 million***
Transit And Roads Subtotal	***$16,474 million***
Rapid Transit	$735 million
Transit	$1,154 million
Roads	$3,750 million
State of Good Repair Subtotal	***$5,639 million***
Total Cost	***$22,113 million***

Exhibit 10.3: *Capital cost estimate to implement plan (2016 dollars)*

10.3.2 Operating Costs of the Plan

Accounting for lifecycle costs of new infrastructure is critically important. Capital costs must be balanced with the need to maintain and renew existing infrastructure. In the first 5 years of the plan, the annual incremental operating and maintenance cost is approximately $3.4 million for new road projects added. This will increase to $11.1 million per year for 2022 to 2026, $18.5 million per year for 2027 to 2031 and $30.9 million beyond 2031. These costs account for operating costs (e.g. snow clearing, street sweeping, etc.) as well as periodic rehabilitation (e.g. road resurfacing). Transit operating costs are primarily related to vehicle operations, although there will be increased costs associated with maintaining rapidways.

10.3.3 Funding the Plan

Governments around the world, including the Province of Ontario and the Region, are facing challenges with respect to funding infrastructure and other programs. New sources of funding and new ways of delivering services will have to be explored to ensure continued affordability and sustainability. The Region will continue to collaborate with the other levels of government, the development industry and other business partners to find funding solutions and infrastructure delivery methods that provide the most efficient and effective results.

The Region currently funds Roads and Transit capital costs with a combination of development charges, tax levy and funding from other levels of government, including grants. Operating costs are funded through a combination of operating revenues and tax levy.

In order to meet the capital requirements of the proposed infrastructure to support growth to 2041 and meet the objectives of Vision 2051, the York Region Official Plan (2010), the 2015 to 2019 Strategic Plan and to support worldwide climate change initiatives, the Region will need to examine the impact on current funding sources and identify potential alternative funding within the context of long-term fiscal sustainability.

The following alternative sources of revenue are not currently available to the Region and would require Provincial legislative changes or regulation in order to implement:

- ***Land Transfer Tax*** – Event-based tax paid by property owners at the time of purchase. The Province currently charges a land transfer tax for all land purchased, with some exceptions. The City of Toronto is the only municipality allowed to levy a separate and distinct rate from the Province per the City of Toronto Act, 2006
- ***Land Value Capture*** – A measure to capture the increased value of land and development generated by improved accessibility of transit
- ***Road Pricing*** – A variety of road related levies, including road tolls, high occupancy road tolls, cordon tolls (congestion charges) and emerging vehicle use fees.
- ***Sales Taxes*** – Additional fees levied on various goods and services at the provincial and federal level. Alternative to a separate sales tax within York Region, a set increase in the federal or provincial tax could be dedicated to transit improvements
- ***Vehicle Licensing/Registration Fees*** – Fees placed on owners of vehicles, straightforward and relatively easy to administer through the existing provincial system. This can includes Driver's License Tax and Vehicle Registration Fees
- ***Parking Related Charges*** – Fees and/or taxes levied against parking and dedicated to transportation funding.
- ***Other*** – Consideration for a Road "rate" to fund operating costs

The Region will continue to work with other levels of government to determine the most appropriate means to fund the capital and operating costs to service mandated growth to 2041.

10.4 Public Engagement and Education

During the development of the TMP, there was a significant level of community and stakeholder engagement. York Region residents engaged in discussions about how York Region will move in the future. It is important to ensure that implementation of the TMP also includes ongoing involvement from the community. The annual review of progress towards implementing the TMP will include feedback from the public and stakeholders regarding Region-wide transportation issues and TMP projects that have been implemented. Communications, education and marketing materials will also need to be developed to promote initiatives outlined in the TMP.

To the extent possible, engagement on TMP implementation will be combined with other processes such as YRT/Viva initiatives, cycling events and events by other departments at the Region to maximize exposure. It is also proposed that a Transportation Summit be organized each year to bring together partners involved in implementing the TMP actions to share successes and to identify emerging opportunities.

10.5 Action Plan

Timely implementation of actions will be critical to ensuring the TMP remains a living document. **Exhibit 10.4** summarizes those enabling actions along with their timing, leads, required partners and anticipated level of effort.

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
OBJECTIVE 1: CREATE A WORLD CLASS TRANSIT SYSTEM								
A1	Implement Rapid Transit network	✓	✓	✓	YRRTC	Metrolinx, MTO	High	High
A2	Regularly update the Viva Network Expansion Plan (VNEP) to improve and expand Viva services outside the rapidway network	✓	✓		YRRTC, YRT/Viva	TS	Medium	High
A3	Deliver a program of transit priority measures including, but not limited to, reserved bus or high-occupancy vehicle (HOV) lanes that maximize the speed and reliability of Frequent Transit Network (FTN) routes that operate on shared rights-of-way	✓	✓	✓	TS	YRT/Viva, TS	High	High
A4	Undertake a Ridership Growth Strategy to evaluate opportunities for increasing transit ridership within a fiscally-sustainable framework	✓			YRT/Viva	FD	Low	Low

Exhibit 10.4: *Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A5	Implement a Low Demand Transit Strategy that clarifies and improves the family of services offered to transit customers in low demand areas	✓			YRT/Viva	Metrolinx	Medium	Medium
A6	Launch a review of YRT/Viva's fare strategy in 2016 to address cost-recovery objectives, system-wide PRESTO implementation and customers' ability to pay options	✓			YRT/Viva	FD	Low	Low
A7	Restructure existing YRT/Viva services to improve access to GO Transit stations, supporting GO Transit's all-day schedules and the Regional Express Rail (RER) program		✓		YRT/Viva	YRRTC, Metrolinx	Medium	Medium
A8	Work with Metrolinx/GO Transit to coordinate the delivery of highway bus services while recognizing these services have potentially lower cost recovery ratios than conventional YRT services		✓		YRT/Viva	Metrolinx, MTO	Medium	Medium
A9	Through the established Transit Optimization Program (TOPs), work with Metrolinx/ GO Transit to ensure the successful introduction of RER	✓			TS, YRRTC	Metrolinx	High	High
A10	Develop service and fare integration agreements with Brampton Transit (Region of Peel), Durham Region Transit (Region of Durham) and Metrolinx.	✓			YRT/Viva	Metrolinx	Medium	Low
A11	Work with TTC to improve the customer experience on cross-boundary trips, integrate YRT/Viva routes and fares with future subway extensions, optimize efficiency of contracted cross-border services and explore new opportunities for cross-border routes such as between Markham and Scarborough	✓			YRT/Viva	TTC	Medium	Medium
A12	Develop a Commuter Parking Management Strategy	✓			TS, YRT/Viva	YRRTC, Metrolinx	Low	Low

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

	ACTIONS	TIMEFRAME SHORT	TIMEFRAME MEDIUM	TIMEFRAME LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A13	Develop an implementation plan that identifies actions, timelines and resources for the modification and expansion of Park 'N' Ride facilities	✓			TS, YRT/Viva, YRRTC	Local Municipalities	Low	Low
A14	Work with partners toward the creation of Park 'N' Ride facilities to serve YRT/Viva customers, and possibly carpoolers, using lands either leased or owned by the Region		✓		TS, YRT/Viva, YRRTC	Local Municipalities	Medium	High
A15	Periodically update service guidelines and performance indicators to inform customer expectations and enable effective planning and operational decisions		✓		YRT/Viva	TS	Low	Low
A16	Review and update Rapid Transit station design guidelines to integrate features that maximize safety, comfort and convenience for transit customers who travel their first and last mile using another mode	✓			YRRTC	TS, Metrolinx	Low	Low
A17	Work with local municipalities and other stakeholders to develop a strategy that maximizes the year-round accessibility of all YRT/Viva stops by 2026	✓	✓		TS	MP, Local Municipalities	Medium	Medium
A18	Collaborate with Metrolinx, the City of Toronto and the TTC to study a possible subway extension in the Jane Street, Major Mackenzie Drive and Yonge Street corridors, linking the Spadina and Yonge Street Subways		✓		TS, YRRTC	Metrolinx, TTC	Medium	Medium
OBJECTIVE 2: DEVELOP A ROAD NETWORK FIT FOR THE FUTURE								
A19	Update the Region's Transportation Impact Study Guidelines for Development Applications (2007) to emphasize the goals for sustainable transportation	✓			TS	Local Municipalities	Low	Low

Exhibit 10.4: *Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A20	Develop HOV and transit passenger volume thresholds for any proposed road widening to six-lanes	✓			TS	YRT/Viva	Low	Low
A21	Develop HOV and transit passenger volume thresholds for converting existing general purpose lanes to HOV/Transit lanes or reserved bus lanes on existing four-lane and six-lane roads	✓			TS, YRRTC	YRT/Viva	Low	Low
A22	Define the infrastructure requirements for roads, transit and active infrastructure networks, including 400-series highway crossings and ramp extensions	✓			TS	MTO	High	High
A23	Work with MTO to advance the planning and design of the GTA West corridor and Highway 400/404 Link, as well as extensions to Highways 404 and 427	✓			TS	MTO	Low	Low
A24	Undertake a Road Classification Study that, among other outcomes, will assign a context sensitive street type to each Regional road segment	✓			TS	Local Municipalities	High	Low
A25	Review and update Regional street design guidelines, standards and processes to better integrate the context sensitive solutions toolbox and better serve community needs	✓			TS	Local Municipalities	Low	Low
A26	Review and update the Region's "Access Guideline for Regional Roads" to ensure a balance between safe, efficient traffic movement and the needs of pedestrians, cyclists, transit users and adjacent development	✓			TS	Local Municipalities	Low	Low
A27	Integrate Great Street Design process into Capital Planning and Delivery	✓			TS	Local Municipalities	Low	Low

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A28	Develop an Arterial Road Classification Study to establish the role and function of the Major Arterial, Minor Arterial and Major Collector road network in York Region. Major Arterial and Minor Arterial roads should remain under the Region's jurisdiction. Major Collector roads should remain under local jurisdiction. The Arterial Classification Study should establish the Region's interest and role in protecting the transportation function provided by the Major Collector Road system	✓			TS	Local Municipalities	Low	Low
A29	Review existing turning restrictions and vehicle type restrictions on the Regional road network and consider removal of these restrictions where they are not warranted for network optimization or asset preservation purposes	✓			TS	Local Municipalities	Low	Low
A30	Establish a Develop Charge funded reserve to support establishment of a finer grid network	✓			FD	TS	Low	Low
A31	Develop a long term congestion management plan that incorporates existing and emerging technologies to optimize, expand and transform the people moving capacity of Regional corridors	✓			TS	YRT/Viva	Medium	Medium
A32	Review the Region's "ITS Strategic Plan" and develop a new Advanced Traffic Management Systems Plan that applies existing and emerging technologies to optimize the movement of people and vehicles on Regional roads	✓			TS	YRT/Viva	Medium	Medium

Exhibit 10.4: *Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	TIMEFRAME MEDIUM	TIMEFRAME LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A33	Update relevant bylaws to prohibit parking on Regional roads unless explicitly permitted by signs. Consideration will be given to ensure a balance between the available right-of-way, the safety and mobility needs of all road users and the nature of adjacent land uses		✓		TS	YRT/Viva	Low	Low
A34	Consider the introduction of stormwater management and water balance measures to counter the adverse impacts of urbanization		✓	✓	TS	ENV, MNRF, LSRCA, TRCA, Local Municipalities	Medium	Medium
A35	Coordinate the Region's road and transit networks, as well as planning regimes with the local and adjacent municipalities, to minimize infrastructure needs and enhance natural heritage and environmental features and functions	✓	✓	✓	TS	YRT/Viva, YRRTC, Metrolinx, Local and Adjacent Municipalities	Medium	Medium
A36	Improve environmental functions and habitat connectivity through upgrades of existing crossing structures that are sized as 'eco-passages' to facilitate wildlife movement		✓	✓	TS	ENV, MNRF, TRCA, LSRCA	Medium	High
A37	Design transportation facilities to celebrate the environment, through preservation of view corridors, design of bridges to highlight the presence of watercourses and other elements		✓	✓	TS	ENV, MNRF, TRCA, LSRCA	Medium	High
A38	Review and update the Region's maintenance management policies and practices to ensure that these minimize damage to the natural environment while still providing a safe transportation environment	✓			TS	ENV	Medium	Medium

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

	ACTIONS	TIMEFRAME SHORT	TIMEFRAME MEDIUM	TIMEFRAME LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A39	Utilize Environmental Best Management Practices to minimize the impact of road construction on the environment	✓	✓	✓	TS	ENV, Local Municipalities	Medium	Low
A40	Develop environmental protection measures for transportation system elements to reduce vehicular-animal interaction and impact on animal pathways	✓	✓	✓	TS	ENV, MNRF	Medium	Medium
A41	In rural areas, consider roadside plantings to discourage habitat immediately adjacent to infrastructure that would conflict with wildlife		✓		TS	ENV, MNRF	Medium	Medium
A42	Enhance, preserve and maintain greenways to the extent possible in accordance with Provincial legislation requirements	✓	✓		TS	ENV	Medium	Medium
A43	Work with the local municipalities and developers to minimize the effects of parking facilities on the natural environment	✓	✓		TS	Local Municipalities, BILD	Medium	Medium
A44	Introduce roadside warning signs in areas of significant wildlife movement	✓			TS	MNRF	Low	Low
A45	Implement temporary or seasonal speed limits in high wildlife mortality zones	✓	✓		TS	MNRF, Local Municipalities	Low	Low
A46	Develop a roadway directional lighting strategy that avoids too much lighting in environmentally vulnerable sites	✓	✓		TS	MNRF, Local Municipalities	Medium	Medium
A47	Identify and prioritize a list of projects to address traffic bottlenecks in the network	✓	✓		TS	Local Municipalities	Low	Low
A48	Conduct before and after studies for traffic pinch point and bottleneck projects to quantify the improvements	✓	✓		TS	Local Municipalities	Low	Low

Exhibit 10.4: *Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
OBJECTIVE 3: INTEGRATE ACTIVE TRANSPORTATION IN URBAN AREA								
A49	Develop an Active Transportation Charter that describes what kinds of active transportation facilities residents can expect (with an emphasis on Regional Centres and Corridors), what criteria will be used to prioritize and schedule their implementation and what standards will guide their construction and maintenance	✓			TS	YRRTC, Local Municipalities, CHS	Low	Low
A50	Create and chair a Regional Trails Coordinating Committee, with representatives of local municipalities that will designate a network of strategic Regional trails and oversee a program to improve their continuity, design and maintenance		✓		TS	Local Municipalities, TRCA, LSRCA, Parks Canada, CHS	Medium	Low
A51	Work with local municipalities to assume planning, design, construction, maintenance and jurisdictional responsibility for boulevard elements within the Regional rights-of-way, including sidewalks, cycling facilities, illumination and streetscape design	✓	✓		TS	Local Municipalities	High	High
A52	Develop streetscape design standards for Regional roads to improve the walking environments through features such as benches, trees and lighting	✓			TS	Local Municipalities, CHS	Low	Low
A53	Undertake a sidewalk data collection and mapping exercise	✓			TS	Local Municipalities	Low	Low
A54	Continue to work with local municipalities on design considerations for Regional boulevards	✓			TS	Local Municipalities	Low	Low

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

	ACTIONS	TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A55	Integrate walking and cycling infrastructure needs into the Region's 10 Year Capital Roads Plan so that opportunities for seamless, low-cost development of active transportation infrastructure are captured	✓			TS	Local Municipalities	Medium	High
A56	Update York Region's guidelines and standards for the design of pedestrian and cycling facilities, including mid-block crossings, in view of relevant best practices and recent amendments to the Ontario Highway Traffic Act, keeping in mind the objective of consistent application by local municipalities	✓			TS	Local Municipalities, CHS	Medium	High
A57	Establish targets for reducing collisions involving pedestrians and cyclists on Regional roads, conduct an annual review of collisions involving pedestrians and cyclists by location and maintain a multi-year action plan to improve safety at identified hotspots through improved infrastructure design, signs, markings and education	✓			TS	MTO, CHS	Low	Medium
A58	Collaborate with local municipalities to prepare an Active Transportation Signage and Way-finding Strategy for York Region that includes goals, principles, guidelines and an implementation plan	✓			TS	Local Municipalities, CHS	Low	Low
A59	Develop a strategy to provide safe crossing locations on Regional roads wherever they intersect with Regionally-significant trails and to provide way-finding measures that encourage their use	✓			TS	Local Municipalities, CHS	Low	Low
A60	Develop a transit station way-finding plan – sign routes up to one kilometre from stations with distances and walking times		✓		TS	YRT/Viva	Low	Low

Exhibit 10.4: *Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A61	Create a dedicated, sustained source of Regional funding for the construction and maintenance of active transportation facilities on Regional roads	✓			FD	TS	Low	High
A62	Update the existing Development Charge funded reserve for the urbanization of Regional Roads to include sidewalks, cycling facilities, illumination and streetscape design	✓			FD	TS	Low	Medium
A63	Review the Region's criteria for setting Regional street design speeds and posted speed limits for consistency with the objective of promoting active transportation as an element of livable communities	✓			TS	Local Municipalities, CHS	Low	Low
OBJECTIVE 4: MAXIMIZE THE POTENTIAL OF EMPLOYMENT AREAS								
A64	Develop a Goods Movement Strategy in consultation with other levels of government, agencies, rail authorities, the Ontario Trucking Association and the private sector	✓			TS	MTO, Metrolinx, Local Municipalities	Medium	Medium
A65	Review land use policies and development approval processes for opportunities to integrate freight-supportive planning strategies, including related criteria for the evaluation of land use plans and development applications		✓		TS	MTO, Local Municipalities	Low	Low
A66	Review land use policies in the vicinity of facilities to promote energy conservation, efficiency, improved air quality and climate change initiatives so that their long-term operation and economic role is protected, where applicable/feasible		✓		TS	MTO, Local Municipalities	Low	Low

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

	ACTIONS	TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A67	Create and facilitate meetings of a York Region goods movement roundtable that involves representatives from all levels of government, industry stakeholders and key freight, rail and air agencies to improve mutual understanding of freight-related challenges, identify possible solutions and promote collaboration and partnerships in York Region	✓			TS	MTO, Metrolinx, Local Municipalities	Low	Low
A68	Designate all Regional roads as truck routes according to the classification shown on the Strategic Goods Movement Network **Map 11** and work with the freight industry to focus truck activity on higher-order goods movement corridors	✓			TS	Local Municipalities	Low	Low
A69	Monitor truck volumes on Regional roads, including journeys entering and leaving York Region, using conventional approaches as well as intelligent transportation system (ITS) tools. These efforts can provide early identification of challenges related to specific routes, intersections or employment areas	✓			TS	MTO	Medium	Medium
A70	Monitor the speed and reliability of travel on primary arterial goods movement corridors and consider opportunities to accelerate road improvements on corridors that do not meet acceptable thresholds	✓			TS	MTO	Medium	Medium
A71	Collaborate with other governments on a GTHA-wide initiative to collect data on freight industry activities	✓			TS	MTO	Medium	Medium
A72	Conduct freight audits on zones that are major generators of truck movements	✓			TS	Local Municipalities	Medium	Low

Exhibit 10.4: *Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	TIMEFRAME MEDIUM	TIMEFRAME LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A73	Participate in studies to advance the CN/CP missing rail link		✓		TS	Metrolinx	Low	Low
A74	Partner with MTO in 2017/2018 to undertake an update to the Commercial Vehicle Survey undertaken in York Region in 2012	✓			TS	MTO	Medium	Medium
OBJECTIVE 5: MAKE THE LAST MILE WORK								
A75	Establish a York Region TDM Coordinating Committee comprised of public-sector and non-governmental stakeholders. Convene and chair regular meetings of the committee to set mutual priorities, share information and coordinate actions related to TDM policies, programs and projects across York Region	✓			TS	Metrolinx, Local Municipalities, CHS	Medium	Medium
A76	Conduct a study to develop a consensus among the Region and local municipalities regarding requirements for context-sensitive, TDM-supportive features of new developments and an optimal approach to achieving them through the development approvals process	✓			TS	Local Municipalities	Medium	Low
A77	Work with partners to review the service area boundaries of local Smart Commute organizations and investigate changes that could better match demands with the available resources	✓			TS	Metrolinx, Local Municipalities	Low	Low
A78	Lead local municipalities in the development of a regional parking strategy that supports intensification and that considers the establishment of a Regional Parking Authority or municipal parking authority framework that makes sustainable travel options more attractive across York Region	✓			TS	Local Municipalities	Medium	Low

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

ACTIONS		TIMEFRAME SHORT	MEDIUM	LONG	LEAD *	PARTNERS	LEVEL OF EFFORT	RESOURCES
A79	Collaborate with local municipalities in establishing a Regional Parking Roundtable as a forum to share information and coordinate action in areas of mutual interest	✓			TS	Local Municipalities	Medium	Low
A80	Establish a network of Park-'N'-Ride lots across the Region to serve YRT/Viva. Such lots may also serve carpoolers and could be on lands either leased or owned by the Region		✓		TS, YRRTC	YRT/Viva, Metrolinx, Local Municipalities	Medium	Medium
A81	Study the possibility of implementing a fee for employee parking at businesses in York Region that are served by the Frequent Transit Network. This would have to be done in consultation and coordination with businesses in York Region. The revenues from parking could be used to improve and offer incentives for non-driving commuting choices	✓			TS	FD	Low	Low
A82	Review and update the Region's TOD guidelines and provide appropriate incentives for developers to meet or exceed the guidelines with the assistance of local municipalities		✓		TS	YRRTC, Metrolinx, Local Municipalities	Low	Low
A83	Assess the costs and benefits of the MyTrip pilot program of individualized travel planning upon its completion and identify an implementation strategy for expanding the program across York Region	✓			TS	Metrolinx	Low	Medium

***Leads:**

TS – Transportation Services
YRT/Viva – York Region Transit
YRRTC – York Region Rapid Transit Corporation
CS – Corporate Services Department
ES – Environmental Services Department
FD – Finance Department
MP – Mobility Plus
MTO – Ontario Ministry of Transportation
CHS – Community and Health Services Department
TRCA – Toronto and Region Conservation Authority
LSRCA – Lake Simcoe Region Conservation Authority

***Exhibit 10.4:** Summary of TMP actions and implementation timelines*

It is expected that all actions will be completed within a ten-year timeframe with short term actions referring to those that can be completed in the next two years, medium term within five years and long term with ten years.

10.6 Performance Measurement

Performance measurement is a key aspect of ensuring objectives and initiatives are being met in the years following this TMP. Ongoing monitoring and evaluation helps determine the effectiveness of the objectives, policies and program improvements moving forward.

The Region will develop a framework to evaluate and report on the progress and effectiveness of the TMP. The framework of indicators will be structured to align with the Region's Vision 2051, the York Region Official Plan (2010) and the strategic objectives of this TMP. As part of the development process, the Region will consider key evaluation criteria such as:

- Can it measure progress of implementation of the objectives and policies?
- How obtainable, accurate and consistent is the data?
- Is this indicator easily understood and relatable?

Accurately evaluating the progress, effectiveness and implementation of the TMP will help to ensure the Region is on the right track moving forward so that residents and key stakeholders know where the Region is headed.

The Region will continue to work with other levels of government, agencies and neighbouring municipalities to get accurate and consistent sources of data for indicators. Established, accurate and consistent data for transportation-related indicators are generally collected every two to five years. There may be some measures where results and trends may not be visible for a number of years as some policies need time to be integrated, implemented and adopted. Assessing performance and developing appropriate indicators will provide a baseline for future measures in an ever-changing dynamic transportation landscape. Technology and mobility options such as real-time ridesharing, autonomous vehicles and Regional Express Rail were not part of the transportation horizon just a few years ago. Therefore, the Region is open to innovation and opportunities for new data sources, performance measures and indicators as growth, travel patterns, technologies and external factors continue to evolve.

In addition, the Region will look to identify, use and present, where possible, performance measures and indicators that are more directly related to the main objectives, principles, policies and actions of the TMP. Some transportation-related indicators can be overly technical and difficult to understand for a non-technical audience and could be many layers removed from the broader objective. While it may be a good indicator, the connection may not be intuitive. This creates a gap and disconnect between the technical indicator and the broader objective it is trying to measure. Providing indicators and descriptions that are easy to understand serves to increase transparency and better communicate the 'on-the-ground' impacts of the TMP to residents, businesses and key stakeholders.

Exhibit 10.5 provides a sample of potential performance indicators along with descriptions to connect the main objectives of this plan to the performance indicators. The Region will continue to work in developing a framework and indicators to evaluate and report on the progress and effectiveness of the TMP.

It will also be important to measure and track the financial performance of the plan. Such measures may include:

- Annual capital cost per new resident
- Annual operating cost of transportation per resident
- Incremental investment per new transit rider

Some of these measures are already monitored through the regular financial planning and reporting processes.

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Create a World Class Transit System	Transit modal share (a.m. peak period & all day)	The percentage of people who made trips that took transit. A 20% a.m. peak modal share would mean that out of all trips people took in a.m. peak, 1 in 5 people made the trip using transit	The effectiveness of initiatives in promoting a shift of residents towards transit use
	Number/percentage of people/households within 500 m of a transit stop (urban area)	The number or percentage of people/households in urban areas within a 10 minute walking distance to a transit stop	Whether the Region is providing residents with more opportunities to access transit
	Annual transit ridership per capita	The number of rides on transit divided by population	The effectiveness of initiatives in promoting a shift of residents towards transit use
	Annual ridership (per capita) on Mobility Plus Services (specialized transit ridership) and total number of registrants	The number of trips on Mobility Plus per person per year and the total number of people registered for Mobility Plus	Whether the Region is providing equitable opportunities for residents with disabilities to take transit
	Percent of accessible transit fleet (low-floor)	The percentage of all transit fleet with lower floors (while entering and exiting) for easier access	The accessibility of the transit fleet for all ages and stages
	Number of transit service kms per capita (can also include rapid transit km)	The combined total number of kms provided by transit service (i.e. kms of all routes combined)	Changes in service for residents. Increases in service will move towards objective

***Exhibit 10.5**: Example of potential performance measures and its connection to main objectives of the TMP*

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Create a World Class Transit System	Number of transit service hours (per capita)	The total number of hours provided by transit service divided by population	Measures the changes (increase/decrease) in opportunities and accessibility of transit
	Average/median travel/ commute time by transit	The average/median travel time by users on transit	The gap of travel time difference between transit and automobile travel
	On-time performance of transit services (percentage)	The percentage of times a bus is arriving on-time (within one minute before the scheduled time and five minutes or less after the scheduled time)	The level and reliability of service
	Number of service route changes (annually)	The number of route changes annually	Adjustments and improvements to transit services to better increase efficiencies, opportunities and connections to where users want to go
	Trip distance and time by users of electronic fare payment technology	The average/median trip distance length and time of users paying by electronic fare payment technologies	Trip distance and travel time of customers across the transit network.
Develop a Road Network Fit for the Future	Reported number of collisions involving pedestrians/cyclists per capita/ X kms travelled	The reported number of collisions involving pedestrians and cyclists per person or per x kms travelled	Safety on roads for pedestrians and cyclists
	Reported number of road injuries and fatalities per capita/ X kms travelled	The reported number of road injuries and fatalities per person or per x kms travelled	Safety on roads for all users
	Average/median auto travel/commute time	The average/median time spent commuting to and from work	The time spent commuting to and from work
	Number of intersections with smart/optimized technologies (including signals)	The total number of intersections using technologies (i.e. priority measures at traffic signals, central monitoring, audible signals, etc.) to improve experience for road users	The total number of intersections using sensing, computing and communication technologies to improve the safe, efficient and reliable movement of road users

***Exhibit 10.5**: Example of potential performance measures and its connection to main objectives of the TMP*

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Develop a Road Network Fit for the Future	Number of Regional HOV lanes kms	The total kms of High Occupancy Vehicle (HOV) lanes on Regional roads	The effectiveness of improvements to the road network to increase efficiency in moving more people and reducing travel times
	Number of Regional roads/ boulevards kms with multimodal levels of service	The number of total kms of regional roads which incorporates multiple modes such as general purpose lanes with bike lanes, HOV lanes and boulevards with sideways and multi-use paths	The progress of the Region to broaden mobility choices
	Number of Roadways (kms) transformed or re-categorized (context sensitive solutions)	The number of kms of roadway re-designed and transformed into one of six street types: Urban Centre, Urban Avenue, Main Street, Connector, Rural Road and Rural Hamlet	The progress to the road networks that have been redesigned and transformed to support complete and compact communities, sensitive to surrounding land uses and community needs
	Number of new and rehabilitated network lane kms	The number of both new lane kms and rehabilitated kms on the road network (would include lane kms in road widenings, conversions into HOV lanes, etc.)	The progress in creating a complete road network
	Street/Grid connectivity – Number of intersections per hectare (urban)	The number of intersections per hectare of land in the urban area	Whether the Region is creating a finer grid network to maximize use of existing network and creating a more inclusive environment for non-auto travel
	% change in avg/median peak period journey time along routes where ITS has been implemented	The difference in avg/ median travel time experienced on routes or corridors with and without ITS	The effectiveness of ITS technology in the safe, efficient and reliable movement of road users

***Exhibit 10.5**: Example of potential performance measures and its connection to main objectives of the TMP*

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Integrate Active Transportation in Urban Areas	Average journey to work trip distance (km) by mode	The average reported distance from home to work (in kms)	Whether or not there has been a reduction of average commuting distances
	Sidewalk/pathway coverage (percentage)	The percent of collector and arterial roads with sidewalks or pathways	Whether the Region is providing more access and opportunities for residents to make trips using active transportation
	Cycling facility supply (kms of bicycle lanes, shoulder lanes, multi-use paths and trails)	The total amount of cycling related facilities (in kms)	Whether the Region is providing more access and opportunities for residents to make trips using active transportation (cycling network)
	Bicycle usage (counts)	The number of bicycle trips made on Regional facilities (annually)	Whether residents are choosing to make trips using cycling facilities provided
	a.m. peak period & all day bicycle mode share	The percentage of all trips (including automobiles, transit, etc.) made during a.m. peak and all day by bicycles	Whether residents are choosing to make cycling their first option during their commute in the a.m. peak period and during the rest of the day
	a.m. peak period & all day walk mode share	The percentage of all trips (including automobiles, transit, etc.) made during a.m. peak and all day by walking	Whether residents are choosing to make walking their first option during their commute in the a.m. peak period and during the rest of the day
	Kms of travel reduced by Smart Commute Program	The total amount of kms saved by Smart Commute initiatives such as carpooling	The effectiveness of the Smart Commute program in reducing the amount of single-occupant auto travel
	% of dwellings within 500 m of a community centre, park, school and retail/ commercial services	The percentage of dwellings with the option to be within a 10-minute walk to primary goods and services	Whether more or less residents have the option and opportunity to access daily goods and services with an active transportation mode
	% of population within 2km of a major cycling route	Percentage of people living within 10-minutes of a major cycling route	Opportunities and access to active transportation

***Exhibit 10.5**: Example of potential performance measures and its connection to main objectives of the TMP*

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Integrate Active Transportation in Urban Areas	Modal shares for trips to work	All trips (in percentage) made by different transportation modes of walking, cycling, auto, transit	The trend and effectiveness, moving forward, of whether users are changing their travel behaviour as a result of the Region's initiatives
	Number of new signs for the transit station wayfinding plan	The total number of new signs provided for the transit station wayfinding plan initiative	The progress on implementing the transit station wayfinding plan and access to last mile connections to public transit
Maximize the Potential of Employment Areas	Progress of Goods Movement Strategy (i.e. 0, 25, 50, 75, 100% complete or stages in the process of development)	The progress made in the development of the Goods Movement Strategy	Progress in the development of the Goods Movement Strategy
	Number of kms designated for strategic goods movement network	The total number of kms officially designated for freight/goods movement	Support of optimizing and expanding the goods movement network
	Average Truck Travel Time	The average travel time of trucks in York Region	The effectiveness of the Goods Movement Strategy
	Truck Trips/Volumes	The total number of truck trips/volumes made in York Region	Measures goods movement activity with potential to be linked to employment/ economic activity
	Number of Truck Kms travelled	The total number of kms made by trucks in York Region	Measures goods movement activity with potential to be linked to employment/ economic activity
	Number of jobs within the goods movement industry	The total number of jobs related to goods movement industry in York Region	Employment opportunities available for goods movement related jobs in York Region
	Total number of truck delay hours (annual)	The total number of hours of delay experienced by trucks	The delay experienced by trucks in York Region compared to ideal travel conditions and the potential effectiveness of the future Goods Movement Strategy
	Reported number of collisions involving trucks on the goods movement network per x truck trips/ X kms traveled	The reported number of collisions involving trucks on the goods movement network (can be compared to the entire network)	The performance of the goods movement strategy and truck route/network over time

Exhibit 10.5: *Example of potential performance measures and its connection to main objectives of the TMP*

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Make the Last Mile Work	Automobile ownership (automobiles per household)	The number of automobiles owned per household	Reliance on autos versus efficient travel choices
	Automobile/vehicle kms travelled per capita	The total number of kms travelled by vehicle per person	The effectiveness of promotion of efficient travel choices and making the last mile work
	Total and per capita greenhouse gas (GHG) emissions (CO_2 equivalent emissions in tonnes) and/or other air pollutants estimated for the transportation sector	The total and per person amount of greenhouse gas emissions emitted/produced and/or other air pollutants as a result of travel by the transportation sector (this includes vehicles, transit, etc.) (by census division)	The environmental impact of transportation sector travel in greenhouse gases and/or other air pollutants
	Number of parking spaces in carpool/park and ride facilities (within 500 m of Regional Centres and Corridors or transit stops)	The number of parking spots in carpool/park and ride facilities	The effectiveness of the transportation demand management strategy in making the last mile work and promoting efficient travel choices
	Percent of trips made by mode	All trips (in percentage) made by different transportation modes of walking, cycling, auto, transit	The trend and effectiveness, moving forward, of whether users are changing their travel behaviour as a result of the Region's initiatives
	The number of people and jobs per hectare within 500m transit stops	The number of people and jobs within a 10-minute walk to a transit stop	The access and opportunities for transit use
	The ratio of connections to intersections (link-node ratio)	The ratio of road segments to intersections	The increased opportunities provided to residents to choose more efficient travel choices
	Number of users/downloads of York Region Transportation Apps	This is an idea for a future transportation innovation where York Region creates and provides opportunities with an application for ridesharing and carsharing	The effectiveness and progress of potential transportation related applications (innovations and new technologies) to provide users with transportation options and making the last mile work
	Modal shares for trips to rapid transit stations	All trips (in percentage) made by different transportation modes of walking, cycling, auto, transit to rapid transit stations	The trend and effectiveness, moving forward, of whether users are changing their travel behaviour as a result of the Region's initiatives

***Exhibit 10.5**: Example of potential performance measures and its connection to main objectives of the TMP*

KEY OBJECTIVES	SAMPLE OF POTENTIAL INDICATORS	WHAT DOES THIS INDICATOR MEAN?	WHAT DOES THIS MEASURE?
Make the Last Mile Work	% of Non-private auto mode share (by mode)	The share of trips that are completed by all non-private auto modes. Non-private auto modes include transit, active transportation (walking, biking), and shared transportation services (taxi, on-demand ride services). Private auto includes driving alone and carpooling.	The change in use of non-private auto modes of transportation.
	Number or percentage of a.m. peak period and all day trips made by Single Occupant Vehicles (SOVs)	The percentage or number of all trips (including transit, automobiles, etc.) made by a an automobile with only the driver and no other occupants	The trend and effectiveness of moving away from the practice of driving alone as a result of the Region's initiatives to provide more access to and opportunities for more sustainable modes of travel

***Exhibit 10.5**: Example of potential performance measures and its connection to main objectives of the TMP*

10.7 Monitoring and Reporting

The Region will establish a plan for performance monitoring and reporting. As mentioned, established, accurate and consistent data for transportation-related indicators generally come from external data sources which are collected every two to five years (e.g. the Transportation Tomorrow Survey, the Cordon Count Survey, Travel Time Study, Statistics Canada National Household Survey, Provincial data, etc.). There are also other sets of data that the Region and neighbouring municipalities generally collect on an annual basis. It is anticipated that monitoring and reporting may be conducted in conjunction with the frequency of data collection. For example, comprehensive reporting may occur every five years while select performance measures and indicators may be reported more frequently.

10.8 Update to the Transportation Forecasting Model

While the current York Region Travel Demand Forecasting Model (YRTDF model) has specific features designed to provide timely and helpful guidance and insight to transportation policy decision-making, improvements to the current model to provide more up-to-date results for travel demand analysis, including changes in travel behavior and patterns, evolved trip generation rates, car ownership, HOV modes and toll road demand will be made going forward. The current YRTDF model was designed and calibrated using the 2001 Transportation Tomorrow Survey (TTS) results. The model was recently recalibrated using the 2006 TTS. The YRTDF is a conventional four-step multimodal travel demand forecasting model designed to predict travel demand across the GTHA for the morning peak period of a typical weekday using Emme software.

With the availability of data, there is an unprecedented opportunity not only to recalibrate the model based on today's transportation reality, but to further redevelop the model structure towards next generation modelling techniques. This model redevelopment would allow the Region to monitor and assess different travel modes and vehicles including HOV, walking/cycling and commercial vehicles. The model would include daily trips (not just the morning peak) and tour-based trip modelling where trip chaining and interactions are better reflected.

The overall objective is to bring the YRTDF model into a comprehensive, robust, modern and forward-looking state that would:

- Reproduce existing travel demand patterns during AM, PM and off-peak periods
- Be sensitive to future land use and demographics
- Be sensitive to the implementation of various planning and transportation policies or visions such as TDM
- Be sensitive to changes to transportation facilities and services such as HOV lanes and tolling
- Produce information for project evaluation, including the assessment of economic benefits (e.g. variation in travel time and vehicle operation cost) and environmental impacts (e.g. energy consumption, pollutant emissions and green-house gases)

The use of real-time data collected throughout the Region's network from wireless technologies, where possible, to calibrate the model in real-time will also be explored. This, combined with third party data (including Google) should enable a more accurate forecast for different scenarios, including growth in different parts of York Region.

The redevelopment of the YRTDF model would increase the level of accuracy and reliability of the modelling results, as well as make the model more reflective of recent improvements in the transportation modelling field. This will assist the Region in the continual monitoring and assessment of infrastructure and policy impacts.

Conclusion

Transportation Master Plan

This Transportation Master Plan is the result of the input of many individuals and stakeholders. It represents the Region's vision for a sustainable future.

The TMP outlines the policies, actions and recommended infrastructure improvements that are required to address transportation needs over the next three decades. It builds on previous TMP's and other documents including the Pedestrian and Cycling Master Plan. It identifies solutions to respond to York Region's transportation and mobility needs to 2041 as well as to take advantage of opportunities in York Region and the broader Greater Toronto Area. This TMP incorporates an increased emphasis on new mobility options enabled by technology as well as targeted approaches to manage transportation demand. It recognizes that it is neither feasible nor sustainable to build infrastructure to meet all demands and that making better use of infrastructure is critical.

The many actions identified in this TMP will require a partnership approach to ensure their successful implementation. This TMP should be viewed as resource document to guide future work and initiatives as it is, by all accounts, a living document.

Definitions

Transportation Master Plan

Access/Accessible/Accessibility

A general term used to describe the degree to which an activity, service, or physical environment is available to as many people as possible, regardless of their physical abilities or socio-economic background. From a transportation perspective, this relates to the ease of getting around regardless of physical, cognitive, or other needs. Improving accessibility involves removing economic, physical, cultural, and transportation barriers to participation in programs, projects and facilities.

Active Transportation

Modes of travel which rely on self-propulsion and include walking, cycling, rollerblading, skateboarding.

Capacity

In transportation planning, a limit, usually defined by infrastructure, of the number of vehicles or people that can pass through the infrastructure over a set period of time.

Complete Street

A policy and design approach for streets to ensure the provision of safe and comfortable movement by all modes of travel and for users of all ages and abilities.

Cycle Track

A type of bikeway - a lane of travel dedicated for use by bicycles only, physically separated from other traffic (e.g. curb, bollards).

Goods Movement

The transportation of for-sale products from the location of their manufacture or harvest to their final retail destination.

High-Occupancy Vehicle (HOV)

A vehicle travelling with two or more people, including the driver.

Intermodal

In the goods movement sense, refers to the transportation of goods across multiple modes, such as truck and rail.

Mobility

The movement of people and goods.

Mobility Hub

Mobility hubs are major transit stations and the surrounding areas with significant levels of planned transit service and high residential and employment development potential within an approximately 800m radius of the rapid transit station. They are places of connectivity where different modes of transportation – from walking to rapid transit – come together seamlessly and where there is an intensive concentration of working, living, shopping and/or playing.

Mode Share / Mode Split

The proportion of trips taken by a particular mode (or type) of travel (e.g. auto, transit, active transportation); also known as mode split.

MTO

Ministry of Transportation - Ontario.

Natural Environment

Lands containing core natural areas, natural corridors and linkages between them comprised of naturalized corridors, which together form an integrated system of protected areas.

Park 'N' Ride

Designated parking to allow transit passengers to access transit by car - usually at express bus stops or transit stations and nodes.

Pathway

An off-street facility that is typically shared by active transportation modes (e.g. a type of bikeway).

Peak Period

Period(s) of the day when traffic congestion and crowding on public transportation is highest. Often the AM peak and PM peak periods occur during typical daily commute times.

Public Realm

Places and spaces that are shared by the public. This includes all public places, open spaces, and streetscapes.

Rapid Transit

Higher-order transit that provides higher capacity and operating speed, typically in a dedicated or exclusive right-of-way.

Regional Express Rail (RER)

Regional Express Rail is a program announced by Metrolinx to improve services on GO Rail corridors by providing more frequent all-day service, faster trip times and electrified trains.

Right-of-way

A right-of-way is a type of easement granted or reserved over the land for transportation purposes; this can be for a highway, public footpath, rail transport, canal, as well as electrical transmission lines, oil and gas pipelines. A right-of-way can be used to build a bike trail.

TDM

Transportation Demand Management (or traffic demand management or travel demand management) is the application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time.

Transit Oriented Development TOD

Higher density development in proximity to transit with design qualities that encourage the use of transit, such as high quality pedestrian environment and a mix of uses.

Transit Priority

Measures, either physical or operational, to improve the reliability or speed of transit service, particularly in congested areas.

Urban Design

Urban design is the process of planning, designing and constructing buildings, public spaces, sites, neighbourhoods and cities to give them form, shape, and character. Urban design combines key aspects of urban planning, architecture and landscape architecture to create beautiful and functional places. It involves understanding the inter-relationships between the natural system, the physical built environment, economic forces, and social context of a particular site or area.

V/C

Volume/Capacity.

VNEP

The Viva Network Expansion Plan (VNEP) is a document identifying rapid transit services and infrastructure elements planned for implementation from 2015 through 2020.

Wayfinding

A system that assists travelers in orienting, navigating, and moving through an environment through the use of visual or other measures, including signage.

Footnotes

Transportation Master Plan

1 Source: 2011 Transportation Tomorrow Survey

2 Source: IBI Group, Greater Golden Horseshoe Travel Demand Model

3 Source: Hemson Consulting, Greater Golden Horseshoe Growth Forecasts to 2041

4 Source: Planning for Health, Prosperity and Growth in the Greater Golden Horseshoe: 2015-2041 – Recommendations of the Advisory Panel on the Coordinated Review of the Growth Plan for the Greater Golden Horseshoe, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Niagara Escarpment Plan

5 Source: https://www.ontario.ca/page/climate-change-strategy#section-5

6 Source: Costs of Road Congestion in the Greater Toronto and Hamilton Area (Final Report), Metrolinx, December 2008

7 Source: Costs of Road Congestion in the Greater Toronto and Hamilton Area (Final Report), Metrolinx, December 2008

8 Source: Metrolinx "Costs of Congestion" webpage, http://www.metrolinx.com/en/regionalplanning/costsofcongestion/costs_congestion.aspx, retrieved March 18, 2016

9 Source: 2014 MTO Travel Time Study Results (Staff Report to York Region Committee of the Whole), January 14, 2016

10 Source: Executive Summary – 2014 Travel Time Study (Prepared for Ontario Ministry of Transportation, City of Toronto, and Regional Municipalities of Durham, Peel and York), IBI Group, October 2015

11 Source: http://www.its.dot.gov/connected_vehicle/connected_vehicle_research.htm#sthash.mMMrL9K6.dpuf

12 Source: "THE LAST MILE: Creating Social and Economic Value from Behavioral Insights" by Dilip Soman, University of Toronto Press, Scholarly Publishing Division © 2015 World Rights

13 Source: Economic Benefits of Major Transportation Investments, prepared by AECOM Canada Limited, July 2012

14 Source: Investing in Ontario's Infrastructure: A Prosperity at Risk Perspective, with an analysis of the Greater Toronto and Hamilton Area, Centre for Econimic Analysis, October 2015

15 Source: Costs of Road Congestion in the Greater Toronto and Hamilton Area, HDR Corporation, December 2008

Background Reports

Transportation Master Plan

A. Consultation and Engagement Summary Report

B. Foundations Report

C. Future Needs Assessment Report

D. Pedestrian and Cycling Plan Development Report

E. Project Details and Summary Sheets

F. Transportation Master Plan Advisory Task Force Report

(Background reports provided separately)

The Regional Municipality of York

Transportation Master Plan

For more information on York Region's Transportation Master Plan please contact:

The Regional Municipality of York
Transportation Services

17250 Yonge Street
Newmarket, ON L3Y 6Z1

york.ca

tmp@york.ca

1-877-464-9675

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