Region of Peel
working with you

Sustainable Transportation Strategy

February 2018

Table of Contents

Table of Contents (continued)

Table of Contents (continued)

List of Exhibits

List of Exhibits (continued)

Executive Summary

The development of the Sustainable Transportation Strategy (STS) was initiated in 2016 to outline the Region's course of action in addressing long-term transportation and growth related issues, in a manner that emphasizes the need for environmental, societal, and economic sustainability. The STS identifies the Region's roles and responsibilities relating to 'sustainable' transportation modes - walking, cycling, carpooling, transit, and teleworking. This role is defined within the context the Region's jurisdictional responsibilities, but also considers policies and plans of the local municipalities, Metrolinx and the Province of Ontario.

The challenge of managing growth in the Region of Peel has significant implications on the operation of the transportation system. With an expected 40% increase in population in Peel by 2041, this expected growth cannot be accommodated in a "business as usual" manner that perpetuates a transportation system oriented towards supporting automobiles being driven by a single person. To accommodate growth in this manner would impose high costs on Peel's quality of life and economic competitive, and lead to unsustainable increases in traffic congestion and environmental impacts. Recognizing that growth cannot continue to be met through adding road supply, the STS collaboratively identifies long term solutions that enable and encourage the development of a transportation system where 50% of peak period trips are made by sustainable transportation modes.

The existing mandate for sustainable transportation originates from the Transportation Demand Management (TDM) Study adopted in 2004, the Five Year TDM Plan adopted in 2014, and the Active Transportation (AT) Plan adopted in 2012. The Sustainable Transportation Strategy, along with its 5-year Implementation Plans for AT and TDM, are intended to supersede these plans and act as a component study of the ongoing Long Range Transportation Plan update.

Sustainable Transportation Strategy Highlights

- The Sustainable Transportation Strategy (STS) is an action plan that outlines the Region's roles and responsibilities to significantly increase the proportion of trips made by walking, cycling, transit, carpooling; and trips avoided through teleworking.
- A proposed 2041 target of 50% of trips made by a sustainable transportation mode in the Region is aligned with the ongoing Long Range Transportation Plan update, representing approximately a 13% increase from today.
- More than 50 actions are recommended in the STS and the complementing Active Transportation 5-Year Plan and Transportation Demand Management 5-Year Plan.
- A benefits and business case for sustainable transportation was developed, demonstrating the wide ranging benefits of sustainable transportation to public health, the natural environment, and transportation system performance.

Benefits and Business Case for Sustainable Transportation

The STS developed a business case for sustainable transportation, using quantitative and qualitative evidence to assess the wide ranging impacts of achieving the proposed mode share target. Recognizing the societal benefits and costs of the transportation system is important to the Region of Peel Strategic Plan vision, particularly the outcome that sustainability and long-term benefits to future generations are considered. The business case analysis, comparing the benefits and costs of reaching a mode share target of 50% sustainable modes by 2041 predicts:

- $453 million annual savings in cost of congestion.
- $72 million annual savings in costs related to carbon dioxide (CO2) emissions.
- $263 million annual cost benefit of the health impacts of increased walking and cycling.

Consultation and Partnerships

The STS was developed in co-ordination with a multitude of partners and stakeholders to ensure that it reflects a Regional collaborative approach, and is conducive to partnerships. Four working group meetings and a business case workshop were held, and public input was gathered from Public Information Centres in January 2017, and four community events in June 2017. The PIC was co-ordinated with the Long Range Transportation Plan update, as well as with local municipalities where possible. An online survey linked from www.letsmovepeel.ca garnered 767 responses from December 2016 to March 2017. The top three sustainable transportation priorities identified through the survey were transit, walking, and travel efficiency (making efficient use of existing infrastructure to manage congestion without adding lanes).

Strategic Recommendations

More than 50 actions have been recommended in the STS, informed by identifying improvements to existing practices, identifying best practices, and synthesizing input from stakeholders from the public. These recommended actions include policies, pilot projects, infrastructure projects, and programs that would collectively enable mode shift in the Region. The following is a small selection of key recommendations that are proposed in the STS:

- Adopt a multimodal level of service (MMLOS) methodology to support decision-making on road projects. (Multimodal Category)
- Support workplace engagement by Smart Commute to promote commuting with sustainable transportation modes (Multimodal Category)
- Implement measures to improve walkability in pedestrian improvement areas (Walking Category)
- Implement a cycling network (Cycling Category)

- Pilot alternative transit services (Transit Category)
- Identify needs and opportunities for third-party carpool lots (Carpooling Category)
- Engage employers to promote flexible work arrangements (Teleworking Category)

Financial Implications

The STS is proposed to be implemented with projects over the short, medium, and long term.

It is anticipated that the recommended programs will require increases in annual funding allocations and staff to sustainable transportation related projects. The STS recommends $207M of cycling and pedestrian infrastructure to be built by 2041, and annual funding for active transportation and transportation demand management programs to increase to $1.8M annually by 2022, from $0.7M currently.

Through annual budgeting processes and the Development Charges by-law update, staff will work to identify the appropriate budget and staffing needs for sustainable transportation. Funding currently comes from a combination of federal gas taxes, development charges, and municipal tax base, depending on project type. Since the STS is a critical component of implementing the LRTP, staff will have regard to the proper allocation of these funding sources to AT and TDM projects and programs that work to address the Region's overall transportation and growth related goals.

- 1 -
Introduction

1.1 Sustainable Transportation and the Region of Peel

Sustainable transportation represents a balance between transportation's economic and social benefits and the need to protect the environment. Through policies identified in both the Regional Official Plan and the 2015-2035 Region of Peel Strategic Plan, Peel has committed to promoting sustainable transportation, healthy living and environmentally conscious practices. The Regional Official Plan states that

> "the Region will have a safe, convenient, efficient, multi-modal, sustainable integrated transportation system that supports a vibrant economy, respects the natural and urban environment, meets the needs of a diverse community and contributes to higher quality of life."

Core to this regional vision for sustainable transportation is making walking, cycling, public transit, carpooling and alternatives to travel (e.g. telework) more desirable for more people, and increasing their levels of use.

Between now and 2041, the Region of Peel is expected to accommodate about 19% of population growth and 21% of employment growth in the Greater Toronto and Hamilton Area (GTHA), second only to York Region.

What is sustainable transportation?

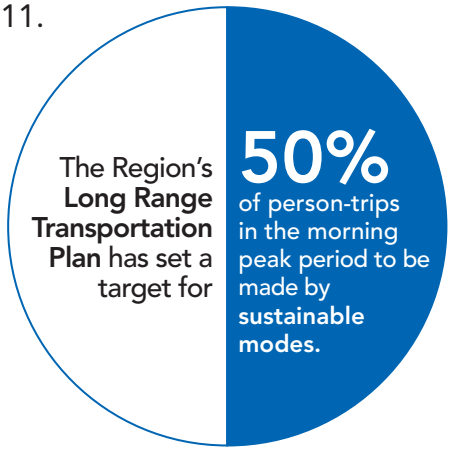
The concept of sustainable transportation promotes a balance between transportation's economic and social benefits and the need to protect the environment. In further articulating this idea, the Centre for Sustainable Transportation defined a sustainable transportation system as one that:

- Allows individuals and societies to meet their access needs safely and in a manner consistent with human and ecosystem health, and with equity within and between generations
- Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy
- Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise

Centre for Sustainable Transportation, 2003

The resulting growth in travel demand will be substantial: from 2011 to 2041, the number of daily trips made by Peel residents and workers will grow by 40%. If travel habits remain unchanged and Peel residents continue to make 63% of their trips by driving a vehicle (based on 2011 Transportation Tomorrow Survey data), the Region's roads will carry almost 190,000 more cars each weekday morning peak period.

The Region does not have sufficient room to build the roads that might accommodate this growth in traffic. Furthermore, research shows that simply expanding road capacity to accommodate growth tends to create more congestion, not less, in the long run. Therefore, shifting travel behaviour from driving to non-driving modes is necessary to prevent unacceptable increases in congestion; it is also a far more effective and efficient use of resource, and will help the Region mitigate climate change and promote healthy, age-friendly communities as it grows. To this end, the Region's Long Range Transportation Plan has set a target for 50% of person-trips in the morning peak period to be made by sustainable modes (i.e. non-drivers, including pedestrians, cyclists, transit riders and carpool passengers) in 2041. This target is substantially higher than the rate of 37% observed in 2011.



1.2 About This Report

Purpose

The purpose of this Sustainable Transportation Strategy (STS) is to guide the Region of Peel in its efforts to offer a safer, more efficient and healthier transportation system by 2041, and to make walking, cycling, public transit and carpooling more desirable to more people. It supports the implementation of the Region's Growth Management Strategy and the 2017 Long Range Transportation Plan (LRTP), including the LRTP's overall vision and goals for increasing the share of travel by sustainable modes in peak periods to 50% by 2041.

This strategy also reflects and updates the Region's previous Active Transportation Plan (approved in 2012), the Region's Transportation Demand Management Plan (approved 2004) and its Five-Year Transportation Demand Management Plan for 2014-2018 (approved in 2014).

Structure

Chapter 2 describes the overall direction of this strategy as a response to growth and sustainability concerns, including a sustainable transportation vision for 2041, major targets for travel behaviour, and a business case for achieving them.

Chapters 3 through 8 describe current conditions, desired outcomes, key themes, and recommended actions (i.e. policies, programs or projects) to enable and encourage more travel by sustainable travel modes (i.e. walking, cycling, public transit, carpooling and telework).

Guiding Principles

The recommendations made in this strategy reflect the following principles:

Strategic Approach.

Recommendations are the end product of a thought process that started with a future vision and high-level goals, and worked toward the actions needed to bring them about.

Bridging Gaps.

Recommendations are intended to overcome disparities between today's reality and long-term desired outcomes.

Leverage.

Recommendations reflect consideration of the Region's existing strengths, infrastructure and initiatives, to make the best possible use of them in pursuit of future goals.

"Made in Peel".

Recommendations integrate input from staff of the Region and its local municipalities, as well as from Peel residents and other stakeholders.

Jurisdictional Realities.

Recommendations account for the different roles of provincial, regional and local governments in shaping Peel's transportation system.

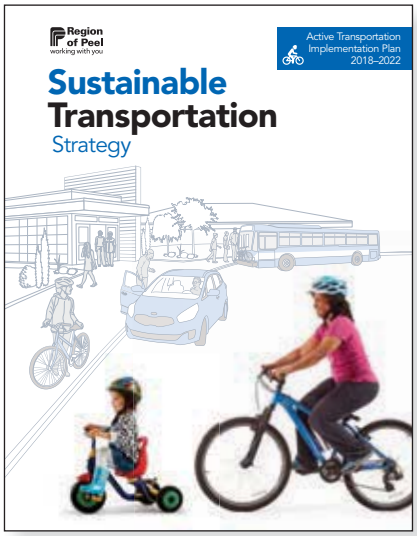
Basis in Evidence.

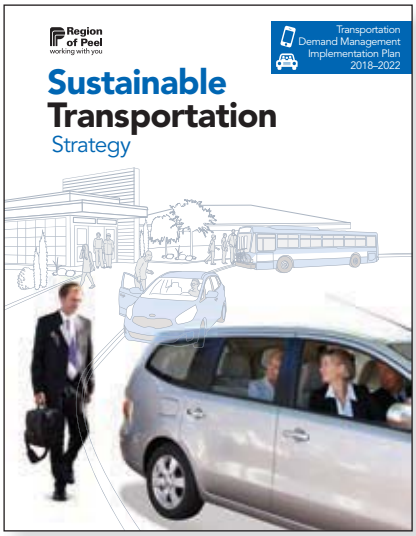
Recommendations reflect the best current knowledge about how individuals make travel decisions, based on the infrastructure and services available to them.

Implementation

This strategy will be supported by the publication of two detailed five-year 2018–2022 implementation plans: one for active transportation (i.e. walking and cycling), and one for transportation demand management (TDM). For each of the near-term programs (0-5 years) these implementation plans will describe the timelines and expenditures.

Not all actions recommended by the STS will be achieved as near-term programs. Where further study is necessary to inform program design, recommended actions are considered long-term actions. Long-term actions are described in the STS, without additional detail in the 5-year implementation plans.





- 2 -

Setting Course for 2041

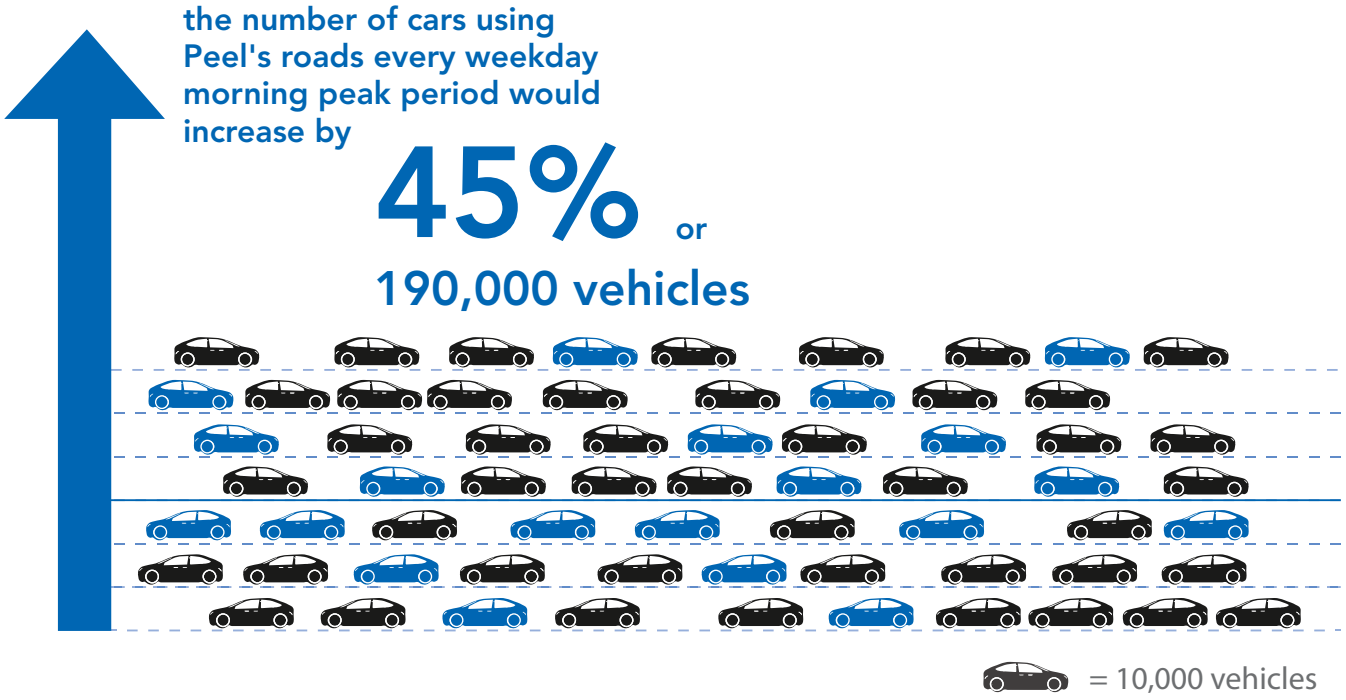
2.1 The Challenge of Growth

By 2041, the Region of Peel (see Exhibit 2-1) is projected to have 1,970,000 residents (50% more than its 2011 population of 1,311,000) and 970,000 jobs (43% more than its 2011 employment of 676,000). These changes would represent about 19% of all expected population growth and 21% of employment growth across the GTHA.

Exhibit 2-2 through Exhibit 2-3 show how population and employment will be distributed across Peel in 2041.

Of course, future growth will bring increased demands for access and mobility. By 2041, the daily volume of trips made by Peel residents and employees is expected to grow by 40% from 2011 levels. If current travel habits remain unchanged (i.e. if 63% of Peel residents continue to travel in single-occupant vehicles, or SOVs) then the number of cars using Peel's roads every weekday morning peak period would increase by 45%, or 190,000 vehicles.

If current travel habits remain unchanged...



Simply accommodating this "business as usual" scenario—in other words, serving growth without changing travel behaviours—would impose tremendous costs on Peel's quality of life and economic competitiveness. The Region would face untenable increases in traffic congestion, demands for road infrastructure, negative health impacts and environmental damage (see Section 2.5 of this report for some information on related costs). Furthermore, continuous road network expansion is unsustainable due to the induced demand that is created. Induced travel demand refers to the concept where additional trips are generated by adding capacity to roads and highways that would not have occurred if roadway space had not been added.

The goal of changing travel behaviour is not only necessary, but also practical and achievable. The Region of Peel, along with its provincial and local municipal government partners, can reduce the proportion of the Region's residents and workers who drive to meet their daily travel needs. Doing so will require a concerted effort to make walking, cycling, transit and carpooling more competitive travel options. It will necessitate action in many different areas—more land uses that support sustainable travel modes, more effective use of Regional roads to support all modes of travel, more safe and comfortable facilities for pedestrians and cyclists, and more programs to enable and motivate sustainable travel choices.

The remainder of this report identifies the transportation policies, infrastructure and programs that will help the Region of Peel to pursue a healthy, vibrant and more sustainable future.

Exhibit 2-1: The Region of Peel General Planning Policy Areas

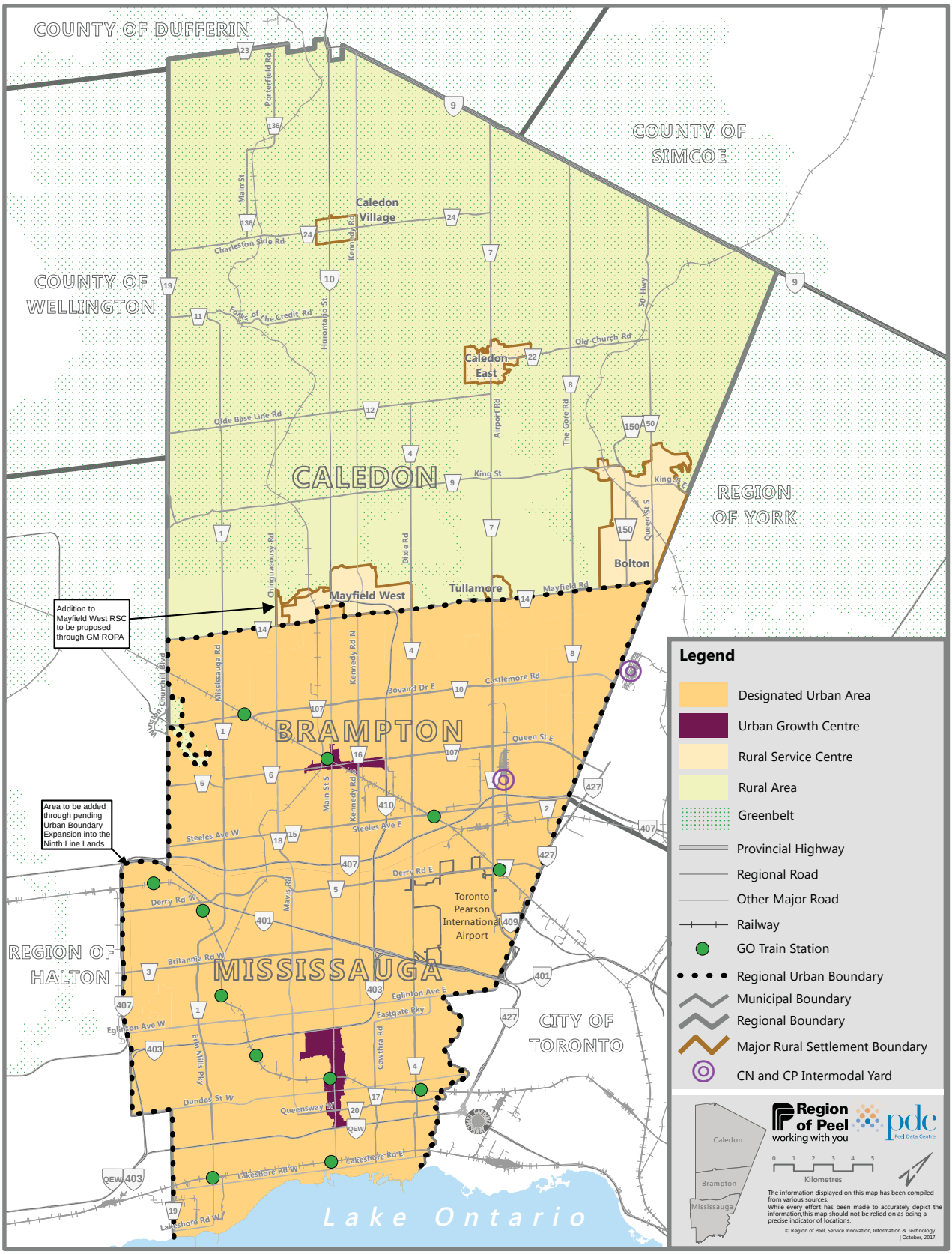


Exhibit 2-2: Projected Gross Population Density, 2041, by Traffic Zones

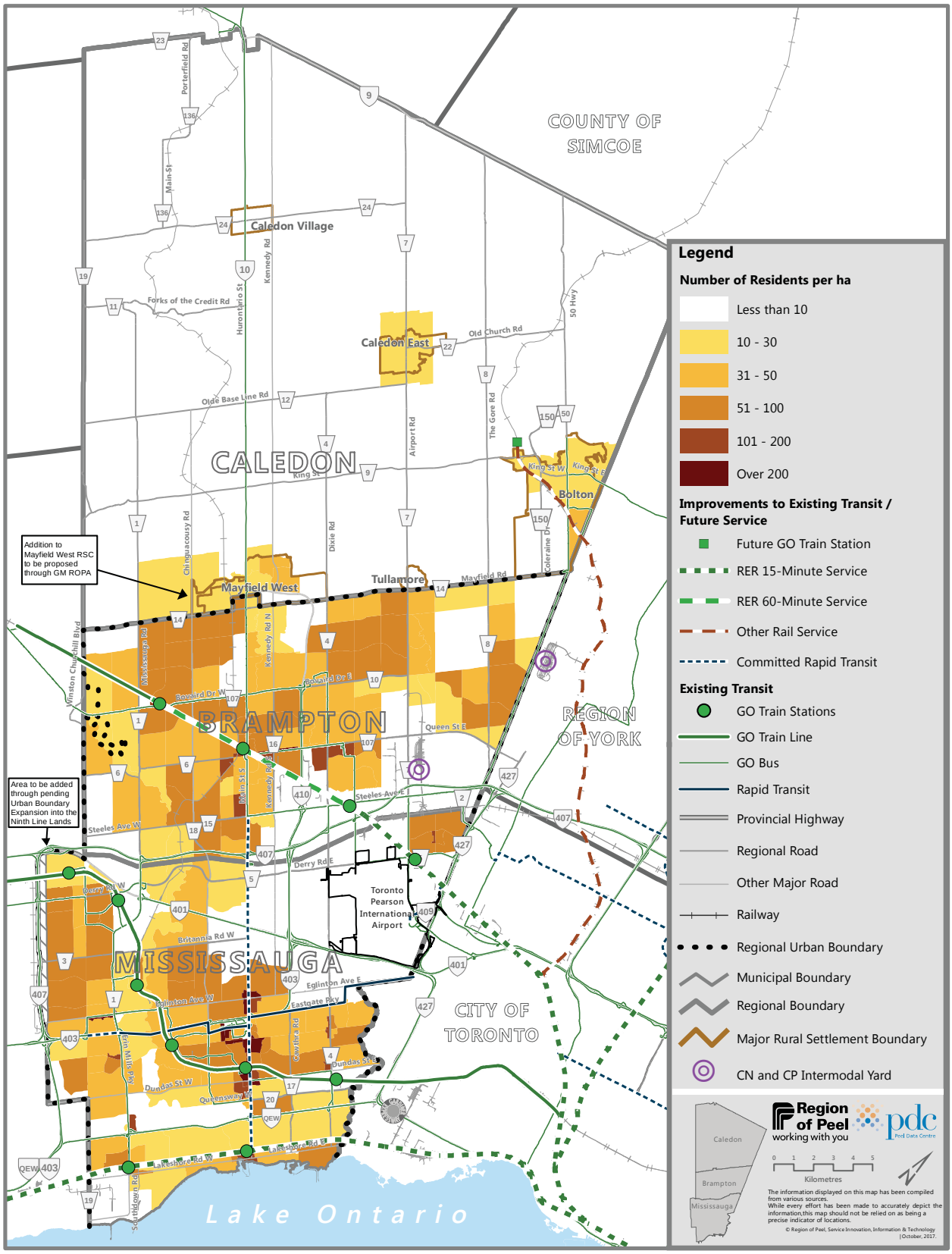
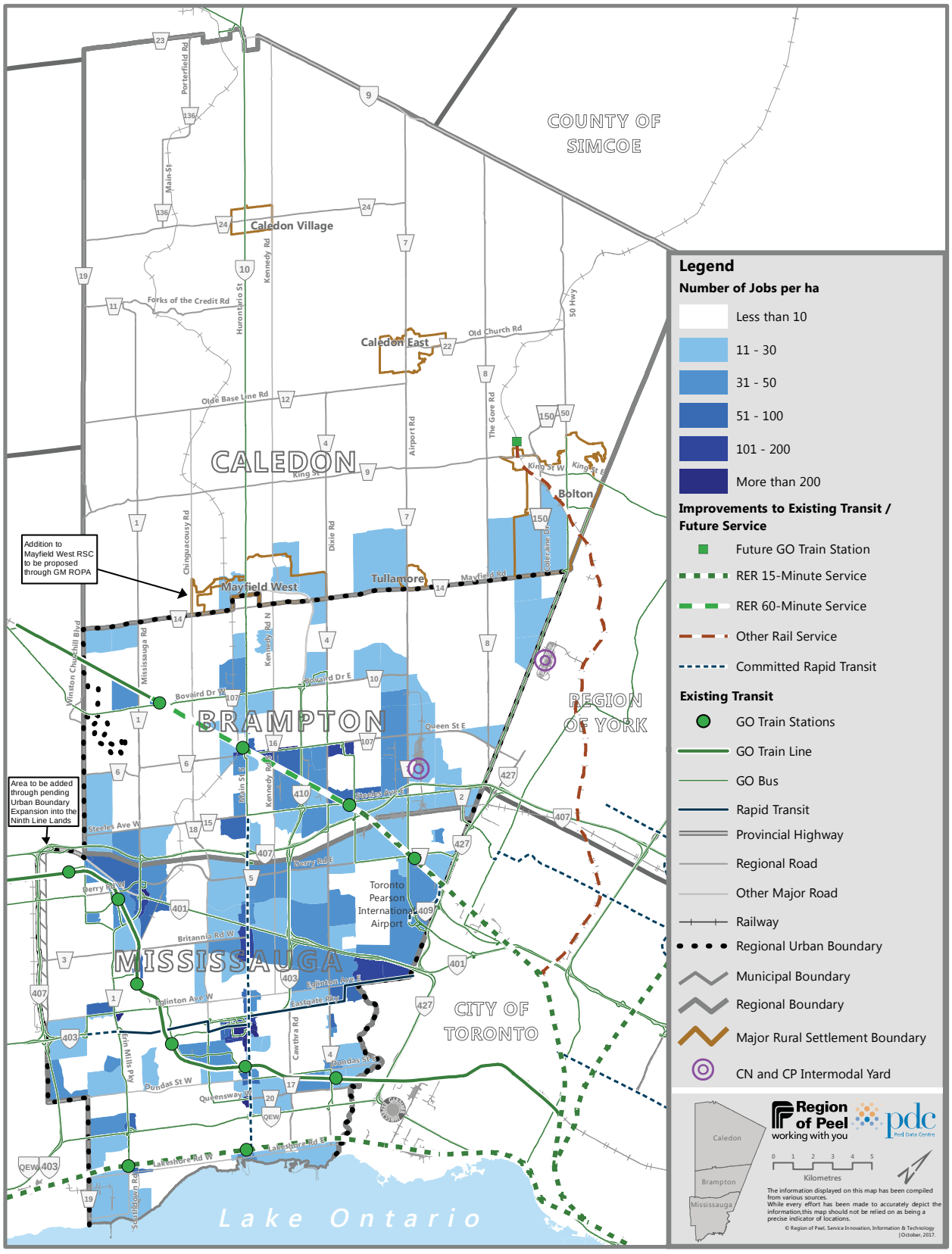


Exhibit 2-3: Projected Gross Employment Density, 2041, by Traffic Zone



2.2 Peel's Vision for Sustainable Transportation

In 2041, sustainable modes of travel in the Region of Peel will be competitive, inviting, equitable and seamless, leading to a community that is more environmentally, socially and economically sustainable.

In 2041

1 Walking Cycling Transit Carpooling Telework will be

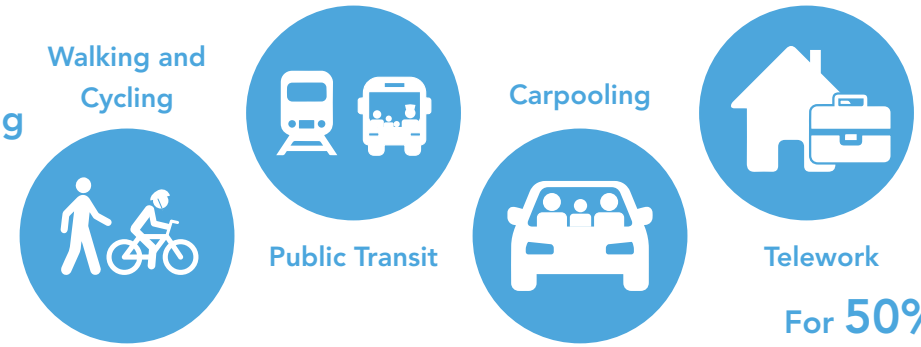
COMPETITIVE
They are quick, reliable and affordable

EQUITABLE
People of all ages, abilities, incomes and cultures get around easily

INVITING
They are safe, healthy, comfortable and all-season

SEAMLESS
Networks, fares, services and information are integrated

2 Encouraging Residents to Choose



For 50% of peak period trips

3 ...and creating a healthy, safe and connected community with benefits that include

ACCESS AND MOBILITY
People and goods can move when and where necessary while mininmizing social costs

PUBLIC HEALTH AND SAFETY
Residents are healthier and face a lower risk of injury or death from road crashes

LIFESTYLE CHOICE
The Region offers distinct urban, suburban, and rural lifestyles

AFFORDABILITY
Transportation costs are reduced as more residents use active modes and transit rather than cars

COMPLETE COMMUNITIES
People of all ages are mobile and can access daily needs in their neighbourhoods

ECONOMIC SUSTAINABILITY
Peel is an attractive place to do business and a centre for many different kinds of employment

ENVIRONMENTAL SUSTAINABILITY AND RESILIENCE
The transportation system has a reduced impact on climate, air, water and land, and Peel is better able to adapt to the realities of climate change

Exhibit 2-4: The Region of Peel's Vision for Sustainable Transportation

Exhibit 2-4 presents the Region of Peel's vision for sustainable transportation in 2041. The following paragraphs describe the vision's three key parts.

Part 1: Required Attributes of Key Travel Modes

The vision describes a future in which Peel residents walk, bike, take transit, carpool and telework more often than they do today, and in which they drive cars less often. Walking and cycling will be the preferred choice for shorter trips, while transit, carpooling and teleworking will be preferred for longer trips. Shifting individual travel decisions over time will require tangible changes that make sustainable travel choices more attractive. Key descriptors of sustainable modes to be improved include:

Competitive. **They are quick, reliable and affordable.**

Inviting. **They are safe, healthy, comfortable and all-season.**

Equitable. **People of all ages, abilities, incomes and cultures get around easily.**

Seamless. **Networks, fares, services and information are integrated.**

Part 2: Desired Behavioural Outcomes

This strategy's overall target for the Region of Peel in 2041 is that **50% of morning peak period person-trips will use sustainable modes of travel**, and the remaining 50% will be made by driving. For comparison, the Region's morning peak period mode shares in 2011 were 37% for sustainable travel modes and 63% for driving in the morning peak period. While this strategy does not set targets for trips outside peak periods, it anticipates and supports similar gains in sustainable mode shares at those times.

Part 3: Intended Benefits

When sustainable modes are attractive and people choose them more often, the Region's transportation system will contribute even more to the quality of life enjoyed by residents:

Access and mobility. **People and goods can move when and where necessary while minimizing social costs.**

Public health and safety. **The Region's residents are healthier and face a lower risk of injury or death from road crashes. Peel residents feel safe being active, and allowing their children to be active in their daily routines due to a lower perceived risk of injury. Furthermore, Peel residents have more opportunities for physical activity to be integrated into their daily lives.**

Lifestyle choice. The Region continues to offer distinct urban, suburban and rural lifestyles.

Affordability. Personal transportation costs are reduced as more residents choose active modes and transit rather than owning and operating cars.

Complete communities. People of all ages, from children to seniors, remain mobile and able to access daily needs in their neighbourhoods.

Economic sustainability. Peel remains an attractive place to do business and a thriving centre for many different kinds of employment.

Environmental sustainability and resilience. The transportation system has a reduced impact on climate, air, water and land, and Peel is better able to adapt to the realities of climate change.

2.3 Targets for 2041

As previously discussed in Section 2.2, this strategy's overall target for the Region of Peel in 2041 is that **50% of morning peak period person-trips will use sustainable modes of travel** (walking, cycling, transit, carpool passengers and other modes such as school bus, taxis and motorcycles); the remaining 50% will be made by driving. For the purpose of this report, new mobility options based on mobile applications, including ride-sharing and ride-hailing, are also considered to be part of the suite of sustainable mode options since they support first and last mile options for transit (i.e. between their origin or destination and transit stops or stations). Telework will also contribute by eliminating 1.5% of morning peak period trips. While this strategy does not set targets for trips outside peak periods, it anticipates and supports similar gains in sustainable mode shares at those times.

In 2011, actual mode shares in the Region were 37% for sustainable mode users and 63% for drivers, with 0.6% of trips avoided through telework. A "trends" (i.e. business-as-usual) scenario, in which person-trips grow by 40% but 2011 travel behaviours remain unchanged, would add about 190,000 cars to Peel roads in the 2041 morning peak period. Most roads cannot be expanded beyond their current right-of-way and, even if that were possible, research shows that widening roads tends to make congestion worse in the long run if the widening is simply for single occupant vehicles. Therefore, the trends scenario would continue to see increases in auto congestion and related impacts. As quantified in Section 2.5, this growth in auto trips contributes to significant external costs and user dis-benefits, as compared to the preferred vision.

Exhibit 2-6 shows interim mode share targets for the Region at 2021, 2031 and 2041, and Exhibit 2-7 breaks down the interim sustainable mode share targets by mode and by local municipality (i.e. City of Mississauga, City of Brampton, Town of Caledon).

These targets were based on a "bottom's up" assessment of the mode split potential for each traffic zone based on a number of variables, as described in the **Mode Share Targets Report** under separate cover. The 50% sustainable transportation mode share target for 2041 is not applied uniformly across the Region, but based on a context specific approach. Peel's varying geographies, land uses, community contexts, and targeted intensification areas enable some communities to have a greater potential for mode shift than others. Analysis was undertaken to identify communities with greater potential for mode shift..

The 50% sustainable transportation mode share target for 2041 represents an approximate 13% increase from current conditions. It is well aligned with the local municipalities' mode share targets where they have been established, such as in the City of Brampton Transportation Master Plan's goal for 50% non-single occupancy vehicle modes by 2041, the City of Mississauga's aim to double current transit mode share by 2049, and the Town of Caledon Transportation Master Plan's vision to offer multimodal choices.

Exhibit 2-5: Mode Share 'Vision' and 'Trends' Target for the year 2041 (AM Peak Period)

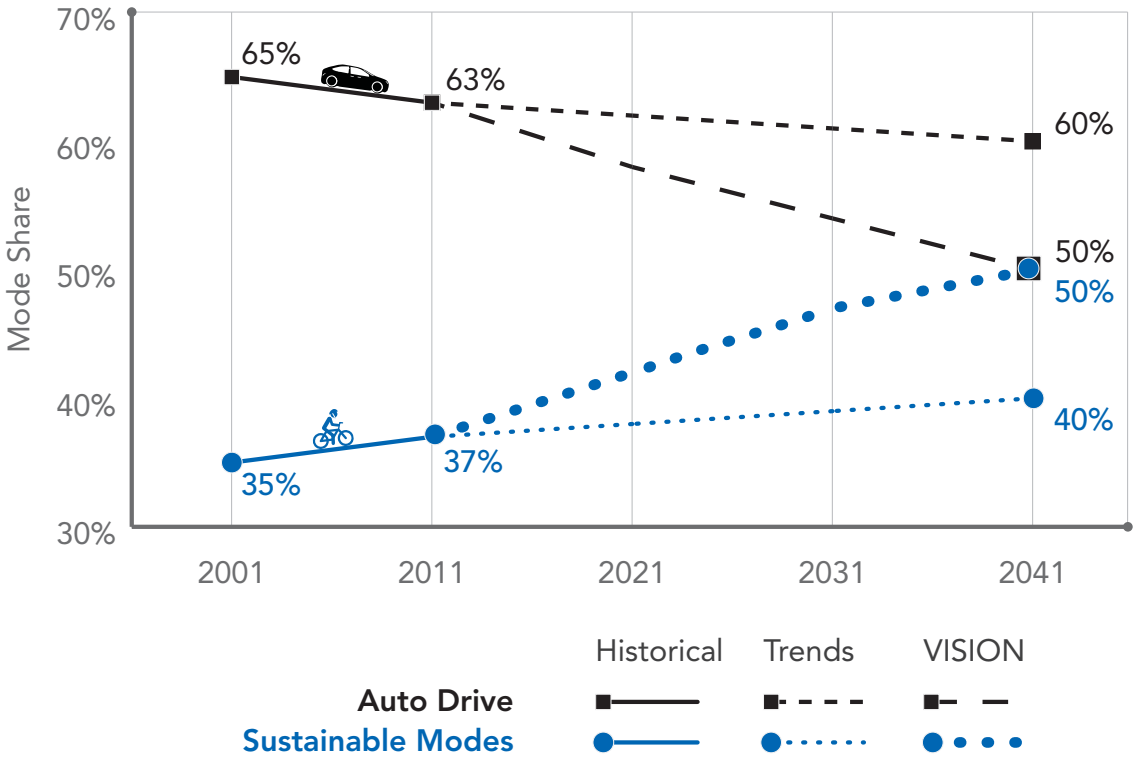
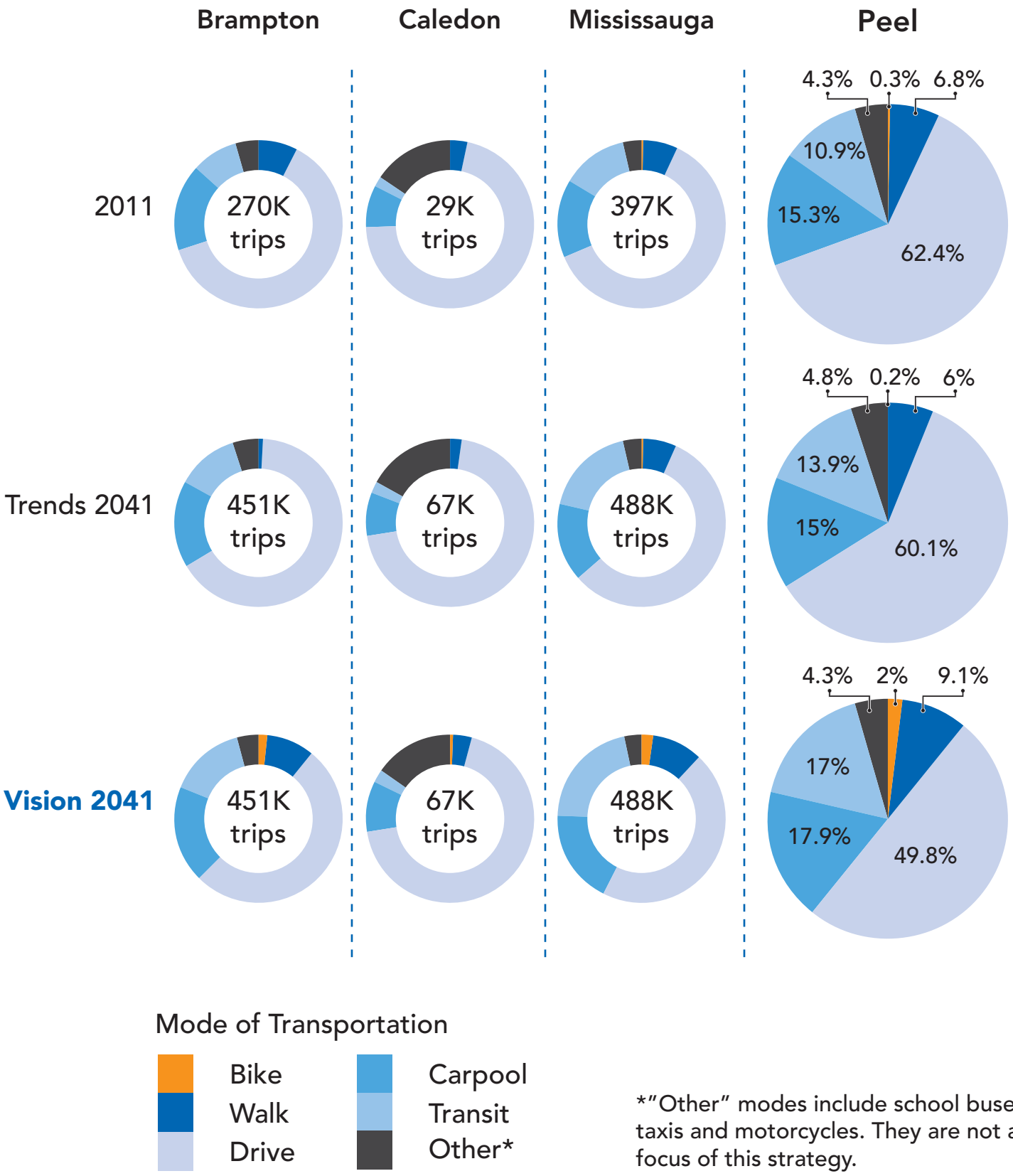


Exhibit 2-6: Mode Share Targets per Area Municipality and Mode (AM Peak Period)

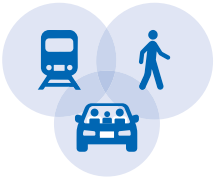


*"Other" modes include school buses, taxis and motorcycles. They are not a focus of this strategy.

2.4 Key Themes for Action

The actions recommended in Chapters 3 through 8 of this strategy are grouped under the key themes listed in Exhibit 2-7. Each of these key themes for actions is expanded on in this report with further details on implementation phasing and costs provide in companion reports for TDM and Active Transportation under separate cover.

Exhibit 2-7: Key Themes for Action



MULTIMODAL

- Influence the shape of development
- Strengthen the multimodal function of Regional roads
- Make roads safer for vulnerable road users
- Influence personal travel decisions
- Strengthen the Region's role

WALKING

- Provide comfortable, continuous walking routes
- Improve winter maintenance of walking facilities
- Promote walking across the Region

CYCLING

- Provide comfortable, continuous cycling facilities
- Improve year-round maintenance of cycling facilities
- Expand bicycle parking and end-of-trip facilities
- Promote cycling across the Region

TRANSIT

- Make regional roads more transit-supportive
- Improve connections to transit
- Explore new technologies and business models to support transit
- Promote transit use across the Region

CARPOOLING

- Expand carpool lots
- Explore new technologies and business models to support carpooling and ridesharing
- Promote carpooling in key markets

TELEWORK

- Promote flexible work arrangements as a win-win-win solution
- Help workplaces support flexible work arrangements

2.5 The Business Case

As the Region of Peel plans, builds and operates its transportation system, it wants to make the best of use of available resources and maximize the outcomes that it values most. During the preparation of this strategy, an approach was developed for the Region of Peel to create business cases that identify the multi-sectoral benefits of proposed infrastructure and services, and communicate them to elected officials, staff, partner institutions, businesses and residents.

This section summarizes the recommendations of a separate report ("Business Case Framework") that includes a review of similar approaches in other jurisdictions, a summary of stakeholder input, and sample applications of benefits case indicators. Further details are provided in the Business Case Framework Background Report under separate cover.

A business case is a collection of quantitative and qualitative evidence that explains how an action contributes to an organization's objectives. Typically, business cases are used to assess or compare alternative actions and to identify a preferred action, thereby enabling an informed decision about proceeding.

2.5.1 THE BUSINESS CASE FRAMEWORK

The business case framework includes four possible elements of any business case for sustainable transportation initiatives:

Benefits case. This is typically the most important part of a business case. It uses qualitative and quantitative measures to assess an initiative's impacts on individuals, society as a whole, the economy and the environment. A benefits case could include summary indicators such as benefit-cost ratios or rates of return on investment (ROI).

For any benefits case there are five key themes: transportation system performance, public health and safety, environment, economy and economic costing. Each theme includes a number of possible outcomes that may apply to a given initiative (as shown in Exhibit 2-8), and each outcome includes a number of possible indicators that could be used to describe it. Appendix A provides a complete list of these themes, outcomes and possible indicators.

Fiscal case. This is a quantitative analysis of an initiative's expected direct costs and revenues to the Region of Peel using a life-cycle lens, accounting for leveraged funding opportunities.

Strategic case. This qualitatively summarizes how an initiative aligns with and support higher-level organizational goals, policies and plans, such as: Ontario's Growth Plan for the Greater Golden Horseshoe; Metrolinx's Regional Transportation Plan for the GTHA; and the Region of Peel's Strategic Plan 2015-2035, Official Plan and Long Range Transportation Plan.

Exhibit 2-8: Key Themes and Outcomes for a Generic Benefits Case

Transportation System Performance	Public Health and Safety	Economy
• Travel demand • Travel choice • Access to destinations • Speed and delay • Capacity • Efficiency and Reliability • Safety • Universal access • Connectivity • User awareness and satisfaction	• Clean air • Physical activity • Injury and death from collisions • Mental health • Independent travel by children • Personal security	• Vitality and growth • Land use density • Land value • Access to labour • Retail vibrancy • Cost of congestion • Affordability of travel • Commuter satisfaction
	Environment	**Economic Costing**
	• Greenhouse gas emissions from transportation • Land consumption • Greening	• Unit travel costs by mode • Benefit-cost analysis

Implementation case. For specific, well-defined projects, this would identify key opportunities and challenges related to the initiative's delivery. It would use qualitative measures to address factors such as operational risks and impacts, public and political acceptability, governance or procurement challenges, and commercial or other management issues.

2.5.2 ECONOMIC COSTING OF BENEFITS CASE FOR 2041 MODE SHARE TARGETS

To summarize the economic benefits of achieving the 2041 mode share targets identified in this strategy, two 2041 scenarios were compared: a "trend" scenario represented "business-as-usual" travel behaviours (i.e. the same mode shares as 2011), and a "vision" scenario represented travel behaviours consistent with the mode share targets of Section 2.4.

The estimated economic costs or benefits of travel activity by each mode were based on guidance provided by Metrolinx for business case analyses. Exhibit 2.9 summarizes the results, which indicate that the annual economic costs of the 2041 "trend" scenario would be $12 billion while those of the 2041 "vision" scenario would be $9.9 billion (both amounts in 2017 dollars). Comparing these two values leads to the conclusion that the annual economic benefit of this strategy's mode share targets (i.e. achieving a 50% sustainable mode share compared to a 40% mode share under the trends scenario) would be about $2.1 billion, mostly in avoided costs.

It should be noted that this analysis does not consider the capital costs of the 2041 scenarios examined, and also does not consider some major benefits of individual investments (e.g. travel time savings for transit users resulting from a new rapid transit line) that would be identified through a business case developed for those specific initiatives.

Exhibit 2-9: Comparison of External Costs for 2011 Baseline, 2041 Trend and 2041 Vision Scenarios

	Cost of...	2011 Baseline	2041 Trend	2041 Vision
		at **9.4 billion** vehicle-km	at **11.9 billion** vehicle-km	at **9.9 billion** vehicle-km
AUTO  Unit = per vehicle-km	Driving ($0.63/unit)	**$5.9 B**	**$7.5 B**	**$6.2 B**
	Cogestion ($0.22/unit)	**$2.1 B**	**$2.6 B**	**$2.2 B**
	Collision Externalities ($0.08/unit)	**$750 M**	**$950 M**	**$790 M**
	Criteria Air Contaminants ($0.002/unit)	**$20 M**	**$25 M**	**$20 M**
	Carbon Emissions ($0.04/unit)	**$380 M**	**$480 M**	**$400 M**
		at **1.2 billion** passenger-km	at **3.5 billion** passenger-km	at **4.2 billion** passenger-km
TRANSIT  Unit = per passenger-km	Service ($0.20/unit)	**$240 M**	**$700 M**	**$840 M**
		at **50 million** person-km	at **96 million** person-km	at **146 million** person-km
WALKING  Unit = per person-km	Health Benefits ($2.96/unit)	**$150 M**	**$280 M**	**$430 M**
		at **11 million** person-km	at **12 million** person-km	at **90 million** person-km
CYCLING  Unit = per person-km	Health Benefits ($1.48/unit)	**$16 M**	**$18 M**	**$130 M**
	NET COST	**$9.2 Billion**	**$12 Billion**	**$9.9 Billion**

2.6 What We Heard From Residents

The Peel Region Sustainable Transportation Strategy was informed by a multi-faceted public consultation process including public information centres (PICs), stakeholder meetings, and public feedback via the MetroQuest online platform. For a complete summary of the consultation activities that were undertaken, please see Appendix B and separate Background report summarizing the on-line consultation.

Members of the public identified many locations where they felt that walking and cycling infrastructure needs to be improved, where roads and intersections are unsafe, where new or improved transit service is desired, and where better connections across service providers and geographies would be beneficial. Survey participants also suggested possible carpool parking lot locations, including the use of underutilized existing parking spaces as an alternative to building new lots.

A detailed review of the feedback received through PICs and MetroQuest led to the identification of several priorities:

Easier transfers | Integrate transit service and fares between transit agencies

Faster travel | Give transit vehicles more priority along roadways

Add service to new areas | Provide more frequent transit service in areas that have limited transit service

Connect the last mile | Improve walking and biking connections to transit stations

Reduce travel distances | Plan for communities that allow people to live close to where they work and shop

Promote transit | Promote the benefits of taking public transit through marketing and information campaigns

Dedicated bike facilities | Build new bike-only facilities on Regional roads

Fill in the gaps | Build new sidewalks and multi-use trails to provide better connections

Expand multi-use trails | Build new multi-use trails shared by pedestrians and cyclists

Improve intersections | Enhance intersections to better accommodate cyclists

- 3 -
Multimodal Strategies

This chapter identifies outcomes, key themes and recommended actions that enable and support multiple modes simultaneously. It is important that this information on multimodal strategies is considered in parallel with Chapters 4 through 8 on individual modes, as there are many points of synergy. Strategies are based on a review of existing conditions, needs and best practices from other jurisdictions and designed to help achieve the mode share targets for sustainable transportation, in combination with individual mode strategies.

3.1 Current Multimodal Infrastructure and Services

The following paragraphs briefly describe a range of ways that the Region of Peel and its partners support sustainable travel that addresses multiple modes at once. Additional specifics are provided in Section 3.3.

Planning for new developments.

Applications for new site, condominium and subdivision developments in the Region of Peel are approved by local municipalities according to their own Official Plan policies, Secondary Plan policies, and zoning by-laws. The development approval process of each municipality identifies how various transportation considerations are addressed; for example, the City of Mississauga requires that transportation demand management (TDM) plans be included in transportation impact studies for new developments that generate a significant number of vehicle trips. The Region of Peel also uses its Healthy Development Assessment tool to assess the health impacts of proposed developments across Peel. In 2016, the Region created guidelines on TDM and new development that recommended a number of actions to better integrate the principles of sustainable transportation into Regional and local municipal development approval processes. The Region can also influence municipal approval processes through the Regional Official Plan, to which municipal Official Plans must conform. In 2017, the Region completed a number of background strategies as part of the Growth Management Plan, including an Employment Discussion Paper. This paper emphasises the need to locate and plan employment lanes to facilitate greater use of sustainable transportation modes. The Region also maintains approval authority over certain features of developments that directly access Regional roads, and uses its Traffic Impact Study Guidelines to assess their impacts.

The Region maintains approval authority over certain features of developments that directly access Regional roads, and uses its Traffic Impact Study Guidelines to assess their impacts.

Regional roads.

The Region of Peel owns and maintains 25 Regional roads with 1,555 lane-kilometres, 409 signalized intersections, 110 bridges and 35 major culverts. The Region is responsible for the planning, design and construction of all municipal infrastructure within the Regional road rights-of-way, including sidewalks and multi-use trails. Generally, local municipalities are responsible for ongoing operations and maintenance of sidewalks and multi-use trails on Regional Roads, but through the ongoing recommendations from the Arterial Roads Review Ad Hoc Steering Committee (ARRASC), these responsibilities are shifting as the Region moves towards maintenance of these elements depending on municipality.

Road safety.

As part of its Road Safety Strategic Plan (RSSP), the Region has adopted a Vision Zero Mandate intended to reduce the number and severity of collisions (Vision Zero is an international road safety movement that aims to eliminate death and serious injury caused by traffic collisions). Peel has identified effective safety countermeasures in its Transportation Safety Strategic and Operational Plan (TSSOP), including innovative engineering, education and enforcement strategies. Priority issues include urban pockets along high-speed roads, access management on Regional roads, guidelines for installing red-light cameras, and the design of structures for street name signs. Another important need is for more safe crossing opportunities that improve the visibility of vulnerable road users and reduce vehicle speeds.

The Region of Peel currently undertakes a number of safety education programs, projects and initiatives that emphasize safety for vulnerable road users. Flyers, giveaways and brochures are distributed at community special events, and programming for school travel planning has been on-going. Road safety education, outreach and communications are undertaken by different groups within Peel's Transportation Division, particularly the Traffic Safety, and Traffic and Sustainable Transportation groups. The Public Works Environmental Education unit is also broadly involved in a range of road safety initiatives.

Transportation demand management (TDM).

The Region of Peel's TDM initiatives aim to influence travel behaviours by creating community capacity, transferring knowledge and building trust through personal connections, complemented by education and promotion programs. These TDM initiatives include the Walk+Roll Peel active transportation marketing initiative, community-based TDM social marketing campaigns, support for three local transportation management associations (TMAs, namely Smart Commute Mississauga, Smart Commute Pearson Airport Area, and Smart Commute Brampton-Caledon) that deliver workplace TDM programs, and support for school travel planning that encourages students to walk and bike to school. The Region of Peel has also worked to set an example for other employers by improving sustainable commuting options for its own employees, and providing incentives for their use.

3.2 Desired Multimodal Outcomes

Land Use Will Support Sustainable Transportation

Land use has a very strong influence on travel behaviour, as destinations are required in order for people to plan sustainable transportation trips, both consciously and sub-consciously. The location and design of development in Peel must actively contribute to the goals of this strategy. It is vital to get land use right, because new developments will stand for decades and are difficult to change once built—however, the Region faces the challenge of overcoming existing limitations on its influence over the development process.

Most development is privately funded, and represents a great opportunity to support the Region's sustainable transportation objectives.

Regional Roads Will Support Sustainable Transportation

The vast majority of personal trips by all modes in Peel will continue to make use of road corridors. Regional roads will be particularly important in that connect key destinations, land uses, and transportation hubs; by offering more support for sustainable modes they will influence whether residents see those modes as safe, comfortable and convenient.

By 2041, any idea that Regional roads are principally conduits for cars and trucks will be in the past, and those roads will offer safe, effective and equitable service to pedestrians, cyclists, transit users and carpoolers.

Individuals Will Make Healthy, Efficient Travel Choices

The Region and its partners will work directly with individuals to shape the demand side of transportation in Peel, in addition to its efforts on the supply side. The established field of transportation demand management will offer an expanded set of tools to help influence personal travel choices. TDM programs will reach people in a variety of settings, from their homes to their workplaces and schools. The Region of Peel will involve diverse partners including Smart Commute offices, employers, school boards, schools and community groups. This will allow residents to think beyond pursuing physical activity in their leisure time only, and encourage them to be active as a travel choice. New transportation technologies and business models will offer other opportunities to encourage more sustainable travel; the Region will monitor related developments and apply those that promise to encourage healthy, efficient choices.

TDM will help shift the social norms that influence those choices, provide information to guide travellers in making the best possible decision for their circumstances, offer incentives and disincentives that shift the parameters of travel decisions, and encourage people simply to try something new.

The Region Will Pursue Innovation and Lead By Example

A vital role that the Region will continue to play in sustainable transportation is that of creating and sharing knowledge. Peel is a large and diverse community with many interested stakeholders, and the Region is uniquely positioned to spur innovation, support emerging methods, gather results, and disseminate them. Organizationally, it brings together transportation, development services, public health, human services and policing—five areas critical to making sustainable transportation objectives a reality. The Region will be a strong role model in demonstrating the practicality, effectiveness and benefits of doing so through measures like parking management, telework, end-of-trip facilities for active commuters, and priority parking for carpoolers.

The Region is also a large and diverse employer with numerous workplaces, and "leadership by example" will be an important role.

3.3 Key Themes and Actions – Multimodal

The following table summarizes the recommended actions that enable and support multiple modes, grouped into five key themes as presented in the remainder of Section 3. Actions that provide important support to individual modes are also referenced in Chapters 4 through 8.

MULTIMODAL STRATEGIES: KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION	
Influence the shape of development (Section 3.3.1)	
Action **M1**	Encourage local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable travel modes through infrastructure and context sensitive design
Action **M2**	Improve development approval processes to support sustainable transportation through infrastructure, design and TDM
Strengthen the multimodal function of Regional roads (Section 3.3.2)	
Action **M3**	Adopt a complete streets policy and implement a pilot project
Action **M4**	Assume responsibility for walking and cycling facilities in Regional road boulevards
Action **M5**	Update Regional road design standards to ensure access, safety and comfort for walking and cycling
Action **M6**	Adopt a multimodal level of service (MMLOS) methodology to assess road designs and allocate right-of-way
Action **M7**	Assess feasibility of bus/HOV lanes on Regional roads, identify priority locations and implement a pilot project
Make roads safer for vulnerable road users (Section 3.3.3)	
Action **M8**	Pursue Vision Zero target for vulnerable road users
Action **M9**	Review by-laws that govern active transportation facilities and affect vulnerable road users
Action **M10**	Amend speed limit policies for Regional roads and local streets
Action **M11**	Deliver multimodal road safety education to protect vulnerable road users

MULTIMODAL STRATEGIES:

KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION

Influence personal travel decisions (Section 3.3.4)

Action **M12**	Deliver special events, information and messaging across the Region
Action **M13**	Deliver TDM social marketing to priority areas
Action **M14**	Support workplace engagement by Smart Commute to promote walking, cycling, transit, carpooling and teleworking
Action **M15**	Encourage and support walking and cycling to and from schools
Action **M16**	Support sustainable travel choices through new mobility technologies and business models

Strengthen the Region's leadership role (Section 3.3.5)

Action **M17**	Create knowledge through research, testing, evaluation and monitoring
Action **M18**	Expand counting program for walking and cycling facilities
Action **M19**	Provide learning opportunities for stakeholders
Action **M20**	Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces
Action **M21**	Undertake traffic safety pilot projects

3.3.1 INFLUENCE THE SHAPE OF DEVELOPMENT

ACTION M1

Encourage local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable travel modes through infrastructure and context sensitive design

It is recommended that the Region amend its Official Plan to require the Official Plans, Secondary Plans and zoning by-laws of local municipalities to strengthen their support for sustainable travel modes. Desirable outcomes include:

- The establishment of parking maximums and reduced parking minimums at new developments, especially in walkable neighbourhoods and those with frequent transit service
- The creation of transit-supportive development in key nodes and corridors, with a focus on densities, mixed uses, walking and cycling connections, and quality urban design
- The provision of bicycle parking and end-of-trip facilities for active commuters
- The provision of priority carpool parking
- The opportunity for developers to reduce parking below minimum requirements when site amenities such as carpool parking and carshare services are provided, or in exchange for cash-in-lieu-of-parking fees
- Consideration of emerging technologies such as connected and autonomous vehicles which can support ridesharing, but may also require different types of parking (i.e. more short term parking vs. long term parking)

ACTION M2

Improve development approval processes to support sustainable transportation through infrastructure, design and TDM

In 2016 the Region of Peel created guidelines on TDM and New Development, and shared them with key stakeholders and local municipalities. The guidelines were presented to Regional Council in December 2016 with the following key recommendations:

- **Pilot project and review.** Conduct a one-year pilot project with a municipality, adopt a Regional Official Plan policy requiring TDM to be integrated into development approvals processes, and provide workshops for local municipalities (underway) the development community.
- **Implementation foundation.** Continue to promote guidelines in cooperation with local municipalities and identify development projects for monitoring TDM commitments.
- **Implement and monitor.** Provide resources for monitoring, update residential TDM programming based on the current community-based social marketing pilot, continue to monitor impacts of TDM, and update case studies and best practices.

- **Update Transportation Impact Study (TIS) Guidelines to include TDM.** A number of considerations outlined in the report should be adopted into the TIS Guidelines.

As of Fall 2017, workshops were underway and local municipalities have started to consider implementing the guidelines or similar processes.
It is recommended that the Region continue to implement the TDM and New Development guidelines for applications within its jurisdiction. It is also recommended that it begin to collect data on the TDM performance of all major development projects in the region. Finally, it is recommended that the Region update its TIS Guidelines to better integrate sustainable transportation considerations including multimodal levels of service and TDM.

3.3.2 STRENGTHEN THE MULTIMODAL FUNCTION OF REGIONAL ROADS

ACTION M3

Adopt a complete streets approach to road design and implement a pilot project

The concept of complete streets centres on making streets safe and accessible for people of all ages and abilities, and all modes of travel. The development of a complete street involves a design process that considers the needs of people walking, cycling, taking transit and those with limited mobility. A complete streets approach focuses on the role of transportation corridors as important public spaces, and complete street policies support the role of streets in providing both mobility and access (with special consideration for vulnerable road users), as well as in providing a place where healthy social exchange can occur.

It is recommended that the Region of Peel adopt a complete streets policy that supports the implementation of the walking, cycling and transit networks described in this report whenever Regional roads are built, widened, reconstructed or otherwise altered. Such a policy will help guide the scope of every project involving a Regional road. It will acknowledge that (while public transit service does not exist on every Regional road) the importance and ubiquitous presence of walking and cycling requires the addition of sidewalks, on-road or off-road cycling facilities, and/or a shared multi-use-trail (as appropriate to reflect development context, travel demand and operating environment) to Regional roads whenever the opportunity arises through work that is driven by other reasons. A complete streets policy will also stress the importance of communicating the rationale, involving multiple stakeholders (e.g. capital planning, operations, etc.), nature and safe use of complete streets to users of all modes. Any such policy will need to consider the unique nature of Peel's Regional roads. Many of Peel's Regional roads support goods movement, resulting in a significant number of heavy trucks. Existing roads have been constructed to support these large vehicles with measures

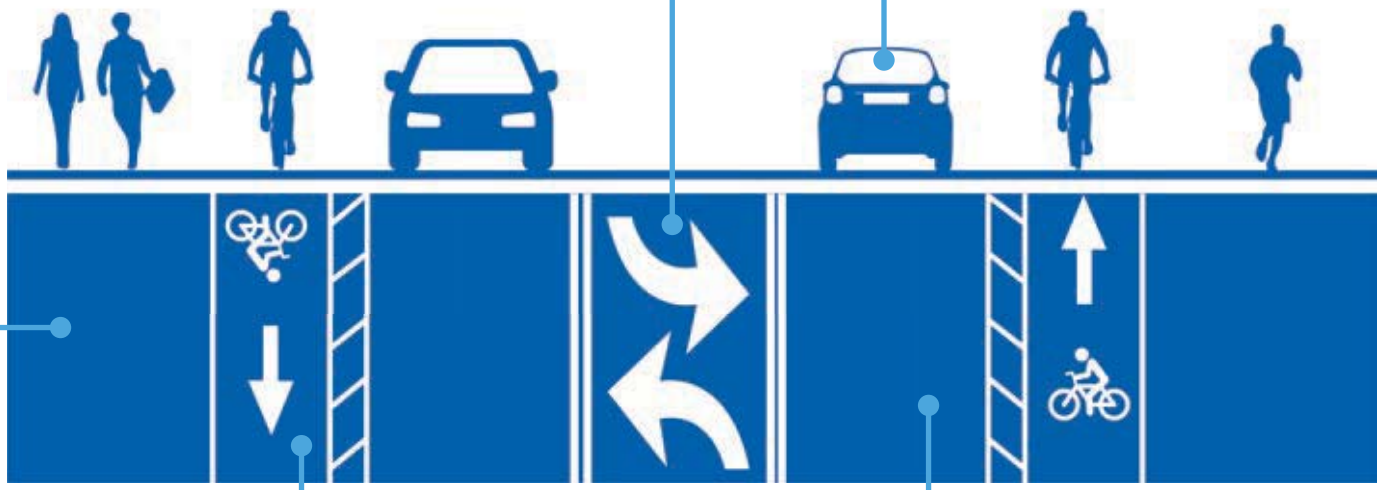
such as wide travel lanes and right-turn channels. Acknowledging these existing characteristics, and finding opportunities where justifiable changes can be made to road design,will be important when designing a complete streets policy for the region. A phased approach to implementing complete streets could start with Regional Roads that are designated 'Main Streets' or 'Suburban Connectors' first, and then phase in the rest according to their unique land use and transportation context (e.g. rural road and industrial connector).

It is further recommended that the Region conduct a pilot project to develop, demonstrate and evaluate the public engagement processes, design options, technical decision-making tools and supportive messages that are needed to translate the complete streets policy into successful on-the-ground implementation.

Roadside conditions improve for pedestrians as traffic is calmed. Bike lanes create a buffer between motor vehicle traffic and pedestrian space, improving comfort while walking along the corridor.

Addition of a centre two-way left-turn lane improves ease of completing left turns and improves access to side streets and driveways.

As a result of the cross-section changes, reductions in speeding are anticipated, improving neighbourhood livability.



Enhanced cycling facilities provide a more comfortable environment for people who would like to cycle.

Lanes remain wide enough to accommodate trucks and future transit vehicles.

Changing from 4 to 3 lanes can reduce vehicle-to-vehicle conflicts that contribute to rear-end, left-turn and sideswipe crashes.

Studies show that neighbourhoods that invest in bicycle and pedestrian infrastructure have higher property values.

ACTION M4

Assume full responsibility for walking and cycling facilities in Regional road boulevards

Generally, the Region of Peel funds the construction of sidewalks in the boulevards of Regional roads, but is not responsible for their maintenance including sweeping, snow and ice control, trash removal or landscaping. However, through the work of the Arterial Roads Review Ad Hoc Steering Committee, this is changing as the Region assumes more responsibility in maintenance of sidewalks and multi-use trails, depending on municipality. The Region is also not responsible for street trees or pedestrian amenities such as benches and lighting that build walkability by making walking a pleasant, comfortable activity (except in Caledon, where Peel has provided some pedestrian-scale sidewalk lighting on Regional roads). Multi-use trails in the boulevard of Regional roads are the preferred facility type for many existing and planned regional cycling routes, and their development is an opportunity to improve conditions for both walking and cycling. It is recommended that the Region move to assume full jurisdiction of all multimodal infrastructure in Regional road rights-of-way, subject to review and implementation processes. The intention of this effort is that the region would be supporting and promoting active transportation as part of the overall road function. The end goal is that Regional support would help to improve the level of service available to people walking and cycling on Regional roads. Designing programs to deliver this goal will require discussion with the municipalities, to determine whether the Region should contract municipalities to administer maintenance, or administer maintenance directly.

ACTION M5

Update Regional road design standards to ensure access, safety and comfort for walking and cycling

Walking and cycling environments that are safe, comfortable and attractive will increase the use of these modes. Therefore, the standards and processes used to design Regional roads matter greatly, and must meet the needs of cyclists and pedestrians more fully. It is recommended that the Region review and update its design standards for Regional roads to incorporate best practices that favour walking and cycling. Standards must consider travel across Regional roads at intersections and mid-block locations, as well as travel both within and through these corridors; they must consider pedestrian needs including benches, lighting, shade and wind protection; and they must provide for safe and comfortable use by cyclists of different ages and abilities. Many parameters of street design could be affected, including design speeds and lane widths for motorized traffic, curb radii and pavement markings at intersections, and traffic control at multimodal junctions such as trail crossings.

It is also recommended that the Region review its warrants and practices for widening Regional roads. The Long Range Transportation Plan acknowledges that road widening projects may increase driving through induced travel demand, and thus fail to address their intended goal of reducing congestion. Road widenings also have direct negative impacts on pedestrians and cyclists, who are typically exposed to greater traffic volumes, higher speeds and longer crossings. Wider roads make the environment for walking and cycling (including by transit users) less safe, comfortable and accessible, particularly for the most vulnerable road users including seniors, children and persons with disabilities. Peel's Environmental Assessment process to justify road widenings must therefore reflect the 2041 mode share target of 50% sustainable mode use in morning peak periods as a key priority. The adoption of multi-modal level of service approaches as discussed under Action M6, will ensure that future road widenings will consider more than just vehicle capacity, and be based on maximizing person carrying capacity.

It is recommended that the STS be adopted in coordination with policies being developed within Peel Region's updated traffic and sustainable transportation standards.

ACTION M6

Adopt a multimodal level of service (MMLOS) methodology to assess road designs and allocate right-of-way

Performance measures for roadways are typically based on the level of service provided to motorized vehicles; conventionally, there has been an absence of consideration given to the comparable levels of service offered to pedestrians, cyclists and transit users. However, a recently emerging best practice for roadway planning, design and operation involves measuring multimodal levels of service (MMLOS). The use of MMLOS enables more comprehensive monitoring of network performance and identification of operational problems, and the deliberate and transparent evaluation of alternative road designs that affect multiple modes, such as those that repurpose space from regular traffic lanes to sidewalks, cycle tracks and/or reserved bus lanes. MMLOS performance measures could be applied in the Environmental Assessment process to help make decisions on road corridor configuration and right-of-way requirements (linking to health criteria for air quality, accessibility and active transportation, among others); they could be linked to road designations or classifications such as those in the Official Plan or the Region's Road Characterization Study. Subsequently,they could also be adapted for use in transportation impact studies (TIS) for new developments to optimize multimodal transportation networks. Currently, the Region's TIS Guidelines require limited analysis of impacts on non-automobile modes, notably focusing on safety; factors such as convenience, comfort and delay are not addressed.

There are several approaches for measuring MMLOS. The U.S. Highway Capacity Manual outlines a very detailed methodology, but several municipalities (including the City of Ottawa) have adopted a simpler approach that better reflects the actual experiences and perceptions of pedestrians and cyclists. Exhibit 3-1 illustrates the concepts behind this approach as it can be applied to intersections, and to road segments between intersections. For each mode, there are a number of easily quantifiable indicators that represent level of service. For example, pedestrian LOS for road segments considers the adjacent roadway's traffic volumes and speed, the width of the sidewalk and boulevard, and the presence of on-street parking. Pedestrian LOS for intersections considers exposure to traffic (e.g. crossing distances) and crossing delay. It is worth noting that the Ontario Traffic Council is considering the development of a new MMLOS assessment guideline, and there could be an opportunity for the Region to participate in that project if it proceeds.

It is recommended that the Region of Peel adapt an MMLOS approach to support its own context and objectives by identifying LOS thresholds or targets for each mode for different road corridor types (e.g. major truck route, pedestrian priority corridor, Primary Cycling Network high-frequency transit corridor) or different community contexts (e.g. urban, suburban, rural). For example, Regional roads with cycling infrastructure may aim to provide a higher LOS for cycling than other roads. Additional work to refine an MMLOS approach for Peel

would confirm specific MMLOS indicators and measurement methods, integrate them into various tools and processes (e.g. TIS guidelines), and involve staff from different departments to ensure their understanding of the concept and its application. The Region of Peel will also encourage local municipalities to adopt consistent approaches to MMLOS.

As part of the review, it is also suggested that the current LOS policy that targets LOS 'D" for vehicular traffic be reviewed. The current practice is to assess roads with Level of Service "D" or v/c ratio of 0.90 as stated in the Peel Level of Service Policy, 1993. In some cases, such as roads with highly peaked commuter demands, this practice may result in an oversupply of capacity for most parts of the day. Several municipalities, including Ottawa, are starting to move towards a threshold of 1.0. for urban areas.

Exhibit 3-1: Conceptual approach to MMLOS

		LEVEL OF SERVICE	
MODE	**ELEMENT**		
Pedestrian (PLOS)	Segements	High level of comfort	Low level of comfort
	Intersections	Short delay, high level of comfort, low risk	Long delay, low level of comfort, high risk
Bicycles (BLOS)	Segements	High level of comfort	Low level of comfort
	Intersections	Low level of risk/stress	High level of risk/stress
Trucks (PLOS)	Segements	Unimpeded movement	Impeded movement
	Intersections	Unimpeded movement/ short delay	Impeded movement/ long delay
Transit (TLOS)	Segements	High level of reliability	Low level of reliability
	Intersections	Short delay	Long delay
Vehicles (LOS)	Intersections	Low lane utilization	High lane utilization

ACTION M7

Assess feasibility of bus/HOV lanes on Regional roads, identify priority locations and implement a pilot project

High-occupancy vehicle (HOV) lanes are being deployed across the GTHA on municipal arterial roads and Provincial 400-series highways. If they are planned, designed and operated correctly, HOV lanes can help maximize the effective person-carrying capacity of the transportation network. They can also give priority to key transit services, increasing the speed and reliability of bus operations and contributing to higher ridership and reduced auto use.

York Region has implemented HOV lanes in key arterial corridors where roadway

expansion has been identified as a short-term need; its goal was to provide more capacity while giving priority to carpools and buses. In the longer term, York Region's HOV lanes may be converted to full-time reserved transit facilities. Peel Region could take a similar approach by identifying key transit priority corridors (e.g. Winston Churchill/Southdown, Dixie Road, Steeles Avenue and Britannia-Matheson) and creating HOV lanes either by converting an existing travel lane or by road widening where warranted. Any new HOV lanes in Peel would be more effective if they connect to the HOV network planned for MTO's 400-series highways, and to higher-order rapid transit services. HOV lanes could act as a transit priority network to boost the speed and reliability of transit journeys within Peel, improve service for the last mile of longer transit trips to and from the rest of the GTHA, and increase the attractiveness of carpooling in Peel Region.

It is worth noting that the City of Mississauga implemented a pilot project for HOV Lanes in 1993 and a report at that time showed an improvement in travel times for all vehicles and an increase in transit ridership. However, it also highlighted compliance issues.

It is recommended that the Region assess the feasibility and effectiveness of bus/HOV lanes in various Regional road corridors, identify a conceptual long-term network, and prioritize corridors for a possible pilot project. The Region should collaborate with MTO regarding connectivity to current and future 400-series HOV lanes, and with transit providers regarding possible integration with transit services. To evaluate the applicability of bus/HOV lanes in a given corridor, a screening methodology similar to that shown in the following table may be applied.

Type of Capacity Improvement	Peak hour V/C ratio[1]	Peak hour traffic volume (vehicles/h)[2]	Peak point transit volumes (passengers/h)	HOV + transit volume (persons/h)
Add HOV lanes to widen road from four to six lanes	1.10	2000	500	1000
Transit Priority Treatment	0.8	n/a	300	500
Convert two lanes on existing six-lane road to HOV lanes	0.9	2200	500	1000

[1] Existing conditions or future do-nothing scenario
[2] Forecast travel demand with capacity improvement in place

3.3.3 MAKE ROADS SAFER FOR VULNERABLE ROAD USERS

ACTION M8

Pursue Vision Zero target for vulnerable road users

The Vision Zero is an approach to road safety thinking, that began in Sweden and has now become a global movement. It can be summarized in one sentence: No loss of life is acceptable. It is based on the simple fact that we are human and make mistakes. The road system needs to keep us moving, but it must also be designed to provide intuitive safety for all road users.

The Region of Peel has adopted a Vision Zero mandate to proactively work towards the elimination of fatalities and serious injuries to all road users caused by traffic collisions achieved through modifying infrastructure and implementing targeted policies. This Peel Region effort is being undertaken with the explicit goal of achieving a 10% reduction in fatal and injury collisions by 2022. Safety considerations in road design have historically focused on motor vehicles and their occupants, rather than taking a view that considers all users of the road. Recent trends attempt to rebalance safety efforts, explicitly including vulnerable road users such as children, seniors, persons with disabilities, and cyclists of varying skill levels. Peel Region's Vision Zero Action plan identifies countermeasures in four key areas:

Engineering – Physical modifications to the roadway network or changes in the traffic operations and signing systems, aiming to create a road environment that is safer for all road users.

Enforcement – Police are responsible for the enforcement of the Highway Traffic Act and related legislation. It encompasses four main tasks; (1) enforcing the law; (2) promoting road safety; (3) investigating incidents; and, (4) patrolling. Effective enforcement complements the education actions towards a road user's safety cultural transformation.

Education – A broad-based multi-media activity, which in the past took place in schools and other educational establishments. Effective on-going education will lead to traffic cultural transformations and the development of sustainable and safe road user behaviours.

Empathy – A complementary part of the education actions towards a road user's safety cultural transformation. It approaches road users holistically, aiming to develop a better understanding of each other's positions in traffic toward mutual tolerance, respect, and a safer road environment.

It is recommended that as the Region undertakes its Vision Zero countermeasures, the countermeasures programming be further enhanced, with cross departmental sharing information about collisions, so that efforts to deliver infrastructure and programming for active transportation can be coordinated with other program delivery efforts.

ACTION M9

Review by-laws that govern active transportation facilities and affect vulnerable road users

Until the Region of Peel established a bicycle lane by-law in 2017, motor vehicles were prohibited from stopping, standing or parking in those lanes but the lanes themselves were not legally recognized for their intended exclusive purpose of bicycle travel. The by-law will allow the installation of bicycle lane signage and the diamond pavement markings that are used in Ontario to signify that a lane is reserved for certain vehicle types, users, or time-of-day usage. The creation of a bicycle lane by-law also allows for a fine schedule, stipulating penalties for illegally encroaching vehicles.

The momentum from this new by-law should be carried forward to a more extensive review of by-laws associated with multi-use facility standards or governance. This review could create a legal framework that clarifies jurisdiction, manages use and sets operational standards by addressing issues such as user types and travel speeds. The review could also examine by-laws related to the rights and obligations of vulnerable road users on streets and at intersections.

An example of a by-law where a review would be appropriate by Peel Region, is the single-file riding bylaw. Many municipal or regional jurisdictions around Ontario are rescinding these bylaws, as they are redundant to guidance provided by the Highway Traffic Act. It is recommended that the Region of Peel undertake a review of by-laws that affect vulnerable road users, and assumes a leadership role to coordinate municipalities so that they may similarly address related bylaws within their jurisdictions.

ACTION M10

Adopt Speed Reduction Approach for Regional roads and local streets

At higher speeds, drivers have a narrowed field of view and a reduced ability to detect pedestrians entering the roadway. Furthermore, higher speeds increase the distance it takes for drivers to respond to unexpected events or hazards, and to come to a full stop; doubling the speed of a car from 30 to 60 km/h will triple its stopping distance from three to nine car lengths. Operating speeds also play a major role in collision severity. For these reasons, the adoption of a region-wide speed policy could be an effective road safety measure. As a broad policy goal, the Region should look at ways existing speed policies may be updated, in order to design for target speeds rather than current operating speeds.

Recognizing the possible safety benefits of lower vehicle speeds, particularly for vulnerable road users, it is recommended that the Region enhances its warrant system,

to include a process that identifies locations where lower speed limits may be implemented.

These policy efforts should be sensitive to the differences between urban and rural contexts. Specifically, changes to a speed reduction warrant should be designed to identify locations where:

- The speed limit on arterial roads within urban areas can be reduced to be 50 km/h
- The speed limit on rural arterial roads can be reduced to be 60 km/h

The speed reduction warrant system would recognize that on existing roads, simply reducing the posted speed limit may have minimal effect unless accompanied by design changes (e.g. traffic calming measures, reduction of lane widths), driver communications (e.g. speed boards) and rigorous enforcement. Steps may also be required to address public concerns over the potential for longer travel times for motor vehicles; accurate and transparent information will usually show that the added delay due to reduced speed limits in urban areas is minimal (especially compared to the effects of congestion and delay at signalized intersections).

It is therefore critical, that on new roads, achieving lower speeds will consider, but go beyond the Road Characterization Study, to identify enhanced standards where changes to the conventional practice of designing roads for safe operation at speeds are required. The implementation of these measures will be particularly critical in pedestrian priority areas, and in conjunction with cycling infrastructure projects.

It is recommended that as a standard practice, speed limits be reviewed in conjunction with the design and implementation of cycling infrastructure projects and programs for pedestrian priority areas.

ACTION M11

Deliver multimodal road safety education to protect vulnerable road users

Much of the walking and cycling information developed by the Region of Peel emphasizes actions that pedestrians and cyclists can take to stay safe. It is understood that for the road safety goals of the Region to be achieved, these marketing and communications activities will have to be expanded to discuss the roles and responsibilities of people while driving. As many people who walk and cycle also drive, there are road users who are mindful of these safety considerations while driving. However, there are others in Peel Region who do not regularly walk or cycle for transportation. The adaptation of marketing and messaging to reach this demographic will be an important step forward towards building a narrative of road safety for all users.

Since 2010, the Region of Peel has used the Walk + Roll Peel brand to encourage and support walking and cycling in Peel Region. The booth focuses on increasing the safety of pedestrians and cyclists by providing both education on safe road skills for pedestrians and cyclists as well as targeting motorized

vehicle drivers and increasing their awareness of vulnerable road users, their understanding of the rights and responsibilities of vulnerable road users and how motorist behaviour can increase the safety of all road users. Under the Walk + Roll brand, the Region would develop new education materials and information that targets drivers as the audience. Driver education may include the active promotion of new legislation, legal obligations of drivers, or it could suggest recommended driver behaviours, which would help to improve road safety across the Region.

Pilot projects also present an opportunity to deliver multimodal road safety education. These projects allow for the testing of ideas at a reduced cost, before considering making permanent changes. Projects could include curb extensions, bike lanes, the deployment of planters or simply placing bike parking stands in on-street parking spots. The purpose of these temporary measures is to physically alter the road environment, with low-cost interventions. Pilots which demonstrate how the walking and cycling environment can be improved, with minimal motor vehicle impacts can help to build support for permanent long-term changes to the geometry of a roadways. Pedestrian improvement corridors, or locations where road reconstructions are planned near the end of the 5 year horizon of this plan would be strong candidate locations. While the projects would primarily be branded as efforts to improve traffic safety for existing road users, it is expected that they may also enhance the quality public realm encouraging more people to make trips by walking or cycling.

The Region of Peel has an important role to play in institutionalizing the regular, periodic installation of these types of road alterations, to demonstrate how safety may be enhanced. The inclusion of a "Pilot Projects Program" recommendation within the STS, will ensure formal council support for initiatives which may otherwise have been seen as outside the scope of the Region's existing transportation programs.

The STS recommends that programs to promote that Regional walking and cycling programs be broadly leveraged to distribute important road safety information. The collaborative development of communications by Public Health, Traffic Engineering and Sustainable Transportation staff could ensure the consistency of public-facing information while streamlining resource requirements and achieving efficiencies.

3.3.4 INFLUENCE PERSONAL TRAVEL DECISIONS

ACTION M12

Deliver special events, information and messaging across the Region

The STS recommends that the Region of Peel develop an updated Active Transportation Communications Strategy to support active transportation programs and projects taking place in Peel Region. The Communications Strategy will increase community awareness of and engagement in active Transportation Programs, by expanding the reach and effectiveness of the Region's active transportation messaging. It is expected that the communications strategy would enhance the Region's established **Walk+Roll**

Peel active transportation marketing brand, which it has promoted since 2010. The brand incorporates includes the walkandrollpeel.ca website, a visual identity applied online and to printed bike and trail maps, promotional materials, and initiative-specific communications. Walk+Roll Peel provides an umbrella for the concurrent promotion of active transportation in Mississauga, Brampton and Caledon; this is important because pedestrians and cyclists value the quality of their experience and appreciate seamless access to information.

It is recommended that the Region lead the centralized provision of information on all carpool lot locations in the Region (MTO's, Peel's and the Mississauga Transitway's). However, given that inter-regional travel is common it would make more sense for Peel to ask Metrolinx to incorporate GTHA-wide carpool lot information in its online Smart Commute tool that also offers ridematching services, and to promote it across the GTHA. That tool currently provides a link to information on MTO carpool lots only, in a format that could be more user-friendly.

It is recommended that the Region incorporate TDM initiative funding in capital budgets for all transportation infrastructure. These initiatives could relate to managing construction impacts by helping people bypass congestion, an also to promoting the use of active transportation, transit and carpooling infrastructure after completion. Coupling TDM with infrastructure investments is a sensible way to maximize the return on capital budgets, and the behavioural impacts of new or improved sustainable transportation options. This recommendation could build on the practice initiated by Metrolinx for major transit projects.

The STS recommends that the Region encourage cycling to and from GO stations though innovative programming and partner with stakeholders to improve the active transportation infrastructure within each station and connecting the station to the surrounding neighborhoods.

Currently, the last mile programming being undertaken by the Region of Peel constitutes general promotion at Walk+Roll booths and similar unstructured initiatives. However, opportunities to take a more structured approach were demonstrated in 2015 as part of the Peel Region School Board pilot, Metrolinx was invited and run a festival at the Brampton GO Station during Bike month, with the Go Bear.

This report proposes programming to encourage biking to/from GO stations and major transit hubs in Peel. Examples may include events at GO stations with novel promotions such as organized group rides to/from the stations, bike valets as part of the event, or Presto card incentives for people who bike to/from the GO station. Programs to encourage first/last mile cycling from GO stations may also extend promotions surrounding focussed infrastructure investments constructed around the station. It is recommended that an additional $30,000 - $50,000 be allocated for first/last mile programming near stations, including promotions to increase awareness and build support for infrastructure which will improve connections form the stations to surrounding neighborhoods.

These recommendations focus on first/last mile programming. Where possible it may be desirable to coordinated programming opportunities with the roll out of first/last mile wayfinding recommendations described

in Actions B6, W3 and T3 of this report.

ACTION M13

Deliver TDM social marketing to priority areas

Peel will build on its experience with TDM social marketing to deliver additional campaigns and support those by other organizations:

- In 2016, Peel conducted the "Meet at Mayfield|50" campaign that tested innovative motivational tools to increase use of the carpool and park-and-ride lot.
- In 2017, Peel launched an ongoing two-year pilot project to test TDM social marketing tools and techniques in the City of Brampton's Bramalea neighbourhood.
- Peel is advising the Mississauga LRT Office on a TDM social marketing program to be delivered before, during and after construction of the 20-km Hurontario LRT corridor.

As Peel and its partners gain experience with social marketing and gather information on its effectiveness, it is recommended that the Region deliver a TDM social marketing program targeting priority neighbourhoods across the Region. Such a program would likely be in collaboration with local municipalities, transit operators and perhaps community associations, and could employ a modular methodology for identifying and targeting priority markets, and for measuring results. Priority markets might be those with the greatest potential for mode shift (e.g. those close to important sustainable transportation infrastructure such as rapid transit stations, high-occupancy vehicle lanes and carpool lots) or those facing equity issues such as lower incomes or cultural barriers, and could selectively emphasize active transportation, public transit, carpooling and/or telework outcomes. Some campaigns could be designed to accompany the delivery of new transportation infrastructure (as the Hurontario LRT project), and to integrate other sustainability initiatives such as climate change. Other campaigns could be targeted at newly developed communities and condominium developments, to help arriving residents understand and choose sustainable travel options. Based on the ongoing pilot project in Bramalea, tools and techniques will continue to be refined; these include practical evaluation methodologies, effective incentives for transit use and other desirable behaviours, and approaches for different types of community (e.g. condominium versus single-family homes).

In neighbourhoods engaged through social marketing, it is recommended that the Region and its partners conduct multimodal audits (using standardized methodologies and tools to be developed) of local destinations to identify barriers to sustainable travel, along with possible improvements. Subject destinations could include schools, community centres, parks and recreation facilities, libraries and retail centres. Engaging community groups in these audits could lead to the removal of barriers that enable individuals to make the travel choices that are best for them, and could also help build public engagement in the TDM social marketing program.

ACTION M14

Support workplace engagement by Smart Commute to promote walking, cycling, transit, carpooling and teleworking

Smart Commute offices currently operate in Peel with service areas that cover the entire Region, namely in Brampton-Caledon, Mississauga, and the Pearson Airport Area. They depend on funding to engage and support member workplaces, and their services are financially supported by Metrolinx, The Region of Peel, local municipalities, and some membership fees. To enable an expansion of Smart Commute membership over time, it is recommended that The Region of Peel and its partners increase Smart Commute funding while working with economic development agencies, boards of trade and chambers of commerce to generate employer interest. The specific allocation of staff to TDM Coordinator position functions in Brampton and Caledon would help to enable this objective.

To provide funding prioritization and accountability, it is also recommended that Peel and local municipalities establish regional and municipal targets for vehicle-trip reductions (i.e. auto driver trips) among member workplaces that reflect the mode share targets of this strategy.

It is recommended that Peel work with Smart Commute offices to identify tools and resources that it could provide to help Smart Commute improve the travel options available to commuters. One example of how Peel could add value (as discussed for Action TW2 in Section 8.3.2) is the planned creation of a telework toolkit for Smart Commutes to deliver at member workplaces. Another possible example would be to work with MiWay and Brampton Transit to develop a toolkit based on the Greater Toronto Airport Authority's pilot GREEN Commuter project that offers provides employees with a monthly $50 (taxable benefit) to any employee that commutes to work using sustainable travel modes for at least 70% of their commute trips.

ACTION M15

Encourage and support walking and cycling to and from schools

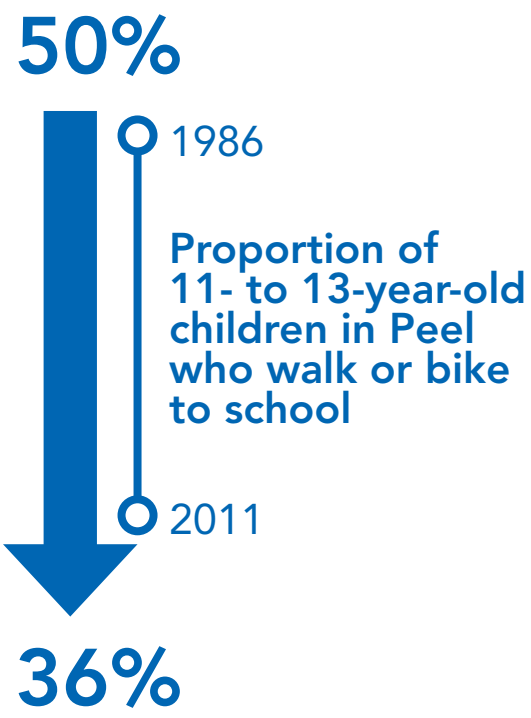
Active travel to schools supports a number of Regional goals related to health, transportation and the environment. From 1986 to 2011, the proportion of 11- to 13-year-old children in Peel who walk or bike to school fell from over 50% to just 36%. As rates of physical inactivity have climbed, health issues such as obesity and diabetes have become more pervasive; traffic congestion around schools is also a frequent complaint. Nevertheless, school-based walking and cycling trips represent a large proportion of all active transportation use in Peel, and schools with supportive programs have been able to increase walking and cycling by students.

The Region of Peel encourages walking and cycling to and from school by working collaboratively with a variety of community partners to engage school communities and individual students. Its goal is to help children shift from being passive, sedentary vehicle passengers, and become active, engaged explorers of their communities. It is recommended that the Region of Peel continue to support active and sustainable travel to schools, expand program delivery to secondary schools, and seek funding from partners including Metrolinx.

Peel School Travel Planning (STP) is the Region's overarching initiative to work with school communities in addressing traffic-related issues and promoting walking and cycling to school. The program is based on Green Communities Canada's School Travel Planning Model, and is implemented at Peel Region schools over two to three years through a five-step process, facilitated by school public health nurses.

Using existing knowledge and experience as the foundation, the STS recommends that the Region continue supporting existing and future interventions to increase active transportation at secondary schools.

The Peel Safe and Active Routes to School (PSARTS) Committee plays an important role, as it helps coordinate local information and action. It includes the Region of Peel, City of Mississauga, City of Brampton, Town of Caledon, Peel Regional Police, Ontario Provincial Police (Caledon), School Boards, Metrolinx and community groups. It is recommended that the Region of Peel continue supporting PSARTS to operate as a venue for partnership, discussion and combined action on active transportation in schools.



In addition to PSARTS, a number of other Regional programs that support STP implementation could also be expanded over time:

- School Bicycle Parking Program—This initiative, based on a 2015 pilot project, provides safe and secure bicycle racks to elementary and secondary schools across Peel.
- Bike to School Week—This annual GTHA-wide celebration takes place during Bike Month each spring, and encourages cycling to and from school. In 2017, over 150 elementary and secondary schools in Peel Region participated.
- Peel Children's Safety Village—This Peel Regional Police facility provides a place for elementary students to practice road safety rules, and offers ongoing pedestrian and school safety workshops for school children throughout the year.

In recognition of the 2015 Peel Healthy Schools Partnership Declaration by the Region and area school boards, it is recommended that the Bike to School Week campaign expand to 200 schools in Peel and increasing activation within participating schools over the next 5 years.

Cycling skills education programs for children and youth would be a particularly valuable initiative. All walking and cycling programs for children and youth should adhere to several key principles:

- Emphasize the positive aspects of walking and cycling, such as fun, convenience and health.
- Incorporate direct participation and hands-on learning, such as through bike rodeos or walking school buses.
- Focus on age-appropriate skills that recognize the cognitive limitations of younger children (e.g. riding in a straight line) and encourage greater independence for older children (e.g. riding in traffic).
- Include parents, teachers and school administrators to ensure their involvement in educating and supervising children, as appropriate.
- Target not only individual behaviour, but also collective solutions such as changes to the built environment as well as enforcement of appropriate driving behaviours.
- If being delivered at schools, consider the entire walking and cycling catchment area around each school, not just a school's immediate environs.

The STS recommends that the Region of Peel research best practices to deliver cycling skills to children and youth, and launch youth-focused bicycle skills training in the Region.

ACTION M16

Support sustainable travel choices through new mobility technologies and business models

Enabled by emerging technologies, innovative new mobility business models have the potential to improve existing sustainable travel choices (e.g. through mobile applications for improved carpool ride matching as discussed in Section 7.2.1). They are creating new travel options such as car sharing and ride-hailing, and in doing so they are obscuring the once-clear distinctions between public and private transportation (e.g. through micro-transit services as discussed in Section 6.3.3). It is recommended that the Region work with its local municipalities and other governments across the GTHA and Ontario, applying all available licensing and regulatory tools to influence the delivery of ride-hailing and other new mobility modes with the goal of reducing auto ownership, auto trips and vehicle-kilometres travelled, and avoiding the reduction of transit and active transportation mode shares that has been observed in some large North American cities.

While mass consumption of fully autonomous, driverless vehicles is many years (if not decades) away, technological progress is unpredictable. It is recommended that the Region monitor the evolution of connected and autonomous vehicles (CAVs) to ensure that their implementation will benefit (rather than obstruct) the Region's sustainable transportation goals. For example, a future scenario in which zero-occupancy vehicles (without drivers or passengers) circulate on the roads of Peel Region is an idea to be resisted. Peel and its partners across the GTHA and Canada will have an important role to play in enabling and regulating the use CAVs, and should ensure that as a general approach to policies and programs around CAVs, their potential is captured in a way that supports the overall mode shift vision for sustainable transportation.

Finally, it is recommended that the Region encourage and support the development of mobility-as-a-service (MaaS) tools that provide consumers with integrated, multimodal subscription payment options. For example, a consumer could choose from among monthly packages that include different amounts of travel by GO transit, local transit, car sharing, bike sharing, ride-hailing and taxi services. MaaS tools that simplify payments and save consumers money are now being developed in tested in Europe. MaaS is an important tool to leverage the current trend (particularly among urban young adults) toward purchasing trips, rather than purchasing cars.

3.3.5 STRENGTHEN THE REGION'S ROLE

ACTION M17

Create knowledge through research, testing, evaluation and monitoring

Many of the recommendations in this strategy require the Region to engage in knowledge creation. This endeavour will sometimes lead to an understanding that an initiative's successes have been more modest than expected, or that its impacts have been different than anticipated, or that it has simply failed. Regardless, the only way to prepare for innovation, measure its effects and learn from the experience is to gather information, explore options and monitor results. For this reason, it is recommended that the Region develop an approach to consistently tracking, recording and reporting on new knowledge and information created through the implementation of this strategy. Pilot projects, which are limited applications of innovative approaches designed to inform decisions about larger-scale implementation, are a critical example of this idea. Other ideas for pilot projects identified in this strategy include those for TDM in development approvals, complete streets, high-occupancy vehicle lanes on a Regional road, alternative transit services, and vanpool services.

ACTION M18

Expand counting program for walking and cycling facilities

Understanding the level of use of active transportation infrastructure across the Region is key to identifying higher- and lower-value network elements. It is recommended that the Region expand its current permanent walking and cycling counters program by installing permanent walking and cycling counters as part of new infrastructure projects. In particular, multi-use trails built in the boulevards of Regional roads present an opportunity to gather data that complement on-street counts. Counting hardware may be installed when multi-use trails are built, or where infrastructure is being refurbished. Over time, counting hardware will enable an understanding of the impacts of factors including weather and time of year, and will inform network planning and maintenance priority setting. Records gathered by counting hardware should be made available to all Regional staff who work on transportation matters. Until the deployment of hardware at a meaningful number of locations is complete (which may take several years), the Region should continue to purchase app-based cycling data to build its understanding of cycling demand.

ACTION M19

Provide learning opportunities for stakeholders

In conjunction with the creation of knowledge just discussed, Peel has an important leadership role in helping to build capacity among its partners. It is recommended that the Region provide forums for information sharing among its staff, partners and stakeholders, to maximize the value of new knowledge and information that has been gathered through innovation and practical experience. Examples of learning opportunities that Peel is well positioned to offer include seminars, workshps, training sessions, electronic newsletters and other forms of communication. In-person events are particularly valuable because they transmit information more effectively, and because they allow participants to network informally and improve their relationships. Specific examples of learning opportunities could include workshops on integrating TDM into the development approval process, development and training workshops on multimodal levels of service (MMLOS), and annual or semi-annual events at which sustainable transportation stakeholders gather for a day or half-day to exchange ideas and information, identify challenges and opportunities, and report on lessons learned.

ACTION M20

Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces

In conjunction with this strategy's recommendation (Action M14) for the Region to support Smart Commute in engaging workplaces and promoting sustainable commuting, the Region has an important "leadership by example" role in encouraging sustainable commuting among its own employees.

It is recommended that the Region expand the provision of adequate, sheltered and secure employee bicycle parking to all Regional workplaces, to protect bicycles from the elements and minimize the risk of bicycle theft. It is also recommended that the Region provide change rooms, showers and lockers for active commuters at all Regional workplaces; these facilities can remove a key barrier to longer commutes by bike or on foot.

It is recommended that the Region provide priority carpool parking for employees at all Regional workplaces, and ensure that the capacity of those spaces is adequate as carpooling use increases. At larger workplaces, conveniently located priority parking can be a tangible incentive that saves time for carpoolers; at smaller workplaces the incentive may be more symbolic, but the visibility of priority spaces is a good reminder to non-carpoolers. To prevent their abuse, carpool spaces need to be signed and marked; eligible carpool vehicles need to be registered and identified (e.g. with hangtags) to simplify enforcement.

It is recommended that the Region enhance telework-supportive policies and practices at its workplaces where appropriate, building on its Workforce Modernization Strategy and current corporate telework policies, and incorporating the results of its current telework pilot project and toolkit development. Given the usual complexity of telework programs in large organizations, this would be a multi-departmental initiative requiring the consideration of numerous issues related to human resources, information technology, operational needs, management practices, facilities and funding. By tracking, measuring and sharing the results of its own efforts, the Region will help other large employers tackle their own challenges and make telework an option for more commuters.

It is recommended that the Region offer other incentives and policies that motivate sustainable commuting by employees. Currently, it offers subsidies to transit commuters (50% for Brampton Transit passholders, and $50 monthly for those who use PRESTO cards to ride GO, TTC or Mississauga Transit services); an emergency ride home service for employees who take transit, carpool, walk or bike to work; fleet cars for local business travel during the day; and free breakfasts on Bike to Work Fridays in the summer and fall. Possible new actions could include giving current drivers a pre-loaded PRESTO card to try transit, offering an additional discount for underground carpool parking at Regional headquarters, and offering carshare services and subsidized memberships for non-driving commuters to make personal errands at lunchtime or after work.

Finally, it is recommended that the Region charge employees to park at workplaces where sustainable travel modes represent a practical option. Currently, employees at Regional headquarters (10 Peel Centre Drive) who park underground are charged $20 per month and carpool vehicles receive preferential underground parking. Other workplaces also offer free parking. While charging "market value" for parking fees is a reasonable objective, it can be difficult to quantify in urban environments where free parking is the norm. Nevertheless, the provision of free employee parking is inequitable in the absence of similar incentives for people who commute by other modes (e.g. cycling or transit); it is also a missed opportunity to demonstrate leadership to other employers. Using employee parking revenues to fund concurrent improvements to other commuting facilities and services (e.g. showers and lockers, secure bike parking, transit pass subsidy) improves equity and reassures drivers that their parking fees are helping more of their colleagues choose sustainable modes.

ACTION M21

Undertake Traffic Safety Pilot Projects

Pilot projects present an opportunity to test ideas at a reduced cost, before considering making permanent changes. Projects could include curb extensions, bike lanes, the deployment of planters or simply placing bike parking stands in on-street parking spots. The Region of Peel has an important role to play in reducing administrative barriers that can inhibit these types of initiatives. Without formal council support for a "Pilot Projects Program", initiatives may be seen as outside the scope of the Region's transportation work. The issuance of permits in of temporary conditions (such as a streamlined process for the issuance of road occupancy permits for on-street locations within the program) will help ensure pilot projects are not held back by red tape It is recommended that the Region provide support for pilot projects that create a more active transportation-oriented environment in Peel.

These low-cost, temporary projects could be aligned with complete streets initiatives being undertaken at either the regional or municipal level.

By supporting these projects, the Region would help carry out interventions that aim to enhance the quality of life in Peel through temporary changes to the built environment. The goal of these projects would be to install traffic delineators or public realm elements. These non-permanent pilot projects represent a way for the region to preview the impact of a change on a roadway or boulevard. It would also facilitate greater citizen involvement in the planning process by providing interested organizations with a platform to share their ideas on how to improve Peel for its residents.

Exhibit 3-3: Example of a local street curb extension demonstration project, permitted by the transportation authority as a temporary condition

- 4 -

Walking Strategies

4.1 Walking Today

4.1.1 INFRASTRUCTURE AND SERVICES

The Region of Peel's current pedestrian infrastructure includes sidewalks and multi-use trails. In addition to linear infrastructure, the Region provides a number of services that support walking in Peel Region.

Pedestrian facilities.

Under the Municipal Act, the construction and maintenance of sidewalks is under the jurisdiction of local municipalities. Therefore any existing sidewalks or multi-use trails along Regional roads are built in cooperation with the local municipality, and funded by the municipality or Regional or local development charges if constructed at the time of road widening.

The pedestrian network also includes pedestrian crossings of Regional roads. At some mid-block locations and signalized intersections, crossings include enhanced treatments such as high-visibility ladder crosswalks and countdown signals. Ensuring that pedestrian facilities are accessible and adhere to the Access for Ontarians with Disabilities Act (AODA), such as by providing curb ramps and adequate clear widths on trails and sidewalks, is another of the Region's roles and responsibilities.

Most trails are designated for use by pedestrians and cyclists, but some in rural or natural areas are hike-only; several trails including the Bruce Trail, the Elora-Cataract Trail and the Oak Ridges Trail join Peel to adjacent regions.

Peel Public Health's Walking Audit program is a tool used in environmental assessments, master plans, and corridor and land use studies to help community leaders and residents assess how efficiently and safely people can make recreational and utilitarian trips by walking.

Walking promotion.

The Region of Peel promotes walking through a number of community initiatives:

- **Walk+Roll Peel.** The Region of Peel launched Walk+Roll Peel in 2010 (as discussed under Action M11 in Section 3.3.4). The website www.walkandrollpeel.ca hosts an interactive map that residents can use to find bike lanes and trails in the Region, and serves as a hub for information to help residents get started in cycling and walking. www.walkandrollpeel.ca also supports and publicizes the work of relevant public consultations and special events.

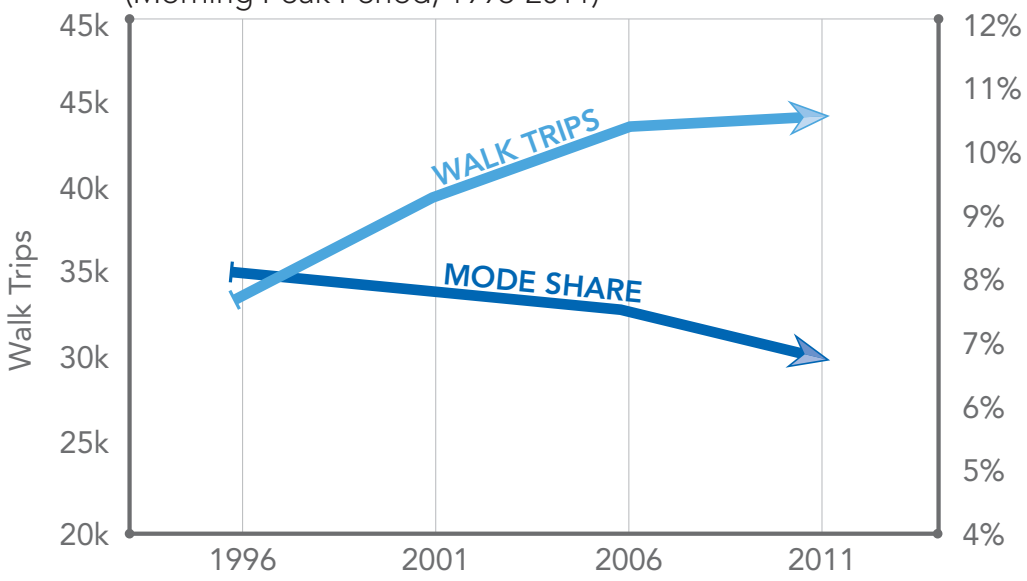
- **Peel Safe and Active Routes to School Initiatives.** This initiative (also see Section 3.3.4) is steered by a community committee with representatives from Peel Regional Police and the municipalities of Brampton, Caledon and Mississauga. It is supported jointly by the Region of Peel Public Works and Peel Public Health. It brings together a number of organizations to improve the health of children by encouraging the use of active modes to and from school, with key outcomes including improved physical activity, reduced traffic congestion and better air quality.

4.1.2 LEVELS OF USE

Mode share.

Exhibit 4-1 shows that walking mode share by Peel residents decreased from 1996 to 2011. Even though the number of walking trips increased by about one-third, walking's mode share dropped from about 8% to 6.8%. This trend will need to be reversed to meet the 2041 mode share target of 9%.

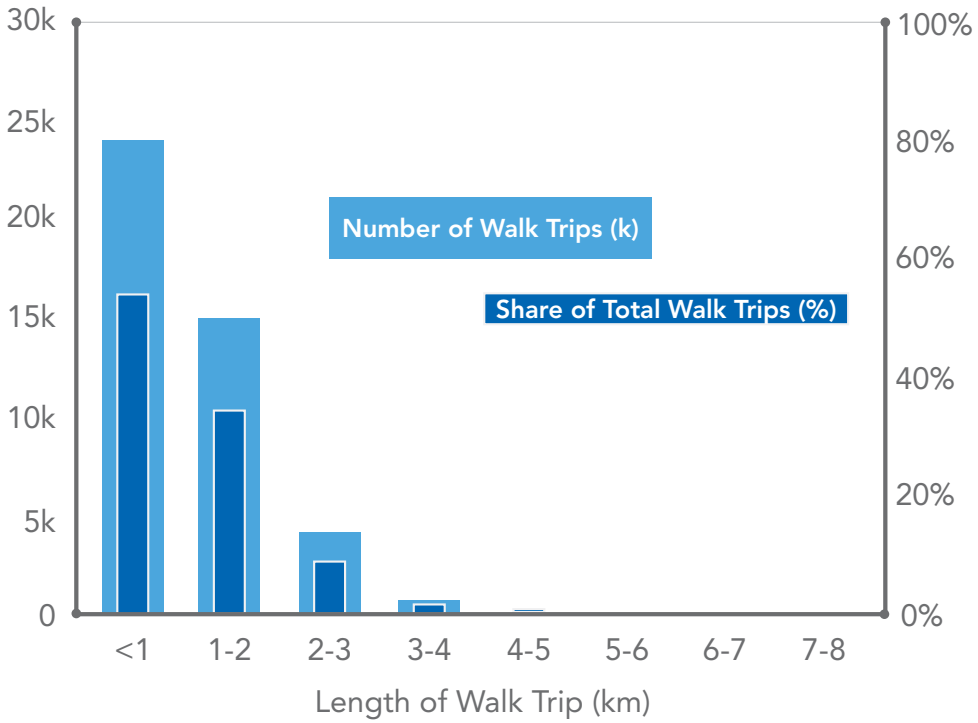
Exhibit 4-1: Walking Trips and Mode Share (Morning Peak Period, 1996-2011)



Walking trip attributes.

In 2011, 80% of walking trips in the morning peak period were from home to school, and 12% were from home to work. Exhibit 4-2 shows that 88% of all walking trips were less than 2 kilometres in length, and almost none were more than 3 kilometres in length. Pedestrians are generally young with an average age of 17 years. Among people who walk to work, the most common employment sector is retail sales and service; most live in households with at least one car.

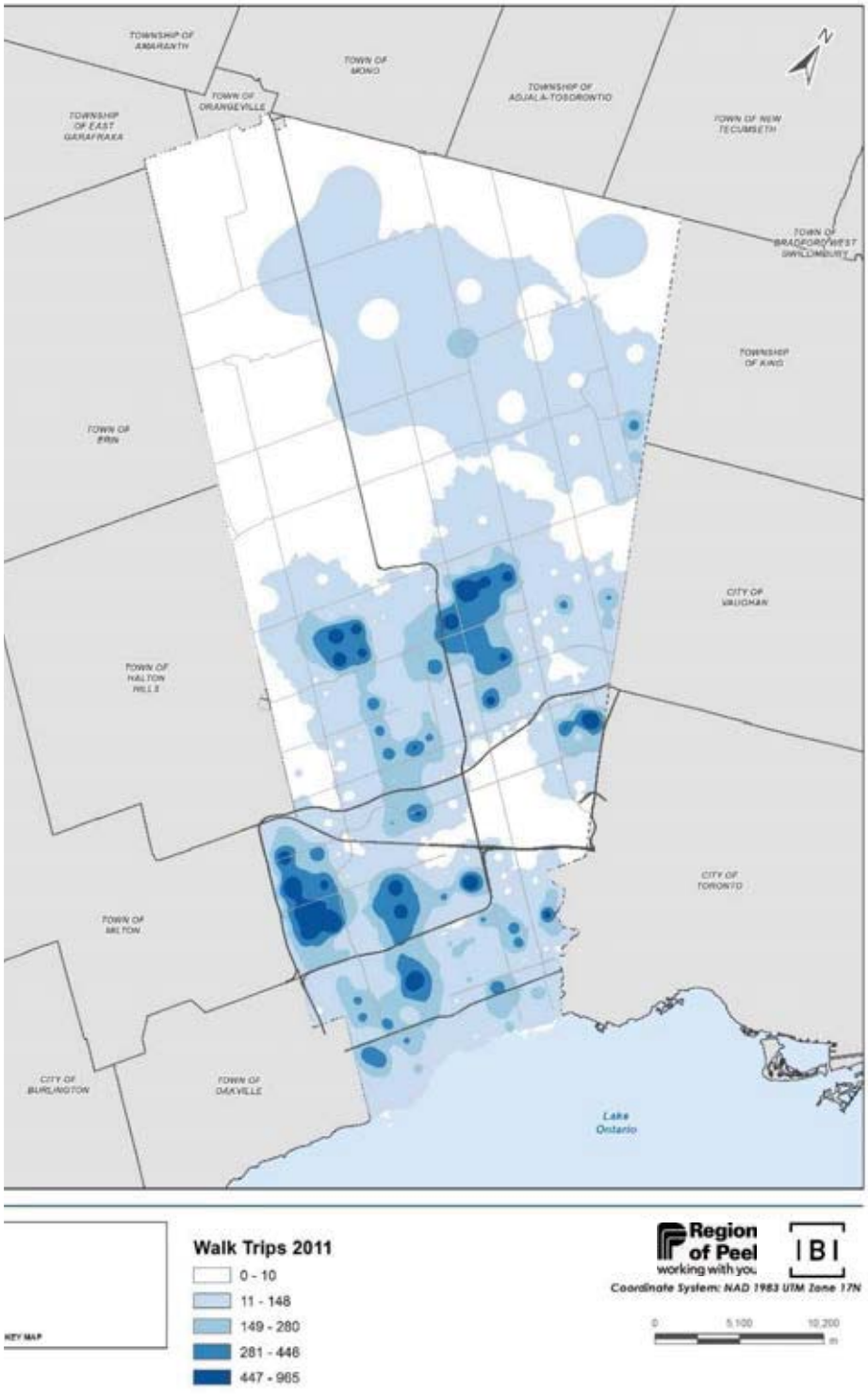
Exhibit 4-2: Walking Trip Lengths (Morning Peak Period, 2011)



Walking trip origins and destinations.

Exhibit 4-3 shows that, as expected, walking trips are concentrated in areas of Peel that have with higher population and employment densities. Some of the areas with more walking trips are new neighbourhoods in northern Brampton and western Mississauga, which suggests that the design and/or demographics of those areas may support walking.

Exhibit 4-3: Walking Trip Origins (Morning Peak Period, 2011)



Based on 2011 Transportation Tomorrow Survey data

4.2 A Vision for Walking

4.2.1 DESIRED OUTCOMES

Peel's vision for walking includes the outcomes discussed in the following paragraphs. This strategy acknowledges several challenges that are common to urban areas in Canada as they work to make walking more practical and attractive: helping users shift their perception of barriers related to distance, winter weather and culture; reshaping existing transportation infrastructure that is often unsupportive of walking in rural areas and communities developed in the latter half of the 20th century; and building public acceptance of larger capital and operating expenses associated with improved walking facilities.

A continuous network of facilities will allow residents to walk from their homes to everyday destinations

Current gaps in the walking network will be eliminated, and major geographical or physical barriers to walking trips (e.g. freeway interchanges) will be overcome. Together with an expanded network of multi-use trails, a continuous system of sidewalks on Regional and local roads will increase the number of community facilities, retail areas and jobs within walking distance of homes. This will require significant sidewalk infill projects, particularly in employment areas, for the benefit of both pedestrians and transit users.

Current gaps in the walking network will be eliminated, and major geographical or physical barriers to walking trips (e.g. freeway interchanges) will be overcome.

Walking environments will be safe, intuitive, comfortable and accessible to all

Safe and direct walking routes, accompanied by better lighting, wayfinding, universal design and greening, will make walking a natural "first choice" for more people to get around. Pedestrian comfort and safety will be a high priority, and areas with more walking activity will see enhancements including lower speed limits, reduced crossing distances, centre islands, advanced walk signals, and additional landscaping. Winter walking will be more attractive than it is today, with improved snow and ice control on Regional road sidewalks and key multi-use trails.

Safe and direct walking routes, accompanied by better lighting, wayfinding, universal design and greening, will make walking a natural "first choice" for more people to get around.

Residents will choose to make short trips by walking more often

To accompany physical improvements to walking routes and the pedestrian environment, the Region and its partners will raise residents' awareness of walkable destinations near their homes, and promote the health benefits of walking. Education, promotion and incentives will focus on motivating residents to walk instead of drive when they make short trips, which are now largely made by car.

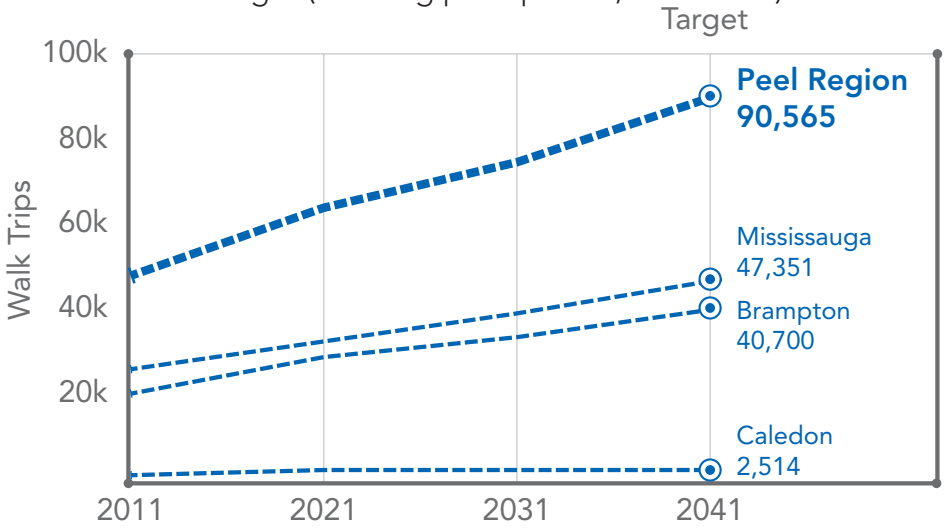
Education, promotion and incentives will focus on motivating residents to walk instead of drive when they make short trips, which are now largely made by car.

4.2.2 TARGETS FOR 2041

Mode share.

This strategy sets a mode share target for walking in 2041 of 9% in the morning peak period, an increase from 6.8% in 2011 (see Exhibit 4-4). Reaching this target will require the incremental addition of 1,435 new peak-period walking trips each year, on average, and a reversal of recent trends toward a lower walking mode share. Achievement of this mode share would require 25% of trips less than two kilometres long that (with current travel behaviours) would be made by motorized modes (i.e. car or transit) to be made by walking; this shift in how Peel residents make short trips is considered to be ambitious, but feasible. Further information on the methodology to develop the mode share targets can be found in the Mode Share Targets background report under separate cover.

Exhibit 4-5: Projected growth in walking trips to reach mode share target (morning peak period, 2011-2041)



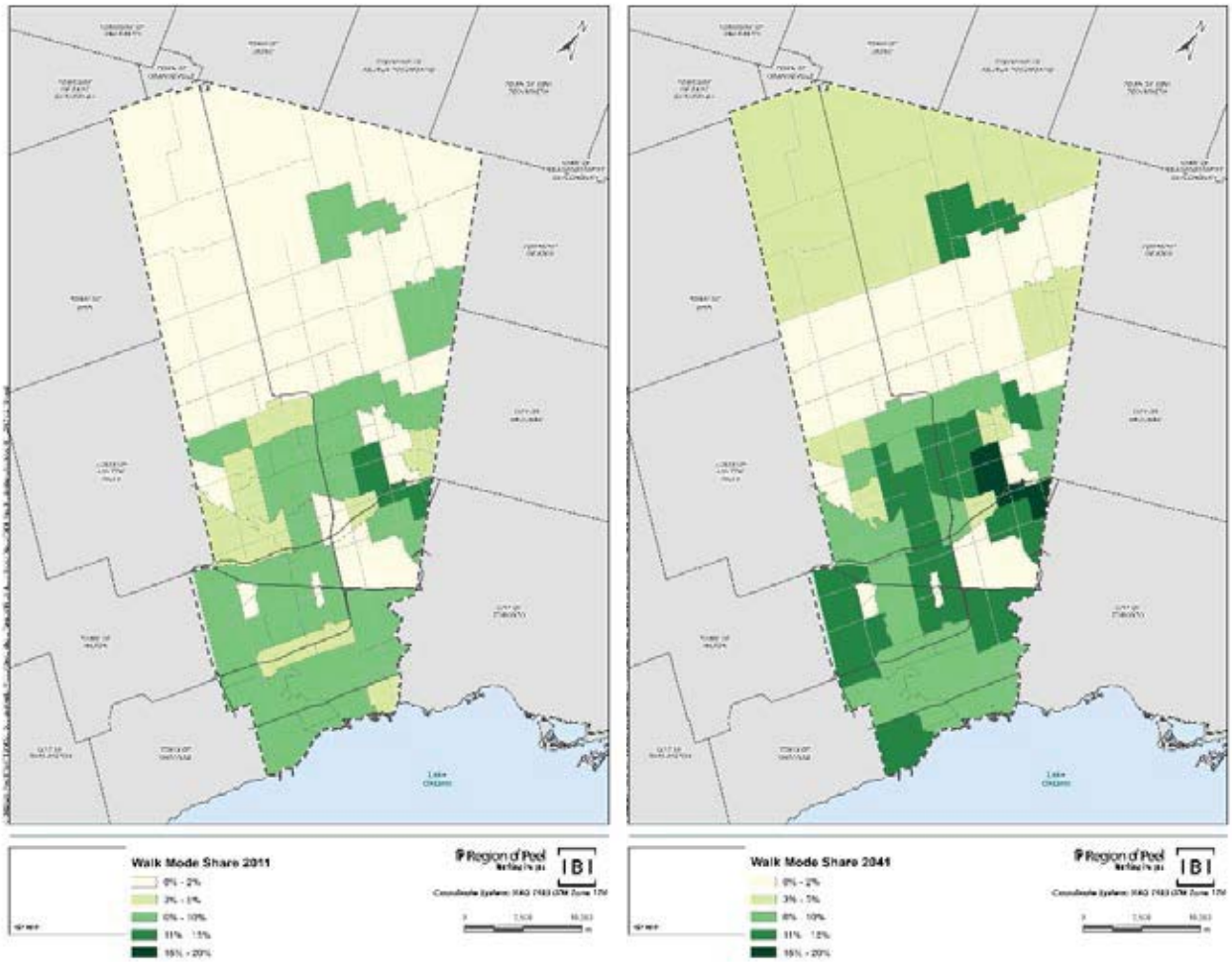
Focus areas.

This strategy envisions that this increase in walking will be achieved principally through gains in areas of the Region that have one or more of the following characteristics:

- Areas where the morning peak period walking mode share was greater than 6% in 2011
- Areas with more walkable trips, i.e. those shorter than two kilometres
- Areas with population density greater than 50 persons plus jobs per hectare
- Areas with a good balance of residential and employment land uses

Exhibit 4-5 shows how the targeted increase in walking trips is distributed across Peel's three local municipalities, and Exhibit 4-6 shows a finer-grained depiction of how walking mode share is targeted to grow in smaller areas across Peel. Note that this analysis may not reflect the potential for higher mode shares in localized areas such as Mayfield West which are being designed as walkable communities.

Exhibit 4-6: Existing and target walking mode share by super zone (trip origins, morning peak period, 2011 and 2041)



4.3 Key Themes and Actions – Walking

The following table summarizes the recommended actions that enable and support walking, grouped into three key themes as presented in Sections 4.3.1 through 4.3.3. A number of relevant multimodal strategies that support walking were also discussed previously in Chapter 3.

WALKING STRATEGIES: KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION	
Provide comfortable, continuous walking routes (see Section 4.3.1)	
Action **W1**	Implement Long-Term Walking Network
Action **W2**	Identify and prioritize solutions to major walking barriers
Action **W3**	Identify Pedestrian Improvement Areas and implement measures to improve walkability
Improve winter maintenance of walking facilities (see Section 4.3.2)	
Action **W4**	Improve winter maintenance for walking facilities
Action **W5**	Develop priority winter maintenance network for Regional sidewalks
Promote walking across the Region (see Section 4.3.3)	
Action **W6**	Promote walking for short trips

MULTIMODAL ACTIONS THAT SUPPORT WALKING

Influence the shape of new development (see Section 3.3.1)

- Direct local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable modes through infrastructure and design
- Improve development approval processes to support sustainable transportation through infrastructure, design and TDM

Strengthen the multimodal function of Regional roads (see Section 3.3.2)

- Adopt a complete streets policy and implement a pilot project
- Assume responsibility for walking and cycling facilities in Regional road boulevards
- Update Regional road design standards to ensure access, safety and comfort for walking and cycling
- Adopt a multimodal level of service (MMLOS) methodology to assess road designs and allocate right-of-way

Make roads safer for vulnerable road users (see Section 3.3.3)

- Pursue Vision Zero target for vulnerable road users
- Review by-laws that govern active transportation facilities and affect vulnerable road users
- Amend speed limit policies for Regional roads and local streets
- Deliver multimodal road safety education for vulnerable road users

Influence personal travel decisions (see Section 3.3.4)

- Deliver special events, information and messaging across the Region
- Deliver TDM social marketing to priority areas
- Support workplace engagement by Smart Commute to promote commuting by walking, cycling, transit, carpooling and teleworking
- Encourage and support walking and cycling to and from schools

Strengthen the Region's role (see Section 3.3.5)

- Create knowledge through research, testing, evaluation and monitoring
- Initiate a counting program for walking and cycling facilities
- Provide learning opportunities for stakeholders
- Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces

4.3.1 PROVIDE COMFORTABLE, CONTINUOUS WALKING ROUTES

ACTION W1

Implement Long-Term Pedestrian Network

The STS recommends a program to improve pedestrian infrastructure, primarily focused on providing connected pedestrian facilities and improving the overall quality of the pedestrian experience along identified Pedestrian Improvement Corridors shown in Appendix C. During development of this strategy, a thorough review of existing infrastructure was completed to identify gaps in the pedestrian network in the Region's urban (developed) areas. The resulting network plan sees pedestrian facility gaps filled over the horizon of this strategy. In some cases, due to extreme constraints and challenges to implementation, network gaps may be filled outside of the 2041 horizon.

Along Regional roads, the general policy for pedestrian facilities is that they should be provided on both sides of the road within urban and rural settlement areas, and may consist of sidewalks and/or multi-use trails. Paved shoulders separated by a pavement marking lane line or mountable curb and gutter are often used by pedestrians in rural settlements. While this is considered an acceptable use, fully accessible sidewalks on both sides of the road are recommended in rural settlement areas when construction opportunities arise and where feasible.

The use of multi-use trails (MUTs) on both sides versus multi-use trail on one side, and sidewalk on the other side depends on a variety of considerations, with the Road Characterization Study (RCS) as a starting point.

In general, the decision to provide multi-use trails on either or both sides should be based on Road Characterization Studies' (RCS) Regional road character typologies, which provides high-level recommendations regarding cycling facilities for various road classifications. The illustrative cross-sections for the various road classifications suggest the following road types should include multi-use trails:

- **Suburban Connector–**Multi-use trail on both sides (with road reconstruction);
- **Commercial Connector–**Multi-use trail on both sides
- **Industrial Connector–**Multi-use trail on both sides (reconstruction);

The RCS recognizes that the provided cross sections assumes ultimate build-out of the right-of-way, and therefore they do not capture all conditions on Regional roads. The RCS cross sections are also typically mid-block, and do not provide adequate guidance for intersections where additional turn lanes are often required.

In some cases, it is not feasible to provide multi-use trails on both sides – either property is constrained, there are substantial conflicts with utilities, or the scope of a road project cannot be expanded to include MUTs on both sides. In these cases, a MUT may be provided on one side as an interim solution, with a sidewalk on the other side to ensure pedestrian connectivity. When the road is fully reconstructed, the provision of multi-use trails on both sides should be pursued, if determined to be appropriate with consideration of the following:

Conditions that support multi-use trails on both sides compared to one side, and should be considered in the decision-making process, include:

- Similar distribution of origins and destinations on both sides of the road
- Relatively infrequent spacing of driveways and intersections on both sides (not more than one every approx. 300m)

- Intersections on both sides that are supportive of crossrides, and therefore do not have a great number of right-turn channels
- Low potential for pedestrian conflicts on both sides
- Where the potential for a separated bike facility (cycle track) is preferred

Conditions that where multi-use trail on one side may be sufficient, include:

- Where origins and destinations are strongly distributed along on one side of the road.
- If available resources and funding allow for a multi-use trail on one side to continue for additional distance, rather than providing for multi-use trail on both sides but for a shorter distance.
- Where the requirement for additional right-of-way or structural widenings create a cost prohibitive condition or create significant additional environmental impacts (e.g. on watercourses)
- If the space for the additional multi-use trail is deemed to be better applied to streetscaping improvement components such as additional landscaping.

In all cases, the preference should be for continuous facilities (for pedestrians and cyclists alike) along a corridor i.e. to avoid transitioning from a multi-use trail on one side to the other side. In cases where a cycling facility is being provided as a retrofit project (without a corresponding road capital project), it may include a multi-use trail on one side only, with the understanding that when the road is fully reconstructed to the ultimate right-of-way, this facility would be upgraded to both sides or to higher order cycling facilities (refer to Section 5.3.1).

ACTION W2

Identify and prioritize solutions to major walking barriers

A variety of physical barriers discourage pedestrian travel. Chief among them are intersections and highway interchanges, which can present safety concerns when pedestrians are not adequately accommodated. It is recommended that the Region systematically review priority intersections, and coordinate with the Ontario Ministry of Transportation on all highway interchanges across Peel, to assess the level of pedestrian accommodation and potential to implement or cost share improvements.

ACTION W3

Identify pedestrian improvement areas and implement measures to improve walkability

A quality pedestrian experience requires more than sidewalks. A supportive streetscape may include accessibility measures (e.g. curb ramp retrofits with detectable warnings); safety measures (e.g. street crossing improvements, wider sidewalks); and urban design measures (e.g. gateway features, seating, wayfinding, water fountains, trash receptacles, lighting, shade, wind breaks, plantings and public art).

Together, these elements improve the quality of the public realm. Currently, the Region of Peel plants and maintains grass, trees and shrubs in Regional road corridors when it is part of an agreement with local municipalities. Gateway treatments typically lie outside the Region's rights-of-way, and local municipalities are generally responsible for street furniture, lighting and trash receptacles. To support enhanced walkability, **it is recommended that the Region plan and implement pedestrian improvements in a number of target corridors.**

These corridors were identified using five key criteria, as summarized below:

- **Road Characterization**–Corridors which were identified in the Regional Road Characterization Study as urban main streets or rural main streets were considered for inclusion as pedestrian improvement areas due to their overall importance in the pedestrian network and potential for high pedestrian volumes.
- **Key Destinations**–Corridors which provide access to key destinations, including: schools, community or recreation centres, hospitals, libraries and shopping centres were considered.
- **High Demand**–Corridors located in zones with predicted walking mode shares of 10% or more in 2041 based on the mode share target analysis were considered based on their relative importance to achieving mode share targets.

- **Public Input/Sidewalk Gaps**–Corridors where numerous comments were received related to pedestrian safety through the Metroquest online tool were considered for inclusion in the network, or where sidewalk gaps were identified through the pedestrian network analysis were considered.
- **Transit Connections** –Corridors which support connections to rapid transit, including corridors along or in the vicinity of GO transit stops, MiWay Express routes and stations, and Brampton Transit Züm routes and stations were considered.

Generally, corridors which met at least two of the criteria were identified as a pedestrian improvement corridor. Pedestrian improvement areas are shown on Exhibit 4-2.

Peel Public Health's Walking Audit tool may play a useful role in the identification of walking barriers and possible improvements within these areas. In addition, the Region has developed an updated Screetscaping Toolbox in partnership with Credit Valley Conservation. This document builds upon the Road Characterization Study to provide more details on opportunities to upgrade the green infrastructure and active transportation facilities along a corridor. When implementing pedestrian improvements, the Region should pursue develop maintenance agreements to clarify role of Region in the boulevard. Wayfinding measures to improve user information about first- and last-mile transit access should be coordinated with Actions B6 and T3. Please see the map of pedestrian improvement areas provided in Appendix C.

4.3.2 IMPROVE WINTER MAINTENANCE OF WALKING FACILITIES

ACTION W4

Improve winter maintenance for walking facilities

To improve the viability of walking as a year-round travel option, it is recommended that the Region encourage local municipalities to establish and implement maintenance practices that provide quality year-round walking conditions along Regional roads. Quality standards for maintaining pedestrian infrastructure will be based on municipal and accessibility legislation and best practices. A recently released draft amendment to Ontario Regulation 239/02 includes proposed minimum maintenance standards for walking and cycling facilities. The amendment represents a major step forward for municipalities with active transportation facilities as it provides a benchmark for municipalities hoping to provide access to cycling and walking facilities throughout all four seasons. Once the amendment is adopted as regulation, it can provide a starting point for maintenance standards for pedestrian facilities.

ACTION W5

Develop priority winter maintenance network for Regional sidewalks

It is recommended that the Region work with area municipalities to identify a priority maintenance network of pedestrian facilities. Priorities for enhanced winter maintenance above basic standards would be based on the current and estimated volume of users and their nature, on integration with transit services, and on the Pedestrian Improvement Areas listed in Action W3, above.

4.3.3 PROMOTE WALKING ACROSS THE REGION

ACTION W6

Promote walking for short trips

As discussed in Sections 4.2.1 and 4.2.2, the mode share targets of this strategy require Peel residents to shift 25% of their short motorized trips (i.e. less than two kilometres) to walking by 2041. The Region can encourage this shift by working with its partners to build awareness and understanding of walking and its benefits by offering information, and to remove barriers and offer incentives that motivate people to try walking for short trips. It is recommended that the Region promote walking to individuals and families at home through its multimodal, TDM social marketing framework that considers the personal context of individuals and their families (see Action M13 in Section 3.3.4). Neighbourhoods that could have significant latent demand for walking, and thus may be good places to offer incentives and rewards, include:

- those with higher densities and a greater mix of land uses
- those where residents already tend to make more walking trips than average
- those where residents already tend to make more short trips than average
- those where more families than average own only one car
- those with supportive infrastructure including continuous sidewalk networks and multi-use trails
- those near walking facilities that have been included in a priority winter maintenance network (see Section 4.3.2)

Peel Public Health's Walking Audit tool may play a useful role in accompanying walking promotion initiatives, by involving community stakeholders in the identification of barriers and possible solutions.

- 5 -
Cycling Strategies

5.1 Cycling Today

5.1.1 INFRASTRUCTURE AND SERVICES

The Region of Peel's current cycling infrastructure and services include dedicated and multi-use cycling facilities, bicycle parking and end-of-trip facilities, and measures that increase awareness of cycling infrastructure and promote cycling as a fun, healthy and convenient way to get around.

Cycling network.

While conventional on-road bikeways such as bike lanes and paved shoulders are less extensive, their implementation has grown over the last five years. The Region's first on-road cycling facility—buffered bike lanes on Dixie Road south of the Queen Elizabeth Way—was installed in 2016. Enhanced treatments such as crossrides are now being incorporated into road reconstruction projects; in 2014, the first crossride in Caledon was constructed by the Region at a crossing of the Caledon Trailway in accordance with the 2011 Active Transportation Plan. Other design features such as cycle tracks, bicycle boxes and bicycle traffic signal detection at intersections are not yet commonplace, but are being incorporated into incorporated into the design of future projects. Trails are generally designated for use by pedestrians and cyclists (some in rural and natural areas are reserved for hikers) and several trails connect Peel to adjacent regions, such as the Bruce Trail, the Elora Cataract Trailway and the Oak Ridges Trail. Please see a map of the proposed cycling network and phasing in Appendix C.

Bicycle parking.

The Region recognizes the role of bike parking and end-of-trip facilities in encouraging people to bike. To this end, the Region is working towards providing end-of-trip facilities at all of its properties, consistent with best practices and as appropriate to serve visitor and employee demands.

Cycling promotion.

The Region of Peel promotes cycling through a number of community-wide initiatives:

- **Walk+Roll Peel.** The Region of Peel launched Walk+Roll Peel in 2010 (as discussed under Action M12 in Section 3.3.4). The website www.walkandrollpeel.ca hosts an interactive map that residents can use to find trails, bike lanes and trails in the Region, and serves as a hub for information to help residents get started in cycling and walking. www.walkandrollpeel.ca also supports and publicizes the work of cycling committees, relevant public consultations and special events.
- **Peel Region GPS Cycling Study.** In 2013, the Region of Peel along with Brampton, Caledon and Mississauga partnered with the University of Waterloo Public Transportation Initiative to collect data on cyclist behaviour. Over 200 participants recorded GPS data of their cycling habits to identify popular routes, origins and destinations and support the planning process.

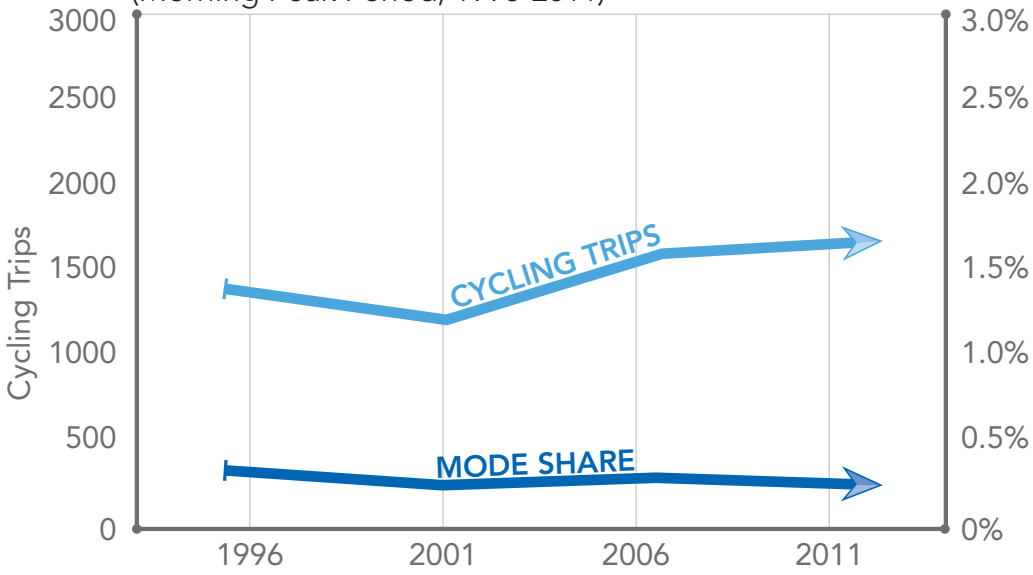
- **Peel Safe and Active Routes to School Initiatives.** This initiative (also see Section 3.3.4) is steered by a community committee with representatives from Peel Regional Police and the municipalities of Brampton, Caledon and Mississauga. It is supported jointly by Region of Peel Public Works and Peel Public Health. It brings together a number of organizations to improve the health of children by encouraging the use of active modes to and from school, with the key outcomes including improved physical activity, reduced traffic congestion and better air quality.

5.1.2 LEVELS OF USE

Mode share.

Exhibit 5-1 shows that cycling by Peel residents decreased from 1996 to 2011 in terms of mode share. Even though the number of cycling trips increased by about 20%, cycling's mode share dropped from about 0.4% to 0.3%. This trend will need to be reversed to meet the 2041 mode share target of 2%.

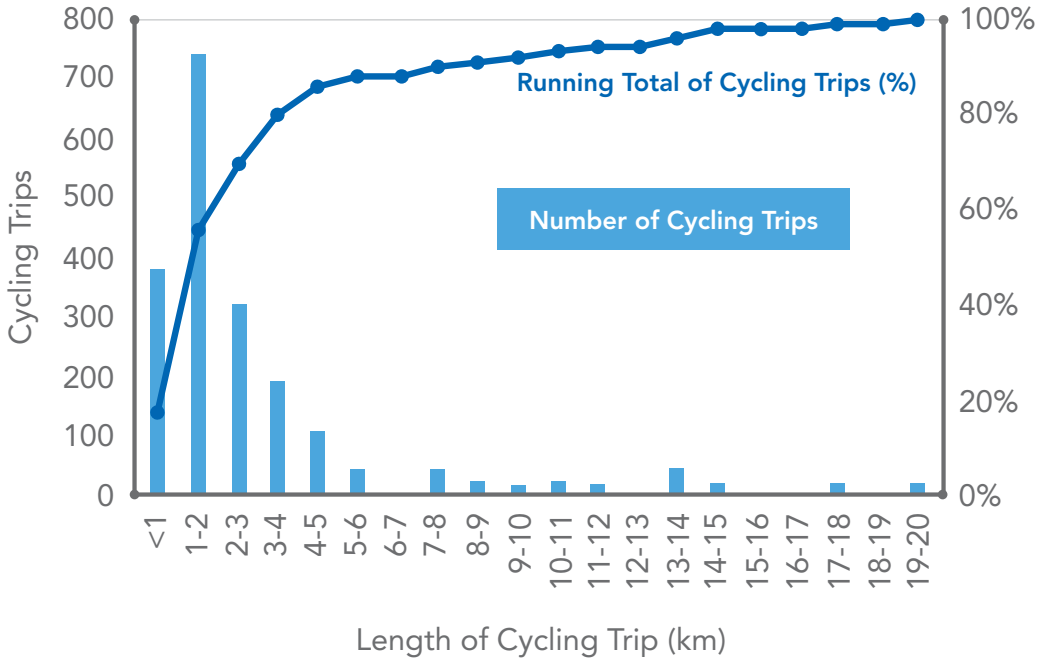
Exhibit 5-1: Cycling Trips and Mode Share (Morning Peak Period, 1996-2011)



Cycling trip attributes.

In 2011, 55% of cycling trips in the morning peak period were from home to school, and 35% were from home to work. Exhibit 5-2 shows that over half of cycling trips are shorter than 2 kilometres, and almost 90% of cycling trips are shorter than 5 kilometres. Cyclists are generally young with an average age 26 years (compared to 17 years for pedestrians), and 80% of cyclists are male. As with pedestrians, people who cycle to work are most often employed in the retail sales and service sector, and most live in households with at least one car.

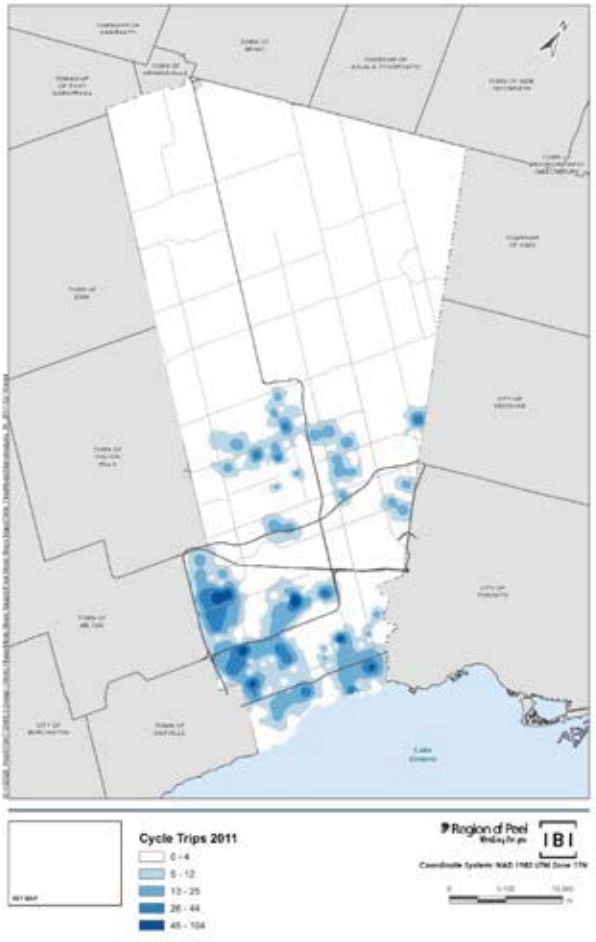
Exhibit 5-2: Cycling Trip Lengths (Morning Peak Period, 2011)



Cycling trip origins and destinations.

Exhibit 5-3 shows that cycling trips are concentrated in newer residential neighbourhoods that have connected cycling infrastructure, lower traffic speeds, a grid-based road network and pedestrian-oriented urban design. Cycling rates also tend to rise with increasing urban density. However, the densest area of Mississauga (near Square One) sees few cycling trips; this may be due to high traffic volumes and other physical deterrents to cycling, indicating the need for better cycling infrastructure in an area that should have significant potential for cycling trips.

Exhibit 5-3: Cycling Trip Origins (Morning Peak Period, 2011)



5.2 A Vision for Cycling

5.2.1 DESIRED OUTCOMES

This strategy acknowledges several challenges that are common to urban areas in Canada as they work to make cycling more practical and attractive: helping users shift their perception of barriers related to distance, winter weather; reshaping existing transportation infrastructure that is largely unsupportive of cycling by less-confident riders; and building public acceptance of larger capital and operating expenses associated with improved cycling facilities. At the same time, Peel enjoys several important opportunities to boost cycling: an extensive trail system, ample space in Regional road corridors to add new cycling infrastructure, and a popular culture in which cycling is more celebrated than ever.

A continuous network of facilities will allow residents to cycle across Peel

Cycling will be more practical for getting around within and between neighbourhoods. Cycling networks will be fully connected, with missing links completed and physical barriers like freeway crossings overcome. Bike lanes, MUTs and cycle tracks will give people direct and comfortable routes to school, work, shopping and services. Measures will be taken to minimize barriers and obstacles in the cycling network, such as by removing right-turn channels where appropriate, and working with the MTO to improve highway crossings.

Bike lanes, MUTs and cycle tracks will give people direct and comfortable routes to school, work, shopping and services.

Cycling will be attractive, comfortable and safe in all seasons

More complete and inclusive street designs will allow cyclists of varying abilities to share the road with other users. Bikeshare services will make bicycles available to individuals when and where they want them. All-season cycling will be more attractive than today; road maintenance will be improved, snow and ice control on key routes will be a priority, and winter cycling skills courses will help cyclists ride safely and comfortably.

All-season cycling will be more attractive than it is today.

Residents will choose to make short and medium-length trips by bicycle more often

More people will be aware of cycling options because of more visible cycling infrastructure (both on-road and off-road, including dedicated, signed and marked facilities and bike parking) and programming. Peel and its partners will deliver cycling promotion in key communities, especially those with strong potential for behavioural shift. Education and social marketing programs will encourage cycling among key groups that include children, youth, seniors, women, low-income households and new Canadians.

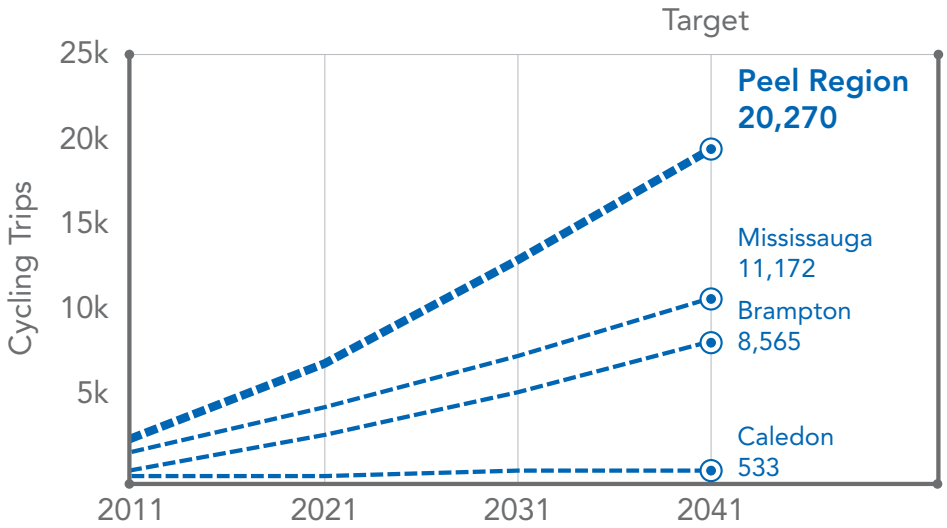
Peel and its partners will deliver cycling promotion in key communities, especially those with strong potential for behavioural shift.

5.2.2 TARGETS FOR 2041

Mode share.

This strategy sets a mode share target for cycling in 2041 of 2% in the morning peak period, an increase from 0.3% in 2011 (see Exhibit 5-4). Reaching this target will require the incremental addition of 602 new peak-period cycling trips each year, on average, and a dramatic reversal of recent trends toward a lower cycling mode share. Achievement of this mode share would require 8% of trips between two and five kilometres long that (with current travel behaviours) would be made by motorized modes (i.e. car or transit) to be made by cycling; this shift in how Peel residents make short trips is considered to be very achievable. Further information on the methodology to develop the mode share targets can be found in the Mode Share Targets background report under separate cover.

Exhibit 5-5: Projected Growth in Cycling Trips to Reach Mode Share Target (Morning Peak Period, 2011-2041)



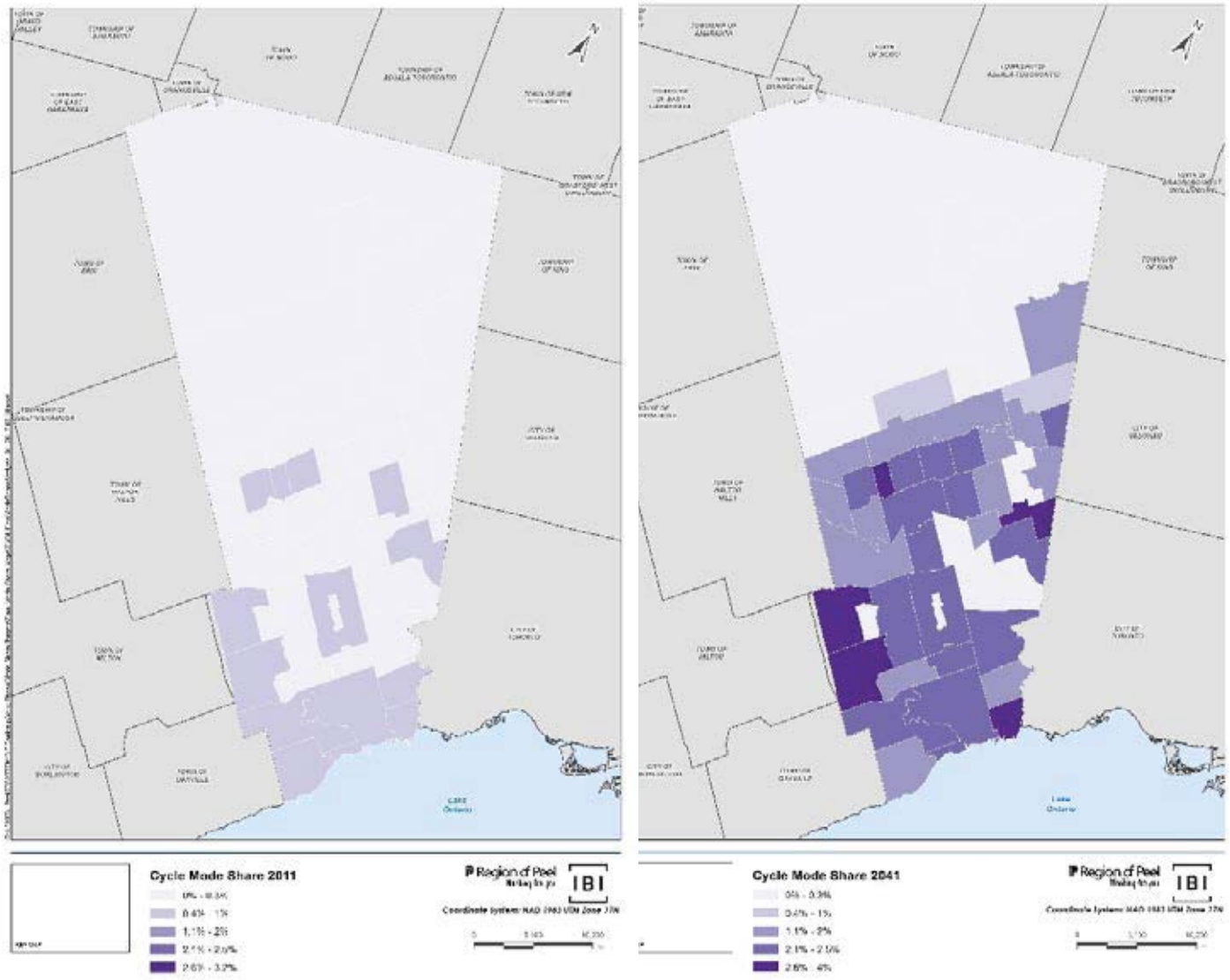
Focus areas.

This strategy envisions that this increase in cycling will be achieved principally through gains in areas of the Region that have one or more of the following characteristics:

- Areas where the morning peak period cycling mode share was greater than the Regional average of 0.3% in 2011
- Areas with more bikeable trips, i.e. those shorter than 5 kilometres
- Areas with density greater than 50 persons and jobs per hectare

Exhibit 5-5 shows how the targeted increase in cycling trips is distributed across Peel's three local municipalities, and Exhibit 5-6 shows a finer-grained depiction of how walking mode share is targeted to grow in smaller areas across Peel.

Exhibit 5-6: Existing and Target Cycling Mode Share by Super Zone
(Trip Origins, Morning Peak Period, 2011 and 2041)



5.3 Key Themes and Actions – Cycling

The following table summarizes the recommended actions that enable and support cycling, grouped into four key themes as presented in Sections 5.3.1 through 5.3.4. A number of relevant multimodal strategies that support cycling were also discussed previously in Chapter 3.

CYCLING STRATEGIES: KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION	
Provide comfortable, continuous cycling facilities (see Section 5.3.1)	
Action **B1**	Implement Cycling Network
Action **B2**	Identify and prioritize solutions to major cycling barriers
Action **B3**	Identify and remove minor cycling barriers
Action **B4**	Expand partnerships to support municipal cycling projects
Action **B5**	Update trail design standards to improve weather resilience
Action **B6**	Improve wayfinding for cycling facilities
Improve year-round maintenance of cycling facilities (see Section 5.3.2)	
Action **B7**	Improve year-round maintenance standards for cycling facilities
Action **B8**	Develop priority winter maintenance network for Regional cycling facilities
Expand bicycle parking and end-of-trip facilities (see Section 5.3.3)	
Action **B9**	Provide bicycle parking in Regional rights-of-way
Action **B10**	Support provision of bicycle parking and end-of-trip facilities at community destinations

CYCLING STRATEGIES:
KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION

Promote cycling across the Region (see Section 5.3.4)

Action **B11**	Promote cycling for short and medium-length trips
Action **B12**	Promote winter cycling
Action **B13**	Provide cycling skills training
Action **B14**	Build capacity through community-based programs
Action **B15**	Build cycling culture with a bike friendly businesses program
Action **B16**	Study feasibility of a regional bikesharing program

MULTIMODAL ACTIONS THAT SUPPORT CYCLING

Influence the shape of new development (see Section 3.3.1)

- Direct local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable modes through infrastructure and design
- Improve development approval processes to support sustainable transportation through infrastructure, design and TDM

Strengthen the multimodal function of Regional roads (see Section 3.3.2)

- Adopt a complete streets policy and implement a pilot project
- Assume responsibility for walking and cycling facilities in Regional road boulevards
- Update Regional road design standards to ensure access, safety and comfort for walking and cycling
- Adopt a multimodal level of service (MMLOS) methodology to assess road designs and allocate right-of-way

Make roads safer for vulnerable road users (see Section 3.3.3)

- Pursue Vision Zero target for vulnerable road users
- Review by-laws that govern active transportation facilities and affect vulnerable road users
- Amend speed limit policies for Regional roads and local streets
- Deliver multimodal road safety education for vulnerable road users

MULTIMODAL ACTIONS THAT SUPPORT CYCLING

Influence personal travel decisions (see Section 3.3.4)

- Deliver special events, information and messaging across the Region
- Deliver TDM social marketing to priority areas
- Support workplace engagement by Smart Commute to promote commuting by walking, cycling, transit, carpooling and teleworking
- Encourage and support walking and cycling to and from schools

Strengthen the Region's role (see Section 3.3.5)

- Create knowledge through research, testing, evaluation and monitoring
- Initiate a counting program for walking and cycling facilities
- Provide learning opportunities for stakeholders
- Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces

5.3.1 PROVIDE COMFORTABLE, CONTINUOUS CYCLING FACILITIES

ACTION B1

Implement Cycling Network

It is recommended that the Region implement the Cycling Network shown in Appendix C. From the strong base provided by the original 2011 Active Transportation Plan, the network has been updated to consider the following:

- **Shifting opportunities.** The plan reflects a new capital program that provides an opportunity to develop cycling facilities as standalone projects, and also incorporate them into planned road projects where possible. The plan also identifies off road trails of Regional significance which would be achieved through partnerships with municipalities and Conservation Authorities. It also incorporates the latest facilities to have been completed through previous iterations of the capital plan.
- **Emerging facility types and design guidance.** Design guidance for cycling facilities has become more formalized and widely documented since 2011 through the release of a number of key publications such as *Ontario Traffic Manual Book 18* (2013), NACTO's *Urban*

Bikeway Design Guidelines (2013), and the FHWA's *Separated Bike Lane Planning and Design Guide* (2015), and the recently re-released TAC *Geometric Design Guide* which incorporates a full chapter on Bicycle Integrated Design (2017). As a result, the strategy applies a variety of cycling facility selection indicators (e.g. motor vehicle volume, motor vehicle speed, road characterization, land use context, potential demand). As a result of the review process, the network now incorporates emerging facility types such as cycle tracks. Although cycle tracks were recognized as desirable in the 2011 plan, there was limited opportunity and appetite to incorporate them into planned facilities. Acceptance of cycle tracks has grown in Peel Region, and across North America, since that time.

- **Greater recognition of the need for stand-alone cycling improvements.** In 2011, the notion of widening a road for the specific purpose of providing a cycling facility was not considered to be a feasible undertaking. However, as parts of Peel Region have become increasingly built-out, there are fewer opportunities to implement cycling facilities in conjunction with road modifications intended to serve growth. Instead, the increasing desire for multimodal corridors means re-examining and reallocating space within existing road corridors. In some cases, the creation of a safe, comfortable and attractive cycling facility will require reconstruction (i.e. moving existing curbs, rather than only using existing paved areas).

The ultimate goal of the network is for every Regional road to provide a high-quality, context-sensitive cycling facility. The nature and design of cycling facilities will vary according to the corridor in which they are built, from shared and signed routes along low-volume, low-speed roads in rural towns, to cycle tracks along the boulevards of dense urban main streets. This approach will result in a network that provides a continuous and comfortable user experience for cyclists of varying abilities.

ACTION B2

Identify and prioritize solutions to major cycling barriers

A number of major physical barriers including freeways, high-volume truck routes, waterways and railways impede cycling movements in the Region of Peel.

Freeway crossings. The prevalence of freeways in the transportation network presents a challenge for cyclists due to the limited number of crossings (and distance between crossings), the high speed and volume of traffic at interchanges, and the general lack of or poorly designed bikeway facilities at interchanges. Of the 55 freeway crossings in Peel, 44 are interchanges, nine are road overpasses and two are road underpasses. Dedicated crossings for active transportation are: Caledon Trailway over Highway 10, Etobicoke Creek trail under Highway 410 in Brampton (proposed), Culham Trail under Highway 403 in Mississauga, Insley/Ogden pedestrian connection over the Queen Elizabeth Way, and Etobicoke Creek Trail under Highway 401 in Mississauga. It is recommended that the Region of Peel work with MTO to achieve safe and comfortable routes as part of highway interchange projects. These facilities limit the number of conflict points between higher-speed motor vehicles, cyclists and pedestrians.

Designated Truck routes. Another barrier to cyclists and pedestrians on Regional roads is the existence of high truck volumes, which are common along Regional roads and particularly in employment areas around the Toronto Pearson International Airport. In Mississauga, almost all Regional roads, except Winston Churchill Boulevard and sections of the Queensway, have no restrictions on truck traffic. Brampton is similar, but with more restrictions on Regional roads in residential areas. In Caledon, truck routes are limited to several rural Regional roads. Truck volumes are very heavy (more than 800 trucks an hour, on Bovaird Drive at Kennedy Road, Steeles Avenue between Kennedy Road and Highway 50, Derry Road between Highway 401 and Airport Road, Dixie Road between Steeles Avenue and Highways 401 and 403, Airport Road between Queen Street and Pearson Airport, and Highway 50 north of Queen Street. As Peel plans to enhance its role as a major goods movement hub, it is important to consider growing truck volumes and its impact on the comfort and safety of vulnerable users who still have a need to access destinations along these corridors. It is recommended that separated cycling facilities be provided in major truck corridors, along with design features to improve the safety and comfort of all road users at intersections. It is also recommended that the Region take a more context specific approach to evaluating truck routes' appropriateness for cycling facilities, since truck routes vary greatly in terms of truck volumes.

Waterways. Valleys along waterways can present opportunities for linear trail systems. However, the waterways themselves can create barriers to cycling by offering limited crossing locations. In Caledon, the Credit River, Humber River and Etobicoke Creek are crossed by Regional roads and some

local roads; the Caledon Trailway follows along sections and crosses the Credit River and Humber River. In Brampton, waterways including the Credit River, Etobicoke Creek and Humber River have been a primary focus for the existing and planned trail system, with crossing opportunities by trail and local or Regional roads. In Mississauga, the Credit River is prominent and the Etobicoke Creek traverses a section of the City; trails exist or are planned along both, and while local and Regional roads cross these waterways a long section of the Credit River (between Dundas Street and Lakeshore Road) has no crossings for cyclists and pedestrians. It is recommended that small culverts and larger structures, as appropriate, be considered to cross waterways and maximize the value of future trails for cycling transportation purposes.

Railways. Three mainline railways traverse the Region of Peel: the CN/CPR/GO mainline north of Lake Ontario through Mississauga; the CPR/GO mainline through Mississauga; and the CN/GO mainline through Mississauga and Brampton. There are also the CN/GO collector and primary feeder in Brampton, and the Orangeville Brampton Railway (OBRY) collector and primary feeder from Mississauga northerly through Brampton and Caledon. Opportunities for cyclists to cross these railways are predominantly provided by Regional roads and local arterial roads. It is recommended that regional roads and arterial roads that cross railways be recognized as having a critical role in serving cyclists, and that the needs of cyclists be recognized in the planning and design of any future road modifications at these crossings.

Major Regional Intersections. Regional road intersections can, in and of themselves, act as barriers to cyclists due to lengthy crossing distances, heavy motor vehicle volumes and the absence of cycling-supportive crossing treatments (such as cross rides for multi-use trails) as well as bicycle signals and signal phasing that prioritizes active transportation (i.e. leading pedestrian and bicycle phases). It is recommended that Regional intersections include cycling friendly improvements. Towards this end, an initial list of intersection improvements has been identified (refer to the Active Transportation Implementation Plan). These intersection improvements are generally related to the need for cross rides and/or improved facility transitions to support existing or planned infrastructure, but could also be candidates for signal phasing improvements.

ACTION B3

Identify and remove minor cycling barriers

Many minor barriers to cycling are created by evolving design understanding and facilities that are constructed over a period of time. Several types of minor barriers are summarized below:

Missing curb cuts. In some cases, curb cuts were not provided when new trails or other facilities were constructed, so cyclists must dismount and walk their bikes across roadways. These facilities should be addressed as they are reported to Regional staff, in cooperation with local municipalities as required.

Cycling facilities without pavement markings / signage. As design standards evolve over time, the need for clear signage and pavement markings for cycling facilities has emerged as an important element of high quality design. Many older cycling facilities are missing appropriate pavement markings and signage which help to clarify use of the facilities and control conflicts with pedestrians.

Discontinuous or partially substandard cycling facilities. In many cases, a cycling facility is almost nearly continuous along a particular corridor, with only one or two blocks missing approaching intersections. In other cases, facilities are too narrow by today's standards. In some cases, facilities are provided along the corridor, but cross repeatedly from one side of the road to the other.

Lack of appropriate cycling accommodation through construction zones. Although this barrier is temporary, the lack of appropriate signage and detour routes through construction zones often causes significant inconvenience to cyclists, forcing them to make risky manoeuvres in order to travel through work zones.

To assist with the identification of these minor barriers, a cycling fix-it list has been identified which includes a number of existing cycling facilities that require upgrades to enhance the cycling experience. These upgrades are generally pavement marking and signage upgrades along older multi-use trails, but also includes spot widenings, and several corridors where the multi-use trail is discontinuous, and efforts should be made to provide a continuous multi-use trail along one side (i.e. Bovaird Drive). It is recommended that the Region address minor cycling barriers as part of their Fix-it Program, and encourage all contractors to provide appropriate detours where cycling facilities cross through construction zones.

Please refer to Appendix C for a map of the short-term cycling network projects.

ACTION B4

Expand partnerships to support municipal cycling projects

The Region of Peel currently provides some financial support for municipal infrastructure projects funded by the Region's share of federal gas taxes. It is recommended that the criteria being used to choose regionally supported projects be reviewed, to ensure the process is optimized and the goals of the region are being achieved.

An example of optimizing regional programming goals may include the leveraging of existing safety workshops the region is undertaking as part of school-based programs. Regional support of traffic safety interventions on municipal roads near schools, could significantly expand and enhance the delivery of road safety interventions in these areas. The expansion of municipal partnerships to coordinate and empower road safety initiatives may help achieve neighbourhood based improvements that include both regional and municipal roads. It is noteworthy that Metrolinx completed a Regional Cycling Strategy in 2017 as part of the Draft Regional Transportation Plan Update which identifies a regional cycling network and highlights the potential for partnerships.

ACTION B5

Update trail design standards to improve weather resilience

Today's design standards will determine how well the Region of Peel's infrastructure will withstand the increasingly frequent extreme weather events that result from climate change. Climate change adaptation can include actions such as drainage design for heavier rainfalls, grading standards that anticipate higher water levels, construction techniques and materials suited to large temperature swings, and the substitution of sensitive plants for more hardier ones. It is recommended that the Region of Peel review relevant trail design standards and guiding policies to ensure that its investments are consistent with emerging best practices for climate change adaptation.

ACTION B6

Improve wayfinding for cycling facilities

The City of Brampton has named and branded its multi-use trails, and signs along the Etobicoke Creek trail and other trail systems help cyclists find their way and create an identity that promotes the facilities. The Region of Peel could support and enhance similar municipal efforts by providing wayfinding signage for facilities constructed on Regional roads.

It is recommended that the Region of Peel work with Brampton, Mississauga and Caledon to confirm important public destinations (e.g. GO stations) and coordinate municipal wayfinding efforts, with the goal of identifying and installing a network of wayfinding signs in Regional road corridors that can help users travel confidently between municipal cycling facilities. Furthermore, it is recommended that the Region of Peel coordinate the development of consistent guidelines or standards for wayfinding signage among local municipalities and other stakeholders.

Wayfinding measures to improve user information about first- and last-mile access should be coordinated with Actions W3 and T3.

5.3.2 IMPROVE YEAR-ROUND MAINTENANCE OF CYCLING FACILITIES

ACTION B7

Improve year-round maintenance standards for cycling facilities

As bicycle facilities are provided more frequently in Regional road rights-of-way (whether they are on-road or in the boulevard) and more cyclists use them, it will be appropriate to apply higher standards to the maintenance of those facilities. During summer months, cycling facility maintenance includes sweeping to ensure a clear and safe riding surface, and grass and plant trimming to ensure adequate sightlines and operating clearances. During winter months, maintenance operations include sweeping, ploughing and salting along multi-use trails, and ploughing, salting and snow removal along on-street facilities.

It is recommended that the Region of Peel review summer and winter maintenance standards for cycling facilities, and identify steps to improve outcomes for cyclists. Maintenance standards may address response times (e.g. after a complaint or weather event), service frequencies (e.g. for sweeping or trimming) and quality (e.g. snow-packed surfaces versus bare pavement). Because cyclists are more vulnerable than other vehicle users to the build-up of snow and ice on travel surfaces, it is desirable that winter-maintained cycling facilities be cleared as well as possible—ideally to bare pavement.

ACTION B8

Develop priority winter maintenance network for Regional cycling facilities

A "bare pavement" winter maintenance standard could be costly to achieve on all cycling facilities in Peel. Therefore, it is recommended that the Region of Peel work with Brampton, Mississauga and Caledon to identify a priority winter maintenance network for Regional cycling facilities. These routes would receive the highest standard of winter maintenance, and would likely be those with the greatest potential to carry year-round cyclist traffic and serve as vital links between the cycling networks maintained by local municipalities.

5.3.3 EXPAND BICYCLE PARKING AND END-OF-TRIP FACILITIES

ACTION B9

Provide bicycle parking in Regional rights-of-way

Providing secure bike racks along major cycling routes can increase the convenience and visibility of cycling, and reduce the risk of bike theft. It is recommended that the Region of Peel include bicycle parking in the scope of projects to build cycle tracks or multi-use trails along Regional roads, and routinely consider including bicycle parking in the scope of other projects to enhance the public realm. Important locations for bicycle racks include key destinations such as community centres, parks and retail centres, and major transit access points. The Region could work with transit operators to review opportunities to add bike parking at high-volume bus stops near residential concentrations.

ACTION B10

Support provision of bicycle parking and end-of-trip facilities at community destinations

Peel's successful school bike parking program has supported the installation of bike racks at schools across the Region of Peel. It is anticipated that administration of this program will be taken over by local school boards. It is recommended that the Region of Peel continue running the School Bike Rack project to accommodate the goal of 5% of the school population, approximately 12,000 students, cycling to school daily.

It is recommended that the Region of Peel initiate a Community Bike Rack program to address existing gaps in infrastructure at destinations on both public and private property. Because the Region cannot install equipment on private property, these efforts may entail subsidies for bike racks

at locations that are public in nature but privately owned (e.g. churches, shopping malls, medical office buildings, event venues).

Exhibit 5-8: Example of a Public Bike Repair Station

The program scope could extend beyond regular bike racks to support other end-of-trip facilities at targeted locations of regional importance—examples include covered bike parking, bike repair stations, tiered or high-density bike racks in physically constrained locations, or secure bike cages at locations where security is critical to encouraging use.

The provision of public bike repair stands is a growing trend for areas such as trails, plazas, malls or rapid transit stations. Like water fountains, they are a public amenity that enhances the utility of existing public spaces. Examples of locations where bike repair stands have been installed include a number of destinations on Quebec's "Route Verte" network and many of Toronto's downtown TTC subway stops.

The Region of Peel has not installed public bike repair stands; however, several community groups and Peel Housing have expressed interest in support to purchase repair stands.

It is recommended that the Region of Peel initiate a program to install 5 bike repair stations annually in targeted locations.

5.3.4 PROMOTE CYCLING ACROSS THE REGION

ACTION B11

Promote cycling for short and medium-length trips

As discussed in Sections 5.2.1 and 5.2.2, the mode share targets of this strategy require Peel residents to shift 8% of their mid-length motorized trips (i.e. two to five kilometres long) to cycling by 2041. The STS has mapped areas in the region, where conditions for short trips are favourable. This information may be used as a roadmap to focus promotion and outreach programming.

The Region can encourage this shift by working with its partners to build awareness and understanding of cycling and its benefits by offering information, and to remove barriers and offer incentives that motivate people to try cycling. It is recommended that the Region of Peel promote cycling to individuals and families at home through its multimodal, TDM social marketing framework that considers the personal context of individuals and their families (see the discussion of Action M13 in Section 3.3.4). Neighbourhoods that could have significant latent demand for cycling, and thus may be good places to offer incentives and rewards, include:

- those with higher densities and a greater mix of land uses
- those where residents already tend to make more cycling trips than average
- those where residents already tend to make more short and mid-length trips than average
- those where more families than average own only one car
- those with supportive infrastructure including on-road cycling facilities and multi-use trails, especially newly built infrastructure that significantly improves the quality of cycling options
- those near cycling facilities that have been included in a priority winter maintenance network (see Section 5.3.2)

ACTION B12

Promote winter cycling

It is recommended that winter cycling be encouragement be undertaken in partnership with established winter events occurring in the local municipalities.
The objective is for Region of Peel to promote winter cycling routes and educate cyclists about safe winter cycling once winter maintenance standards have been implemented for a priority network of cycling routes (see Section 5.3.2). Winter requires cyclists to adapt in terms of their clothing, equipment and behaviour; special tires are advised, new bike handling skills are required to deal with snow and ice on the ground, and visibility in falling snow and darkness becomes paramount. The Region could work with partners (e.g. Smart Commute offices) to offer winter cycling information packages and cycling skills courses.

ACTION B13

Provide cycling skills training

In 2017, the Region of Peel partnered with the City of Brampton Parks and Rec to offer two-hour cycling courses, promoted through Bike to School Week, these courses were very popular and the provision of such a program on a permanent, ongoing basis would help to quickly facilitate the delivery of "learn-to-ride" cycling education to schools around the region. The two hour instructional classes cover the basics which students will need to know to ride their bicycles safety, as a form of transportation. While other groups such as Brampton Safe City or Peel Safety Village have organized occasional instructional bike rodeos, these groups do not have the capacity to meet programming demand present in the Region.

This report proposes that the Region invest in providing cycling education at every school in Peel. This programming would ideally be offered either on-site at each school, or at a nearby Park and Rec Facility. It is recommended that the Region extend 2-hour "learn-to-ride" cycling courses so that at least one course is available annually to each of Peel Region's 397 schools. Like swimming, cycling is an important life skill, which help teach children self-sufficiency and independence. Providing courses which teach kids how to cycle is also comparable to the subsidized provision of swimming lessons, because both skills help to ensure safety. The instructional costs to subsidize instruction for two-hour cycling courses is comparable to the cost of subsidize instruction for a two-hour swimming lesson.

ACTION B14

Build capacity through community-based programs

Behaviour change often requires targeted interventions beyond the provision of information. Direct experience—such as riding a bicycle at a community ride—can overcome barriers no amount of research data or persuasion may address.

The Region has investigated best practices in achieving behavior change, and ran a successful Community Cycling Program pilot in 2015 with marked participant behaviour change and capacity building of the organizations and community leaders involved. Building on this success, the Region developed plans to contract out the delivery of these programs to local community-based non-profits, who could deliver cycling services (e.g. DIY bike mechanic spaces) and programs (e.g. bike mentorship) to their clients, and post-secondary institutions whose student population demographics and living arrangements make them ideal candidates for accessing campus by bicycle. This arm's length delivery model represents an efficient and cost effective path to program delivery.

The Region plans to work with 3 non-profits and 1 post-secondary institution in 2018. The STS recommends that funding for Community Cycling Programs be expanded to engage additional organizations in subsequent years and support successful organizations for at least 3 years. The ultimate goal is for all interested residents of Peel to have access to the services provided – bicycle mentorship, bicycle mechanics support, and opportunities to borrow or earn a bicycle.

Following the success of this programming mechanism, this report proposes expanding the program to support 6 organizations at a time, for up to 3 years each. This community delivery model is a proven model which if expanded would create a strong network across Peel of Bike Community interventions that support each other.

The Region also regularly seeks to capitalize on opportunities where a relatively small investment can make a dramatic difference on a group's perception of active transportation or their ability to engage in available programming. This includes provides support for signature events, such as Bike the Creek, that encourage local action or broader reaching events that build community capacity and/or knowledge, such as sponsoring a conference. It also includes small interventions that enable local leaders or organizations to promote active transportation within their network. For example, in 2017 the Brampton Library promoted active transportation amongst the children participating in their Youth Summer Reading Club. The Region supported the Reading Club by providing one of the prizes.

There are a number of growing opportunities where relatively small amounts of funding may enable community members and community organizations to further engage in Regional programming. For example, several schools in the Region have initiated Bike Swaps where children bring bicycles in good condition they have outgrown and exchange them for one their size. These Bike Swaps have partially emerged in response to the successful Bike to School Week campaigns. In a Bike Swap younger children gain access to an existing pool of bicycles at no cost. Opportunities for the Region to intervene and enhance the effectiveness of the event (and school participation in Bike to School Week) might include the Region partnering to provide a few larger bicycles for the oldest children in attendance.

The STS recommends that the annual budget dedicated to enabling local actions be expanded with a focus on supporting small community projects that impact and embed active transportation into communities/organizations and expand community knowledge and capacity. A streamlined approach to selecting the best opportunities for partnership and investment would benefit all parties.

ACTION B15

Build cycling culture with a Bike Friendly Businesses Program

The Smart Commute program provides a mechanism for businesses to reward and encourage their employees to travel by sustainable modes such as walking, cycling and carpooling. This program supports employees, but there is no similar program in place to recognize businesses who have made decisions which positively support walking and cycling behaviours. Jurisdictions which have successful long-time programs include the City of Toronto, and the City of Vancouver, where programs have been in place for a decade. In 2015, the Share the Road Cycling Coalition ran a one-time event, but currently the Region of Peel does not have a Bike Friendly Business Program.

An awards program provides an opportunity to celebrate businesses who encourage cycling with bike-friendly policies such as providing high quality bike parking in a safe locations where clients can see their bikes. In order to immediately kick start the program, it is recommended that opportunities to collaborate with the "Ontario By Bike" program to map promote cycling tourism providers be explored. The STS recommends an awards program to celebrate organizations who encourage cycling to their business premises with bike-friendly policies and infrastructure such as providing high quality bike parking in a safe location where clients can see their bikes.

ACTION B16

Study feasibility of a bikesharing program in Peel Region

The number of bikeshare systems in North America has been growing rapidly. In most communities that have launched major bikeshare systems, the number of trips made by bicycle has increased. For example, during it's first season of operation (2009) Montreal's BIXI system carried 1.15 million bicycle trips by almost 11,000 annual subscribers and 113,000 single-day users. About 60% of single-day users were visitors to Montreal. A more recent example, the City of Hamilton's SoBi bikeshare system, has grown to 12,000 active users in two years in a city of just over half a million people. Most interestingly, the system has achieved gender parity, with an approximately equal number of men and women using SoBi bikes each day.

Bikeshare programs are intended to operate less like bike rental programs and more like an extension of public transit. Generally, bicycles are intended to be used for one-way trips shorter than 30 minutes, and can be picked up and dropped off at any bicycle parking station in the system. Regular users who purchase a membership or pass for periods ranging from one month to one year have 24/7 access and pay no fee if

the bicycle is returned to a station within 30 minutes. A fee is generally charged for any trip longer than 30 minutes, or for trips by non-members who access the system with a credit card.

In order for a bikeshare program to be successful, the customers have to be reasonably assured that a bike will be available for pick-up at all times and that a docking space will be available when they arrive at their destination. To provide this high level of service, bicycles and bicycle parking stations must be placed in highly visible locations within the service area, and typically no more than 300 metres apart. The target population density for success is 20,000 people per square kilometre, and a network of cycling infrastructure is highly recommended to provide comfortable places for people to ride. At lower densities, bikeshare systems tend to be less successful, and may have to offer a longer free-use period and/or limit station locations (e.g. to areas around higher-order transit stations).

Before implementing a bikeshare program, a business strategy is required that examines:

- **Forecast usage**—including a review of the bikeway network to support use, and revenue generation
- **Economic analysis**—true long-term costs, financing models, subscriptions and user fees, general revenues, outdoor advertising rights, sponsorship and revenue generation
- **Fare structure and pricing**—payment methods including cash, credit cards and smart cards, and user accountability
- **Operating model and impacts for each model**—public owner/operator, private owner/operator, public owner/private operator, and so on

An increasingly competitive bikeshare market means that some companies (e.g. Zagster) provide discounted or free feasibility reviews to interested municipalities.

It is recommended that the Region support local municipalities in monitoring the implementation of bikeshare systems in North America, and in conducting a high-level review of the feasibility of a bikesharing program to be delivered by a local municipality, possibly in partnership with the Region of Peel.

- 6 -

Transit Strategies

6.1 Transit Today

6.1.1 INFRASTRUCTURE AND SERVICES

Transit Services: Multiple agencies provide transit service within the Region of Peel:

- MiWay provides transit service within Mississauga and between neighbouring municipalities (Brampton, Oakville and Toronto). MiWay provides customers with two types of service: MiExpress for express travel on blue buses servicing limited-stop routes, and MiLocal for local travel on orange buses along regular and school routes. MiWay has more than 460 buses, and more than 85 bus routes servicing over 3,600 bus stops.
- Brampton Transit operates transit within Brampton and with connections to Mississuaga, York Region and the City of Toronto. Brampton Transit operates 68 routes with 404 buses. The system includes 5 BRT lines (Züm Queen, Züm Main, Züm Steeles, Züm Bovaird, Züm Queen West)
- TransHelp is operated by the Region of Peel and provides accessible transportation for residents with a disability who experience a barrier to using conventional transportation some or all of the time.
- GO Transit provides regional bus and rail service throughout Peel Region. Peel is served by three lines: Lakeshore West, Milton and Kitchener.
- Caledon: At the time of this report, Caledon was investigating alternatives for delivering transit services to Bolton and other urbanized areas.

Planned Infrastructure: All transit agencies, together with their respective municipalities, the Region and Metrolinx are planning for major investments in rapid transit infrastructure. By 2026, Metrolinx has targeted for the implementation of 15 minute all day GO Rail service on the Lakeshore West and Georgetown/Kitchener Lines (currently as far as Bramalea Station).

Some of the key regional transit and rapid transit corridors that will serve to connect major employment areas and employment nodes include the following:

- Hurontario LRT – Planned LRT corridor connecting Port Credit, Mississauga City Centre and Brampton Gateway. Alternative corridors beyond Steeles Avenue to connect LRT to Downtown Brampton GO Station are currently being studied.
- Dundas BRT – BRT facility providing an east-west spine in south Peel Region, extending from the Kipling Subway Station through Mississauga and into Halton Region.
- Lakeshore Road Rapid Transit – potential expansion of the streetcar/ BRT service in Toronto to 70 Mississauga Road (former Imperial Oil Lands) in Port Credit, including a connection to the Inspiration Lakeview lands.
- Brampton Queen Street Rapid Transit – east-west transit spine through Brampton that would see BRT/LRT implemented in this existing Züm

- Brampton Gateway – Brampton GO LRT – north extension of the committed section of the Hurontario LRT, extending north from Steeles Avenue to the Brampton RER Station.
- Derry Road – east-west spine through central Peel Region.
- Downtown Mississauga Transitway – new transitway section that diverts from Highway 403 transitway running way to directly serve Downtown Mississauga.
- Main Street North BRT – north extension of the Brampton LRT (see above) from Queen Street to Mayfield West Community.
- Highway 427 North – Priority Bus operations in managed lanes on Highway 427, connecting and interlining with 407 Transitway services and serving Pearson Airport.
- Bolton GO Rail – New commuter rail service connecting Bolton to Downtown Toronto

Given the massive committed and planned investment in transit infrastructure, it will be essential to maximize opportunities to connect major transit stations with active transportation, and to utilize investments to support TDM initiatives.

Transit Promotion: The majority of promotion for transit in the Region is delivered by the respective transit agencies. Peel Region's role is largely centred around the Smart Commute delivery programs. Recently, Peel Region's Human Services partnered with City of Mississauga to deliver the MiWay Affordable Transit Pilot Program.

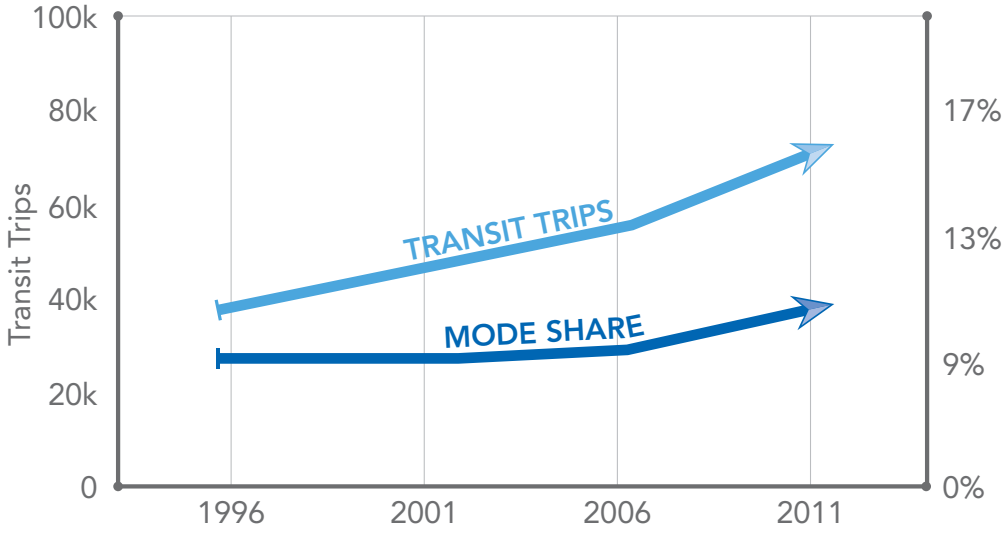
Hurontario LRT TDM Plan. The Region is supporting the City of Mississauga's development of a plan for traffic control and communications during construction of the Hurontario Light Rapid Transit (LRT) line, including the creation of a TDM strategy to help mitigate construction impacts on travel in the area and along Hurontario. The strategy will help area residents and employees understand their opportunities to shift travel modes, times and routes throughout the project, and encourage them to reduce trips taken along the corridor during construction. The Hurontario TDM strategy is a collaborative process with well-defined roles for the City of Mississauga, Region of Peel, Metrolinx and other partners. It will be implemented in three phases—pre-construction, construction and post-construction—with each phase including specific messages, tactics and delivery agents. The first two phases will provide short-term benefits, while the final phase will support long-term changes in travel behaviour arising from the new LRT.

6.1.2 LEVELS OF USE

Mode share.

Exhibit 6-1 shows that transit use by Peel residents has grown in recent years. Transit's mode share has risen from 9.2% in 1996 to 10.8% in 2011, while the number of morning peak period transit trips made by Peel residents rose almost doubled from less than 40,000 to more than 70,000. A continuation of this rising trend will be needed to meet the 2041 mode share target of 17%

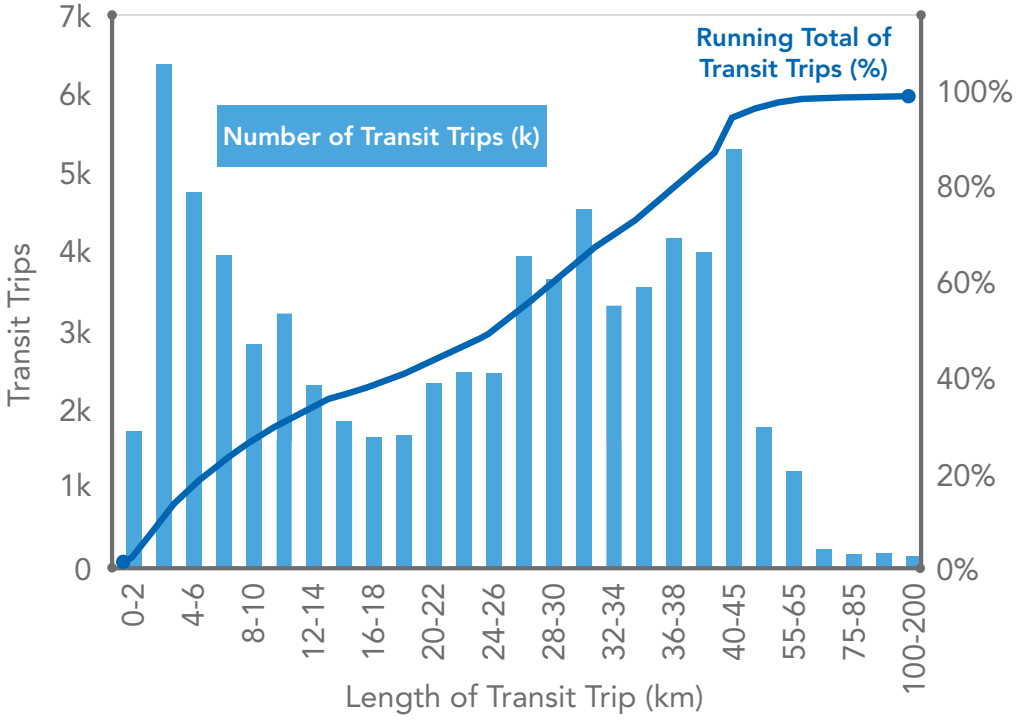
Exhibit 6-1: Transit Trips and Mode Share
(Morning Peak Period, 1996-2011)



Transit trips per capita.

Both MiWay and Brampton Transit have seen significant growth in absolute ridership as well as rides per capita. Between 2007 and 2015, Brampton's annual rides per capita has grown from 25.8 to 36.9 (43% increase) while Mississauga's ridership has grown from 42.8 to 49.2 annual rides per capita (15% increase).

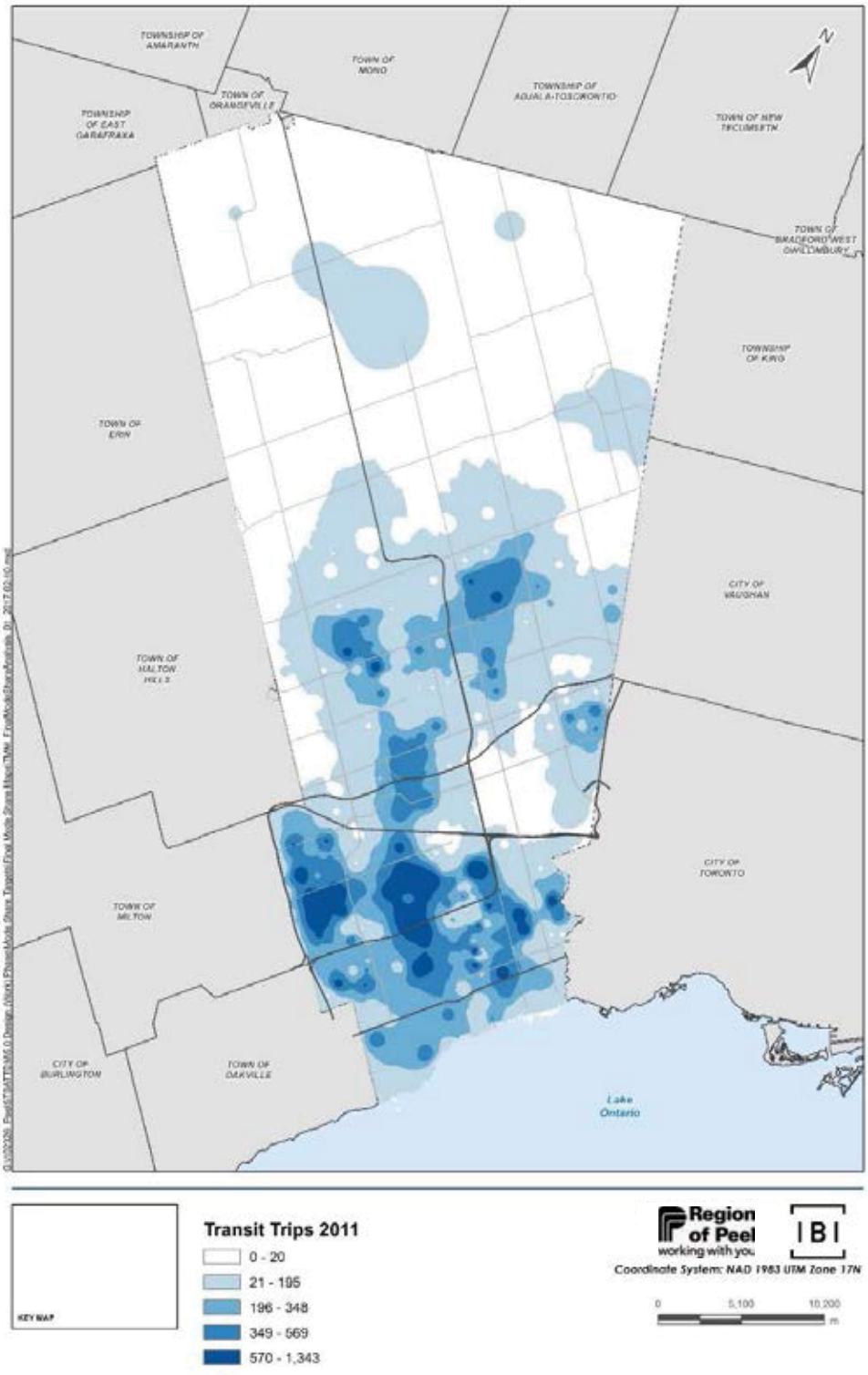
Exhibit 6-2: Transit Trip Lengths
(Morning Peak Period, 2011)



Transit trip attributes.

In 2011, 52% of transit trips in the morning peak period were from home to work, and 39% were from home to school. The average transit trip was about 24 kilometres long; Exhibit 6-2 shows that many transit trips are much shorter, and many others much longer. The average transit user is 33 years old (compared to 26 years for cyclists and 17 years for pedestrians), and 56% are female.

Exhibit 6-3: Transit Trip Origins (Morning Peak Period, 2011)



Transit trip destinations.

Of all transit trips starting in Peel in the morning peak period, about 35% are made on GO transit and about 65% are made on local transit. About 99% of GO riders are destined to Toronto. By comparison, about 57% of local transit users stay in Peel while 35% end up in Toronto. Overall, about 58% of all morning peak period transit trips starting in Peel are destined for the City of Toronto.

Exhibit 6-4: Destination of Transit Trips Starting in the Region of Peel (Morning Peak Period, 2011)

All trip purposes	Local transit	GO transit	Total
Toronto	17,064	25,586	42,650
Peel	27,207	52	27,259
Halton	971	116	1,087
Hamilton	1,094	104	1,198
York	383	45	428
Guelph	418	29	447
Other	294	70	364
Commuters	**Local transit**	**GO transit**	**Total**
Toronto	7,860	21,173	29,033
Peel	9,429	23	9,452
Halton	260	86	346
Hamilton	102	20	122
York	280	45	325
Guelph	30	0	30
Other	70	70	140

6.2 A Vision for Transit

6.2.1 DESIRED OUTCOMES

Peel's vision for transit includes the outcomes discussed in the following paragraphs. This strategy acknowledges that success will require substantial contributions from (and collaboration with) local municipalities and transit systems, as well as Metrolinx which operates GO transit services. A number of real challenges exist including: meeting provincial government targets for land use intensification; overcoming transit operating cost pressures; maintaining high levels of capital investment by provincial and federal governments; avoiding negative impacts of autonomous vehicle technologies; and equitably balancing the public transportation needs of urban and rural areas.

Transit will be fully integrated with new developments and other modes of travel

Transit's effectiveness is constrained when connections to land uses and other modes are poor. In 2041, new developments will be designed with the needs of transit users in mind, with building entrances that are close to transit stops and linked by walkable routes. Transit users will also find their "first and last mile" of travel (i.e. between their origin or destination and transit stops or stations) is more convenient, flexible and comfortable thanks to safer and more direct routes for walking and cycling, fixed local transit and dynamic microtransit services, as well as car sharing and bike sharing services. In fact, GO and other rapid transit stations will be much busier than they are today and users will access them much more often by active modes, and less often by car. Improvements like these will be necessary to maximize return on the tremendous investments in rapid transit being made across Peel and the GTHA.

GO and other rapid transit stations will be much busier than they are today and users will access them much more often by active modes, and less often by car.

Transit will be competitive with automobile use for more trips

One contributor to this objective will be the supportive design and operation of Regional roads: by locating bus stops effectively, and by using intelligent transportation systems and transit priority measures (e.g. bus priority signals or high-occupancy vehicle lanes) to minimize transit delays at intersections and in congested corridors. Another contributor will be new forms of transit service that rely less on fixed routes and schedules in favour of higher frequencies and door-to-door services. Better fare integration among local systems and GO transit services will help eliminate another inconvenience that inhibits ridership today.

To increase the number of people who choose transit over cars, it will be necessary to improve transit travel times and reliability compared to regular traffic.

Residents will choose to travel by transit more often

Transit use will be a bigger part of living in Peel, with many benefits for public health and quality of life—especially for people who rely less on cars including youth, seniors and people with disabilities. Peel and its partners will promote transit in key communities, especially areas with densities exceeding 80 persons and jobs per hectare, higher baseline levels of transit ridership, and more competitive transit travel times. The launching of new transit facilities will be regularly accompanied by focused marketing in the areas where service is improved.

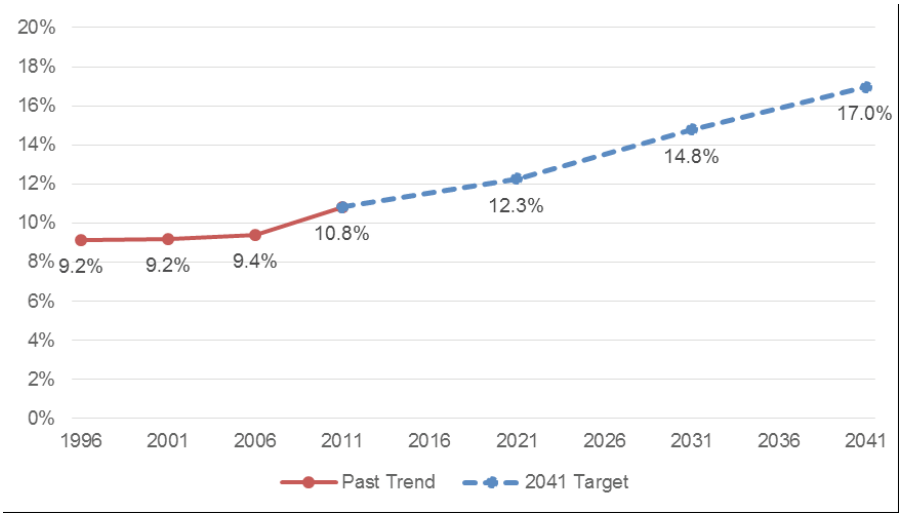
Improvements to transit service and facilities will be accompanied by user-focused social marketing initiatives.

6.2.2 TARGETS FOR 2041

Mode share.

This strategy sets a mode share target for transit use in 2041 of 17% in the morning peak period, an increase from 10.8% in 2011 (see Exhibit 6-5). This target is consistent with related targets for both GO and local transit services. Reaching it will require the incremental addition of 3,175 new daily transit trips each year, on average. Further information on the methodology to develop the mode share targets can be found in a Mode Share Targets background report under separate cover.

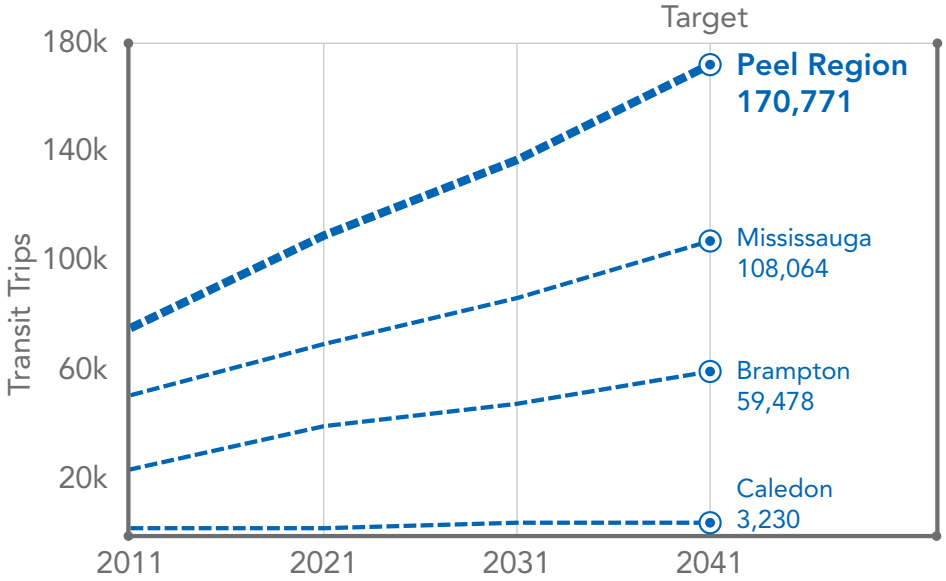
Exhibit 6-5: Transit Mode Share Trend and Target (Morning Peak Period, 1996-2041)



Focus areas.

This strategy envisions that future increases in carpooling from residential areas will be achieved principally through gains in areas of the Region that have one or more of the following characteristics:

Exhibit 6-6: Projected Growth in Transit Trips to Reach Mode Share Target (Morning Peak Period, 2011-2041)

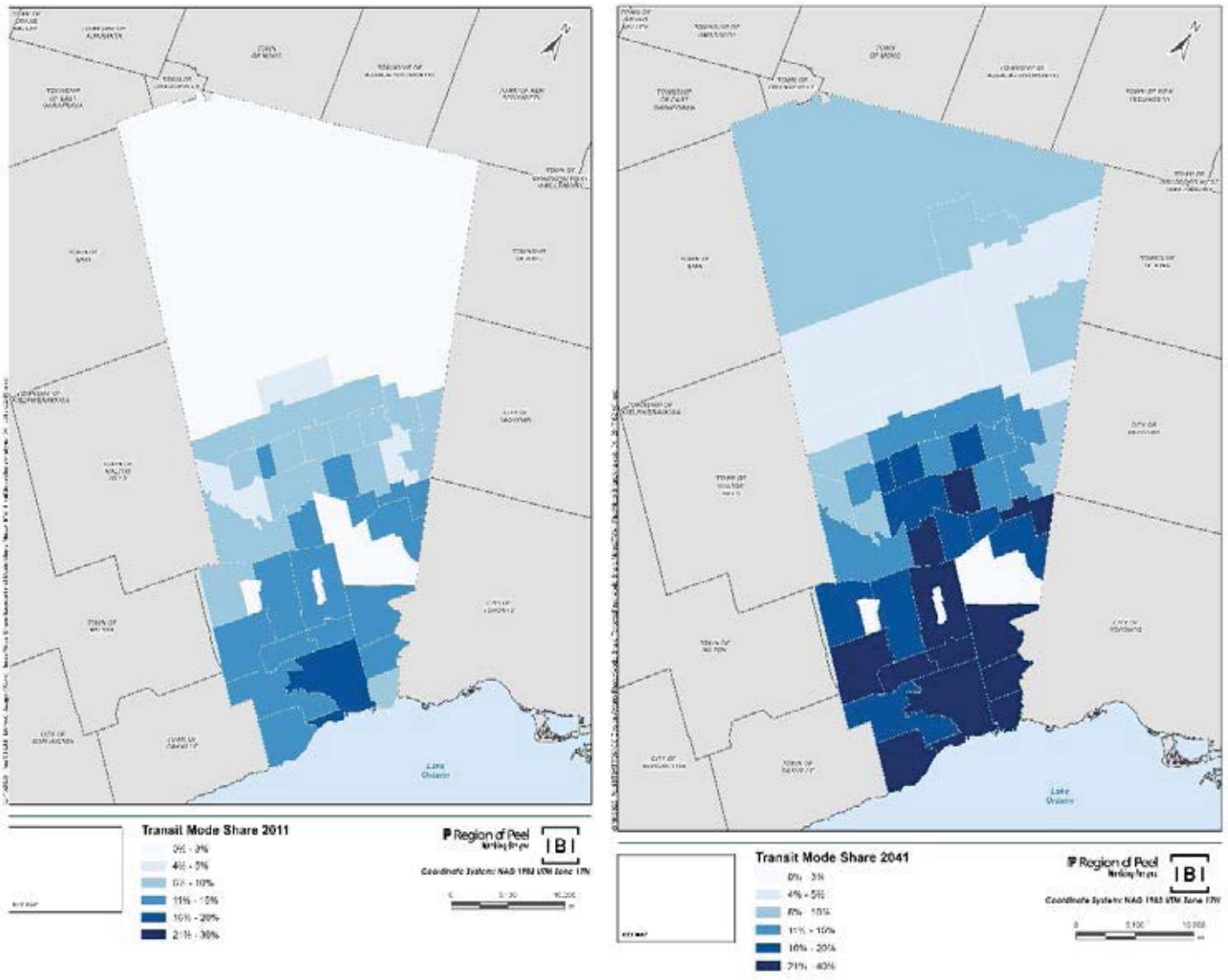


- Areas where the projected population and employment density in 2041 is expected to be higher than 50 persons and jobs per hectare (i.e. the minimum density for basic transit service to be effective and efficient)
- Areas where the ratio of transit travel time to automobile travel time is expected to be lower than 2.5 (i.e. more competitive than the projected 2031 Regional average)
- Areas where the 2011 morning peak period transit mode share was higher than 10% (i.e. at or above the 2011 Regional average)

- Areas where Metrolinx has estimated the 2031 morning peak period transit mode share to be higher than 10% (i.e. at or above the 2011 Regional average)

Exhibit 6-6 shows how the targeted increase in transit trips is distributed across Peel's three local municipalities from 2011 to 2041—with transit trips expected to more than double in Mississauga, almost triple in Brampton, and grow by almost 500% in Caledon. The assumption for Caledon is that there will be some form of transit consisting of a combination of fixed route services and dynamic transit for lower density areas; however, the mode share targets are indicative and depend on the outcome and recommendations of the on-going transit feasibility study being completed by the Town. Exhibit 6-7 shows a finer-grained depiction of how transit mode share is targeted to grow in smaller areas across Peel.

Exhibit 6-7: Existing and Target Transit Mode Share by Super Zone (Trip Origins, Morning Peak Period, 2011 and 2041)



6.3 Key Themes and Actions – Transit

The following table summarizes the recommended actions that enable and support transit use, grouped into four key themes as presented in Sections 6.3.1 through 6.3.4. A number of relevant multimodal strategies that support transit were also discussed previously in Chapter 3.

TRANSIT STRATEGIES: KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION	
Make regional roads more transit-supportive (see Section 6.3.1)	
Action **T1**	Develop transit stop guidelines
Action **T2**	Implement transit priority measures at intersections
Improve connections to transit (see Section 6.3.2)	
Action **T3**	Improve first- and last-mile access to transit hubs and along corridors
Action **T4**	Identify needs and opportunities for new park and ride lots
Explore new technologies and business models to support transit (see Section 6.3.3)	
Action **T5**	Pilot test alternative transit services
Promote transit use across the Region (see Section 6.3.4)	
Action **T6**	Promote transit near new rapid transit routes

MULTIMODAL ACTIONS THAT SUPPORT TRANSIT

Influence the shape of new development (see Section 3.3.1)

- Direct local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable modes through infrastructure and design
- Improve development approval processes to support sustainable transportation through infrastructure, design and TDM

Strengthen the multimodal function of Regional roads (see Section 3.3.2)

- Adopt a complete streets policy and implement a pilot project
- Adopt a multimodal level of service (MMLOS) methodology to assess road designs and allocate right-of-way
- Assess feasibility of bus/HOV lanes on Regional roads, identify priority locations and implement a pilot project

Influence personal travel decisions (see Section 3.3.4)

- Deliver special events, information and messaging across the Region
- Deliver TDM social marketing to priority areas
- Support workplace engagement by Smart Commute to promote commuting by walking, cycling, transit, carpooling and teleworking
- Support sustainable travel choices through new mobility technologies and business models

Strengthen the Region's leadership role (see Section 3.3.5)

- Create knowledge through research, testing, evaluation and monitoring
- Provide learning opportunities for stakeholders
- Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces

6.3.1 MAKE REGIONAL ROADS MORE TRANSIT-SUPPORTIVE

ACTION T1

Develop transit stop guidelines

The design of transit stops can have an influence on both rider comfort/safety as well as bus operations (e.g. placement with respect to signal, speed of boarding and alighting). At present, MiWay, Brampton Transit and GO Transit each utilize a combination of in-house tools and "rules of thumb" for the design of their stops. While each contain selected information, there is a lack of comprehensive guidance on bus stop spacing, mid-block bus stops, rural bus stops and amenities.

It is recommended that the Region work with transit service providers to review existing guidelines, identify gaps, and ultimately work to develop an overarching tool box for transit stop design. This could be a comprehensive guideline, or selected guidance on specific elements (e.g. bicycle parking, bus stop placement, and amenities) that could then be utilized by each agency.

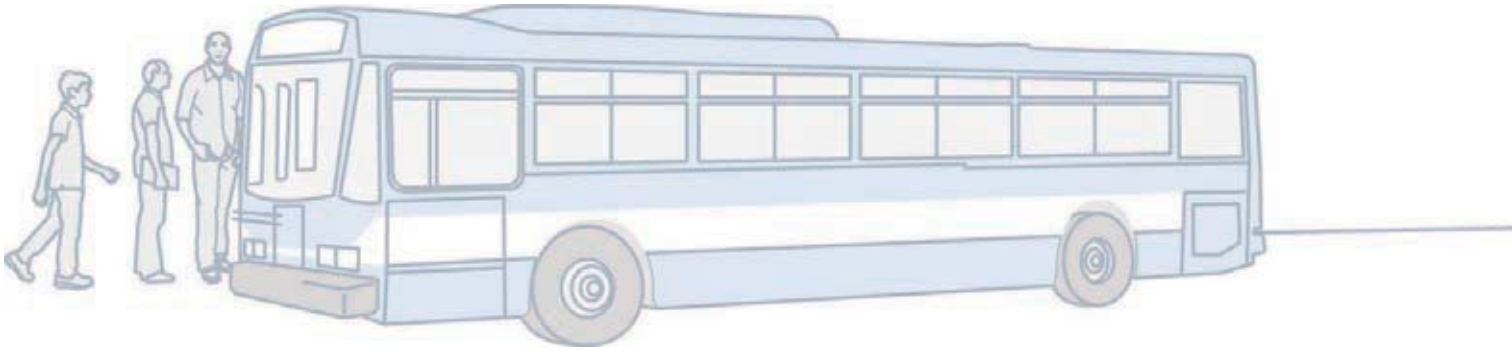
ACTION T2

Implement transit priority measures at intersections

MiWay, Brampton Transit and Metrolinx have respectively identified a series of priority transit corridor throughout the Region ranging from priority bus corridors to full Bus Rapid Transit/LRT corridors. It is recommended that the Region work take an active role in identifying, designing and implementing transit priority measures on Regional Roads.

At present, transit priority measures are largely implemented in response to requests by the agencies (e.g. at selected intersections on Züm corridors).

Examples of transit priority measures include Transit Signal Priority (TSP), queue jump lanes, and far-side bus stops.



6.3.2 IMPROVE CONNECTIONS TO TRANSIT

ACTION T3

Improve first- and last-mile access to transit hubs and along corridors

The quality of first- and last-mile access to transit services is a critical determinant of transit's competitiveness. This is especially true in suburban areas where barriers to access can be acute—for example, where many homes are physically close to a transit hub but no connecting path exists, or where rapid transit stations are separated from homes and jobs by wide arterial roads and expansive park-and-ride lots. However, more options exist for making first- and last-mile journeys than ever before. It is recommended that the Region work with local municipalities and transit systems to assess the quality of multimodal access to transit hubs, develop guidelines for providing multimodal options, then prioritize and implement possible improvements. By collaborating to contrast existing conditions at rapid transit stations with opportunities to improve access by different modes (e.g. walking, cycling, local transit, carpooling, taxi/ride-hailing services, bikesharing and carsharing), organizations can overcome jurisdictional disconnects and seek the most efficient solutions.

This work would build on a recent GO Transit station access study, which examined current access to individual GO stations by conventional modes (i.e. walking, cycling, transit, pickup-drop-off, park and ride), and identified network-wide issues and trends; Metrolinx intends to build on this work to develop an action plan specific to each of its stations. Improving multimodal access to GO stations is required to overcome the limited capacity of park-and-ride lots, and could involve better facilities and services in the immediate area. Community-based marketing could also help reach other transit customers, and provide information and incentives that motivate new habits.

Walking and cycling, which are the access modes with the lowest cost and smallest footprint, should be a principal focus of this work as it relates to both infrastructure (e.g. cycling routes to transit hubs) and TDM (e.g. social marketing to encourage users to cycle to stations). As such, measures to improve user information about first- and last-mile access should be coordinated with Action B6 to improve wayfinding for cycling facilities across the Region.

6.3.3 EXPLORE NEW TECHNOLOGIES AND BUSINESS MODELS TO SUPPORT TRANSIT

ACTION T4

Pilot test alternative transit services

Enabled by emerging technologies, innovative new mobility business models are creating the opportunity to improve transit's competitiveness and attract new riders in areas where conventional services have been challenged to do so cost-effectively. Alternative transit services include a rapidly evolving pool of concepts and pilot projects across North America, and operate outside the realm of what is considered to be conventional transit service. They all involve one or more innovative features including variable routes, on-demand service, privately-owned vehicles, and flexible fares; most require mobile phone applications to arrange rides and pay electronic fares. Some examples include on-demand, dynamically-routed public transit services (e.g. York Region Transit's Dial-a-Ride); multiple-passenger versions of ride-hailing services (e.g. UberPOOL, Lyft Line, Via); fixed-route on-demand services using vans (e.g. Chariot) or cars (e.g. Lyft Shuttle); flexible-fare, shared ride-hailing models operated in partnership with municipalities or transit systems (e.g. Bridj in the U.S., Innisfil Transit just north of York Region); subsidized ride-hailing services contracted to provide commuter rail feeder service. As autonomous vehicle technologies progress further, new forms of alternative transit will undoubtedly emerge.

It is recommended that the Region collaborate with local municipalities and transit systems to identify and evaluate opportunities for innovate transit technologies and service models, particularly those that can attract new riders and/or improve the cost-effectiveness of transit in low-demand, low-density areas. The current transit feasibility study in Caledon may consider these options. Additional services could be investigated in North Brampton and Caledon, where densities are too low for conventional transit to provide attractive, cost-effective service, and in industrial employment areas (e.g. around the Airport Corporate Centre) where connections to rapid transit hubs could be more flexible and direct. Local Smart Commute offices could play a role by encouraging any member workplaces in targeted employment areas to participate in feasibility-level analyses, and by promoting any new services to their employees.

6.3.4 PROMOTE TRANSIT USE ACROSS THE REGION

ACTION T5

Promote transit near new rapid transit routes

As discussed in Section 6.2.2, the mode share targets of this strategy require a significant shift in peak period travel demand from driving cars to taking transit among Peel residents by 2041. The Region can encourage this shift by working with its partners to build awareness and understanding of transit and its benefits by offering information, and to remove barriers and offer incentives that motivate people to try transit. It is recommended that the Region promote transit to individuals and families living near new rapid transit routes through its multimodal, TDM social marketing framework that considers the personal context of individuals and their families (see the discussion of Action M13 in Section 3.3.4). Neighbourhoods that may especially good places to offer incentives and rewards include:

- those where residents tend to have long commutes to destinations also served by rapid transit (e.g. downtown Toronto)
- those where residents already tend to make more transit trips than average
- those where more families than average own only one car

- 7 -

Carpooling Strategies

7.1 Carpooling Today

7.1.1 INFRASTRUCTURE AND SERVICES

Current carpool-supportive infrastructure and services in the Region of Peel include carpool lots, HOV lanes, ridematching services, and various promotional measures.

Conventional carpool lots.

The Region of Peel owns and operates a 204-space carpool lot at Mayfield Road and Highway 50. This facility, which is marketed as the Mayfield|50 Commuter Lot, is also a park-and-ride lot serviced by the Bolton GO bus route connecting to the Malton GO station, allowing passengers to connect to Union Station, Brampton's Züm network, and York Region Transit. The Mayfield|50 lot offers free parking, a passenger pick-up/drop-off area, and bike racks.

The MTO also operates five free carpool lots in the Region:

- Highway 401 and Hurontario Street, Mississauga (256 spaces)
- Highway 401 and Mississauga Road, Mississauga (69 spaces)
- Queen Elizabeth Way and Erin Mills Parkway, Mississauga (108 spaces)
- Highway 410 and Williams Parkway, Brampton (104 spaces; also served by GO Bus and Brampton Transit routes)
- Highway 10 and Peel Road 24, Caledon (40 spaces; also served by GO Bus routes)

MTO has two additional lots just outside Peel's border that capture commuters entering the Region: one is at Queen Elizabeth Way and Winston Churchill Boulevard in Oakville, and the other is at Highway 10 and Highway 9 in Orangeville.

Third-party carpool lots.

Regional staff have identified several locations where individuals may park to carpool with the permission of the landowner. These arrangements are informal and not promoted to the general public.

HOV lanes.

MTO offers a 2+ HOV lane (i.e. for vehicles with at least two occupants) on Highway 403, extending from the Highway 407 interchange easterly to the Highway 401 interchange.

Carpool ridematching.

Metrolinx offers free carpool ridematching to all GTHA residents through the online Triplinx trip planner. Smart Commute member workplaces receive enhanced services for their employees (see next paragraph).

Carpool promotion at workplaces.

The Region of Peel has established three transportation management association (TMA) offices (Smart Commute Mississauga, Smart Commute Brampton-Caledon, and Smart Commute Pearson Airport Area) as non-profit, public-private partnerships. These offices serve as transportation consultants for workplace members wishing to implement TDM measures that support carpooling, vanpooling, telework, transit use, cycling, walking and parking management. Employees of member workplaces can use the online Triplinx ridematching tool to seek carpool partners either among colleagues at their own workplace, or among any Triplinx users who have a similar commuting pattern. Registered carpoolers at member workplaces have access to an Emergency Ride Home service that will reimburse them up to $75 for travel to get home or to a hospital in an emergency situation.

Carpool promotion in the community.

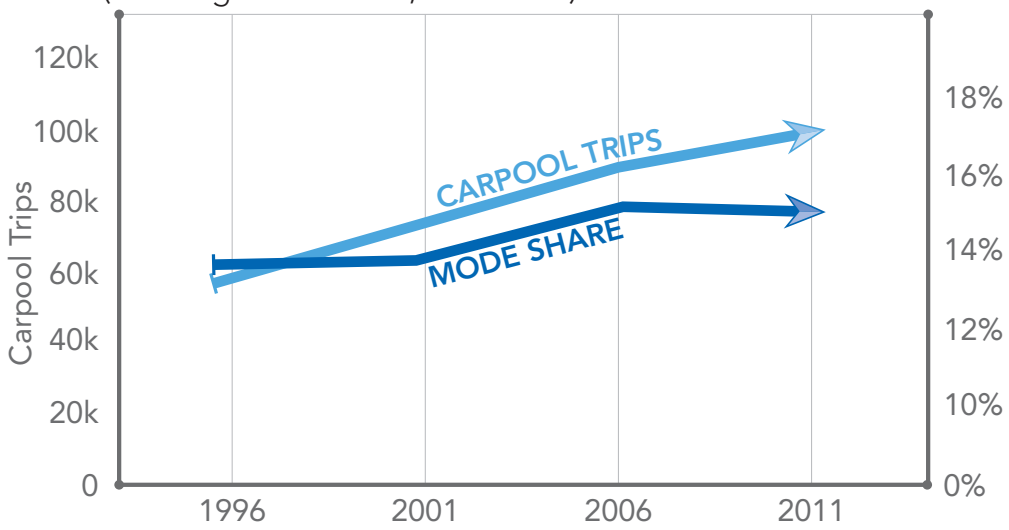
Metrolinx, Smart Commute offices and TDM stakeholders in GTHA municipalities sponsor a GTHA-wide Carpool Week each February. In 2016, the Region of Peel conducted a TDM social marketing campaign, promoted as “Meet at Mayfield|50”, that tested innovative promotional and motivational tools to help residents explore their travel options and consider whether using the Mayfield|50 commuter lot could improve their commute year-round.

7.1.2 LEVELS OF USE

Mode share.

Exhibit 7-1 shows that carpooling by Peel residents increased from 1996 to 2011. The number of carpool passenger trips almost doubled, while the mode share rose from 13.6% to 15.2%.

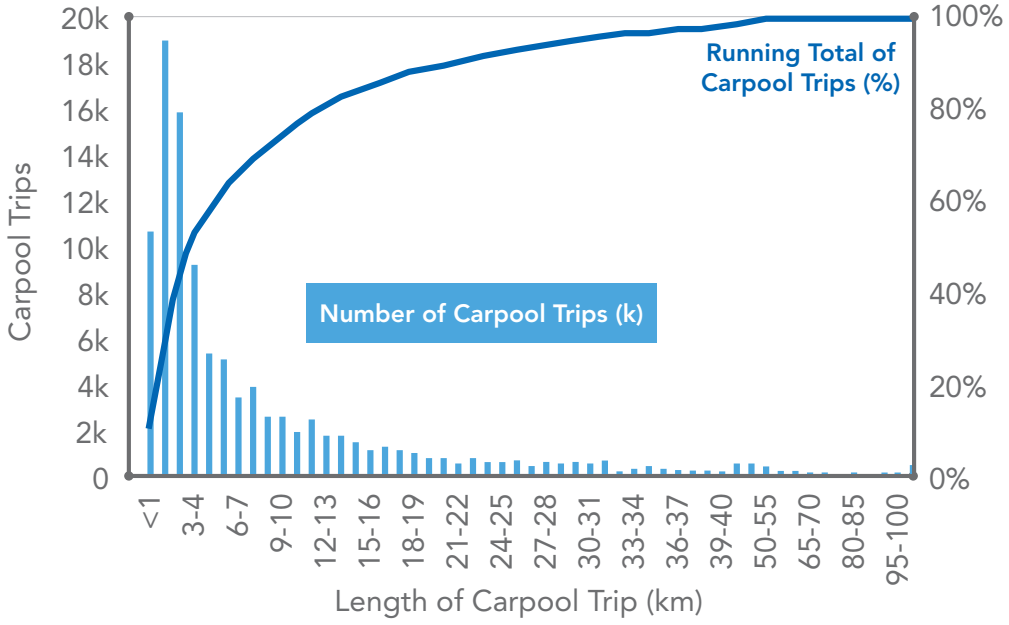
Exhibit 7-1: Carpool Passenger Trips and Mode Share (Morning Peak Period, 1996-2011)



Carpool trip attributes.

The average age of carpool passengers is 26 years, and the gender ratio is 60% female and 40% male. Only 23% of carpool passengers in the morning peak period are heading to work; almost half are travelling to school, and 20% are making discretionary trips. The fact that most carpool trips are local in nature is reflected in their median length (about 4 km, as shown in Exhibit 7-2). The fact that some carpool trips are long (10% of them are more than 20 km) causes the average length to rise to 8.5 km. Work trips tend to be longer than those for school or discretionary purposes, and average almost 14 km.

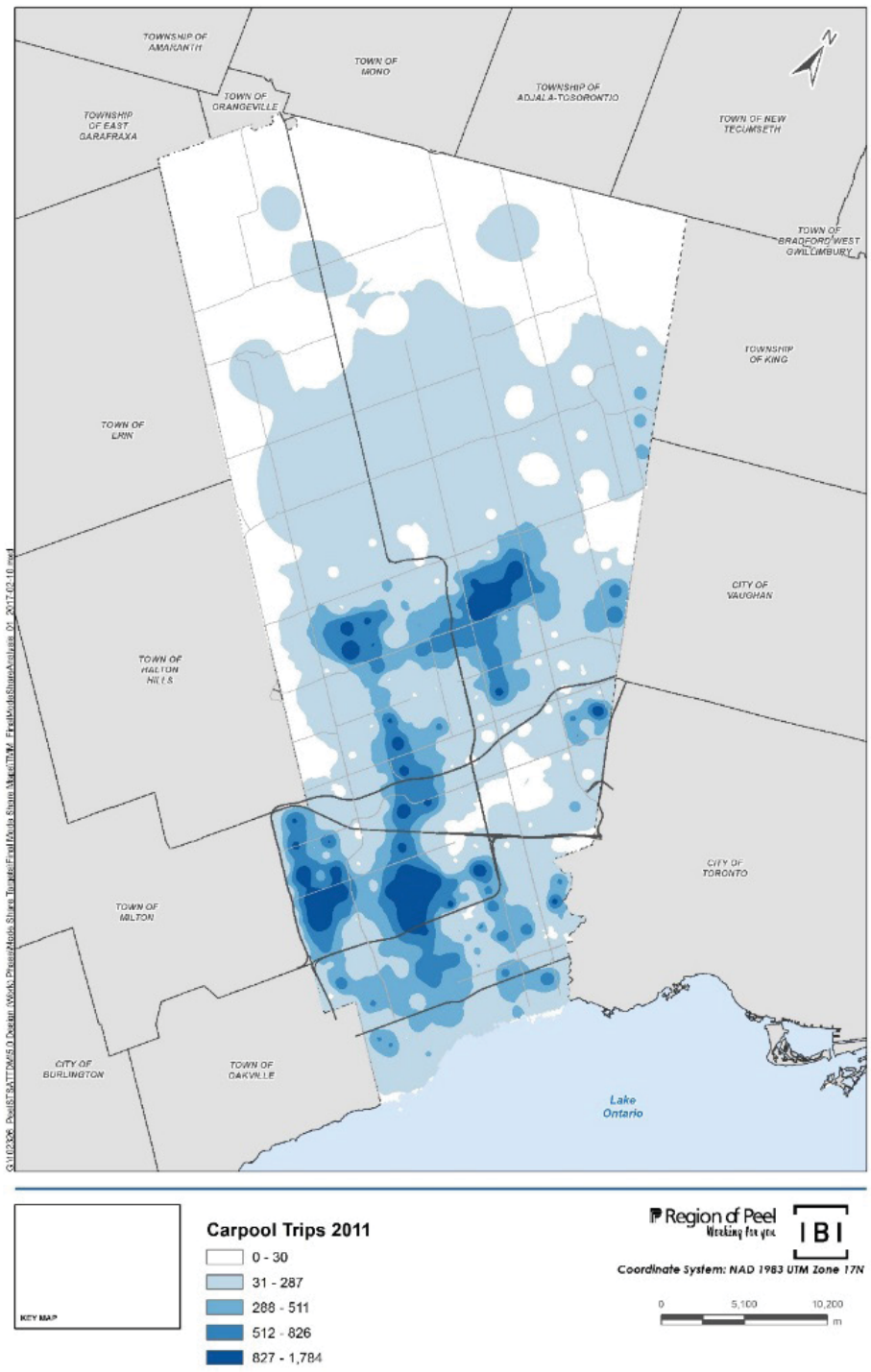
Exhibit 7-2: Carpool Trip Lengths (Morning Peak Period, 2011)



Carpool trip origins and destinations.

Exhibit 7-3 shows that carpool trips in Peel mostly originate in northwest Mississauga and north central Brampton. Exhibit 7-4 shows that the great majority (85%) of carpool trips stay in the Region, and only 9% are destined for Toronto (versus a majority of trips made by transit). Among the 25,000 Peel residents who carpooled to work during the morning peak period in 2011, about 70% stayed in Peel while almost 20% headed to Toronto.

Exhibit 7-3:
Carpool Trip Origins
(Morning Peak Period, 2011)



Carpool lot usage.

In late 2016, observations found that the peak use of Peel's Mayfield|50 lot was about 15% of its capacity, and these users included both carpoolers (57%) and transit users (43%). Of the five MTO carpool lots in Peel, the most recent data (2013) show only the Highway 401/Mississauga Road lot operating at 100% capacity; the next busiest lot was Highway 401/Hurontario Street, which was about 65% full.

Exhibit 7-4: Destinations of Carpool Trips from the Region of Peel (2011, AM Peak Period)

Destination	All Trip Purposes	Commuter
Toronto	9,748	4,759
Peel	88,749	18,105
Halton	2,341	1,145
Hamilton	153	76
York	1,671	973
Other	1,219	214
Total	**103,881**	**25,272**

7.2 A Vision for Carpooling

7.2.1 DESIRED OUTCOMES

Peel's vision for carpooling includes the outcomes discussed in the following paragraphs. This strategy acknowledges that carpooling is highly diverse by nature—from casual (friends going out for dinner together) to formal (co-workers maintaining a scheduled carpool with shared driving responsibilities). At the more organized end of this spectrum, forming new carpools can be challenging—passengers must give up their independence of travel, while drivers must give up their privacy and usually add some time to their trip. Increasing carpooling requires maximum convenience and benefits for all participants—especially for drivers who may experience less personal benefit than their passengers.

Note that, in envisioning a higher rate of carpooling in future, the group of emerging technologies and business models called "new mobility" is something of a wildcard. It is possible that new mobile applications could help attract new users (including typically hard-to-find carpool drivers) by helping them to form single-trip or routine carpools in real-time, share costs electronically, and screen and rate their carpool partners. At the same time, new mobility could make it a challenge to preserve and increase carpooling's mode share in an environment that also offers new travel options such as ride-hailing, microtransit services and driverless vehicles.

Arranging carpools will be easier and more flexible

Online applications will offer dynamic ridematching to find "instant" carpool partners for one-time or occasional trips, and will also make it convenient and secure for drivers and passengers to share the costs of driving through secure online mechanisms. At the same time, new ridesharing options such as vanpool services will expand the range of choices available to travellers.

Online applications will offer dynamic ridematching to find "instant" carpool partners for one-time or occasional trips.

Carpool parking will make shared-ride options more convenient and rewarding

Additional carpool parking options will give long-distance commuters to, from and within Peel a place to meet and share a ride, coordinated with any future network of carpool lanes. Carpoolers will also enjoy priority parking spaces at workplaces, transit stations and other major destinations.

Carpool parking options will give long-distance commuters to, from and within Peel a place to meet and share a ride.

Residents will choose to carpool more often, especially for longer commutes

Travellers will be more willing to carpool with other individuals, and will be more aware of options for carpool ridematching and parking. The Region and its partners will focus on building willingness to carpool among residents in communities where commute lengths are long, transit is less competitive, and nearby carpool lanes offer an added incentive. They will also support carpooling in suitable (e.g. office, retail or industrial) workplaces through programs and incentives. Recent trends toward more carpooling in Peel are a positive factor, although expanded regional transit (e.g. Regional Express Rail), broadband Internet (making telework more feasible) and the possible emergence of driverless vehicles could all offer challenges.

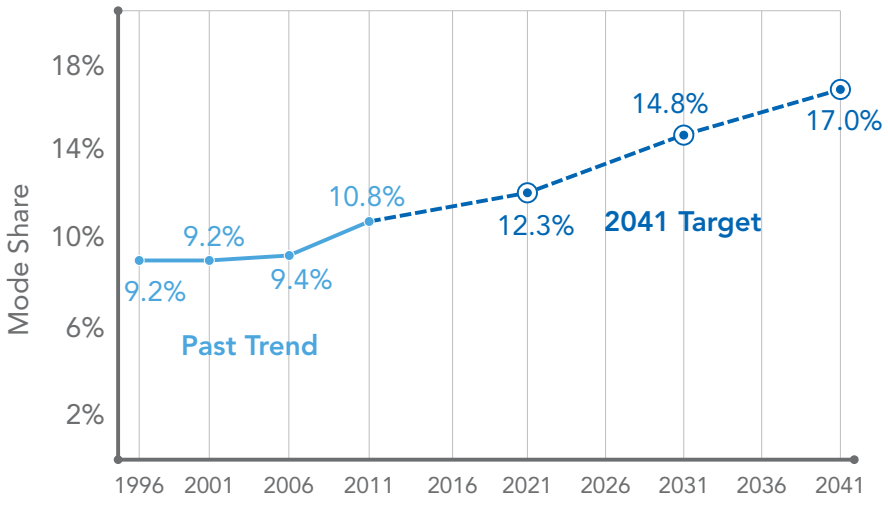
Travellers will be more willing to carpool with other individuals, and will be more aware of options for carpool ridematching and parking.

7.2.2 TARGETS FOR 2041

Mode share.

This strategy sets a mode share target for carpool passengers in 2041 of 18% in the morning peak period, an increase from 15.2% in 2011 (see Exhibit 7-5). Reaching this target will require the incremental addition of 2,500 new daily carpool trips each year, on average. Further information on the methodology to develop the mode share targets can be found in a Mode Share Targets background report under separate cover.

Exhibit 7-5: Carpool Passenger Mode Share Trend and Target (Morning Peak Period, 1996 2041)



Focus areas.

This strategy envisions that future increases in carpooling from residential areas will be achieved principally through gains in areas of the Region that have one or more of the following characteristics:

- Areas where the morning peak period commute carpooling mode split was greater than 5% in 2011 (compared to the 6% median commuter carpooling mode share for Regional traffic zones)
- Areas where the ratio of transit travel time to automobile travel time is expected to be greater than 2.5 (i.e. less competitive than the projected 2031 Regional average)
- Areas with a car ownership rate lower than the Regional average of 1.7 vehicles per household

Exhibit 7-6: Projected Growth in Carpool Passenger Trips to Reach Mode Share Target (Morning Peak Period, 2011-2041)

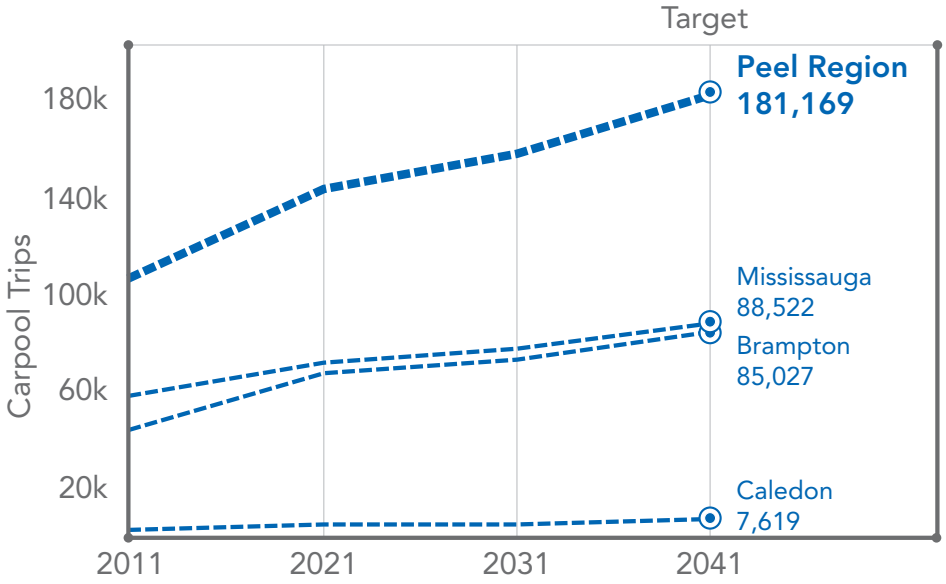
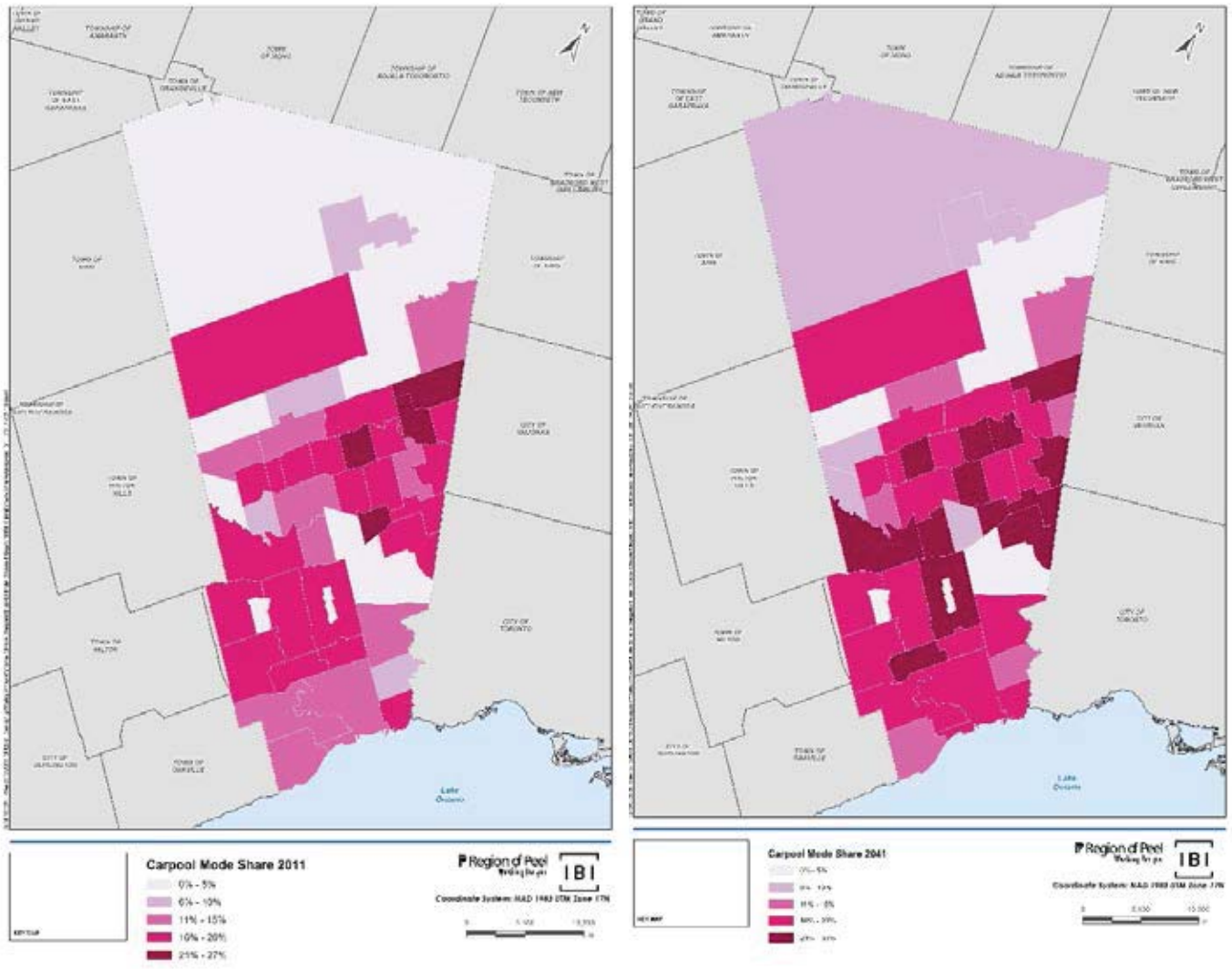


Exhibit 7-6 shows how the targeted increase in carpool passenger trips is distributed across Peel's three local municipalities. Exhibit 7-7 shows a finer-grained depiction of how carpool mode share is targeted to grow in smaller areas across Peel.

Exhibit 7-7: Existing and Target Carpool Passenger Mode Share by Super Zone (Trip Origins, Morning Peak Period, 2011 and 2041)



7.3 Key Themes and Actions – Carpooling

The following table summarizes the recommended actions to increase carpooling, grouped into three key themes as presented in Sections 7.3.1 through 7.3.3. A number of relevant multimodal strategies that support carpooling were also discussed previously in Chapter 3.

CARPOOLING STRATEGIES: KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION	
Expand carpool lots (see Section 7.3.1)	
Action **C1**	Implement planned conventional carpool lots, and monitor need and opportunity for others
Action **C2**	Identify needs and opportunities for new third-party carpool lots
Explore new technologies and business models to support carpooling (see Section 7.3.2)	
Action **C3**	Assess the feasibility of public vanpool services
Action **C4**	Advocate for provincial legislation to enable third-party vanpools
Promote carpooling in key markets (see Section 7.3.3)	
Action **C5**	Promote carpooling in areas with long trips and lower-quality transit service

MULTIMODAL ACTIONS THAT SUPPORT CARPOOLING
Influence the shape of new development (see Section 3.3.1)
• Direct local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable modes through infrastructure and design
• Improve development approval processes to support sustainable transportation through infrastructure, design and TDM
Strengthen the multimodal function of Regional roads (see Section 3.3.2)
• Assess feasibility of bus/HOV lanes on Regional roads, identify priority locations and implement a pilot project

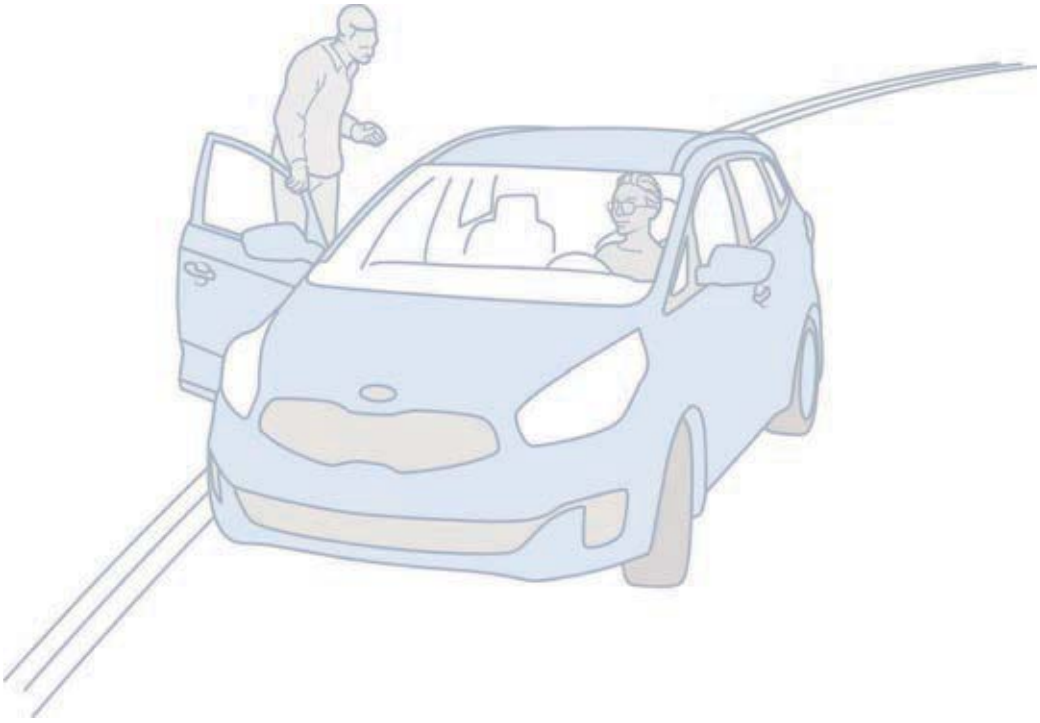
MULTIMODAL ACTIONS THAT SUPPORT CARPOOLING

Influence personal travel decisions (see Section 3.3.4)

- Deliver special events, information and messaging across the Region
- Deliver TDM social marketing to priority areas
- Support workplace engagement by Smart Commute to promote commuting by walking, cycling, transit, carpooling and teleworking
- Support sustainable travel choices through new mobility technologies and business models

Strengthen the Region's role (see Section 3.3.5)

- Create knowledge through research, testing, evaluation and monitoring
- Provide learning opportunities for stakeholders
- Provide priority carpool parking at Regional workplaces
- Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces



7.3.1 EXPAND CARPOOL LOTS

In 2009, the Region of Peel completed an exhaustive Carpool Lot Study that identified and assessed 59 different locations for new carpool lots. The identified locations were considered for their potential to intercept trips at different locations), to integrate transit and active modes, and to increase the visibility of carpooling. Some locations required the construction of new facilities (i.e. conventional carpool lots), while others assumed the use of existing parking facilities owned by third parties (e.g. community centres).

ACTION C1

Support implementation of planned conventional carpool lots, and monitor need and opportunity for others

Since the 2009 Carpool Lot Study, Peel has constructed the Regionally-owned Mayfield|50 carpool lot, and has added to its capital plan two additional conventional carpool lots:

- Mississauga Road and Bovaird Drive—responding to proposed growth in northwest Brampton
- Airport Road and Olde Base Line Road—serving development in eastern Caledon, to be incorporated into the EA study for widening Airport Road between King Street and Olde Base Line Road

These three existing/future Region of Peel carpool lots, in conjunction with the five existing MTO carpool lots in the Region (as well as two lots just outside the Region, on its western boundary in Oakville and northern boundary in Orangeville), provide comprehensive directional coverage in terms of intercepting trips into the Region and generated within the Region. **It is recommended that the Region and its partners identify when additional major capital investments in carpool lots are warranted.** When an existing carpool lot is regularly approaching capacity, a survey of users could determine where they are coming from, and whether providing more parking in the same location is preferable to building a new lot that intercepts carpoolers farther "upstream" (where land is typically cheaper and the user benefits greater).

It is also recommended that, either independently or in collaboration with MTO, the Region should add high-quality bicycle parking to current and future carpool lots that are accessible by foot or bike from nearby residential concentrations. Having sheltered bike racks or bike lockers at carpool lots enables commuters to access the lot by bike rather than by car or transit.

ACTION C2

Identify needs and opportunities for new third-party carpool lots

Allowing carpoolers to use existing, underused third-party parking lots (e.g. at community centres, churches or shopping malls) is a much less costly approach to providing carpool parking than building new lots from scratch. Third-party lots are a cost-effective way to assess user demand, and can also offer locations that are attractive to carpoolers, close to shops and services. Assuming a suitable host exists, arranging third-party lots may require a contract to address operating issues such as liability and cost-sharing of lighting, winter maintenance, line painting, and so on. Such community-based arrangements exist in many communities across Canada, and several exist in Peel today although none has been formalized, preventing their promotion to the general public.

It is recommended that the Region work with local municipalities to update the 2009 Carpool Lot Study's evaluation of general areas where third-party lots could be arranged, seek specific candidate locations for third-party carpool lots, and develop a template agreement to formalize arrangements. Advertising for willing hosts may yield results, since some hosts could see these arrangements as benefiting their self-interest (e.g. stores or malls that want to attract carpoolers' business). By offering to install signage, providing simple legal agreements and sharing any costs, the Region can make it as painless as possible for a landowner to open their parking facility to carpoolers.

Four stations on the Mississauga Transitway offer parking lots that are available for use by carpoolers as well as transit users (Winston Churchill, 300 spaces; Erin Mills, 300 spaces; Cawthra, 60 spaces; Dixie, 170 spaces). With the approval of Metrolinx, this idea could be extended to the several Park and Ride lots at GO rail stations in Peel Region. It is recommended that Peel approach park-and-ride lot operators to explore the concurrent use of those facilities as carpool lots.

7.3.2 EXPLORE NEW TECHNOLOGIES AND BUSINESS MODELS TO SUPPORT CARPOOLING

ACTION C3

Assess the feasibility of public vanpool services

It is recommended that Peel work with partners to collaboratively assess the feasibility of a public vanpool service in Peel and elsewhere in the GTHA. A vanpool service could be delivered independently or collaboratively by a public agency (e.g. Metrolinx, or the Region of Peel which already operates the TransHelp service), a non-profit organization (e.g. the Jack Bell Foundation, which operates vanpools in British Columbia) or a private business (as happens in Nova Scotia and the United States). The market for vanpools would be commuters making long trips across municipal boundaries for which local or GO transit services may not be competitive, such as from outside the GTHA, or across the central or northern GTHA. Vanpool trips tend to terminate in employment clusters such as downtown cores, business parks or large individual workplaces.

Metrolinx would be well suited to leading a GTHA-wide review of vanpooling opportunities as a complement to regional GO transit services. A feasibility study could identify legislative barriers, quantify the market, compare alternative operating arrangements (public/non-profit/private), estimate costs and benefits, and define the scope of a pilot test.

ACTION C4

Advocate for provincial legislation to enable third-party vanpools

Regardless of the outcome of any feasibility assessment of public vanpool services, it is recommended that Peel work with interested municipal partners to ask Metrolinx to pursue legislative change to enable third-party vanpools in Ontario. This change was identified in *The Big Move*, Metrolinx's 2008 Regional Transportation Plan, which called for an amendment to provincial *Public Vehicles Act* to "allow third-parties such as non-governmental organizations to provide vanpools to service major trip generators such as employers, post-secondary institutions and tourism destinations and to augment public transit service in low density or dispersed employment areas."

7.3.3 PROMOTE CARPOOLING IN KEY MARKETS

Promote carpooling in areas with long trips and lower-quality transit service

The Region and its partners can work to build awareness and understanding of carpooling by offering information, and to motivate people to try carpooling by removing barriers and offering incentives.

It is recommended that Peel work to enhance carpooling promotion in the workplace, which is where most carpool promotion occurs. Such efforts can complement and leverage concurrent efforts to promote active transportation, cycling and telework; they also recognize that employers can offer meaningful incentives such as priority parking. Workplaces where carpooling might be seen as attractive include:

- those in areas where transit service is infrequent or beyond a comfortable walking distance
- those with many employees who commute long distances or from places that are difficult to reach by transit (e.g. rural areas or municipalities across the GTHA)
- those with many low-paid and/or young employees for whom car ownership may be financially difficult
- those with fixed hours of operation (e.g. retail or shift work), meaning that many people start and stop work at the same time

It is also recommended that Peel promote carpooling to individuals and families at home. Typically, this would be done within a multimodal, TDM social marketing framework that considers the personal context of individuals and their families (see Section 3.3.4). Areas that could have significant latent carpool demand, and thus may be good places to offer stronger carpooling incentives and rewards within the "multimodal mix", include:

- those with higher-than-average SOV mode shares and lower-than-average transit mode shares
- those with longer-than average commutes
- those where more families than average own only one car
- those with many commuters travelling to urban areas that are congested or hard to reach by transit
- those near supportive infrastructure including MTO or Peel carpool lots and HOV lanes
- those upstream of road construction projects that will create traffic delays (e.g. highway widening or resurfacing)

- 8 -

Telework Strategies

8.1 Telework Today

8.1.1 SERVICES

The three Smart Commute offices in Peel encourage their member workplaces to promote alternative work arrangements that can reduce the need for employees to commute during periods. These arrangements can include telework as well as compressed work weeks and flexible or staggered work hours.

The Region of Peel is developing a project that will develop and test a telework toolkit intended to help workplaces and their employees identify and implement telework opportunities. In the project's initial phase it will work with up to six workplaces in the Region of Peel to establish or reinvent telework programs. Its products will help human resources professionals, and offer tools and guidance (possibly including sample policies, agreement templates, workforce assessments and surveys) to managers and teleworkers, with stand-alone toolkit elements for different stakeholder groups. The toolkit will be flexible enough to meet the varying needs of current and future workplaces and potential teleworkers, and will allow the Region's three Smart Commute offices to more effectively support workplaces as they consider and implement telework programs.

8.1.2 LEVELS OF USE

A telework trip is defined as a work trip avoided when a person works from home or a nearby workstation, instead of commuting to their usual workplace. Technically, these trips are avoided trips and do not count as part of mode share—rather, they are quantified as a reduction in travel demand. Measuring telework among the general population is difficult. The Transportation Tomorrow Survey (TTS) collects information about a person's usual place of work as well as whether a full-time employed person worked from home on a given day and did not make a work trip. The 2011 TTS recorded 5,616 work from home trips in Peel, or 0.6% of all trips in the morning peak period.

8.2 A Vision for Telework

8.2.1 DESIRED OUTCOMES

Peel's vision for telework includes the outcomes discussed in the following paragraphs. This strategy acknowledges the challenge posed by the fact that, to a great extent, whether workplaces encourage telework and other flexible work arrangements—mobile working, co-working, hoteling, videoconferencing and flexible work hours—lies outside the domain of government (the exception, of course, being government workplaces themselves). Unlike walking, cycling, transit and carpooling, telework requires no concrete infrastructure or conventional government services to occur. The role of government (other than as a role model) therefore lies in raising awareness, building capacity and motivating action.

More employers in Peel will offer telework and other alternative work arrangements

The greatest barrier to replacing commuter travel with electronic communication is the reluctance of employers—executives, human resources managers and staff supervisors—to grant employees the freedom to conduct their work outside their nominal place of employment. (Not all employers resist telework, and some actively promote it as a productivity-boosting, cost-saving measure.) Increasing the number of employers that see telework and other alternative work arrangements as a positive goal, and actively support their uptake by employees, is a key outcome for the Region of Peel. Governments and the private sector will work together to build awareness of how telework and other employment models can reduce transportation demands and emissions, improve robustness in the face of natural or man-made crises, and improve employee productivity and corporate bottom lines. This outcome is a win-win-win scenario that will benefit employers, commuters and the community.

Increasing the number of employers that see telework and other alternative work arrangements as a positive goal, and actively support their uptake by employees, is a key outcome for the Region of Peel.

Residents will avoid or shorten commute trips more often

Even at workplaces that offer telework and other flexible work arrangements, some employees can be reluctant to take advantage of those options. Reasons for this include unsupportive home environments (e.g. too many distractions, lack of privacy), lack of suitable tools (e.g. high-speed internet, ergonomic workstation, videoconferencing equipment), fear of slower advancement in the workplace due to physical absence, concern over lack of social opportunities, and worries about boredom and inactivity. Overcoming this wide range of possible barriers requires a suite of solutions, but the result will be a reduction in peak period travel demand (by both eliminating and shortening trips)—with resulting benefits including reduced congestion and emissions, better safety and lower costs.

The result will be a reduction in peak period travel demand—with resulting benefits including reduced congestion and emissions, better safety and lower costs.

8.2.2 TARGETS FOR 2041

Mode share.

This strategy sets a target for telework to reduce 2041 morning peak period person-trips by 1.5%, an increase from 0.6% in 2011. This would be equivalent to 15,000 person-trips avoided in each morning peak period in 2041. Further information on the methodology to develop the mode share targets can be found in the Mode Share Targets background report under separate cover.

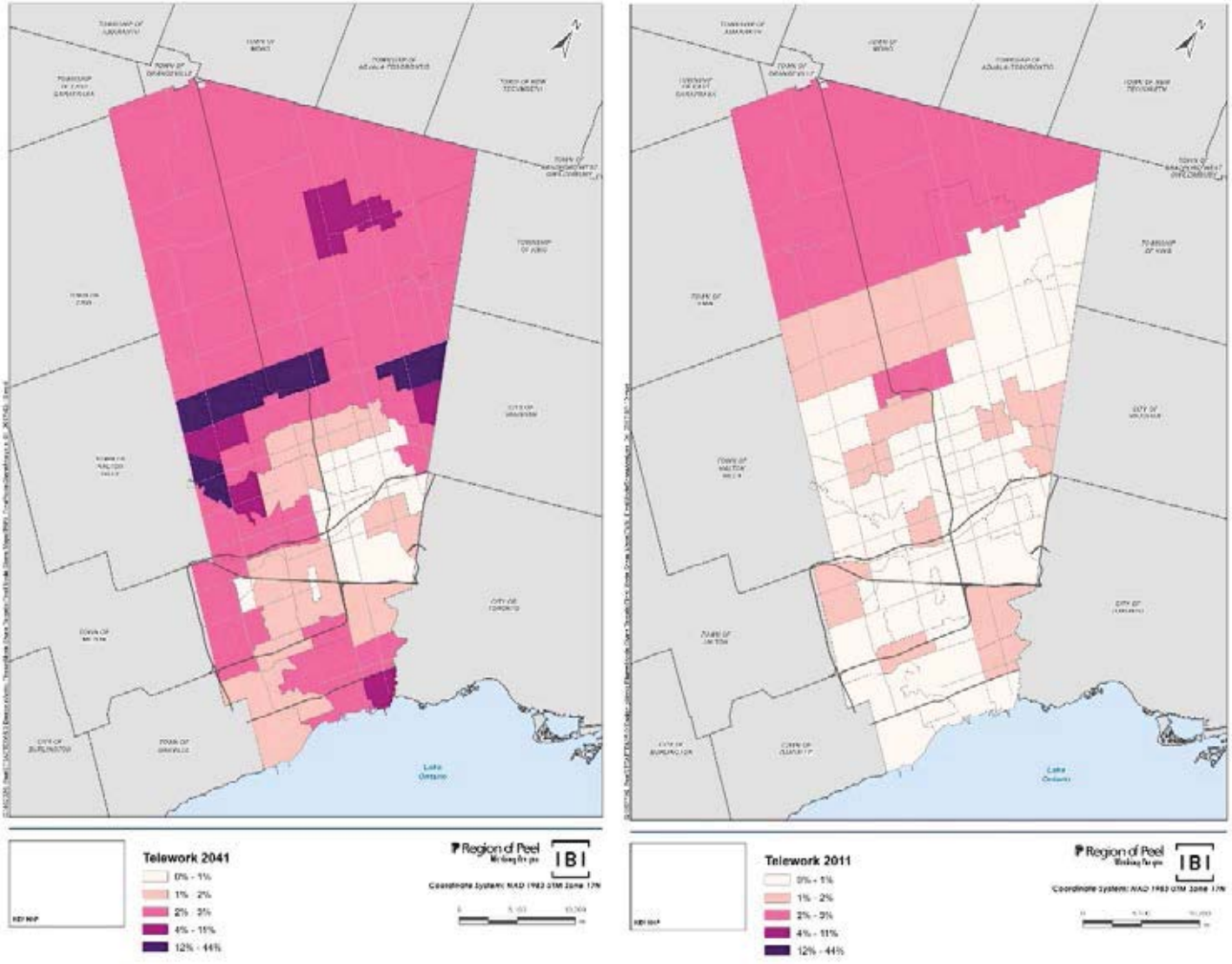
Focus areas.

This strategy envisions that this increase in telework from residential areas will be achieved principally through gains in areas of the Region that have one or more of the following characteristics:

- Areas with commute trip lengths that are higher than the Region's 2011 average of 18.8 km
- Areas with a high workforce concentration (i.e. more than 50%) of professionals and office workers, who telework more easily than retail or manufacturing workers

Areas with both of these factors include much of Caledon, scattered neighbourhoods in Brampton, and a significant portion of western Mississauga.

Exhibit 8-1: Existing and target telework mode share by super zone (trip origins, morning peak period, 2011 and 2041)



8.3 Key Themes and Actions – Telework

The following table summarizes the recommended actions to increase telework, grouped into two key themes as presented in Sections 8.3.1 and 8.3.2. A number of relevant multimodal strategies that support telework were also discussed previously in Chapter 3.

TELEWORK STRATEGIES: KEY THEMES AND ACTIONS DISCUSSED IN THIS SECTION	
Promote flexible work arrangements as a win-win-win solution (see Section 8.3.1)	
Action **TW1**	Engage employers to promote flexible work arrangements
Help workplaces support flexible work arrangements (see Section 8.3.2)	
Action **TW2**	Deliver telework training and tools to employers
Action **TW3**	Study the feasibility of satellite workplaces

MULTIMODAL ACTIONS THAT SUPPORT TELEWORK
Influence personal travel decisions (see Section 3.3.4)
• Support workplace engagement by Smart Commute to promote commuting by walking, cycling, transit, carpooling and teleworking
Strengthen the Region's role (see Section 3.3.5)
• Create knowledge through research, testing, evaluation and monitoring
• Provide learning opportunities for stakeholders
• Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces

8.3.1 PROMOTE FLEXIBLE WORK ARRANGEMENTS AS A WIN-WIN-WIN SOLUTION

ACTION TW1

Engage employers to promote flexible work arrangements

Telework, along with other types of flexible work arrangements, is a complex issue for employers. It involves much more than transportation objectives (e.g. encouraging commuters to take transit rather than drive to work), and presents operational and financial issues related to information technology, real estate management, personnel hiring and performance management, employee health and wellness, managerial culture, emergency preparedness, corporate social responsibility and community relations. In fact, transportation issues are rarely the motivator for an effective workplace telework program—real estate costs and employee satisfaction are much more common drivers; in the United States, government encouragement of telework is often based on the need to keep metropolitan regions functioning in a crisis (e.g. earthquake, terrorism). Similarly, the employer risks associated with telework (whether real or perceived) typically far outweigh any transportation-related benefits. For these reasons, any effective case for telework must explicitly integrate a wide range of non-transportation issues.

To effectively drive employer interest in telework and inform action, it is recommended that the Region collaborate with local Smart Commute offices and organizations that have existing relationships, communication channels and credibility with the employer community (e.g. boards of trade, chambers of commerce, economic development agencies, Building Owners and Managers Association). Those organizations can help make a broad, meaningful business case for flexible work arrangements that will resonate with executives whose authority is needed to drive complex change. A collaborative campaign that focuses on making the case for telework, in which transportation issues are just one of many critical dimensions), would be an effective prelude to the provision of advice and tools at a more pragmatic level. A campaign could make use of social marketing techniques such as norm appeals and commitments, and could recognize employers who make meaningful progress.

Even though an alliance to promote flexible work arrangements would likely be region-wide, to maximize sustainable transportation outcomes it would make sense to focus promotional efforts in areas (e.g. downtown Mississauga) that have the following characteristics:

- Higher levels of congestion and real estate costs
- Parking supply exceeded by demand, probably characterized by parking fees
- A high number of employees with long commutes (e.g. more than 20 km), possibly from rural areas, distant parts of the GTHA (e.g. Durham, Hamilton), or outside the GTHA (e.g. Barrie)
- A high proportion of professional or office-based employees, whose work can more readily be done off-site

8.3.2 HELP WORKPLACES SUPPORT FLEXIBLE WORK ARRANGEMENTS

ACTION TW2

Deliver telework training and tools to employers

As discussed above in Section 8.1.1, the Region of Peel has launched a project to develop a toolkit that Smart Commute offices can use to help their member workplaces implement telework and other flexible work arrangements. To maximize benefits, it is recommended that Peel make this toolkit available for delivery outside the scope of Smart Commute client services, such as through boards of trade or economic development agencies. With the additional benefit of case studies documenting the experiences of workplaces during the toolkit's testing phase, many employers would have the capacity to adopt or adapt the toolkit's sample policies, agreements and surveys without outside assistance.

ACTION TW3

Study the feasibility of satellite workplaces

Most conditions that support telework are not directly influenced or controlled by government, but the Region can support progress by exploring possible innovations and emerging ideas. One such idea is the role of satellite workplaces in overcoming barriers to telework and mobile working that exist at the home end of the trip, rather than in the workplace—such as unsupportive home environments (e.g. too many distractions, lack of privacy) or a lack of suitable tools (e.g. high-speed internet, ergonomic workstation, videoconferencing equipment). Satellite workplaces provide commuters a location to work that is closer to their home than their nominal workplace, and thus reduce commuting time and costs, but provide a more "normal" office-type environment.

It is recommended that Peel identify interested stakeholders and work with them to conduct an examination of best practices in satellite workplaces provided by individual employers, third-party businesses, non-governmental organizations, or governments themselves. Key issues to be addressed might include eliminating planning or zoning barriers, public-private partnership arrangements, adaptive re-use of existing public facilities (e.g. schools, libraries, community and recreation centres), physical specifications and operating protocols.

- 9 -

Implementation Plan

9.1 Five Year Action Plans

The Region of Peel's STS is accompanied by two supporting implementation plans— an Active Transportation (AT) Implementation Plan and a Transportation Demand Management (TDM) Implementation Plan, both covering the period 2018-2022.

The implementation plans describe how near-term programs recommended by the STS may be operationalized in detail.

This includes the budget and staffing requirements that the Region of Peel's Sustainable Transportation group will require to achieve the program goals of the STS. The AT Implementation Plan and TDM Implementation Plan recommend that the existing Sustainable Transportation contract positions be made permanent and that two additional staff be hired for active transportation projects.

9.2 Roles and Responsibilities

The development of these plans reflects the operational distinction between staff and budgets allocated to TDM and active transportation within the Region of Peel. Both plans should be read in conjunction with each other, because of the strong support and collaboration between TDM and active transportation programs. This plan principally represents the actions that will be delivered by the Region's Sustainable Transportation staff, using the Region's active transportation budget.

Further to the activities of the Region of Peel's Sustainable Transportation Staff, the following list identifies groups within the Region of Peel that would play lead or supporting roles in the actions recommended in this report, as well as external partners and stakeholders whose involvement is needed.

It cannot be stressed enough that, while the Region of Peel is identified as having the lead role for each action, the commitment of all partners and stakeholders identified here will be essential to achievement of this strategy's long-term goals. Local municipalities, Provincial agencies, Smart Commute offices and area school boards will all play a key role.

REGION OF PEEL

PAM **Property Asset Management**

PUBLIC WORKS > Transportation Division

ST **Sustainable Transportation (TDM, AT)**

IPD **Infrastructure Planning and Design**

RDC Road Design & Construction (road capital projects and design)

IPS Infrastructure Planning & Studies (EAs and area studies)

TSP Transportation System Planning (Long-term planning, modelling, policy, freight)

TE Traffic Engineering

TO Traffic Operations (signal warrants, signage, LOS analyses)

TSS Traffic Signals & Streetlighting

TS Traffic Safety

ROM **Road Operations & Maintenance (roads, ROW)**

TH **Accessible Transportation (TransHelp)**

DS **PUBLIC WORKS > Development Services**

IP **PUBLIC WORKS > Integrated Planning (OP, growth management)**

PH **HEALTH SERVICES > Public Health**

HS **HUMAN SERVICES**

HR **HUMAN RESOURCES**

EXTERNAL

LOCAL MUNICIPALITIES

LP **Planning (plans, zoning, development approvals)**

LT **Transportation (active transportation, TDM)**

LPR **Parks and recreation**

LTS **Transit services**

LED **Economic development**

PROVINCE OF ONTARIO

MTO **Ministry of Transportation**

MX **Metrolinx (including GO Transit)**

OTHER

CA **Conservation Authority**
EE **PUBLIC WORKS > Environmental Education**
TMA **TMA Offices**
SB **School boards**

MUNICIPALITIES

MN **Municipalities (Cities of Brampton, Mississauga, Town of Caledon)**
NGO **Non-governmental organizations**

Strategies, key themes and actions	Region of Peel		External partners and stakeholders
	Lead role	Supporting role	
MULTIMODAL STRATEGIES			
Influence the shape of new development *(see Section 3.3.1)*			
ACTION M1 Encourage local municipalities to strengthen zoning by-laws to reduce parking requirements and support sustainable modes through infrastructure and context sensitive design	IP	ST, TSP, PH	LP, MN
ACTION M2 Improve development approval processes to support sustainable transportation through infrastructure, design and TDM	ST	IP, DS, PH, TO	LP, LT, MTO, MX
Strengthen the multimodal function of Regional roads *(see Section 3.3.2)*			
ACTION M3 Adopt a complete streets policy and implement a pilot project	TSP, RDC	ST, TO	
ACTION M4 Assume responsibility for walking and cycling facilities in Regional road boulevards	IPD, ROM		LT
ACTION M5 Update Regional road design standards to ensure access, safety and comfort for walking and cycling	RDC, ST	TO, TS, PH	
ACTION M6 Adopt a multimodal level of service (MMLOS) methodology to assess road designs and allocate right-of-way	ST, TO	IPS, PH	
ACTION M7 Assess feasibility of bus/HOV lanes on Regional roads, identify priority locations and implement a pilot project	TSP, RDC	TO, ST	LTS, MX, LT

Strategies, key themes and actions	Region of Peel		External partners and stakeholders
	Lead role	Supporting role	
Make roads safer for vulnerable road users *(see Section 3.3.3)*			
ACTION M8 Pursue Vision Zero target for vulnerable road users	TS, ST	RDC, PH	LT
ACTION M9 Review by-laws that govern active transportation facilities and affect vulnerable road users	ST, TS	IPD, TO, PH	MN, LT
ACTION M10 Adopt Speed Reduction Approach for Regional roads and local streets	TO, TS	ST, IPD, RDC	LT
ACTION M11 Deliver multimodal road safety education to protect vulnerable road users	TS, ST	PH, SB, EE	MN, LT
Influence personal travel decisions *(see Section 3.3.4)*			
ACTION M12 Deliver special events, information and messaging across the Region	ST, EE	RDC, PH	MX, LT, MN, MTO
ACTION M13 Deliver TDM social marketing to priority areas	ST, EE	PH	LT, NGO, SC
ACTION M14 Support workplace engagement by Smart Commute to promote walking, cycling, transit, carpooling and teleworking	ST, EE		SC, LTS, LT
ACTION M15 Encourage and support walking and cycling to and from schools	ST, PH, EE	TS	SB, LT, MX
ACTION M16 Support sustainable travel choices through new mobility technologies and business models	ST, TSP, EE	PH	LT, MTO, MX
Strengthen the Region's role *(see Section 3.3.5)*			
ACTION M17 Create knowledge through research, testing, evaluation and monitoring	ST	IPD, TE, ROM, DS, PH	LT, MX
ACTION M18 Initiate a counting program for walking and cycling facilities	ST, TO	PH	LT, CA
ACTION M19 Provide learning opportunities for stakeholders	ST	IPD, TE, ROM, DS, PH, HS	LP, LT, LTS, MX, SC
ACTION M20 Improve sustainable travel options for Regional employees and implement parking pricing at Regional workplaces	ST	PH, PAM, HR	
ACTION M21 Undertake traffic safety pilot projects	ST, TSP	IPD, TS, PH	

Strategies, key themes and actions	Region of Peel		External partners and stakeholders
	Lead role	Supporting role	
WALKING STRATEGIES			
Provide comfortable, continuous walking routes *(see Section 4.3.1)*			
ACTION W1 Implement Long-Term Walking Network	IPS, RDC	ST, HS	
ACTION W2 Identify and prioritize solutions to major walking barriers	ST, RDC	TO, TS, HS, PH	MTO, LT
ACTION W3 Identify Pedestrian Improvement Areas and implement measures to improve walkability	ST, IPS	TO, TS, TSS, ROM, HS, PH	LT
Improve winter maintenance of walking facilities *(see Section 4.3.2)*			
ACTION W4 Improve winter maintenance for walking facilities	ST	ROM, TO	LT
ACTION W5 Develop priority winter maintenance network for Regional sidewalks	ST	ROM, TO	LT
Promote walking across the Region *(see Section 4.3.3)*			
ACTION W6 Promote walking for short trips	ST	PH	LT
CYCLING STRATEGIES			
Provide comfortable, continuous cycling facilities *(see Section 5.3.1)*			
ACTION B1 Implement Cycling Network	IPS, RDC, ST	ST, PH, TO, TSS, ROM	LT
ACTION B2 Identify and prioritize solutions to major cycling barriers	ST, RDC	TO, TS, HS, PH	MTO
ACTION B3 Identify and remove minor cycling barriers	RDC, ST	HS, PH	
ACTION B4 Expand partnerships to support municipal cycling projects	ST	HS, PH	LT, MN, LPR
ACTION B5 Update trail design standards to improve weather resilience	ST, RDC		LT, LPR, CA
ACTION B6 Improve wayfinding for cycling facilities	ST	TSS, ROM, PH	LT, LPR, CA
Improve year-round maintenance of cycling facilities *(see Section 5.3.2)*			
ACTION B7 Improve year-round maintenance standards for cycling facilities	ST	ROM, TO	LT

Strategies, key themes and actions	Region of Peel		External partners and stakeholders
	Lead role	Supporting role	
ACTION B8 Develop priority winter maintenance network for Regional cycling facilities	ST	ROM, TO	LT
Expand bicycle parking *(see Section 5.3.3)*			
ACTION B9 Provide bicycle parking in Regional rights-of-way	ST, RDC	ROM	LTS, MX
ACTION B10 Support provision of bicycle parking and end-of-trip facilities at community destinations	ST		SB, LTS
Promote cycling across the Region *(see Section 5.3.4)*			
ACTION B11 Promote cycling for short and medium-length trips	ST	PH	LT
ACTION B12 Promote winter cycling	ST		LT, SC
ACTION B13 Provide cycling skills training	ST, SB	PH, HS	SC, LT, LPR, NGO
ACTION B14 Build capacity through community-based programs	ST	PH, HS	MN, NGO
ACTION B15 Build cycling culture with a bike friendly business program	ST		LT, MN, SC
ACTION B16 Study feasibility of a bikesharing program in the Region of Peel	ST		LT, MN, MX
TRANSIT STRATEGIES			
Make regional roads more transit-supportive *(see Section 6.3.1)*			
ACTION T1 Develop transit stop guidelines	RDC, TO, TSS	ST	LTS
ACTION T2 Implement transit priority measures at intersections	RDC, TO		LTS
Improve connections to transit *(see Section 6.3.2)*			
ACTION T3 Improve first- and last-mile access to transit hubs	ST		LT, LTS, MX, SC
Explore new technologies and business models to support transit *(see Section 6.3.3)*			
ACTION T4 Pilot test alternative transit services	ST	TH	LTS, LT
Promote transit use across the Region *(see Section 6.3.4)*			
ACTION T5 Promote transit near new rapid transit routes	ST		LT, MX, SC, LTS

Strategies, key themes and actions	Region of Peel		External partners and stakeholders
	Lead role	Supporting role	
CARPOOLING STRATEGIES			
Expand carpool lots *(see Section 7.3.1)*			
ACTION C1 Support implementation of planned conventional carpool lots, and monitor need and opportunity for others	ST	RDC, IPS	LTS, MX, MTO
ACTION C2 Identify needs and opportunities for new third-party carpool lots	ST		LT, LTS, MX
Explore new technologies and business models to support carpooling *(see Section 7.3.2)*			
ACTION C3 Assess the feasibility of public vanpool services	ST		MX, LT, LTS
ACTION C4 Advocate for provincial legislation to enable third-party vanpools	ST		LT, MX, MTO
Promote carpooling in key markets *(see Section 7.3.3)*			
ACTION C5 Promote carpooling in areas with long trips and lower-quality transit service	ST		SC, MX, LT
TELEWORK STRATEGIES			
Promote flexible work arrangements as a win-win-win solution *(see Section 8.3.1)*			
ACTION TW1 Engage employers to promote flexible work arrangements	ST		SC, LED
Help workplaces support flexible work arrangements *(see Section 8.3.2)*			
ACTION TW2 Deliver telework training and tools to employers	ST		SC
ACTION TW3 Study the feasibility of satellite workplaces	ST		