# ACTIVE TRANSPORTATION BACKGROUND PAPER

## FULL REPORT

Technical Paper 1 to support the ***Discussion Paper*** *for the Next Regional Transportation Plan*

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METROLINX
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# Regional Transportation Plan Review: Active Transportation Background Paper

Report
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# Executive Summary

## Background

The Greater Toronto and Hamilton Area (GTHA) is undergoing rapid growth and development. Population and employment are both increasing, with rapid growth forecasted from 2015-2041. In order to accommodate this growth, the region's transportation network must evolve. Metrolinx launched the 2015 regional transportation plan (RTP) review to ensure that the region's transport network is able to support the development of a region with a strong economy, vibrant culture, and sound environmental basis.

This paper is one of a series of working papers that discusses critical topics for reviewing the previous RTP, 2008's the Big Move, and developing a new plan. The focus of this paper is Active Transportation.

## Introduction

Almost all active transportation infrastructure in the GTHA is provided by the municipalities. Where a two-tier municipal government structure exists, then the lower tier is the primary provider.

Active transportation programs are provided by the municipalities, other levels of government, and various third parties such as non-profit organisations.

Active transportation yields economic, social and environmental benefits. The economic benefits include road capital and maintenance cost savings, congestion reduction, increased support for local businesses, improved livability, and financial savings to individuals.

The social benefits include health improvements, increased personal safety (both perceived and actual), and better mobility opportunities for non-drivers. The environmental benefits arise from active transportation being emission-free, and hence helping reduce CAC and GHG emissions.

Active Transportation has numerous interfaces with other modes, including transit, general traffic, and trucks. Walking and cycling also interact with one another. These interactions can present safety risks to AT users. However, simple, effective measures exist to mitigate those risks.

Trips can involve both AT and transit. This creates a need for appropriate integration, both for high-order transit services, and local bus services. An effective sidewalk is a vital and necessary component of any transit trip.

**Contribution to the Regional Transportation Plan**

*The Big Move* identified the need for significant improvements to active transportation provision and use throughout the GTHA. It contained one goal specifically targeted at higher active transportation use:

> Goal C / Active and Healthy Lifestyles: Walking and cycling will be attractive and realistic choices for all, including children and seniors.

Two other goals relate strongly to active transportation. Goal D (Safe and Secure Mobility) states "Getting around will be safer and more secure. Parents will feel comfortable allowing and encouraging their children to walk, cycle or take public transit to school". Goal H (Foundation of an Attractive and Well-Planned Region) includes that "The transportation system will help us create valuable, beautiful and attractive places. Roads, streets, transit lines and stations will be designed to benefit both travellers and local residents"

Each Goal is supported by various Objectives and Priority Actions. Five years into *The Big Move*, Progress towards meeting the Objective and

implementing the Priority Actions has been mixed.

Assessing the Objectives and Priority Actions revealed the need for better data collection and availability, so that progress can be accurately measured.

A key finding from the assessment was that all but three GTHA municipalities have cycling plans; only half of GTHA municipalities have a pedestrian plan.

The proposed new Goals for the *Regional Transportation Plan* include several goals that guide active transportation facility planning and development, and several that are heavily influenced by the state of active transportation facilities.

Consequently, these goals should form a key part in active transportation planning and strategy development in the GTHA.

**State of active transportation in the GTHA**

Across the GTHA, 56% of trips (by all modes and for all purposes) are short enough for cycling, and 22% are short enough for walking.

For pedestrians, the sidewalk network feature gaps, particularly in suburban employment areas and some older post-war residential neighbourhoods. Commercial and employment buildings are often set back from the road, without suitable pathways between entrances and sidewalks. Freeways are generally a barrier to pedestrian (and cycling) accessibility.

In addition, a lack of mid-block crossings creates long distances between suitable crossing points. Further, the current standards for signalising crossings discourage signalisation of some intersections where pedestrians would benefit.

For cyclists, cycling infrastructure provision is the highest priority. There is sparse or disjointed provision of bikeways (e.g. bicycle lanes, cycle tracks, multi-use paths, etc.) in some municipalities, and across the regional network. Cross-border coordination is needed to maximise effectiveness of investment. Further, suitable routes within and near high-order transit station sites needed to connect with the wider bikeway network.

Cycle parking is as necessary for cycle trips as car parking is for car-based trips. A lack of parking at a site can preclude use of cycling as mode of travel to that site. Consequently, municipalities need standards for cycle parking provision, similar to standards for auto parking. Further, high-order transit facilities need to include appropriate amounts of cycle parking, coupled with suitable access arrangements.

There are currently two bike share programs in operation (Toronto and Hamilton). More bike share programs are needed in other urban centres across the GTHA, and existing programs would benefit from expansion. Additional programs create a need for coordination, such as multi-program membership.

Three key success factors for high active transportation use emerged from the analysis:

- The trips that people desire to make have their destination within an appropriate distance or their origin.
- Useful infrastructure is present for the appropriate portions of the trip
- The general travel environment is conducive to active transportation use

*Challenges*

Increased active transportation use in the GTHA faces four main types of challenges:

- **Challenge 1 – Gaps in the infrastructure network**. The analysis for this paper has revealed that considerable work is needed before there is a complete walking and bikeway network throughout the urban areas

of the GTHA. This will also support the use of transit. Creating an effective active transportation network comprises a large number of small-scale projects

- **Challenge 2 – Policy environment**: GTHA municipalities lacking active transportation plans face a significant impediment to increasing walking and cycling. In addition, active transportation plans need to be properly integrated into the wider policy environment – including transportation master plans and the land use planning process.
- **Challenge 3 – Marketing and promotion:** Active transportation infrastructure by itself is not always sufficient to increase usage. Municipalities in the GTHA have traditionally focused more on infrastructure provision than marketing and promotion of those facilities. Marketing efforts can be a highly cost-effective way to improve active transportation usage.
- **Challenge 4 – Data:** The assessment of progress since 2008 faced a recurring issue of data availability. Suitable data underpins sound policy development; data is also necessary to monitoring progress in implementing and achieving policy objectives.

**Jurisdictional review**

A review was undertaken of four jurisdictions:

- **Philadelphia region (PA, USA):** Strong parallels with GTHA's transport network and region-level urbanisation pattern.
- **City of Oxford (UK):** High cycling usage levels but very limited roadspace. Small urban core and car-orientated suburbs parallels much of GTHA outside Toronto.
- **City of Vancouver (BC):** Similar regional land use patterns to GTHA; mix of policy- and infrastructure-orientated solutions.
- **New York City (NY, USA):** Significant increase in cycling in recent years, despite limited investment in bike lanes. Good example of policy-driven change in dense urban area.

*Philadelphia region*

Philadelphia's plans to build on existing high active transportation usage yields several lessons that can be applied to the GTHA's active transportation planning, both at a municipal and region-wide level:

- Goals in plans are accompanied by measures to quantify progress, and time-bound targets to indicate success.
- Policy proposals are highly specific, with a clear link to the relevant problem(s).
- Existing development is not excluded, with measures relating to retrofitting
- Large-scale projects (such as missing/substandard sidewalks) are transparently prioritised.

*City of Oxford*

Oxford provides many parallels with GTHA urban centres outside of downtown Toronto, because it is both an employment node and home to those commuting elsewhere. This, and other factors, lead to various key lessons that be applied to GTHA municipalities

- Effective walking facilities should be provided throughout the entire urban area, with no exceptions.
- High-order transit nodes offer the potential to encourage active transportation use for the access leg.
- Cycle parking facilities should be considered a prerequisite for active transportation use, in the same way as car parking is for car use.
- Responsibility for active transportation may fall primarily on one level of government, but that should not preclude other levels from involvement in enhancing and promoting active transportation.
- Auto needs should be prioritised below other modes where appropriate.

*Vancouver*

Vancouver has clearly articulated a commitment to their Green City actions and brand. This policy commitment pervades the City's efforts in active transportation and brings walking and particularly cycling, to the forefront. Bike infrastructure on key routes and road closures for motorized users reinforce the image that Vancouver is a city for cycling, attracting more new bike users.

Safety has been a key issue in the past that has been addressed with separated bike lanes, with even small children cycling downtown. In addition, the extensive network of lanes, greenways and neighborhood routes provides interconnections throughout the city, with clear signage and wayfinding between infrastructure types.

*New York City*

The key lessons from New York City were:

- Adopt a multi-program approach towards encouraging active transportation use, with programs targeted at different potential market segments
- Recognise that safety is a first step to widespread usage, and hence focus on reducing traffic fatalities through targeted infrastructure improvements in high-risk areas
- Engage a wide range of place-making activities
- Encourage residents and visitors to enjoy the communities they visit through the provision of seating, plaza designation and bench installations
- Implement widespread bicycle network improvements to raise the profile of cycling
- Create separated lanes to support the perception that cycling is for everyone.

**Next steps**

This paper will feed into future analysis of potential projects or changes (the current gaps) that could enable active transportation provision in the GTHA to be better aligned with RTP goals.

Future work will also establish a recommended set of priorities (projects and policies) as well as a process to include them in future phases of the RTP review.

# 1 Introduction

1.1 The Greater Toronto and Hamilton Area (GTHA) is an economic and cultural centre that is undergoing rapid growth. In order to manage this growth, a regional transportation plan (RTP), *The Big Move*, was developed in 2008. This ambitious plan outlined key strategies and points of investment for delivering the transport network required to accommodate the GTHA's growth and support a prosperous future in the region.

1.2 In 2015 Metrolinx launched the RTP review to assess the progress made towards *The Big Move*'s goals and objectives, and to lay the foundations for an updated RTP. At the heart of this foundation work is the development of a set of working papers that discuss critical issues and opportunities in the GTHA based on different components of the transportation network. The papers cover a range of topics, including active transportation, transportation demand management (TDM), transit, and freight.

1.3 This document forms the first part of the active transportation paper, and has three sections:

- **Section 1: Introduction** – a summary of the goals and approaches that underpin the paper (Chapter 1)
- **Section 2: State of Active Transportation in the GTHA** – a high level analysis of existing active transportation facilities, policies and progress since 2008 (Chapters 2 and 3)
- **Section 3: Active Transportation: a broader context** – a summary and analysis of promising practices from other regions (Chapter 4)

1.4 A future document will add two more sections to complete the paper:

- **Section 4: Using Active Transportation to Achieve RTP Goals** – an analysis of potential projects or changes (the current gaps) that could enable active transportation provision in the GTHA to be better aligned with RTP goals
- **Section 5: Path Forward** – a recommended set of priorities (projects and policies) as well as a process to include them in future phases of the plan review

1.5 Active transportation is typically defined as the use of human-powered modes and generally comprises walking and cycling, although it can incorporate other non-motorised modes (such as roller-skating, skateboarding, etc.). While active transportation has not traditionally had a prominent role in transportation planning in the GTHA, the Province and many municipalities have been creating plans that aim to increase active transportation use.

## Transportation in the Greater Toronto and Hamilton Area

### Overview

1.6 The GTHA is a growing region and economic and cultural centre. It is composed of multiple municipalities with unique demographics, economies, and therefore transportation needs. As a result, the regional transportation planning process requires analysis that focuses on both the regional picture, as well as the unique contexts of all the communities that form the greater whole.

1.7 A 'four drivers' framework has been developed to clarify the context of the GTHA based on four factors that *drive* or *influence* transportation. This framework is outlined in Figure 1.1. Each driver is a critical consideration for understanding the context of transportation in the GTHA as well as how this context shapes active transportation provision and usage.

1.8 This framework has been applied to the GTHA in general, and to active transportation in particular. The results are summarized in Figure 1.2.

**Figure 1.1: Four drivers framework**

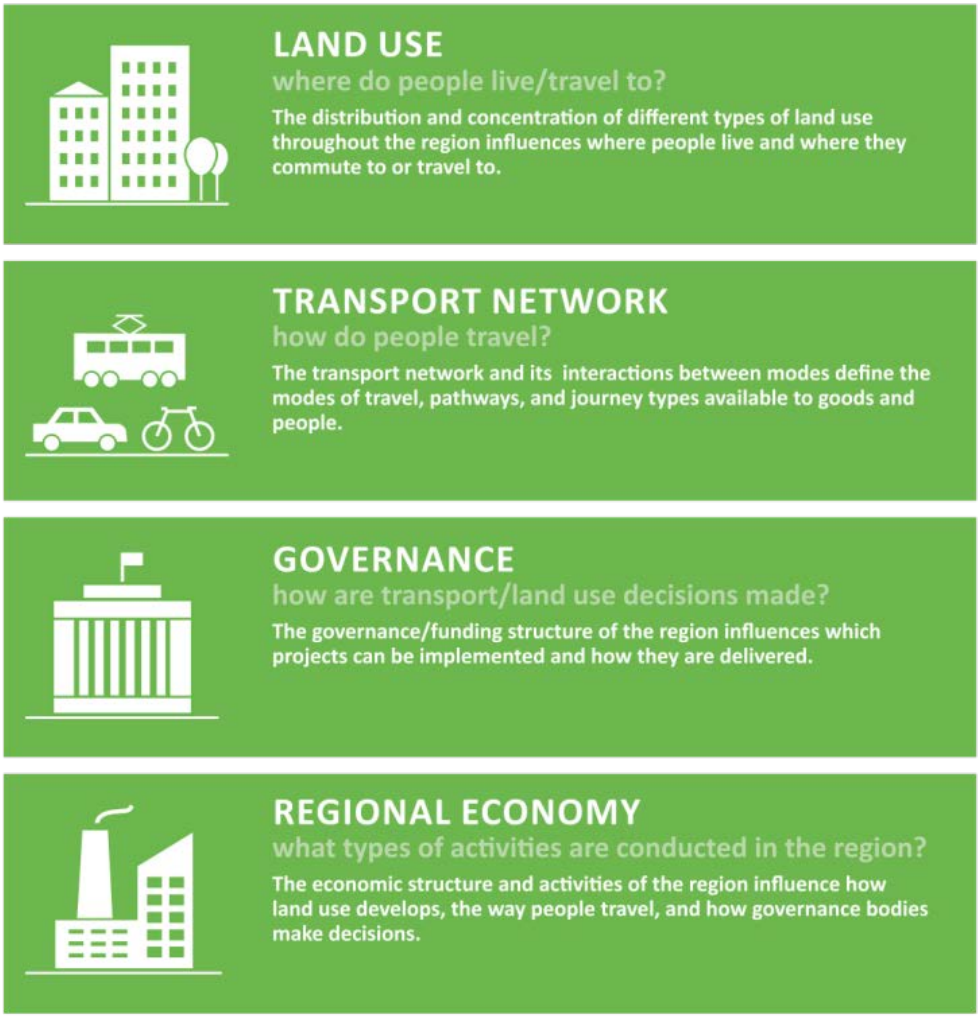
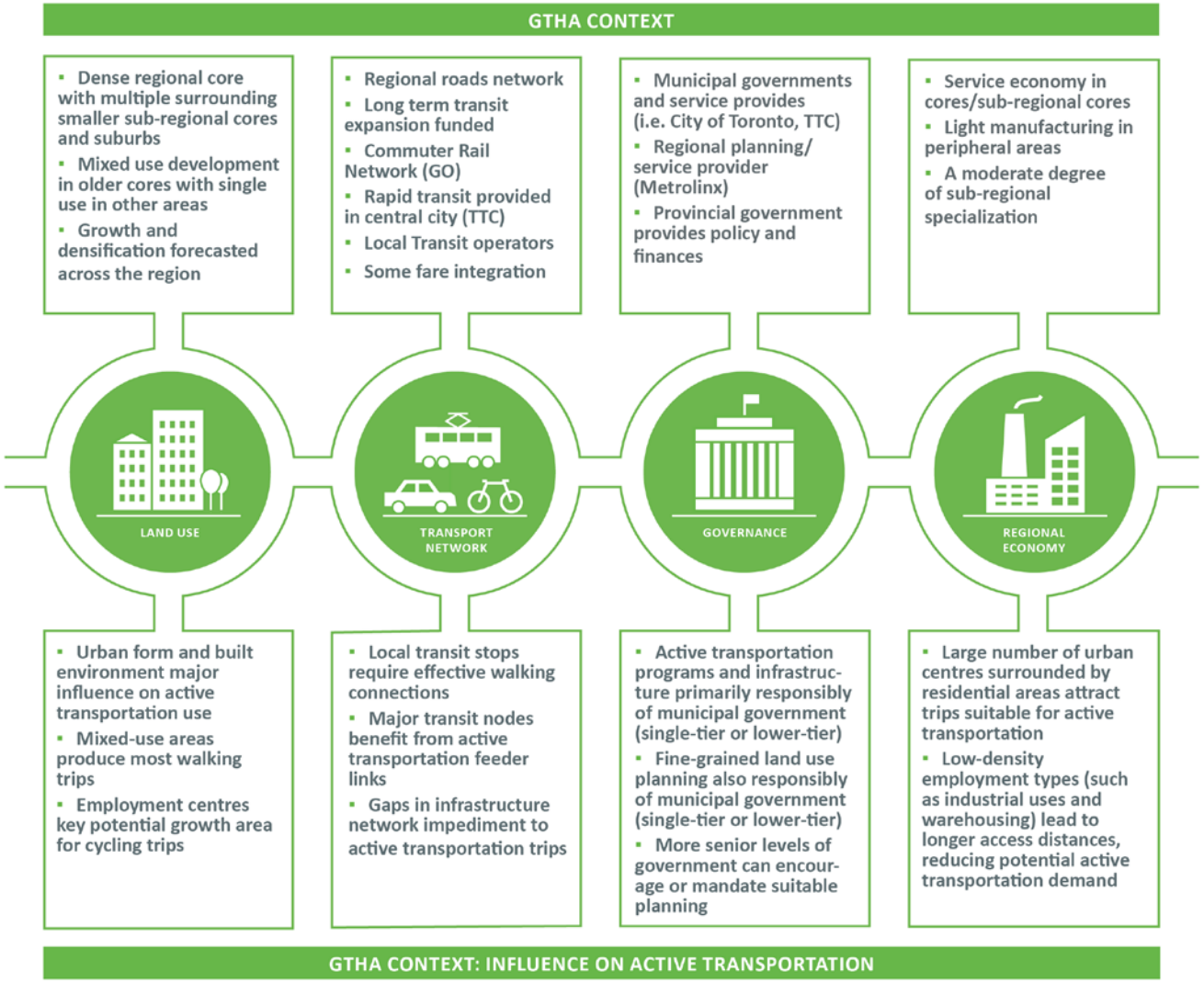


**Figure 1.2: GTHA active transportation context**



**Land Use**

*Existing Conditions*

1.9 The GTHA is composed of two cities (Toronto and Hamilton) and five regional municipalities (Peel, Halton, Durham, and York). The land use context outlines the types of developments in the GTHA. This analysis seeks to set out and discuss the context of urban development throughout the region.

1.10 The growth of the GTHA's urban area is (or will be) constrained by the Greenbelt. The boundaries of the Greenbelt are intended to limit the growth of the smallest communities.

1.11 Most municipalities in the GTHA have significant urban areas, and these are likely to see additional development, both through greenfield development and additional density in existing communities or infill development. The land use descriptions here focus on those municipalities. These areas generally include one or more of the land uses outlines in Figure 1.3.

1.12 These land uses occur in distinct patterns throughout the GTHA , as described in Table 1.1.

**Figure 1.3: Land Use Typology**

**Mixed Use/Urban**

- Defined as areas where the majority of development has commercial and residential uses in close proximity
- Common in older districts throughout the region as well as certain new developments

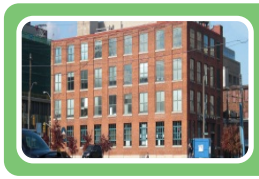
**Single Use - Commercial**

- Areas where the majority of development is commercial uses (offices, retail)
- Common in central districts in regional hubs and in the centre of Toronto

**Single Use - Residential**

- Areas where the majority of development is residential uses
- May be high or low density housing

**Single Use - industrial**



- Areas where the majority of development serves industrial needs (manufacturing, logistics)

**Table 1.1: GTHA Land Use Patterns**

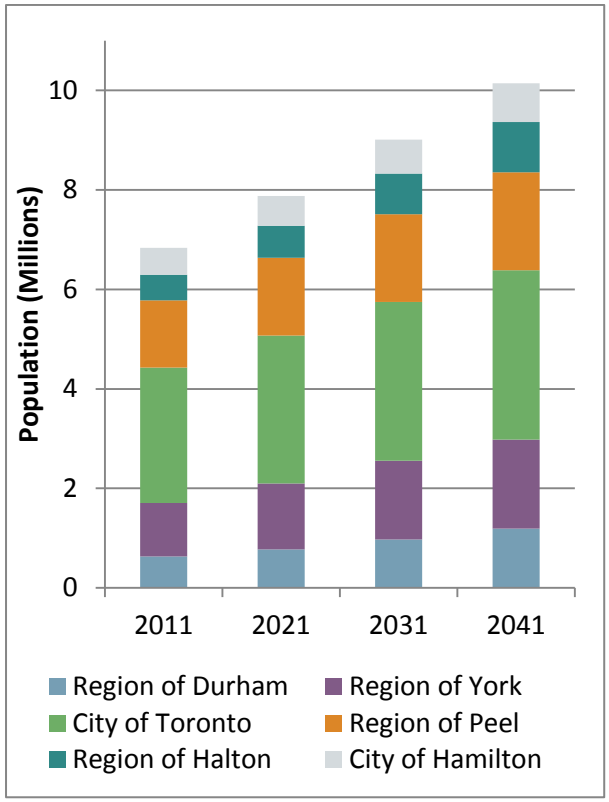
| | |
|---|---|
| **Regional core:** | Downtown Toronto serves as the GTHA's primary core |
| | Dominated by high-density employment, with growing amount of high-density residential . High level: mixed use with single use segments. |
| | Home to many cultural facilities and institutions that serve the entire region |
| **Secondary cores:** | Many (existing and former) municipalities have downtown areas with concentrations of mixed-use or employment land uses. |
| | Typically oldest part of municipality (e.g. Hamilton, Oakville), but sometimes a more recent policy-driven creation (e.g. Scarborough, Mississauga) |
| | Some municipalities are seeing increasing employment and/or residential development in these cores, often coupled with increased mixed-use |
| **Employment areas/corridors** | Generally associated with 400-series highways, particularly Hwy 401, Hwy 407, and Hwy 427. |
| | Highway corridors attract employment, but the highway itself forms a barrier. |
| | Mix of office parks, regional-level retail, and industrial uses |
| **Suburban areas** | Majority of GTHA's urban area is single-use residential, organised around secondary cores or isolated commercial/employment uses |
| | Typically low-rise development, with lot sizes that leave little scope for additional density/development without demolishing existing housing. |

*Future Conditions*

1.13 Population and employment forecasts imply continued growth in the City of Toronto, which will continue to play a role as a regional core. Other areas will also see major growth in employment and population. Because of green belt and growth management policies, much of this growth will be in existing areas

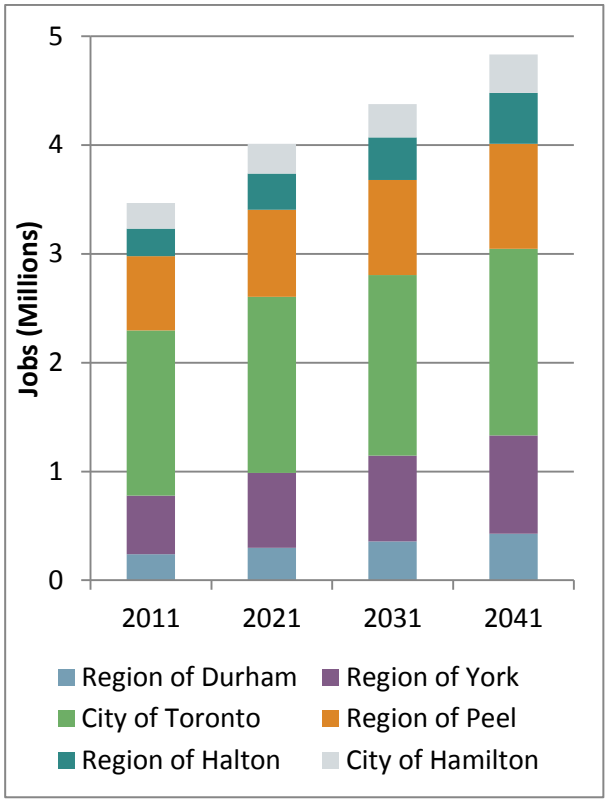
1.14 Population growth and employment growth forecasts are shown in Figure 1.4. The charts show that employment growth forecasts follow the trend for population growth. Total employment is forecast to rise from 3.4 million jobs in 2011 to a 2041 total of 4.8 million, an increase of 39%. The majority of job growth is projected to occur outside of the city of Toronto.

**Figure 1.4: GTHA Population Growth**




*Source: Ontario Growth Secretariat*

**Figure 1.5: GTHA Employment Growth**




*Source: Ontario Growth Secretariat*

*Effects on active transportation*

1.15 In the 'four drivers' framework, land use shapes the purposes and lengths of trips. The most common of trips in the GTHA are between residential areas and employment areas. However, the diverse array of land use patterns across the GTHA requires a variety of approaches to encourage the use of active transportation.

1.16 Active transportation is best suited for shorter trips. Consequently, the land use and trip patterns can limit the proportion of trips that are suited to active transportation use. However, as discussed later in this paper, just under a quarter of trips in the GTHA are short enough for walking, and just over half are short enough for cycling.[1]

1.17 Despite the high proportion of suitable length trips, the mode share for active transportation in the GTHA is much lower than the proportion of suitable trips.

1.18 In addition, the effects of land use on active transportation are primarily driven by the local urban form, rather than by municipal-level land use patterns.

[1] Data source: 2011 *Transportation Tomorrow Survey*; all trips purposes and origins/destinations in the GTHA.

1.19 Consequently, greater active transportation use depends (in part) on encouraging and sustaining appropriate urban form.

1.20 Table 1.2 outlines the key trip making behaviours by land use type and their implication for active transportation.

1.21 These travel behaviours represent the expected time/type of trips that originate in each land use type, as well as the type of trips that use the land use types as travel destinations.

1.22 Table 1.3 outlines land use and active transportation considerations for each land use type in the GTHA, as well as the types of active transportation strategies that are appropriate for each one.

**Table 1.2: Land use types and trip making behaviours**

| Land Use Type | Trip Making Behaviour |
|---|---|
| Mixed Use | • Area is both a trip origin and destination<br>• Naturally induces walkable trips within area<br>• Destination for all-day travel due to mix of uses/purpose<br>• Can attract/produce trips suitable for active transportation to/from surrounding areas. |
| Commercial | • Majority of trips are by people not employed there; trips tend to be outside peak periods (including weekends)<br>• Trips to/from area may be too long for active transportation as sole access mode; however, good walking links required for transit access.<br>• Trips within commercial area generally short enough for walking |
| Residential | • Produces commute trips in the peaks: AM out-bound, PM in-bound<br>• Is not a major destination outside of PM peak<br>• May be small proportion of origins/destinations for midday trips |
| Employment | • Majority of travel is commuter peak travel: AM in-bound, PM outbound<br>• Midday trips include deliveries and outbound deliveries<br>• Trip lengths tend to be longer – these may be more suitable for cycling than walking. |
| Educational | • Primary and secondary schools in urban areas typically have short trips – natural target for active transportation<br>• Post-secondary institutions can draw from a wider area (students commuters) and/or have very short trips with campuses |

**Table 1.3: Land use pattern active transportation strategies**

| Land Use Pattern | Land Use Considerations | Active transportation considerations | Appropriate AT strategies |
|---|---|---|---|
| **Regional Core (Toronto)** | • Employment hub for the GTHA, attracting a high number of commute trips<br>• Major mixed-use area, with non-employment land uses in and around the core<br>• Serves as an activity centre for the broader region | • Mixed-use nature encourages active transportation trips, particularly walking.<br>• Many employees live within cycling distance<br>• Transit most common mode for trips to area | • High-capacity walking facilities within core area<br>• Cycling links to surrounding residential areas<br>• Active transportation linking regional transit facilities (with service to Union station) to their surrounding area |
| **Secondary Regional Cores** | • Serve as employment and activity centres for regional municipalities<br>• Each regional municipality may have one or more of these cores that draw the majority of their trips from within the regional municipality (e.g. Square One in Mississauga, downtown Hamilton, downtown Oshawa) | • Generally limited rapid transit access, primarily automobile service or local transit<br>• Lower proportion of short-distance trips because of population distribution<br>• Cores expected to add higher density and greater mix of uses in future | • Requirements for active transportation-specific measures as part of redevelopments involving higher density/mixed use.<br>• Higher job density and existing or potential mix of uses can enable higher active transportation use |
| **Employment Areas** | • Draw trips from adjacent regional municipalities primarily in AM peak<br>• Often developed around highway corridors (particularly Hwy 427, Hwy 401, and Hwy 407) | • May not be easily accessed by transit or active modes<br>• May only be served by auto network | • Cycling infrastructure linking nearby residential areas<br>• Effective walking infrastructure in employment area to facilitate local transit use |
| **Suburban Areas** | • Commute trips to regional core, sub regional core, or employment corridors<br>• Some recreational trips, such as leisure centres or parks | • Some transit service is available in most suburban areas<br>• Land use is 'auto-oriented'<br>• Majority of trips leave suburbs in the AM peak, return in the PM peak<br>• Trips short enough for active transportation more likely to be non-commute | • Effective walking infrastructure to facilitate local transit use<br>• Examine ways to facilitate active transportation for non-commute trips in particular |

## Transportation Network

*Current Conditions*

1.23 The transportation network is composed of regional and local facilities/services across four movement types:

- **Transit:** publically-provided transportation services to provide an alternative to the automobile.
- **Private Travel/Automobiles:** privately-owned vehicles that are used for commute and recreational trips. This includes taxis/Uber and car-pooling.
- **Active Travel:** pedestrian/cycling for both commute and recreational trips.
- **Freight:** the movement of goods to support a vibrant economy.

1.24 The transportation network facilitates both regional (travel between hubs/municipalities) and local (travel within a municipality) trips across all four types.

*Transit*

1.25 Transit trips are facilitated at the regional and local level through a number of operators and service providers. Three overall types of transit exist in the region to meet needs for travel, as outlined in Table 1.4.

**Table 1.4: Transit Typology**

**Regional Transit**

- GO Transit network provides a hub and spoke-style regional transit system for medium range, long range and regional trips (over 5km)
- Linkages between local operators (e.g. YRT Viva interchange with TTC Subway) can emulate regional service

**Rapid Transit**


- Servces medium to long range trips (5-15km) service within municipalities
- Connects to dense cores following a hub and spoke model
- Includes rail and bus based services: (TTC Subway, YRT's Viva sevices)

**Local Service**

- Serves short to medium trips (under 10km)
- Connects communities to higher orders of transit or to a core area
- Allows for circulation and movement to and through lower density areas outside the core

1.26 The transit network will continue to expand into the future with a number of committed and funded projects under development.

1.27 Of particular note is regional express rail (RER), a program to provide two-way all day services on GO Rail lines with improved frequencies. This will expand the traditional regional transit network to accommodate more long-distance trips, while also enabling a 'rapid transit' style service for shorter trips.

*Freight*

1.28 The GTHA's transport network supports movement of freight across multiple modes. This includes:

- **Rail:** CN and CP, Canada's freight rail providers have staging and intermodal facilities in the GTHA.
- **Road:** freight is moved using the regional highway network as well as municipal arterials. These roads enable intraregional travel, as well as connections to the provincial and national highway network.
- **Air:** the majority of air freight transfers through Pearson International Airport. However, additional air facilities are available throughout the region.
- **Water:** the GTHA has significant ports in Toronto and Hamilton. These mostly provide nearby heavy industry with bulk cargo, such as iron ore.

*Private Vehicles/Automobiles*

1.29 Automobile travel is facilitated at the regional level via an extensive network of Provincially-owned, controlled-access (the "400-series") highways that connect major municipalities to the core. In addition, some shorter controlled-access highways fall under municipal responsibility. These include the Gardiner Expressway and the Don Valley Parkway (Toronto), the Erin Mills Expressway (Peel), and the Red Hill Valley Parkway (Hamilton).

1.30 The Province is also responsible for various long-distance roads, also termed "highways", which are not controlled-access. These connect urban areas across the province, rather than connecting the various parts of the GTHA's main urban area.

1.31 Where a two-tier jurisdiction exists (Durham, Peel, Halton, York), some major roads are managed by the upper tier (the regional municipality). These are typically high-volume of strategic importance to the area's road network.

1.32 All other roads in the GTHA are the responsibility of the lower-tier (or single-tier) municipality.

*Active Modes*

1.33 The promotion of walking and cycling is primarily a municipal responsibility. In two-tier jurisdictions, the regional municipality generally seeks to encourage active transportation use, but its potential influence is less than that of the lower-tier municipality.

1.34 Cycling facilities within the roadway fall under the responsibility of the party maintaining that road, which could be the Province, the upper-tier municipality, or the lower-tier municipality. However, sidewalks typically fall under the responsibly of the lower-tier municipality, regardless of who maintains the road alongside.

1.35 Active transportation infrastructure located away from roads is the responsibility of the lower-tier (or single-tier) municipality.

1.36 The large number of responsible parties and variation in land use typologies results in considerable variation in the provision of active transportation infrastructure. Sidewalks are generally common in residential and downtown employment areas, but are often lacking in suburban office parks or industrial areas. Sidewalk provision in suburban residential communities is inconsistent – some areas have

poor provision, and some have excellent provision.

1.37 The amount of cycling facilities (such as bikeways) and their type (e.g. on-road bike lanes vs. off-road multi-use trails) depends heavily on each municipality's historic approach and current policy direction set by its Council.

*Mode Split*

1.38 Mode split data for each city and regional municipality is outlined in Table 1.1. Data is provided for local trips (trips within that municipality), trips to Toronto, and overall trips within the region. Detailed maps of walking and cycling mode split at the traffic zone level are then provided in the Chapter 2.

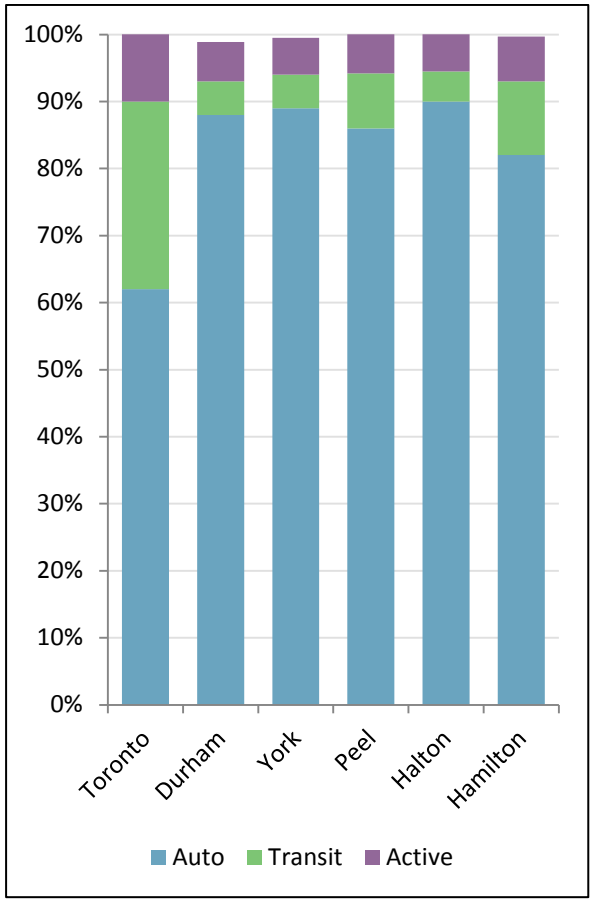
1.39 The mode share for each of three groups is shown graphically in Figure 1.1, Figure 1.2, and Figure 1.3 respectively, on the following page. The automobile mode is the dominant mode for all three groups. The majority of trips are within one origin/city, with most inter-regional trips occurring during commute periods (AM peak).

**Table 1.1: Mode Split in the GTHA**

| Origin | Local Trips | | | | Trips to Toronto | | | | Total Trips within GTHA | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Auto | Transit | Active | Total | Auto | Transit | Active | Total | Auto | Transit | Active |
| Toronto | 4,555,000 | 62% | 28% | 10.1% | *N/A* | *N/A* | *N/A* | *N/A* | 5,536,000 | 65% | 27% | 8% |
| Durham | 1,002,000 | 88% | 5.0% | 5.9% | 127,000 | 78% | 22% | 0.0% | 1,184,000 | 88% | 7% | 5% |
| York | 1,491,000 | 89% | 5.0% | 5.5% | 453,000 | 82% | 18% | 0.3% | 2,076,000 | 88% | 8% | 4% |
| Peel | 2,000,000 | 86% | 8.2% | 6.2% | 331,000 | 79% | 21% | 0.2% | 2,564,000 | 86% | 9% | 5% |
| Halton | 776,000 | 90% | 4.5% | 5.7% | 60,000 | 64% | 36% | 0.0% | 1,047,000 | 90% | 6% | 4% |
| Hamilton | 877,000 | 82% | 11.0% | 6.7% | 14,000 | 66% | 34% | 0.0% | 987,000 | 83% | 11% | 6% |
| **Total** | **10,702,000** | **76%** | **15.8%** | **7.7%** | **985,000** | **79%** | **21%** | **0.2%** | **13,394,000** | **78%** | **16%** | **6%** |

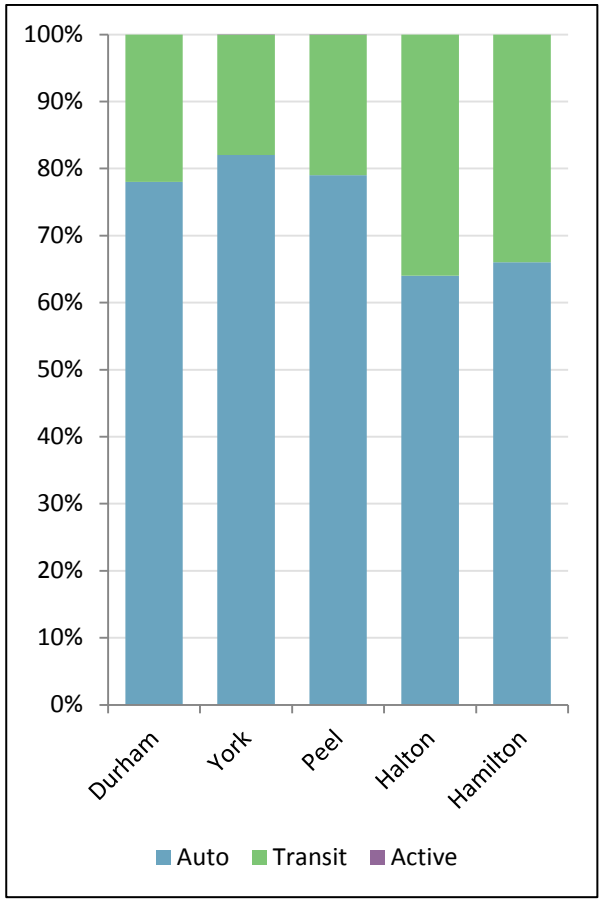
Source: 2011 Transportation Tomorrow Survey; all trip purposes, 24 hours. Sums may not match totals because of rounding.

**Figure 1.1: Mode split for local trips**



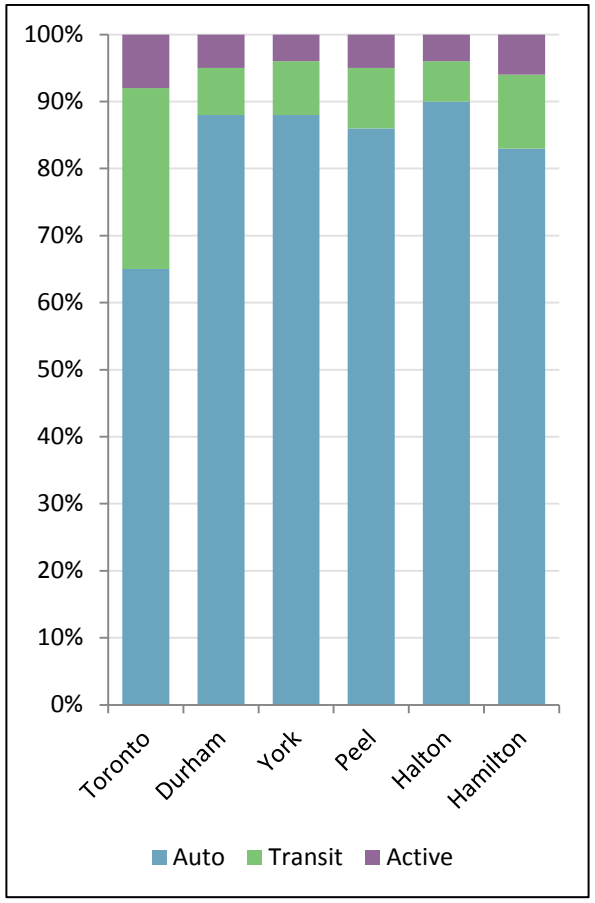

Source: 2011 Transportation Tomorrow Survey - trips with origins/destinations in same city / regional municipality

**Figure 1.2: Mode split for trips to City of Toronto**




Source: 2011 Transportation Tomorrow Survey - trips with destination Toronto

**Figure 1.3: Mode split for all trips in the GTHA**




Source: 2011 Transportation Tomorrow Survey - trips with destination in GTHA

*Effects of the transportation network on active transportation*

1.40 The trip types identified in the previous section (i.e. local trips, trips to Toronto and GTHA Regional Trips) and the variability of active transportation use between them demonstrates that the potential for active transportation use differs by trip type. Table 1.2 provides some of the key considerations for active transportation within each trip type.

**Table 1.2: Active Transportation Considerations by Trip Type**

| Trip Type | Active Transportation Considerations |
|---|---|
| **Local Travel (within one municipality)** | • Of the trips short enough to use active transportation, almost all take place within one municipality; the exceptions are trips starting/ending near municipal borders<br>• Use of transit for intra-municipal travel depends on effective walking links to transit stop.<br>• In Toronto, there is a high use of transit with potential to encourage mode shift to underutilized transit routes and active mode infrastructure<br>• Trip patterns in other municipalities are largely auto oriented for local trips. This indicates a potential to grow ridership and use of active modes.<br>• Travel purpose also influence mode choice – trip for shopping or leisure less likely to use active transportation. |
| **Travel To Toronto** | • Trips to Toronto from outside of Toronto are generally too long to made solely by active transportation (unless they start close to the border)<br>• Transit travel to Toronto typically uses local transit plus the subway, or GO Rail services (with or without local transit)<br>• Improved active transportation access to GO stations and end-of-line subway stations (e.g. Finch) can decrease local auto access trips<br>• Using local transit requires effective walking links to bus stops.<br>• Active modes are unlikely to play a dominate role for cross region trips, but local active modes should be supported for first/last mile connections |
| **Regional Travel** | • Cross-region trips generally too long to made solely by active transportation<br>• Cross region trips not always well-served by transit. Exceptions are GO's Lakeshore rail line and the Hwy 407 bus services. Implementation of RER will help address this<br>• Active modes should be promoted for first/last mile connections |

1.41 Finally, the transportation network shapes how viable each mode is for different trip types. Each mode interacts with active transportation and its users in a different way. These are outlined in **Table 1.3**.

**Governance**

*Governance Structure*

1.42 Planning and service delivery in the GTHA is influenced by multiple orders of government agencies. Table 1.4 provides a general overview of the governance structures in the region.

**Table 1.3: Active Transportation Considerations by Mode**

| Mode | Active Transportation Considerations |
|---|---|
| **Transit** | • Transit use operates in a wide variety of built environments across the GTHA. The most appropriate ways to provide walking and cycling connections will therefore vary<br>• Rapid transit and regional transit are the only realistic alternatives to long distance auto trips<br>• Some services experience crowding while other local services experience low demand<br>• Active transportation should enable access to local transit stops, and broaden direct access to rapid transit stations and major transit interchanges. |
| **Freight** | • Freight movement is often impacted by congestion – this is typically a transportation system management issue<br>• Increased active transportation use can decongest the road network, particularly in areas close to commercial facilities. This has a positive effect on freight |
| **Auto** | • Dominant mode of much of GTHA is single occupancy vehicle. This creates high traffic levels and competition for road space<br>• Conflicting movements between cyclists and autos/other road users can arise, particularly at intersections.<br>• Active transportation has potential to reduce congestion for road users, particularly in urban centres. |

**Table 1.4: Governance Structure for GTHA Transportation**

| Level | Description | Role | Key inputs to transport |
|---|---|---|---|
| Federal (Canada) | The federal government is responsible for national level policy. The federal government does not play a direct role in transportation policy at a regional and municipal level. | Provides funding to municipal/provincial programming through a number of mechanisms (economic stimulus, municipal infrastructure grants, P3 Canada). Can set taxes. | • Finances<br>• P3 coordination |
| Provincial (Ontario | The provincial government is responsible for policy, planning, and service provision across the province of Ontario. | Provides policy direction, direct services, and funding for municipal projects. Overseas Metrolinx. Can set taxes.<br>Sets provincial policy statement and Greater Golden Horseshoe Growth Plan that guide official plans for municipalities. | • Policy direction at a regional level<br>• Finances<br>• "high level" planning |
| Regional (Metrolinx) | Metrolinx is responsible for planning and coordinating transportation in the GTHA. It is an agency of the provincial government with regional jurisdiction in the GTHA. | Metrolinx is a planning and service delivery agency. Provides planning for the region's transportation network and delivers transport services. No ability to set taxes. | • Planning, prioritization, and policy development for the GTHA's transport network<br>• GO Transit, Smart Commute, UP Express , Presto |
| Municipal/Local | Regional municipalities (Halton, Peel, York, Durham) have a two level structure; Toronto and Hamilton have a single-tier system. | Provides planning, policy, and service delivery. Funds and finances infrastructure projects<br>In two-tier system, lower-tier responsible for most aspects of land use and transportation planning.<br>Taxing ability limited to property tax. | • Detailed land use and local roads planning<br>• Local transit and rapid transit<br>• Finances |

*Governance impacts on active transportation*

1.43 The policies and infrastructure that support active transportation are generally the responsibility of the (lower-tier) municipalities. They control the detailed land use and urban form, most of the roadways (and hence on-road facilities), and all off-road facilities (such as sidewalks and multi-use trails).

1.44 In two-tier systems, the upper tier is responsible for some roadways, and hence some on-road facilities. Planning and implementation for these facilities in generally undertaken in close consultation with the lower-tier municipality. The upper tier also sets broad directions for land use, but these are generally not at a detail likely to significantly influence active transportation use.

1.45 Unlike active transportation infrastructure or land use planning, the promotion and marketing of active transportation does not have a prescribed responsible party. Consequently, it tends to be included as part of broader transportation demand management (TDM) programs. TDM initiatives can be led by any level of government. The issues associated with this are discussed in much more detail in the TDM paper.

1.46 Detailed network planning for active transportation is typically undertaken by the municipalities. While most have some form of cycling plan, only half have some form of walking plan. The integration of these into wider transportation masterplans (TMPs) or Official Plans varies considerably. A more detailed discussion of municipal-level policy documents is provided in the next chapter.

1.47 Funding for active transportation typically comes from the lower-tier municipality, but can also come from upper-tier municipalities and more senior levels of government. The Province also sets broad policies to encourage active transportation use, but leaves the detailed planning to the municipalities. Provincial bodies with specific geographic responsibilities (such as conservation authorities) may sometimes be involved in implementation planning as a land-owner.

1.48 Because the lowest tier of government generally takes the lead, coordination issues tend to arise between adjacent local municipalities, rather than between difference levels of government. This can inhibit active transportation networks from joining seamlessly across municipal boundaries. Even if the networks in each municipality are planned with proper coordination, the implementation priorities can still create issues at municipal borders.

1.49 Key considerations for active transportation given the GTHA's governance structure include:

- Ensuring all GTHA municipalities have appropriate walking and cycling plans
- Incorporating the relevant elements of those plans into municipalities' transportation masterplans, urban form requirements, and Official Plans.
- Coordinating active transportation issues between adjacent municipalities, and also between upper-tier and lower-tier municipal plans.

1.50 Table 1.5 outlines the historic role of each tier of government in active transportation, along with the key considerations for each tier.

**Table 1.5: Tiers of governance and active transportation**

| Level of Government | Historic/Present Role in AT | Active Transportation Considerations |
|---|---|---|
| **Federal Government – Canadian Government** | Limited direct involvement; Transport Canada has produced some guidelines to assist community-level planning. | Policies set by the federal government can shape active transportation polices at other levels of government |
| **Provincial – Government of Ontario** | Strategic planning to guide and promote cycling across the province, as delivered by the *#CycleON: Ontario's Cycling Strategy*, includes infrastructure and training funding, promotion, regulatory amendments, design guidance, etc.<br>Active transportation implicitly supported in MTO's Strategic Goal #1 ("Increase accessibility by improving mobility, choice and safety"), as part of their *Sustainability Implementation Plan*<br>No explicit requirement imposed on lower tiers for active transportation planning. | Policies set by provincial ministries can shape active transportation polices at regional/municipal levels.<br>Funding programs support investment in cycling infrastructure to advance the development of cycling routes and more extensive local and regional networks.<br>Wider government policies on emissions and transport can also influence active transportation policies at lower levels. |
| **Regional – Metrolinx** | Active Transportation a major part of *The Big Move,* with multiple specific goals | Not directly involved in implementing infrastructure, but potential for funding, inter-municipal coordination, and strategic oversight.<br>Strong potential for involvement in promotion/marketing, as well as improving active transportation access to higher-order transit. |
| **Municipal – upper tier** | On-road facilities on roads maintained by upper tier; sometime broad strategic cycling network.<br>Active transportation plans set out broad policies and strategic cycling network; may have infrastructure funding programs to support regional cycling network connectivity. | Upper-tier approves Official Plan of lower tier; could require they contain material regarding urban form or other elements that promote active transportation use. |

| | | |
|---|---|---|
| **Municipal – lower-tier and single-tier** | Active transportation plans set out future policies and network elements (sometimes as separate plans covering walking and cycling).<br>Transportation masterplans (TMPs) can contain components relating to active transportation. Level of detail and effectiveness of plans within TMPs varies considerably.<br>Official Plans shape land use (particularly for new development), urban form guidelines are rare. | Walking and cycling plans are needed for remaining GTHA municipalities.<br>TMPs need to provide substantive and effective plans for increasing active transportation use.<br>Official Plans need to produce urban forms that support and encourage active transportation use. |

## Regional Economy

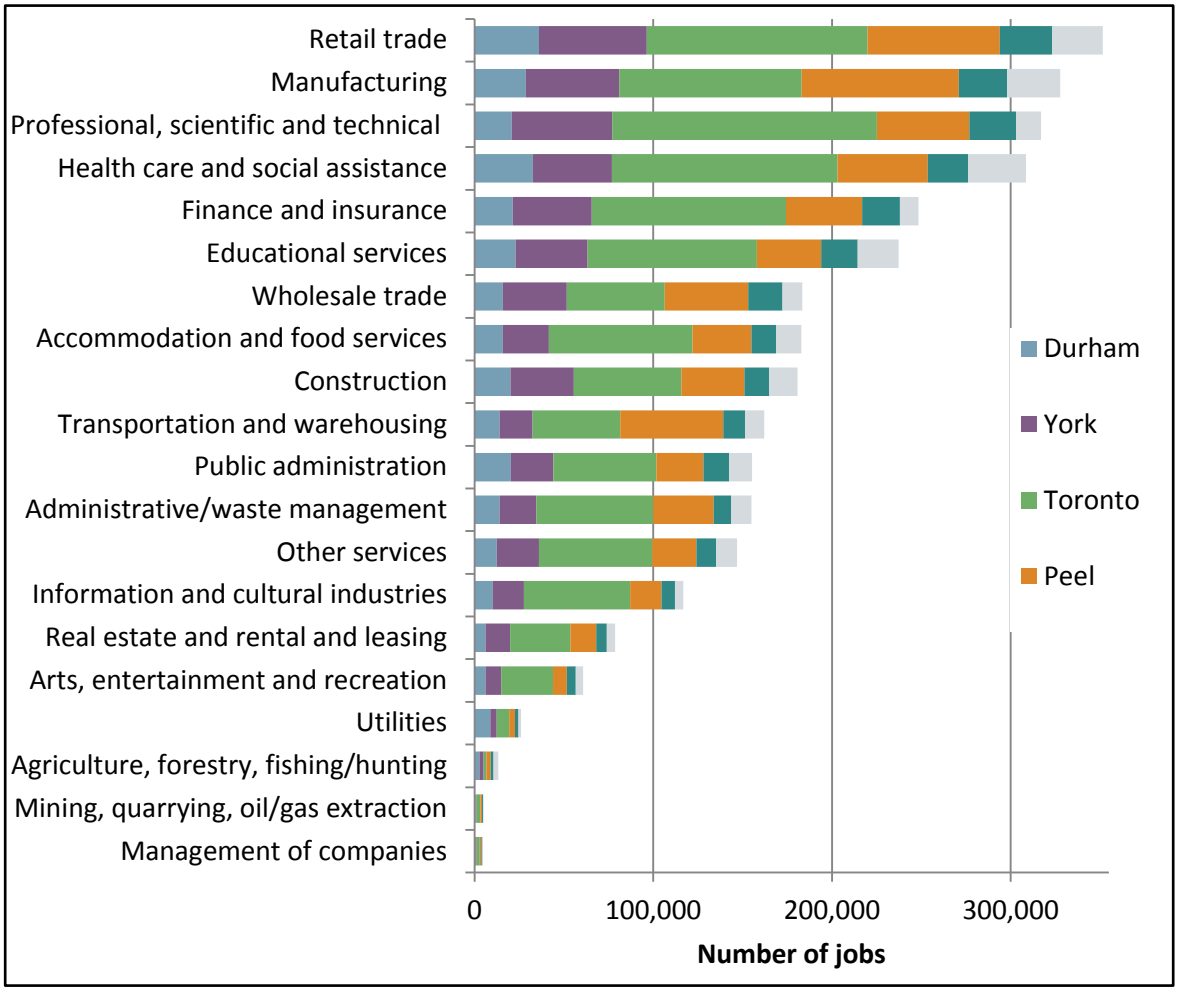
*Overview*

1.51 The GTHA's regional economy contains a wide range of industries and employment sectors, as shown in Figure 1.4. As Canada's largest urban area, the outputs from the GTHA's economic activities serve a much broader area than the GTHA itself. These include goods destined for the rest of the Province and beyond, and services provided for people and industries based across the country (such as insurance).

1.52 The size of the GTHA has resulted in some geographic areas specialising in certain economic activities. Examples of this specialisation include:

- Primary metal manufacturing: Hamilton
- Warehousing and storage: Mississauga
- Financial services: Toronto
- Truck transportation: Peel Region
- Motion picture and sound recording industries: Toronto
- Electricity generation: Durham
- Petroleum product wholesaler-distributors: Halton

**Figure 1.4: GTHA employment by industry sector and municipality**



1.53 This geographic specialisation in certain sectors allows for synergies between the various businesses operating in these sectors, providing lower interface costs than if they were uniformly distributed across the GTHA. Further, it allows employees skilled in these sectors to reside in an area and yet have access to a wide range of employment opportunities. This increases labour mobility, as it widens the labour pool for employers and the job pool for employees, and hence results in a more efficient labour market.

1.54 Some sectors have multiple clusters throughout the GTHA. These are typically associated with office-based jobs, which require little in the way of specialised infrastructure. Many municipalities have encouraged these job clusters, as they provide the highest employment density, facilitating wider goals relating to urban form.

1.55 There are some areas of the GTHA that lack concentrations of any particular industry sector(s). These areas are typically in municipalities with a high proportion of residential land use, and hence little land zoned for employment. This prevents any agglomeration of employment in a given sector.

1.56 Other job sectors are found universally across the GTHA. These include retail, healthcare, construction, education, and recreation. These job sectors are typically driven by the needs of the general population, and hence the density of these jobs depends directly on the surrounding residential density.

*Effects on active transportation*

1.57 The type of economic activity affects the potential for active transportation use. In particular, the degree to which the activity is segregated from other land uses is the most significant factor in affecting active transportation use. This is because highly segregated activities (such as heavy manufacturing) result in longer trip lengths by people undertaking that activity. As active transportation is most suited for short trips, mixing economic activities will encourage active transportation use.

1.58 Where an economic activity is more isolated, then access will generally be by car or transit. In the latter case, effective walking links between transit stops and travellers' origin and destination are vital.

## Benefits of active transportation

1.59 Because trips by active transportation are human-powered, it provides unique benefits. In particular, active transportation is the only mode that results in significant health benefits to the user. Active transportation use also produces benefits arising from reduced car use.

1.60 The benefits of active transportation fall into three broad groups: economic, social, and environmental.

### Economic

*Road maintenance cost savings*

1.61 Roadway costs include public expenditures of adding new road capacity, maintaining roads and safety enhancements to roads. A shift to active transportation saves both capital and operating costs for roadways.

1.62 Developing and maintaining bicycle and pedestrian facilities is far less costly than the construction and the maintenance of facilities for automobiles. According to the Toronto Coalition for Active Transportation, the cost of creating a bike lane is approximatively $20,000/km if no road widening is needed, and $150,000/km if road widening is required. By comparison, it costs approximately $800,000/km to widen a two lane urban arterial road to four lanes.[2]

1.63 Bike lanes also bring capacity benefits. A lane of road in an urban area can typically accommodate less than 1,000 vehicles per hour[3]; a typical bike lane can accommodate far more bicycles/hour.[4] Further, a bike lane requires less space.

1.64 The development of active transportation also generates operating savings. Compared to motorized vehicles, bicycles are very light vehicles, causing very little wear and tear of the roads. This increases roadway life, and reduces annual rehabilitation costs.

*Congestion reduction*

1.65 The impact of traffic congestion is significant in the GTHA. Estimates from 2006 suggest that congestion cost commuters $3.3 billion/year from delay and increased vehicle operating costs, with a cost of the wider economy of $2.7 billion/year. For a typical commuter in the GTHA this translates to an average of 81 hours of delay per year, or 33 minutes of delay for every hour driven in the peak period.

1.66 In general, walking and cycling are far less likely than auto use to cause congestion issues in urban areas. Consequently, a mode shift from auto use to active transportation can potentially alleviate congestion issues in urban areas.

*Support local businesses and improve livability*

1.67 Active transportation infrastructure supports local businesses. This because cyclists and pedestrians stop more often than drivers, and hence are more likely to spend their money at local destinations. This increases economic activity within their community by increasing revenue for local business.

1.68 Despite concerns that eliminating on-street parking to create bike lanes may harm local

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[2] Engineering Department, City of Barrie: **http://www.barrie.ca/assets/engineering/nov2010/Appendix%20L%20-%20Costs%20per%20metre.pdf**

[3] In urban settings, capacity is constrained by signalised intersections. Their capacity is roughly the percentage of green time (which averages 50%) multiplied by 1900 veh/hour; or 950 veh/hour. (**http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_599.pdf**)

[4] A bike lane can accommodate up to 2,500 bikes/hour (**http://siliconvalleytrails.pbworks.com/f/davis_etc_study.pdf**)

business, experiences show that improving active transportation infrastructure has a positive effect on businesses. People who bike and walk to an area spend more money in the area per month than those who drive there.[5] More generally, if greater active transportation use reduces (off-street) parking demand, then the land freed up can be used for more economically productive purposes.

1.69 Reducing motorized traffic and adding active transportation facilities also contributes to neighborhood livability, thus increasing property values and retail activity. Cycling and walking facilities are effective in creating appealing places and encourage greater active transportation for everyday trips, thus contributing to economic viability of the community and increasing real estate value and retail activity.

*Individual cost and time savings*

1.70 Active transportation is typically the cheapest transportation mode for individuals living in urban areas. The high cost of car ownership makes transportation the second biggest item of expenditure in a typical household after housing costs.

1.71 User operating costs for autos average 27 cents/km, around 5 times that of cycling (5.7 cents/km).[6] (Cycling operating costs mostly comprise the purchase price, plus consumables such as tires, brake pads, batteries for lights, etc.) The user cost for walking is essentially zero. Consequently, higher active transportation use (and hence lower motor vehicle use) saves individuals money. This is especially true when a household is able to eliminate a second car.

1.72 In addition, active transportation use can be quicker than motorised modes for short distance trips. People tend to overestimate how long it takes them to get around by foot, but underestimate the time it takes to drive. This is partly because users omit from their trip time estimates not spent travelling on the road.

**Social**

*Health improvements*

1.73 Walking and cycling are both forms of exercise and the health benefits of regular exercise are well documented. In particular, it reduces the risk of heart disease and obesity.[7] This benefits society at large through lower healthcare costs. Further, these health benefits extend the life of those who regularly walk and cycle –the biggest possible benefit.

*Safer Streets*

1.74 Pedestrians are the eyes and ears on the street and people feel safer when others are around. Cycling infrastructure typically improves the overall safety of the transportation network through traffic calming, streetscape improvements, traffic speed reductions, and vehicle restrictions. The safety benefits generated by these improvements not only apply to pedestrian and cyclists, but also drivers.

[5] *Examining Consumer Behavior and Travel Choices*, Kelly Clifton, Portland State University, 2012 **http://trec.pdx.edu/research/project/411**

[6] Cycling: 6.6cents/mile fixed costs plus 2.6cents/mile variable costs. Autos: 27.2cents/mile fixed costs plus 16.4cents/mile variable costs. Source: Victoria Transport Policy Institute *Transportation Cost and Benefit Analysis II* (2009) **http://www.vtpi.org/tca/**

[7] Toronto Public Health, *Road to Health: Improving Walking and Cycling in Toronto*. April 2012. **http://www.toronto.ca/legdocs/mmis/2012/hl/bgrd/backgroundfile-46520.pdf**

*Increased mobility opportunities for non-drivers*

1.75 Car access for GTHA residents is by no means universal. In the GTHA, 13% of households do not own a car. In addition, not all residents of households with cars will have access to a car. These residents can include children, seniors, students, and those in employment. (For example, 15% of households have more people in full-time employment than cars).[8]

1.76 Providing active transportation facilities increases the mobility options for those without access to a car. In particular, it improves their access to employment, social activities and other services. This is particularly true in in areas with limited transit service.

**Environmental**

1.77 Both walking and cycling are "clean" modes of transportation: they result in no greenhouse gas (GHG) or criteria air contaminant (CAC) emissions. Consequently, increasing active transportation use reduces GHG and CAC emissions from motorized vehicles. Walking for 30 minutes a day instead of driving saves around 130 kg of carbon dioxide annually and reduces other harmful emissions.

[8] Source: Transportation Tomorrow Survey, 2011.

## Interactions between active transportation and other modes

1.78 Walking and cycling both present numerous interfaces with other modes. The way these interactions occur and are managed may influence wider mode choice.

### Transit

*Pedestrian facilities vital for transit use*

1.79 Virtually every transit trip starts and ends with a walk to/from the transit stop. It is therefore vital that pedestrian access is safe to use, provide the most direct link possible, and be in a comfortable travel environment. Failure to provide such access will suppress transit demand.

1.80 Further, transferring between transit routes also involves walking. Where this takes place away from a dedicated transit facility (such as a bus terminal or high-order transit station), then effective pedestrian links are required. This generally happens automatically if the bus stops are properly linked with the surrounding area.

*High-order transit*

1.81 If good walking and cycling facilities connect high-order transit stations with the surrounding area, then this will increase the area directly served by the station. Without such links, passengers using the station will be forced to use another mode (such as local transit or car) for the connecting leg of their journey. This generally increases the time and/or cost to the passenger, making transit use less desirable.

*Cycling to transit*

1.82 Cycle access to transit stops and stations requires cycle parking, in the same way as car access requires car parking.

1.83 The alternative to providing cycle parking is to accommodate bicycles on the transit vehicle in some manner. However, GTHA buses typically have space for only two bicycles on their bike racks, compared with capacity for about fifty people on-board. In addition, neither GO Trains nor the subway allow bikes on board in rush hour. Consequently, this approach constrains the use of cycling to access transit.

*Conflicts at bus stops*

1.84 There are often conflicts between cycling and transit facilities if the bikes are not separated from general traffic. Buses pulling to the curb at bus stops will block the space by the curb typically used by cyclists. Separated bike facilities prevent this, and avoid cyclists to use the general traffic lanes to overtake the stationary bus.

### Cars and other motor vehicles

1.85 Cyclists can face many challenges when they share roadspace with motor vehicles, particularly when they do not have a dedicated and protected space. Pedestrians and cyclists both face challenges at intersections, when their paths cross those of motor vehicles.

*On-street parking*

1.86 If on-street parking is present, it can pose dangers for cyclists. If the bike lane is between the parking lane and the general traffic lane, then cars moving in or out of parking spaces can end up crossing directly in front of cyclists. These risks can be mitigated by providing sufficient space (where practical) for both cyclists and parked cars, as well through suitable education and enforcement measures.

*Intersections*

1.87 Intersections pose additional risks to cyclists. Cyclists tend to use the right-hand lane when passing straight through an intersection, and hence can come into conflict with right-turning vehicles. This tendency is exacerbated by curbside bike lanes, as they encourage cyclists not to use the general traffic lanes. The risk of conflict is increased by the ability for vehicles to turn right

at a red light, where cyclists planning a through movement will be stopped.

1.88 These risks can be reduced by providing 'bike boxes', such as shown in

1.89 Figure **1.5**. These allow cyclists to move in front of vehicles at a stop light. This increases the visibility of cyclists to drivers, and (depending on design) potentially removes the conflict between right-turning vehicles and cyclists.

1.90 Pedestrians' most common interaction with motor vehicles comes at intersections, as this is where pedestrians typically cross the road. The path of vehicles (legally) turning right on red will intersect that of pedestrians crossing with the 'walk' signal.

1.91 Pedestrians may (legally) cross in the middle of block, even without marked crossing points. In this case, pedestrians must cope with vehicles moving at full speed, rather than slower speed of vehicles turning at an intersection.

**Freight**

1.92 Freight movement in the GTHA includes road, rail, air, and water-based transportation. Of these, only road-based transportation produces any significant interaction between active transportation and freight movement.

1.93 The interactions between active transportation and freight vehicles are similar to that with cars. However, the potential negative effects are greatly exacerbated by the larger size of freight vehicles. Freight vehicles also have a longer stopping distance and poorer driver visibility, increasing the probability of collisions.

1.94 The provision of sidewalks alongside most major roads in the GTHA helps keep pedestrians and freight vehicles separate. However this is only effective if appropriate crossing points are provided ideally signalised. In addition, sidewalks are less common in industrial areas, which are also where freight vehicles tend to be more common.

**Figure 1.5: Bike box on Harbord Avenue at Spadina Avenue (Toronto)**

1.95 Long articulated freight vehicles can pose a particular hazard to cyclists when turning, if the cyclist is alongside the front of the vehicle (or the vehicle has just overtaken the cyclist). The trailer can end up cutting across the path of cyclist, resulting in the cyclist being "squeezed out".

1.96 There is no foreseeable way to avoid freight vehicles on the GTHA's roads. While there are some opportunities to encourage cyclists onto alternative routes (such as off-road trails, or less busy parallel roads), interactions between cyclists and freight vehicles on major roads are inevitable.

1.97 Active transportation can be used for small-scale freight delivery (such as documents or small packages), through bicycle couriers. Walking can also form part of the route between delivery vehicle and package origin/destination.

### Cycling and walking

1.98 Cycling and walking have little interaction with one another, with two main exceptions. The first is for access to bike sharing facilities. The second relates to multi-use trails or paths. These accommodate both modes by design, and require due care by all users. In addition, cyclists will become pedestrians if cycle parking is not sufficiently close to their destination.

# 2 Active Transportation's Contribution to the Regional Transportation Plan

2.1 This chapter provides a summary of active transportation policies and programs the GTHA based on the goals of regional planning processes and key strategic mechanisms that can achieve them.

2.2 This first part of this chapter summarises of active transportation's progress made in the GTHA towards goals outlined in 2008's *The Big Move*. (Additional details on this progress are provided in Appendix A.)

2.3 The second part of this chapter discusses of how active transportation relates to the 2015 RTP review goals. This analysis was used to produce a set of six strategic mechanisms for active transportation. These can be used to achieve the RTP's goals, and allow programs and policies to be characterized and assessed.

## Goals from *The Big Move* and progress since 2008

2.4 *The Big Move* identified the need for significant improvements to active transportation provision and use throughout the GTHA. *The Big Move* contains a set of 13 **Goals**, supported by 37 **Objectives**. Although Objectives are listed with a specific Goal, many also support other Goals. *The Big Move* has one Goal specifically related to walking and cycling:

> Goal C – Active and Healthy Lifestyles: Walking and cycling will be attractive and realistic choices for all, including children and seniors.

2.5 There are two other Goals that relate strongly to Active Transportation:

- **Goal D – Safe and Secure Mobility:** "Getting around will be safer and more secure. Parents will feel comfortable allowing and encouraging their children to walk, cycle or take public transit to school."
- **Goal H – Foundation of an Attractive and Well-Planned Region:** "The transportation system will be a cornerstone of city building, helping to create a region that is a destination of choice for new residents and businesses. The transportation system will help us create valuable, beautiful and attractive places. Roads, streets, transit lines and stations will be designed to benefit both travellers and local residents. The transportation system itself will use less space, and help curb sprawl by supporting more compact and efficient urban forms. Transportation services, particularly transit, will not lag behind population and employment growth."

2.6 Each of these three Goals is supported by an Objective. To achieve the Goal and Objectives, there are a set of "Priority Actions". Performing these actions is intended to help meet the Goal and Objectives. Table 2.1(below) summarises the progress made in meeting each Objective and Priority Action; a full assessment (with sources) is provided in Appendix A.

**Table 2.1: Progress in meeting the Objectives and Priority Actions from *The Big Move***

| Objectives and actions | Progress since 2008 |
|---|---|
| **Objective 8:** Increased share of trips by walking and cycling | Cycling mode share has increased from 0.6% to 0.9%; walking mode share has fallen slightly from 5.7% to 5.2% |
| **Objective 11:** Improved safety for cyclists and pedestrians | Toronto data shows improved safety for cyclists, but not pedestrians; insufficient data to determine GTHA-wide improvements. |
| **Objective 21:** More transit and pedestrian-friendly streetscapes, and improved walking and cycling amenities | A few municipalities have plans/guidelines for transit and pedestrian-friendly streetscapes; little progress made so far in creating suitable streetscapes. |

| | |
|---|---|
| **Big Move Priority Action 2.1:** Plan and implement complete, integrated walking and cycling networks for the GTHA, including Toronto's PATH system, that address key barriers such as bridges over 400-series highways, rail corridors and major rivers, and missing sidewalks on major roads.<br>The cycling networks will bring every GTHA urban resident to within a maximum of one kilometer of a dedicated bicycling facility.<br>This will be supported by a provincial funding commitment increased over time to at least $20 million per year for municipalities to complete the walking and cycling networks | Planning for active transportation varies between municipalities (see Priority Action 2.8, below). Municipalities have generally adopted a 'little-and-often' approach to implementation, with incremental improvements each year.<br>Currently 76% of urban residents.<br><br>Ontario Municipal Cycling Infrastructure Program (announced in June 2015) will provide $10m over three years. No other on-ongoing annual budget commitment from Province. |
| **Big Move Priority Action 2.2:** Create pilot bike-sharing programs in major urban centres. | Bike-share programs exist in downtown Toronto, and in downtown/western Hamilton. None in other major urban centres.<br>Metrolinx providing $4.9m to expand Toronto's bike-share program. |
| **Priority Action 2.3:** Research, standardize and promote best practices to integrate walking and cycling in road design, such as scramble intersections, bike boxes, and signal prioritization. | The *Ontario Traffic Manual Book 18: Cycling Facilities* describes typical geometry and layout for various types of on-road cycling facilities. The information presented describes the range of current practices, but falls short of recommendations for best practices. |
| **Priority Action 2.4:** Install bike racks on all buses and Light Rail Transit (LRT) vehicles and amend both the Highway Traffic Act (Section 109) and the Public Vehicles Act (Sections 23 and 24) so that transit vehicles with bike racks do not require special permits. | Bike racks installed on almost all buses in GTHA.<br>Relevant legislative changes not yet made (transit agencies apply for special permits each year) |
| **Priority Action 2.5:** Establish a coordinated, region-wide bicycle registry with the ability to report and search for stolen bikes. | No region-wide bicycle registry has been established. |
| **Priority Action 2.6:** Consider changes to the Highway Traffic Act that implement the 1998 recommendations of the Regional Coroner for Toronto to provide greater clarity with respect to the relationship between motorists and cyclists in areas such as safety equipment, lane positioning and passing procedures. | Highway Traffic Act was amended in 2014 through Bill 173 *Highway Traffic Amendment Act*, and in 2015 through the *Highway Traffic Amendment Act (Keeping Ontario's Roads Safe)*. These substantially implemented the relevant legislative changes, with little additional action remaining for full implementation. |
| **Priority Action 2.7:** Implement or expand safe cycling training programs, similar to the Commuter Cycling Skills Course offered in the Vancouver area, or the CAN-BIKE courses offered by municipalities across Canada. | Cycle training programs exist in some municipalities, including Toronto, Brampton, Caledon, Mississauga, and York Region. Considerable scope for further progress in meeting this objective. |
| **Priority Action 2.8:** Undertake Active Transportation Master Plans and incorporate them into municipal Transportation Master Plans. | All but three GTHA municipalities have cycling plans; only half of GTHA municipalities have a pedestrian plan.<br>Active transportation plans generally not incorporated into municipal Transportation Master Plans, nor into Official Plans. |

## Municipal policy environment

2.7 In Ontario, municipalities are obliged to produce an Official Plan that defines the permitted land uses and associated aspects. Transport is a critical part of how land is developed, and so it is typical for Official Plans to include some elements relating to transport. Official Plans are legally binding, unlike other documents that detail transport plans.

2.8 All municipalities in the GTHA have produced transportation master plans (TMPs) that set out the priorities and intentions for the transportation network. Active transportation aspects are typically addressed in detail in separate planning documents.

2.9 In the GTHA, many municipalities have chosen to create separate plans for walking and for cycling; some municipalities only have plans that cover one of walking and cycling. Table 2.2 (next page) lists the plans covering active transportation that have been produced by GTHA municipalities. For two-tier municipalities, plans generally exist at both the upper-tier and lower-tier levels.

2.10 The table shows that of the 30 municipalities in the GTHA, only four (Brock, Scugog, Uxbridge, and Caledon) do not have any form of plan covering cycling. By contrast, only half have a plan covering pedestrian issues (this includes general active transportation plans). Of the 26 plans referenced in the table, 20 are no more than six years old.

2.11 Cycling plans typically contain long-term plans for the cycling facility network. This includes both routes and the type of facility. Some plans specify the type in broad terms only (on-road vs. off-road), while others are more specific (e.g. bike lanes, cycle tracks, etc.). There is generally some level of prioritisation, without getting into a specific year-by-year program.

2.12 The plans typically cater for both leisure uses and commuting. Some plans indicate that previous versions focused more on leisure uses, with the updated plan balancing the two categories.

2.13 Pedestrian plans typically examine gaps in the sidewalk network and other infrastructure elements. Implementation of these elements is generally coordinated with road rehabilitation or upgrades. This can delay high-priority pedestrian projects, but combining them with other road works decreases costs.

2.14 Both walking and cycling plans often contain information relating to policy changes that would support active transportation, as well potential marketing and promotional measures.

2.15 In general, active transportation plans have been created separately from the municipalities' TMPs, with the potential to incorporate the findings into the next TMP. However, most municipal TMPs focus on road-related issues, and rarely provide in-depth consideration of active transportation.

2.16 Municipal TMPs do not have the same formal legal status as an Official Plan. This means that TMPs are not technically binding on the municipality. However, they do define the intended policy direction. The infrastructure and programs within the TMP will those executed by staff in the absence of any Council direction to the contrary.

2.17 Municipalities' Official Plans provide the principle place to define and enforce policies relating to land use that will affect active transportation. The extent to which this has been done varies significantly. Some municipalities just include broad statements that active transportation is to be encouraged. Others provide specific measures (such as requirements for cycle parking or walking-friendly urban form).

**Table 2.2: Active transportation plans by municipality**

| Municipality | Type(s) | Walk year | Cycling Year | Document(s) |
|---|---|---|---|---|
| Hamilton | Pedestrian & Cycling | 2012 | 2009 | Pedestrian Mobility Plan and Hamilton's Cycling Master Plan |
| Toronto | Walking & Cycling | 2009 | 2001 | Toronto Walking Strategy, City of Toronto Bike Plan, plus other reports |
| Durham | Cycling | N/A | 2012 | Regional Cycling Plan |
| Ajax | AT | 2010 | | The Ajax Pedestrian and Bicycle Master Plan |
| Brock | N/A | N/A | N/A | N/A |
| Clarington | TMP | On-going | | Part of on-going Transportation Master Plan |
| Oshawa | AT | 2015 | | Active Transportation Master Plan (finalizing) |
| Pickering | Cycling | N/A | 2015<br>1996 | Trails and Bikeway Master Plan (update in 2015) |
| Whitby | Trails and cycling | N/A | 2010 | Cycling and Leisure Trails Plan |
| Scugog | N/A | N/A | N/A | N/A |
| Uxbridge | N/A | N/A | N/A | N/A |
| Peel | AT | 2011 | | The Region of Peel's Active Transportation Plan |
| Caledon | N/A | N/A | N/A | N/A |
| Brampton | Cycling | N/A | 2002 | Brampton's PathWays Master Plan |
| Mississauga | Cycling | N/A | 2010 | Mississauga Cycling Master Plan |
| Halton | AT | 2013 (AT)<br>2011 (TMP) | | Active Transportation Master Plan;<br>Regional Transportation Master Plan |
| Burlington | Cycling | N/A | 2009 | Cycling Master Plan |
| Halton Hills | Cycling | N/A | 2010 | Cycling Master Plan |
| Milton | Trails and cycling | N/A | 2014 | Trails and Cycling Master Plan Update |
| Oakville | AT | 2009 | | Town of Oakville Active Transportation Master Plan |
| York | AT | 2008 | | Pedestrian and Cycling Master Plan Study |
| Aurora | Trails | N/A | 2011 | Trails Master Plan |
| East Gwillimbury | Trails & AT | 2012 | | East Gwillimbury Active Transportation and Trails Master Plan |
| Georgina | Trails & AT | 2014 | | Trails and Active Transportation Master Plan |
| King | Trails | N/A | 2015 | Trails Master Plan |
| Markham | Cycling | N/A | 2006 | Cycling Master Plan |
| Newmarket | AT | 2014 | | Official Plan – Active Transportation Network |
| Richmond Hill | AT | 2010 | | Pedestrian and Cycling Master Plan |
| Whitchurch-Stouffville | TMP & AT | 2015 (upcoming) | | Transportation Master Plan (2015) |
| Vaughan | TMP<br>AT | 2012<br>2007 | | Transportation Master Plan<br>Pedestrian and Bicycle Master Plan |

## Proposed goals for the updated Regional Transport Plan

2.18 Early work for the updated Regional Transport Plan included creating the Vision, Goals, and Objectives. The six goals have been set out to guide the RTP's processes for strategic planning, prioritization and implementation. Each goal has a set of objectives that are used to assess progress towards goals based on new programming, infrastructure, and policies.

2.19 A number of these objectives influence or guide the implementation of active transportation. In addition, active transportation may be a solution to directly achieve other objectives. Table 2.3 shows the relationship between the RTP goals and active transportation.

**Table 2.3: Active Transportation and RTP Goals**

*Goals that guide active transportation facility planning and development are highlighted in blue*
*Goals that are heavily influenced by the state of active transportation facilities are highlighted in green*

| Goal A: Connectivity, Convenience and Integration | Goal B: Equity and Accessibility | Goal C: Health, Comfort and Safety |
|---|---|---|
| 1. People have appropriate, realistic options to move easily and reliably from place to place.<br>2. People have the information they need to optimize their travel decisions.<br>3. Transit services and fares are seamlessly integrated.<br>4. All transportation modes are coordinated. | 5. Transit offers affordable access to jobs, services and major destinations, and is competitive for most trips.<br>6. Transit fleets and transportation infrastructure, services and technology are accessible to users of all ages and abilities. | 7. Walking and cycling are attractive and realistic choices for most trips.<br>8. Transit offers an attractive, high-quality user experience.<br>9. People feel safe and secure when travelling, with continuous progress toward eliminating injuries and deaths from transportation.<br>10. Goods are moved safely and securely. |
| **Goal D: A Well-Planned Region** | **Goal E: An Exemplary Environmental Footprint** | **Goal F: Prosperity and Competitiveness** |
| 11. The transportation system supports compact and efficient development.<br>12. Integrated transportation and land use planning reduces the need for travel and encourages walking, cycling and taking transit.<br>13. Transit infrastructure and services have the capacity to meet demand. | 14. The transportation system is adaptive and resilient to the stresses of a changing climate, uses resources efficiently, and fits within the ecosystem's capacity.<br>15. The transportation system contributes to the achievement of provincial targets for greenhouse gas emission reductions. | 16. Travel times are predictable and reasonable.<br>17. The transportation system offers value to users and governments by providing economical, reliable and environmentally sustainable movement of people and goods.<br>18. Governments promote innovation in the transportation sector.<br>19. Sustainable, coordinated funding supports transportation operations, maintenance and expansion. |

### Objectives that shape active transportation planning

2.20 Many of the proposed RTP goals directly influence active transportation planning. These goals were highlighted in blue in Table 2.3, and are documented in more detail below.

| Objective | Objective's effect on active transportation |
|---|---|
| **Goal B: Equity and Accessibility** | |
| (5) Transit offers affordable access to jobs, services and major destinations, and is competitive for most trips. | **2008-2015:** Enhancements so far have provided incremental improvements.<br>**Beyond 2015:** Planned expansion of the rapid transit network will increase potential jobs/employees within easy access through faster travel speeds; effective active transportation to rapid transit stations will improve access. |
| **Goal C: Health, Comfort and Safety** | |
| (9) People feel safe and secure when travelling, with continuous progress towards eliminating injuries and deaths from transportation. | **2008-2015:** Cycling safety is known to have improved where data is available.<br>**Beyond 2015:** Appropriate data will be needed to provide a baseline and on-going monitoring |
| **Goal D: A Well-Planned Region** | |
| (11) The transportation system supports compact and efficient development. | **2008-2015:** Major transportation corridors (both road and transit) are incorporated into Official Plans, but active transportation upgrades generally are not.<br>**Beyond 2015:** Opportunity to link density bonuses or parking reductions to provision or funding of measures that increase active transportation use. |
| (12) Integrated transportation and land use planning reduces the need for travel and encourages walking, cycling and taking transit. | **2008-2015:** Most municipalities have developed Active Transportation Plans to support Official Plans, and new cycling infrastructure has been implemented.<br>**Beyond 2015:** Continuing effort to achieve Growth Plan density targets, build mixed-use development and integrate with cycling networks is needed to reduce travel distances and support active transportation and transit use. |
| **Goal E: Prosperity, Efficiency, and Effectiveness** | |
| (9) The transportation system contributes to the achievement of provincial targets for greenhouse gas emission reductions. | **2008-2015:** Increases in cycling use have helped reduce emissions.<br>**Beyond 2015:** Active transportation produces no emissions, so increasing use will help to achieve reductions. |

**Active transportation's contribution to objectives**

2.21 For some objectives, active transportation places a critical part in achieving these goals (alongside other modes and measures). These goals were highlighted in green in Table 2.3, and are documented in more detail in the table below.

| Objective | Key GTHA active transportation considerations |
|---|---|
| **Goal A: Connectivity, Convenience and Integration** | |
| (1) People have appropriate, realistic options to move easily and reliably from place to place.<br>(4) All transportation modes are coordinated. | **2008-2015:** Since *The Big Move*, new transit infrastructure has been funded and implemented. New active transportation infrastructure has been provided throughout the GTHA. Investment in bike racks for buses and bike parking at transit stations has improved multi-modal integration.<br>**Beyond 2015:** Major investments, such as RER, Eglinton Crosstown, Hurontario LRT, and Hamilton LRT will be implemented in the next 10 years. These corridors require active transportation enhancements to feed into their stations, expanding the area with direct access to rapid transit. |
| **Goal C: Health, Comfort and Safety** | |
| (4) Walking and cycling are attractive and realistic choices for most trips. | **2008-2015:** Incremental active transportation improvements have helped make walking and cycling become more attractive choices. School TDM programming to improve non-auto access has been introduced throughout the GTHA.<br>**Beyond 2015:** Sustained funding for cycling is a high priority, as further investment and improvements to active transportation networks and programs is needed to continuing making these options more attractive, and ensure it becomes a convenient mode for all user groups. |

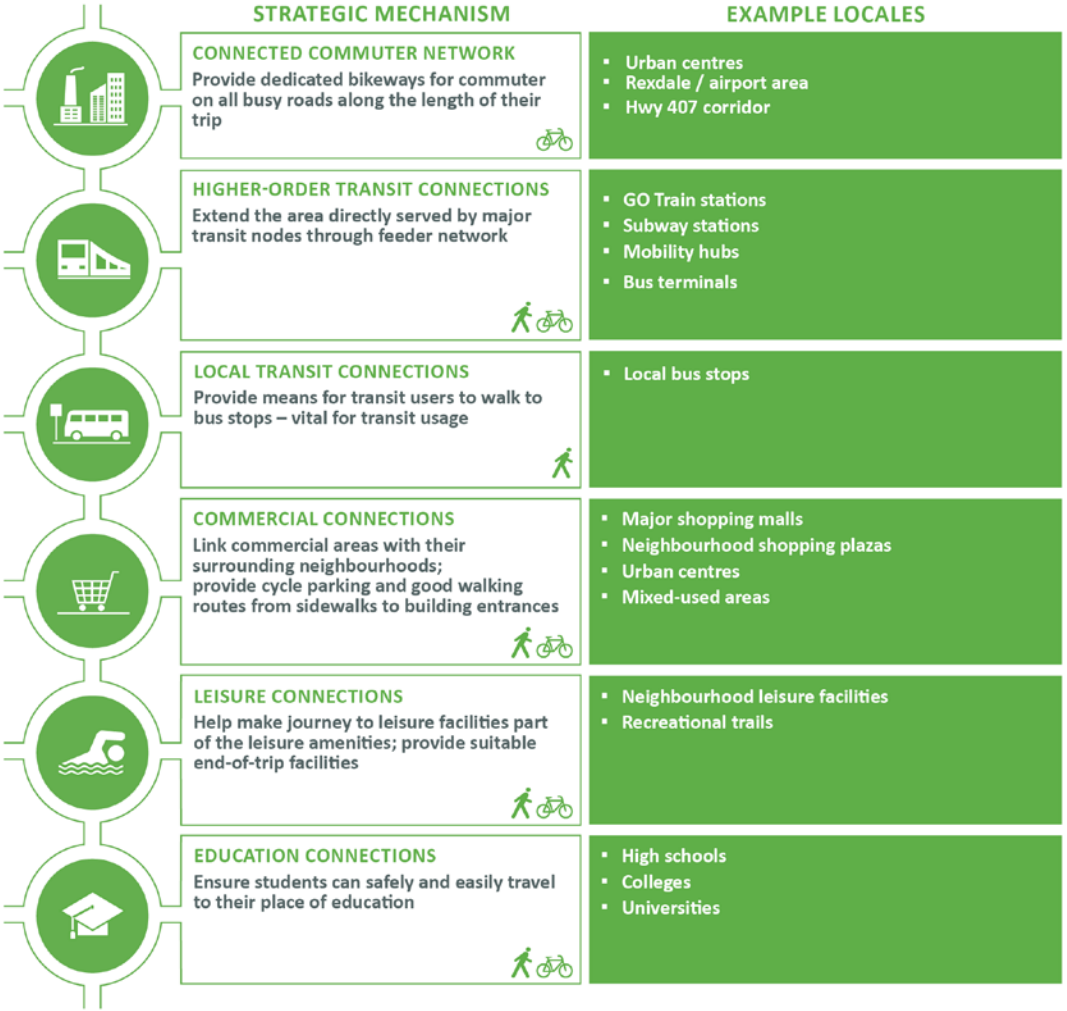
## Active transportation strategies in the GTHA

2.22 The development and implementation of measures to increase active transportation usage are shaped by wider goals and objectives. They are also shaped by the wider context. The GTHA's context (outlined in chapter 1) and goals/objectives for active transportation (above) have been assessed to identify a strategic framework for active transportation in the GTHA.

2.23 The strategic framework aims to clarify active transportation 'mechanisms': focal points for measures intended to increase active transportation usage. These focal points are intended to be consistent with the wider goals of the regional transport plan.

2.24 This framework, outlined in Figure 2.1, identifies six key strategies for active transportation that can achieve the goals/objectives of the RTP within the context of the GTHA. Some mechanisms do not cover both walking and cycling, and this is indicated by the icons in the middle column. The right-hand column provides examples of areas where this mechanism can be applied.

**Figure 2.1: Strategic areas for active transportation in the GTHA**



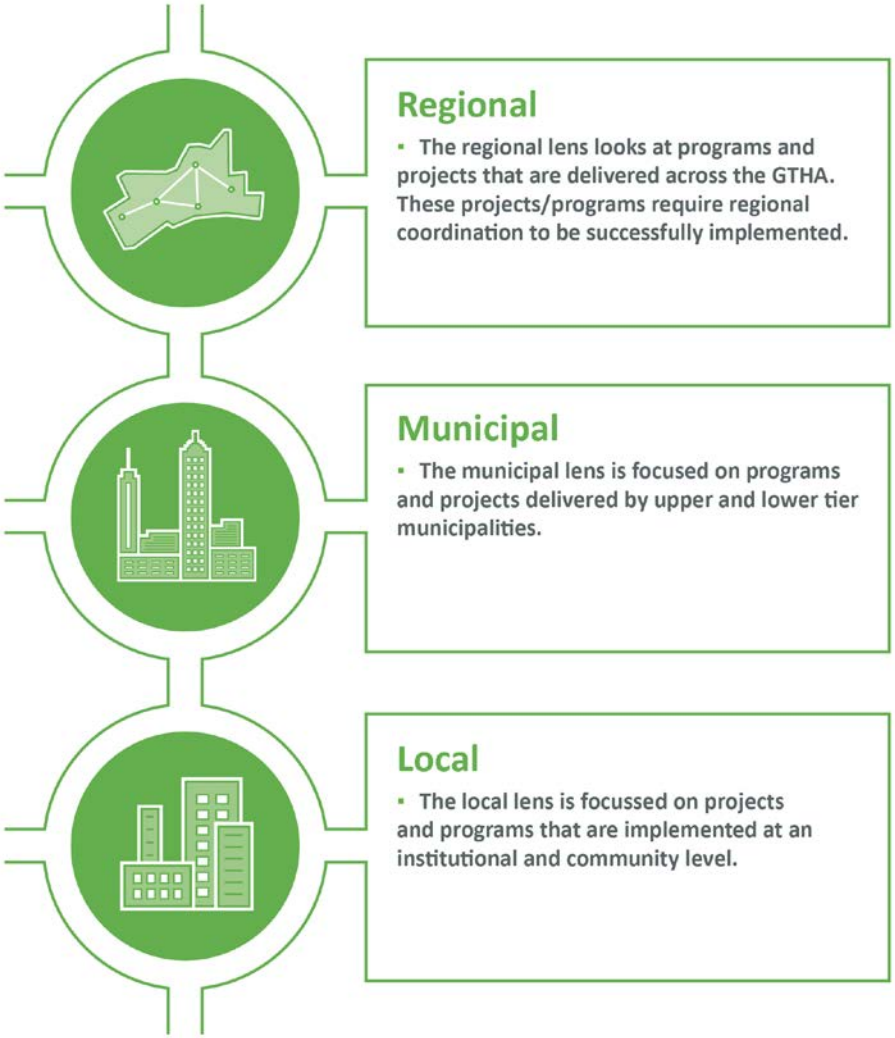
## Scales of active transportation projects

2.25 Although active transportation trips are necessarily limited in length, they are not always local in nature. They can be part of much longer trips (typically involving transit), requiring attention from regional-level parties. In addition, active transportation trips can cross municipal boundaries (especially cycling trips), and hence require inter-municipal planning.

2.26 At the other end of the scale, active transportation use can depend on highly localised features around a particular location. In between, much active transportation planning and implementation is conducted at the municipal scale.

2.27 This variety of scales means that it is useful to classify projects and potential trips involving active transportation by scale. Figure 2.2 shows the three scales that will be used in this paper for this classification. Most active transportation plans and projects in the GTHA are at the municipal scale.

**Figure 2.2: Active transportation scales**



# 3 State of Active Transportation in the GTHA

3.1 This chapter provides an overview of contemporary and historic Active Transportation issues in the GTHA. It is divided into three sections:

- **Network descriptions and short-term plans**: Reviews the active transportation facilities that are currently available. This section draws on information and data from the GTHA's numerous municipalities, including both broad trends and more detailed geographic descriptions.
- **Success factors**: Presents the key features of successful active transportation in the GTHA, drawing on evidence presented in the preceding sections.
- **Challenges and opportunities**: Summarises the existing challenges and opportunities for active transportation in the GTHA.

## Network description and short-term plans

3.2 This section reviews the facilities provided for active transportation across the GTHA. It examines the GTHA-wide network, accompanied by examples illustrating specific issues where appropriate. It also discusses various components of the active transportation, which are listed and defined in Table 3.1. The table also states the scale(s) over which the components are considered, and summarises the key issues for each component.

3.3 This section is intended to be primarily descriptive in nature. The links between provision and use are discussed in the following 'success factors' section.

**Table 3.1: Active transportation network components**

| Component | Definition / notes | Scale(s) | Key issues |
|---|---|---|---|
| **Sidewalks** | Paved path for pedestrians, generally alongside a road. Discussion here includes alleyways between road segments, and pedestrian pathways on property that is privately-owned and publically accessible (e.g. shopping plazas). | Primarily **municipal** level. Typically responsibility of (lower-tier) municipality, even if road itself is maintained by Province or upper-tier municipality.<br>Specific aspects on private property will be at **local** level.<br>Facilities linking high-order transit will bring **regional** considerations. | **Municipal**:<br>• Gaps in network, particularly in employment areas and some older residential neighbourhoods<br>• Scale of implementing complete network requires sustained multi-year<br>**Local**:<br>• Commercial and employment buildings often set back from road without suitable pathways between entrances and sidewalks<br>**Regional**:<br>• Pathways within high-order transit station sites need to link buildings with public sidewalk network<br>• Access across freeways |
| **Pedestrian crossings** | Includes signalised and unsignalised crossings, both at intersections and elsewhere. | **Municipal** level. Requires coordination between road owner and lower-tier municipality. | **Municipal**:<br>• Relative lack of controlled mid-block crossings creates long distances between suitable crossing points<br>• Reluctance of pedestrians to cross away from intersections, despite legal right to do so<br>• Channelized right turns result in conflicts between pedestrians and road users<br>• Current standards for signalising crossings discourage signalisation of some intersections where pedestrians would benefit |
| **Bikeways** | Dedicated pathway for bike-only use, or for bikes and non-motorised use. Includes bike lanes (as part of wider roadway), separated bike tracks (not part of roadway, similar to sidewalks), and multi-use trails. | Implementation underway at **municipal** level, but mostly lower-tier, but sometimes upper-tier too, with more infrastructure/investment needed. Funding and guidance supported by **provincial** level.<br>Facilities linking high-order transit will bring **regional** considerations. | **Municipal**:<br>• Sparse or disjointed provision of bikeways in some municipalities<br>• Cross-border coordination needed to maximise effectiveness of investment<br>**Regional**:<br>• Suitable routes within and near high-order transit station sites needed to connect with wider bikeway network |

| Component | Definition / notes | Scale(s) | Key issues |
|---|---|---|---|
| **Bikeshare programs** | System in which bicycles are rented to users for a short period, typically under an hour. Generally involve docking 'stations', where users know they can usually pick up a bike. | Currently implemented at **municipal** level. However, will need **regional** coordination and cross-program integration in future. | **Municipal**:<br>• Only two in operation (Toronto and Hamilton) - more bike share programs needed in other urban centres across the GTHA<br>• Expansion of existing programs<br>**Regional**:<br>• Coordination between programs, such as multi-program membership<br>• Bike share facilities at high-order transit stations |
| **Cycle parking** | Includes facilities at sites that are publically accessible and privately owned (such as shopping malls), employment locations, and on-street provision. | Mixture of **local** level (site-specific needs) and **municipal** level (policies regarding provision and standards).<br>Facilities relating to high-order transit will bring **regional** considerations. | **Municipal**:<br>• Standards for cycle parking provision, similar to standards for auto parking.<br>**Local:**<br>• Lack of parking at individual sites can preclude use of cycling as mode of travel to that site<br>**Regional**:<br>• High-order transit facilities need to include appropriate amounts of cycle parking, coupled with suitable access arrangements |

**Sidewalks**

3.4 In Ontario, sidewalks are the responsibility of lower-tier municipalities, even alongside roads maintained by the upper-tier municipality or the province. However, anything within the actual roadway (such as crosswalks or traffic signals) is the responsibility of the party that maintains the roadway.

3.5 Municipalities in the GTHA generally have standards that require sidewalks on at least one side of any road in an urban area. Non-minor roads are generally required to have sidewalks on both sides; some very minor residential roads (such as short cul-de-sacs) may be exempt from having any sidewalks.

3.6 However, many roads in the GTHA were constructed before the existing standards were introduced, and hence may have no sidewalks. Industrial areas and office parks are the areas mostly likely to lack sidewalks. Many older suburban residential subdivisions also have lower sidewalk provision than are required by the current standards.

3.7 Municipalities in the GTHA are generally taking steps to provide missing sidewalks in locations required by their standards. This may be done as part of an explicit program, or it may be done only when major reconstruction work takes place. The former approach potentially shortens the timeframe for providing all missing sidewalks; the latter approach is typically cheaper.

3.8 Sidewalk construction has a low cost compared to most transportation infrastructure (around $15,000/km when done as part of road construction[9]). However, the amount 'missing' in the sidewalk network in most municipalities makes it impractical to do in a single year. Consequently, addressing the gaps in the sidewalk network is done as an ongoing multi-year effort.

3.9 Stretches of sidewalks do not function in isolation; rather, they form part of a connected network. In general, this connectivity functions well in the GTHA – it is rare to have isolated sidewalk segments. However, gaps in the pedestrian network can occur at larger scale, caused by the presence of freeways or waterways. In the former case, crossings are expensive, and typically limited to roads with high vehicle volumes. This can significantly increase walk distance.

[9] The City of Barrie's Engineering Department uses a guideline cost of $144/meter for sidewalks on both sides of a road.

3.10 Gaps can also occur as result of the topology of the local road network. A subdivision with a dendritic road network (lots of cul-de-sacs and few through roads) will need pedestrian connections between road segments.

3.11 Overall, urban areas in the GTHA generally have an extensive sidewalk network, but considerable work is needed in some areas to ensure universal provision.

*Local-level issues*

3.12 A widespread urban form for commercial and employment buildings in the GTHA has the buildings set back from the roadway, with surface parking in front. Consequently, pedestrians accessing these buildings need suitable pathways between the public sidewalk network and the building entrances. These local-level issues require site-specific coordination between municipalities and land owners.

*Regional-level issues*

3.13 Walk access to higher-order transit nodes often faces similar issues, in that building entrances may be separated from the general sidewalk network. This requires appropriate

pathways connecting station entrances with the surrounding area. Further, measures to increase walk access requires suitable infrastructure in the surrounding area. Consequently, suitable coordination by regional bodies with municipalities is required to ensure sidewalk provision in the surrounding area.

### Pedestrian crossings

3.14 As described in the previous section, pedestrian crossings are the responsibility of the party maintaining the road. Pedestrians in Ontario are permitted to cross a road at any location. The exception is at signalised intersections where the signal is against the pedestrian. (Consequently, contrary to public perception, crossing in the middle of a block cannot ever be jaywalking.)

3.15 Signalised intersections in the GTHA almost always include pedestrian crossing capabilities for all possible movements. The exceptions are rare, and tend to be associated with very specific local circumstances. In Ontario, there is an objective process for deciding whether an intersection should be signalised. This incorporates traffic levels by leg and by movement, pedestrian demand, and recent accidents. Municipalities are often highly reluctant to signalise an intersection if these requirements are not met.

3.16 Although pedestrians have the right to cross away from intersections, they are typically reluctant to do so, especially on busy roads. Signalised mid-block crossings are comparatively unusual in the GTHA. This is because of the cost, the difficulty in assessing demand levels, and the generally small block sizes in the GTHA urban area.

3.17 In addition, the size and configuration of a roadway can create an impediment to usage, even with suitable crossings in place. Roadways become widest at intersections, because of the addition of turn lanes. A six-lane road may be eight lanes wide at intersections – precisely the point where pedestrians must cross. Filter lanes are typically unsignalised, requiring pedestrians to cross a busy traffic lane where there is no guarantee that cars will stop.

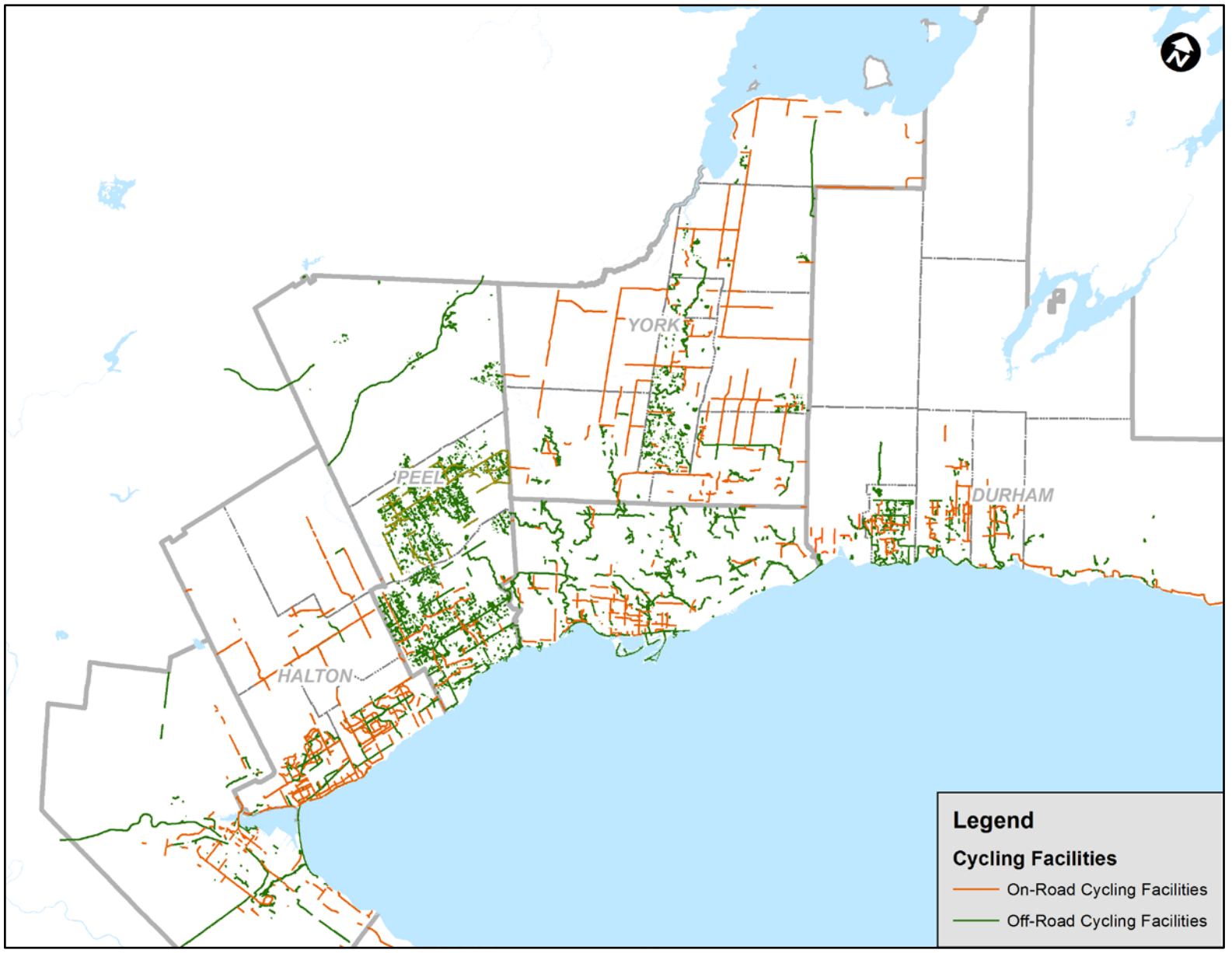
3.18 In general, there is good pedestrian crossing provision in the urban areas of the GTHA. The main area for improvement is in providing mid-block crossings in areas with long distances between suitable crossing points.

### Bikeways

3.19 This section covers off-road bikeways (such as multi-use trails), and dedicated on-road bikeways (such as bike lanes). The GIS data presented in this section was sourced from the various municipalities. For some lower-tier municipalities, no suitable GIS data was available; data was available from all upper-tier and single-tier municipalities.

3.20 The map in Figure 3.1 shows the network of on-road bikeways (orange) and off-road bikeways (green) across the GTHA where suitable data was available. (Bikeways that run alongside a roadway in a segregated manner are classified as on-road facilities.)

**Figure 3.1: Bikeway network in the GTHA**



3.21 The map shows considerable variation in the balance between on-road and off-road bikeways. Some municipalities/areas mostly provide off-road bikeways (e.g. Brampton, Mississauga, non-downtown Toronto; some provide mostly on-road bikeways (e.g. Burlington, Oakville, York). Others provide more a mixture of the two types (e.g. Ajax, Whitby, Hamilton)

3.22 Some municipalities have a more developed network, with a higher number of cycling routes, and are working toward an extensive cycling network (e.g. Burlington, Oakville, York, Brampton, Mississauga, Ajax, downtown Toronto). However, some municipalities have a disjointed network (e.g. much of York, non-downtown Toronto, Whitby, Hamilton). Several municipalities have only sparse provisions of bikeways in urban areas (e.g. Clarington, Markham, Aurora). Examples of these are shown in Figure 3.2.

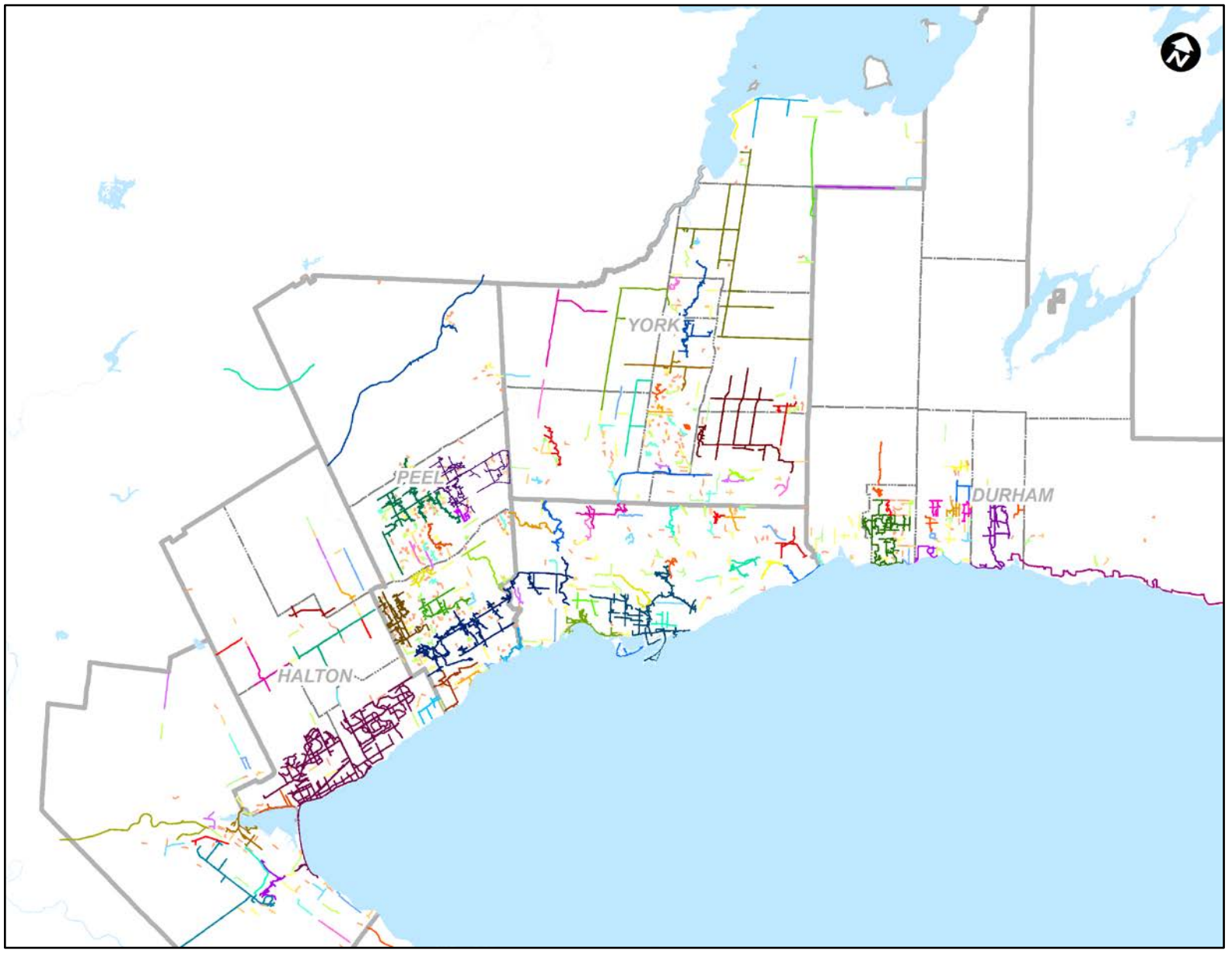
3.23 The amount (total length) of bikeways within a municipality is not a useful measure of provision, as larger municipalities tend to have more bikeways. A more useful measure is bikeway *density*, measured by length of bikeways divided by the area of the municipality. By this measure, Brampton scores highest, with over 2,000m/km². Some rural GTHA municipalities have a density close to zero. Among the urban municipalities, Toronto ranks below average, at 291m/km²

**Figure 3.2: Examples of differing bikeway network provision**


More Developed (Burlington/Oakville) | Disjointed (Whitby) | Sparse (Aurora)

3.24 Bikeways (like roads, sidewalks and transit routes) cannot exist effectively in isolation. They are most useful when they connected to one another to form a network. The bikeways in the GTHA form a number of small networks. Figure 3.3 shows the bikeways of the GTHA, with each connected network in a different colour. Segments that are different colours are not connected to one another.

**Figure 3.3: Bikeways coloured by connectivity**



3.25 The map shows the span of each connected network is fairly limited. The largest covers most of the bikeways in Burlington and Oakville. Other large connected networks are found in central Mississauga, east Brampton, west Brampton, downtown Toronto, and Ajax.

3.26 In many cases, the gaps between connected networks are quite small. For example, the two networks in Brampton are separated by less than 0.5km. Small connected networks (such as in the northern half of Toronto, or in York region) tend to be separated by larger gaps.

3.27 With the exception of the Burlington/Oakville network, connected networks generally do not span municipal boundaries. This implies either a lack of coordination between adjacent municipalities, or a focus on implementing bikeways that serve municipalities' internal (rather than external) trips.

3.28 The road network poses few barriers at municipal borders. By contrast, off-road trails require more effort by municipalities to coordinate. Despite these differences, the lack of cross-boundary connectivity applies equally to on-road and off-road networks. This implies the issue is one of implementation rather than coordination.

3.29 Municipalities in the GTHA generally use one of three types of bikeways: bike lanes, cycle tracks, and multi-use trails. (Roadways marked for shared-use with "sharrows" are not considered here, as they are not dedicated facilities.) Bike lanes mark of a portion of roadway with paint, typically beside the curb; cycle tracks are separate from the roadway, in a similar way to sidewalk; multi-use trails are located away from roadways, such as in parks.

3.30 Rural areas may pave the shoulders of roads for bike use, and these provide the same function as wide bike lanes.

3.31 Bike lanes are more common in the GTHA than cycle tracks. Cycle tracks are often combined with the sidewalk. In this case, pedestrians either sharing the space with cyclists, or separate areas are marked with paint.

3.32 It is unusual for bike lanes in the GTHA to be 'protected', with bollards or some other physical barrier between the bike lane and the rest of the roadway.

3.33 The provision of multi-use trails varies significantly between GTHA municipalities. In some municipalities, trails are dominant form of bikeway (e.g. Brampton), while it forms only a small proportion in others (e.g. Oakville).

*Regional-level issues*

3.34 Cycle access to higher-order transit nodes raises issues which may have to be addressed by regional-level bodies. Transit nodes with extensive parking provision can end up with conflicting movements between cyclists and cars. Suitable routes are needed from the public road and bikeway network to cycle parking facilities. Incorporating these features into station sites requires regional-level efforts.

**Bikeshare programs**

3.35 There are two bikeshare programs operating in the GTHA, in Toronto and in Hamilton. These have both been implemented in and around the respective downtown cores. Both cover an area under 10km². The Toronto program has more bikes, but fewer stations.

3.36 In addition to the Hamilton and Toronto programs, Metrolinx have indicated there will a two-year pilot to provide some bikes and docking stations outside of Toronto. This will be implemented by end of 2017.

*Regional-level issues*

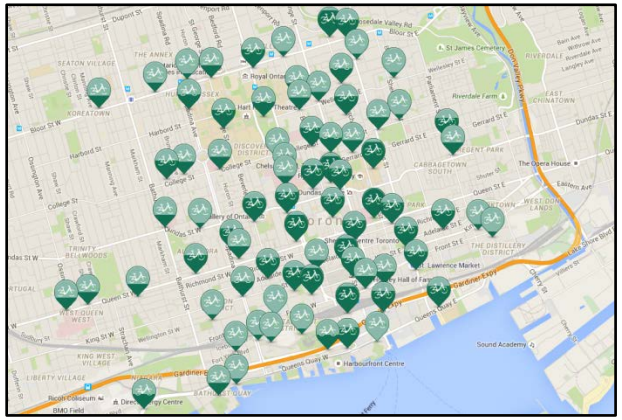
3.37 *The Big Move* envisioned bike share programs operating in urban centres across the

GTHA. Additional bike share programs will require regional-level coordination. This coordination could include multi-program membership, and allowing bikes to be docked in adjacent systems.

*Toronto bikeshare program*

3.38 The Toronto bikeshare program was formerly operated under the 'Bixi' brand, and is now operated by the City of Toronto. The service started in 2011, and was taken over the City in 2013, and is supported by corporate sponsorship. The Toronto bikeshare program provides about 1,000 bikes and 80 stations. The existing station locations are shown in Figure 3.4.

**Figure 3.4: Toronto bike share stations**



Source: City of Toronto website

3.39 The system currently has about 4,000 members. Metrolinx has recently announced it will fund additional stations and bikes. Exact details have yet to be announced, but the funding is expected to roughly double the size of the program by end of 2017.

*Hamilton bikeshare program*

3.40 The Hamilton bikeshare program was launched in 2014, and is operated by SoBi Hamilton, a non-profit operator. It provides 740 bicycles across 105 stations, shown in Figure 3.5.

**Figure 3.5: Hamilton bike share stations**


Source: SoBi Hamilton website

3.41 The service does not receive any municipal funding. Start-up costs ($1.6m) were provided through Metrolinx's 'Quick Wins' program. Operating income comes from sponsorship and member fees.

3.42 The system currently has about 5,300 members. Bikes can be locked to a regular bike rack away from stations within the service area, for a $1 fee. The bikes have a device that transmits the locked bike's location to the central system, so that other users know where they might collect it. This in contrast to most bike share programs, where the bike must be returned to a docking station.

### Cycle parking

3.43 Cycle parking is as necessary to cycle use as car parking is for car use. Without suitable places to store bicycles, cycling trips cannot take place. There is a need at any potential trip destination, be it employment, commercial, education, or leisure. There also a need at trip origins, particularly multi-unit residential buildings.

3.44 Some GTHA municipalities mandate certain levels of cycle parking provision, following a similar approach to car parking provision. (All GTHA municipalities have standards for car parking provision.) In two-tier areas, such standards fall to the lower-tier municipality. These standards may apply to all new development, or only to development in select areas.

3.45 In some cases, cycle parking forms part of a wider package of TDM measures. If cycle parking provision is mandated by all GTHA municipalities, it would ensure that cycle trips to new development are not constrained by a lack of parking.

3.46 Cycle parking standards for new development do not address provision in existing development. There is considerable scope for municipalities to provide on-street facilities in some commercial areas. Municipalities could also partner with land owners to provide cycle parking, with the land owner providing the funding, and the municipality sourcing and installing the equipment. Alternatively, the municipality and the land owner could share the costs.

3.47 There is lack of data regarding the amount of cycle parking provided in the GTHA. No municipality collects data on cycle parking provided at privately-owned sites (such as commercial locations). Where municipal standards exist, this is a matter for the design/construction phase only. The lack of data makes it difficult to robustly assess the size of location of gaps in cycle parking provision.

3.48 The analysis in the next section shows that a majority of (existing) trips are of a bikeable distance, and cycle parking can help unlock that potential market. There is considerable potential to provide additional cycle parking across the GTHA in a wide range of land uses.

### Performance against strategic areas

3.49 The description and assessment of the GTHA's active transportation network revealed various issues with the existing conditions. Table 3.2 shows the necessary improvements to each network component in order to further each strategic mechanism.

**Table 3.2: Improvements by network component and strategic mechanism**

| Network component | Long-distance commuter routes | Higher-order transit connections | Local transit connections | Commercial connections | Leisure connections | Education connections |
|---|---|---|---|---|---|---|
| **Bikeway network (on-road)** | Improved connectivity between components;<br>Greater focus on employment areas | Bikeways for most major transit faculties (generally lacking currently) | N/A (*mechanism applies to walking only*) | Connections should be included at planning stage or retrofitted | Connections should be included at planning stage or retrofitted | Need to minimise conflicts with car movements in and around educational sites |
| **Bikeway network (off-road)** | Lighting, snow-clearance; otherwise can't be a suitable network element for commute trips | Can form part of routes to stations if paired with on-road components | N/A (*mechanism applies to walking only*) | Only useful if off-road route is close to commercial area; generally no improvement possible | Access to leisure facilities via off-road bikeways can 'extend' the leisure experience | Can form part of routes to educational sites if paired with on-road components |
| **Sidewalk network** | N/A (*mechanism applies to walking only*) | Connections within station sites<br>Integrated planning between operators and municipalities | Employment areas<br>Snow ploughing | Need for better connections between public sidewalk network and buildings set behind parking lots | Need for better links between sidewalk network and multi-use trails away from roadways | Missing sidewalks in residential areas<br>Snow ploughing |
| **Bikeshares** | Bikeshare docking stations at/near final destination if used for 'last mile' portion of transit station (to complement facilities at major transit stations) | More bikeshares at major transit hubs (currently limited to Union, Hamilton GO Centre and Hamilton West Harbour stations) | N/A (*mechanism applies to walking only*) | Bikeshare docking stations at/near commercial plaza and areas | Bikeshare docking stations at/near leisure facilities, or access points to multi-use trails | Some potential for bikeshare stations at post-secondary sites, especially those not in a discrete campus |
| **Cycle parking** | General need for cycle – could be mandated by zoning rules, as per car parking. | GO stations generally have cycle parking; need more to cater to significant mode shift | N/A (*mechanism applies to walking only*) | General need for cycle parking; could be mandated by zoning rules, as per car parking. | General need for cycle parking in suitable areas; could be mandated by zoning rules, as per car parking | Cycle parking needed at student residences (post-secondary)<br>General need for cycle parking at educational sites |

## Success factors

3.50 This section presents three key features of successful active transportation in the GTHA, drawing on evidence presented in the preceding sections. It covers factors that potentially vary across the GTHA.

### Desired trips are within an appropriate distance

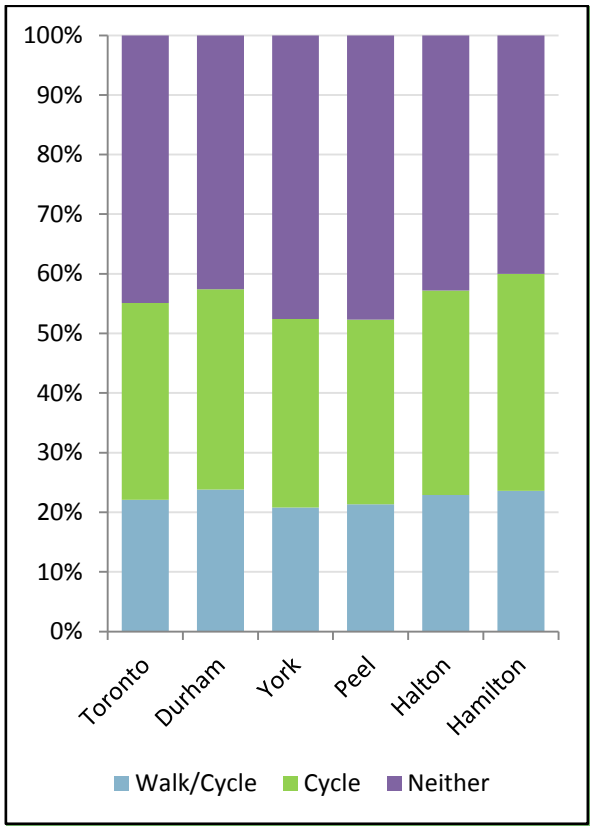
3.51 Active transportation trips are limited in their potential length. This is in contrast to motorised forms of transportation (such as autos and transit), which do not require significant physical energy expenditure by the user. This means trips will only take place by active transportation if they are sufficiently short. Consequently, active transportation use requires there is a suitable destination within a sufficiently short distance.

3.52 The maximum distance (and hence travel time) for a trip to be considered 'walkable' or 'bikeable' varies depending on source. TTS data revealed that 90% of bike trips are under 6.1km in length[10], and 90% of walk trips are under 1.75km. Currently, there is no evidence to suggest that trips substantially longer than this would be considered suitable for active transportation to most travellers. Using the information from observed behaviour represents a sound, evidence-based approach to creating thresholds for 'walkable' and 'bikeable' trips. Consequently, they will be used in this document.

3.53 It is reasonable to expect that walk or cycle mode share will be constrained by the proportion of trips that have a sufficiently short trip length. Longer trips by transit may also use active transportation for the access and/or egress legs.

3.54 Across the GTHA, 56% of trips (by all modes) are 6.1km or less, and 22% are 1.75km or less. Figure 3.6 shows the proportion of trips under 1.75km (and hence can be walked or cycled) and between 1.75 and 6.1km (and hence can by cycled) by municipality. Although there is some variation between municipalities, the chart shows that there is strong potential across the GTHA.

**Figure 3.6: Trip length distribution**




Source: Transportation Tomorrow Survey, 2011

3.55 Despite this potential, the mode shares reported in the 2011 Transportation Tomorrow Survey for walking and cycling are 4.7% and 0.9%

[10] This is straight line ("crow-fly") distance. Although actual distance travelled will be higher, other references to trip length in this document use the same measure. Hence, any comparisons will be valid.

respectively.[11] Further, in almost all TTS zones, the mode shares for walking and cycling is substantially lower than the proportion of trips that are walkable and bikeable.

3.56 This is a significant opportunity for active transportation: there are many trips with the origin and destination sufficiently close together. This implies that suitable projects could yield a significant increase in active transportation use, without changes in land use or trip patterns.

**Useful infrastructure is present**

3.57 For walk trips, sidewalks are almost essential. For cycling trips, bikeways can play a significant part in enabling and encouraging cycling trips, particular along road corridors with high traffic levels and/or high vehicle speeds. However, it is still possible for cycling trips to take place without bikeways. This illustrates how the need for different infrastructure components will vary, depending on the broader context.

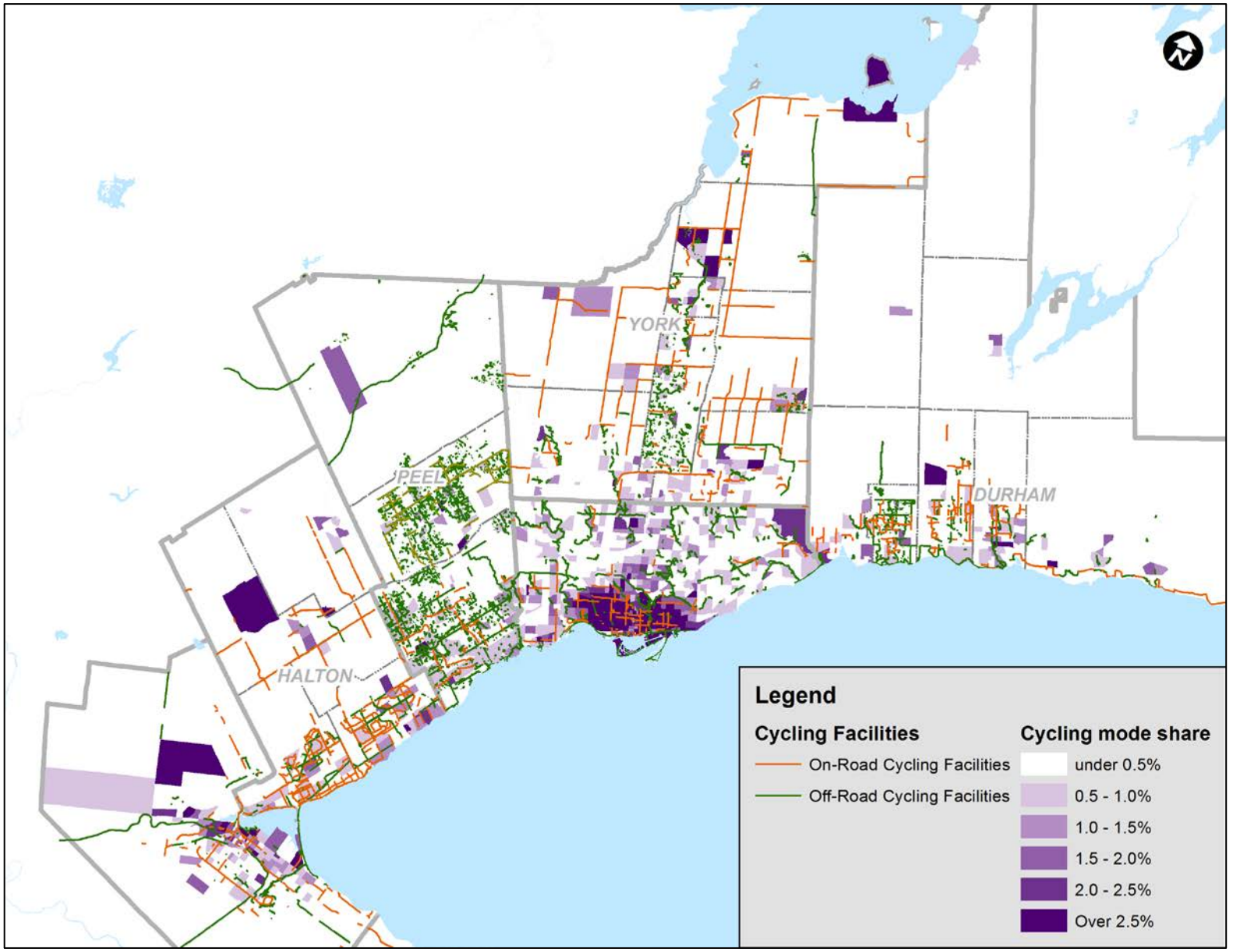
*Cycling*

3.58 Figure 3.7 shows the GTHA's cycling network (as described earlier in this chapter), together with cycling mode share by TTS zone[12].

[11] The *Transportation Tomorrow Survey* methodology is known to cause under-reporting of walking trips, particularly those not starting/ending at a residential location. However, number of walkable trips that are done by *other* modes does not suffer from this problem.

[12] The figure shows the cycling mode share by zone of origin; the distribution for the zone of destination is extremely similar.

**Figure 3.7: Cycling mode share and cycling infrastructure**



3.59 The map and detailed analysis of the underlying data reveals several key points:

- On-road cycling facilities are more likely to be associated with higher cycling use than off-road cycling facilities
- Downtown Toronto and the surrounding area achieves high cycling usage despite a relative lack of cycling facilities
- In other areas, high cycling usage is generally associated with the presence of cycling facilities
- Some areas have widespread cycling facilities, but low cycling usage (e.g. Ajax, Brampton)

3.60 Aside from downtown Toronto and the surrounding area, the results imply that on-road cycling facilities are a necessary (but not sufficient) requirement for high cycling usage.

3.61 Some areas (such as Ajax) have recently enhanced their cycling network. It is likely that the resulting increase in cycling usage is taking place over a multi-year period. In addition, some cycling facilities shown in the map will have been built after the usage data was gathered in 2011.

3.62 Similarly, it is not sufficient that a bikeway exists by itself; bikeways must form part of a larger network to be effective. Figure 3.3 showed the GTHA's bikeways form a large number of separate connected networks. Comparing the size of these distinct networks with usage levels reveals that small networks are associated with low usage. Cycling usage in an area tends to increase with the size of the cycling network serving that area.

3.63 However, comparing the largest networks reveals little variation in usage levels. As detailed earlier, most cycling trips (over 90%) are less than 6.1km. Consequently, the ability to travel further than this using dedicated bikeways is unlikely to boost cycling usage.

*Walking*

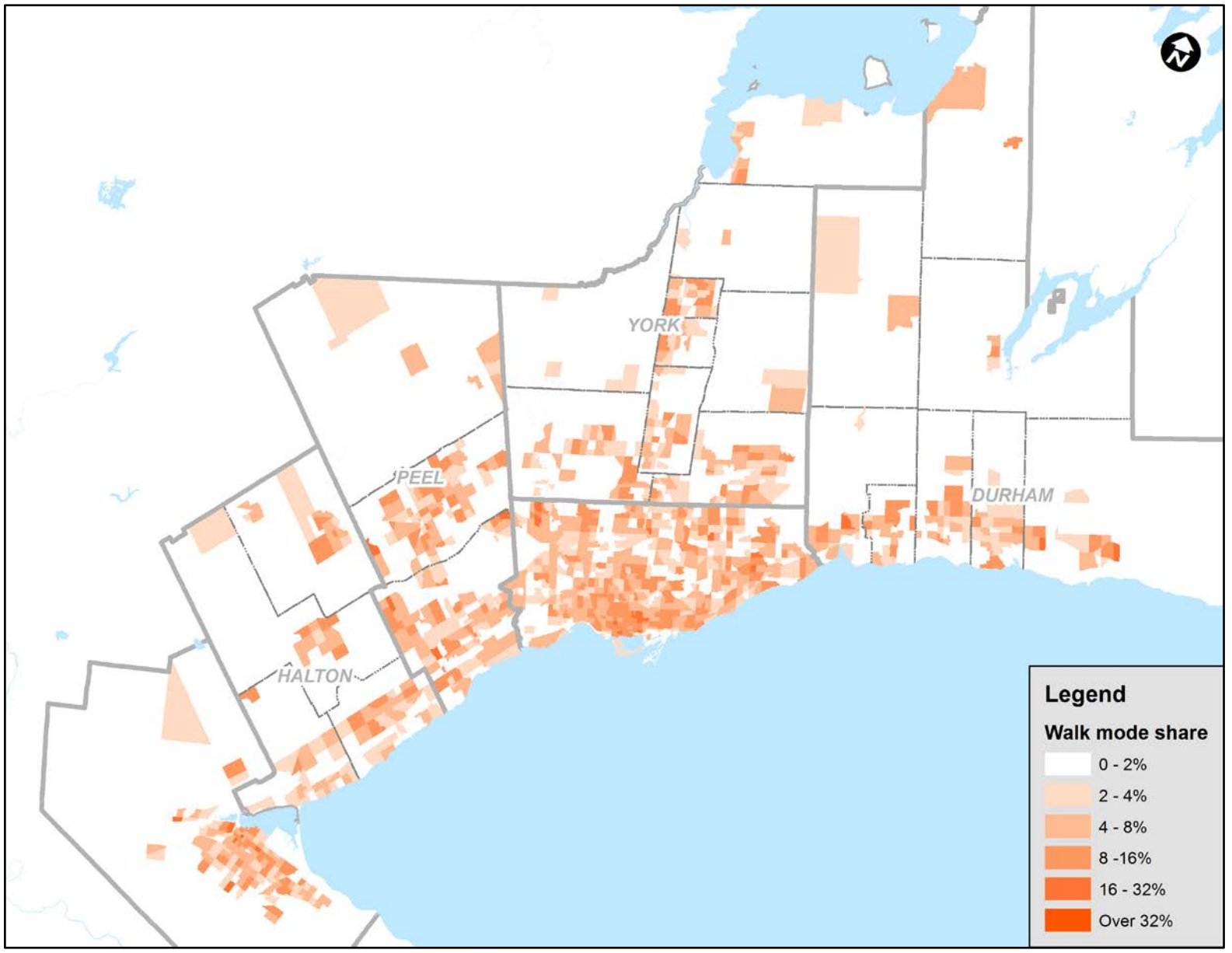
3.64 Sidewalk provision in the GTHA is widespread. Almost all roads in urban areas have sidewalks on one or both sides. Those that do not tend to be either short minor roads in residential areas, or located in industrial areas. Consequently, lack of sidewalks is rarely the principal reason for low walking levels.

3.65 Instead of lack of sidewalks, a more widespread issue is the (pedestrian) connection between the sidewalks on the street, and the entrance to commercial or employment buildings. It is common for there to be no dedicated connection, resulting in pedestrians using the same roadspace on entranceways as cars and delivery vehicles.

3.66 Figure 3.8 shows the walking mode share across the GTHA by TTS zone[13].

[13] The map shows the walk mode share by zone of origin; the distribution for the zone of destination is extremely similar.

**Figure 3.8: Walk mode share**



3.67 Comparing the (urban) areas with high and low walking mode share density reveals that the presence of a mix of land uses is vital for high walking levels. Areas that are solely residential or solely employment will have low walking levels. This is because people will not have suitable destinations within walking distance.

3.68 The GTHA's distribution of employment locations means that most people will not live within walking distance of their place of employment, nor is this likely to change to any significant degree. However, trips between commercial sites and other locations (such as residential locations, places of education, and places of work) are more likely to be walkable. Consequently, there is considerable scope for increasing walking mode share amongst trip to/from commercial areas.

### General travel environment is conducive

3.69 For active transportation users, not all travel environments are equal. While it may be possible for trips to be made by active transportation using suitable infrastructure, the general travel environment can encourage or discourage active transportation use.

3.70 One aspect of the general travel environment is the condition of the infrastructure. Active transportation usage will be encouraged if the infrastructure is well-maintained, kept clear of snow in winter, has suitable street lighting, and is backed by suitable enforcement (where applicable).

3.71 The travel environment has a strong effect on the perception of safety for active transportation users. This perception can be affected by reports of accidents, and users' personal experience. Cyclists are more likely to be concerned about safety than pedestrians, as they generally share the roadway with other (much larger and faster) vehicles.

3.72 Another aspect of the travel environment relates to the surrounding urban form. Active transportation usage is discouraged by the presence of large parking lots, separated buildings, and wide/busy roads. Similarly, the presence of natural features (trees, greenspace, etc.) tends to encourage active transportation usage.

3.73 For on-road cyclists, traffic management features (such as stop signs and traffic signals) will also influence the travel environment. Stop signs result in a significant energy expenditure form cyclist as they accelerate away from rest. Similarly, traffic signal timings are designed for vehicles travelling at auto speeds rather cycling speeds, and hence cyclists may face repeated red lights at a series signalised intersections.[14]

3.74 Finally, there is a positive feedback effect with active transportation usage. If someone sees other people walking or cycling, there are more likely to do so themselves.

### Importance by strategic areas

3.75 The success factors are all important in increasing active transportation usage across the GTHA. However, certain success factors have a stronger influence furthering the various strategic mechanisms.

3.76 Table 3.3 presents an assessment of the importance of each success factor in supporting the use of active transportation in each of the strategic areas.

[14] Fajans & Curry, *Why Bicyclists Hate Stop Signs* (2001) **http://www.sfbike.org/download/bike_law/why_bikes_hate_stops.pdf**

**Table 3.3: Success factors: importance by strategic area**

| Factor | Connected commuter network | Higher-order transit connections | Local transit connections | Commercial connections | Leisure connections | Education connections |
|---|---|---|---|---|---|---|
| **Desired trips exist within range** | **High importance** Cycling trips have an upper limit to length, so overly-long commutes will not use cycling. | **N/A (automatic)** *Connections to high-order transit are limited to the area within active transportation range* | **N/A (automatic)** *Local transit aims for universal (urban area) coverage. Hence, all trips should start/end within walking distance of local transit stops* | **High importance** Walking and cycling trips have an upper limit to length, so overly-long trips will not use active modes. | **High importance** Walking and cycling trips have an upper limit to length, so overly-long trips will not use active modes. | **Low importance** Little need to change, as schools in urban areas typically have most trips within AT range; post-secondary locations benefit from on-site student residences |
| **Useful infrastructure is present** | **Medium importance** Lack of suitable facilities on major roads will discourage cycling, but less important on minor roads (such as in residential areas) | **High importance** Must compete with convenience of other modes; safe/usable routes within station site particularly crucial | **High importance** Walking to/from transit stops requires presence of suitable infrastructure (sidewalks, crossings) | **Medium importance** Trips to commercial centres using active transportation likely to be short; end-of-trip facilities are vital for cycling use. | **Medium importance** Trips to leisure centres using active transportation likely to be short; end-of-trip facilities are vital for cycling use | **High importance** Forms key component in perceived and actual safety for children; key enabler for post-secondary institutions. |
| **General travel environment is conducive** | **Medium importance** Commutes are essential trips, minor issues with travel environment not sufficient to prevent trip being undertaken by cycling | **Medium importance** Access component is minor part of overall trip experience, but experience on that part influences access mode choice. | **Medium importance** Poor experience can dissuade people from using local transit | **Medium importance** General travel environment less influential on commercial trips | **High importance** Leisure trips are more sensitive to overall experience than for other purposes; people want to enjoy leisure trips. | **Medium importance** Schools tend to be located in residential areas, safety often a perception issue; more important for post-secondary institutions |

## Challenges and opportunities

3.77 Challenges and opportunities are closely intertwined: every challenge provides an opportunity to address the challenge; every opportunity produces a challenge in taking advantage of the opportunity. This section brings together the various challenges and opportunities from the previous sections into four over-arching groups.

### Benefits and interactions

3.78 Chapter 1 presented the benefits of active transportation use. This includes benefits to users (such as health improvements) and also to the region (such as lower road maintenance costs).

3.79 These benefits encapsulate the opportunities for active transportation in the GTHA. However, the magnitude of the benefits from active transportation varies between each of the six strategic areas.

3.80 Consequently, if a party seeks to maximise a particular benefit or group of benefits, it needs to understand which strategic areas are best-suited to producing those benefits. Similarly, if investment is planned in a particular strategic area, it is useful to know the particular benefits associated with that area. This can help promote the planned investment.

3.81 The relationship between the benefits and strategic areas are show in Table 3.4. The tabulated value (high, medium, low) indicates the amount of each benefit that would be expected to arise from investment in each strategic area.

3.82 In addition, Chapter 1 described how active transportation interacts with other modes. For most interactions, there is potential for negative effects on active transportation users (such as car/bike conflicts). For some interactions, there is a positive effect (such as access to local transit).

3.83 Investment in different strategic areas can help improve those interactions (whether reducing the negative effects or increasing the positive effects). Consequently, Table 3.4 also shows the strength of improvement that would be expected to arise from investment in each strategic area.

**Table 3.4: Benefits and interactions: influence on strategic areas**

| Category | Long-distance commuter routes | Higher-order transit connections | Local transit connections | Commercial connections | Leisure connections | Education connections |
|---|---|---|---|---|---|---|
| **Benefits** (strength of benefit arising from strategic area enhancement) | | | | | | |
| **Economic** | | | | | | |
| Roadway cost savings | High | Low | Low | Medium | Low | Low |
| Congestion reduction | High | High (localised) | Low | Medium | Low | High (localised) |
| Support local businesses/improve livability | Low | Medium | High | High | Medium | Low |
| Individual cost and time savings | High | Medium | Medium | Medium | Low | Medium |
| **Social benefits and effects** | | | | | | |
| Health | High | Medium | High | Medium | Low | High |
| Increased mobility for non-drivers | High | Medium | High | Low | Low | High |
| Safer streets | Medium | High | High | Medium | Low | High |
| **Environmental benefits and effects** | | | | | | |
| Reduced air and noise pollution | High | Medium (localised) | Medium | Medium | Low | Medium (localised) |
| **Interactions** (amount of interaction improvement arising from strategic area enhancement) | | | | | | |
| Transit: Pedestrian facilities vital for use | N/A | Medium | High | Low | Low | High |
| Transit: Conflicts with cyclists | Medium | Medium | N/A | Low | Low | Medium |
| Car use: Conflicts with cyclists | High | Medium | N/A | Medium | Low | Medium |
| Freight | Medium | Low | N/A | Medium | Low | Low |

**Challenge 1: Gaps in the infrastructure network**

3.84 The analysis for this paper has revealed that considerable work is needed before there is a complete walking and bikeway network throughout the urban areas of the GTHA.

3.85 Lack of suitable infrastructure is closely linked to low usage (for both walking and cycling), and appears to be a key cause. Consequently, providing that infrastructure is a necessary step towards increasing active transportation use.

3.86 Further, walking infrastructure plays a vital role in the use of transit, and hence supporting the use of sustainable modes for trips too long for active transportation. This applies to both local transit stops and higher-order transit nodes. In the latter case, effective active transportation infrastructure will increase the area directly served by the high-order transit mode. This in turn increases transit ridership and the wider benefits of the mode.

3.87 Gaps in the infrastructure network are not limited to public roadways and facilities. There is a need for private landowners of employment and commercial lands to provide suitable infrastructure. For example, it is common in the GTHA for small-scale commercial buildings to be set back from the roadway, with a parking lot in between. Walking would be encouraged by the provision of safe walkways from sidewalks to building entrances. Similarly, cycling use is greatly dependent on the provision of suitable cycle parking, because cycle parking is as vital for cycling use as car parking is for car use.

3.88 For active transportation users, the overall trip experience is often dictated by the worst element of the trip. For example, a small gap in the sidewalk network will be a major deterrent to walking, even if almost the entire trip has suitable sidewalks. Addressing such gaps in the infrastructure network requires implementing a large number of small, but critical, improvements.

3.89 Small-scale design elements also play an important role. For example, a high-quality separated bike lane alongside a multi-lane road is not truly effective without suitable facilities for cyclists to make left turns. Designers must consider the various possible movements at intersections, as well as access to the facility.

3.90 At larger scale, the active transport network should allow for direct (straight-line) trips wherever possible, rather than causing cyclists and pedestrians to use a less direct route than motorised traffic. Moving active transportation users onto minor roads risks them being unable to reach the key destinations along major roads.

3.91 Creating an effective active transportation network comprises a large number of small-scale projects. This makes it easy to include projects in annual budgets, but easy to exclude them as well.

**Challenge 2: Policy environment**

3.92 The policy environment either creates the impetus for improvement, or maintains the status quo. Consequently, GTHA municipalities lacking active transportation plans face a significant impediment to increasing walking and cycling. In particular, the previous section has shown that roughly half of GTHA municipalities lack walking plans. In addition, any active transportation plans need to be properly integrated into the wider policy environment – including transportation master plans and the land use planning process.

3.93 There is evidence that cross-border connections (particularly for bikeways) have not been given the same priority as intra-municipal connections. Given the large amount of cross-border trips for all GTHA urban municipalities, this reveals an under-served market.

3.94 Walking and cycling are generally used for shorter trips, and hence it is important to have trip destinations within a suitable distance. Whether or not this is the case depends on the pattern of land use, which in turn arises from policies in municipalities' Official Plans. Land use patterns that allow and encourage trips to be sufficiently short for active transportation use are needed.

3.95 The urban form and built environment will arise from policies in Official Plans and other municipal planning documents. As discussed in the previous sections, these have a significant effect on walking and cycling use. Consequently, there is a need for policies that enable and encourage urban forms and built environments that are conducive to active transportation use.

3.96 Urban form elements that encourage active transport use include:

- Mixed-use development: combining residential with employment/commercial users
- Multiple small-scale commercial nodes (rather than few large-scale nodes)
- Small block sizes, or active transportation links through large blocks
- Small setbacks for buildings (particularly commercial), with parking not located between street and building

3.97 Other policies that encourage the use of active transportation include:

- Cycle parking standards
- Education programs for students and students, particularly for cycling
- Incorporating active transportation users' needs into all aspects of land use and transportation planning
- Information provision
- Marketing and promotion of facilities
- Data collection / monitoring and public engagement to identify successes and opportunities

3.98 Finally, the policy environment directly affects maintenance levels and standards. In general, municipalities do not clear snow off sidewalks, and curbside bike lanes can be covered by windrows during the winter months. Adjusting the policy environment to address these issues will support active transportation use, particularly walking. In turn, this will also support transit use.

### Challenge 3: Marketing and promotion

3.99 The evidence from previous sections reveals there are areas where suitable infrastructure is provided, plus plenty of walkable/bikeable trips, yet low active transportation usage. This reveals the importance of marketing and promotion in active transportation use.

3.100 Municipalities in the GTHA have traditionally focused more on infrastructure provision than marketing and promotion of those facilities. However, marketing efforts can be a highly cost-effective way to improve active transportation usage. If usage gets sufficiently high, then it can trigger a 'snowball' effect, where non-users learn about the facilities from others, and end up using it themselves as well.

3.101 The small-scale nature of many active transportation investments means there unlikely to generate as much publicity as large-scale investments (such transit upgrades). Consequently, it is possible that the general public will be unaware of the new facilities, and hence not use them. This problem is particularly acute when the new facilities are located on an alternative to people's existing route. Suitable promotional activities (for both new and existing facilities) will help increase awareness, and hence potential use.

3.102 As discussed previously, bikeways function more effectively if part of a larger network. Consequently, potential users need to be aware of the whole network, not just individual segments. Suitable information provision forms a key part in increasing awareness of the general network.

3.103 Marketing efforts can be considered as part of a broader package of transportation demand management (TDM) measures. In these cases, the TDM program may include highly targeted small-scale infrastructure upgrades (such as bike racks at an employer) in order to 'unlock' active transportation usage.

3.104 General TDM measures are considered in more detail in the separate paper relating to TDM.

### Challenge 4: Data

3.105 The assessment of progress since 2008 faced a recurring issue of data availability. Suitable data underpins sound policy development; data is also necessary to monitoring progress in implementing and achieving policy objectives.

3.106 Monitoring should be part of process in creating and setting policy. If a policy is accompanied by specific targets, then this will naturally give rise to data requirements, and hence trigger the collection of suitable data. This process applies to both municipalities and to provincial bodies such as Metrolinx.

3.107 In addition, better data is needed relating to existing conditions. For example, municipal GIS data on sidewalks typically shows only their location, without explicitly linking it to the associated roadway. This makes it extremely difficult to use the GIS data to assess whether roadways have zero, one or two sidewalks alongside. This is precisely how many municipalities define their sidewalk provision standards. Consequently, it renders the data ineffective for assessing the conformance to those standards.

3.108 There is a growing trend for governments at all levels to provide 'open data'. This means that data sources created or compiled by the public sector are made available to the general public. Ideally, this is done without fees or restrictions on the dataset's use. Open data potentially allows others to use the data in way that benefits the general public or wider economy in a way not available to the public sector.

3.109 Finally, there is a lack of GTHA-specific active transportation safety data readily available. Objective 11 from *The Big Move* is "Improved safety for cyclists and pedestrians". The status of safety highlights its importance, yet there are no means to accurately evaluate progress.

**Links to strategic areas**

3.110 Table 3.5 presents specific issues with each of the four broad categories of challenges and opportunities by strategic area. Those focusing on a particular strategic area can use the table to identify some of the specific issues associated with each category.

**Table 3.5: Challenges and opportunities: specific issues for each against strategic area**

| Challenge/ opportunity | Long-distance commuter routes | Higher-order transit connections | Local transit connections | Commercial connections | Leisure connections | Education connections |
|---|---|---|---|---|---|---|
| 1) Gaps in the infrastructure network | • Experience dictated by 'worst section' - small gaps affect perception of entire trip | • Travel path within station site should be considered<br>• Segments closest to station need highest priority | • Needs broad assessment and implementation plans for entire urban area | • No widespread assessment of commercial areas' needs<br>• Prioritisation needed following assessment | • Should be included in operators' long-term plans. | • Missing sidewalks affect perceived and actual safety levels |
| 2) Policy environment | • Plans need to be coordinated between municipalities<br>• Policies should mandate / encourage end-of-trip facilities<br>• Year-round maintenance (snow clearing) | • Needs greater coordination between planners / operators of high-order transit facilities and municipalities (as builders) | • Transit agencies need to coordinate with municipalities to identify and fix problem areas and stops | • Planning documents can require on-site connections and cycle parking | • Coordination needed between those responsible for active transportation and operators of leisure facilities | • Coordination needed between school boards/post-secondary institutions and municipalities |
| 3) Marketing and promotion | • Can target employees at specific sites after network upgrades; new facilities are the best chance for mode shift | • Can target users of high-order transit users through information campaigns | • Need to highlight upgrades and improvements - may not be visible to non-transit users | • Need to work with landowners and business owners to promote facilities to customers | • Can highlight journey to facility as part of the leisure experience for off-road trails | • Opportunity to target student population with dedicated marketing |
| 4) Data | • Need municipalities to monitor usage (and respond accordingly)<br>• High frequency of travel means more sensitive to safety | • Detailed data about origin and users' (potential) access / egress routes | • Stop-level boarding / alighting data to help prioritise improvements | • Landowners cannot plan end-of-trip facilities correctly if they have insufficient data about usage or planned facilities | • Leisure facility users' origin points and (potential) access route need to help prioritise upgrades | • Sensitivities over student's home locations |

# 4 Jurisdictional review

4.1 As the GTHA is formed by a variety of municipalities and communities, it requires a diverse set of initiatives to successfully meet the active transportation goals. Other regions have successfully increased active transportation usage as part of broader transportation and regional policies to achieve strategic goals. In order to harvest promising practices and critical lessons from successful active transportation programs, a global practice jurisdictional review is presented here.

4.2 This global practice review utilizes the same "four drivers" framework applied to the GTHA. This provides context for each review area, and reveals the similarities and differences to the GTHA (or parts of the GTHA).

4.3 The four locales presented here all have strong active transportation usage. They were chosen because they cover a wide range of urban forms and urban area sizes. They also each employed differing programs and policies to encourage active transportation use.

4.4 The four locales are:

- **Philadelphia region (PA, USA):** Strong parallels with GTHA's transport network and region-level urbanisation pattern.
- **City of Oxford (UK):** High cycling usage levels but very limited roadspace. Small urban core and car-orientated suburbs parallels much of GTHA outside Toronto.
- **City of Vancouver (BC):** Similar regional land use patterns to GTHA; mix of policy- and infrastructure-orientated solutions.
- **New York City (NY, USA):** Significant increase in cycling in recent years, despite limited investment in bike lanes. Good example of policy-driven change in dense urban area.

4.5 The first two reviews (Philadelphia and Oxford) present a "strategic review". This covers the major policy plans and initiatives that have guided active transportation in the areas. The aim is demonstrate how to best create an effective policy environment for supporting active transportation.

4.6 The second two reviews (Vancouver and New York City) present a "practice review". This lists the specific active transportation initiatives currently in place. The initiatives are characterized using the component strategies types in Chapter 3 where appropriate, as well as the three geographic scales. The aim is to highlight the specific projects, and how they might be applied in the GTHA.

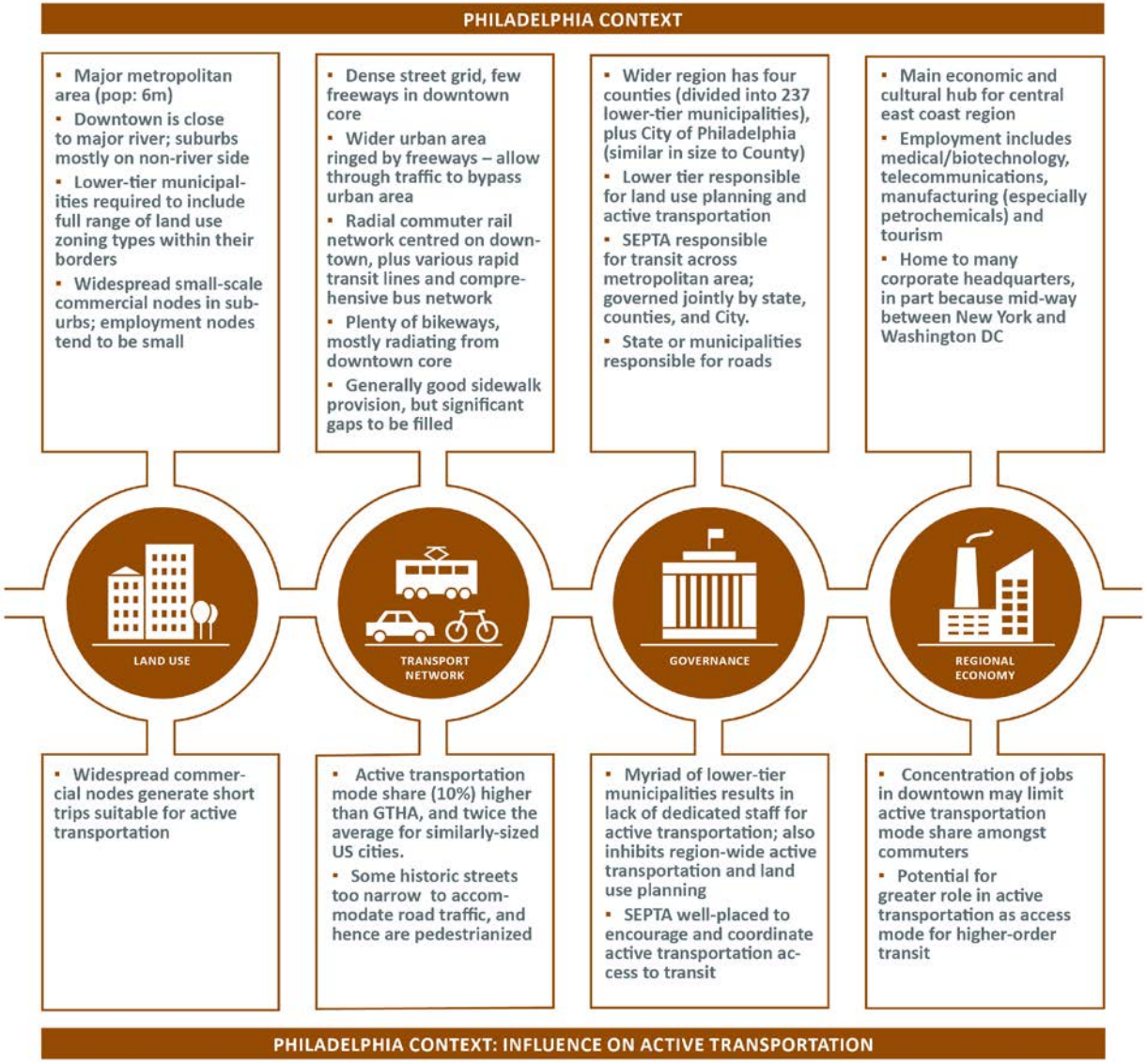
## Philadelphia

4.7 Philadelphia is the capital of Pennsylvania, and the economic centre of the USA's sixth-largest metropolitan area. The City itself has a population of around 1.5m, and the wider metropolitan area has a population of 6m, comparable to the GTHA. Transit is operated region-wide by SEPTA, while land use planning is done by the City of Philadelphia and 239 lower-tier municipalities. The City is taking a leading role in the promotion of active transportation in the region.

### Key lessons

4.8 Philadelphia's plans to build on existing high active transportation usage yields several lessons that can be applied to the GTHA's active transportation planning, both at a municipal and region-wide level:

- Goals in plans are accompanied by measures to quantify progress, and time-bound targets to indicate success.
- Policy proposals are highly specific, with a clear link to the relevant problem(s).
- Existing development is not excluded, with measures relating to retrofitting
- Large-scale projects (such as missing/substandard sidewalks) are transparently prioritised.



**Four drivers**

*Land use*

4.9 The urban area around Philadelphia is divided by the Delaware River. The City of Philadelphia's eastern border is the river, and there is substantially more development to the west of the City than to the east. This asymmetric development is similar to the GTHA, where Lake Ontario has resulted in a semi-circular metropolitan area.

4.10 Land use in Pennsylvania is planned by the lower-tier municipalities, which are typically small. The Philadelphia metropolitan area has just four (upper-tier) counties, but 239 lower-tier municipalities (plus the single-tier City of Philadelphia, which is similar in size to the four Counties).

4.11 Land use for municipalities in Pennsylvania is governed by the state's Municipalities Planning Code. This requires (lower-tier) municipalities to zone land for all land uses, including residential, commercial, and industrial. This is intended to ensure municipalities do not serve a single land use function (such as being purely residential), and to help distribute 'undesirable' land uses between municipalities. However, it makes it difficult to create larger agglomerations or particular uses, with the economic benefits that brings. (The City of Philadelphia is able to avoid this problem, because it is much larger.) The large number of small municipalities also makes it difficult to achieve a coordinate land use at the regional scale.

4.12 Despite the aims of the Municipalities Planning Code, most of the suburban counties' area is taken by up by residential uses. Housing is typically single-family dwellings on small lots, with generally no scope for infill development. However, the Code has resulted in numerous small-scale commercial plazas throughout the urban area. This brings many residents within walking distance of commercial facilities.

4.13 Employment uses are mostly concerted in the City of Philadelphia. The downtown employment core is located close to the river, and is generally home to office-based employment. There is also employment along (western) riverfront, much of it utilising the river's freight transportation role. These jobs are more likely to be industrial in nature.

*Transportation*

4.14 Philadelphia is served by an extensive multi-modal network. Its road system is mostly based around a dense street grid, with fewer expressways than most major North American cities. Long-distance north-south traffic is routed around the periphery of the urban area by various expressways, including I-295, I-476, and the New Jersey Turnpike. These serve as bypass routes for I-95, which runs along the western bank of the Delaware River (the eastern edge of the city).

4.15 Transit in Philadelphia is the responsibility of the Southeast Pennsylvania Transit Authority, commonly known as SEPTA. However, two other agencies run regional rail services into Philadelphia. These are:

- PATCO: a joint Pennsylvania/New Jersey body, which operates the PATCO Speedline route into Camden County in New Jersey
- New Jersey Transit: run by the State of New Jersey, which operates the Atlantic City Line route to Atlantic City, NJ.

4.16 In addition DART (part of the Delaware Department of Transportation) subsidises the operations of one of SEPTA's commuter rail lines that runs into Delaware.

**Figure 4.1: SEPTA Regional Rail and Rapid Transit map.**


4.17 SEPTA's services include regional rail, rapid transit routes, and regional and local bus routes. The regional rail network has 13 lines, which all radiate out form downtown Philadelphia. Most services operate all day. SEPTA also serves the city with several subway lines, and an extensive network of regional and local buses.

4.18 Within the City of Philadelphia itself 59% of trips are by car, and 41% are by non-car modes (including transit and active transportation). A third of households have no car. Amongst commuters, the mode split in 2012 was auto driver 50%, auto pass 9%, transit 26%, walk 8%, and bike 2%. (The remainder work at home or take some other mode). The overall active transportation mode share (10%) is higher than the GTHA. In addition, the bicycle commuting mode is roughly twice that of other big cities in the USA.

4.19 Philadelphia's network of bike lanes is extensive but disjointed. Most of the network is made up of bike lanes, with some off-road trails. Bike lanes are more common on roads running towards the downtown core, and less common on the roads perpendicular to those.

4.20 All roadways in Philadelphia are intended to have sidewalks, with the expectation of freeways. Most streets have sidewalks on at least one side. However, they may be missing on some streets, particularly outside the downtown core.

4.21 The historic core includes "shared narrow" streets. These are pedestrianized streets with very low traffic volumes and a narrow right-of-way (under 10m).

*Governance*

4.22 The City of Philadelphia has a single-tier government, with a "strong mayor" system. The surrounding areas have a two-tier system (counties and cities). Both are subsidiary to the State of Philadelphia.

4.23 SEPTA is responsible for all transit services in and around Philadelphia. The governing board has 15 members, includes state and municipal representatives: two from the City of Philadelphia and each of the surrounding four counties, four by various office holders in the state's legislature, and one by the state's governor. The two members appointed by the City have veto power, although this can be over-ridden by a 75% vote[15].

4.24 Land use is planned independently by the municipalities. Where there is a two-tier system, the lower tier is responsible for virtually all aspects of land use planning. There is no legal requirement for cross-border coordination. However, municipalities adopt a pragmatic

[15] The board has 15 members, so 12 votes are required to override a veto. As the City members wouldn't vote to override their veto, this implies 12 out of the remaining 13 votes are required.

approach to ensure their land use plans are compatible with their neighbours.

4.25 In two-tier municipalities, active transportation infrastructure (other than at transit stops) falls under the responsibly of the lower-tier municipality. The sheer number of these municipalities makes it very difficult to produce a coordinated, region-wide approach to active transportation. This particularly affects cycling infrastructure, as cycling trips are highly likely to cross municipal boundaries.

4.26 Although the GTHA has far fewer municipalities, evidence earlier in this report indicates that cross-boundary coordination issues exist in the GTHA too.

*Economy*

4.27 Philadelphia is the largest city in Pennsylvania, and its economic centre. It also acts as a major economic hub for Delaware and the southern half of New Jersey. Consequently, it is home to a diverse range of economic activities. Its specialities include medical/biotechnology, telecommunications, and manufacturing (especially petrochemicals). It is home to the Philadelphia Stock Exchange and associated financial activities.

4.28 Philadelphia is also a tourism centre, as one of the USA's oldest major cities. It is home to many corporate headquarters. The latter is facilitated by the city's position mid-way between New York and Washington DC.

**Strategic review and lessons for the GTHA**

4.29 Philadelphia's recent work on active transportation has been guided by their *2012 Pedestrian and Bicycle Plan*. The plan contains many approaches that should be replicated when planning active transportation in the GTHA. These approaches can be used in both municipal and region-level plans.

4.30 The *2012 Pedestrian and Bicycle Plan* establishes a vision for "travel on foot and by bicycle in a livable and vibrant Philadelphia", with five goals relating to safety, encouragement, the public realm, connectivity, and recognition.

4.31 Each goal is accompanied by specific measures, generally accompanied by time-bound targets. For example, the 'safety' goal includes "Number of bicycle and pedestrian crashes" as a measure, with a target to "reduce fatalities 50% by 2020".

4.32 The plan also recommends a number of policy initiatives recommended by the plan. These aim to be as specific as possible (for example, "add bike racks at a rate of 1,500 per year for five years"; "carry bike lanes across right-turn lanes by marking them as solid green"; "Convert signals to countdowns at a rate of 30 per year until all have been converted").

4.33 The use of specific, time-bound targets accompanied by measures to indicate progress is a critical part of ensuring the broader policy goals are met. The specificity is lacking in many GTHA active transportation plans, and is an approach that that can be replicated in the GTHA.

4.34 Policy measures in the plan are clearly linked to the specific problems they are trying to solve. This avoids policy measures being perceived as arbitrary, and instead helps maximise stakeholder and public support. This approach is not always adopted in active transportation planning (or transport planning) in the GTHA.

4.35 For cycling, the plan adopts a mixture of infrastructure and non-infrastructure measures. The latter includes measures to reduce parking in bike lanes, accommodating bikes in transit journeys, and wayfinding. These two aspects are complementary, as both are needed to maximise active transportation use. The GTHA has focused more on infrastructure projects, and hence would benefit from adopting this approach.

4.36 The plan documents a number of specific infrastructure issues relating to the pedestrian network in Philadelphia, and puts forward specific recommendations for addressing each issue. These include changes to signal phasing, intersection geometry, and signage. The plan also identifies areas or road segments with these issues, and sets out a prioritisation plan for addressing them.

4.37 Philadelphia is a mature city, and much of the land area is unlikely to be redeveloped within the foreseeable future. Consequently, retrofitting existing development will encourage greater active transportation use, even without any significant changes in land use patterns.

4.38 Philadelphia has benefitted from its historic core being developed before widespread auto usage. It has used this as a basis on which to expand walking and cycling usage.

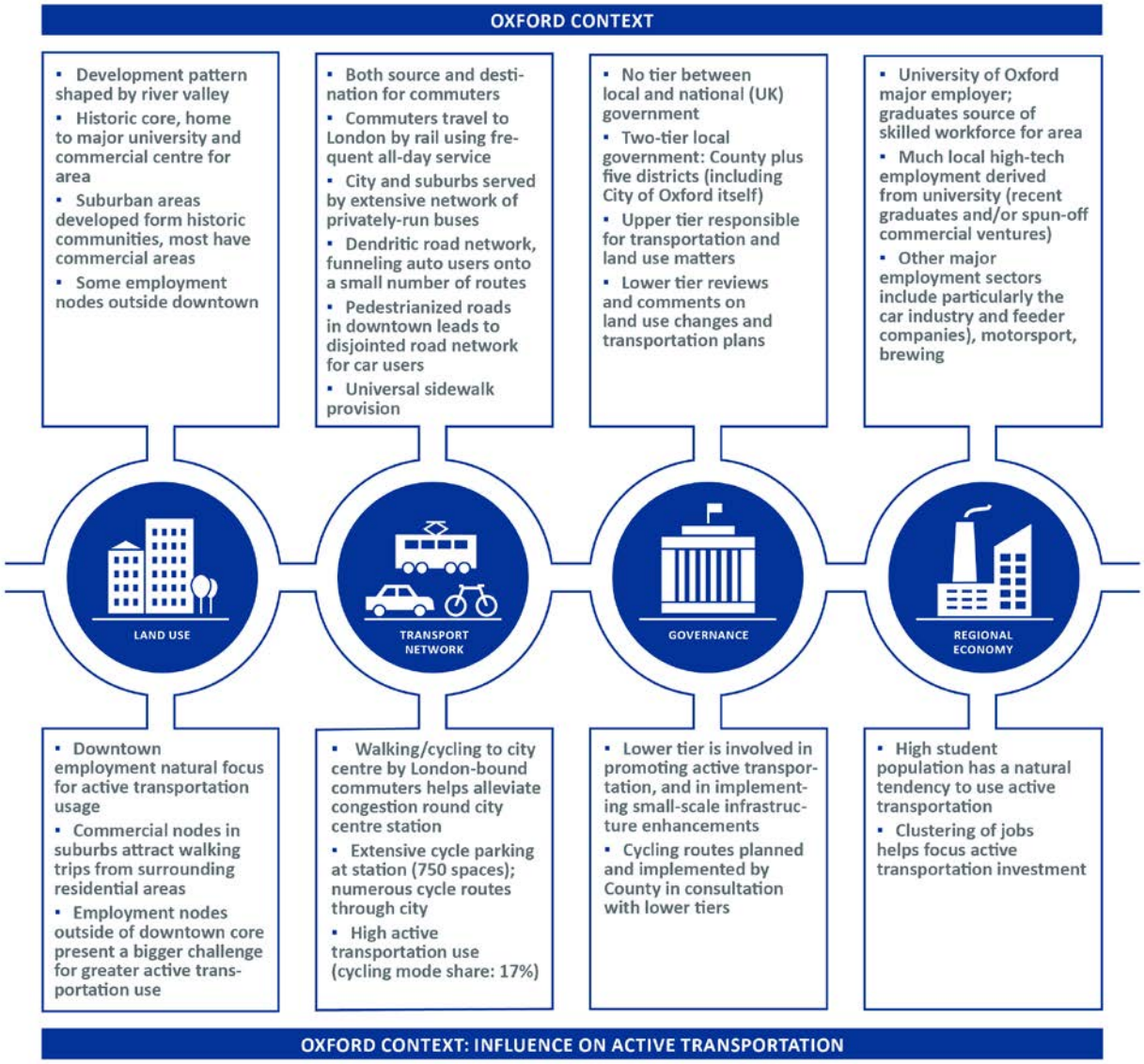
## Oxford, UK

4.39 Oxford's historic university, high-tech employment clusters, and pedestrian-orientated core provide a strong basis for active transportation use. The City is both a major employment hub and source of commuters, with the latter commuting by train to London.

### Key lessons

4.40 Oxford provides many parallels with GTHA urban centres outside of downtown Toronto, because it is both an employment node and home to those commuting elsewhere. This, and other factors, lead to various key lessons that be applied to GTHA municipalities

- Effective walking facilities should be provided throughout the entire urban area, with no exceptions.
- High-order transit nodes offer the potential to encourage active transportation use for the access leg.
- Cycle parking facilities should be considered a prerequisite for active transportation use, in the same way as car parking is for car use.
- Responsibility for active transportation may fall primarily on one level of government, but that should not preclude other levels from involvement in enhancing and promoting active transportation.
- Auto needs should be prioritised below other modes where appropriate.



## Four drivers

*Land use*

4.41 Oxford and its suburbs developed out of multiple distinct historic communities. Many communities near to Oxford have increased in size in recent decades, as they became residential areas for many Oxford-based workers.

4.42 The oldest part of Oxford runs along the valley of the River Isis (the name given to the upper stretches of the River Thames), resulting in a non-circular urban area. This part of Oxford is surrounded by multiple distinct suburban communities.

4.43 The downtown area is the commercial centre for the region, and also features the various components of the University of Oxford. The large student population forms a natural market for active transportation, as the University lacks car parking spaces, and student trips are typically short enough for active transportation use.

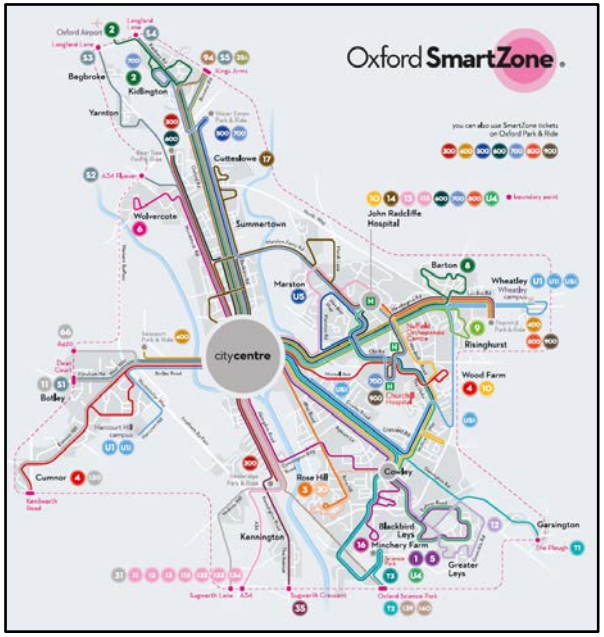
4.44 The suburban communities typically have their own commercial centres, reflecting their historic roots as independent towns and villages. There are various employment areas outside the downtown. These include the Oxford Science Park (high-tech office-based employment) located on south edge of City, and car manufacturing in southeast. Some outlying communities also their own employment nodes.

*Transportation*

4.45 The City of Oxford is both a source and a destination for commuters. Oxford is about one hour away from London by train, and consequently forms part of London's commuter belt. There about 75 trains each way between Oxford and Paddington. London-orientated commuting trips account for a significant proportion of the station's 6.5m passengers/year. The station has about 750 cycle parking spaces, and cycling is an important part of the station's access mode split.

4.46 Oxford and its suburbs are served by an extensive network of privately-run buses. Buses also link park-and-ride sites on the edge of the city with the downtown areas. The railway station is served by about 115 trains/day to locations other than London. Most services are used by commuters into Oxford.

**Figure 4.2: Major bus routes serving Oxford's suburbs**




4.47 The cycling mode share amongst Oxford commuters is 17%, one of the highest in the UK. Cycling is also extremely popular amongst the university's 20,000+ students. The lack of car parking (especially for students) and disjointed road network in the downtown area are key factors in the high cycling levels.

4.48 There is a city-wide bikeway network, utilising a mix of bike lanes and signed routes. The latter are used where the roadway is too narrow

for separate bike lanes, and highlight the potential presence of cyclists to other road users.

4.49 Virtually all roadways in Oxford's urban areas have sidewalks on both sides. The road network in and around Oxford can be classified as dendritic (core roads splitting into minor roads, in contrast with the grid-based system of many Ontario municipalities). The major roads mostly radiate out from the city's downtown areas, with the addition an orbital route around the outskirts.

4.50 Within the downtown areas, many roads have been pedestrianized. This makes the road network disjointed for auto-based travel, and discourages auto use through the downtown area. This is a direct result of policies intended to prioritize active modes over auto use within these areas.

*Governance*

4.51 Arrangements for sub-national government levels in the UK are complex. Oxford has a two-tier local government, with no additional tiers other than national (UK) government. The upper tier is the County of Oxfordshire. The County is divided into five districts, including the City of Oxford. The latter includes some of Oxford's suburban areas, while the remainder are spread between the remaining four districts.

4.52 The (upper-tier) County has primary responsibly for transport, although much of the planning and implementation will be coordinated with the lower-tier districts. Funding for both levels of local government comes from the national government (about 75%) and property tax (about 25%). The latter is levied separately by County and districts.

4.53 Upper-tier local governments are obliged to create strategic plans for transportation, typically covering a five-year period. These include high-level aims and specific projects intended to achieve those aims. Projects may be dependent on national government funding, and the plan is used a basis for funding applications. The national government does not set explicit targets for these plans, but may influence their content by setting the amount of funding available for different project types.

4.54 Local governments in England influence land use in different ways to their Ontario counterparts, not least because there is not a site-specific zoning plan covering the whole municipality. Instead, land use is controlled through a hierarchy of documents. Applications to develop land or change land use are assessed using these documents.

4.55 The primary document is the "Core Strategy". This contains the land use and broader policies against which applications are judged. The high-level strategies are translated into more detailed plans in Oxford's "Sites and Housing Development Plan Document". This allocates sites for development for various land uses. It also sets out detailed policies for residential development.

4.56 At a more local level, Oxford has created "Area Action Plans" that guide future development in specific area.

4.57 Land use changes are approved by the upper tier of local government. However, any applications are reviewed and commented upon by the lower tier, generally with recommendation regarding approval.

*Economy*

4.58 The City of Oxford is famed for its university, the oldest in the English-speaking world. The university is a major employer for the area. Much of the high-tech employment in the area traces its roots back to the university. This includes commercial ventures subsequently spun-off by the university, and companies founded by former staff and graduates. The high-tech employment is dominated by the bioscience and computing sectors.

4.59 Other employment sectors in and around Oxford including manufacturing (particularly the car industry and feeder companies), motorsport, brewing, and education.

**Strategic review and lessons for the GTHA**

4.60 Oxfordshire County's Local Transport Plan (LTP) provides strategic-level transportation policies for the County. The plan places considerable emphasis on active transportation. One of the LTP's main objectives is to "develop and increase cycling and walking for local journeys, recreation and health".

4.61 The active transportation objective is applied to many aspects of the LTP. For example, projects intended to reduce congestion must consider walking and cycling upgrades before considering road enhancements. In addition, all new development is required to be well-served by cycling facilities.

4.62 This multi-modal approach to new development is rarely encountered in the GTHA. Typically, developers are required to primarily consider the effects on road traffic only. By ensuring new development (whether infill or greenfield) successfully caters for all modes, there is potential for the GTHA to increase use of non-auto modes in general, and active transportation in particular.

4.63 Sidewalks and other pedestrian facilities are sufficiently embedded into the public's expectations that there is no need to explicitly state them as a requirement. For pedestrians, the LTP focuses on improving the overall travel environment along routes to/from key nodes.

4.64 The provision of effective walking facilities throughout the urban area is a critical part of active transportation usage. The universal coverage is something that many GTHA municipalities aim for, but few actually achieve. The experience of Oxford demonstrates the active transportation benefits that could result in the GTHA if this approach was adopted.

4.65 The LTP also contains area-specific policies for different communities, reflecting the variations in travel patterns and transportation needs. For Oxford rail station, the LTP seeks a continued increase in access by non-auto modes. The station is located close to downtown, and hence decreasing auto use amongst those commuting from Oxford (by rail) will decrease congestion for all those travelling into Oxford (including those who work there).

4.66 Oxford's efforts in this area demonstrate how improvements for one trip type (travellers to a rail station) can yield benefits for other trip types (travellers to the surrounding area). The GTHA should be mindful of the wider effects of access to higher-order transit stations. Projects intended to changes access patterns should also

consider the existing problems and potential benefits for other travellers.

4.67 The high cycling usage amongst employees and students in Oxford creates high demand for cycle parking. The LTP directs the County to provide more cycle parking through the City, and also continue to expand and enhance the bikeway network.

4.68 This approach of continuous improvement is widely used in the GTHA for transit services, but rarely for active transportation programs and infrastructure. Consequently, the GTHA should include upgrades and enhancements to existing active transportation programs and facilities, not just invest in new ones.

4.69 As transportation (including active transportation) is a County responsibility, the City of Oxford has traditionally taken a subsidiary role in encouraging active transportation. However, the City decided to leverage its more local knowledge through the 'Oxford Cycle City Initiative'. This was a series of small-scale, highly targeted improvements intended to reduce or remove barriers and impediments to cycling usage.

4.70 To date, Oxford Cycle City Initiative has included better wayfinding signage, and the delivery of low-cost adult cycle training. These improvements are intended to complement the infrastructure-focused work by the County.

4.71 This partnership demonstrates how different levels of government can use their unique capabilities to encourage active transportation use, regardless of formal legal responsibilities. Similarly, the GTHA can increase the use of partnership between different levels of government. This would enable planning and implementing to incorporate the strengths of each of the partners.

4.72 The County and the City have both made reduced auto use a key priority in developing transportation policy. Walking and cycling are the modes given the highest priority, followed by transit, with auto use last. This is reflected in the downtown area: it is not just pedestrian-orientated, but designed to actively discourage auto use. This is by making sufficient streets pedestrian-only that it is difficult to make cross-city trips by auto *through* the downtown area. In turn this restricts

4.73 This approach is rarely adopted in the GTHA. Even in least auto-orientated areas (such as downtown Toronto), there is strong public opposition to street changes that actively discourage auto access. Consequently, there is significant untapped potential for streets in urban cores across the GTHA to be orientated away from auto access.

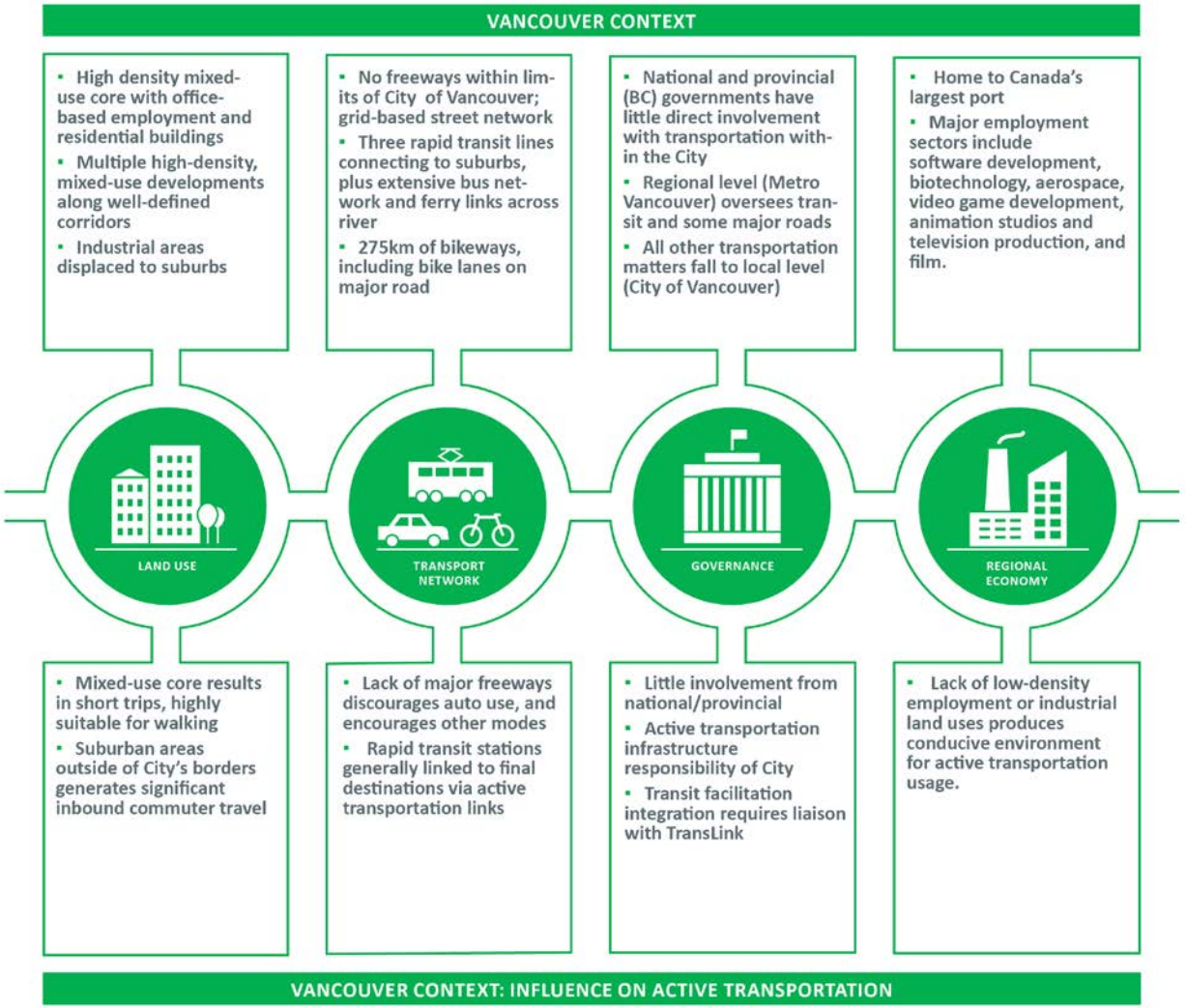
## Vancouver

4.74 In aspiring to become the 'world's greenest city' by 2020, the City of Vancouver has made policy decisions and infrastructure investments to support active transportation modes. With a focus on bicycle infrastructure and public space activation, the city has already met 2020 mode share targets and is seeking improve further. Vancouver is supported by TransLink, the regional transit agency, and Metro Vancouver, the regional planning body, who reinforce local decisions with progressive land-use guidance and support for bicycle-transit integration.

### Key lessons

4.75 Vancouver has clearly articulated a commitment to their Green City actions and brand. This policy commitment pervades the City's efforts in active transportation and brings walking and particularly cycling, to the forefront. Bike infrastructure on key routes and road closures for motorized users reinforce the image that Vancouver is a city for cycling, attracting more new bike users.

4.76 Safety has been a key issue in the past that has been addressed with separated bike lanes, with even small children cycling downtown. In addition, the extensive network of lanes, greenways and neighborhood routes provides interconnections throughout the city, with clear signage and often wayfinding between infrastructure types.



**Four drivers**

*Land use*

4.77 The City of Vancouver has a population of just over 600,000, and is the anchor city for Canada's third-largest metropolitan area, which has a population of almost 2.5 million. Vancouver is characterized by high-density, mixed-use developments along well defined corridors which serve as focal points for densification. These are predominantly situated along key transportation routes including rapid bus and transit lines.

4.78 Being surrounded by suburbs, and with extremely high land values, Vancouver has redeveloped the majority of former industrial areas, and has placed strict limits on big-box and business park type development. This has afforded the city a relatively accessible street network with few areas where land uses discourage active modes use.

*Transportation*

4.79 The City of Vancouver has a quadri-linear street grid, without freeways within city limits, a result of protests against expansion in the 1950's and 60's. Bottlenecks are often seen at bridges which connect the City to neighbouring suburbs. The City of Vancouver is a significant regional destination for commuters, though increasingly commutes occur between suburbs, as well as into the downtown.

4.80 Three rapid transit 'Skytrain' lines operate between inner suburbs and the city centre, with an extension to one of the lines expected to open in 2016. A ferry service also provides a connection across an inlet to northern suburbs, while the majority of transit service is provided via bus. Transit ridership within the city is generally at capacity, with 477,000 trips per day recorded in 2014.

4.81 Known for substantial improvements to cycling infrastructure in recent years, Vancouver has a network of separated bike lanes through the downtown core. There is a total bike network of 275km. This includes bike lanes along most major roads, and designated bike routes through neighbourhood streets where traffic calming and closing roads to cars have made them accessible to all types of cyclists.

4.82 Vancouver's bike route network includes several core routes featuring "protected bikeways". These feature dedicated bike lanes with concrete medians and planters or parking lanes that divide them from vehicle traffic. The separation is intended to improve the perception of safety, and hence attract new users to cycling.

4.83 Protected bikeways are used on routes focused on the downtown core, and also serving Stanley Park. The separated routes are intended to promote cycling amongst people who are wary of cycling in mixed traffic. They thus play a role in encouraging new cyclists.

4.84 With a large proportion of residents living in downtown Vancouver, and a focus on housing densification in key growth areas, walking is also increasingly seen as a viable mode of transport. Vancouver's network of off-street bike paths, in particular the 'Seawall' which follows the coastline around downtown and into adjacent neighbourhoods, also encourages leisure walk and bike trips, or utility trips for less confident cyclists. These paths have recently been connected to the protected bikeways network downtown.

4.85 The wider bikeway network mostly uses signed routes on local streets with low traffic volumes. Bike lanes are provided on some major

roads, typically where there is no suitable parallel minor road. Wayfinding is typically limited to signs indicating the name of the route/street.

*Governance*

4.86 Regional governance is overseen by Metro Vancouver, with representatives from each municipality in the region forming a Mayor's Council to support regional decision-making. With the exception of transit and select regional roads, the City of Vancouver has full authority over the transportation system. Transit is provided by TransLink, which operates at a regional level with input from member municipalities through a joint Mayor's Council.

4.87 Active transportation infrastructure and programs are planned and implemented by the City staff. Oversight is provided by Council, and the Active Transportation Policy Council. The latter is comprised of members of the public, and provides input about active transportation issues.

4.88 The City's transportation plan *Transportation 2040: Moving Forward* sets out the strategic direction and policies to staff for active transportation planning. It includes specific short-term and long-term targets walking and cycling mode share.

*Economy*

4.89 As the economic centre of British Columbia, Vancouver has important functions in the regional economy. Canada's largest port, and a major destination on the west coast, Vancouver is a major west coast port city, and is an important North American connection to Asia.

4.90 Vancouver is home to the headquarters of many forest product and mining companies. In recent years, it has become an increasingly important centre for software development, biotechnology, aerospace, video game development, animation studios and television production and film.

**Practice review and lessons for the GTHA**

4.91 Table 4.1 sets out key practices for supporting active transportation used by the City of Vancouver, along with their potential applications for the GTHA.

4.92 Vancouver's Transportation 2040 Plan, and the Greenest City Action plan, both set policy directions for active transportation investments. With the stated goal of making walking, cycling, and public transit preferred transportation options, Vancouver's 2020 targets have already been achieved, with 50% of trips made by walking, cycling or transit, and a 21% decrease in vehicle kilometres driven noted since 2007.

4.93 Priority actions for the next five years include improving walking and cycling infrastructure on the bridges into downtown and implementing spot improvements throughout the existing walking and cycling networks. Implementing a bike sharing program has also been prioritized, though British Columbia's mandatory helmet law has proved to be among the challenges the system has faced, with custom helmet vending machines currently in development.

**Table 4.1: Vancouver key active transportation practices**

| Measure | Component Type (Scale) | Connected Commuter Network | Higher-order Transit Connections | Local transit connections | Commercial connections | Leisure connections | Education connections | Details | Application to the GTHA |
|---|---|---|---|---|---|---|---|---|---|
| Separated Bike Lanes | Bikeways (Municipal) | ✓ | | ✓ | ✓ | | | A five-route network of barrier separated lanes along key routes within the core of the city. | Exemplar of high-quality bike corridors |
| Protected Bike Routes | Bikeways (Municipal) | ✓ | ✓ | ✓ | ✓ | | | Signed 'quiet-ways' with traffic calming measures in neighborhoods throughout the city. | Similar measures in use in some places in the GTHA; could be used more widely |
| Bike Parking & Corrals | Cycle parking (Municipal) | ✓ | | | ✓ | | | City-designed 'Bike Vancouver" horseshoe racks along all commercial corridors and other destinations. Corrals in former parking spaces in high activity areas. Over 800 have been installed since 2012.[16] | Most commercial nodes in the GTHA would benefit from these facilities |
| Bike Fix Stations and Counters | Programming (Municipal) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Provide basic tools and tire pumps, and install public-facing bike counters at high traffic locations. | May require minimum level of cycling usage at a given location to be worthwhile. Could be applied on a seasonal basis (e.g. popular portions of Waterfront Trail during summer). |

[16] Source: **http://data.vancouver.ca/datacatalogue/bikeRacks.htm**

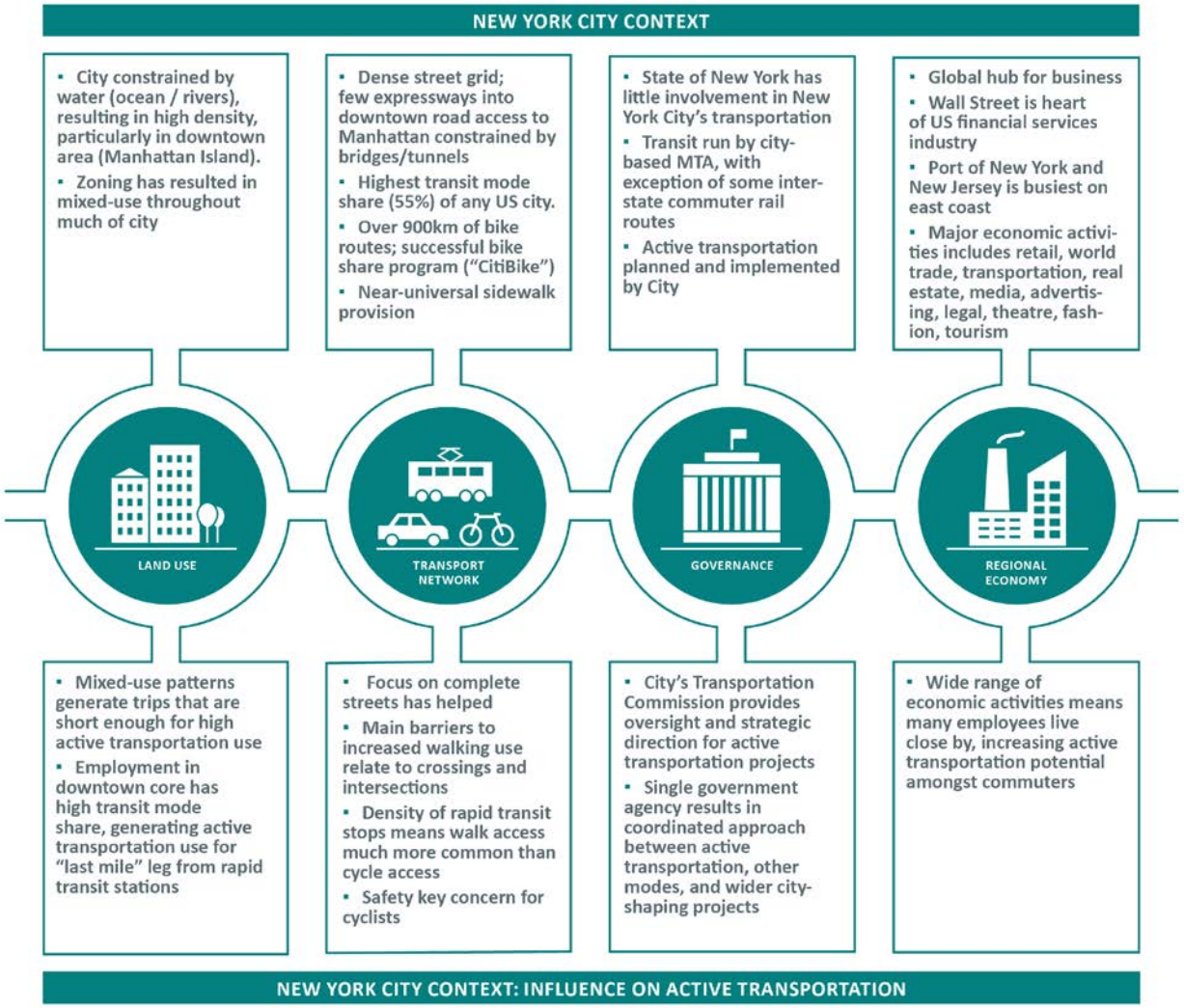
| Measure | Component Type (Scale) | Connected Commuter Network | Higher-order Transit Connections | Local transit connections | Commercial connections | Leisure connections | Education connections | Details | Application to the GTHA |
|---|---|---|---|---|---|---|---|---|---|
| Bike Parking Minimum Requirements | Policy (Municipal) | ✓ | | | ✓ | ✓ | ✓ | Sets bike parking space minimums for a range of uses. For example, multi-unit residential buildings must provide 1.25 spaces per unit, schools and hospitals must provide one space per 17 employees, and office uses musty provide one space per 500m². | Some GTHA municipalities already do this; should be made universal. |
| VIVA Vancouver | Programming (Municipal) | | | | ✓ | ✓ | | Public space activation in the city core encompassing summertime street closures and festivals, the creation of 'parklets' in parking spaces, and other placemaking activities. 2015 saw four locations host events. | Street closures / festivals already used in multiple GTHA municipalities for special events. Potential to be recurring event, rather than one-off (e.g. summer Sundays). |
| Transit-bike integration | Infrastructure (Regional) | | ✓ | ✓ | | | | Bike parking at all rapid transit stations, with secure facilities at select key locations. Currently 92 racks across 17 stations.<br>Bike racks carrying two bikes on all buses; bikes permitted on the rapid transit except peak periods on select services, with dedicated parking in newer vehicles | Cycle parking provision at rapid transit stations (varies considerably.<br>All GTHA transit agencies buses have bike racks. Bikes generally permitted on transit vehicles except peak period GO buses and subway trains. |

## New York City

4.94 New York City has recently come into the limelight for their large-scale investment in active modes. The transformation of roads into public spaces, and, at times controversial, investment in bicycle network expansion and separated lanes has seen cycling modes shares grow significantly over the past five years. With a focus on safety, New York streets are increasingly becoming places where all modes are welcome.

### Key lessons

- Adopt a multi-program approach towards encouraging active transportation use, with programs targeted at different potential market segments
- Recognise that safety is a first step to widespread usage, and hence focus on reducing traffic fatalities through targeted infrastructure improvements in high-risk areas
- Engage a wide range of place-making activities
- Encourage residents and visitors to enjoy the communities they visit through the provision of seating, plaza designation and bench installations
- Implement widespread bicycle network improvements to raise the profile of cycling
- Create separated lanes to support the perception that cycling is for everyone,



**Four drivers**

*Land use*

4.95 Located at the mouth of the Hudson River on a large harbour, New York City (area: 800km²) is constrained by water on most sides. This has resulted in its development as the densest city in North America. With a growing population in excess of 8 million, housing affordability is a major issue, with recent changes in zoning regulations aimed at removing barriers to housing production, modernizing standards to encourage mixed-used and mixed-income buildings.

4.96 The City is organized into five boroughs, each with its own distinct character, and hundreds of individual neighborhoods within each of the boroughs. Though previously known for industrial and manufacturing uses, these are increasingly being pushed out of the city as demand for more profitable uses rises.

*Transportation*

4.97 New York has a complex and well-developed transportation system, providing a range of multi-modal options to residents and visitors. With the highest transit mode share in the United States, at around 55%, a majority of New Yorkers do not own cars. Despite this anomaly, New York's street grid is well-known and has defined the shape of the city. Being surrounded by water, the bridges and tunnels surrounding the city provide access to neighbouring areas, while a network of expressways and car-only parkways are frequently congested.

4.98 The public transit system is run by the Metropolitan Transportation Authority, a public corporation that runs all bus, subway and two-thirds of the commuter rail services. The New York City Subway forms the core of service, with over 1,000km of track. With 24-hour service, there were 1.71 billion rides on the system in 2013, with an average of 5.5 million each weekday. Commuter rail also plays an important role, with around 250 stations on 20 rail lines serving New York, New Jersey and Connecticut.

4.99 Bus service in New York, though not as well-known as subway, still carries 2.5 million daily passengers, on 238 local routes, 62 express routes and 7 Select Bus Service (BRT) routes. In addition to a range of private services, the Staten Island Ferry carries 5.2 million passengers annually on a 5.2 mile route between Staten Island and Lower Manhattan.

4.100 With a walk mode share around 10%, and a cycling mode share that has just reached 1% for commuters, New York has put significant effort into improving options for walking and cycling. Bike lane improvements and expansion have seen the network almost double in size to over 900km since 2008, with an estimated 200,000 residents biking each day. The CitiBike bike share system was launched in 2013 to widespread success.

4.101 Walking in New York has become increasingly comfortable with a focus on 'complete streets' development and the activation and creation of accessible public spaces. Reallocating space between modes to accommodate all users has been successful, with the well-publicized transformation 2.5 acres of car lanes along Broadway into new pedestrian spaces reducing pedestrian injuries and improving travel times.

*Governance*

4.102 New York City is a metropolitan municipality with an elected mayor and council. More centralized than other US cities, the government is responsible for education, corrections, libraries, sanitation, water supply and public safety. Each of the city's five boroughs has an elected president which can make recommendations and introduce legislation to city council. There are also community boards which represent the 59 community districts in the

city which may provide input into local issues including land use and planning.

4.103 The New York City Department of Transportation (NYC DOT) is responsible for the day-to-day maintenance of the city's streets infrastructure, managing parking, and operating the Stated Island Ferry. NYC DOT is also responsible for transportation planning functions including encouraging the use of mass transit and walking/cycling, through infrastructure design and programming.

4.104 The NYC DOT is governed by six commissioners, one from each of the five boroughs, plus one appointed by the City's Mayor. They provide oversight and direction of the DOT's planning and execution of all projects, including those involving active transportation.

4.105 City staff plan and implement all active transportation projects. Interaction between modes is managed by coordinating with other staff within the DOT.

*Economy*

4.106 New York is a global hub for business with a major presence in retail, world trade, transportation, real estate, new and traditional media, advertising, legal services, accountancy, insurance, entertainment, and fashion. Wall Street is at the heart of the US financial services industry, while 'Silicon Alley' (the City's high technology hub) is also increasingly influential.

4.107 The Port of New York and New Jersey is also a major economic contributor, as the third busiest port in the United States, and the busiest on the east coast. With a large number of major attractions, tourism is also vital to New York's economy, with 56.4 million visitors in 2014.

4.108 New York is a major employment hub, and its downtown core is difficult to access by car. Consequently, there is a high transit mode share amongst commuters, and also results in walking being the dominant mode for 'last mile' access from the transit station to the workplace.

4.109 The urban form of the employment core New York typically features street-level commercial, with high-rise (or mid-rise) employment above. There is little on-street parking, and buildings typically have minimal set-back form the street. Together, these create a pedestrian-orientated environment.

4.110 Away from the downtown core, the residential density is typically sufficient to sustain a wide variety of commercial uses within walking distance.

**Practice review and lessons for the GTHA**

4.111 Table 4.2 sets out key practices for supporting active transportation use by New York City, along with their potential applications in the GTHA.

4.112 Safety has been a paramount consideration for the New York City Department of Transportation, with a large portion of transportation investment targeted at reducing traffic fatalities. Significant investments have also been made in expanding the bicycle route network, increasing access to open spaces and animating the streetscape.

**Table 4.2: New York City key active transportation practices**

| Measure | Practice Type (Scale) | Connected Commuter Network | Higher-order Transit Connections | Local transit connections | Commercial connections | Leisure connections | Education connections | Details | Application to the GTHA |
|---|---|---|---|---|---|---|---|---|---|
| Traffic Calming | Infrastructure (municipal) | | | | ✓ | ✓ | ✓ | Road repurposed for plazas, public seating, refuge islands, painted extensions, medians, and bulb outs. | Commercial corridors / historic downtown areas across GTHA. |
| Signal Adjustments | Infrastructure (municipal) | | ✓ | ✓ | ✓ | ✓ | | Leading pedestrian phases to give extra time and visibility when crossing the street. | Not currently used in the GTHA; could be used in select high-traffic locations. |
| Low Speed Zones | Infrastructure (municipal) | ✓ | | ✓ | | | | Slow speed residential and school zones including speed bump installation. | Speed limits typically lower close to schools; speed bumps may not be compatible with school bus use. |
| Protected Bike Lanes | Bikeways (municipal) | ✓ | | | ✓ | ✓ | ✓ | Installation of bike lanes with painted 'buffer' zones, or alongside parking, have reduced cyclist injuries by up to 43% while increasing bike volumes up to 63%. | Potential to be incorporated into standard bike lane design practices, particular when bike lanes are included in a road widening. |
| Bike Parking | Cycle parking (municipal) | ✓ | ✓ | | ✓ | ✓ | | Added 19,000 bike parking racks, as well as transforming 12,000 parking meter poles into additional parking. Bike corrals in high-demand locations. | Cycle parking provision is inconsistent across GTHA; considerable benefits if this policy was applied in the GTHA. |

| Measure | Practice Type (Scale) | Connected Commuter Network | Higher-order Transit Connections | Local transit connections | Commercial connections | Leisure connections | Education connections | Details | Application to the GTHA |
|---|---|---|---|---|---|---|---|---|---|
| Bike Network Expansion | Bikeways (municipal) | ✓ | | | ✓ | | | Addition of over 350 miles of bicycle routes since 2007. Expansion has included providing an extensive bike lane network in lower Manhattan, filling in 'missing links' between sections of the network, and expanding routes towards the periphery of the City. | Most urban GTHA municipalities have plans to expand their bike network. |
| Wayfinding System | Infrastructure (municipal) | | ✓ | ✓ | ✓ | ✓ | | WalkNYC standard wayfinding system provides maps and information to pedestrians. Replaced 68 different styles of neighborhood maps with common approach.<br>Maps have also been incorporated into the 332 CitiBike stations. | City of Toronto currently piloting and implementing wayfinding in downtown core. Potential to include such information in transit stops, and in pedestrian-heavy areas. |
| 6½ Avenue | Sidewalks; pedestrian crossings (local) | ✓ | | | | ✓ | | Decongested sidewalks on adjacent streets by creating a new pedestrian 500m-long 'avenue' linking privately owned public spaces ranging from plazas to lobbies and corridors with crosswalks, signage and traffic calming. | Toronto has the PATH system of underground walkways to alleviate street-level sidewalk congestion. Pedestrian congestion not yet a significant problem elsewhere in the GTHA. |

| Measure | Practice Type (Scale) | Connected Commuter Network | Higher-order Transit Connections | Local transit connections | Commercial connections | Leisure connections | Education connections | Details | Application to the GTHA |
|---|---|---|---|---|---|---|---|---|---|
| CitiBike Bike Share | Bike share (municipal) | ✓ | ✓ | | ✓ | | | Launched in 2013, with a high density of stations (now 332 stations and 6,000 bikes). Daily ridership of 34,000; over 90,000 people with annual passes. Plans to expand service area. | Hamilton and Toronto have bike share programs; latter is expanding. Could be used in other urban centres in GTHA. |
| Weekend Walks | Program (municipal) | | | | | ✓ | | Temporary pedestrian streets in neighborhoods planned and hosted by local partners. 2014 saw 32 weekend walks across all five boroughs. | Some street closures take place in GTHA, but typically for one-off or annual events. Potential for more frequent application. |
| Summer Streets | Program (municipal) | | | | ✓ | ✓ | | Seven miles (11km) of streets closed to cars for three consecutive summer Saturdays. In 2014, program attracted 300,000 people. | Some street closures take place in GTHA, but typically for one-off or annual events. Potential for more frequent application. |
| Plaza Program | Program / Municipal | | | | ✓ | ✓ | | Temporary and permanent plaza installations to increase access to open spaces. Aims to result in all New York residents being within a 10-minute walk of an open space. | Some street closures take place in GTHA, but typically for one-off or annual events. Potential for more frequent application |

| Measure | Practice Type (Scale) | Connected Commuter Network | Higher-order Transit Connections | Local transit connections | Commercial connections | Leisure connections | Education connections | Details | Application to the GTHA |
|---|---|---|---|---|---|---|---|---|---|
| Street Seats | Program / Municipal | | ✓ | ✓ | ✓ | ✓ | | Temporary summer outdoor seating replacing parking spots. Requested and maintained by adjacent local businesses, such as cafes and restaurants. | Suitable for areas where commercial buildings are not set back from sidewalk – strong potential in these locations. |
| CityBench | Program / Municipal | | | ✓ | ✓ | | | To increase public seating, benches are installed at bus stops, retail corridors and areas with many seniors. 750 installed since 2012. | Public seating is generally in use throughout the GTHA; however, typically no municipality-wide policy of seating provision. |
| Safe Streets for Seniors | Program / Municipal | | ✓ | ✓ | ✓ | ✓ | | Intersection enhancements, including medians, safety islands and curb extensions to shorten crossing distances, and calm traffic in high risk locations for seniors. In combination with other programs, the sites saw an 11% decrease in total injuries, a 9% decrease in pedestrian crashes, and a 7% reduction in injury crashes. | Similar measures could be applied in the GTHA for locations with lots of seniors, other vulnerable groups (such as schools), or high pedestrian volumes (such as high-order transit stations). |
| Bike Parking Legislation | Cycle parking / Municipal | ✓ | | | ✓ | | | Requires bicycle parking for each private parking garage accommodating 100 or more motor vehicles. Office buildings must allow access or bicycle parking upon request by a tenant. | Some GTHA municipalities mandate cycle parking; policy could be applied GTHA-wide |

# A Progress since 2008: detailed assessment

A.1 *The Big Move* contains a set of 13 **Goals**, supported by 37 **Objectives**. Although Objectives are listed with a specific Goal, many also support other Goals.

A.2 To achieve the Goals and Objectives, *The Big Move* sets out a set of 10 **Strategies**. Each Strategy includes the following:

- **Priority Actions:** "These are specific and concrete actions that comprise a 'to-do' list that is needed to implement the Strategy. These actions are broad in scope and include actions relating to legislation, policies, programs, planning and funding."
- **Supporting Policies**: "These are policies that are needed to guide day-to-day decision making in support of each Strategy"

A.3 Nine of the Priority Actions are highlighted as **Big Moves**. These are the ones that "will have the largest and most transformational impacts on the GTHA's transportation system".

## Goals and objectives

4.113 *The Big Move* has one Goal specifically related to walking and cycling:

### Goal C / Active and Healthy Lifestyles: Walking and cycling will be attractive and realistic choices for all, including children and seniors.

A.4 This Goal is supported by one Objective:

### Objective 8: Increased share of trips by walking and cycling

A.5 In addition, two other Goals and two associated Objectives relate directly to active transportation.

- **Goal D / Safe and Secure Mobility:** Getting around will be safer and more secure. Parents will feel comfortable allowing and encouraging their children to walk, cycle or take public transit to school.
  - **Objective 11**: Improved safety for cyclists and pedestrians
- **Goal H / Foundation of an Attractive and Well-Planned Region:** : The transportation system will be a cornerstone of city building, helping to create a region that is a destination of choice for new residents and businesses. The transportation system will

help us create valuable, beautiful and attractive places. Roads, streets, transit lines and stations will be designed to benefit both travellers and local residents. The transportation system itself will use less space, and help curb sprawl by supporting more compact and efficient urban forms. Transportation services, particularly transit, will not lag behind population and employment growth.

- **Objective 21**: More transit and pedestrian-friendly streetscapes, and improved walking and cycling amenities

## Strategies

A.6 There is one Strategy in *The Big Move* that directly relates to Active Transportation:

### Strategy #2: Enhance and Expand Active Transportation

A.7 This Strategy is supported by:

- one **Big Move** with two associated **Priority Actions** (2.1 and 2.2)
- six other **Priority Actions** (2.3 to 2.8)
- four **Supporting Policies** (2.9 to 2.12)

A.8 The following sections provide the text for each of these items.

#### Big Moves

### Big Move 4: Complete walking and cycling networks with bike-sharing programs.

##### Big Move Priority Actions

- **Big Move Priority Action 2.1**: Plan and implement complete, integrated walking and cycling networks for the GTHA, including Toronto's PATH system, that address key barriers such as bridges over 400-series highways, rail corridors and major rivers, and missing sidewalks on major roads.
  The cycling networks will bring every GTHA urban resident to within a maximum of one kilometre of a dedicated bicycling facility. This will be supported by a provincial funding commitment increased over time to at least $20 million per year for municipalities to complete the walking and cycling networks.
- **Big Move Priority Action 2.2**: Create pilot bike-sharing programs in major urban centres.

#### Other Priority Actions

- **Priority Action 2.3**: Research, standardize and promote best practices to integrate walking and cycling in road design, such as scramble intersections, bike boxes, and signal prioritization.
- **Priority Action 2.4:** Install bike racks on all buses and Light Rail Transit (LRT) vehicles and amend both the Highway Traffic Act (Section 109) and the Public Vehicles Act (Sections 23 and 24) so that transit vehicles with bike racks do not require special permits.

- **Priority Action 2.5:** Establish a coordinated, region-wide bicycle registry with the ability to report and search for stolen bikes.
- **Priority Action 2.6:** Consider changes to the Highway Traffic Act that implement the 1998 recommendations of the Regional Coroner for Toronto to provide greater clarity with respect to the relationship between motorists and cyclists in areas such as safety equipment, lane positioning and passing procedures.
- **Priority Action 2.7:** Implement or expand safe cycling training programs, similar to the Commuter Cycling Skills Course offered in the Vancouver area, or the CAN-BIKE courses offered by municipalities across Canada.
- **Priority Action 2.8**: Undertake Active Transportation Master Plans and incorporate them into municipal Transportation Master Plans.

**Supporting Policies**

- **Supporting policy 2.9:** Opportunities for promoting active transportation and connecting key destinations, including mobility hubs and major transit station areas, shall be identified and implemented when designing greenways strategies and park systems.
- **Supporting policy 2.10**: Enabling Official Plan policies to support active transportation shall be adopted. Where appropriate, the bonusing provisions under the Planning Act should be used to require that any application for major commercial, employment or multiple residential development, particularly in a mobility hub, provides appropriate facilities for cyclists and pedestrians such as secure bike storage, showers and change rooms.
- **Supporting policy 2.11**: School catchment areas shall be defined, and school campuses shall be designed, to maximize walking and cycling as the primary means of school travel.
- **Supporting policy 2.12**: Sidewalks should be required on all new regional and new local roads inside settlement areas.

## Progress towards Goals, Objectives and Strategies in *The Big Move*

A.9 The objectives associated with each of the Goals in *The Big Move* provide a way to measure the progress in meeting that Goal. This section examines the relevant objectives, and what progress has been made. It also examines what progress has been made towards the Priority Actions associated with Strategy #2 ("Enhance and Expand Active Transportation"), and in implementing the Supporting Policies.

**Objective 8 (Mode share)**

### Objective 8: Increased share of trips by walking and cycling

A.10 The *Transportation Tomorrow Survey* (TTS) records the mode for trips made by GTHA residents. It takes place every five years, with the most recent survey being in 2011. This was only three years after *The Big Move* was finalised (in 2008).

**Table A.1: Change in walking and cycling trips from 2006 to 2011**

| Locale of household | Number of walk trips | | | Mode share | | |
|---|---|---|---|---|---|---|
| | 2006 | 2011 | Change | 2006 | 2011 | Change |
| Toronto | 337,889 | 359,525 | +21,636 | 7.1% | 7.0% | -0.1% |
| Durham | 63,554 | 55,801 | -7,753 | 5.2% | 4.2% | -1.0% |
| York | 77,695 | 78,532 | +837 | 4.2% | 3.5% | -0.7% |
| Peel | 114,915 | 117,979 | +3,064 | 4.9% | 4.4% | -0.5% |
| Halton | 40,680 | 39,463 | -1,217 | 4.1% | 3.5% | -0.6% |
| Hamilton | 59,869 | 52,300 | -7,569 | 5.7% | 4.7% | -1.0% |
| *905 region* | *356,713* | *344,075* | *-12,638* | *4.8%* | *4.1%* | *-0.7%* |
| **GTHA** | 694,602 | 703,600 | +8,998 | 5.7% | 5.2% | -0.5% |

| Locale of household | Number of cycling trips | | | Mode share | | |
|---|---|---|---|---|---|---|
| | 2006 | 2011 | Change | 2006 | 2011 | Change |
| Toronto | 54,022 | 96,084 | +42,062 | 1.1% | 1.9% | +0.7% |
| Durham | 3,399 | 4,100 | +701 | 0.3% | 0.3% | +0.0% |
| York | 3,947 | 6,687 | +2,740 | 0.2% | 0.3% | +0.1% |
| Peel | 6,262 | 7,214 | +952 | 0.3% | 0.3% | 0.0% |
| Halton | 3,903 | 5,544 | +1,641 | 0.4% | 0.5% | +0.1% |
| Hamilton | 5,528 | 6,864 | +1,336 | 0.5% | 0.6% | +0.1% |
| *905 region* | *23,039* | *30,409* | *+7,370* | *0.3%* | *0.4%* | *+0.1%* |
| **GTHA** | 77,061 | 126,493 | +49,432 | 0.6% | 0.9% | +0.3% |

Source: 2011 Transportation Tomorrow Survey, all trips within GTHA

A.11 Table A.1 shows the change in walking and cycling trips and mode share observed by TTS from 2006 to 2011. That table shows that the cycling mode share generally increased, but the walking mode share generally decreased.

A.12 The combined active transportation mode share for active transportation fell slightly across the GTHA. The only increase took place in Toronto.

A.13 Overall, this objective has not yet been met.

**Objective 11 (Safety)**

## Objective 11: Improved safety for cyclists and pedestrians

A.14 There is a lack of readily-available statistics on safety for cyclists and pedestrians in the GTHA, especially those which provide a multi-year comparison. The Chief Coroner for Ontario produced a report[17] that examined cycling deaths in Ontario from 2006 to 2010:

- 2006: 41
- 2007: 29
- 2008: 20
- 2009: 14
- 2010: 25

A.15 Given *The Big Move* was published in 2008, and the magnitude of the number of deaths, it is difficult to draw any statistically significant conclusions about whether cycling safety has improved.

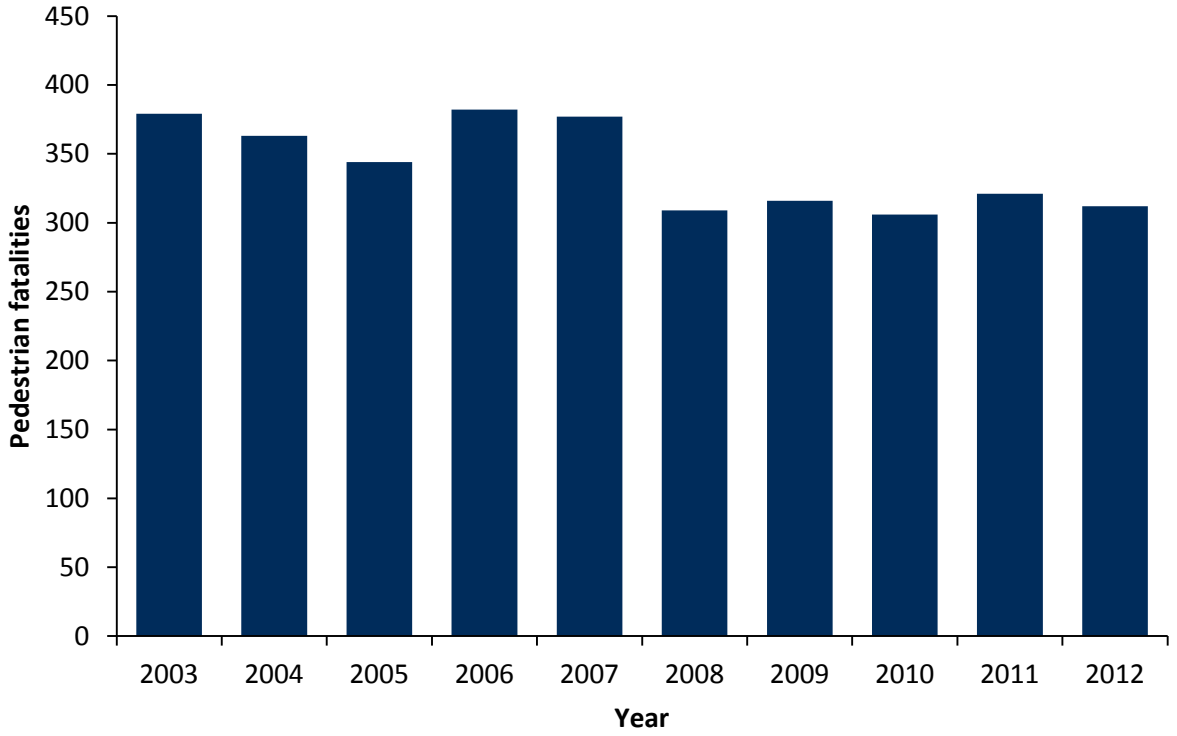
**National pedestrian fatalities**

A.16 Canada-wide pedestrian fatalities by year are available from Transport Canada, and these are shown in Figure A.1. (Historical data for Ontario or the GTHA is not readily available).

A.17 The chart shows that no significant change in national pedestrian fatalities has occurred since *The Big Move* was published in 2008. Although no GTHA-specific conclusions can be drawn from this data, it does illustrate that there is no overall trend towards improved pedestrian safety.

[17] *Cycling Death Review: A Review of All Accidental Cycling Deaths in Ontario from January 1st, 2006 to December 31st, 2010*, Office of the Chief Coroner for Ontario (June 2012)

**Figure A.1: Canada Pedestrian Fatalities by Year (2003 to 2012)**




Source: Canadian Motor Vehicle Traffic Collision Statistics [18] [19]

[18] *Canadian Motor Vehicle Traffic Collision Statistics: 2007*, Transport Canada publication (2010)

[19] *Canadian Motor Vehicle Traffic Collision Statistics: 2012*, Transport Canada publication (2014)

**City of Toronto Deaths and Injuries**

A.18 The City of Toronto published a report on pedestrians and cyclist safety in June 2015.[20] Although this covers only part of the GTHA, it does illustrate some of the key issues and trends.

A.19 The report shows that the number of pedestrian deaths and injuries per year generally fell from 2003 to 2008, and has remained broadly stable since then. The rate (deaths and injuries per million trips) has followed the same trend, as the number of pedestrian trips has not significantly changed.

A.20 For cyclists, the number of cyclist deaths and injuries per year had a slight downward trend form 2003 to 2008, with a much stronger upward trend from 2008 to date. However, the rate (deaths and injuries per million trips) has fallen significantly from 2005 to date. This implies the increase in the number of deaths and injuries is attributable to the increase in cycling levels. Individual cycling trips have become safer.

A.21 For the City of Toronto, the report implies safety has improved for cyclists since 2008, but has not improved for pedestrians.

**Conclusion**

A.22 This objective does set a measurable target (e.g. "reduce cycling and pedestrian deaths in the GTHA by 50%"). Consequently, even if suitable data was available, it would difficult to determine whether or not the target had been met in a meaningful way.

A.23 Overall, the lack of available data and precise definition of "improved safety" makes it difficult to determine whether this objective has been met.

**Objective 21 (Streetscapes)**

## More transit and pedestrian-friendly streetscapes, and improved walking and cycling amenities

A.24 The Ontario government developed transit-supportive guidelines in 2012 to provide a suite of best practices in land use planning, urban design, and transit operations to create environments that support public transit. The guidelines provide direction in designing streets that support pedestrians and cyclists and accommodate better access to transit services.

A.25 Various GTHA municipalities have conducted plans and studies in the development of more transit pedestrian- and bike-friendly streetscapes. Aside from active transportation plans (outlined in Priority Action 2.8), studies that pertain specifically on enhancing streetscapes to accommodating walking and cycling include:

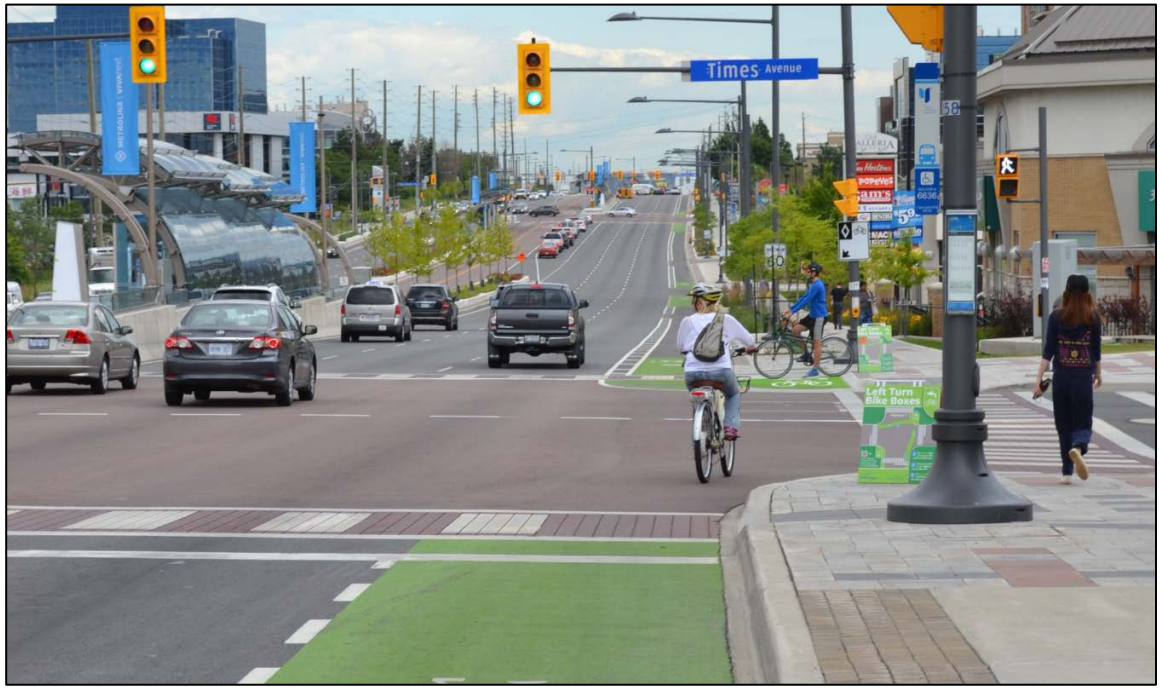
- York Region Designing Great Streets Guidelines
- Durham Region Arterial Corridor Guidelines
- Toronto Complete Streets Guidelines (*currently underway*); Toronto Walking Strategy
- Hurontario-Main Street Master Plan; Mississauga Downtown21 Master Plan
- Metrolinx Mobility Hub Guidelines

A.26 These plans, guidelines, and strategies have been provided further resources for planners, designers, and developers to improve streetscapes that better accommodate a more balanced set of modes and incremental changes can be expected in the near term.

[20] Toronto Public Health. *Pedestrian and Cyclist Safety in Toronto.* June 2015. **www.toronto.ca/legdocs/mmis/2015/hl/bgrd/backgroundfile-81601.pdf**

**Highway 7, York Region**

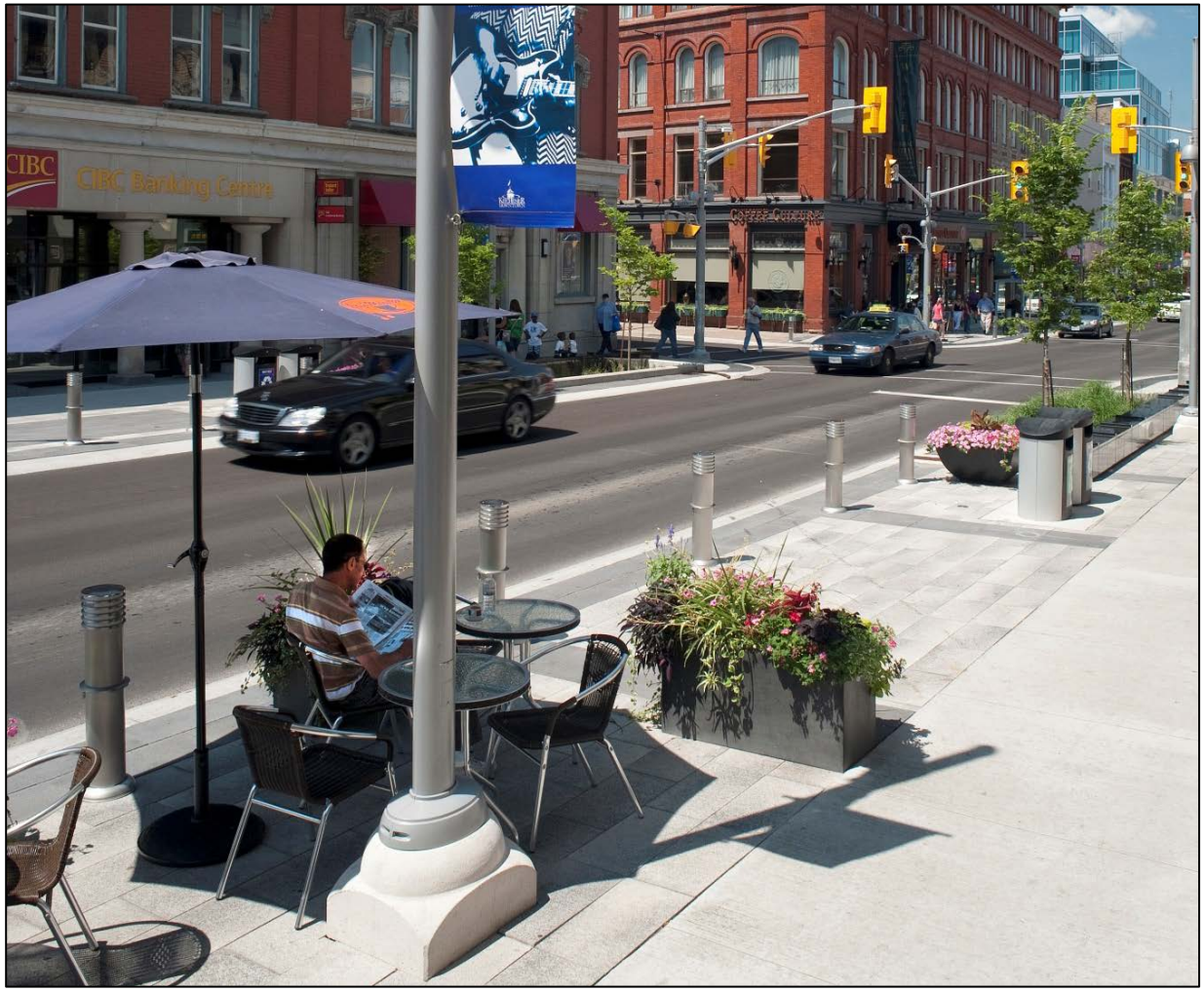
A.27 One of the more dramatic changes in the application of more pedestrian- and bike-friendly streetscapes is along Highway 7 East in York Region. Here, the busy corridor was transformed from a primarily automobile-oriented main thoroughfare to a high quality avenue that accommodates a variety of different modes. The construction work on the corridor was completed in conjunction with the development of new Viva bus-only 'rapidways' along the road median. Improvements include new bike lanes and pedestrian realm enhancements, including and new and widened sidewalks as well as new street vegetation. The Official Plans of York Region, Markham and Richmond Hill all include land use and design policies that support Highway 7's evolution as an urban pedestrian and cycle-friendly corridor.




Source: Regional Municipality of York

**King Street, Kitchener**

A.28 An example of an existing pedestrian-friendly streetscape just outside the GTHA is King Street, Kitchener. This is Kitchener's downtown main street, which underwent a dramatic revitalization effort to reconstruct the street to include widened sidewalks, new lighting fixtures, and urban street amenities (e.g. benches, receptacles) to enhance the walking experience in Kitchener's downtown. The street also incorporated shared space principles (such as lowered, smoothed out curbs) intended to enhance pedestrian safety by slowing down vehicle speeds. They encourage motorists to make greater eye contact with pedestrians, and hence allow for safer navigation through the street network.




Source: Toronto Centre for Active Transportation

**Hamilton Guidelines**

A.29 The City of Hamilton's *Transit-Oriented Development Guidelines* were adopted by the City's council in 2010. They are intended to be used as a "tool to guide development that recognizes the important relationship between land use and transportation planning". Despite their name, the guidelines include numerous measures to encourage the use of active transportation, both for complete trips and as part of a transit trip.

A.30 The *Guidelines* identify various types of development, of which one (urban corridor) is discussed here in more detail.

A.31 Urban corridors are places where suitable development can be encouraged along a corridor, rather than being concentrated around a single node (such as a major transit interchange). They may contain a rapid transit corridor, and areas around the rapid transit stations may have higher densities than the general corridor.

A.32 The development along an urban corridor should have "a high degree of pedestrian and cycling amenities clustered near the transit stations." In addition, the mixture of uses associated with the development will result in more trips being sufficiently short for active transportation.

A.33 The City also developed the *City-Wide Corridor Planning Principles and Design Guidelines* in 2012 to provide direction for new development, public realm investments and future planning studies along the City's primary and secondary corridors as defined in the Urban Hamilton Official Plan.

A.34 The planning principles in these guidelines support the need to enhance the pedestrian and cycling experience by developing compact, mixed use urban environments and creating visual interest and interaction by promoting more active frontages.

A.35 The guidelines focus primarily on providing direction on built form and function (e.g. considering building height and massing to minimizing shade and winds, discouraging auto-oriented uses fronting on the main street). The document also provides guidance to developing a high-quality public realm—describing the desired width of walkways and location of street furniture, vegetation, and street illumination.

**Conclusion**

A.36 The two examples above highlight that progress has been in some areas towards increasing the number of transit and pedestrian-friendly streetscapes. However, these are isolated examples, and there is a lack of region-wide efforts in this area.

A.37 The means for improving streetscapes are primarily within the powers of the (lower-tier) municipalities. In general, GTHA municipalities have yet to create the necessary standards and plans. Further, the timescale to transform an existing roadway to a complete street is not short. These two factors limit the amount of progress that could have been made since 2008.

A.38 Overall, there has not been much progress in planning or creating transit-friendly and pedestrian-friendly streetscapes.

**Big Move Priority Action 2.1 (Creation of a complete walking and cycling network)**

Plan and implement complete, integrated walking and cycling networks for the GTHA, addressing key barriers such as bridges over 400-series highways, rail corridors and major rivers, and missing sidewalks on major roads.
The cycling networks will bring every GTHA urban resident to within a maximum of one kilometre of a dedicated bicycling facility.
This will be supported by a provincial funding commitment increased over time to at least $20 million per year for municipalities to complete the walking and cycling networks.

A.39 This Priority Action has three distinct parts, which will be considered here separately:

- Planning and implementation of a walking and cycling network
- GTHA urban residents are within 1km of a bicycling facility
- Provincial funding commitment of $20m/year.

*Planning and implementation of a walking and cycling network*

A.40 Achieving this goal requires that the municipalities create effective active transportation plans. These are discussed in detail as part of the basement of Priority Action 2.8 (below), and that discussion is not repeated here. The implementation aspect follows directly from the plans – without a plan, there is nothing to implement. In general, municipalities have adopted a 'little-and-often' approach to implementation, where small improvements done every year.

A.41 This part of the Priority Action addresses one of the key needs for active transportation in the GTHA.

*GTHA urban residents are within 1km of a bicycling facility*

A.42 The term 'urban' is not formally defined in *The Big Move*. Consequently, this paper will define it as areas where there combined population and jobs per square kilometer is greater than 100.

A.43 As discussed in previous sections, the GTHA's bikeway network includes a multitude of short, unconnected components. These short, isolated links do not (yet) provide an effective cycling facility for active transportation users. This is because they are unlikely to be usable for trips of meaningful length. Consequently, this assessment will restrict "bicycling facility" to bikeways forming part of a connected network 5km or more in size

A.44 Using these parameters, it was found that 76% of GTHA urban residents live within 1km of a cycling facility.[21]

A.45 Examining the data in more details reveals that in most GTHA municipalities, over half of urban residents are within 1km of a cycling facility. The exceptions are the Halton Hills, Caledon (both largely rural); Clarington (which comprises multiple isolated urban areas); and Vaughan.

[21] This excludes Pickering and Oshawa, for data availability reasons. Depending on exact coverage within those municipalities, the actual figure is in the range of 73% to 77%.

A.46 In the City of Toronto, there is a significant difference between the general downtown area and the northern half of the City. Almost all the downtown area is within 1km of bicycling facility. However, there are large areas in the northern half of the City more than 1km from a bicycling facility.

A.47 Although not a target in *The Big Move*, analysis of the percentage of jobs within 1km of a cycling facility shows broadly similar trends.

A.48 The target in *The Big Move* is unambiguous and ambitious: *every* GTHA urban resident (100%) should be within 1km of a cycling facility. The current figure of 76% shows that considerable progress has been made towards this target, but that significant work remains.

A.49 This part of the Priority Action provides a key metric to monitor the provision of active transportation infrastructure in the GTHA.

*Provincial funding commitment of $20m/year*

A.50 A one-off announcement of $10m in funding for cycling infrastructure over three years was made by the Province in June 2015 (the 'Ontario Municipal Cycling Infrastructure Program'). This funding commitment represents a positive step towards implementing this Priory Action. However, was not implied to be an annual funding commitment.

A.51 In addition the CycleON 20-year strategy provides a vision and long-term goals for cycling in Ontario. It identifies clear actions that Ontario government ministries and agencies will be working on in 2014 and beyond to make Ontario a more cycling-friendly province.

A.52 In conclusion, this part of the Priority Action has not yet been met. Steady on-going funding is most effective way to create the low-cost infrastructure needed for active transportation. However, the precise amount and source may need to be reviewed.

**Big Move Priority Action 2.2 (Bike-sharing programs)**

Create pilot bike-sharing programs in major urban centres.

A.53 As of 2015, there are two public bike-sharing programs in operation in the GTHA. One operates in downtown Toronto, and the other in downtown Hamilton and Dundas. Although a minimum number is not specified, the context implies more than two, as the GTHA has multiple major urban centres.

A.54 Metrolinx announced in June 2015 that it will provide $4.9m for expansion of Toronto's bike-share program. According to the funding announcement, the expansion will "more than double the size of the current network".

A.55 Overall, there has been progress made towards implementing this Priority Action, but additional steps are still required.

A.56 Additional review should be undertaken to establish the criteria for create additional bike-share programs.

**Priority Action 2.3 (Research, standardize and promote best practices)**

Research, standardize and promote best practices to integrate walking and cycling in road design, such as scramble intersections, bike boxes, and signal prioritization.

A.57 This Priority Action does not explicitly state who is to carry out the research. Consequently, it will be assumed that Metrolinx was the intended researcher. Information provided by Metrolinx staff indicates that no such research has been conducted to date.

A.58 Some municipalities have assessed best practices as part of their active transportation plans. These have been used to inform detailed design of roadway elements involving active transportation (particularly) cycling. However, the exact approach has varied by municipality, and hence there is lack of standardization.

A.59 The *Ontario Traffic Manual Book 18: Cycling Facilities* aims to provide this standardization. It gives typical geometry and layout for various types of on-road cycling facilities. The information presented describes the range of current practices, but falls short of recommendations for best practices. In particular, the recommendations for the *type* of bikeway are based purely on the degree of separation. There is no discussion on the relative merits of different bikeway types with similar separation characteristics.

A.60 Overall, Priority Action has not yet been implemented, as there is no applicable region-wide coordination or standardization.

**Priority Action 2.4 (Bike racks on transit vehicles)**

Install bike racks on all buses and Light Rail Transit (LRT) vehicles and amend both the Highway Traffic Act (Section 109) and the Public Vehicles Act (Sections 23 and 24) so that transit vehicles with bike racks do not require special permits.

A.61 In 2011, Metrolinx funded 2,371 new bike racks for buses as one its 'Quick Win'. As of 2015, virtually all buses operated by GO Transit and local transit agencies in the GTHA are equipped with bike racks.

A.62 Section 24 of the *Public Vehicles Act* prohibits transit vehicles from carrying any luggage or other load "extends beyond the body limits of the vehicle".[22] This includes bike racks.

A.63 The *Highway Traffic Act* Section 109, paragraph 11 states "No bus or recreational vehicle shall exceed the length of 12.5 metres while on a highway".[23] (In this context, "highway" means any public road.) For some transit vehicles, this may prevent the addition of bike racks, as it would increase the length beyond this maximum.

A.64 GTHA Transit agencies apply each year to MTO for a permit that exempts them from the relevant prohibitions. For each agency, one permit is required for each municipality in which they operate. The paperwork requirement is not considered too onerous. However, it does create work that would be avoided is the relevant laws were changed.

A.65 Overall, this Priority Action has been partially implemented. This is because bike racks have been installed, but transit agencies must continue to apply for special permits.

**Priority Action 2.5 (Region-wide bike registry)**

Establish a coordinated, region-wide bicycle registry with the ability to report and search for stolen bikes.

[22] R.S.O. 1990, c.P.54, s.24.

[23] RSO 1990, c8, s. 109; 2010, c. 16, Sched. 12, s. 2 (12).

A.66 As of 2015, no region-wide bicycle registry has been established. Consequently, this Priority Action has not yet been implemented.

A.67 The need for this Priority Action may need to be reconsidered.

**Priority Action 2.6 (Recommendations of the Regional Coroner for Toronto)**

Consider changes to the Highway Traffic Act that implement the 1998 recommendations of the Regional Coroner for Toronto to provide greater clarity with respect to the relationship between motorists and cyclists in areas such as safety equipment, lane positioning and passing procedures.

A.68 The 1998 recommendations of the Regional Coroner for Toronto[24] covered seven different areas, with fifteen specific recommendations. This Priority Action does not require that all these recommendations be implemented – only that those relating to changes to the *Highway Traffic Act* are considered. For this report, this is taken to cover three specific recommendations:

- **Recommendation #10** *(Collision prevention – enforcement)* **:** That the Toronto Police Service, in partnership with the municipal Cycling Committee, expand targeted enforcement and education efforts towards specific behaviours (cyclists and drivers) which cause collisions, and use the media to raise awareness of these behaviours.
- **Recommendation #11** *(Collision prevention – enforcement):* That the concept of diversion programs, in lieu of paying a fine for cycling-related traffic infractions in the City of Toronto, be given further study and consideration.
- **Recommendation #12** ***(****Legislative review)*: That the Ministry of Transportation establish an expert review process (involving provincial and municipal representatives, cycling organizations and police) to recommend changes to the Provincial Highway Traffic Act and Municipal By-Laws so that they are more consistent and understandable with respect to cycling and cyclists and therefore easier to promote and enforce.

A.69 An additional recommendation (#15) covered 'side guards' for large trucks, trailers and buses operated in urban areas. Although this could be achieved through changes to the *Highway Traffic Act*, the phrasing indicates it should be a federal responsibility. Consequently, it is not considered here.

A.70 Recommendation #10 calls for greater cycling safety education and enforcement efforts were included as major directions in the Ontario Cycle Strategy (CycleON). Specific legislative changes governing traffic offenses were proposed as part of Bill 173 *Highway Traffic Amendment Act*, 2014.

A.71 Recommendation #11 included considering permitting other activities in lieu of paying a fine for cycling-related traffic infractions. This concept was not included as part of the latest round of legislative changes as part of Bill 173 *Highway Traffic Amendment Act*, 2014. However, it was reported that for some infractions, such as not having proper lights and a bell, cyclists may purchase the items and bring receipts and photographs as evidence to fight the charges in court.

[24] *A report on cycling fatalities in Toronto 1986 – 1998*, W. J. Lucas, Regional Coroner for Toronto (1998). Available at **http://bit.ly/1HqP0De**

A.72 As it related to Recommendation #12, the Office of the Chief Coroner for Ontario released a Cycling Death Review investigating the all accidental cycling deaths in 2006 and 2010, since the development of the Big Move. The review led to recommendations in a number of subject areas including: expanding cycling infrastructure, developing a comprehensive public education program, reviewing and revising the Highway Traffic Act, developing a more comprehensive set of enforcement and data collection measures

A.73 The Ontario government considered these recommendations from the Chief Coroner for Ontario, along with response to municipal requests, stakeholder input and recommendations. They introduced a bill to amend the Highway Traffic Act to promote safer walking and cycling. The bill was known as *Highway Traffic Amendment Act (Keeping Ontario's Roads Safe)*, and passed in June 2015. The changes in the bill to promote cycling include:

- Allowing cyclists to use the paved shoulders on unrestricted provincial highways to provide safer opportunities to cycle
- Supporting cycling in urban areas by allowing municipalities to create contra-flow bicycle lanes to provide more direct routes and connectivity for cyclists
- Increasing the fine range for convictions of 'dooring' of cyclists from $60-$500 to $300-$1000, and raising the demerit points from two to three
- Requiring all drivers to maintain a distance of one metre when passing cyclists
- Increasing the maximum fine from $20 to a set fine amount that falls in the range of $60-$500 for not using required bicycle lights and other reflectors/reflective material; and permit the use of flashing red lights as a safety feature on bicycles

A.74 In summary, this Priority Action has been substantially implemented, with little additional action remaining for full implementation. Consequently, this Priority Action should be considered for replacement with one addressing only the parts not implemented.

**Priority Action 2.7 (Safe cycling training programs)**

Implement or expand safe cycling training programs, similar to the Commuter Cycling Skills Course offered in the Vancouver area, or the CAN-BIKE courses offered by municipalities across Canada.

A.75 The website CAN-BIKE Canada provides a calendar listing available courses across the country[25]. Reviewing the list reveals regular CAN-BIKE Level 2 courses at various locations within Toronto. These are organised by the City. However, courses are not shown at any other training level. The Toronto courses are not shown prior to 2014, implying they have been started since *The Big Move* was published.

A.76 *The Big Move Baseline Monitoring Report* (2013) mentions "Commuter cycling courses in York Region, Markham, Toronto, Peel Region, and Brampton". Based on this information and other research, the following cycling training programs are currently being provided in the GTHA:

- **Toronto:**[25]
  - CAN-BIKE Level 2
- Peel Region / Brampton: [26]
  - Learn How to Bike Clinic (age 6-12, and Adult)
  - Bike Rodeo (age 3-9)
  - CAN-BIKE private lessons with certified instructor

[25] http://canbikecanada.ca/schedule/

[26] http://www.walkandrollpeel.ca/news-ideas/canbike.htm

    - Get to Know Your Trails and Pathways
- **Peel Region / Caledon:** [26]
    - CAN-BIKE 1
    - CAN-BIKE Workshop
- **Peel Region / Mississauga:** [26]
    - CAN-BIKE Learn to Ride 1
    - CAN-BIKE Learn to Ride 2
    - CAN-BIKE 1 (Advanced)
    - CAN-BIKE 2 (Advanced)
- **York Region**:[27] Kids CAN-BIKE Program

A.77 Overall, some progress has been made towards this objective, with considerable scope further progress. This Priority Action should be reviewed, with the aim of considering how to encourage action across the GTHA.

[27] http://bit.ly/1HAcFzH

**Table A.2: Active transportation plans by municipality**

| Municipality | Type(s) | Walk year | Cycling Year | Document(s) |
|---|---|---|---|---|
| Hamilton | Pedestrian & Cycling | 2012 | 2009 | Pedestrian Mobility Plan and Hamilton's Cycling Master Plan |
| Toronto | Walking & Cycling | 2009 | 2001 | Toronto Walking Strategy, City of Toronto Bike Plan, plus other reports |
| Durham | Cycling | N/A | 2012 | Regional Cycling Plan |
| Ajax | AT | 2010 | | The Ajax Pedestrian and Bicycle Master Plan |
| Brock | N/A | N/A | N/A | N/A |
| Clarington | TMP | On-going | | Part of on-going Transportation Master Plan |
| Oshawa | AT | 2015 | | Active Transportation Master Plan (finalizing) |
| Pickering | Cycling | N/A | 2015<br>1996 | Trails and Bikeway Master Plan (update in 2015) |
| Whitby | Trails and cycling | N/A | 2010 | Cycling and Leisure Trails Plan |
| Scugog | N/A | N/A | N/A | N/A |
| Uxbridge | N/A | N/A | N/A | N/A |
| Peel | AT | 2011 | | The Region of Peel's Active Transportation Plan |
| Caledon | N/A | N/A | N/A | N/A |
| Brampton | Cycling | N/A | 2002 | Brampton's PathWays Master Plan |
| Mississauga | Cycling | N/A | 2010 | Mississauga Cycling Master Plan |

| Municipality | Type(s) | Walk year | Cycling Year | Document(s) |
|---|---|---|---|---|
| Halton | AT | 2013 (AT)<br>2011 (TMP) | | Active Transportation Master Plan;<br>Transportation Master Plan |
| Burlington | Cycling | N/A | 2009 | Cycling Master Plan |
| Halton Hills | Cycling | N/A | 2010 | Cycling Master Plan |
| Milton | Trails and cycling | N/A | 2014 | Trails and Cycling Master Plan Update |
| Oakville | AT | 2009 | | Town of Oakville Active Transportation Master Plan |
| York | AT | 2008 | | Pedestrian and Cycling Master Plan Study |
| Aurora | Trails | N/A | 2011 | Trails Master Plan |
| East Gwillimbury | Trails & AT | 2012 | | East Gwillimbury Active Transportation and Trails Master Plan |
| Georgina | Trails & AT | 2014 | | Trails and Active Transportation Master Plan |
| King | N/A | N/A | N/A | N/A |
| Markham | Cycling | N/A | 2006 | Cycling Master Plan |
| Newmarket | AT | 2014 | | Official Plan – Active Transportation Network |
| Richmond Hill | AT | 2010 | | Pedestrian and Cycling Plan |
| Whitchurch-Stouffville | TMP & AT | 2015 (upcoming) | | Transportation Master Plan (2015) |
| Vaughan | TMP<br>AT | 2012<br>2007 | | Transportation Master Plan<br>Pedestrian and Bicycle Master Plan |

**Priority Action 2.8 (Active Transportation Master Plans)**

Undertake Active Transportation Master Plans and incorporate them into municipal Transportation Master Plans.

A.78 In the GTHA, many municipalities have chosen to create separate plans for walking and for cycling; some municipalities only have plans that cover one of walking and cycling. Table A.2 (previous page) lists the plans covering active transportation that have been produced by GTHA municipalities. For two-tier municipalities, plans generally exist at both the upper-tier and lower-tier levels.

A.79 The table shows that of the 30 municipalities in the GTHA, only three (Brock, Caledon and King) do not have any form of plan covering cycling. By contrast, only half have a plan covering pedestrian issues (this includes general active transportation plans).

A.80 In general, plans have been created separately from the municipalities' transportation master plans (TMPs), with the potential to incorporate the findings into the next TMP. However, municipal TMPs typically focus on road-related issues, and rarely provide in-depth consideration of active transportation.

A.81 Overall, there has been good progress in creating cycling plans, but considerable progress is still need in creating walking plans as part of this Priority Action. The lack of proper consideration in many municipal transportation master plans also means significant work is needed to implement this Priority Action.

A.82 Policy documents form the basis for municipal action. Consequently, this Priority Action forms a vital part in the planning and implementation of active transportation measures.

## Projects implemented to date

*A.83 The Big Move Baseline Monitoring Report* (September 2013) states that the following facilities have been completed or were under construction:

- Waterfront Trail pedestrian bridge along the east bank of Rouge River and south of CN Rail corridor (Western Gateway- Pickering);
- Two pedestrian crossings over Oshawa Creek and one pedestrian/bike crossing on Waterfront Trail East (Oshawa);
- Multi-use trail bridge crossing over QEW near Red Hill Valley Parkway (Hamilton);
- Pedestrian bridge crossing (Bruce Trail) over Hwy 403, east of Lincoln Alexander Parkway (Hamilton);
- Pedestrian crossing over Highway 401, east of Liverpool Road (Pickering);
- On-road and off-road bicycle paths on Fairview Street under the QEW (City of Burlington, Halton Region);
- Etobicoke Creek Trail crossing under Hwy 401 (Mississauga, Peel Region);
- Multi-use trail tunnel under the QEW at Hurontario Street (Mississauga)
- Multi-use trail tunnel under the CN Tracks / GO Lakeshore Line at Mississauga Road (Mississauga); and
- Pedestrian bridge crossing of the GO rail line at Richmond Hill Centre