"Travel Wise" Strategies Overview
Regional Transportation Master Plan
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EXECUTIVE SUMMARY

The Region of Waterloo is seen as a leader in the field of Travel Demand Management (TDM) within Ontario, and is actively promoting and implementing TDM measures across the community within a program entitled “Travel Wise”. To compliment and support these actions already undertaken, this report describes, identifies and recommends enhancements and expansion to the “Travel Wise” program to create a more sustainable transportation system in the Region.

WHAT IS TDM

TDM, in its simplest form, is a series of specialized policies, targeted programs, and innovative mobility services and products that work to influence whether, why, when, where and how people travel. The purpose is to manage and maximize the movement of “people”, rather than motor vehicles, within the transportation system. TDM considers both the transportation actions which affect the travel time, cost and other considerations that shape travel behaviour, as well as a specialized way of implementing these actions, often through legal and institutional approaches. Its main objective is to make personal travel decisions more sustainable and to make more efficient use of our existing transportation system.

TDM IN THE REGION OF WATERLOO

The Region of Waterloo is one of the few jurisdictions in Ontario to take an active role in promoting and implementing TDM measures. The 1999 Regional Transportation Master Plan (RTMP) included strategies to encourage shifts from auto use (particularly single occupant vehicles) to other modes and recommended several TDM initiatives. A number of TDM measures are currently being implemented by the Region of Waterloo and area municipalities mainly related to public transit and the development and implementation of a bike/pedestrian network. Many of the TDM measures or strategies fall within the Region’s “Travel Wise” program and include but may not be limited to the following:

- Participation in the Commuter Challenge
- An employee-based program for Region staff, providing information, incentives, and services to make sustainable travel options more convenient. The Region is also helping other private and public sector workplaces to start their own programs.
- Support for privately run carpooling and car sharing programs
- Development with local School Boards of an award-winning supplement to the Grade 3 Province of Ontario curriculum, to create awareness about sustainable transportation choices
- Partnership with student groups at Wilfred Laurier University and the University of Waterloo to provide students with full access to Grand River Transit (GRT)
- Adoption of the Region of Waterloo Pedestrian Charter
- Promotion of local walking and cycling activities and provision of the Highway 401 Pedestrian and Cycling Bridge.

LESSONS LEARNED

Important lessons were learned through a review of TDM programs and initiatives implemented in cities and metropolitan areas across North America. TDM programs were analyzed in cities and regions including the following: City of Kitchener; Greater Toronto Area and the City of Hamilton (GTHA); Metrolinx Regional Transportation Plan (encompassing the City of Toronto, the City of Hamilton and Durham, Halton, Peel and York regional municipalities); Atlanta; Seattle; Portland; Calgary; Vancouver and Boulder.

Six key lessons were learned through this review:
Some people will still feel the need to drive, particularly where alternative travel modes are not available. **TDM programs should focus on ways to provide choices to those who only need to use their car occasionally.**

Land use and transportation are intrinsically linked. **It has been demonstrated in numerous jurisdictions that transit improvements, transit oriented development (TOD) and Smart Growth must coexist to achieve significant results in promoting sustainable transportation and the use of public transit.**

**Collaboration with many different partners and stakeholders** is an important factor contributing to the success of TDM.

Target-specific marketing strategies will prove to be highly beneficial. **Individualized marketing approaches have been used to reach out to residents and employers in ways that are meaningful to them.**

**Economic incentives are powerful motivators.** Such measures can provoke change and gain interest in TDM efforts.

TDM needs to recognize constraints that people face and develop solutions to overcome common barriers. **Successful TDM programs have developed innovative approaches to overcome the most common barriers.**

**MOVING FORWARD ON TDM**

To enable the Region of Waterloo to move forward with enhancement and expansion of the “Travel Wise” program, nine over-arching recommendations have been identified:

- The Region should continue to take a leadership role in moving forward on TDM and play a larger role in planning, coordinating and monitoring TDM activities across the Region. This could be accommodated through the formation of a Regional “Travel Wise” Coordination Committee to be led by the Region of Waterloo TDM Coordinator. Membership on the Committee should include representatives from all constituent municipalities within the Region and Grand River Transit. Membership initially should be limited to public sector agencies. **This will require a renewed commitment to providing stable funding and staffing of the “Travel Wise” Coordinator position, along with a stronger mandate and staffing support to co-ordinate program marketing, monitoring results, and public outreach.**

- The Region should continue to take the lead role in TDM marketing throughout the community as part of the “Travel Wise” program and should incorporate individualized marketing approaches to develop outreach tools and programs that target specific markets (see specific strategies below).

- The Region should require, through their Official Plan, that each municipality develop a TDM program for their community that is complimentary with Regional “Travel Wise” strategies.

- Area municipalities should be required to include these TDM policy statements in their respective Official Plans and/or Transportation Master Plans.

- The Region should initiate discussions with the Province of Ontario with respect to modifications to the Development Charges Act to recognize efforts to promote TDM (transit), and recommendations should be identified for an equitable funding approach within the Development Charge framework to recognize both the costs and potential benefits of various TDM measures and investments in transit and other non-auto infrastructure.

- The Region should consider the development of a separate infrastructure capital program within the annual budget to implement “Travel Wise”-related initiatives.

- The Region’s travel demand or “Travel Wise” co-ordinator should prepare a three (3) year business plan for the “Travel Wise” program.

- As part of “Travel Wise” the continuing work on the RTMP, the Region of Waterloo should consider and develop an approach to rationalize the need to resolve all existing and anticipated areas of congestion in the community considering but not limited to the following issues:
The desire to improve the competitiveness of transit service;
- The nature and duration of congestion;
- The impact of congestion on walking and cycling;
- Safety issues arising from current and anticipated congestion; and
- Impact on economic, social and sustainability considerations as documented in the Goals, Principles and Objectives Working Paper.

- The Region of Waterloo should reassess how traffic impact studies are conducted within the community and if necessary formalize changes and requirements to be published and broadly disseminated to the community.

With input from the Region of Waterloo’s November 2008 public workshops, potential TDM measures as part of the “Travel Wise” program are recommended to be included within the RTMP. The target markets that would be served by each measure were identified, as different TDM strategies will appeal to and work more effectively in different transportation markets. Because transportation issues are highly sensitive, the marketing methods must be strategic and methodical. The jurisdictions with primary responsibility for implementation were also identified, and priorities for the five- and ten-year planning horizons were determined.

These TDM measures are grouped under four key categories: Land Use and Transportation Integration; Transportation Supply; Education, Promotion, Outreach; and Travel Incentives and Disincentives. They were prioritized using the lessons learned from TDM experiences across North America. Each initiative was ranked according to the scale of potential benefits and the ease of implementation. Those measures determined to be in line with current trends in terms of implementation as well as able to provide a high degree of benefits were given high priority. Those initiatives that would be more difficult to implement as well as likely to provide lower benefits were given a lower priority. The list of recommended TDM strategies is provided below along with suggested timing of implementation.

### Recommended TDM Strategies and Measures – Implementation Timing

<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHORT TERM PLANNING HORIZON</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Land Use and Transportation Integration</strong></td>
<td></td>
</tr>
<tr>
<td>2 Fully wire all new homes for high-speed internet</td>
<td>Households</td>
</tr>
<tr>
<td>3 Require change room and shower facilities at all major workplaces</td>
<td>Employers</td>
</tr>
<tr>
<td>4 Create a standardized list of TDM initiatives, based on real world experience, to enable developers to reduce auto trip numbers and parking spaces</td>
<td>Community Wide</td>
</tr>
<tr>
<td>5 Ensure secure and permanent bike parking is constructed at all schools, major work places, and commercial centres</td>
<td>Employers</td>
</tr>
<tr>
<td>6 Partner with developers to provide for construction of transit shelters and station facilities within the community</td>
<td>Transit Users</td>
</tr>
<tr>
<td>7 Establish maximum parking requirements for residential, commercial, industrial, institutional sites</td>
<td>Community Wide</td>
</tr>
<tr>
<td>9 Promote shared parking practices in commercial retail and mixed-use development</td>
<td>Employers</td>
</tr>
<tr>
<td>Initiative</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>14</td>
<td>Require road networks to be transit friendly (i.e. grid structure)</td>
</tr>
<tr>
<td>15</td>
<td>Review development staging in new communities to ensure high density is contained in initial phasing</td>
</tr>
<tr>
<td>16</td>
<td>Establish minimum bicycle parking requirements for all new medium and high-density residential and commercial buildings</td>
</tr>
<tr>
<td>17</td>
<td>Transportation Impact Studies for all development to include walking, cycling, carpooling and transit components/assessments</td>
</tr>
<tr>
<td>19</td>
<td>Use trees and other green infrastructure to provide shelter, aesthetic value, shade, and separation from motorized traffic</td>
</tr>
<tr>
<td>20</td>
<td>Pursue changes to LEED rating systems transportation and parking credits</td>
</tr>
</tbody>
</table>

**Transportation Supply**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Park ‘n’ ride facilities to be constructed, with bike parking facilities, and shared parking programs initiated within the Region. Linked to provision of initial transit service and existing parking</td>
<td>Commuters</td>
</tr>
<tr>
<td>23</td>
<td>Continue to install and promote bike racks on all transit vehicles</td>
<td>Cyclists</td>
</tr>
<tr>
<td>24</td>
<td>Create a Transit Priority Plan and explore the provision of High Occupancy Vehicle priority lanes</td>
<td>Corridors</td>
</tr>
<tr>
<td>25</td>
<td>Develop an incident detection and management system (IMS) for motorized vehicles that informs drivers of traffic congestion and alternative routes</td>
<td>Community Wide</td>
</tr>
<tr>
<td>26</td>
<td>Continue to plan and expand commuter and recreational cycling routes</td>
<td>Cyclists</td>
</tr>
<tr>
<td>27</td>
<td>Ensure a continuous pedestrian network</td>
<td>Pedestrians</td>
</tr>
<tr>
<td>28</td>
<td>Expansion of a privately operated shared vehicle program</td>
<td>Community Wide</td>
</tr>
<tr>
<td>29</td>
<td>Collaborate with the school boards to develop efficient transportation systems for high school students</td>
<td>Students</td>
</tr>
<tr>
<td>30</td>
<td>Implement a bicycle sharing program</td>
<td>Community Wide</td>
</tr>
<tr>
<td>31</td>
<td>Establish maintenance standards that are focused on the needs of pedestrians, cyclists, and those requiring accessibility</td>
<td>Cyclists</td>
</tr>
</tbody>
</table>

**Education, Promotion, and Outreach**
<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 Create and support transportation management associations in urban centres, commercial districts, malls, medical centres, primary and secondary nodes, corridors, and industrial parks.</td>
<td>Commuters</td>
</tr>
<tr>
<td>33 Expand Travel Wise program to Area Municipalities and local employers.</td>
<td>Commuters</td>
</tr>
<tr>
<td>34 Promote flexible work hours programs</td>
<td>Employers</td>
</tr>
<tr>
<td>35 Recruit local employers for GRT Corporate Pass Discount program and encourage employers to provide additional transit subsidies.</td>
<td>Employers</td>
</tr>
<tr>
<td>36 Promote employee transportation allowance</td>
<td>Employers</td>
</tr>
<tr>
<td>37 Secondary and post-secondary TDM programs (i.e. ride matching, carpooling)</td>
<td>Students</td>
</tr>
<tr>
<td>38 Promote and expand ride sharing and telecommuting programs to local employers</td>
<td>Commuters</td>
</tr>
<tr>
<td>39 Implement annual individualized marketing program</td>
<td>Commuters</td>
</tr>
<tr>
<td>40 Revisit and expand school education programs</td>
<td>Students</td>
</tr>
<tr>
<td>41 Develop separate web based trip planners for cycling and walking and provide on-route signage and maps</td>
<td>Community Wide</td>
</tr>
<tr>
<td>42 Develop a transportation information portal that integrates transit, cycling, and pedestrian trip planning</td>
<td>Community Wide</td>
</tr>
<tr>
<td>43 Provide and expand real-time, schedule, and route information to transit users</td>
<td>Community Wide</td>
</tr>
<tr>
<td>44 Continue “Active and Safe Routes to School” and “Walking school bus” programs</td>
<td>Students</td>
</tr>
<tr>
<td>45 Complete a Goods Movement and Delivery Transportation Management Plan</td>
<td>Shippers</td>
</tr>
<tr>
<td>46 Government offices, universities, school boards and hospital and other major trip generators to implement TDM plans</td>
<td>Commuters</td>
</tr>
<tr>
<td>47 Region and Municipal TDM monitoring program</td>
<td>Program Management</td>
</tr>
<tr>
<td><strong>Travel Incentives and Disincentives</strong></td>
<td></td>
</tr>
<tr>
<td>48 Implement smart card program within Waterloo Region</td>
<td>Community Wide</td>
</tr>
<tr>
<td>49 Overall parking implementation plan</td>
<td>Commuter</td>
</tr>
<tr>
<td><strong>MEDIUM TERM PLANNING HORIZON</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Land Use and Transportation Integration</strong></td>
<td></td>
</tr>
<tr>
<td>8 Zoning flexibility for home based business/home office</td>
<td>Households</td>
</tr>
<tr>
<td>Initiative Description</td>
<td>Target Market</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>10 Integrate local shopping and services into suburban neighbourhood land use planning</td>
<td>Households</td>
</tr>
<tr>
<td>11 Limit student parking at local high schools, colleges and universities along with transit improvements</td>
<td>Students</td>
</tr>
<tr>
<td>12 Un-bundle parking from residential units, at time of purchase, for new, multi-unit complexes</td>
<td>Households</td>
</tr>
<tr>
<td>13 Limit on-site residential parking for new, single-family dwellings</td>
<td>Households</td>
</tr>
</tbody>
</table>

**Transportation Supply**

<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Schedule buses every 10 – 15 minutes minimum on major transit</td>
<td>Corridors</td>
</tr>
</tbody>
</table>

**LONG TERM PLANNING HORIZON**

(Recommended for Further Study)

**Land Use and Transportation Integration**

<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Immediate transit service to new residential areas to be funded by the developer (15 min peak period and 60 min off-peak period) until 20% of the operating cost is returned through the fare box, at which time GRT would be responsible for fully funding the service.</td>
<td>Households</td>
</tr>
<tr>
<td>18 Amend the Development Charges Act to enable municipality to levy charges for all transportation-related infrastructure, including pedestrian and cycling facilities and to remove the 10% discount for transit and to enable municipalities to levy charges for the provision of improved transit service rather than use “existing” levels of transit to new development</td>
<td>Program Management</td>
</tr>
</tbody>
</table>

**Travel Incentives and Disincentives**

<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Property Tax reduction/credit commensurate with vehicle ownership</td>
<td>Households</td>
</tr>
<tr>
<td>51 Transportation pricing - Road tolls - Congestion pricing - Area specific tolls - HOT Lanes - Vehicle user fees - Road space rationing - Emission fees - Fuel tax increases - Parking implementation program - Distance based fees (insurance)</td>
<td>Community Wide</td>
</tr>
<tr>
<td>52 Provision of permanent transit passes (GRT) for each home/residence within the Region of Waterloo</td>
<td>Households</td>
</tr>
</tbody>
</table>
As an integral part of the Regional Transportation Master Plan (RTMP), a regional “Travel Wise” or TDM strategy will offer great potential and opportunity to achieve a multitude of planning goals. Through regional coordination, transportation demand management offers potential for a large return on investment when combined with other RTMP elements.

As the RTMP is a guideline for infrastructure investment decisions as well as a blueprint for action, TDM will play an important role in the development of the RTMP. TDM strategies and measures should be incorporated in the RTMP to outline and achieve certain desired goals relating to the management of the transportation system. The RTMP should include specific policies that will revolve around specific TDM initiatives such as transportation and land use planning as part of a comprehensive TDM Program.

Successful TDM programs may contribute to a number of important benefits to the public, the environment and the local economy, representing the three pillars of sustainability as shown below.

![Travel Wise Key Benefits](image)

The potential impact of TDM strategies and measures is difficult to measure in terms of reduction in auto trips as the level of reduction is dependant upon a number of variables. Based upon experiences in other communities, it could be estimated that a comprehensive TDM program (not including transit improvement initiatives) could reduce shorter trips (<10km) by approximately 12% and longer trips (>10km) by approximately 7%. It is recommended that the RTMP establish clear targets for future mode shares and TDM reductions and incorporate these into the assessment of future infrastructure needs.
1. INTRODUCTION

1.1 WHAT IS TDM?

As urban areas continue to grow, the adverse impacts of increased traffic congestion are being recognized as a threat to the economic, social, and environmental health of the community. In the past, communities have invested in new infrastructure, primarily roadway infrastructure, in attempts to “solve” the problem of congestion. In most cases, however, this additional roadway capacity has only prompted additional growth in traffic. As a result, traffic congestion has reached chronic levels in many major urban centres.

With the threats imposed by climate change, local air quality concerns, and the health implications of non-active lifestyles, the need to foster a more sustainable approach to community growth and accommodating the mobility needs of a community have emerged. The need to reduce or manage the demand for travel is beginning to become an important element of a sustainable transportation system.

Transportation Demand Management (TDM), in its simplest form, is a series of specialized policies, targeted programs, and innovative mobility services and products that work to influence whether, why, when, where and how people travel. Simply stated, the purpose of TDM is to manage and maximize the movement of “people”, rather than motor vehicles, within the transportation system. TDM is often primarily directed at commuter travel, although in some communities these strategies have also been used to manage other transportation markets, including special event transportation. Such actions can include offering travellers one or more alternative transportation modes and/or services, providing incentives to travel on these modes during off-peak hours, and/or incorporating growth management or traffic impact policies into local development decisions.

TDM is a process that considers both the transportation actions which affect the travel time, cost and other considerations that shape travel behaviour, as well as a specialized way of implementing these actions, often through legal and institutional approaches.

Most TDM programs have a primary goal of reducing single occupant vehicle (SOV) use, in an effort to reduce traffic congestion and adverse impacts associated with transportation systems. Many communities that have embraced TDM have also experienced a number of other mobility, social, and health benefits in their communities.

The Region of Waterloo is seen as a leader in the field of TDM within Ontario, starting with the adoption of the 1999 Transportation Master Plan; which recommended a series of measures aimed at managing future transportation demand. The Region is one of the few jurisdictions in Ontario to take an active role in promoting and implementing TDM measures in their communities. Of course, much more can and should be done. The Region has initiated a program entitled “Travel Wise” which includes TDM and other strategies directed at encouraging the community to travel in a more responsible or wise manner to achieve social, economic and environmental benefits.

This report describes, identifies and recommends an expanded and enhanced “Travel Wise” program that compliments and supports the actions being undertaken by the Region of Waterloo to create a more sustainable transportation system.

Innovative TDM practices from around the world (including the GTA and several Canadian and North American cities) are presented and discussed in the context of the Region of Waterloo and what can be achieved. The intent of this report is to outline a strategy for the Region of Waterloo to move forward on TDM, by building upon past successes.
1.2 POLICY CONTEXT

1.2.1 Link to Sustainability

As our population has grown and technology has made travel more convenient and affordable, personal travel demands have grown at a faster pace than population. Since the introduction of the automobile, most of our urban transportation systems have evolved to support travel by car. Societal and economic changes in North America, such as women entering the workforce in much greater numbers, have resulted in many households becoming dependent on the automobile, with many owning two or more vehicles. As a result, auto ownership levels in Canada have reached record levels.

Today, people travel much more than their parents and grandparents ever did. Our improved standard of living and the increased affordability of automobiles have improved access to travel dramatically over the past two generations. Today, in many families, both parents work outside the home and children are transported to a myriad of activities, both school and non-school related. However, the additional freedom that comes with personal access to transportation has also resulted in a dramatic increase in our use of automobiles to meet even our most basic travel needs. Unfortunately, in today’s busy society, this dramatic increase in auto travel has also been combined with a dramatic increase in SOV use, increasing the level of congestion in our urban areas.

Almost all studies and researchers agree that this system has proven to be unsustainable, consuming excessive energy, affecting the health of populations, and delivering a declining level of service despite increasing investments. In order to achieve a sustainable transportation system, communities are continuously searching for better alternatives including a set of measures that commuters can rely upon so they can change the way they commute. The Canadian Centre for Sustainable Transportation defines a sustainable transportation system as one that:

- "Allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations.

- Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy.

- Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise”.

According to the ecoMOBILITY program supported by Transport Canada, the creation of sustainable mobility systems will require concurrent action in several areas (Figure 1):

- improvements to sustainable travel options that build the capacity and quality of transportation infrastructure and services

- more supportive land use practices that reduce the distances between origins and destinations and make transit, walking and cycling more practical

- the use of TDM to shape other key factors that influence personal travel decisions, such as attitudes and prices.
Based on the success stories gathered from many cities in North America, TDM represents an important part of a sustainable transportation solution. It has been proven in numerous locations across North America that an appropriate TDM program can encourage new travel behaviours, reduce the impacts of SOV commuter travel, and improve opportunities and access to other transport choices. Thus, TDM is a major component of a program that will lead to a more sustainable transportation system.

1.2.2 Growth Plan for the Greater Golden Horseshoe Places to Grow

The Growth Plan for the Greater Golden Horseshoe, 2006,(the Growth Plan) is the Ontario government's plan to manage growth and development in Ontario in a way that supports economic prosperity, protects the environment and helps communities achieve a high quality of life. Through the Growth Plan, the Province has provided a planning framework that directs where and how communities within the Greater Golden Horseshoe (GGH) should grow and identifies policies to guide government investments in infrastructure to support growth. The Region of Waterloo is a key growth node located in the GGH with three urban growth centres i.e. Waterloo, Kitchener and Cambridge. The Growth Plan is a 25-year plan that aims to:

- Revitalize downtowns to become vibrant and convenient centres
- Create complete communities that offer more options for living, working, learning, shopping and playing
- Provide housing options to meet the needs of people at any age
- Curb sprawl and protect farmland and green spaces
- Reduce traffic gridlock by improving access to a greater range of transportation options.
The Growth Plan suggests an infrastructure strategy be implemented to support the planned growth. The GGH transportation system is a major component of that strategy, which will be planned to increase the variety of options available for traveling including convenient access to transit, cycling and walking opportunities. In addition to establishing a number of land use policies and targets aimed at encouraging more compact and transit supportive communities, the Growth Plan also identifies a number of key objectives that provide a planning framework for moving forward on TDM and the encouragement of alternative modes of travel. Specifically, the Growth Plan states that:

- Municipalities will develop and implement Transportation Demand Management policies in official plans or other planning documents, to reduce trip distance and time, and increase the modal share of alternatives to the automobile.
- Public transit will be the first priority for transportation infrastructure planning and major transportation investments.
- Municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning.

1.2.3 Regional Growth Management Strategy

In 2003, the Region of Waterloo adopted the Regional Growth Management Strategy (RGMS) that provides direction for the long-term management of growth within the Region. THE RGMS is structured around the following six goals:

- Enhancing Our Natural Environment
- Building Vibrant Urban Places
- Providing Greater Transportation Choice
- Protecting Our Countryside
- Fostering a Strong Economy
- Ensuring Overall Coordination and Communication

Through these initiatives, the RGMS is intended to positively shape the Region’s urban and rural form; focus growth and promote more compact, transit and pedestrian-oriented communities; and focus on financial stability. In order to provide greater transportation choice, the RGMS recommends the following:

- Improve access to jobs and services
- Balance transportation system
- Improve transit service
- Integrate different transportation modes
- Improve air quality
- Increase physical activity
- Enhance cycling facilities
- Create more pedestrian-friendly environments
- Maximize efficiency and effectiveness of road network

Under the RGMS, growth is directed into the Central Transit Corridor which links the urban centres of Waterloo, Kitchener and Cambridge. To achieve this policy direction the Region is promoting increased density, greater mix of residential and commercial land uses, and intensification. Growth in the Central Transit Corridor is being planned to support the Region’s Rapid Transit Initiative, which is currently assessing alternative routes and transit technologies to provide high order, rapid transit.
service within the corridor, from Uptown Waterloo to downtown Cambridge. Intensification around proposed transit stations and the promotion of a vibrant pedestrian and cycling oriented streetscape are key elements of the RGMS that not only support transit but encourage the use of other walking and cycling modes of travel. TDM represents a key policy approach that will be necessary to support the RGMS land use and transportation objectives.

1.2.4 The Role of TDM in the RTMP

As an integral part of the Regional Transportation Master Plan (RTMP), a regional TDM strategy can offer great potential and opportunity to achieve a multitude of planning goals. Through regional coordination, transportation demand management offers the large potential for a large return on investment when combined with other RTMP elements.

As the RTMP is a guideline for infrastructure investment decisions as well as a blueprint for action, TDM plays an important role in the development of the RTMP. The role of TDM is to help define goal oriented, sustainable objectives of the RTMP. TDM strategies and methodologies are incorporated to outline and achieve certain desired goals. The RTMP will include specific policies that will revolve around specific TDM initiatives such as transportation and land use planning as part of a comprehensive TDM Program.

Successful TDM programs may contribute a number of important benefits to the public, the environment and the local economy, representing the three pillars of sustainability as shown in Figure 2.

1.3 HOW DOES TDM WORK?

The main objective of TDM is to make personal travel decisions more sustainable and to make more efficient use of our existing transportation system. According to the “Report on Canadian Alternative Transportation Program”, a study prepared by the Association for Commuter Transportation of Canada
(ACT Canada), one way of achieving this objective is to positively change the various transportation choices that individuals make when considering travelling. These choices include:

**Mode Choice**

Commuters are encouraged to shift from travel SOV to a mode with spare capacity or with less environmental and economic impacts like transit, cycling and walking. If they choose to drive they are encouraged to adopt environmentally responsible driving practices (anti-idling, proper tire pressure, etc.).

**Time Choice**

Encouraging commuters to travel during off peak periods where possible, or just outside the existing peak demand timeframes.

**Location Choice**

- **Trip reduction** – Reducing the number or length of trips (measured in vehicle-kilometers traveled (VKT)) (i.e., employee lives near work or shops at local stores rather than traveling across town to shop)
- **Trip elimination** – Eliminating some or all trips by eliminating the need for travel (i.e., telework)

**Route Choice**

Trip chaining or trip planning to minimize short trips, leverage carpooling or vanpooling in order to encourage efficient travel. The technology associated with route choice is often linked with intelligent transportation systems.

**Figure 3** below summarizes the commuter choice conceptual framework as described by the FHWA report “The Development of Commuter Choice Primer: An Employer’s Guide to Implementing Effective Commuter Choice Programs”.
There are many different TDM strategies that influence the choices made by residents. Some improve the transportation options available to consumers. Some cause changes in trip scheduling, route, destination or mode. Others reduce the need for physical travel through more efficient land use, or transportation substitutes. Although most individual TDM strategies only affect a small portion of total travel, the cumulative impacts of a comprehensive TDM program can be significant.

TDM Strategies are generally classified under three general categories:

- Market Based
- Behaviour Based
- Land Use Based

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1 Why Manage Transportation Demand?, Todd Litman, Victoria Transport Policy Institute, May 10, 2005
Each of these strategies uses different types of incentives to encourage people to re-think their travel choices, including the need to travel at all. A listing of some of the most common TDM strategies that fall within each of the categories are summarized below.

### Strategies to Manage Demand

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<thead>
<tr>
<th>Market Based</th>
<th>Behavior Based</th>
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</thead>
<tbody>
<tr>
<td>• User Pay (tolls)</td>
<td>• Increase Use of Transit Service</td>
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<tr>
<td>• Parking Supply / Cost</td>
<td>• Increase Walking / Cycling</td>
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<td>• Flexible Work Hours</td>
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<td>• Telecommuting (work from home)</td>
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<td>• Ridesharing (carpooling)</td>
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<td>• Increase Densities &amp; Encourage Mixed Land Use</td>
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<td>• Neighbourhood Design to Support Transit / Cycling / Walking</td>
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<td>• Support Walking / Cycling / Transit at Key Destinations</td>
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<td>• Enhance Accessibility</td>
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#### 1.3.1 Market Based Strategies

Market based TDM strategies tend to use economic incentives to encourage the desired behaviour. Some market based strategies are relatively simple and can be implemented at a local level, or even at a particular workplace or destination. Market based strategies tend to be the most effective strategies to encourage change, because the incentive is direct and affects the motorists’ pocketbooks. However, they are also the most controversial, for precisely the same reason. For example, one of the most powerful incentives to encourage use of alternative modes in urban areas is increasing the cost of long term parking.

Other market based strategies are broad in nature and would require a significant shift in public policy, often beyond the scope of a single municipality to implement. For example, some economists suggest that vehicle registration costs, along with insurance and plate renewal, etc should be scaled to reflect the amount of driving a person does within a year. While logical, (since the wear and tear, pollution impacts, collision risk, and other transportation impacts are related to amount travelled) the implementation would require changes to Provincial policies and a municipality or regional government would have limited ability to implement such a strategy in isolation.

Other types of market based strategies are outlined below.

**Parking Pricing**

Parking pricing can typically reduce vehicle trips by 10-30% compared to free parking. Structuring parking rates in a way to favour short-term uses in core areas encourages a higher turn-over rate, and shifts long-term uses to other locations or discourages vehicle trips altogether. Controlling the supply of long term parking can also encourage a shift to other modes of travel where there is no alternative parking available. While this strategy leaves flexibility to provide special rates to serve appropriate uses, such as for evening and weekend events, or to maximize mid day utilization, retail business owners in downtown areas are often concerned with any measures that would drive customer traffic away from the downtown and out to suburban malls with free parking. In the Region of Waterloo, parking is currently controlled by the area municipalities. To consider implementing parking pricing measures, the Region would need to undertake extensive consultations with area municipalities to determine the best approach and operational model to achieve the TDM objectives while
recognizing local concerns. It should be noted that, as part of the RTMP, the Region will be conducting a strategic parking review to investigate ways of better managing parking within the community.

**Parking Cash-Out**

One innovative market based incentive program is a “Parking Cash Out”, which essentially offers a subsidy to users of other modes equivalent to the value of a free parking space. A parking space subsidy can be offered in other forms such as cash (or other equivalent benefits). For instance, employees can choose between a free parking space, a vanpool subsidy, free monthly transit pass, or monthly cash subsidy. These incentives could reduce automobile commuting by 10-30%.

**Road Pricing**

Motorists pay directly for driving on a particular roadway, (i.e. toll roads) or in a particular area. Highway 407 Express Toll Route (ETR) is a local example of a toll road that uses variable pricing to manage demand levels throughout the day. Variable toll rates are used during different periods of the day, which can have an influence on the time of travel and usage of the facility. While the primary intent of the tolling in this application is to finance the facility, as opposed to managing demand, the variable toll rate structure is set up to charge higher tolls during peak periods in order to reduce demand and maintain acceptable levels of service on the facility. The variable toll rates by time of day is an example of a demand management strategy used by the 407 ETR to optimize the toll rates versus the volumes to maintain a congestion free state.

The Transportation Association of Canada (TAC) issued a briefing on Road Pricing in February 2009, including observations of initiatives throughout the world, particularly the potentially groundbreaking road pricing work underway in the Netherlands and the United Kingdom. The TAC concludes that road pricing should only be applied in the context of clearly defined objectives, such as reduction of severe congestion, halting environmental degradation and addressing a lack of transport financing. The key challenges of road pricing are the achievement of public acceptance and a cost effective system.

**Congestion Pricing**

Congestion pricing (Value Pricing or Peak Hour Road Pricing) refers to variable road pricing applied in an area to modify traffic usage and congestion level of the roads. Congestion pricing helps by shifting peak hour traffic to other transportation modes or to off-peak periods and enables the roadway system to flow more efficiently through the same physical available space.

Area based road pricing was implemented in Central London, England, in October 2003. After two years of operation, Transport for London found that congestion within the charging zone had reduced by an average of 30% and the total volume of traffic entering the charging zone was reduced by 18% against pre-charging levels in 2002. There was no reported evidence of detrimental traffic effects on roads outside of the charging zone due to diverting traffic and the report notes improvements in traffic accidents and reductions to emissions of key traffic pollutants in and around the charging zone. The congestion charging area was expanded to the west in February 2007, with limited additional congestion benefits. In November 2008 the new Mayor of London announced plans to remove the Western Extension (but keep the original Congestion Charging Zone), potentially by 2010.

In summary, market based strategies tend to have broad effect and can have moderate to great impact because the costs of market based strategies are borne by the transportation user rather than society at large. Since the costs to users are high, these types of aggressive strategies may not be easily accepted by the public. Some of the broader based market strategies, such as increasing vehicle fees, cannot be implemented within a municipal context as they fall under provincial/federal jurisdiction.
1.3.2 Behaviour Based Strategies

Behaviour based strategies tend to use a combination of marketing, incentives, and improved infrastructure/services to provide a wider range of transportation choices and encourage residents to re-consider the transportation choices they make.

Behaviour based strategies can also be structured to achieve a number of different, yet related, objectives. For example, one approach could emphasize a reduction in the number of trips people take in a day, while other approaches could try to encourage people to use alternative modes to the private automobile. Other strategies may try to encourage travel outside of peak periods to conserve existing capacity (similar to efforts used to conserve energy during peak periods). Therefore, behaviour based strategies are very flexible in that a number of different approaches can be used to try and achieve similar objectives. On the down side, behaviour based strategies are also largely dependent on voluntary change, and therefore the success of these types of approaches is largely dependent on prevailing public attitudes and the ability of a municipality to market the benefits of change.

Some of the common behaviour based strategies are briefly discussed below.

Marketing Alternative Modes of Transportation

Encouraging auto users to shift to another mode of transportation is a complex task that may require a number of initiatives and strategies to be implemented as a package. Even with physical, operational, or institutional changes designed to increase the attractiveness of alternative modes, many jurisdictions have still struggled with the development of marketing campaigns to build awareness and encourage the change to occur. Many communities, including the Region of Waterloo, participate in programs like the “Clean Air Day”, “One Tonne Challenge”, and “Commuter Challenge”. These programs are designed to encourage people to try to make environmentally-friendly lifestyle choices by using a different mode of travel for one day or longer. While these are good programs, they often do not result in lasting change to personal behaviour. To some extent, many of these types of programs are aimed at encouraging users to change their habits for the “broader good”. While this type of marketing approach will appeal to a segment of the population, many of these programs do not attract longer term support when people consider their individual circumstances and the reasons for their transportation choices.

Some of the leading jurisdictions in implementing successful TDM programs are using a social or individualized marketing campaign to encourage people to make more sustainable transportation choices. These programs are premised on the idea that each member of the public will have different motivations and reasons for the transportation choices they make. Therefore, these motivations need to be understood and the strategies targeted to make other modes of travel attractive for “them”.

By segmenting the population into groups with similar motivations, key messages about the benefits that the individual could realize are then marketed to them. For example, employers in an area can be encouraged to support flexible work hours and work at home programs as a means to improve morale, productivity, and employee retention.
Employees who are trying to balance the demands of work and home may be attracted to flexible work hours or telecommuting programs due to the potential time savings allowing them to better schedule their time. Such marketing initiatives have also been used in Portland, Oregon and Sydney, Australia with a higher degree of acceptance than some of the more traditional, “standard” marketing initiatives.

**Encouraging Shifts to Transit**

To build awareness of transit services some communities have implemented “trip finder” applications on the internet to help residents find out how to travel between their origin and destination on the transit system. These applications work similar to map based applications that provide driving directions between two points.

Many transit systems are now incorporating secure cycling racks at bus station terminals and provide bicycle racks on their buses. For example, the Region of Waterloo has installed bicycle racks on all of their bus routes. This is a simple and relatively easy way to provide additional transportation choices to those who have to travel longer distances but do not have access to a car or prefer to use alternative modes. Not only can this strategy increase transit usage but it can also work to increase cycling usage as well.

Flexible use of transit passes is another way to provide an incentive to shift to transit that can also combine market based incentives along with behaviour based programs. Many communities, including the Region of Waterloo, provide a variety of different transit pass options that offer discounts from the single fare price. Student passes, multi-ride tickets, monthly passes, swipe cards, and daily passes are often used. In many communities, the passes are sold not only at transit terminals but at the local convenience stores, malls, and other locations throughout the community. In an effort to improve transit ridership among college / university students, some communities have included the cost of an annual transit pass (for the months when school is in) into the cost of the annual tuition fees. In this way, students receive a transit pass as part of their enrolment.

Many transit operators are providing discounted transit passes for sale at major employment locations. For example, Grand River Transit (GRT) has already implemented an employer transit pass program which offers discounts to monthly pass purchasers. These types of programs can be effective where the transit routes and schedules can be coordinated with shift changes at the employment locations. From a marketing perspective, this type of program can be seen as an incentive to attract and retain employees and an employer based pass program can be marketed as a “green” initiative, which may be important for some employers. In combination with other market based strategies, such as reduced parking requirements for major employers / paid parking at major employment locations, the effectiveness of employment pass programs could be increased.

**Flexible Hours and Peak Spreading**

The use of flexible work hours can also be a key part of TDM program. Flexible work hours could be implemented in a number of ways depending on the type of business, and type of employee. For professional / management staff, flexible hours could allow for work start / finish times that do not follow traditional 9-5 office hours. By defining core business hours (say 10am to 3pm) where employees are expected to be at work and allowing flexibility on start and end times, employees can adjust their schedule away from peak times or can have flexibility to accommodate other family related needs. This can be an important consideration in two income families, where the stress of getting children to/from school or daycare, can take away from employee productivity and morale.

For non-management staff, including skilled trades and production employees, varying the shift change times away from peak roadway travel times may improve employees travel times to and from work, and reduce congestion at key locations. For example, staggered shift times have been used for a number of years at the Oshawa General Motors (GM) assembly plant, to avoid conflict with peak travel times on the road network. To ensure this type of strategy does not restrict transportation options for those without access to cars, the transit schedules should be aligned with the shift change schedules for major employers to the extent possible.
Telecommuting
Telecommuting has been growing in popularity over the past few years, although with the wider availability of high speed internet service, serious interest in telecommuting is rising dramatically. The implementation of telecommuting programs is typically initiated at the employer level; however, municipalities can provide incentives and assistance to companies wishing to set a program at their location. In the City of Ottawa area, Nortel Networks ran a telecommuting program for many of their employees, and recently some innovative variations like hoteling, satellite offices, and remote business hosting have been introduced by private companies in some markets.

Hoteling essentially treats office space like a hotel, where many of the employees, who work from home or off site, are not assigned to a specific office space, but call in to reserve an office only when needed. Obviously this type of program would be most attractive for sales staff or other employees who are frequently out of the office and do not have a direct supervisory role in the organization.

AT&T has supported teleworkers for more than a decade, using a system something like this throughout the United States. In 2000 AT&T reported that over 55% of their employees participated in the telework program at least a few days per month. They credit this program with savings of $3000 per employee per year in reduced real estate costs, along with improved productivity and staff retention, in addition to the transportation benefits that accrue to society. In 2006 AT&T reported that their popular telework program helped the company reduce its annual real estate costs by US$30 million and accumulate US$150 million in extra hours of productive work from teleworkers.

Research shows AT&T tele-workers are much less likely to jump ship than in-office staff, according to Joseph Roitz, AT&T’s telework director.

“Turnover in our virtual office population is half that of the turnover in our general salaried employee population,” Roitz says.


The most common barrier to telecommuting is corporate culture, where many supervisors feel uncomfortable trusting their employees to work at home or off-site. Not all employees are suited for this type of work arrangement either, and those that do telework report that they need to have access to a separate “home office” to be truly productive. Many organizations have overcome these barriers to implement successful teleworking programs through top down support for the program and an active program of removing barriers to implementation. A similar type of program may be popular in the growing call centre business, provided that companies can implement programs and technology to allow for seamless processes and effective quality control monitoring for remote employees.

Some enterprising businesses, such as Telsec Business Centres Inc. in Toronto, have also established temporary satellite office space for rent in a number of locations. These satellite offices are designed to provide all of the amenities of a corporate office including fax, printing services, meeting room space, temporary office space, and some reception and mail handling services.

With an aggressive marketing effort to improve the attractiveness of teleworking or telecommuting and to ensure that basic infrastructure (such as high speed internet services) is in place, it is expected that the potential market could be increased to 10% of all employees by 2031.

Ridesharing
Ridesharing, also referred to as carpooling, is an effective transportation strategy for implementation at large employment centres. Ridesharing can be informal, such as a couple sharing the same car to drive to work, or one spouse dropping off a child at school. This is the most common form of ridesharing that occurs, and is often tied to household auto ownership levels.

Ridesharing among co-workers is much more difficult to organize and sustain, with many people indicating that finding a suitable person to carpool with is one of the biggest challenges. Work in the 21st century also presents a series of challenges to forming and maintaining carpools amongst colleagues. With the increasing number of hours that some employees are spending on the job, and the need for more flexible work arrangements (to accommodate travel, client needs, etc), many employees are finding it hard to maintain a regular commuting schedule, which is critical to maintaining an effective carpool arrangement.

Since the internet has become much more widespread, there are now a number of formal ride matching services on the internet (such as www.carpool.ca, and www.carpooltool.com) that will try to match drivers that travel during the same time periods and have origin and destination points within close proximity to each other. As with any internet based matching service, security is a key concern for many thinking of carpooling.

Despite some of the challenges with rideshare programs, there are a number of very successful examples of ridesharing in action throughout Ontario. Large manufacturing operations appear to be one of the best workplaces to encourage the formation of carpools. The GM plant in Oshawa, the Chrysler plant in Windsor, and the Ford plant in Mississauga all have a number of employees that regularly participate in carpools and vanpools. Some of these programs are sponsored and/or supported by the company.

The Region of Waterloo has a number of programs to support ridesharing including promotional information on their website, links to ride-matching services, and participation in commuter challenge programs. The Region is also considering opportunities to integrate carpool lots into some of the key stations being developed as part of the Rapid Transit Initiative.

1.3.3 Land Use Based Strategies

Land use strategies come under a variety of names and descriptions, but all of them attempt to use land use at a variety of geographic scales to provide transportation choice to residents and encourage non-auto modes of transportation.

The transportation benefits of a more compact form of development are recognized in the Province’s recent “Places to Grow” legislation, which requires Greater Golden Horseshoe municipalities to accommodate a higher proportion of their future growth through intensification and requires higher density targets in new Greenfield development areas and existing urban core areas. Phase 1 of the City of Brantford Transportation Master Plan and Official Plan Review adopted a “Compact City” growth scenario as the preferred land use growth strategy to accommodate future population and employment demands. This strategy is modeled after and complies with the density targets outlined in the “Places to Grow” legislation.

Density, however, is only one aspect of the land use solution. To have a significant effect on transportation behaviour, increased densities must be combined with other strategies to improve the mix of land uses within neighbourhoods, promote safe and pleasant environments to support walking and cycling, provide transit supportive land use design, and reduce the amount and impact of parking.

In numerous small towns throughout the province, neighbourhood design principles that support alternative modes of transportation can be readily found. While these small towns and villages do not offer transit services, the mix of land uses and the scale of development patterns can often make walking and cycling much
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“Travel Wise” Strategies Overview

more attractive than some of today’s suburban “master planned” communities. Some strategies to achieve these types of benefits within our urban neighbourhoods of today could include:

- Encourage a variety of land uses within a neighbourhood, such as neighbourhood stores and services
- Promote the redevelopment of single uses into mixed-use developments
- Accommodate the reuse of closed, decommissioned, or obsolete institutional uses
- Provide incentives for ground-floor retail and upper-level residential uses in existing and future development
- Design communities so that children can walk to school
- Use trees and other green infrastructure to provide shelter, beauty, urban heat reduction, and separation from automobile traffic
- Encourage and provide safe and direct pedestrian routes to transit stops
- Use visual cues and design elements to indicate pedestrian rights-of-way and minimize conflicts
- Avoid use of large scale parking lots and situate parking to enhance the pedestrian environment and facilitate access between destinations
- Make places walkable for aging populations in response to new demographics and special needs
- Retrofit existing streets to provide sidewalks to promote more walkable communities in both residential and employment areas
- Concentrate critical services near homes, places of employment and transit
- Require building design that makes commercial areas more walkable and connected to the community
- Plan neighbourhood street networks in grid patterns with high levels of connectivity and short blocks
- Locate mixed use activity centres around transit hubs
- Require sidewalks in all new developments and on both sides of all collector and arterial roads
- Cluster freight facilities near ports, airports, and rail terminals
2. TDM IN THE REGION OF WATERLOO

2.1 1999 RTMP

The primary goal of the 1999 RTMP was to develop a long range transportation master plan which identifies the nature and/or location of new or improved facilities required to achieve the Region’s transportation planning objectives and policies, as articulated in the Region’s Official Policy Plan. This RTMP also articulated strategies to encourage shifts in mode use and to maximize investment in existing infrastructure.

The RTMP selected the year 2016 as the horizon year by which the population and employment in the Region of Waterloo were expected to increase by 34% and 52%, respectively. Accordingly, an increase of 47% was expected by the year 2016 in auto trips in the morning peak hour. In order to accommodate these future travel demands, the 1999 RTMP considered, investigated and recommended several TDM initiatives that were suggested to be implemented before the widening of existing roads were required. These TDM initiatives focused on the most realistic strategies including:

- Public Transit Enhancements including timed transfer system, transit prioritization, transit pricing, and initiation of discussions with private carriers for improving external services;
- Bicycle/Pedestrian Programs including continuing implementation of the Regional Cycling Master Plan, encouraging municipal pursuit of bicycle/pedestrian programs, and incorporating bicycle/pedestrian facilities in the road design and community design process; and
- TDM Supportive Land Use including reviewing development applications for support of TDM goals, and encouraging area municipalities to implement TDM supportive land uses such as integration of employment and residential areas, reviewing land uses adjacent to transit routes/corridors and incorporation of transit friendly subdivision design.

An aggressive auto reduction target of 7% was established for the year 2016 assuming more than double the number of transit, pedestrian and cycling trips. An action plan incorporating all travel modes (transit, cycling, pedestrian and auto) was developed including the following components:

- Hiring a TDM Coordinator
- Establishing priority networks for improvements to bicycle and pedestrian treatments
- Meeting with area municipalities to initiate discussion for developing land use plans to support the RTMP
- Improving TDM consideration in the site design process
- Routinely making road projects, bicycle, pedestrian and transit friendly
- Improving transit integration and inter-modal passenger connections throughout the Region
- Providing support to transit through design of the built environment and use of technology
- Educating the public regarding auto reduction and TDM policies/initiatives
- Approaching businesses to review opportunities to reduce auto use
- Initiating discussions with VIA Rail and private transit carriers in order to increase service between the Region of Waterloo, Toronto and Guelph
- Implementing policies to protect and develop a Central Transit Corridor
- Providing for the safe movement of horse drawn buggies
- Improving roadway and bridge maintenance efforts and seeking efficiency in practices
- Protecting options for new roadways but implementing only when they are required and supported by the community
The 1999 RTM proposed that the Region monitor transportation throughout the Region of Waterloo for a total of ten years after which a further transportation study will be carried out to review the overall Master Plan to reflect conditions as they prevail at that time.

2.2 CURRENT INITIATIVES IN THE REGION OF WATERLOO

Currently the Region of Waterloo and area municipalities are directly and/or indirectly implementing various TDM programs that have been effective in providing transportation alternatives for the community. Most of these programs are related to public transit and the development and implementation of a bike/pedestrian network. Many of the Regional strategies fall within a program entitled “Travel Wise”.

Region of Waterloo Commuter Challenge

For the past nine years the Region of Waterloo has been participating in the Commuter Challenge, a friendly competition between Canadian communities, to encourage the use of sustainable modes of transportation to and from work. The aim is to decrease the number of SOV trips taken by commuters improving traffic congestion, reducing harmful emissions, saving money and more.

During the week of the Challenge, all participants enter the kilometres travelled to work by the sustainable mode of transportation used on the Commuter Challenge website. www.region.waterloo.on.ca/commuterchallenge

Employer Commuter Options

An employee-based program has been offered to staff at the Region of Waterloo that serves as a lead and an example for other workplaces to follow. The Region’s program provides:

- Information on sustainable travel options including transit trip planning and cycling facility maps
- Incentives to make travel options easier to use such as discounts on GRT passes and great draw prizes
- Services to make travel options more convenient such as online ride-matching, bike parking, and access to showers/change rooms
- Reimbursement for an emergency ride home

The Region is now helping other workplaces start their own employee programs. To date St. Mary’s General Hospital, Grand River Hospital, and Desire2Learn have implemented programs to help their employees use more sustainable modes of travel to get to work.

Surveys conducted by the Region following the initiation of this program suggested that transit ridership increased by 68%, cycling by 7% and walking by 6% for Regional employees.

Carpooling and Carsharing

The Region of Waterloo supports privately run carpooling and car sharing programs through advertising on the Region’s website. Online carpool ride-matching services (such as CarpoolZone.ca) are promoted. Car-sharing is an innovative service that allows access to a vehicle without the extra hassles that can come with car ownership. The Grand River Car Share offers carsharing services in Kitchener, Waterloo and now Cambridge.

Educational Resources
The Region of Waterloo and local School Boards have developed an award-winning educational resource unit called “You Can Clear the Air”. The unit is a supplement to the Grade 3 Province of Ontario curriculum and helps to create awareness about sustainable transportation choices and the impact that transportation choices can have on the environment.

The unit comes with a Teacher’s Guide, a public transit tour component with GRT, and a promotional campaign. The teacher’s guide includes hands-on activities, games, facts, and exercises that help students learn about the health impacts of different transportation choices. The program aims to help students develop positive transportation habits and strong environmental awareness. These are values that will affect students’ transportation choices throughout their lives.

**UPass at Wilfrid Laurier University and the University of Waterloo**

Over the last several years, full-time undergraduate and graduate students at Wilfrid Laurier University (WLU) and full-time undergraduate student at the University of Waterloo (UW) received full access to GRT services through the “Universal Pass” program (UPass). The UPass is a partnership between the Region of Waterloo and the WLU Student Union and the Region and the UW Federation of Students. A low fee, which is added to students’ tuition invoices, provides students with a transit pass allowing them unlimited travel in the Region for the entire school term. The UPass not only increases travel convenience for students, it also introduces many people to transit that may not otherwise have used GRT.

**Pedestrian Charter**

On July 5, 2005, Regional Council adopted the Region of Waterloo Pedestrian Charter - a set of principles that foster awareness and support for pedestrian activity. This Charter puts forward six principles and 11 areas for action ensuring that walking becomes an increasingly convenient, safe and comfortable mode of travel in the Region of Waterloo. The principles embodied in the Charter are being used on an ongoing basis for planning and design work. The Region of Waterloo Pedestrian Charter is provided in Appendix A.

**Local Walking and Cycling Promotion**

The Region of Waterloo promotes local walking and cycling activities and provides a Walking and Cycling Event Calendar for Waterloo Region residents to let them know what activities are available. The Region maintains a map of existing Regional Cycling Facilities, and continues to build more bike lanes and paved shoulder bikeways for cyclists.

The Highway 401 Pedestrian and Cycling Bridge is an important community link that connects the Trans-Canada Trail in Kitchener and Cambridge and provides a safe route for pedestrians and cyclists to cross Highway 401. Planning for the bridge, which is the first pedestrian/cycling bridge to be built across Highway 401, began in 2003 and construction was completed in 2007.

This project bridges not only the significant barrier represented by Highway 401 and other busy roads for walkers and cyclists, it also provides a vital link between Kitchener and Cambridge. This contributes directly to the goal of the RTMP to reduce auto use by enhancing and encouraging active transportation.
2.3 CITY OF KITCHENER DRAFT TDM PROGRAM

In June 2008, the City of Kitchener finalized a Draft TDM program with specific steps, recommendations, and implementation guidelines to form a comprehensive TDM strategy. Development of the plan involved the review of transportation data, existing planning documents and conditions; surveys and interviews with area businesses, workers, and decision makers; a review of international TDM programs; and public outreach efforts.

In Phase One, the City is planning to develop a TDM program for its staff, an effort to serve as an example to other employers. Phase one initially targets City staff and includes the hiring of a TDM Coordinator; replacing the current parking subsidy (value of free parking) provided to certain staff with a transportation allowance which can be used for parking or travel by another mode; provision of a free Corporate GRT pass in lieu of a transportation allowance; carpool matching services for its staff; a guaranteed ride home program; and a series of TDM promotional events to build awareness.

In Phase Two, the City is planning to test new TDM concepts and programs that will allow it to expand its TDM services and provide it with tools that can be offered to outside companies and agencies interested in TDM policies/initiatives. These programs include implementation of a pilot telework program for City employees and the development of a Carbon Tracking Tool to help individuals and groups track the carbon reductions associated with their efforts and programs.

In Phase Three, the City expects to expand its outreach efforts to include downtown employers and residents and implement policies and regulations that support TDM efforts. Outreach programs will include assisting the Region in current outreach programs to large employers within downtown Kitchener, providing outreach to downtown residents and commercial property owners, and providing guidance on TDM-friendly site design practices.

In Phase Four, the City is considering a further expansion of its TDM outreach efforts including the development of a community based social marketing (CBSM) program to encourage downtown residents to use sustainable modes of transportation and enhanced support for the existing carshare program managed by Grand River CarShare.

Programs that have been identified for further study include the establishment of a “commuter store” in a retail location in downtown Kitchener that would provide area residents, visitors, and employees with personalized information on sustainable modes of transportation, and additional study on the feasibility of implementing regulations that require large employers to implement TDM programs.

The cost of the program has been estimated at $75,000 in year one, increasing to $200,000 by year four. The plan has developed estimates of the benefits that can be reasonably expected. Phases One and Two of the program are expected to reduce the SOV mode split from 72 percent to 60 percent for the 1,200 city employees being targeted. A review of successful TDM programs in North America indicates that general TDM programs are often able to reduce one kilometre of travel for every $0.12 in spending, which they have translated into an estimated reduction in vehicle travel equal to approximately 150,000 km per year. In Phase Three, the community based social marketing program is expected to reduce vehicle travel by 5 to 15 percent, representing a reduction in vehicle travel by 22.5 million kilometres during the five-year plan. TDM friendly site design and regulations at large employers are expected to reduce the drive alone rate at affected businesses by 2 to 3 percentage points.
2.4 PUBLIC ATTITUDES TOWARDS TRANSPORTATION

Ipsos Reid was hired to poll residents of the Region on issues related to transportation and possible improvements to the transportation system, comparing results to a previous public opinion survey conducted in 1997 where possible. The survey of 365 randomly selected residents of the Region of Waterloo was conducted by telephone between November 26 and December 4, 2007.

According to the Public Opinion Survey Report prepared by Ipsos Reid, responses can be summarized as follows:

- Residents in 2007 seem more open to changing their behaviour, with significantly more residents agreeing that a better transit system, subsidized transit passes, a better designed mixed-use development community, and major road congestion would motivate them to use public transit more than in 1997.
- There is near unanimous support for public transit within the Region of Waterloo (96%), with most residents agreeing that public transit is better for the environment (92%) and that it is not just for people who cannot afford a car (62%).
- Residents in the Region of Waterloo agree that people should be using their cars less often. Slightly more residents think this is achievable (48%) compared to those who think it isn’t (42%). They recognize the impact driving has on the environment and on personal health and are supportive of transit overall, although 32% strongly agreed it will not be them taking it.
- The group to focus on moving their modal choice appears to be the occasional users, those who currently use transit and are open to using it, but could use it more frequently. This group represents about 54% of residents. Most residents admit they see gas prices rising to a point where they would drive less often. As such, transportation initiatives surrounding better transit service (between the Region and the GTA, between Cities/Townships in the Region and within each City/Township) are thought to be significantly more important in 2007 than in 1997. This is an indication that residents recognize the importance of transit improvements to the transportation system in the Region overall more than they did previously.
- One third of residents (33%) indicated they drive less today than they did ten years ago, while 38% indicated they drove the same and 27% drove more. Using other modes of transportation such as walking, public transit, cycling and carpooling are all cited as reasons for driving less.
- The challenge to encouraging residents to drive less comes from the fact that residents find driving to be more flexible (97%), more convenient (frequency, location of stops) (88%) and that using transit makes it difficult to reach some parts of the Region (72%).
- Residents continue to rely on the automobile but there has been a significant increase in the number of residents who walk or take transit at some point in their commute or trips around the Region.
- Just over seven in ten residents said they were satisfied with transportation in the Region and 70% said they were satisfied with public transit service. Residents are significantly less satisfied with the level of congestion on the roadways in 2007 (47%) than in 1997 (62%).
- Residents have significantly shifted their attitudes regarding the widening or construction of new roads. Nearly half (47%) of residents in 2007 felt construction of new roadways was essential/very important to the transportation system compared to 31% in 1997. A similar trend was also observed for widening of existing roads.
- Residents are significantly more satisfied (62%) with the condition of the roadways in their city/township than they were in 1997 (46%).
- The factors which residents feel are most important when planning the future transportation system are the impact on the environment (both natural areas and waterways) and impact on personal health. While 6-7% of residents feel the economic impact (impact on business and moving goods) is the most
important, overall it does not resonate to the same extent as the impact on health, the social impact and the environmental impacts.

Overall, the results of the Public Opinion Survey show that there is much more awareness of the transportation challenges facing the Region today than in 1997, including health, social, and natural environmental impacts.

Residents are supportive of the direction to provide more transportation choices in the future than are available today. Residents in 2007 seem more open to changing their behavior, with significantly more residents agreeing that a better transit system, subsidized transit passes, a better designed mixed-use community, and major road congestion would motivate them to use public transit.
3. EXPERIENCE OF OTHER JURISDICTIONS

3.1 EXISTING GTHA POLICIES

The Greater Toronto Area and the City of Hamilton (GTHA) is considered to be the largest metropolitan area in Canada. With a continuously increasing population of approximately 5.1 million people, the GTHA has generated more than 2.5 million jobs. About half of both the population and employment are located in the City of Toronto. In the next decade, it is anticipated that the GTA population and employment will grow by 30 and 40 percent respectively.

It has been proven that over the past 20 years, there has been a continuous increase in the automobile use as a primary mode of travel as shown in Figure 3. Furthermore, SOV has risen from 75% in 1981 to 85% in 2006 as shown in Figure 4. Due to the continued population and employment growth, automobile trips are estimated to increase 64% by the year 2021.

This tremendous growth in auto demand has forced municipalities and employers in the GTHA to aggressively search for and implement programs, such as TDM, which begin to increase the number of travel options available to commuters in the hopes of decreasing the number of vehicle trips and changing the way people commute. As such, several municipalities have developed TDM tools and policies that are currently implemented throughout the GTHA including the Smart Commute Initiative and other private sector / employer-specific programs.

The Smart Commute program strives to encourage commuters to shift from driving by utilizing other forms of transportation, be it public transit, carpooling, vanpooling, walking, or bicycling. A Smart Commute program is usually promoted by the municipality or Regional TDM co-coordinator. As of 2004, Smart Commutes have been established in Markham, Richmond Hill, Mississauga, North-east Toronto, Brampton-Caledon, Halton, Durham, and Central York.

According to the Smart Commute Initiative: Effective Congestion Relief flyer, Smart Commute has been successful in eliminating the equivalent of 10,000 vehicles from local roads and highways each weekday during the period from May 2004 to March 2007. These positive results are due to the combined participation in strategies such as telework, transit, cycling, and carpooling.
The Smart Commute program became a part of Metrolinx at the beginning of 2008, and will continue to support the implementation of TDM measures across the GTHA.

Other TDM strategies, which do not fall under the Smart Commute program, have also been implemented to various degrees in the GTHA:

- Online trip planners for local transit such as Mississauga Transit, Hamilton Street Railway, Brampton Transit, and York Region Transit. This online tool will enable users to enter their desired travel time, origin and destination, and have the website display the best transit route.
- TDM programs at several college and university campuses
- Electronic tolling on Hwy 407 that varies by time of day and vehicle type
- Introduction of the Presto Smart Card pilot program to integrate fare payment across multiple transit services
- Active and Safe Routes to School programs that encourage children to walk and bicycle to school
- HOV lanes to encourage carpooling
- City of Toronto’s cycling promotion program and CAN-BIKE educational efforts
- Changes in policy (City of Toronto requirement for a TDM plan as part of development applications)
- Discounted transit pass sales for specific targeted groups
- **Pollution Probe**: a Canadian charitable environmental organization that defines environmental problems through research, promotes understanding through education, and presses for practical solutions through advocacy. One of its programs is the SMART (Save Money and the Air by Reducing Trips) program designed to reduce the number of SOV commuters. It targets employers by assisting them in implementing alternatives such as group commuting by transit or carpool, telework, flextime, walking and bicycling

- **Car Sharing**: Currently there are three car sharing companies providing services to individuals and companies in the Toronto area. More information can be found at the following websites: [www.autoshare.com](http://www.autoshare.com), [www.dashcar.com](http://www.dashcar.com), [www.green-fleet.com](http://www.green-fleet.com)
- **On-Line Carpool Matching and Ridersharing Sites**: There are several car pooling matching sites that GTHA commuters can benefit from: [www.carpooltool.com](http://www.carpooltool.com), [www.carpoolworld.com](http://www.carpoolworld.com), [www.gosmart.com](http://www.gosmart.com), [www.erideshare.com](http://www.erideshare.com).

The implementation of the tools and initiatives in the GTHA has shown some positive results to date. According to the GTA Commuter Behaviour Survey conducted in 2006, 19% of commuters in the Highway 400 corridor currently telework occasionally and 30% would like to do so if the option was available. Another strategy that has displayed early results is the HOV priority lanes constructed on Highways 403 and 404. Within a few months of opening, travel time savings of eight to nine minutes were experienced compared to adjacent general traffic lanes. After one year in service, the peak morning period carpools increased from 15% to 40%. Furthermore, GO Transit has reported that their bus service has experienced decreased travel time and increased reliability on both Highway 403 and 404.
3.2 METROLINX REGIONAL TRANSPORTATION PLAN

Operating within the legislative framework of the Greater Toronto Transportation Authority Act, 2006, Metrolinx was created by the Government of Ontario to develop and implement an integrated multi-modal Regional Transportation Plan (RTP) for the Greater Toronto and Hamilton Area (GTHA). This region, Canada’s largest and most rapidly growing metropolitan area, encompasses the City of Toronto, the four surrounding regional municipalities (Durham, Halton, Peel and York) and the City of Hamilton. The main objectives of this RTP is to set out priorities, policies and programs in order to achieve a more efficient and sustainable transportation system in that region and to assist decision-making in the day-to-day planning, coordinating, and implementation of that system.

The majority of Metrolinx policies have been developed based upon the current challenges and problems faced by our transportation systems today, problems which are forecast to worsen considerably in the face of projected growth in the region. The Metrolinx Regional Transportation Plan (RTP) has suggested a number of policies designed to improve the available transportation choices and travel experience for the travelling population. The Transportation Demand Management vision for the future outlined by Metrolinx involves the practice of four elements:

- Bringing TDM into the mainstream of public life, planning, and decision making
- Building TDM into infrastructure investments
- Using incentives and disincentives to motivate behaviour change
- Advancing to the forefront of technology solutions

While the Metrolinx RTP focuses on the development of an integrated transit and highway network to serve the needs of the GTHA, the plan recognizes the importance that TDM measures can play in supporting the future transportation vision for the area. To support the future transportation system, Metrolinx has developed ten strategic directions to guide transportation decision making in the future. These directions include:

- Build a comprehensive regional rapid transit network;
- Enhance and expand active transportation;
- Improve the efficiency of the road and highway network;
- Create an ambitious Transportation Demand Management Program;
- Create a customer-first transportation system;
- Implement an integrated transit fare system;
- Build communities that are pedestrian, cycling and transit-supportive;
- Plan for universal access;
- Improve goods movement within the GTHA and with adjacent regions; and
- Commit to continuous improvement.

The RTP recognizes that different TDM policies and programs will appeal to and work better in different transportation markets. It also recognizes that different combinations of measures may be required for different areas of the GTHA, depending on the travel demand patterns in each area and the prevalence of each market in the overall area travel demand. Table 1 below highlights a summary of possible TDM measures, identified by Metrolinx, which have been grouped according to the specific market that they may target.
The RTP has recommended an ambitious TDM program that includes action plans for each of the key markets in the GTHA. Recognizing that many of the policies and programs that will need to be implemented fall under numerous jurisdictions, the plan recommends further work to develop targeted TDM strategies for a series of markets.

<table>
<thead>
<tr>
<th>Initiative Types and Target Markets</th>
<th>Example Measures</th>
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</thead>
<tbody>
<tr>
<td><strong>Workplace</strong></td>
<td></td>
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<tr>
<td>● Commuters</td>
<td>● Subsidized transit passes</td>
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<tr>
<td></td>
<td>● Tax exemption for transit benefits</td>
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<td></td>
<td>● Ride-matching services</td>
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<td></td>
<td>● Vanpool promotion</td>
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<td></td>
<td>● On-site active transportation linkages, bike parking and shower facilities</td>
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<td></td>
<td>● Telework or flexible work-hour programs</td>
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<tr>
<td></td>
<td>● Video/teleconferencing</td>
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<td></td>
<td>● Office locations near transit service</td>
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<td></td>
<td>● Parking pricing</td>
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<td></td>
<td>● Parking cash-out programs</td>
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<td></td>
<td>● Emergency Ride Home programs</td>
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<tr>
<td><strong>School</strong></td>
<td></td>
</tr>
<tr>
<td>● Students</td>
<td>● Walking school buses</td>
</tr>
<tr>
<td>● Parents</td>
<td>● “School pool” ride-matching</td>
</tr>
<tr>
<td>● Staff</td>
<td>● Cycling skills training</td>
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<td></td>
<td>● Sustainable transportation curriculum</td>
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<td></td>
<td>● On-site active transportation linkages and bike parking</td>
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<tr>
<td></td>
<td>● On-site parking restrictions</td>
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<tr>
<td><strong>Post-secondary Institution</strong></td>
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<tr>
<td>● Students</td>
<td>● Universal transit passes (U-PASS)</td>
</tr>
<tr>
<td>● Staff</td>
<td>● Ride-matching</td>
</tr>
<tr>
<td>● Faculty</td>
<td>● Parking pricing</td>
</tr>
<tr>
<td></td>
<td>● Virtual classes</td>
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<tr>
<td></td>
<td>● On-site active transportation linkages, bike parking and shower facilities</td>
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<tr>
<td><strong>Household</strong></td>
<td></td>
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<tr>
<td>● Individuals and families in their own neighbourhoods</td>
<td>● Individualized marketing</td>
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<tr>
<td></td>
<td>● Community-wide ride-matching</td>
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<tr>
<td></td>
<td>● Car-sharing</td>
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<td></td>
<td>● Location-efficient mortgages</td>
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<td></td>
<td>● Developer-provided transit passes</td>
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<tr>
<td><strong>Community-wide, Commercial &amp; Institutional</strong></td>
<td></td>
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<tr>
<td>● Users of particular transportation services or facilities</td>
<td>● Transit fare discounts</td>
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<tr>
<td>● Users of particular community services or facilities</td>
<td>● Parking levies</td>
</tr>
<tr>
<td>● Specific population segments</td>
<td>● Transit service branding</td>
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<tr>
<td></td>
<td>● Special community events and challenges</td>
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<td></td>
<td>● Online trip planners</td>
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<td></td>
<td>● Real-time transit information</td>
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<td></td>
<td>● Road pricing (tolls)</td>
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<td></td>
<td>● Distance-based vehicle insurance</td>
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<tr>
<td></td>
<td>● Shuttle services between community centres, transit stations, hospitals, shopping centres</td>
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<tr>
<td></td>
<td>● Partnerships between transit service providers and car-sharing services</td>
</tr>
<tr>
<td><strong>Corridor</strong></td>
<td></td>
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<tr>
<td>● All those travelling to, from or through the corridor</td>
<td>● Various measures concentrated along a particular travel corridor</td>
</tr>
<tr>
<td></td>
<td>● Transportation management associations</td>
</tr>
<tr>
<td></td>
<td>● Shuttle services</td>
</tr>
</tbody>
</table>

Table 1 - TDM measures grouped by market
Source: Metrolinx
<table>
<thead>
<tr>
<th>Public Sector Employers</th>
<th>Develop TDM strategy for all provincial ministries and agencies such as school boards, hospitals and universities that include actions, timelines and budgets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipalities</td>
<td>Establish guidelines and model policies to help municipalities develop and implement TDM policies in their Official Plans and Transportation Master Plans.</td>
</tr>
<tr>
<td>Corridors</td>
<td>Require a TDM strategy, including social marketing where applicable, as a condition of provincial funding for all major road and transit projects.</td>
</tr>
<tr>
<td>Neighbourhood Level</td>
<td>Require a TDM strategy as part of local Official Plan / Site Plan applications for any major commercial or employment development.</td>
</tr>
</tbody>
</table>
| Employers              | Encourage private sector employers to implement TDM programs.  
Encourage employers to offer their employees a choice between a free subsidized parking space or a cash equivalent.  
Encourage employers to offer their employees discounted transit passes by adding a clause in the employee’s contract agreement. |
| Individual             | Provide financial incentives to encourage transit use (local transit subsidy, U-Pass programs, employer provided or subsidized transit passes, and bulk discounts for transit passes).                                                                 |
3.3 TDM ACROSS NORTH AMERICA

In order to rectify numerous transportation problems and to improve the efficiency of people mobility, many cities throughout North America have successfully implemented TDM programs which have proven to have a positive influence on their transportation systems. Analysis of these programs can provide valuable learning experience and examples for other cities and communities to gain knowledge, allowing for the successful implementation of their own similar programs. The following will briefly describe some of TDM programs and initiatives implemented in some major cities across North America:

**Atlanta, Ga, US.** In 1999 eight transportation management associations in the Atlanta region, The Clear Air Campaign, the Atlanta Regional Commission’s Commute Connections Program and the State Employee Commuters Assistance Program signed a framework agreement, formally called the Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality. This Atlanta TDM Framework focuses on the following three program areas to change employee and employer travel behaviour:

1. Media campaigning;
2. Employer and individual outreach services; and
3. Regional supporting programs and services to encourage carpooling, vanpooling, transit use, biking, walking, teleworking and compressed work week schedules.

According to a survey conducted in 2002, the successful implementation of this framework has resulted the following:

- 53,400 alternative mode commuters associated with the Framework related TDM programs
- 37,500 fewer daily vehicle trips
- 780,000 fewer daily Vehicle Kilometres Traveled
- Daily GHG emissions reduced ≈0.3kt CO₂
e
- Daily Pmtot reduced ≈.02 tonnes

**Seattle, Wa, US.** In 2005, a Green Ribbon Commission was established to recommend climate protection actions for the Seattle community to meet or beat the Kyoto target. A major component of this commission’s recommendations was the implementation of the following TDM measures in order to reduce automobile use:

- Increasing the supply of frequent, reliable and convenient public transportation
- Significantly expanding bicycling and pedestrian infrastructure
- Leading a regional partnership to develop and implement a road pricing system
- Implementing a new commercial parking tax
- Expanding efforts to create compact, green, urban neighborhoods

“Way to Go” is the City’s umbrella program for all of their various, coordinated efforts to increase walking, biking, transit use, carpooling and other alternative transportation modes. The program has a number of elements including the “One Less Car” program (encouraging people to give up their second vehicle, the “Commuter Cash” program (offering financial incentives for those who choose an alternative to driving alone), and the “Cut a Couple Car Trips” program (offering prizes and incentives to encourage people to reduce at least two car trips per week).

According to the Washington State Department of Transportation, worksites that have participated in the commute trip reduction program since 1993, the drive-alone rate has dropped from 70.9 percent in 1993 to 65.5 percent in 2007. As an indirect benefit, commuters reduced emissions by eliminating 4000 tons of...
air pollution in 2007 through the choices they made. These commuters also reduced petroleum consumption by 7.9 million gallons, saving over $23 million in fuel costs.

**Arlington County, Va, US.** This community is considered to be one of the most successful examples of Transit-Oriented Development in the US. During the last two decades, nearly 18,000 residential units and more than 46 million square feet of office and retail space have been built in that area. A Metrorail transit system was developed along which the County promoted high-density development. This strategy along with frequent local bus service, excellent walking and cycling conditions, and mixed land use that locates many activities close together has led to a significant increase in transit ridership (most transit riders get to the rail station by foot, bicycle or bus). As a result, the County has grown rapidly without major expansion of the exiting highway network or parking facilities, while maintaining low tax rates.

The area also implements an aggressive TDM program including the following strategies; performance guarantees and fines are applied if developers fail to implement required programs.

- **Ridership Promotion:** distributing brochures and posters, conducting travel surveys, operating vanpool programs, subsidizing vanpool programs, employee transportation coordinator, supporting TMA, Guaranteed Ride Home.

- **Parking Management:** Ridership vehicle priority parking, price SOV parking, discounted vanpool parking.

- **Transit Programs:** help fund shuttle buses, commuter transit subsidy.

- **Providing On-Site Facilities:** bike parking and showers, van accessible garage, off-street delivery.

- **Help Fund Off-Site Facilities:** pedestrian systems (SKYWALK), direct connections to metro, new metrorail stations.

**Portland, Or, US:** The Transportation Options division of the Portland Office of Transportation provides information, resources, and tools to help Portland residents, employers, and employees make good choices about how to get around.

Portland was also the location of the first large-scale individualized marketing program in North America, known as TravelSmart. The TravelSmart program was implemented to coincide with the opening of a new light rail line, and targeted over 14,000 residents living in the catchment area for the new service. Thousands of households in the study area received individualized marketing information on transit, walking and cycling and some received follow-up visits from trained staff to assist them in understanding and using the new transportation choices in their community. A separate control area did not receive the individualized marketing services. Subsequent surveys showed that that the growth in transit trips in the area where individualized marketing was offered was twice as high as in the control area. Both areas reduced their auto use, with the TravelSmart area showing a 14% reduction in driving compared to 8% in the control area. Higher levels of cycling and walking were also reported, increasing average activity levels of residents by two hours each month.

The TravelSmart program has now been expanded throughout the greater Portland area under the banner of SmartTrips. SmartTrips is a comprehensive approach to reduce drive-alone trips and increase biking, walking, and public transit in targeted geographic areas of the city. It incorporates an innovative individualized marketing methodology, which hand-delivers packets of information to residents who wish to learn more about their transportation options including transit, walking, bicycling, carpooling, car sharing, and combining trips. Key components feature biking and walking maps and organized activities.
that get people out in their neighbourhoods or places of employment to shop, work, and discover how many trips they can easily, conveniently, and safely make without using a car.

The project has five primary goals:

- reducing drive alone trips
- reducing vehicle miles driven by area residents and employees
- increasing awareness and raising acceptability of all travel modes
- increasing walking, biking, transit, carpooling and car sharing trips
- increasing neighbourhood mobility and liveability.

The City of Portland chooses an area of town with approximately 20,000 households each year to implement this program. Area selection is based on analyzing land use patterns, transit service availability, bike and walking infrastructure, and current transit or streetscape infrastructure investments such as new light rail or bicycle and pedestrian trails.

Each household in a SmartTrips area receives a newsletter with a calendar of nearby walks, clinics, and bicycle rides. The newsletter highlights SmartTrips programs and describes other transportation projects and programs such as Safe Routes to School, an area streetscape project, and how to use the transit agency's services. The first newsletter includes a notice about the SmartTrips Order Form that residents use to get information and incentives about walking, bicycling, transit, carpooling, and more.

Staff process and deliver the information materials and incentives within a two-week period — usually within one week of receiving an order. Speed, efficiency, and professional materials are central to making the program a success. Residents receive their requested materials in a handy vinyl tote bag with an attached, personalized paper luggage tag. A thank-you letter, SmartTrips Calendar of events, and area walking map are included in every delivery bag. Residents can order a variety of maps, brochures, tips, and event schedules for every mode of transportation: walking, bicycling, transit, carpool, car sharing, and driving.

SmartTrips and TravelSmart projects have yielded a reduction of 9 to 13 percent in drive-alone car trips by all area residents with a corresponding increase in walking, bicycling, and transit mode shares in the SmartTrips areas. The program costs $10 per person in the SmartTrips area. A typical 20,000-household program costs $570,000.

**Calgary, AB, Canada.** The Canadian City located in the prairies had never experienced any major impediments in its growth and as a result of the outward growth the expanding population has encouraged the development of a road network oriented towards personal vehicle usage. Calgary is most known for its CTtrain Rapid Transit System, as it has one of the highest ridership rates, higher than any other light rail system in other North American cities.

*Escape the Rush* was created in 1999 as a public awareness campaign to illustrate the advantages of various strategies that encourage travel alternatives during the closure of a major bridge crossing (Centre Street Bridge from August 1999 to September 2000) leading into the downtown. The program focussed on the development of information packages to employers, and employees that highlighted the various available transportation options and the benefits (to individuals and businesses) of considering alternatives to the automobile. During the 14-month bridge closure over 34,000 trips per day were displaced. When the bridge reopened not all commuters returned to their old travel patterns. Many maintained their new route, new travel times or alternative modes commuting now by transit, carpool, cycling or walking. The success of the program has resulted in a continued emphasis on individualized marketing as part of the overall City of Calgary TDM program, now known as *Transportation Solutions.*
The City of Calgary partnered with Commuter Connections to develop, implement, and promote an internet car-pooling service for the surrounding Calgary area. A year later approximately 1,000 residents were utilizing this ride matching service, surveys and counts conducted by Commuter Connections have shown that within a year 143 carpools were formed and operating taking approximately 250 cars off the road each day.

Vancouver, BC, Canada. TransLink, the Regional Transportation Authority for the Greater Vancouver Area plans, finances, implements and operates an integrated transportation system, with responsibility for major regional roads as well as public transit. TransLink has been at the forefront in implementing TDM programs in Canada. Their OnBoard program is an integrated TDM program that promotes and offers many convenient, cost-effective, and environmentally-friendly commuting solutions to employers and to their employees.

Since it began in 2002, the OnBoard program has assisted over 250 Metro Vancouver employers to identify and implement commuting options for their employees. These options are convenient, cost effective and viable alternatives to driving alone. The OnBoard program provides trip planning services to help residents find out about how to access alternative transportation modes for their trip. Incentive programs include a discounted annual transit pass through payroll deduction, ride matching services, car and van pooling (including carpool lots), car sharing, active transportation (cycling and walking), parking management strategies, teleworking and shuttle buses. A guaranteed ride home program is offered to commuters who commute using sustainable transportation (i.e. ridesharing, vanpooling, cycling, walking, or taking transit) with a free ride home in the case of unexpected emergencies.

Boulder, Colorado, US. GO Boulder was initiated by the City of Boulder Council in 1989 with a vision to produce innovative ideas to reduce congestion and SOV usage. As a result many initiatives correlated to commuter travel; education, promotion, and outreach; travel information systems; and land use were successfully implemented. Boulder has become nationally recognized as a leader in providing alternative modes for effectively addressing mobility. All due to careful planning, strategizing and closely following the guidelines and policies of their highly refined Action Plan. The success of Boulder can be attributed to four generalized processes which have helped to create a transportation model that is a leader in its class. The generalized processes are:

- Define and plan for multi-modal corridors;
- Build and develop strong regional connections;
- Implement travel demand management initiatives; and
- Develop innovative funding strategies.

Boulder was adamant in defining and planning for multi-modal corridors. This process included understanding the dynamics of transportation facilities, land use, and the design for solving transportation demand. A high importance was placed upon regional connections, where emphasis on partnerships with the Boulder County and adjacent cities was undertaken. The proactive collaboration with Regional partners and other constituents has provided convenient travel choices to the communities. Large emphasis was placed upon Travel Demand Management, as it was not just to identify a toolbox of programs and improvements, but to also include methods of implementation and performance measuring through Transportation Management Organizations/Associations.

Transit initiative is an example which best defines Boulder’s success as it encompasses all four aforementioned elements. Careful planning of multi-modal corridors provides necessary dedicated bus laneways to allow for uninterrupted high frequency service. Strong connections with Regional partners and associates has allowed for new opportunities. The BOLT, high frequency bus line connects Boulder...
to Longmont, Colorado, servicing many major land uses along the journey. This high frequency line was possible through partnerships with the Regional Transportation District (RTD), Boulder County, and Longmont. Many transit and non-transit related TDM strategies have been implemented to increase ridership and mobility throughout the communities. For example the ECO-Pass program is an annual transit pass purchased by an employer for their employees, or by a neighbourhood of 50 contiguous households. With this photo ID card, holders are entitled to unlimited rides on regular RTD transit services. Many other TDM initiatives are implemented as additional services included in conjunction with the ECO-Pass. These include Call-N-Ride, Shuttle Services to local sporting events, Bike-N-Ride, Ski-N-Ride, Night Stop Services, Shuttle Services around the Flatiron Shopping District, Free MallRide Service, RideArrangers, VanPool, and the list of TDM related programs and services available to members and non-members of the ECO-Pass program extends beyond.

The ECO-Pass is available as a neighbourhood program and for businesses. A neighbourhood ECO-Pass program is usually spearheaded by a neighbourhood association or government entity. Once entered into a contract with the Regional Transportation District (RTD), a community appointed liaison works with an RTD planner to define maps boundaries, the amount of transit services to be provided, and the contract amount. The minimum contract amount outlined by the city is $7,000 which correlates to a minimum number of units required. Once neighbourhood blocks accept the ECO-Pass program, they must contribute funds to meet their specified contract amount with funding from association dues or neighbours that organize efforts to canvas funds to fulfill the contract amount. The neighbourhood ECO-Pass is cost-effective as it provides holders with many additional benefits at a fraction of the cost of a RTD monthly transit pass.

Typically, the business ECO-Pass is financed by the employer and offers as an employee benefit. This pass can only be purchased by employers for their employees as a group employee benefit package, where family members are not eligible. One stipulation that outlines required participation is that employers must purchase one pass for every full-time employee. The pass encourages all employees to utilize transit as well as first-time riders. In order to fund this program, some businesses collect voluntary contributions from their employees or implement employee fees for parking a singly occupied vehicle in the company parking lot. Money derived from such strategies assists employers to cover costs for the ECO-Pass program and motivates employees to utilize the ECO-Pass or modes other than their automobiles. The City of Boulder offers assistance to help employers subsidize the cost of the program providing rebates to any business ECO-Pass contract employers that have an employee on staff that participates in the Boulder ETC (Employee Transportation Coordinator) Network.

The ECO-Pass program benefits businesses and employers, employees, and the community. The ECO-Pass is tax-deductible to employers as well as tax-free to employees for up to $115/month for each employee or $1,380/year. It can also be offered as a pretax benefit, saving even more in payroll taxes.

The City of Boulder’s GO Builder objective is to reduce all SOV trips to 25 percent by the year 2025 with no more than 20 percent of roadway congestions.
3.4 SUMMARY OF LESSONS LEARNED

After reviewing the TDM programs and initiatives implemented by the above mentioned cities and metropolitan areas as well as many other metropolitan areas across North America, we can summarize hereunder some important lessons learned from their experiences.

Much of the success of any TDM program or initiative can be attributed to properly promoting and implementing the following:

- commute trip reduction programs;
- ridesharing programs;
- TDM program benefits analysis;
- transit improvements;
- transit oriented developments;
- smart growth; and
- parking management.

Implementing some or all of these measures has been effective in solving key transportation problems that were evident. These measures were highly effective in solving the problems of reducing the need to make trips, shifting peak hour travel to off-peak hours, shifting trips away from congested areas, reducing congestion within these congested areas, reducing travelling time for all travellers, and reducing overall pollution within the implementation area.

Some people will still feel the need to drive, particularly where alternative travel modes are not available. TDM programs should focus on ways to provide choices to those who only need to use their car occasionally. Commute trip reduction programs and ride sharing programs are an essential component of a successful TDM program, as demonstrated by the City of Seattle and the City of Calgary. In Seattle, their commute trip reduction program, named Way-To-Go, promotes better travelling options to discourage the increasing rate of drive-alone vehicles. The City offers many incentives to those who attempt to reduce singly occupied vehicle travel.

Land use and transportation are intrinsically linked. It has been demonstrated by each city, in order to successfully promote sustainable transportation and the usage of public transit, transit improvements, transit oriented development (TOD), and Smart Growth must coexist together so significant results can be achieved. Provision of transit improvements will enhance the quality of service, escalating transit to a level that is comparable and competitive with the automobile. Enhancements will not only improve service but create an improved image of public transit. Transit improvements strive to create a more efficient public transit service, correspondingly an efficient service requires transit oriented development to promote and create accessible land use patterns. As areas begin to intensify Smart Growth strategies must be applied to ensure that densities are adequate to support a transit service. In order for Smart Growth to be successful integrated changes as compact development, improved walkability and increased transit service quality must exist. All three of these strategies, transit improvements, TOD and Smart Growth are related to one another, where one element requires the other.

Seattle, Washington, has over the years developed many transit improvements throughout its downtown core, creating transit-only lanes with transit signal priority and queue jumps, contra-flow lanes, the development of transit-only corridors, the provision and upgrade of new bus shelters and waiting areas, as well as synchronized traffic signals. For effective usage of these newly implemented transit improvements, the transit service requires transit oriented development to support such improved services. Transit Oriented Developments in Portland, Oregon enforce aggressive polices to promote appropriate
development. The establishment of the Portland TOD Zoning Code is enacted by law to ensure that intensification that occurs is transit supportive.

In Vancouver, B.C., SkyTrain transit stations have been a catalyst for regional town centres, resulting in high population densities with high levels of transit usage. Similar to Vancouver, Calgary, Alberta displays similar land use trends as many dense communities are located within a close vicinity to transit stations. Transit oriented development is closely utilized with Smart Growth, as land use management techniques allow for more accessible, multi-modal, efficient communities. In Portland, transportation funds have been shifted from highway capacity investments into rail development with supportive land use policies to create TOD’s. In Washington, the Washington State Growth Management Act emphasizes efficient development, where as the City of Vancouver uses a policy of “planning by proximity” to minimize transportation and utility costs.

Collaboration with many different partners and stakeholders is an important factor contributing to the success of TDM. An influential example of working with many partners is witnessed in the Puget Sound Region in Washington. Vanpool programs are operated by six public transit agencies, together these programs sponsor close to 1,300 vanpools. The success is attributed to state legislation that mandates commuter trip reduction programs within workplaces.

Target-specific marketing strategies will prove to be highly beneficial. Because transportation issues are highly sensitive, the marketing methods must be strategic and methodical. Any negative exposure should be avoided as it may prove detrimental to the implementation and success of TDM efforts. The Portland TravelSmart Program, the City of Calgary’s Escape the Rush campaign, the Seattle Area “Way to Go” program, have used ambitious individualized marketing approaches to reach out to residents and employers in a way that is meaningful to them.

Economic incentives are powerful motivators. Providing travellers with a reason to change and alter travel decisions will prove to be beneficial. Economic incentives and associated disincentives are a sure method to provoke change and gain interest in TDM efforts. In San Francisco, parking management reforms have taken place within the downtown core. As a result of the many parking rules and regulations these disincentives with a positive impact of encouraging other sustainable travel options. The incentive of dedicated parking spaces for car-sharing vehicles has encouraged usage of such programs. Seattle’s “Way to Go” program offers cash rewards to those who have switched to alternative transportation modes for at least one year.

TDM needs to recognize constraints that people face and develop solutions to overcome common barriers. There are a number of barriers that will affect the viability of TDM for some residents. Successful TDM programs have developed innovative approaches to overcome the most common barriers that people face. For example, the need to have access to a car in case of emergencies is one of the most common reasons people cite for not using transit or other alternative transportation modes. In the Vancouver area, TransLink has developed a Guaranteed Ride Home program that will provide a free ride home to people who rideshare, vanpool, take transit, or use active transportation modes to and from work.
3.5 OPPORTUNITIES AND CHALLENGES

In developing and implementing travel demand management programs, especially in a mixed land use setting such as is the case of a region wide transportation system like the Region of Waterloo’s, there are a number of challenges that should be identified that are best described as barriers to implementation:

- The complexity of development ownership, and corporate pressures have to be considered.
- Reducing the availability of parking could be perceived as affecting the economic viability of certain operations.
- Lack of and costly parking are challenges in regard to recruiting employees to local business.
- Travel Demand Strategies for one land use type may not be appropriate for another. For example, carpooling initiatives may not be practical where there are smaller workforces or where employees work varied shifts, however they may work well where there is a significant staff complement (Clarica) and/or a significant number of staff are on shift work (Toyota).
- Flexible work hour (flex time) strategies could result in reduced customer responsiveness and scheduling difficulties for service industries.
- Reallocation of transit service in response to new TDM initiatives could result in reduced levels of service to existing transit users.

Other constraints can include environmental, behavioural, social / cultural, land use, and economic factors that can also act as barriers to participation in TDM programs. These include:

- Environmental
  - Weather (current conditions: rain, snow, hail, wind, etc.)
  - Climate (general conditions: temperate, humidity, wind, precipitation etc)
  - Route Complexity (pedestrians, cyclists - enjoy complex environment; drivers - prefer simplicity)
  - Route Quality (direct, complete and continuous)
  - Safety and Comfort (accident risk associated with non-auto modes, sidewalk or trail repair or maintenance, roadway repair/maintenance, safety from crime, perception of safety (line-of-sight, lighting, entrapment sites), comfort (noise, dirt, garbage), social interaction while traveling (fellow commuters))

- Behavioural
  - Transportation System (level of service offered by modes of transportation)
  - Distance (distance comfortable to walk, cycle)
  - Perception (perceived risk as important as ”actual” risk, perception of needs, range of alternatives to specific choices and perceived qualities or disadvantages of different travel modes)
  - Habit (behavioural pattern)

- Social/Cultural
  - Demographics (age, social status, economic status, gender, cultural background)
  - Activity Types (travel requirements and trip chaining e.g. work, children’s activities, recreation, medical services, shopping etc.)
  - Health (physical and mental fitness)
  - Culture (social symbolism of travel behaviour, status)
  - Function of Travel (importance of time in work, lifestyle, to get to workplace, for socialization, for recreation, for medical/ other care, household upkeep, to maintain social obligations)
  - Household characteristics (single, married, dependents, friends)
  - Environmental Consciousness (concern for environmental issues and sustainability)
  - Community Ideals (concern for quality of street life, community life)
Regional Municipality of Waterloo - Regional Transportation Master Plan

“Travel Wise” Strategies Overview

- Economic
  - Cost/benefit – real or perceived (cost of travel: benefits (time spent, accessibility, convenience, mobility)

- Land Use
  - Mixed Land Use – degree to which commercial, industrial, institutional and residential land uses are located close together
  - Connectivity – degree to which roadways, walkways, cycling trails are connected

Most of the actions considered in the realm of TDM are not new. Opportunities to introduce effective TDM programs may be described according to the following basic strategies:

- **Improved Alternatives**: TDM offers legitimate alternatives to driving alone including transit, car and van pooling and, where appropriate, provisions for walking and cycling. The emphasis however, is on providing these alternatives in a manner which makes them competitive with the service levels offered by the private auto. Experience has shown that many users value travel time and convenience in making their transportation decisions, and will choose alternative modes if they offer competitive service levels.

- **Incentives and Disincentives**: While opportunities exist to design more competitive alternatives, even the best designs will have difficulty achieving an equal level of competition with the auto, particularly in an urban environment where on-site parking is readily available. In many cases, incentives are necessary to overcome these built in advantages and equalize the economic competition between the auto and other modes. In the case of universally based incentives, these can include travel time savings, and preferential parking at the destination. Financial incentives are also important and can consist of direct subsidies to non-single occupant vehicles, in-kind subsidies such as discounted transit fares or inverted parking rates which favour high occupancy vehicles.

- **Trip Generation Management**: The first two types of TDM actions described may directly affect travel efficiency in terms of mode choice. Trip Generation Management strategies attempt to affect vehicle trip demand by shifting that demand to less congested time periods or to eliminate the need to travel at all. This includes such strategies as flexible work hours, staggered work hours, modified work schedules and working from home.

3.6 **THE POTENTIAL IMPACT OF A COMPREHENSIVE TDM PROGRAM**

As previously noted the objective of a TDM program is to maximize the movement of people rather than moving vehicles. Many TDM strategies are directed at reducing auto trips and, in particular, single-occupant vehicle trips. The potential impact of TDM strategies and measures is difficult to quantify and is dependent upon a number of variables including but not limited to:

- Availability and quality of transit services;
- Community structure;
- Current TDM strategies and measures in place within the community; and
- Overall community awareness of TDM benefits.

Within the previous sections of this document there is anecdotal evidence of the success of various TDM strategies and measures. Table 2 below provides a generic summary estimate of TDM Auto Trip Reduction Potential based upon the experiences of other jurisdictions across North America. The reductions shown here are exclusive of potential transit mode share increases as a result of modifications to the transit system or transit service. As can be noted from Table 2, previous experience has shown that a significant reduction
in auto trips could be anticipated with an effective, well planned and coordinated TDM program. This is intended for illustrative purpose and reflects the implementation of some basic TDM measures.

Table 2: Summary of TDM Auto Trip Reduction Potential (Exclusive of Transit)

<table>
<thead>
<tr>
<th>TDM Measure</th>
<th>Short Trips (&lt;10km)</th>
<th>Long Trips (&gt;10km)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2021 Short to medium term</td>
<td>2031 Long term</td>
</tr>
<tr>
<td>Improved land use and transportation integration</td>
<td>1%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Ridesharing (numbers reflect potential for overlap with transit)</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Walking/cycling</td>
<td>4%</td>
<td>5% - 8%</td>
</tr>
<tr>
<td>Telecommuting</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

As discussed above it is difficult to quantify benefits associated with the implementation of TDM strategies. Until additional work on the RTMP has been completed (network development and analysis, travel demand forecasting, parking and transit strategic plans, etc.), it is not possible to establish targets for reducing auto trips within the Region as a result of the implementation of TDM strategies or measures for long and short distance trips. Such targets will be identified following the development of future system networks for 2021 and 2031 and establishment of transportation operational strategies including levels of transit service.
4. MOVING FORWARD ON TDM

To enable the Region to move forward on TDM in the community, a series of potential TDM Policies/Initiatives has been identified for consideration in the development of the RTMP and as enhancements to the Regional “Travel Wise” program. These policy/initiative options are grouped under four key categories that include:

1. Land Use and Transportation Integration
2. Transportation Supply
3. Education, Promotion, Outreach
4. Travel Incentives and Disincentives

A brief description of each policy/initiative option is provided below, and Appendix B provides a comprehensive summary for each policy/initiative option in terms of description, where it has been applied before; what benefits or specific objectives it would address; delivery mechanisms and potential implementation issues, potential effectiveness, and degree of implementation challenges. The table also provides a preliminary summary of the policy/potential TDM initiatives that are recommended to be carried forward in the development of the RTMP, noting those that are currently underway in the Region.

4.1 LAND USE AND TRANSPORTATION INTEGRATION

Provide immediate transit service to new residential areas to be funded by the Developers - Provision of immediate transit service to new residential developments can potentially induce the use of public transit for commuter travel. Initial transit service would be funded by the developer, based on agreed upon service frequencies that reflect the area and type of development being served. For example in an area adjacent to a dense urban area service frequencies of 15 minutes during the peak periods and 60 minutes during the off-peak periods may be specified. The developer would incur the costs of this service until at least 20% of the operating cost is returned through the fare box, at which time Grand River Transit would be responsible for fully funding the service. This initiative would ensure that residents in new communities would be provided with immediate access to transit services, would help to establish ridership early in the development life cycle, and may prevent some home owners from purchasing a second vehicle. A potential issue that may arise concerning this initiative is the resistance from developers for funding such a service. The added costs would increase the cost to purchase a new home and the development industry would likely be concerned that funding the transit services will set a precedent for future development areas. In Boulder Colorado a city by-law requires developers of new residential subdivisions to buy each household three years worth of transit passes.

Fully wire all new homes for high-speed internet - Providing the basic infrastructure to support high speed internet services within new development communities is a key measure that can be undertaken to promote telecommuting and increased work at home opportunities in a community. Providing internet – ready homes in new development areas is an example of a win-win TDM strategy, as home buyers are actively looking for these types of enhancements when they are making their home buying decisions. Not only does this strategy make sense from a transportation perspective, it also makes sense to the developer from an economic perspective.

Many of the new development communities in the GTA have moved to providing homes that are fully wired for technology, and the Cornell Community in East Markham is perhaps the most well known. This master planned community was designed as a model community to illustrate the benefits of New Urbanism and Smart Growth principles in community planning. In addition to walkable neighbourhoods...
and a healthy mix of land uses, the residential units in this community were specifically designed to accommodate and support work at home or home based businesses.

**Require change room and shower facilities at all major workplaces** - Many communities have policies in their Official Plans that encourage large employment generators to consider providing change rooms and shower facilities in their buildings to support those who choose active transportation modes to get to and from work. This type of policy approach is typically implemented by municipalities as part of local land use zoning bylaws. Overarching policy direction is often contained in Regional and Municipal Official Plan documents.

**Create a standardized list of TDM policies/initiatives based on real world experience to enable developers to reduce auto trips and parking spaces** – A standardized list of successful TDM policies/initiatives based on the real world experiences should be prepared for implementation within the Region of Waterloo. Each developer should follow and include appropriate strategies in their development proposals/plans. The Region would require developers to submit TDM plans as part of their development submissions.

**Ensure secure and permanent bike parking is built at all schools, major workplaces, and commercial centres** – The provision of secure and permanent bicycle storage facilities that safeguard against theft and vandalism is a key measure to support active transportation modes. Bicycle theft, or the fear of theft, often deters some cyclists from cycling to work and leaving their property unattended for long hours during a workday. Ensuring that bicycle property will be safeguarded by providing facilities will promote cycling usage, provide an alternative mode of transportation choice, and reduce work peak hour congestion.

Long-term parking is required where bicycles will be left for hours at a time. It requires a high degree of security and weather protection, with well-designed racks in covered areas, lockers, storage rooms, or fenced areas with restricted access. Long-term bicycle parking provides employees, students, residents, commuters and others who stay at a site for several hours a secure and weather-protected place to store their bicycles. The Region of Waterloo has begun to provide bicycle racks at most of their iXpress stations, and secure bicycle lockers are currently provided at the Ainslie St. and Charles St. transit terminals.

**Develop partnership with developers to provide for construction of transit shelters and station facilities within the community** - Public transit incentive programs include the construction of transit shelters and amenities, the construction of bus/rail transit stations and related facilities, as well as the dedication of land and the provision of other subsidies for the construction and operation of public transit facilities.

Combined with the initiative for developers to provide and fund initial transit service to new development areas, the provision of transit shelters and/or station facilities in these new development areas offers an opportunity to improve the quality of service provided to transit users and induce new riders to consider public transit. The provision of transit shelters and station facilities is ideally suited to be integrated into the streetscape and, in the case of transit stations, into the development concept itself. Transit Oriented Development policies implemented in many communities such as Portland and Calgary recognize the need to integrate transit infrastructure into the surrounding land uses and streetscape to make transit use comfortable and convenient for users.
The City of Alexandria, VA has developed an ordinance that requires developers to invest in transit amenities and service improvements. These regulations generally link zoning approvals to specific actions by developers to limit the adverse congestion impacts associated with their developments.

**Establish maximum parking requirements for residential, commercial, industrial, and institutional sites** - Many communities have traditionally established parking requirements in their communities for residential, industrial and institutional sites that strive to ensure that the parking offered on a development site is sized to accommodate the maximum demand that may be generated by the facility, which often coincides with peak retail shopping demands. This approach ensures that urban areas will have an oversupply of accessible parking during lower demand periods and even during the traditional commuting periods. Many communities have begun to look at placing a limitation on the number of available parking spots that are provided in new development areas as means to deter travellers from arriving via automobile. Private parking is largely provided free as a “cost of doing business” and limits the municipality’s opportunities to manage the supply and cost of parking.

Many communities have established cash in lieu polices, where developers can pay money to the municipality where they cannot provide sufficient parking on their development sites. This allows the municipality to invest these funds in the development of municipally controlled parking lots, and in turn control the price and supply of parking to achieve travel demand management objectives. This strategy will only be useful and effective if other modes of transportation are provided.

**Provide more zoning flexibility to support home based business/home offices** - Many communities have Official Plan policies that permit some form of home occupation land uses within residential areas, provided that certain zoning requirements are met. Implementation of these land use decisions are typically made at the area municipal level, where the characteristics of each neighbourhood can be taken into consideration in the development of the policies. From a regional perspective, Official Plan policies already encourage flexibility to permit home occupations and home business under certain circumstances.

Some of the new development communities in the GTA have moved to providing communities that are designed with home offices in mind from the start. The Cornell Community in East Markham is perhaps the most well known. In Cornell, many of the buildings have been designed so that they can be used as residential spaces in the interim, but can be converted to small retail establishments in the future, with living quarters or office space on the upper floors.

**Promote shared parking practices in commercial/retail developments** - Shared parking for commercial retail developments is a form of parking management that is applied at a property specific level. Often adjacent commercial properties have operational characteristics that result in their peak parking demands occurring at different times. For example, a movie theatre (with peak parking in the evenings or Saturdays) adjacent to an office building (with peak parking demands in the mid day period) could share all or a portion of their overall parking needs rather than provide the maximum for each land use separately.

To some extent, this already occurs in mixed use development areas; however a broader application of this policy would treat other urban areas in the same manner. Essentially parking would become a pooled resource to be shared between different land uses in an urban neighbourhood. Issues relating to maintenance and cost sharing would need to be addressed at the local level, and a framework would need to be established to deal with the zoning bylaw requirements. A policy of this nature would certainly help to manage the supply of parking, particularly in relatively low density commercial strips, and would reduce the land consumption due to parking – allowing for further intensification along major corridors.
Integrate local shopping/services centres and employment areas into suburban neighbourhoods in land use planning - This strategy would promote active transportation (walking, cycling) allowing local residents to forgo the use of their vehicles for local shopping trips.

Limit student parking at local high schools, colleges and universities along with transit improvements

The broad availability of parking at high schools, colleges and universities contributes to many students finding it more convenient to drive to school rather than use alternative transportation modes. Similar to the approach used in some urban areas, managing the supply of parking and providing access to alternative travel modes at these institutional land uses is an important component of Travel Demand Management. Implementation would need to be coordinated between the local school boards, college/universities, parents, municipalities, and transit operators.

McMaster University in Hamilton recently developed a TDM strategy to deal with an expected shortfall in on-campus parking. Compared to the cost of providing a parking structure (estimated at $16,000 per stall capital cost; and $460 per stall annual operating cost) the University found it would be much cheaper and more environmentally friendly to pursue a balanced approach that includes TDM measures that reduce auto traffic arriving at the campus. Options such as the provision of transit passes to faculty and students, carpooling programs (and preferential parking for carpools), developing transit terminals on the campus site to better facilitate transit access from different areas of the City, and a focus on improving cycling facilities linking to and within the campus area were all considered.

Un-bundle parking costs from residential units at time of purchase in new multi-unit complexes – Many municipalities require that residential developments provide a minimum number of parking spaces per unit. The costs to provide this are incorporated into the cost of the unit itself, hidden from the consumer. Unbundling these costs allows buyers to purchase the amount of parking they actually require and may make them think twice about how many vehicles they decide to purchase.

For example, if a residential neighbourhood was designed to provide only one parking space per unit, additional spaces could be provided at designated lots. Home owners with a second vehicle could buy or lease a space for a cost from the developer or the municipality. Those who decide to defer the purchase of second vehicle would save money, equivalent to the value of the additional parking space. A similar concept is currently used in many condominium developments where parking is provided separately from the unit that you purchase.

Limit on-site residential parking spaces for new single-family dwellings – Similar to the un-bundling of residential parking in subdivisions, this strategy also limits the number of available parking spaces in residential areas as a means to limit automobile usage. Controlling the supply of available parking may deter many residents from owning a secondary vehicle as parking is scarce. This strategy can reduce the number of vehicles within a community, although this approach would need to be carefully implemented in conjunction with the development community as this may impact the marketability of the development compared to other development areas. Additional parking management measures may also be required to ensure that problems with on street parking or infiltration of parking to other side streets do not occur.

Require transit friendly road networks (i.e. grid structure) – Based on Cervero and Kockelman’s (1997) research work, the Land Use–Transportation–Air Quality (LUTRAQ) study conducted by Parsons Brinckerhoff Quade and Douglas, Inc. (1993) for the Portland, Oregon region is one of the most comprehensive efforts to date to measure the effects of pedestrian-friendliness of road networks on transit ridership. In this study, a panel of experts subjectively rated neighbourhoods in terms of certain network characteristics. The study concluded that simple correlations showed that highly-rated neighbourhoods providing easier street crossing, sidewalk continuity, grid-like street pattern, and flat topography had more transit trips and therefore the pedestrian-friendly road network can also be
interpreted as a transit-friendly one. Pedestrian / transit-friendly street-network design covers several physical features such as a well-connected street pattern with wide and well-paved sidewalks, proper building orientation that gives the pedestrians and cyclists enough “sense of orientation” (Fruin, 1971) and safety to walk and cycle, and many other factors geared towards persuading people to use non-auto modes of travel.

**Review development staging in new communities to ensure high density is contained in initial phasing** – Many mixed use development areas provide flexibility for a phasing in of higher densities as market conditions permit. This approach, however, defers the critical densities required to support transit early in the development life cycle. Municipalities should consider reviewing the permitted development staging in new communities to ensure that a sufficient proportion of high density land uses are contained in initial development phases to support the more compact development patterns that better support transit. As a minimum, this would include establishing and enforcing minimum density requirements for each phase of the development. This strategy could also consider incentives for developers (i.e. reduced development charges) who implement higher density units in the early phases, as a means of making these units more marketable.

**Establish minimum bicycle parking requirements for all new medium and high-density residential and commercial buildings** – As part of local land use zoning requirements, many communities are requiring developers to ensure that facilities are provided to accommodate bicycle parking for residential and commercial buildings, particularly higher density residential buildings where bicycle parking may be limited. This strategy encourages and promotes cycling as an alternative for residents and promotes and builds healthier communities. These types of policies are typically implemented through the site plan review and approval process at the municipal level.

**Include walking, cycling, carpooling and transit component assessments in Transportation Impact Studies for all developments** – Increasingly, many municipalities are taking a broader view to the traditional Traffic Impact Study. Rather than focussing on improvements necessary to accommodate automobile demands, many agencies are requiring a multi-modal approach be included in these studies to ensure that infrastructure necessary to support alternative modes of transportation i.e. walking, cycling, carpooling, and transit assessments components are included in the development plan. The Region of Waterloo has already begun to require that developers address all modes of transportation in their Traffic Impact Studies.

**Amend the Development Charges Act to enable municipality to levy charges for all transportation related infrastructure including pedestrian and cycling facilities** – The current Development Charges Act does not allow municipalities to collect development charge revenue to fund services that are not currently provided, or to fund enhanced service levels beyond what has historically been provided. This works against the introduction of new TDM or transit programs that are aimed at providing new or enhanced services, even if these result in savings on the amount of road improvement programs that are required.

**Use trees and other green infrastructure to provide shelter, aesthetic value, shade, and separation from motorized traffic** – “Transit share diminishes rapidly even within 800 metres of transit station if there are considerable physical, symbolic, or psychological barriers to walking” (Tranplan Associates, 2001). According to Hendricks et al. (2005), Cervero et al. (2004), the network of streets and walkways must be developed for the convenience and comfort of the pedestrian. This means direct, well-connected, safe, and visually interesting sidewalks without any gaps or major barriers. Therefore the use of trees and other green infrastructure to provide shelter, aesthetic value, shade, and separation from motorized traffic will encourage people to shift travel modes toward non-auto ones.
LEED Transportation and Parking Credits

Current LEED (Leadership in Energy and Environmental Design) rating systems and similar systems by LEED Canada include a few credits to encourage more efficient transportation including, but not limited to:

- Development density;
- Public transportation access;
- Bicycle storage and change facilities;
- Parking capacity; and
- Hybrid and alternative fuel vehicles.

Although the LEED rating system goes a long way to encouraging more efficient use of the transportation system, it excludes some of the most effective strategies including financial incentives or disincentives relating as parking pricing including cash out and unbundling. Work undertaken by the Victoria Transportation Policy Institute suggests that parking pricing and public transit subsidies can double or triple mode shifting impacts. It is also suggested that active transportation will also increase if parking is priced or cashed out.

Parking management deserves special consideration as a TDM and LEED strategy as conventional practices are very inefficient. Reduced, or more flexible parking requirements, are generally cost effective since current standards are very generous and parking facilities are increasingly costly to build and operate. Many management strategies are available and the resultant reduction in vehicle trips and pavement area provides many benefits.

The LEED system should support reduced and more flexible parking requirements and encourage improved parking management strategies directed at reduced auto use. The LEED rating system should be modified to include a more comprehensive set of transportation and parking credits. Recommendations for improved LEED transportation and parking credits are contained in the document produced by the Victoria Transport Policy Institute entitled “Recommendations for Improved LEED Transportation and Parking Credits”, June 12, 2008. The approach recommended by the Institute defines performance targets that would be needed to achieve LEED categories (silver, gold and platinum). Developers would establish mobility and parking management plans and indicate how targets will be met, how performance will be evaluated and what additional strategies will be deployed, if needed, to achieve targets. The Region of Waterloo should include an assessment of potential LEED objectives relating to mobility and parking management strategies. As part of the Region’s parking policy and management review, policy reforms should be investigated that challenge conventional planning practices that make parking abundant and cheap at every destination.

4.2 TRANSPORTATION SUPPLY

Build park ‘n’ ride facilities with bike parking facilities at various locations throughout the Region – Park ‘n’ Ride facilities provide intermodal connections to those who can not easily access bus routes, allowing residents the opportunity to park their vehicles near transit stations, bus stops and highway on-ramps, to facilitate transit and rideshare use. Construction of Park ‘n’ Ride facilities throughout the Region of Waterloo will encourage carpooling and transit use by offering transportation choices for residents and commuters. Park ‘n’ Ride facilities play a critical role in building ridership on routes serving lower density areas or single destination areas, and can bridge the transition gap between local, regional and provincial transit services. As the cost of fuel continues to increase and commuters are looking to save money by carpooling, usage of the formal parking facilities may improve the availability of safe secure parking areas thereby encouraging some residents to carpool or increase their usage of public transit.
The Ministry of Transportation of Ontario provides free carpool parking lots near dozens of highway interchanges throughout southern Ontario. They are ideal places to meet up with pre-arranged carpool partners before entering the highway system. There are also a handful of selected lots that serve public transit, specifically GO Transit.

Current Park ‘n’ Ride facilities available in the surrounding Kitchener-Waterloo, Cambridge, and Guelph areas are the Milton and Georgetown GO stations which connect to existing GO train infrastructure. Construction of new facilities could be implemented in conjunction with future GO service expansion to the Waterloo Region and as part of the Waterloo Rapid Transit Initiative.

**Provide buses at a minimum frequency of 10 – 15 minutes on major transit corridors** - This will improve the quality of transit service provided. Maintaining 10 to 15 minute headways on major transit routes will significantly improve the image of transit service and improved service frequency is often cited as a priority by transit users. Improved service frequencies have the potential to increase ridership as shorter headways allow transit to become more competitive with the auto mode, and reduce the need to memorize detailed schedules.

There are several items that may be addressed to reduce and maintain shorter headways. To increase service frequency, additional transit vehicles and staffing will be required; with the obvious downside of increased transit operating costs. Altering transit operations can prove to be useful, such as utilizing skip-stop or accelerated operations to obtain the desired headways. Physical methods can be implemented to improve headways including altering road/track geometry, such as having level boarding platforms at bus stops to reduce boarding and alighting times.

In 2003, The Waterloo Region implemented the Route 101 Express that traveled between Fairview Park Mall and the University of Waterloo, operating Monday to Friday during peak periods on 15-minute headway. A year after implementation, this route exhibited noticeable ridership growth.

**Continue to install and promote bike racks on all transit vehicles** - The combination of transit and cycling can provide a high level of mobility that is comparable to automobile travel. Transit vehicles can carry bicycles, with bike racks mounted on buses or by carrying bicycles in vehicles often only during off-peak periods due to priority seating for passengers. Being able to carry a bicycle allows it to be used at both ends of the journey. This is also helpful to cyclists who experience a mechanical failure, unexpected bad weather, or sudden illness. From a safety perspective it also allows cyclists to pass major barriers, such as tunnels or bridges, where cycling is prohibited or particularly difficult.

Bike and transit integration is usually implemented by the transit agencies, often in consultation with bicycle advocacy groups and transit operators. Integration of the two modes has proven successful in attracting new riders. Successful implementation has also lead to congestion reduction, road and parking savings, and consumer savings by reducing automobile travel and by increasing affordable travel options. All GRT buses currently support bicycle-transit integration as their fleet of buses is equipped with bike racks to accommodate cyclists.

**Create Transit Priority Plans and explore the provision of High Occupancy Vehicle priority lanes** -
Transit Priority Plans – Transit Priority Plans (TPP) can be developed by providing Transit Signal Priority (TSP) and/or queue jump lanes. TPP are deployed to improve transit operations and service quality and eventually promote more ridership, improve person mobility, reduce traffic congestion, discourage Single Occupant Vehicles (SOV), reduce emission and fuel consumption rates. In recent years transit priority plans have been widely implemented in North America and worldwide.

HOV priority lanes – This provides priority to public transit vehicles, vanpools and carpools in traffic and parking. HOV Priority is a major component of many regional TDM programs. Two, three or four occupants may be required to be considered a High Occupancy Vehicle, depending on circumstances, as opposed to SOV. HOV lanes provide travel time savings, operating cost savings and increased travel reliability. HOV lanes typically provide time savings from 0.5-minutes per mile on arterial streets up to 1.6-minutes per mile on congested freeways. HOV programs are most successful when implemented as part of an integrated regional transportation strategy that includes other improvements and incentives for transit and rideshare use.

Many travelers place high value on achievable time savings, especially if unpredictable delays are reduced. HOV Priority lanes improve the performance of transit and ridesharing as a direct benefit to users. As well it encourages a shift from SOV to HOV travel modes which benefits all road traffic. Travel time savings and the mode shift effects depend on circumstances, including the degree of congestion and the facility design.

Develop Incident Detection And Management System (IMS) that informs drivers of traffic congestion and alternative routes - The use of these systems can avoid and prevent traffic congestion. This requires a strategic ITS plan to be developed. Intelligent Transportation Systems (ITS) refers to the use of information technologies such as computers, telecommunications, Global Positioning System (GPS) and the internet to improve transportation system performance and efficiency. There are many specific types of ITS, but applicable for an incident detection and management system are emergency warning systems and emergency response systems. A warning system alerts drivers of excessive speed, roadway hazards, traffic, and weather conditions, whereas an emergency response system includes emergency beacons and roadside assistance systems integrated with vehicle location information provided by GPS.

Continue to plan and expand utilitarian and recreational cycling facilities - The planning and expansion of utilitarian and recreational bicycle paths goes hand in hand with the promotion and use of public bicycle systems. Creation of new facilities and the expansion of existing pathways is an important component of a community’s overall active transportation strategy, and compliments community public bicycle sharing systems, making them more effective and encouraging further usage.

Within the Waterloo Region many recreational bicycle paths currently exist. Kitchener offers over 100 kilometres of community trails throughout the City. The City of Waterloo offers over 120 kilometres of trails which take you through Uptown Waterloo, parkland, natural areas, woodlands and creek corridors. There are some multi-use trails for hiking, jogging, cycling and roller blading and bicycle routes exist on City streets. Cambridge also offers a wide variety of pathways suited for hiking rather than for usage for utilitarian trips on bicycles. Improved funding mechanisms are required to support continued development and expansion of the active transportation network in most communities. This may require an approach that considers active transportation infrastructure as a core service, similar to roads and transit infrastructure.

Identification and implementation of pedestrian walkways and pathways - Walkways, sidewalks, crosswalks, paths, pedestrian friendly streets, and pedestrian plazas are developed through non-motorized planning. Once established, these walkways and pathways require appropriate management and
maintenance programs. Maintenance programs should identify the agencies responsible for maintaining facilities, the maintenance standards that are to be applied, and special activities such as snow clearing. Walkways and pathways improve access, and thus reduce the need for travel. The implementation of walkways supports public transit and helps to maintain pedestrian and transit-oriented developments.

Providing improved pedestrian walkways and pathways can include measures such as ensuring that sidewalks are provided on both sides of all new streets in new development areas; both residential and industrial/commercial areas. The implementation of these types of policies is often controlled at the area municipal level, in agreements between municipalities and individual developers. Within a broader area planning context (i.e. secondary plan area), many communities are developing specific active transportation plans and policies to ensure that this infrastructure is built into new communities up front.

**Promote and support the expansion of a privately operated shared vehicle program** - The concept and launch of Car Sharing originally began in 1987 in Switzerland and was later implemented in Germany in 1988. The idea of sharing automobile use eventually came to North America in 1993 with a pilot program in Quebec City. Car sharing programs are typically private run businesses that provide vehicles for short term use of members. Vehicles are parked at various locations throughout the City and access is provided via a smart card, which is programmed to provide access to a specific car at a specific time of day. Many car share companies allow you to book the vehicles online, and offer pay as you go or monthly plans that can be tailored to the amount you drive.

Expansion of car sharing programs would greatly help to achieve a reduction in emissions that contribute to air pollution and climate change. Car sharing reduces the number of cars on the road, though it may seem counterintuitive as car share companies introduce more cars within their fleets. Frequent car share users will tend to sell their secondary or even primary vehicle and begin to use alternative modes of transportation if viable. Car sharing is an affordable solution for those who from time to time require the use of a car but cannot afford to own one.

Car sharing organizations exist throughout Europe and North America. In Canada, companies exist in Quebec, British Columbia, Alberta, and Ontario. In Toronto, two companies offer car sharing they are AutoShare and ZipCar. Within the Region of Waterloo, there is Grand River Car Share which currently has 11 cars within its fleet.

**Collaborate with the school boards to develop efficient transportation systems for high school students** – Municipalities and Regional officials must collaborate with school boards to make commuting easier, more efficient and enjoyable for high school students by encouraging them to shift travel modes toward public transit, carpooling, walking, and cycling. This is achievable through programs that provide services such as help finding and using new travel options, information on the costs and benefits of travel choices, recognition and rewards, etc.

**Implement a bicycle sharing program** - Bike Sharing or Community Bike Programs provide convenient rental bicycles intended for short utilitarian urban trips. A typical public bike system consists of a fleet of bicycles, a network of automated stations where bicycles are stored, and bike redistribution and maintenance programs. Bicycles may be rented at one station and returned to another. Stations with automated self-serve docking systems tend to be located at major destinations and transportation centres. Public bicycle systems are most efficient when bicycles are shared by many users each day.

Public Bike Systems are generally implemented in order to minimize problems such as conflicts and accidents. Successful public bicycle systems have resulted in a mode shift from automobile to bicycle as large as 5–8% in the areas they serve. Bicycle sharing program results include increased cycling, increased usage of public transit and shifts from automobile travel to alternative modes. By reducing
automobile travel, bicycle sharing can help reduce traffic congestion, road and parking facility costs, consumer costs, and energy consumption and pollution emissions.

Many cities now have Public Bike Systems, and the number tends to be increasing. In Paris, France, The Vélib system has attracted worldwide attention due to the large number of bicycles in the system, with more than 20,000 in 2008.

Waterloo, Ontario could become one of the first North American cities with a bicycle sharing program. Waterloo graduate students from the School of Planning recently won a $25,000 prize from TD Bank’s Friends of the Environment Foundation for their proposal for a bicycle-share program in the Region of Waterloo. The graduate students plan on taking their proposal to the Region in the fall in hopes that their initiative will be implemented within the Waterloo’s university area, with hopes of public bicycle sharing programs spreading to other areas of Waterloo, Cambridge and Kitchener.

*Establish winter and general maintenance standards that focus on the needs of pedestrians, cyclists, and those requiring accessibility* — The walking and cycling road networks must be assigned a set of general maintenance standards to keep them as pleasing as possible to their respective users. Also they need to have a set of winter maintenance standards in particular with defined threshold conditions for winter operations in order to identify when to start the winter maintenance operations, what degree of bare pavement is to be restored, etc. This will help to keep these road networks accessible to pedestrian and cyclists all year round.

### 4.3 EDUCATION, PROMOTION & OUTREACH

*Create and support Transportation Management Associations (TMAs) in urban centres, commercial districts, malls, medical centres, primary and secondary nodes, corridors, and industrial parks.* — TMAs are geographically based non-profit, member-controlled organizations aimed at providing sustainable transportation services and solutions as well as improved mobility and accessibility in a specific development area, such as urban centres, a commercial district, malls, medical centres, primary and secondary nodes, corridors, and industrial parks. TMAs can be viewed as mechanisms to help implement transportation demand management (TDM) measures.

The creation of TMAs within the Region would allow for opportunities to implement partnerships between the Region of Waterloo, local municipalities, local business and residences, and the Province of Ontario. Through the creation of these Transportation Management Associations, transportation demand management initiatives will be implemented with greater ease.

The Greater Toronto Area Travel Demand Management Program now known as the Smart Commute Initiative is an ambitious GTA-wide program of transportation demand management initiatives and transportation management associations. Transportation management associations are currently operating in the following areas of the GTA: City of Toronto; City of Hamilton; Durham Region; Halton Region; Peel Region; and York Region.

*Expand Travel Wise program to Area Municipalities and local employers* — Travel Wise is a program to tame traffic congestion and make the most of existing transportation infrastructure. Travel Wise works with local employers, schools, community groups and the general public to make various travel options more attractive than driving alone. These ways of getting around include walking, cycling, transit, in-line skating, carpooling, and vanpooling. The program also encourages non-travel options like tele-work and compressed work weeks, and shifts in travel time to outside of rush hour. A Travel Wise Commute
program is usually promoted by the municipality or Regional TDM coordinator and the Region of Waterloo is currently offering this type of service to residents.

The Region of Halton has shown and demonstrated successful implementation of their Travel Wise Commute Halton Program. Launched in June 2006 with employees at the Halton Regional Centre, the specific initiatives encouraged include carpooling, preferential carpool parking, an emergency ride home program, transit service, and provision of bike racks. Since 2006 the Travel Wise Commute Halton program has expanded to include the City of Burlington, Town of Milton and the Town of Oakville which have implemented the program with their employees.

**Promote flexible work hour programs** – It provides opportunities for employees to be allowed flexibility in their daily work schedules. Rather than all employees working 8:00 to 5:00, some might choose to work hours of 7:30 to 4:30, and others 9:00 to 6:00.

Implementation of such a program reduces peak period congestion directly by shifting peak to off-peak periods, and can also make ridesharing and transit use more feasible. Other benefits as a result of program implementation include reduced traffic congestion, support for ridesharing and public transit use. A flexible work hour program allows commuters to match and coordinate their work schedules with transit and rideshare schedules, which can significantly increase the feasibility of using these modes.

**Recruit local employers for GRT Corporate Pass Discount program and encourage employers to provide additional transit subsidies** – This has the potential to reduce automobile usage deeply. Discounted transit passes can encourage occasional riders to use transit more often than they normally would. Employers that offer discounted transit passes are offering a better alternative than subsidized employee parking. The potential effectiveness of this initiative is high, as it has the potential to be undertaken by the private sector. Providing transit benefits will result in less congestion if more commuters continue to switch their mode of transportation. The Region of Waterloo is already proceeding with discounted transit passes made available to employers as part of the GRT Corporate Pass Program, which offers 15% discounts off the purchase price for monthly passes.

**Promote employee transportation allowance** – In the same way as the initiative described above, promoting employee transportation allowance has the potential to reduce automobile usage and persuade occasional drivers to shift travel modes towards non-auto ones including transit. This initiative has been proven to have the potential to promote the culture of living close to work places and healthier lifestyles.

**Encourage secondary and post-secondary students to adopt TDM programs (i.e. ride matching, carpooling)** – These are coordinated efforts to improve transportation options and reduce trips at colleges, universities and other campus facilities. Campus TDM programs are often implemented by facility managers and administrators to address a particular problem such as a parking shortage or traffic congestion. Some programs are initiated by student union groups to improve their travel options and to achieve environmental or community goals.

The University of Waterloo currently has some TDM strategies in place as many of the features and programs at the university already support TDM. For example, WATgreen, a university-wide committee that encourages students, staff, and faculty to contribute to solving the environmental issues faced on campus.

**Promote and expand ridesharing and telecommuting programs to local employers** – This is necessary as promoting and expanding better commuting practices is very beneficial as ideas such as ride sharing and telecommuting become known. Marketing campaigns include targeted employers and personalized marketing campaigns, which identify consumers who are most able and willing to change their travel
patterns and provide them with suitable incentives to try alternatives. By reaching out to the employer more people will become aware of the congestion that singly occupied vehicles are causing.

**Implement annual individualized marketing programs to target markets** – This strategy would involve the development and implementation of individualized marketing strategies directed at separate target groups such as employers, households, transit users, etc. Target marketing would focus on issues of relevance to particular groups and increase the chances of the TDM “message” being understood.

**Revisit and expand school education programs** – Introducing the benefits of transit, carpooling, walking and cycling modes to younger generation and adding related introductory courses to their educational curriculum will raise the youth’s awareness with regard to negative impacts of traffic congestion on the environment, health, social life, etc. and will persuade them to use non-auto modes of travel more frequently.

**Develop separate web-based trip planners for cycling and walking and also provide on-route signage and maps** – Online trip planners for pedestrian and cyclists will enable those network users to enter their origin and destination, and have the website display the best available route for cycling and walking trips. This needs to be supplemented with on-route signage and maps to make cycling and walking a viable and preferred mode of travel for relatively short trips.
Develop a transportation information portal that integrates transit, cycling and pedestrian by trip planning – Creation of a data base of information pertaining to transit by collecting information from a variety of service providers such as traffic conditions, bus schedules, carpool and vanpool opportunities and presenting it to the user via website forms a transportation information portal. The information portal or an advanced traveler information system makes travel information more accessible and convenient. Through web based services users can learn of and communicate with potential carpool partners. This added flexibility potentially redefines carpooling from a permanent arrangement with a set group of commuters to something that changes daily according to one’s need.

On June 6, 2008 EasyGO traveler information systems was launched in the Region of Waterloo. EasyGO is an integral component of Waterloo’s iXpress Bus service as now transit users have increased accessibility to transit information. This service offers a new way of trip planning, web based planning, as transit users will be able to select their departure point, destination, the date and time of their planned trip, and the maximum distance that they would like to walk. The web trip planner will display the best route, including bus stop locations and schedule information. This service will allow users to plan their transit trip for a time and location that is convenient for them.

Expand real-time schedule and route information to transit users – By providing convenient user information, including transit route, schedule and fare information transit users will be able to plan their routes quickly. Providing real-time vehicle arrival information on signs and online allows passengers to know exactly when their train or bus will arrive significantly reducing stress and allows passengers to use their waiting time more efficiently.

Currently, in the Region of Waterloo, at iXpress stations, there are monitors that display real-time information. Also, there are monitors at the two main transit terminals and at malls showing real-time information for iXpress buses and scheduled times for all other bus routes.

Continue “Active and safe Routes to School” and “Walking school bus” programs – walking and cycling to school used to be commonplace; now it is a rarity. The Federal Highway Administration has reported that roughly half of all 5 to 18 year olds either walked or biked to school in 1969. The journey to school has changed dramatically since then. By 2001, nearly 9 out of 10 children between the ages of 5 and 15 were driven to school by either a parent or a bus driver, adding additional traffic to the morning commute and negatively affecting communities around schools.

The reasons for this decline in walking and biking trips to school are multifold. For one, the journey between home and school has become longer and more treacherous because of decades of auto-oriented suburbanization. The trend towards consolidated school facilities, rather than local neighbourhood schools, has also increased school trip lengths. In today’s world, there are also the fears and concerns of
parents about exposing their children to threats from strangers and motor vehicles. And finally, in many communities, sidewalks, crosswalks, bike lanes, and trails are either missing or inadequate.

To address the special pedestrian needs of school-aged children, Active and Safe Routes to School (ASRTS) has been developed as a nationwide program to encourage the use of walking, and other safe transportation modes to and from school. The ASRTS program coined the phrase “The Walking School Bus” to describe their program of parent chauffeured walking groups that assist children to walk to school on a regular basis. In addition to reducing traffic congestion around schools, these programs have been credited with:

- Improving the level of physical activity for children and adults;
- Encouraging a healthier family lifestyle;
- Safer, calmer streets and neighbourhoods; and,
- Improved air quality and a cleaner environment.

**Complete a Goods Movement and Delivery Transportation Management Plan** – The completion of a Goods Movement and Delivery Transportation Management Plan is becoming more common in urban transportation planning as it is becoming more important that goods movement considerations are explicitly considered in the transportation planning process. Local goods movement needs not only include considerations for access to major provincial highway corridors, but can include issues such as truck routes within the municipality, truck parking/loading zones, and land use planning that integrates with multi-modal transportation corridors.

**Implement TDM plans to Government Offices, universities, school boards, and hospitals and other major trip generators** – Large institutional land uses can often generate a high number of trips during peak periods, and these locations are often well served by transit. Municipalities and other government agencies trying to encourage TDM programs in the private sector should lead by example in implementing TDM programs in their own offices. By implementing programs in their own workplaces, municipalities can also develop strategies to overcome some of the common barriers their employees face in choosing alternative modes of travel.

The Region of Waterloo has begun to address this through their Employer Commuter Options program, offered to Regional staff. The Region’s program provides information on sustainable travel options, incentives (such as discounted transit passes), services such as ridematching to make travel options more convenient, and an emergency ride home program. The Region is using this experience to help other workplaces establish their own programs. St. Mary’s Hospital, Grand River Hospital, and Desire2Learn are examples of organizations that implemented programs to assist their employees in using more sustainable modes of travel to work.

**Develop Regional and Municipal TDM monitoring programs to measure results** – Many municipalities have plans to implement TDM policies and programs but fail to put in place meaningful monitoring and measurement tools to determine if the TDM program is having the desired effect. Most Transportation Master Plans contain a section on monitoring, and in many respects these monitoring plans are just as important as the plan itself. Most Transportation Master Plans are reviewed and updated every 5-7 years. An honest assessment of the various TDM measures that have been implemented during the life of the previous plan can provide insight into policies that are working well and those that can be improved. Monitoring must focus not only on the implementation issues and feedback (both positive and negative) but also on the key results achieved versus what was expected.

TDM relies on a coordinated, consistent approach to many aspects of the various land use and transportation policy issues that a municipality must face on a regular basis. There is a need for municipalities to consider a number of different program areas through the lens of an integrated TDM...
focus. Issues ranging from budget allocations and infrastructure priorities, to engineering design standards and land use zoning requirements all have an impact on the success of TDM programs in the community. For a municipality or organization that is serious about TDM, there is a need for a coordinator to ensure that a continual focus is placed on making the right decisions for the right reasons.

TDM also needs a champion in the municipality and in the community at large. Promotion of TDM in the broader community, the preparation of TDM marketing material, and coordinating community outreach programs all require an individual to take the leadership role and ensure that initiatives are maintained.

Most of the medium to larger municipalities in the Greater Toronto Area have TDM coordinators that devote at least a portion of their time to marketing and coordinating the municipality’s efforts with respect to TDM. The Region of Waterloo has had a TDM Co-ordinator since the completion of the 1999 RTMP to take the lead on municipal initiatives. The City of London, Town of Markham, and the City of Peterborough are examples of other communities in the area that have to designate TDM Co-ordinator positions in their organizations.

4.4 TRAVEL INCENTIVES AND DISINCENTIVES

**Implement smart card program within the Waterloo Region** – A smart card is an electronic payment system that allows fast and seamless payments for transit use, roads, parking, bicycle rentals and other conveniences. Cards utilize smart chips which are able to store and contain information, some smart cards employ contactless technology which automatically deducts the correct payment value when a motorist or transit patron passes by a sensor.

The transit sector is pioneering the way in integrating contact free smart card technologies into many applications. Transit operators worldwide including Washington, Philadelphia, Atlanta, Hong Kong, and Lyon, France are implementing parking and fare payment solutions based on contact free smart card technology. This technology provides key benefits such as improved customer service, increased revenues, increased operational efficiency, and providing a paperless system.

Presto is the smart card pilot program being tested for use across the Greater Toronto Area. The initial pilot project was introduced on a limited basis in the City of Mississauga for regular GO Transit riders who start their trip at the Cooksville or Meadowvale stations and take Mississauga Transit shuttle routes, or Toronto Transit Commission outbound at Union Station. In late 2008, the use of the Presto fare card will be expanded to include Burlington and Oakville commuters including the GO Transit Lakeshore West line. By 2010, Presto will be fully implemented on Brampton, Burlington, Durham Region, Hamilton, Mississauga, Oakville, Toronto, York Region and GO transit systems.

**Redevelop overall parking implementation plan** – Parking availability and the cost of parking in urban areas have a strong link to auto usage. Where parking is plentiful and free, as is the case many suburban areas, auto use tends to dominate compared to transit and more active transportation modes. In more dense urban areas, where parking supply is limited and is priced, transit use tends to be higher. The development of overall parking management plans for urban areas is a key TDM strategy that can be effective in managing auto demands, and reducing congestion.

Many municipalities have developed parking strategies for their downtown urban areas, but the focus of these strategies can vary substantially. Many municipalities approach this from a retail / business perspective, and focus on ensuring that there is an adequate supply of inexpensive parking in these urban areas to support existing and future retail activities. Fewer communities have tried to approach this from a transportation demand management perspective, which looks to manage the supply and cost of parking to make transit and non auto modes of travel more competitive.
The Town of Markham developed a parking management plan for the City Centre area that includes maximum parking standards, temporary parking provisions, cash in lieu policies and a parking infrastructure phasing plan tied to development. The plan also recommended the development of new standards and zoning requirements that would move the Town towards an optimal parking requirement approach (managing supply and price) rather than an approach that only focuses on supply. The parking management strategy for the Town Centre area is slowing evolving to a ‘paid parking’ environment, and the City is considering establishing a Parking Advisory Committee and business plan to manage the municipal parking operations in the area.

Provide information about property tax reduction/credit commensurate with vehicle ownership – Some organizations have considered implementing TDM policies that provide a direct financial incentive (through Property tax Credits) to households based on the number of vehicles they own. While this may provide an incentive vehicle ownership, there are a number of implementation and monitoring issues that may make this type of approach difficult to manage. Other land use based approaches or other broad based incentive programs (such as user pay programs) may be more effective and easier to manage. It is unknown if any jurisdictions have attempted to introduce property tax credits that are directly tied to personal vehicle ownership.

Transportation pricing – road tolls, congestion pricing, and area specific tolls are all examples of transportation pricing policies that can have an impact on vehicle usage in urban areas. Other pricing strategies include High Occupancy Toll (HOT) lanes (which charge single occupant vehicles a toll for permission to use an HOV lane), vehicle user fees, road space rationing, emission fees, fuel tax increases, and distance based fees or insurance premiums.

These strategies are often utilized to solve different transportation objectives. A roadway toll may encourage use of alternative modes of travel, or a variable toll by time of day may encourage more travel in off peak periods, spreading demand throughout the morning and afternoon rush hour period. Distance based fees reward those who take shorter trips, and may encourage people to live closer to where they work or go to school. Transportation pricing strategies can also be used a stable revenue sources for communities to fund transportation improvement programs, transit investments, and other high cost infrastructure investments. Social acceptance of the various transportation pricing strategies may deter and possibly prevent implementation.

Provision of permanent transit passes (GRT) for each home/residence within the Region of Waterloo – The provision of permanent transit passes like GRT to all home owners / residents would provide a powerful incentive to increasing transit ridership. The costs of the transit passes could be funded through a special levy by the Region of Waterloo or the area municipality, and residents could claim the costs as part of their property taxes paid on their Provincial Tax Credit forms (for those who qualify). Administrative issues would need to be addressed including how to determine the number of transit passes that each household receives, delivery of annual passes to each household, and how to address affordability issues for residents with low or fixed incomes, who would receive a substantial increase in property taxes to fund the program.

GO Boulder offers a bus pass program that is similar to this called the Neighbourhood Eco (NECO) Pass. As of March 2008, 32 neighbourhoods in Boulder offer the NECO Pass to more than 8,700 eligible residents. Each neighbourhood that participates in the program is assigned a transit pass for all residents, and the neighbourhood collects the required cost from the community members to pay for the bulk passes. Costs range from $63-$143 per household based on 2008 Transit fares.
5. SUMMARY OF PUBLIC COMMENTS

5.1 BACKGROUND

In late November 2008, the Region of Waterloo hosted public workshops associated with the Regional Transportation Master Plan – Moving Forward 2031. The workshops took place from 6:00pm – 9:00pm at three different locations over a one week period and provided an opportunity for the public to participate in a “conversation” regarding the future of transportation in the Region of Waterloo. The dates and locations for these workshops were as follows:

- **Tuesday, November 18, 2008**  
  United Kingdom Club  
  35 International Village Drive  
  Cambridge

- **Wednesday, November 19, 2008**  
  St. Andrew’s Presbyterian Church  
  Iona Hall  
  54 Queen Street North  
  Kitchener

- **Thursday, November 27, 2008**  
  First United Church  
  Hilliard Hall  
  16 William Street  
  Waterloo

5.2 WORKSHOP OBJECTIVES

The purpose of these workshops sessions was to review and discuss key elements of the Transportation Master Plan including goals, principles and objectives and suggested travel demand management strategies for the Region of Waterloo. The goals, principles and objectives are critical to the development of a new Regional Transportation Master Plan as they form the framework or map for future planning and decision making relative to the development of a transit oriented network within the Region of Waterloo. Some suggested travel demand management strategies were presented for review by the public with the objective being to determine those strategies/elements that were considered feasible for the Region of Waterloo and acceptable to the residents within the Region.

Workshop #1 was designed to inform the public of overall RTMP study objectives and to facilitate the initiation of dialogue regarding the future vision for transportation in the Region. At that time participants were encouraged to discuss their thoughts regarding relationship between a strong transportation system, vital economy and a healthy community. Workshop #2 built upon the discussions which occurred at Workshop #1 and the input provided by the public. Using this feedback the Project Team developed a series of goals, objectives and principles to define the vision for the next RTMP. As noted above, these goals and objectives will serve as the foundation or map for the plan so that the future transportation policies, priorities and programs developed in the RTMP will help the community meet their overall goals and objectives and shape the future of the community. Public comments on the goals, principles and objectives are summarized in a separate working paper entitled Goals, Principles and Objectives.

Over the last several years the Region of Waterloo has been a leader in Ontario in implementing a number of Travel Demand Management (TDM) measures to enhance the transportation choices available to residents
within the Region. Workshop #2 presented a number of new TDM ideas that could be used to build upon the recent successes and further encourage residents to use alternative transportation modes, make fewer trips, or to drive more efficiently.

5.3 SUMMARY OF PUBLIC COMMENTS – TRAVEL DEMAND MANAGEMENT

Participants at Workshop #2 selected the following strategies that they were most supportive of for expanding the Region’s existing TDM program. The strategies below are numbered to correspond with the items in Appendix B.

- 34 – Recruit local employers for the GRT Corporate Pass discount program and encourage employers to provide additional transit subsidies (8),
- 25 – Continue to plan and expand utilitarian and recreational cycling facilities (6),
- 32 – Expand Travel-wise program to Area Municipalities and local employers (6),
- 35 – Promote employee transportation allowance (6),
- 42 – Provide and expand real-time schedule and route information to transit users (6),
- 47 – Implement Smart Card Program within the Region of Waterloo (6),
- 14 – Require transit-friendly road network (e.g. grid pattern road network) (5),
- 18 – Amend the Development Charges Act to enable Municipalities to levy charges for all transportation-related infrastructure including pedestrian and cycling facilities (5),
- 36 – Encourage secondary and post-secondary school students to adopt TDM programs (e.g. carpooling) (5), and
- 41 – Develop a transportation information portal with a trip planner that integrates transit, cycling, and pedestrian networks (5).

The five ideas that the general public were least supportive of are as follows:

- 7 – Establish maximum parking requirements for residential, commercial, industrial, and institutional sites (4),
- 49 – Provide information about property tax reduction/credit commensurate with vehicle ownership (4),
- 50 – Introduction of transportation pricing measures (e.g. road tolls, congestion pricing, area-specific tolls, HOT lanes, etc.) (4),
- 11 – Limit student parking at local high schools, colleges, and universities along with transit improvements (3),
- 13 – Limit on-site residential parking spaces for new single-family dwellings (3), and
- 48 – Re-develop overall parking implementation plan (3)

In general it seems that the general public tends to favour TDM initiatives promoting incentives and not penalties / disincentives.

Participants were also asked which TDM initiatives they think are likely to work best in Region of Waterloo – which have the best immediate chance of increasing the number of walking, cycling, or transit trips they take. They have prioritized those initiatives in that regard as follows:

- 5 – Ensure that secure and permanent bike parking is built at all workplaces, schools, and commercial centres (4),
- 34 – Recruit local employers for the GRT Corporate Pass discount program and encourage employers to provide additional transit subsidies (4),
Regional Municipality of Waterloo - Regional Transportation Master Plan

“Travel Wise” Strategies Overview

- 40 – Develop separate web-based trip planners for cycling and walking and also provide on-route signage and maps (4),
- 41 – Develop a transportation information portal with a trip planner that integrates transit, cycling, and pedestrian networks (4),
- 16 – Establish minimum bicycle parking requirements for all new medium- and high-density residential and commercial buildings (3),
- 20 – Build park ‘n’ ride facilities equipped with bike parking facilities at various locations throughout the region (3)
- 21 – Provide buses at a minimum headway of 10 to 15-minutes on major transit corridors (3),
- 22 – Continue to promote bike racks on all transit vehicles (3),
- 23– Create Transit Priority Plans and explore the provision High Occupancy Vehicle priority lanes (3),
- 30 – Establish winter and general maintenance standards that focus on the needs of pedestrians, cyclists, and those requiring accessibility (3),
- 32 – Expand Travel-wise program to Area Municipalities and local employers (3),
- 33 – Promote flexible work hours programs (3),
- 35 – Promote employee transportation allowance (3),
- 42 – Expand real-time schedule and route information to transit users (3),
- 47 – Implement Smart Card Program within the Region of Waterloo (3), and
- 51 – Provision of permanent transit passes (GRT) for each home/residence within the Region of Waterloo (3).

Also the participants have provided some additional transportation-related measures:

- Introduce an award programs in which employees can nominate their employers as successful promoters of sustainable transportation modes,
- Ease / lift the prohibition on bringing dogs onto transit vehicles,
- Provide well-equipped transit stations (bus stops) with complete set of facilities such as air-conditioners, WI-FI, etc to maximize transit users comfort and of course safety,
- Create competition for inter-city bus / rail service providers,
- Promote use of electricity-powered vehicles on some roads with low speed limits
- Separating bike lanes from roads to improve bike lanes safety,
- Requiring that stores / retailers have their parking lots at the back and not in the front as part of a more general initiative to create more transit-friendly environment,
- Promote short-distance telecommuting options,
- Extend GO rail as far as Region of Waterloo with minimum of three stations across the Region,
- Prevent transit workers from going on strikes through legislative leverages as strikes make the transit system unreliable from users point of view,
- Construct rail facilities with high speed bullet train crossing different cities in the Region and some other adjacent cities,
- Integrate GRT and VIA rail systems across the Region,
- Create more pleasing environment for cyclists and pedestrians with regard to aesthetics aspects (e.g. illumination, streetscapes, arts and cultural amenities),
- Limit on-street parking on certain congested streets across the Region,
- Raise public conscience to encourage people to shift modes away from single-occupied autos,
- Extend transit service hours,
- Promote the idea that businesses give discounts to those who show transit pass
- Introduce congestion charge zone (similar to what has been practicing currently in London, UK) or car-free zones,
Promote the use of jitneys as they provide users with more flexibility in comparison to regular transit vehicles.

As part of the discussions held at Workshop #2, there were a number of conversations surrounding the issue of transportation system congestion levels and the need to actually resolve all areas of congestion within the community. As previously discussed, there is strong sentiment within the community to improve the competitiveness of transit and other modes over single occupant vehicles. In this regard there was specific discussion around resolving congestion issues that affected the performance and competitiveness of transit; it was also suggested that in other areas of the community where short periods of congestion may exist, consideration should be given to not resolving these problems through physical measures such as road widening or intersection improvements unless a specific safety issue exists.

There was also some discussion surrounding the issue of the conduct of traffic impact studies for new development. Historically, traffic impact studies have focussed on the ability of the surrounding road network intersections and access points to accommodate vehicle traffic generated by a proposed development. Generally developments must show that surrounding road network and intersections have the ability to accommodate the additional traffic demands at these locations. It has been suggested that future impact studies consider a broader range of issues including how proposed developments will deal with issues surrounding access to transit, the provision of pedestrian facilities and how the development in general will promote TDM and reduce automobile trip generation. These are valid issues and although not directly considered within the context of the TDM strategies and measures documented in this report, they should be considered as part of the overall RTMP project.
CONCLUSIONS AND RECOMMENDATIONS

Based upon a review of the literature on TDM strategies and measures, coupled with a review and assessment of best practices across North America, a wide range of TDM strategies is available. These strategies can be generally grouped into the following categories:

- Strategies and measures that evolve from land use related initiatives and greater focus on integrating land use and transportation decisions;
- Strategies that address the supply of mobility or transportation services and in particular the encouragement of increased use of transit and active transportation modes (i.e. walking and cycling);
- Education, promotion and outreach and;
- Encouraging changes in travel patterns through the use of incentives and disincentives.

Appendix B provides a summary of potential TDM initiatives that have been discussed in this report and includes a summary of:

- Where each strategy has been applied before,
- Anticipated benefits of each initiative,
- Delivery mechanisms and potential implementation issues,
- An assessment of the potential effectiveness of each strategy,
- An implementation rating (in terms of how aggressive or controversial a policy may be), and
- A preliminary recommendation for items that should be carried forward and those that may require further study before implementation.

A series of potential TDM measures is recommended as part of the RTMP. Many of these initiatives will require a co-ordinated approach to delivery for implementation.

Table A summarizes the TDM initiatives recommended for implementation. The table also identifies the jurisdictions having primary responsibility for implementation, and the target market that would be served. Strategies have also been aggregated into short and medium term planning horizons for implementation based upon ease of implementation and requirements for further study.

Figure 5 shows all of the potential TDM initiatives where the benefit of each strategy has been graphed against the ease of implementation.
Other recommendations include:

6.1 The Region should continue to take a leadership role in moving forward on TDM and play a larger role in planning, coordinating and monitoring TDM activities across the Region. This could be accommodated through the formation of a Regional ‘Travel Wise’ Coordination Committee to be led by the Region of Waterloo TDM Coordinator. Membership on the Committee should include representatives from all constituent municipalities within the Region and Grand River Transit. Membership initially should be limited to public sector agencies. This will require a renewed commitment to providing stable funding and staffing of the “Travel Wise” Coordinator position, along with a stronger mandate and staffing support to co-ordinate program marketing, monitoring results, and public outreach.

6.2 Given 6.1 above and the suggestion that the Region take a larger role in coordinating TDM activities across the Region, it should continue to take the lead role in the marketing of the “Travel Wise” program throughout the community and should incorporate individualized marketing approaches to develop outreach tools and programs that target specific market, as summarized in Table A, attached.

6.3 The Region should require, through their Official Plan, that each municipality develop a TDM program for their community that is complimentary with Regional “Travel Wise” strategies. The TDM Strategy should include policies that support the TDM measures outlined in this plan, where applicable, and should include mechanisms for funding and monitoring results. The plans should be reviewed and endorsed by the Regional TDM Coordinating Committee.

6.4 Area municipalities should be required to include these policy statements in their respective Official Plans and/or Transportation Master Plans and should be encouraged to appoint their own TDM Coordinators to champion the TDM program and co-ordinate activities with the Region and at a local level in the community.
6.5 The Region should initiate discussions with the Province of Ontario with respect to suggested modifications to the Development Charges Act to recognize efforts to promote TDM (transit). It may be beneficial for the Region and the local development community to establish a working group to examine and make recommendations on how an equitable funding approach could be implemented within the Development Charge framework to recognize both the costs and the potential benefits of various TDM measures and investments in transit and other non auto infrastructure. Recommendations from such a working group could provide positive encouragement for the province to consider much needed updates to this legislation.

6.6 The Region should consider the development of a separate infrastructure capital program within the annual budget process to implement “Travel Wise” related initiatives that are not specifically identified in program areas (such as Parks and Recreation).

6.7 The Region’s travel demand or “Travel Wise” co-ordinator should prepare a three (3) year business plan for the “Travel Wise” program addressing the following and, where possible, estimated savings to the Region and Community:

- A list of initiatives planned for the upcoming year including estimated costs for planning and implementation;
- A marketing strategy for the upcoming year;
- A summary of the previous years activities – a score card; and
- Requirements for participation from other agencies.

6.8 As part of the continuing work on the RTMP, the Region of Waterloo should consider and develop an approach to rationalize the need to resolve all existing and anticipated areas of congestion in the community considering but not limited to the following issues:

- The desire to improve the competitiveness of transit service;
- The nature and duration of congestion;
- The impact of congestion on walking and cycling;
- Safety issues arising from current and anticipated congestion; and
- Impact on economic, social and sustainability considerations as documented in the Goals, Principles and Objectives Working Paper.

6.9 The Region of Waterloo should reassess how traffic impact studies are conducted within the community and if necessary formalize changes and requirements to be published and broadly disseminated to the community.

Table A: Moving Forward 2031

<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHORT TERM PLANNING HORIZON</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Land Use and Transportation Integration</strong></td>
<td></td>
</tr>
<tr>
<td>2 Fully wire all new homes for high-speed internet</td>
<td>Households</td>
</tr>
<tr>
<td>3 Require change room and shower facilities at all major workplaces</td>
<td>Employers</td>
</tr>
<tr>
<td>4 Create a standardized list of TDM initiatives, based on real world experience, to enable developers to reduce auto trip numbers and parking spaces</td>
<td>Community Wide</td>
</tr>
<tr>
<td>Initiative Description</td>
<td>Target Market</td>
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<tr>
<td>------------------------</td>
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</tr>
<tr>
<td><strong>5</strong> Ensure secure and permanent bike parking is constructed at all schools, major work places, and commercial centres</td>
<td>Employers</td>
</tr>
<tr>
<td><strong>6</strong> Partner with developers to provide for construction of transit shelters and station facilities within the community</td>
<td>Transit Users</td>
</tr>
<tr>
<td><strong>7</strong> Establish maximum parking requirements for residential, commercial, industrial, institutional sites</td>
<td>Community Wide</td>
</tr>
<tr>
<td><strong>9</strong> Promote shared parking practices in commercial retail and mixed-use development</td>
<td>Employers</td>
</tr>
<tr>
<td><strong>14</strong> Require road networks to be transit friendly (i.e. grid structure)</td>
<td>Community Wide</td>
</tr>
<tr>
<td><strong>15</strong> Review development staging in new communities to ensure high density is contained in initial phasing</td>
<td>Community Wide</td>
</tr>
<tr>
<td><strong>16</strong> Establish minimum bicycle parking requirements for all new medium and high-density residential and commercial buildings</td>
<td>Cyclists</td>
</tr>
<tr>
<td><strong>17</strong> Transportation Impact Studies for all development to include walking, cycling, carpooling and transit components/assessments</td>
<td>Program Management</td>
</tr>
<tr>
<td><strong>19</strong> Use trees and other green infrastructure to provide shelter, aesthetic value, shade, and separation from motorized traffic</td>
<td>Community Wide</td>
</tr>
<tr>
<td><strong>20</strong> Pursue changes to LEED rating systems transportation and parking credits</td>
<td>Community Wide</td>
</tr>
<tr>
<td><strong>Transportation Supply</strong></td>
<td></td>
</tr>
<tr>
<td><strong>21</strong> Park ‘n’ ride facilities to be constructed, with bike parking facilities, and shared parking programs initiated within the Region. Linked to provision of initial transit service and existing parking</td>
<td>Commuters</td>
</tr>
<tr>
<td><strong>23</strong> Continue to install and promote bike racks on all transit vehicles</td>
<td>Cyclists</td>
</tr>
<tr>
<td><strong>24</strong> Create a Transit Priority Plan and explore the provision of High Occupancy Vehicle priority lanes</td>
<td>Corridors</td>
</tr>
<tr>
<td><strong>25</strong> Develop an incident detection and management system (IMS) for motorized vehicles that informs drivers of traffic congestion and alternative routes</td>
<td>Community Wide</td>
</tr>
<tr>
<td><strong>26</strong> Continue to plan and expand commuter and recreational cycling routes</td>
<td>Cyclists</td>
</tr>
<tr>
<td><strong>27</strong> Ensure a continuous pedestrian network</td>
<td>Pedestrians</td>
</tr>
<tr>
<td><strong>28</strong> Expansion of a privately operated shared vehicle program</td>
<td>Community Wide</td>
</tr>
<tr>
<td>Initiative Description</td>
<td>Target Market</td>
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<tr>
<td>---------------------------------------------------------------------------------------</td>
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<tr>
<td>29 Collaborate with the school boards to develop efficient transportation systems for high school students</td>
<td>Students</td>
</tr>
<tr>
<td>30 Implement a bicycle sharing program</td>
<td>Community Wide</td>
</tr>
<tr>
<td>31 Establish maintenance standards that are focused on the needs of pedestrians, cyclists, and those requiring accessibility</td>
<td>Cyclists</td>
</tr>
<tr>
<td><strong>Education, Promotion, and Outreach</strong></td>
<td></td>
</tr>
<tr>
<td>32 Create and support transportation management associations in urban centres, commercial districts, malls, medical centres, primary and secondary nodes, corridors, and industrial parks.</td>
<td>Commuters</td>
</tr>
<tr>
<td>33 Expand “Travel Wise” program to Area Municipalities and local employers.</td>
<td>Commuters</td>
</tr>
<tr>
<td>34 Promote flexible work hours programs</td>
<td>Employers</td>
</tr>
<tr>
<td>35 Recruit local employers for GRT Corporate Pass Discount program and encourage employers to provide additional transit subsidies.</td>
<td>Employers</td>
</tr>
<tr>
<td>36 Promote employee transportation allowance</td>
<td>Employers</td>
</tr>
<tr>
<td>37 Secondary and post-secondary TDM programs (i.e. ride matching, carpooling)</td>
<td>Students</td>
</tr>
<tr>
<td>38 Promote and expand ride sharing and telecommuting programs to local employers</td>
<td>Commuters</td>
</tr>
<tr>
<td>39 Implement annual individualized marketing program</td>
<td>Commuters</td>
</tr>
<tr>
<td>40 Revisit and expand school education programs</td>
<td>Students</td>
</tr>
<tr>
<td>41 Develop separate web based trip planners for cycling and walking and provide on-route signage and maps</td>
<td>Community Wide</td>
</tr>
<tr>
<td>42 Develop a transportation information portal that integrates transit, cycling, and pedestrian trip planning</td>
<td>Community Wide</td>
</tr>
<tr>
<td>43 Provide and expand real-time, schedule, and route information to transit users</td>
<td>Community Wide</td>
</tr>
<tr>
<td>44 Continue “Active and Safe Routes to School” and “Walking school bus” programs</td>
<td>Students</td>
</tr>
<tr>
<td>45 Complete a Goods Movement and Delivery Transportation Management Plan</td>
<td>Shippers</td>
</tr>
<tr>
<td>46 Government offices, universities, school boards and hospital and other major trip generators to implement TDM plans</td>
<td>Commuters</td>
</tr>
<tr>
<td>47 Region and Municipal TDM monitoring program</td>
<td>Program Management</td>
</tr>
</tbody>
</table>

**Travel Incentives and Disincentives**
<table>
<thead>
<tr>
<th>Initiative Description</th>
<th>Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 Implement smart card program within Waterloo Region</td>
<td>Community Wide</td>
</tr>
<tr>
<td>49 Overall parking implementation plan</td>
<td>Commuter</td>
</tr>
<tr>
<td><strong>MEDIUM TERM PLANNING HORIZON</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Land Use and Transportation Integration</strong></td>
<td></td>
</tr>
<tr>
<td>8 Zoning flexibility for home based business/home office</td>
<td>Households</td>
</tr>
<tr>
<td>10 Integrate local shopping and services into suburban neighbourhood land use planning</td>
<td>Households</td>
</tr>
<tr>
<td>11 Limit student parking at local high schools, colleges and universities along with</td>
<td>Students</td>
</tr>
<tr>
<td>transit improvements</td>
<td></td>
</tr>
<tr>
<td>12 Un-bundle parking from residential units, at time of purchase, for new, multi-unit</td>
<td>Households</td>
</tr>
<tr>
<td>complexes</td>
<td></td>
</tr>
<tr>
<td>13 Limit on-site residential parking for new, single-family dwellings</td>
<td>Households</td>
</tr>
<tr>
<td><strong>Transportation Supply</strong></td>
<td></td>
</tr>
<tr>
<td>22 Schedule buses every 10 – 15 minutes minimum on major transit</td>
<td>Corridors</td>
</tr>
<tr>
<td><strong>LONG TERM PLANNING HORIZON</strong></td>
<td></td>
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<tr>
<td><strong>Land Use and Transportation Integration</strong></td>
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<tr>
<td>1 Immediate transit service to new residential areas to be funded by the developer</td>
<td>Households</td>
</tr>
<tr>
<td>(15 min peak period and 60 min off-peak period) until 20% of the operating cost is</td>
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<td>returned through the fare box, at which time GRT would be responsible for fully</td>
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<td>funding the service.</td>
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<tr>
<td>18 Amend the Development Charges Act to enable municipality to levy charges for all</td>
<td>Program Management</td>
</tr>
<tr>
<td>transportation - related infrastructure, including pedestrian and cycling facilities</td>
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<tr>
<td>and to remove the 10% discount for transit and to enable municipalities to levy</td>
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<tr>
<td>charges for the provision of improved transit service rather than use &quot;existing&quot;</td>
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<tr>
<td>levels of transit to new development</td>
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<tr>
<td><strong>Travel Incentives and Disincentives</strong></td>
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</tr>
<tr>
<td>50 Property Tax reduction/credit commensurate with vehicle ownership</td>
<td>Households</td>
</tr>
<tr>
<td>Initiative</td>
<td>Initiative Description</td>
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<tr>
<td>51</td>
<td>Transportation pricing</td>
</tr>
<tr>
<td></td>
<td>- Road tolls</td>
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<td></td>
<td>- Congestion pricing</td>
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<td>- Area specific tolls</td>
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<td>- HOT Lanes</td>
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<td>- Vehicle user fees</td>
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<td>- Road space rationing</td>
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<td>- Emission fees</td>
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<td>- Fuel tax increases</td>
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<td></td>
<td>- Parking implementation program</td>
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<td></td>
<td>- Distance based fees (insurance)</td>
</tr>
<tr>
<td>52</td>
<td>Provision of permanent transit passes (GRT) for each home/residence within the Region of Waterloo</td>
</tr>
</tbody>
</table>
APPENDIX A
Region of Waterloo Pedestrian Charter
APPENDIX B
Detailed TDM Policies/Initiatives Table