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Prepared for the Regional Municipality of Peel by: UrbanTrans Consultants, Inc.
Section 1: Introduction

1.1 Overview

Transportation Demand Management (TDM) is one of the five projects under the Long Range Transportation Planning (LRTP) exercise, which is part of the Regional Official Plan Strategic Update (ROPSU). This report is intended to serve as a resource document in developing future Regional transportation policies and programs.

Recent travel trends in Peel Region indicate that the Region is becoming increasingly auto dependent – both transit share and average auto occupancy are declining, while the share of single occupant trips is increasing. Coupled with a rapid growth in population, these trends are leading to increasing congestion and travel time as well as environmental and health concerns. Another related concern is the lack of adequate travel options for the diverse needs of Peel residents. Until now, it has been possible to meet the increasing travel demand through new roads and road widenings. However, such “supply side” solutions will not be enough in the future. Exclusive dependence on roads is not feasible, sustainable or desirable. It is necessary to look at the demand side also, through TDM measures. While TDM alone cannot be expected to meet the future growth in demand, it is an important component among a range of solutions we need to deploy.

Responsibility for funding and delivery of surface transportation in Peel Region is shared among many organizations, including: the federal and provincial governments, GO Transit, Region of Peel, area municipalities, school boards and the private sector. At the municipal level, the Regional government is responsible for Regional roads and shares funding responsibility for inter-regional transit, while area municipalities are responsible for local roads, local transit and land use. Successful implementation of TDM requires cooperation and coordination of all of the organizations responsible for transportation. To successfully implement the strategies presented in this report, it is necessary that the most appropriate organization(s) take the lead for each strategy and work in collaboration with others as required. Based on best practices elsewhere in North America, it is clear that a number of complementary TDM strategies will need to be implemented in a coordinated manner to achieve a significant level of success. TDM is like a tool box. There is no single magic bullet in the tool box, but if a number of tools are deployed in well planned and coordinated manner, TDM can help make a difference. Leadership, commitment, cooperation, coordination, collaboration and perseverance will be the key to success in implementing TDM.

What is TDM?

Since TDM began to develop in the early 1970’s, TDM measures have continued to evolve in response to the changing nature of transportation challenges and individual travel preferences. Today, as the number of commuters and vehicle emissions steadily increase, while the land available for capacity improvements decreases, TDM emerges as a critical component of any regional or local transportation strategy.
As TDM has evolved, the concept has increasingly emphasised the establishment and maintenance of strategic partnerships between the public and private sectors. TDM partners aim to improve the efficiency of the transportation system and to maximize the use of existing transportation investments by:

- Increasing the number of people per vehicle (including transit vehicles, vanpools and carpools)
- Maximizing the use of underutilized travel times (by time-of-day and day-of-week) and travel routes – including transit routes and pedestrian / bicycle paths
- Reducing trip frequency and distance, and eliminating some trips altogether

Benefits of TDM policies and strategies include:

- Reduced auto-related emissions and improved air quality
- Decreased traffic congestion
- Increased travel options for residents and commuters
- Reduced personal transportation costs and energy consumption
- Improved quality of life for communities
- Delayed/reduced roadway related infrastructure expansion
- Improved access to labour force for employers
- Assistance in achieving the Kyoto Protocol targets
- Support of smart growth strategies

**TDM Strategies**

Core TDM strategies include carpooling, vanpooling, transit, bicycling, walking, as well as the promotion of teleworking. TDM support strategies, such as parking management, rideshare matching, marketing and promotions, incentives and subsidies, and other services, are used to extend the effectiveness of, and support the use of the core TDM strategies. For example, the use of financial incentives can encourage vanpooling at a particular worksite or area. The use of support strategies further increases the effectiveness of the core TDM strategy.

TDM support strategies include:

- Parking management and parking fees
- Employee Transportation Coordinators at area employers
- Rideshare matching
- Incentives and subsidies
- Marketing and promotions
- Guaranteed Ride Home
- Intelligent Transportation Systems
- On-site information and amenities
• TDM-friendly site design
• High Occupancy Vehicle (HOV) lanes
• Bus Rapid Transit (BRT)/Transit priority
• Carpool parking lots

In general, TDM strategies complement each other. Generally, TDM effectiveness can be summarized by the application of packages, or combined bundles of strategies, based on the individuality of each Peel community or employment site to provide an overall TDM program or service.

1.2 TDM Vision for Peel

Recognizing the need to develop a TDM vision, this study has been undertaken with a view that there is a role for the Region of Peel to:

Promote a balanced, multi-modal transportation system that promotes choices for travelers and influences the demand for limited transportation systems. Transportation Demand Management (TDM) will build partnerships between all levels of the public and private sector; provide information and education about travel options and offer incentives and programs that discourage Single Occupant Vehicle (SOV) travel. TDM is an essential component of sustainable transportation solutions.

1.3 The Planning Process

Creating effective and valued policies and programs takes careful understanding of the issues, often revisiting existing policies and measures to determine their effectiveness for each specific area and discussing potential areas of interest with stakeholders. The TDM policy guide planning process included:

• Consultation with a project team (composed of all area municipalities)
• Interviews with major stakeholders
• Review of TDM best practices and case studies
• Meetings with Regional Councillors
• Development of a participatory workshop with regional stakeholders
• Evaluation of existing policies, programs and strategies

Additional information on the process and the results of these activities can be found in the appendices.

1.4 Policy Guide Organization

This guide provides a TDM policy framework for future program development, and integrates policies encouraging the development and promotion of a multi-modal transportation system into all aspects of the Region of Peel Official Plan update: environmental, land use, transportation and implementation elements. The Regional Municipality of Peel TDM Policy
Guide is a reference document, which may be integrated, as appropriate, into the Regional Official Plan. The remaining sections include:

- Section 2: An overview of TDM policies and programs in the Greater Toronto Area (GTA)
- Section 3: Policies, guidelines and strategies for integrating TDM into the Region of Peel's Official Plan goals
- Section 4: Action items for implementing and evaluating a regional TDM program
- Appendix A: Interviews with key stakeholders, as identified by project team members
- Appendix B: Summary of a half day TDM workshop, held with fifty three representatives from local municipalities, major employers and other stakeholders
- Appendix C: TDM case studies from Canada, the U.S. and Australia
- Appendix D: The Region of Peel Official Plan sections pertinent to TDM strategies and evaluation
- Appendix E: Qualitative evaluation of TDM strategies discussed in Section 3
- Appendix F: Effectiveness of TDM strategies
Section 2: TDM in the Greater Toronto Area

The provincial and municipal interest in developing TDM strategies is due to several factors influencing travel in the Greater Toronto Area (GTA). Increased cars and trucks on roadways, combined with longer vehicle trips, result in progressively worsening traffic. Increasing population growth and kilometres per trip have particularly yielded a significant increase in employment-based traffic at peak hours. Finally, the vision of the GTA as a sustainable community drives the municipalities to establish new and innovative policies.

2.1 Existing GTA Policies

Through the recommendations of a panel containing several community leaders and stakeholders from the GTA, a smart growth strategy was developed for the Province recognising the value of managing growth to prevent unnecessary pressure on Ontario’s existing infrastructure and environment. As growth brings new jobs, businesses and opportunities, and improves the overall quality of life in Ontario, the Smart Growth Panel set forth several goals, in the document Shape the Future, including:

- **Make Better Decisions About Infrastructure:** Smart Growth promotes using resources more wisely by optimizing the use of existing infrastructure such as roads, sewer and water systems, and guiding future decisions on infrastructure investment.

- **Create Transportation Choices:** Smart Growth will encourage better choices in travel between and within communities and promote a more integrated transportation network for people and goods.

- **Protect and Enhance the Environment:** Smart Growth will work to protect the quality of our air, our land and our water by steering growth pressures away from significant agricultural lands and natural areas.

TDM supports and complements the vision of the Provincial government by maximising the usefulness of the existing transportation infrastructure, increasing modal choices and options available and contributing to improvements in air and water quality.
Furthermore, in the Strategic Transportation Directions plan, the Ministry of Transportation Ontario (MTO) recommends improving mobility and linkages by:

- Pursuing opportunities to implement TDM strategies in major urban areas
- Studying the potential and opportunities for transit and HOV lanes to serve commuter travel between GTA and fringe communities
- Encouraging integrated land use and transportation planning in support of higher density, mixed-use development and transit friendly urban design in urban areas to reduce dependence on the automobile.

These themes are carried forward into the Peel Region and local municipalities’ policies. The public sector recognises that TDM is an important component of sustainable transportation and in achieving a convenient and efficient movement of people and goods in the Region and the GTA. Currently, the Region of Peel Official Plan includes the following policies to encourage TDM (see Appendix D for additional policy references):

- Encourage the Provincial government and neighbouring municipalities to increase public transit usage and ridesharing as well as other TDM programs (Policy 5.6.2.5)
- Encourage the area municipalities and MTO to implement TDM strategies including car or vanpooling and ride-share programs (Policy 5.6.2.8)

Local municipal plans further encourage efforts to maximize road efficiency, achieve significant increases in vehicle occupancy rates, bicycle and pedestrian accessibility, HOV and BRT systems, and general transit improvements. Each municipality has also made efforts to take a leadership role in addressing TDM related activities with their own employees.

2.2 TDM Initiatives in the GTA

The following regional groups provide TDM related services within the GTA.

Pollution Probe

Pollution Probe is a Canadian organization dedicated to on-going critical analysis and definition of environmental problems, promoting understanding through education and advocating for practical solutions. One of Pollution Probe’s programs is the SMART (Save Money and the Air by Reducing Trips) program targeting employers. SMART provides employers with an easy-to-implement program designed to reduce the number of single-occupancy vehicle commuters and a SMART coordinator assists companies in designing and implementing flexible transportation alternatives for their employees. Alternatives include group commuting by transit or carpool,
telework, flextime, walking and bicycling. In addition to a program coordinator, SMART has produced a step-by-step manual that is available online and has partnered with Clean Air Champions. Clean Air Champions recruits national athletes to deliver motivational clean-air presentations to employees. Partnering with organizations such as Pollution Probe will maximize TDM effectiveness and minimize reinventing that which already exists.

**Car Sharing**

Two car sharing companies provide services to individuals in Toronto, Autoshare and DASHcar. Members pay for initial start up costs, a low monthly fee, and for the time and the distance that they drive, with 24-hour access to a fleet of cars stationed all over the city. The car sharing companies pay all insurance, maintenance and gasoline costs. GreenFleet serves as a fleet provider for companies and organizations. Additional information can be found at www.autoshare.com, www.dashcar.com and www.green-fleet.com.

**On-Line Carpool Matching and Rideshare Sites**

The Canadian public can take advantage of an online carpool-matching tool at www.carpooltool.com. The carpool tool utilizes a GIS database of postal codes to match interested carpoolers. The service is free and includes a variety of carpool search functions and a wealth of “how-to” carpool information, as well as links to other Canadian air quality and alternative transportation sites. Other carpool matching sites include www.carpoolworld.com, www.gosmart.com and www.erideshare.com.

**Transportation Management Associations (TMAs)**

There is one Transportation Management Association (TMA) in Ontario, the Black Creek Regional (BCR) TMA. The TMA’s mission is to work with the public and private sectors to improve mobility and to establish sustainable transportation within and around northwest Toronto and Vaughan by managing transportation demand; promoting the environmental and financial gains of using alternative modes of transportation; and advocating the transportation needs of the area. Its overall goal is to reduce single occupant vehicles (SOVs) within the region to reduce air pollution, greenhouse gas (GHG) emissions and the associated environmental, health and economic costs of traffic gridlock and climate change.
The BCR TMA’s service area includes northwest Toronto and Vaughan, where there are 100,000 employees, 86 percent of whom drive SOVs to work everyday. In 2001-2002 the BCR TMA established three important services to its members:

- Advocacy for improved transit service (i.e., frequency and routes), transportation infrastructure including cycling, pedestrian paths, and policies.
- Education and promotion of sustainable modes of transportation within the region including transit, ridesharing, cycling and walking.
- Site-specific transportation management solutions for members including assistance with launching commuter programs, ride-matching, telework policies, developing shuttle service, parking management and cycling facilities.
Section 3: TDM Policy Recommendations

Peel Region has outlined six goals in the Region of Peel Official Plan to guide the development of objectives and policies in each of Peel’s major service areas. Peel Region can support and influence each of these factors through encouraging modal choices, site design and land use changes, and maximizing the efficiency of the transportation system. The following collection of TDM related policies are designed to support and complement each of these goals, as well as to guide regional priorities.

The policy guide is organised by 1) the primary policy(s), 2) the supporting guidelines for implementing the policy, and 3) example strategies. Dependent upon the nature of a specific strategy, these strategies may be implemented by the Region, area municipalities, the private sector, non-profit organization and/or other interested parties. Details of implementation can be co-ordinated through the development of a TDM action plan. The policies are organised into four major topic areas:

- Environment and Health
- Land Use and Community Design
- Transportation
- Implementation

3.1 Environment and Health Policy

While the transportation system is linked to economic development and the overall prosperity of an area, the increasing use of automobiles has had a profound impact on the natural and human-made environment and the health of individuals. The effects of driving alone and adding additional vehicles to the road contributes to poor air quality, increased vehicle emissions and resulting respiratory health issues. An ever-expanding roadway network and a lack of facilities for biking and walking have had a profound effect on physical activity loss, especially in children.

Development of a comprehensive transportation system that addresses the protection and preservation of the environment and its population is critical. TDM can support the development

Existing Region of Peel Official Plan Goals

1. Natural Environment Goal: To create and maintain a system of viable, well-functioning environmental features to ensure a healthy, resilient and self-sustaining natural environment within Peel Region.

2. Resources Goal: To have the renewable and non-renewable resources of Peel protected, managed and utilized in an efficient manner that conserves and protects environmental features and functions, and the character of rural Peel including its social, heritage, cultural, community and economic aspects.

3. Population and Employment Forecasts Goal: To ensure that future growth of population and employment in Peel is anticipated and planned for and that existing and future finances and services to accommodate this growth are provided in an effective and efficient manner.

4. Regional Structure Goal: To provide a diversity of healthy communities for those living and working in Peel Region, offering a wide range of housing, employment, and recreational and cultural activities. These communities will be served and connected by a multi-modal transportation system and provide an efficient use of land, public services, finances and infrastructure, while respecting the natural environment, hazards and resources, and the characteristics of existing communities in Peel.

5. Regional Services Goal: To have an adequate, efficient, planned and cost-effective system of Regional Services that ensures that services, service levels and service delivery are consistent with public needs and financial realities.

6. Implementation Goal: To successfully implement the objectives and policies in this Plan.
of such a system and is inherent in each of the policies included in the following sections. TDM, when implemented in concert with other transportation policies oriented towards sustainability, contributes to a net gain in air and water quality. The partnerships developed through the TDM strategies compound the benefit more than the public sector’s involvement can provide on its own.

The two specific policies are included below with the objective of promoting early education between the links of automobile use, air quality, health and alternative forms of transportation.

Policy: Coordinate with area municipalities, school boards, transit providers and non-profit organizations, to educate the public, through new initiatives, on the relationship of vehicle trips and air pollution

Policy: Encourage the private and public sector to integrate the marketing and education of the benefits of transportation alternatives, including health, improved air quality and enhanced quality of life, into existing activities and programs

Supporting Guidelines

General guidelines to support the implementation of environment and health policies include:

- Encourage integration of air quality education into school curriculum.
- Consider emissions reduction and efficiency programs.
- Support incorporating the benefits of sustainable transportation options into educational and marketing activities at all levels.
- Promote active transportation, including the Active and Safe Routes to School, International Walk to School Day and cycling classes.

TDM Strategies

By linking education on the impacts of vehicle usage with environmental and health policies, the region can take advantage of existing education and awareness programs, such as Pollution Probe, Environment Week, Earth Day and others that promote environmental awareness through trip reduction.

General marketing and education of all modal options, including their benefits and how to make the best use of them, are a key component to TDM promotion. The strategies require cooperation and coordination with several partners, including transit providers, school boards, area municipalities and non-profits, such as Pollution Probe. The
following provide examples of promotional and educational strategies that may be used by government agencies, schools or the private sector.

**Bicycle Promotion and Marketing**

Activities are oriented towards encouraging commuters to view bicycling as a viable and efficient way to commute to work. Promotion and marketing efforts can include, but are not limited to, the describing of health benefits, convenience, and cost savings associated with bicycling. Employers who are located along multi-modal corridors have the most potential for encouraging bicycle commuting.

- A *Bicycle Riders Guide* is a guide for a specific worksite that includes bicycle routes, bicycle locker and rack locations, and other pertinent information relevant to the bicycle commuter. General community information can be included on a cut-and-paste basis in order to save on costs and time to develop each individual guide.

- *Bike to Work Day/Week* is a promotion that provides commuters with the ability to try commuting to work by bicycle. This “first time” experience can convert a small proportion of commuters to become habitual bicycle commuters. Studies in the Denver metropolitan area indicate that more than 25 percent of new Bike to Work Day participants will continue to bicycle to work after the event.

**Carpool Promotion and Marketing**

Activities encourage and educate commuters about the benefits associated with ridesharing. Promotion and marketing is extremely significant when introducing, educating, and influencing commuters in the benefits of carpools and vanpools. Rideshare promotion and marketing messages can include the cost savings, stress reduction, socialization, convenience and environmental grounds as to why an employee should consider ridesharing as a viable alternative. Furthermore, when partnered with ridematching events, ridesharing provides alternative transportation options to areas that are underserved by transit.

**Telework Promotion**

Is the general promotion and marketing activities associated with educating and encouraging commuters to telework. Telework is the most utilized TDM strategy among employers. Allowing employees to telework results in higher employee productivity for the company as well as improved employee morale, as the employee is able to balance home/life with work, while ensuring productivity goals are met. Telework promotion activities include outreach to employees, special telework training for employees and supervisors and other general marking efforts.

**Transit Promotion**

Is the general promotion and marketing activities associated with educating and encouraging commuters to utilize transit to get to work. The transit network
in Mississauga, Brampton, and the GTA is advanced and serves a variety of trip needs. With
the coordinated promotion of services to regional travelers, commuters may better
understand how to use public transit to access worksites. Transit promotion activities can
include bus route maps, brochures, posters, how-to classes, incentives and other general
marketing efforts.

- Previous research indicates that “not knowing what to do” is the
  number two reason (behind convenience) why people state
  they do not use public transit. Therefore, a user friendly public
  transit information package that
  includes information on how to
  read a bus/train schedule, where
to get on the bus/train and how
to use online transit information
to assist current and potential
  transit users to overcome any
  predispositions commuters might have against using public transit will be helpful. The
  transit information package can include a collection of information available from
  Brampton Transit, Mississauga Transit, GO, TTC and other transit operators that serve
  Peel residents/employees.

*Vanpool Promotion* includes general promotion and marketing activities oriented towards
  encouraging commuters to vanpool. Marketing messages can include cost savings, stress
  reduction, socialization, convenience, environmental reasons and other benefits.

*Special events* are an effective means of distributing transportation information to a large
  group of individuals. Targeted events can include luncheons with commuters from a
  particular neighbourhood or postal code, new hires or other targeted groups.

### 3.2 Land Use and Community Design Policy

Land use and community design have an
impact on mode choice, amount and location
of parking and travel demand. Reduced
dependency on the automobile can be
achieved when residents or employees can
conveniently walk, bike or use transit to reach
their destinations. This is often accomplished
through mixed-use development and
  communities that offer a concentrated balance
  of housing, jobs, schools and commercial
development.
**Policy:** Coordinate with area municipalities to promote land uses and site design in the region which foster the use of alternative modes of transportation, including transit, vanpooling, carpooling, and active transportation (such as bicycling and walking), as well as infrastructure to encourage teleworking.

**Supporting Guidelines**

General guidelines to support the implementation of land use and community design policy include:

- Encourage the location of transit supportive development within identified high-capacity transit corridors.
- Support mixed-use development, when appropriate, in employment centres and transit centres to promote use of transit and active transportation (such as biking and walking).
- Encourage site design that promotes the use of all modes of transportation. Examples include:
  - Accommodations for carpool, vanpool and bicycle parking adjacent to building; bicycle and pedestrian connections within parking lots; and direct street access for bikers and walkers.
- Provide education for developers on the benefits of TDM friendly site design.
- Encourage maximum limits on parking supply in high-density areas and encourage a flexible parking arrangement that could reduce the minimum parking requirements through the adoption of TDM measures.
- Encourage and assist with the development of neighbourhood-based TDM strategies.
- Collaborate with local community and environmental groups on TDM strategies.
- Tailor employer outreach to the unique characteristics of employers located in rural areas.

**TDM Strategies**

TDM-friendly site design is the general promotion of land use and site design elements that facilitate the use of modal alternatives. Traveling between point A and point B is a process largely affected by physical features. It is important to recognise the significant way that physical landscape can impact the travel decisions of commuters, and dedicate attention towards a set of basic design criteria that can make commuting by alternative modes more convenient. TDM-friendly site design includes the following:

- **Pedestrian and bicycle connections** – pedestrian and bicycle connections should provide direct, safe and interesting routes to and from employment sites. The willingness to walk or bike is directly related to the quality of the environment in which to do so.
- **Bicycle amenities** – bicycle-parking facilities at employment sites, transit stops, and other key destinations are essential for bicycle commuters. The potential for theft or vandalism will seriously discourage bicycle travel.
Transit access and visibility – to best support local and inter-regional transit use, bus stops should be located within 46 to 95 metres of the building entrance at employment sites and major activity centers, with the entrance oriented towards public transportation facilities, not parking lots.

Building orientation – reducing building setbacks offers more direct street access for transit users, cyclists and pedestrians. Locating parking areas to the side or behind buildings encourages on-street activity and safety. New development projects should cluster buildings and avoid campus-type office development that discourages pedestrian and bicycle travel.

Passenger loading areas – turnout lanes for rideshare passenger drop off in front of buildings offers convenience and significantly reduces the travel time lost by picking up and dropping off passengers involved in a rideshare program.

Amount and location of parking – shared parking arrangements that reduce costs for developers and preserve valuable land for more productive uses are essential. Employers with traditional work hours can share their parking spaces with businesses that operate primarily during non-traditional working hours.

Access to services and amenities – Many commuters need to run errands before work, during lunch and after work, factoring into their decision on whether to use alternative modes. By offering services and amenities located near work, an employee can commute by alternative modes more frequently.

Parking management strategies utilize a variety of methods to ease demand for parking while encouraging the use of alternative commute modes. Parking management limits the availability of free and subsidized parking. Residential and commercial parking permits, parking pricing, shared use parking, time restrictions, and other strategies are included in general parking management.

Clustered Parking (including parking structures) reduces pedestrian distances between buildings and improves ambient quality for pedestrians. Clustered parking strategies create safer, more attractive, pedestrian-friendly environments around buildings, while encouraging the shortening of pedestrian trips between buildings. Safer physical environments have been proven to attract greater numbers of pedestrians and cyclists.

Parking Maximum Ratios ensure that a development site does not oversupply parking, thereby creating an imbalance between modal options. Parking maximums are typically implemented in areas where modal options are apparent to users.
Preferential Parking programs reserve the most convenient parking spaces for carpoolers and vanpoolers. Preferential parking provides incentives for those in carpools and vanpools to continue ridesharing. Types of preferential parking include covered parking that protects people and cars from the weather, an assigned parking space near the building entrance, a level one spot in a multi-story parking garage, priority positions on a parking space waiting list and many others. These reserved spaces typically require a hangtag or other identification mechanism for use.

Unbundled Parking Leases is a strategy whereby parking fees are separate and unbundled from the lease for building or office space, as well as a flexibility to vary the number of parking spaces rented. By unbundling parking leases, employers can use parking pricing strategies (such as offering transportation allowances, parking cash-out, or other strategies) to reduce parking demand and reduce company-parking expenses. Employers who are aware of parking costs may have the ability to reduce parking expenses and better use existing parking resources.

Additional strategies that may reduce trips at specific sites are:

Telecenters are collective business offices located near residential areas where teleworkers can access typical business services, such as copiers and conference rooms.

Onsite Amenities that provide retail and services provisions to employees without requiring a trip in an SOV. Onsite amenities within walking distance increase convenience for employees so that vehicle trips during the workday are reduced. Examples of onsite amenities include, but are not limited to, ATMs, convenience retail stores, childcare facilities, food services and dry cleaners – all located within easy walking distance, and preferably onsite.

Commuter Stores are information centers that provide a central location for obtaining commuter information. Commuter stores provide a one-stop-shop with detailed information on alternative modes of transportation available to the commuter. This information can include maps, schedules, bus passes, ridematching services, vanpool sales, and more. Typically, commuter market places also sell or provide commuter-oriented products and marketing materials, such as coffee mugs.
3.3 Transportation Policy

Managing transportation demand should be a major component of any transportation policy, complementing supply side strategies. TDM promotes the use and efficiency of alternative modes of transportation, most notably transit and ridesharing, walking and biking. When TDM and Transportation Systems Management (TSM) strategies, such as Intelligent Transportation Systems (ITS) improvements, are used in combination, valuable travel information can be connected to the user, when and where it is needed, reducing the demand on roadway infrastructure by maximizing its use during under-used times, routes, or no use at all.

Providing and encouraging the use of transportation choices affects all aspects of the community: health, environment, safety, mobility and accessibility. The following policies not only strongly encourage the development of a multi-modal system, but also outline a wide variety of specific guidelines, ranging from federal and provincial involvement to local government involvement that Peel can foster to achieve this policy direction.

Policy: Coordinate with all levels of the public and private sector, to promote a safe and sustainable transportation system that offers travellers a variety of mobility choices and increases the efficiency of the existing transportation system

Policy: Encourage local municipalities to develop multi-purpose pedestrian/bicycle network that promotes active transportation and consider the provision of technically appropriate routes on Regional roads to encourage active transportation. These routes will be designed to provide the necessary linkages with the area municipal active transportation networks

Supporting Guidelines

General guidelines to support the implementation of transportation policies include:

- Develop and manage the regional roadway system in a manner that places reliance on improving the efficiency of the system before expanding that system.
- Support requirements that encourage the integration of TDM into all levels of the transportation planning and implementation processes at the federal, provincial, regional and local level.
- Provide input to the Province and area municipalities on future transit priority, BRT and HOV networks, and undertake, where appropriate, transit supportive measures on regional roads. A bicycle and pedestrian network and TDM strategies should support these corridors.
- Continue to identify appropriate locations for the construction of carpool lots.
Identify TDM strategies that will facilitate the efficient and safe movement of goods.
Investigate the feasibility and applicability of alternative mechanisms to price roads more efficiently.

TDM Strategies

No one jurisdiction can achieve the perfect transportation system. Various levels of government are responsible for different facets of the system, including specific roads within the roadway network. Unless collaboration occurs within all transportation providers, and this collaboration begins at the planning stages, integration between modes and systems will be harder to achieve. Furthermore, this collaboration must extend not only to the governmental bodies, but also to the private sector, as the micro-level transportation decisions made by employers and developers have a cascading effect on the need to provide adequate transportation infrastructure. The following measures provide opportunities to increase the efficiency and maximize the use of the existing roadway system:

**Advanced Traveller Information Systems (ATIS)**

Advanced Traveller Information Systems (ATIS) offer commuters advanced information on the availability of alternative modes, as well as a variety of web-based information services. Specific examples of ATIS include kiosks at bus shelters informing patrons when the next bus will arrive, real-time bus routing at shelters and stations, and online ridematching.

**Transit Priority Systems**

Transit Priority Systems offer signal priority at intersections for buses, vanpools and carpools. Priority systems may make use of the same signal prioritization technology as utilized by emergency vehicles.

**Alternative Work Arrangements**

Alternative Work Arrangements occur when employers offer flexible work arrangements to minimize employee commute lengths and maximize productivity hours. Typical strategies include flexible work hours, staggered work hours and compressed workweeks.

- **Employers recognize Flexible Work Hours, or flextime, strategies** as a crucial component of benefit packages offered to employees. Flex time allows employees to alter their arrival and departure times slightly to accommodate commuting schedules. For example, although official office hours may be 8:30 a.m. to 5 p.m., employees may be allowed to arrive between 7:30 to 9 a.m. and leave between four and 5:30 p.m. In most cases, employees cannot flex their schedule on a daily basis, but work with employers to commit to a regular schedule.
Staggered Work Hours allow employees of entire departments to regularly arrive and leave at different times, which can vary from as little as 15 minutes to as much as two hours. A 15 to 30 minute shift in schedules alleviates local and on-site congestion.

Compressed Work Weeks allow employees to complete their required work hours in fewer-than-normal days per week. The most common compressed workweek combinations are 4/40 -- 4 days/10 hours per day, 3/36 -- 3 days/12 hours per day and 9/80 -- 9 nine-hour days in a two-week, 40-hour period (work five, off two, work four, off three).

Freight management addresses the fact that truck traffic often deters the use of alternatives, particularly walking and bicycling. As several of the region’s larger employers are located in industrial zones, managing peak period freight traffic can help to improve the quality of commute for these employees.

Access Management, which includes consideration of access for ALL modes, improves the respective efficiency of each mode. Curb cuts, pedestrian corridors, bicycle corridors, and other considerations can be included.

Tourist trip management recognises the need to address internal visitor-oriented trips. For example tourist trip management emphasizes a “park once, travel often” concept for trips internal to the community.

Roadway Pricing implements user fees on area roads, with higher fees associated during peak times, and discounted or zero fees associated with off-peak travel times.

3.4 Implementation Policy

Regional TDM programs with measured success rely on partnerships to develop and implement strategies. Some programs are more effective when promoted regionally. For example, using common messaging and branding is essential to presenting understandable (and noncompeting) information to the travelling public. Rideshare databases are more effective as the number of participants increases. However, some programs require individual tailoring to the type of employer or employment situation to be effective. The following policies are intended to demonstrate appropriate implementation mechanisms and future resource allocation, at the regional level.
**Policy:** Foster the development of TDM strategies by acting as a regional resource for TDM

**Policy:** Coordinate with area municipalities to promote and support TDM within regional and area municipal government employees/departments

**Policy:** Coordinate with area municipalities to encourage the facilitation of public-private partnerships to promote and implement TDM strategies

**Policy:** Coordinate with area municipalities to evaluate and measure TDM strategies

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**Supporting Guidelines**

General guidelines to support implementation policies include:

- Coordinate with area municipality staff to oversee TDM related activities in the region.
- Develop a regional communications strategy, complementing GTA-wide communication on TDM.
- Develop information for Peel Region residents and employers that includes cross-jurisdictional transit routes and bicycle networks.
- Establish and provide assistance for an official program for communities, neighbourhoods and businesses within the region that promote and implement innovative transportation programs.
- Coordinate with the GTA on developing a rideshare program for the entire GTA, to create an economy of scale for rideshare matching. The rideshare program will include:
  - Online, real time database
  - Guaranteed Ride Home program
  - Marketing and promotion
  - Investigate vanpooling
- Identify and promote the formation of Transportation Management Associations (TMAs) in selected employment centers (as identified through an official feasibility analysis).
- Partner with employers and municipalities to implement a range of TDM strategies, including incentive programs.
- Coordinate with area municipalities to develop a five year TDM Action Plan, revised annually, with specific evaluation and measurement targets.
TDM Strategies

There are numerous implementation strategies the Peel Region can employ to start a regional TDM program, several of which are discussed in more detail in Section 4: Next Steps. The following outlines several mechanisms for implementing regional TDM strategies.

Peel Region recognizes area municipalities, employers and developers as essential partners in providing TDM services. TMAs and employer-based programs are essential to a developing a successful regional strategy. TMA’s are public private initiatives, often formed in employment centres where a critical mass offers service delivery advantages. Due to the nature of private sector involvement and funding, a TMA should not be tied to government boundaries. However, government entities should be committed to the long-term funding, as these entities can be critical to regional program success. TMAs are able to spend more time on service delivery when funding becomes less of an issue.

At an employment site, an Employee Transportation Coordinator (ETC) is an individual that is assigned the responsibility of helping employees with their commute to and from work. The ETC can provide bus information, carpool matching assistance, host promotional events that encourage the use of alternative transportation, just to name a few. ETC activities can range from simply passing out information as required, to working closely with an employee to determine their alternative transportation options. ETCs are essential when developing ridesharing and other commute alternative programs. ETC responsibilities rarely become a fulltime job; most ETCs devote approximately one hour each week for every 200 employees within the organization, although the number of hours may vary depending on the commuter program.

- **Commuter Orientation Meetings** provide new employees with the opportunity to learn more about travel within the vicinity of their employment site prior to the establishment of habits. In some cases, employers require all new employees to attend a commuter orientation meeting as a condition of employment. Establishing the habit of using alternative modes of transportation at the start of a job is more effective than trying to switch an employee’s mode of travel once they have become familiar and comfortable with commuting in their car, by themselves.
Regions may also provide subsidies and financial incentives for trying alternative modes. These can include:

*General Financial Incentives* include cash, prizes, recognition and discounts with eligible businesses, or other incentives to use alternatives.

- *Commute Alternatives, or a Transportation Allowance* is provided to commuters to use on whatever modal options they choose. Typically, transportation allowances are used in conjunction with parking pricing and other modal strategies. The transportation allowance should be equal to or less than the cost of paying for parking. The opportunity to save money and avoid out-of-pocket parking costs is appealing to many travelers. Employees can use their entire allowance to pay for a parking space (or supplement the allowance with their own money). Or, they can select a less-expensive option such as riding the bus or ridesharing, in which case they may pocket any surplus money not used for travel expenses.

Providing *Subsidized or Free Bus Passes* to commuters can provide an incentive for “first time” users to try utilizing transit services to commute to work. Free bus passes are the most common incentive.

Providing *Subsidized or Free Bicycle Accessories* to commuters, such as headlamps and helmets, can improve the safety of bicyclists and serve to encourage greater use of bicycle commuting.

A *Guaranteed Ride Home* (GRH) program provides a free taxi ride home to those employees who fall ill, have an emergency, or are left stranded by a carpool. Employers have found that GRH can be one of the easiest and most cost effective ways to encourage people to use alternative modes of transportation. In some cases, GRH can increase ridesharing by as much as 15 percent. By providing a GRH program, you will be giving your employees the peace of mind to commute by carpool, vanpool or transit. Most commuters are more likely to utilize alternative modes of transportation paired with a GRH program since it will avoid being “stuck at the office”.

*Parking Cash Out* allows the employee the opportunity to choose whether they would prefer a parking space or receive the cash equivalent of the employers cost for the space and use alternative modes of transportation. Again, the opportunity to save money and avoid out-of-pocket parking costs is appealing to many commuters. Parking cash out can reduce SOV commuting by up to 25 percent, if alternatives are readily available. However, parking cash out is most effective when parking spaces are unbundled from leases.
Vanpool Subsidy programs provide financial support to vanpool riders as an incentive to participate. Typical subsidies range from 30 to 50 percent of the per-seat cost. This strategy is extremely effective when provided to the first-time user of vanpools and allows them to take advantage of a “trial” period. The trial period allows the user to be able to directly compare the personal cost savings of not driving versus the eventual cost of the use of the van.

- Vanpool Empty Seat Subsidies ensure that as vanpools lose riders over time, the other riders maintain a consistent user’s fee. The vanpool empty seat subsidy covers the cost of the lost rider in the van until a new rider can be found to replace that individual, or at least for a minimum period of time. Vanpool empty seat subsidies should ideally expire in order to provide incentives to find a replacement rider.
Section 4: Next Steps

The following section identifies additional steps and information necessary to implement the TDM policies outlined in Section 3. An outline of preliminary action items are offered below in order to initiate a regional TDM program, followed by an overview of TDM monitoring and evaluation.

4.1 TDM Action Items

1. Integrate TDM strategies into Transportation and Official Plans

TDM provides opportunities to make transportation and land use planning more successful and integrated into the community through marketing, education and partnerships.

Effective corridor improvement projects seek to maximize the efficient use and capacity of a roadway and/or transit corridor, often with limited transportation resources. Planning and preliminary engineering of provincial, regional or local major corridor investment projects, including possible HOV lanes and BRT, throughout the Peel Region present significant opportunities for the coordinated integration of TDM elements.

Implementation of the land use policies will identify and recommend potential changes at the local level. The Peel Region should offer technical assistance in changing local land use policy and regulation. The public and private sector should work together to mitigate negative impacts associated with higher density developments, such as parking shortages and site specific congestion, while promoting alternative forms of transportation and integrating TDM friendly site design principles into new development in all areas.

2. Coordinate with the GTA Smart Commute Initiative

The GTA is receiving federal funding for a program encompassing the entire Toronto region, titled the Smart Commute Initiative. A key role for the Peel Region will be assisting with the development of this program.

The Smart Commute Initiative would develop an array of TDM strategies including real-time ridematching for carpooling and schoolpooling; guaranteed ride home; pilot projects, such as employer vanpools; and a regional marketing and education campaign. Additionally, the Smart Commute Initiative will assist with the coordination of local efforts to form TMAs. By collaborating with the GTA Smart Commute Initiative, TDM programs in Peel will benefit from a common branding for services while still empowering local jurisdictions and other stakeholders in developing local programs.

Transport Canada and York Region recently signed a financial agreement on behalf of the participating GTA and Hamilton partners. The participating partners are in the process of developing a Memorandum of Understanding (MOU) prior to the implementing the Smart Commute Initiative in the GTA.
3. Coordinate with Area Municipalities and Key Stakeholders

Once the Smart Commute Initiative MOU is finalized, there will be a need to work co-operatively with the Smart Commute Association, area municipalities and key stakeholders in order for Peel Region and its area municipalities to maximise the benefits from the GTA Smart Commute Initiative that includes the formation of local TMAs in Peel Region. The following are considered key stakeholders and should be encouraged to work in a collaborative manner:

- Region of Peel
- City of Mississauga
- City of Brampton
- Town of Caledon
- Mississauga Transit
- Brampton Transit
- Other regional transportation agencies or interest groups
- Airport
- University/Institutional
- Major Employers
- Future TMAs

4. Develop a Five-Year TDM Action Plan

For TDM to be successful in Peel, a longer-term plan will need to be developed beyond the three year Smart Commute Initiative. The Regional TDM working group should develop a five-year TDM action plan outlining priority initiatives, their timing, and implementation strategies with specific evaluation and measurement targets. In coordination with area municipalities, the action plan should also identify the appropriate party, the region, area municipalities or other agencies, to implement the different TDM strategies. To ensure that there will not be duplication of effort, development of this five-year action plan can be initiated after the Smart Commute Association is formed and operational.

5. Identify TMAs through Feasibility Analysis

To determine if a TMA is right for a specific area, a feasibility analysis should be undertaken, funded jointly by the Region of Peel, the local municipalities and the interested private sector partners. Each feasibility study should include a similar process and evaluation criteria. The feasibility analysis should also address the role, structure and responsibilities of the individual TMAs.

TMAs are unique and often successful because they address and accomplish more than any one government agency, employer, developer or resident could accomplish alone. While the public sector organizations responsible for transportation in the area can provide transportation
services, making travel options available, the demand for these facilities and services is largely
determined by the hiring, work hours, travel, and operational policies set by the private sector.

TMAs are often formed based on the need to address traffic congestion and accessibility issues
for a specific area. It is important to know when and when it does not make sense to create a
formal TMA. Under certain conditions, alternative organizations that facilitate private sector
cooperation, such as an employee transportation coordinator-networking group or a
transportation committee of a business association, may be more desirable and successful.

The following criteria outlines a an initial screening process of an area's potential for forming a
successful TMA. The first phase of the evaluation includes criteria based on the area's
characteristics, and attempts to assess whether the critical mass of employees are present to
implement a coordinated transportation management program and whether the area has
sufficient identity for such coordination. The second phase involves transportation issues to
answer the question: Does a real and widely perceived problem exist to form the rallying issue
for collective action? Finally, the third phase involves an assessment of the level of interest or
involvement of key stakeholders to assure the necessary commitment to form a TMA. If the
commitment is present to form a TMA, but no problem exists and the area has few commuters
and a lack of identity, the TMA will not have a reason for existing.

The specific criteria used for assessing TMA potential are described in the following table.

<table>
<thead>
<tr>
<th>Definition of TMA Criteria (High-Medium-Low)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criteria</strong></td>
</tr>
<tr>
<td>Employment</td>
</tr>
<tr>
<td>Well-defined</td>
</tr>
<tr>
<td>Growing</td>
</tr>
<tr>
<td>Traffic</td>
</tr>
<tr>
<td>Accessibility</td>
</tr>
<tr>
<td>History</td>
</tr>
</tbody>
</table>

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2 The following phases were developed for the Atlanta Regional Commission in July 1996 by Stuart M.
Anderson, Denise Watts and Eric N. Schreffler. The following descriptions of steps were written by Eric N.
Schreffler and adapted by Stuart M. Anderson.
### Definition of TMA Criteria (High-Medium-Low)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Champion</td>
<td>Readily identifiable</td>
<td>Potential champion</td>
<td>Unclear/no champion</td>
</tr>
<tr>
<td>Core group</td>
<td>Existing group</td>
<td>Potential stakeholders</td>
<td>Unclear/no stakeholders</td>
</tr>
<tr>
<td>Commitment</td>
<td>Resources identified</td>
<td>Commitments, but no resources</td>
<td>No commitment</td>
</tr>
</tbody>
</table>

#### 4.2 Evaluation Measures and Monitoring Techniques

TDM evaluation and monitoring efforts are essential to assess the success of a program, or to assist in determining when changes are necessary. The most important part of the evaluation process involves the collection of baseline data. The more data gathered early on, the more useful evaluation efforts will be down the road.

The types of data collected should be based on the goals established for the TDM program. For example, efforts to reduce the vehicle occupancy of home-based work trips must begin with an assessment of current occupancy conditions. Efforts to maintain current levels of service at key intersections should begin with an analysis of current traffic volumes, level of service and hours of delay. While these sometimes cumbersome analyses may increase the initial cost of implementing a package of TDM strategies, reliable baseline measurements are critical to long-term program evaluation.

Baseline measures of TDM effectiveness can include a wide range of quantitative and qualitative information. For example:

<table>
<thead>
<tr>
<th>Sample TDM Measures</th>
<th>Possible Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average vehicle occupancy</td>
<td>Cordon count program</td>
</tr>
<tr>
<td>Vehicle emissions / vehicle kilometres travelled</td>
<td>Regional transportation model</td>
</tr>
<tr>
<td>Transit trips</td>
<td>Transit operators</td>
</tr>
<tr>
<td>Travel time and delay</td>
<td>Regional travel surveys</td>
</tr>
<tr>
<td>Pedestrian / bicycle / vehicle conflicts</td>
<td>Police or municipality</td>
</tr>
<tr>
<td>Awareness of transportation or route alternatives</td>
<td>Regional travel surveys</td>
</tr>
<tr>
<td>Number of transit passes sold at area employment sites</td>
<td>Transit operators</td>
</tr>
<tr>
<td>Employee satisfaction</td>
<td>Employee surveys</td>
</tr>
<tr>
<td>Employee retention and recruitment</td>
<td>Employee / employer surveys</td>
</tr>
</tbody>
</table>
When creating a TDM implementation plan, community leaders, regional planning agencies and area businesses should clarify TDM goals, establish timeframes for success, and set parameters for measurement. Measuring individual strategies can include both quantitative and qualitative evaluation. Evaluation criteria can include:

- Modal Shift: Does the strategy encourage a mode shift
- VKT Reduction: Is there a vehicle kilometres travelled (VKT) reduction from the strategy
- Cost to Implement: Is the cost to implement inexpensive or expensive
- Cost Effectiveness: What is the cost/benefit ratio
- Political Palatability: Will the strategy be controversial to implement
- North American Adoption: Has the strategy been adopted in North America

Appendix E includes a qualitative evaluation of the strategies outlined in Section 3 and how strategies generally compare to one another.
Appendix A: Stakeholder Interview Summaries

University of Toronto, Mississauga

Interview participants:
Paul Donohue, Chief Administrative Officer
Marc Overton, Student Affairs

Interview Date:
May 28, 2003

The University of Toronto at Mississauga has approximately 7,700 students and 500 employees (summer: 2,000 students and 350 employees). Student population is expected to increase to 11,000 by 2007 and employees to 900.

The majority of classes are held between 10:00-3:00 Monday through Thursday. Class scheduling is largely influenced by the teaching staff. In order to manage demand for parking and University services, the University is trying to achieve a more equitable distribution of scheduled classes to reduce peaks and better utilize University infrastructure.

There are three transit routes to the campus with headways between 10 to 30 minutes. There are two additional bus routes a few blocks north and south and the University is serviced by paratransit. There is a primary centralized transit stop with shelter and a small additional stop near the residents. The transit commute is average, depending on the specific home location. A new semi-express transit service scheduled to start this fall will provide 30-minute service to the City Centre Transit Terminal with easier connections to other local routes and access to the GO Transit inter-regional bus network. The University feels that the new transit route will better serve students by transit on weekdays.

There are also school shuttles that go to the downtown campus and a joint program at Sheridan College. These services are paid by student incidental fees and fare box revenue ($2 per ride). They have contemplated an integrated transit pass between the shuttles and Mississauga Transit for students.

Significant traffic congestion delays occur on Mississauga Road. It is a two lane residential road and the local residents are very opposed to allowing turns into the University from the north. There are currently two road access points, although a third entrance is planned. This new entrance will facilitate movements from the south although it will not relieve the access problems from the north.

There is an informal drop off/pick up location that is congested at peak times. Several students take cabs. There is limited bicycle and walking access to the campus and bicycling is dangerous along Mississauga Road. Residents have established bicycle cages for bike storage. There is also a proposal to develop a bicycle repair shop to encourage bicycling.
Most of the transportation problems result in an inconvenience to students. There are indirect safety issues, mostly because the students are young drivers (average age is 19.5 years). They may lose some students due to access issues, but students can chose the downtown campus if that is an issue. The most important concern is parking.

Currently, there are 2,183 parking spots. In the 2003-2004 school year, there will be 2,700 and in 2004-2005, there will be 3,600. 400 spaces were constructed underground (under a building) at a cost of $12 million. It was not felt to be cost effective ($35,000 a space). In addition, the cost for a parking structure space is $22,000 compared to $2,500 for a surface lot space. The target ratio is 30 percent (30 spots for every 100 students).

However, the Mississauga campus’ selling point is the natural, undeveloped area surrounding the campus and buildings. To accommodate growth, to date, the University has been able to construct new buildings on existing surface parking lots. The University would like to minimize the need to expand surface parking lots and hopes to manage parking demand.

The University has implemented and is initiating several TDM programs, including:

- Ridematching and guaranteed ride home service. They hired a non-profit ride match company to develop a database for the university.
- Raising parking prices at 30 percent per year. (It is currently $300 for 8 months for a standard space. It is more for a reserved space).
- Distributing class times.
- Offering grocery bus for residents.
- Providing information on the transit lines and developing a web page to help students plan their transit trip.

The interviewees were very interested in what other universities are doing and hope to have additional city support on transportation projects. Money was not necessarily an issue for implementing TDM projects. They were encouraged by Mississauga Transit’s willingness to provide customized transit services and marketing plans to accommodate their needs. Both Mr. Donohue and Mr. Overton are interested in attending the July 11th workshop.

Greater Toronto Area Airport (GTAA)

Interview participants:
Naren Doshi, Director Airport Planning
Marc Turpin, Manager Groundside Systems

Interview date:
May 29, 2003

The Greater Toronto Airport Authority (GTAA) is located in the city of Mississauga. GTAA has approximately 1,200 employees and 34,000 people are employed within the airport area. An estimated 70 percent of employees live in Mississauga or Brampton.
Shifts are tied mostly to flight schedules. The airlines are the most influential in determining staff hours, based on flight peak hours.

Approximately 93 percent of passengers arrive to the airport by vehicle, whether it is private or taxi. An estimated 97 percent of employees arrive in a single occupant vehicle.

The airport is served by Mississauga Transit, Toronto Transit Commission (TTC) and private bus operators. Mississauga Transit operates into Terminal 2 of the airport with 20-30 minute headways (#7) and another route to administrative and cargo facilities with 30-minute headways (#57). The TTC operates two services in the nearby area (#32 on Eglinton Ave. & #58 on Airport Road) but as they operate under separate fares, employees must either pay an extra fare or walk into the terminal area. This creates long walks, often through unsafe areas, especially during present construction. The bus service only accommodates those working day shifts, during transit hours.

There is a light rail line proposed to provide a link to the city of Toronto and an airport people mover is now under development. The light rail line will target airline passengers while the people mover will connect the passenger terminals in the Airport area and be used to bring employees from a remote parking facility.

According to Mr. Doshi, there are no parking problems (a 12,000-15,000 space parking facility is under construction) and the airport does compete with local hotels for the provision of parking facilities. Employees have their own lots and currently use shuttles to move between airport buildings. The parking fee ranges from $60-120/month. There is no preferred or discounted parking for carpools and many employers subsidize parking for their employees. There are some bicycle parking facilities and some employees do bicycle.

There are no TDM programs being implemented within GTAA and there is no transportation information provided on the GTAA intranet site. A bulletin board has been established for employees to post rideshare information. There appears to be little interaction with other area employers and employees and little information is available on their specific issues or if they are implementing TDM programs.

Mr. Doshi reacted favourably to initial discussions on the use of preferential parking and the internet/intranet to post commute options information. Mr. Doshi requested additional information on what types of TDM programs are being implemented at other major airports. The airport is interested in programs that have positive air quality impacts. Mr. Doshi and Mr. Turpin agreed to consider participation in the July 11th stakeholder workshop.
Effem, Inc.

**Interview participants:**
Leslie Brams-Baker, Consumer and Community Affairs Manager

**Interview date:**
May 27, 2003

Effem, Inc. is a manufacturer of pet foods, rice and confectionary items. Their pet food and rice manufacturing plant and corporate office is located in the Town of Caledon and has approximately 285 employees. They operate 24 hours a day.

Effem employees experience a standard commute, with some congestion. It takes less time for most employees to drive to Effem than downtown Toronto. There is no bus service serving the plant. A GO Transit bus service starts in Bolton and heads south towards Toronto Downtown. This service does not directly help commuters at Effem’s site. There are no parking problems. The commute does not significantly affect existing employees or the worksite. However, the location can be a challenge for employee recruitment.

The facility does have bike racks, showers and lockers for those who choose to bicycle or walk to work. There is a work at home program for office staff. They are allowed to telecommute two times a month. They would consider allowing it more often, however due to the production process and product lines manufactured at the site, decisions sometimes have to be made quickly and in consultation with many employees. Therefore, the decision making process could be negatively impacted with people telecommuting more often.

Effem has an employee intranet site. Not every employee has a computer, but they all have access to one. They do not currently post any information regarding transportation or commute options on the website, but would consider doing so.

Ms. Brams-Baker stated that the biggest challenge to TDM programs at Effem, such as ridesharing, is the variety of commutes. There are numerous shifts and employees live in a variety of places. They would be willing to share ridesharing information with Husky, another major employer in the area. They would be willing to implement TDM programs, if there was no impact on the businesses. They would appreciate positive impacts on business.

Ms. Brams-Baker stated that she or another representative from Effem will most likely participate in the stakeholder meeting, after she receives and reviews additional information.
DuPont

*Interview participants:*  
Rhonda Carlin, Business Sustainability Resource

*Interview date:*  
May 27, 2003

DuPont is a manufacturing and technology company. They have approximately 300 employees working at the Mississauga site, another 300 employees working from home offices, and 4,000 employees nationally. There are also 300 additional employees employed by tenants who lease space in the DuPont building in Mississauga.

They have one day-shift at this site. (Other sites have 24 hours shifts). Employees work from approximately 8:30 to 5:00, although flextime is allowed as long as there is phone coverage. Employees are also allowed a great deal of flexibility during the day to use the fitness centre or have lunch.

There is excellent highway access to the site and Mississauga transit operates two rush-hour routes (#45 & #82) nearby with two other full service routes in the vicinity. One of these transit services (#82) is a peak hour express service from the Islington subway station in Toronto. Ms. Carlin knows of only one person who takes the bus to DuPont, although the bus has other riders from nearby locations. One person claimed that the commute to downtown Toronto by bus took two and a half hours. The roadways are congested, with the commute worse for those who travel east in the morning. Ms. Carlin stated that the site is in a fairly remote location.

There are no formal bicycle paths, but some employees have found "informal" bicycle paths and cycle to work. There are showers (for a small fee) and bicycle parking. Some employees walk to work. Employees also drive to a variety of locations for lunch. There are no parking issues.

DuPont would like to see a bus shelter at the nearby bus stop and additional transit access, including access to the mall for lunch and HOV lanes on 401 and 407 to encourage carpooling. They would also like safer bicycle routes.

DuPont is participating in Pollution Probe’s SMART Movement programme, which is encouraging individuals to reduce green house gas emissions by 20 percent. Ms. Carlin set up booth during Earth Week and DuPont employees, as well as employees from tenants in the building and nearby locations, stopped by to participate with 61 people making a commitment. These two-week commitments to energy efficiency were rewarded with incentives, which included prizes of an energy efficient washing machine, bikes and energy audits to participants. This commitment included a reduction in travel and most employees considered trip chaining.

DuPont also conducted a transportation survey to determine what commute options employees might consider. Ridesharing was the most promising response. Ms. Carlin stated that Mr. Wayne Chan has a copy of the survey results.
Ms. Carlin stated that they will review the use of incentives, such as closer parking spots for carpoolers, a ridematching program, and continued promotion of home offices/teleworking (DuPont pays for equipment and the employee pays for their office space and utilities). Meetings should not be scheduled early or late to accommodate opportunities for ridesharing. Ms. Carlin stated that most employees that can work from home already do so. DuPont also operates a fleet of 8 corporate pool vehicles for employee use and recently added an environmentally friendly Toyota Prius to the fleet. Although there might not be a critical mass for vanpooling, options on ridesharing with the corporate pool vehicles was considered in an earlier meeting on the survey results.

DuPont has an intranet site for employees and newsletters. They currently do not have transportation information on the site, but will consider doing so. TDM programs are supported within the company hierarchy and are considered a top down approach to helping achieve the corporate goal of environmental stewardship. They are trying to incorporate these goals into the employee ethic through the employee review process. Just as an employee is requested to have a 100 percent safety record, they will also be asked how they contribute economically, socially and environmentally to this community.
Appendix B: Stakeholder Workshop Summary

Introduction

The desire to create a sustainable community, paired with increasing congestion and overall growth, facilitated the Peel Region to review, and potentially update, the regional transportation demand management (TDM) policies. The TDM workshop provided an opportunity for local municipalities, major employers and other stakeholders to discuss future TDM policies and potential programs.

The major theme that emerged during the workshop was the need for public private partnerships to coordinate transportation and development initiatives between governments, transit agencies, developers, and major employers. Specifically, workshop participants advocated for TDM policies that provide incentives to use and education about alternative modes of transportation; facilitate the development of local public-private partnerships; improve coordination between employers and between various government agencies; and include TDM in the transportation planning and development review process.

Workshop Overview

Fifty three participants attended the half-day July 11 Region of Peel Transportation Demand Management (TDM) workshop. The workshop began with introduction from Peter Brown, Vice President of Global Planning and Real Estate for Nortel Networks; Roger Maloney, CAO Region of Peel; and Mayor Susan Fennel, City of Brampton.

The first session focused on creating public private partnerships. The following presentations were given:

- How Employers Can Reduce Travel: The Nortel Case Study, presented by Sharon Lewison, Nortel Networks
- Why Transportation Management Associations (TMAs) are Winning Partnerships, presented by Janet Lo, Black Creek Regional TMA
- TDM in Waterloo Region: from Planning to Action, presented by JoAnn Woodhall, TDM Planner Region of Waterloo

The second and third sessions provided an overview of TDM and its effectiveness, presented by Stuart Anderson and David Ungemah, UrbanTrans Consultants. The presentations were followed by a small group exercise.

General Comments

Overall participants were favourable to the ideas presented at the workshop. They encouraged Peel Region to continue with development of TDM policies and supporting strategies, and co-ordinate with local municipalities, major employers or TMAs to implement these TDM strategies.

Some additional common comments that surfaced during the question and discussion period of the presentations were the need for coordination between employers, between employers and government agencies and between government agencies. Several comments were made about
the need for transit agency coordination both interregionally and with the employers they serve. Participants noted the importance of not only providing transportation options, but also providing the incentives and education to promote these options.

Most participants were very supportive of integrating TDM-friendly site design elements into new development projects, including the addition of bus stops and sidewalks. Several participants suggested funding/implementing TDM strategies using development charges. This was not seen as reducing the area’s competitive edge.

**Group Exercise Results**

Small group breakout sessions were formed to discuss the key TDM activities that should be pursued by the public sector and employers. Participants had a color dot on their name badge that corresponded to one of the four groups:

- Market strategies
- Direct services
- Public policy
- Facility design

After each group presented their strategies, each workshop participant was given four dots to “vote” on or prioritize the strategies. The top four strategies voted by the participants were:

- Development of public private partnerships (including TMAs)
- Creation and support for education and awareness programs
- Incorporation of TDM principles into new development and numerous specific facility design recommendations
- Improved alternative transportation infrastructure and better use of that infrastructure, incentive programs, and changes to TDM and transit policy

The following paragraphs record the comments from each of the groups and the number of votes the strategy received. Several topics came out of all four small groups, including:

**Market Strategies**

- Education (12 votes)
- Development of TMAs (11)
- Communication (1)
- Access to information

**Direct Services**

- Incentives are required to encourage people to use sustainable modes of transportation (12)
- All day GO Train service (2 way) (7)
- Bicycle racks on buses (2)
- Off-site parking and tie in to existing transit and shuttle services (2)
- Carpool matching: Guide to how to carpool (1)
- Airport related transportation, so other people can use the roads (1)
- Shuttle bus service (1)
- Vanpool with proper packaging (how to start vanpool) (1)
- 24 hour transit operating service: to match shifts
- Telecommuting
  - Some office spaces are saved

**Public Policy**
- All new development must consider TDM principles and it must be approved by regional and municipal planners (13)
- Implement and encourage public partnerships (7)
- Develop a public education/awareness program (4)
- Review current provincial and municipal transit policies (4)
- Regional and local municipalities should lead the way (3)
- Implement an incentive or disincentive program (2)
- Review corridor design (2)
- Implement transit priority measures (1)
- Establish urban design guidelines checklists (1)
- Review snow-maintenance guidelines for transit
- Ensure safety measures are implemented
- Revise current TDM policies to reflect more travel options

**Facility Design**
- Designated right-of-way for bus, HOV, etc (6)
- Pedestrian-friendly design and linkages at site and community scale (6)
- Drop off “kiss and ride” opportunities/enhancement (4)
  - Build on Peel’s “kiss and ride” potential (3)
  - Many one-car families, so make it easier to drop off/pick up, reducing pressure to pick up a second or third family car.
- Use of community centre as carpool drop off location or carpool lot (3)
  - Community focal points (2)
- Pedestrian and cycling master plans (2)
  - Cycling facilities (2)
  - Shower amenities
  - Cycling paths through employment areas
- Completing linkages
- Linkages for TDM (i.e., pedestrians and cyclists) (1)
- Transit shelters or stops with good lighting, phones, etc (quality stops) (1)
- Adequate facilities and bus only lanes when developing new roadways
- Carpool lots at recreation centres

**Presentation Comments Summary**

The following questions and comments were provided during the presentation question and answer session. Several participants responded during the session or presented questions to the presenters and five participants returned written comments, also included below.
Presentation Questions

1. What are the possible transportation demand management (TDM) applications in the Region of Peel?
   - Is there a business case for subsidizing transit, and if yes, why has it not been done in the Region of Peel?
   - It is important to provide choices. How do you provide those choices for viable timesavings for all areas in the region?
   - The way we develop, our communities are not often transit friendly.
   - I do not see the cities and regional government going out of their way. I have never been approached by the government or by other employers. The partnerships are not there yet. We need champions.
   - Education. The community leaders are not even thinking about getting out of/away from the car.
   - Interregional coordination between transit agencies.
   - Airport corporate centre, airport and new development.
   - Region is much too big for TDM applications.
   - TDM needs to be locally focused on three municipalities.

2. What has been the experience with TDM strategies in the Region of Peel?
   - No cooperation or partnerships.
     - Dealing with transit authorities is a challenge.
   - They are non-existent.

3. Should new development projects be required to incorporate TDM-friendly site design elements?
   - Yes, this is a must (numerous responses).
   - Fire codes do not allow drop off areas that could be used for those ridesharing.
   - Bus stop locations are not always pedestrian friendly or connected with pedestrian paths. You don’t recognize the obstacles unless you actually ride the bus.
   - Services make sense, even if the demand isn’t there today.
   - They should be incorporated into development charges, as a cost of operation.
   - Getting cars/traffic through the community is more important than the people who live or work there.
   - Must create community uses (land uses) that allow people to walk there. It is not just about the transportation, it is also about providing the services.
   - Mississauga Transit told an employer that they would have to wait for a bus shelter for approximately 3-4 years, even if the employer paid for it.
   - Also include Crime Prevention through Environmental Design principles.
   - Not necessarily. Some simple/efficient ideas can produce good results.
   - No, optional with minor incentives.
4. Would incorporating these TDM-friendly site design elements reduce the region’s competitive edge?

- No (2 responses)
- Absolutely not!
- No. On the other hand it will be improved since this would mean better productivity for the employers.

5. What size of development should be required to incorporate these TDM-friendly site design elements? What types of development?

- Any that collects 500+ people per day.
- Companies of about 5,000 employees.
- At least mid-size employer.
- Malls
- Intermodal hubs (e.g., airport, subway station, bus station)
- Small to large
- All sizes

6. Are Transportation Management Associations the right fit for Peel?

- Yes (3 comments)
- I could happily see Sheridan College participating.
- Needs successful synergy between private and public sectors.
- Yes, but local is a must.
  - Mississauga city centre
  - Brampton downtown
  - Bramalea city centre
  - Airport
  - Meadowvale business park
  - Lakeshore (to tie with GO)
- This is a start

7. Identify 4-8 key TDM activities that should be pursued by the public sector and employers.

a. Market strategies
   - Minor incentives
   - TMAs (not regional)

b. Direct services
   - Airport shuttle
   - Regional transit services

c. Public policy
   - Incorporate ITS elements (e.g., transit priority signals, variable message signs, toll tag related services)
   - Tax incentives
   - Public sector
d. Facility design
   - local level

Other Comments:
- Biggest missing point is the need to have parking charges. Mississauga City Hall needs to charge and tie in TDM policies. Need to convince private sector to employ parking charges.
- Need much better transit service focused on what each TMA area needs.

Meeting Evaluation Summary

Ten workshop participants returned the meeting evaluation form. The results are recorded below.

1. How would you rate this workshop overall?

<table>
<thead>
<tr>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very Poor</th>
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<tr>
<td>5</td>
<td>4</td>
<td>1</td>
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2. What did you like most about the workshop?
- Presentations by Nortel, Black Creek and Waterloo. Very informative and reassuring that success can be made.
- Discussion of TMA’s
- Educational
- Presentations
- Set up
- Presentations provided ideas and data being used in other locations that could be adopted by businesses in Peel.
- The information! New concepts for me. Enthusiasm of presenters.
- Talking about transit options. Meeting people.
- Sharing of experiences and success stories of other regions/companies implementing TDM.
- Enjoyed practiced implementation examples and ideas shared.

3. In which areas do you feel the workshop could have been improved?
- More time for group discussion (2 comments).
- Drop the introductions from politicians—focus on issues.
- Involvement of Peel transit and possible changes for the future.
- Would have liked more time after individual presentations for question and answer.
4. Regarding the TDM Workshop, how would you rate the following statements?

I learned new information.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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<td>6</td>
<td>2</td>
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I was given an opportunity to provide input

<table>
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<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
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<td>4</td>
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5. Will you be interested in working with Peel Region and area municipalities in developing TDM policies, programs and services?

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<th>Yes</th>
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6. Is there additional information you think would be useful? Please list below.

- Still feels resource-shy in terms of fleshing out how some programs work. Vanpooling for example, common oversight funding mechanisms.

7. Check which organisation you represent:

<table>
<thead>
<tr>
<th>Public Agency</th>
<th>Private Sector</th>
<th>Non-Profit/Neighbourhood Group</th>
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<tr>
<td>5</td>
<td>5</td>
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<td>(2 Universities)</td>
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8. Please include your name and contact information below (optional).

(Included under separate cover)

9. Would you like to stay involved for future meetings or updates on TDM?

<table>
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10. Would you like your name to be added to our mailing list for Regional Official Plan Strategic Update?

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<tr>
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Additional comments:

- Where are the on-street bike lanes on regional roads? Interesting to see that neither Mississauga Transit nor Brampton Transit was represented at the session. To provide a quantum leap in convenience, municipal transit must be integrated. Why are there separate transit authorities for Brampton and Mississauga for instance?
- Group participation at end of session provided additional data and was a good summary of the morning presentations. Showed common elements in each category.
- I’m confident that the University of Toronto at Mississauga is interested in TMA participation in significant ways.
Appendix C: Relevant Case Study Examples

The following case studies are Regional, Municipal and Employer based.

Regional Based TDM Case Studies

Vancouver’s Employee Trip Reduction Program

Overview
This case study shows how a regional agency first developed a program for its own employees and then used it as a model for other employers. The Employee Trip Reduction Program was launched on May 1, 1996 and administered by The Greater Vancouver Regional District’s (GVRD) Employee Environmental Awareness Committee in partnership with British Columbia (BC) Transit, the Jack Bell Foundations, and Better Environmentally Sound Transportation (BEST). GVRD made a commitment to address transportation and air quality issues by promoting the reduction of single-occupant vehicle (SOV) commuter travel among its employees. GVRD’s offices were located in Burnaby, a highly urbanized municipality well served by public transit. Burnaby was located within the Greater Vancouver Region, which had a population of 1.7 million people.

The Trip Reduction Program was initiated by the GVRD's Employee Environmental Awareness Committee. While the program was adopted as a corporate initiative supported by all of GVRD’s departments, the Communications and Education Department and the Air Quality Department with assistance from BC Transit, were primarily responsible for implementation.

First, a baseline employee survey administered by the GVRD measured AVR and modal splits and possible barriers to implementation. Most employees came to work in single-occupant vehicles; although many used public transit. Almost no-one telecommutes, and there was a lack of awareness about this commuting alternative. Most existing carpools had only two people per vehicle. By measuring commuting distances, it was determined that 46 per cent of employees lived within 10 and 25 km of their workplace, distances well suited to the use of public transit or carpooling. It was further determined that 28 per cent of employees lived within 10 km of their workplace, distances well suited to cycling, walking, or jogging to work.

A full-time coordinator was responsible for promoting and delivering the Trip Reduction Program in its first year and was found to be critical to the program's success. Later the coordinator worked part-time, sharing some of the duties with other staff.

A cornerstone of GVRD's strategy was the phasing out of a 60 per cent subsidy available for employee parking, removing an incentive to drive. Subsidies were phased out over a five-year period starting six months after the program began. The subsidy phase out, as well as administration of savings for other employee benefits, were negotiated as part of a new contract between GVRD management and the employees' union.
To register for the Trip Reduction Program, employees filled out a form indicating their willingness to use resource-efficient commuting alternatives to driving alone, at least one day per week. The one day per week minimum provided participants with great flexibility, and a do-able first step that might lead to greater involvement.

The program contained six initiatives:

1. **Carpool Ride-Matching Program.** A ride-matching program was implemented to connect people traveling from the same neighbourhood or general area so they could commute in a single vehicle. A two-month trial period was offered during which employees were not required to give up their parking spots, for which there was a waiting list of up to five years. During this time they were reimbursed for their monthly parking payroll deductions.

   A corporate carpooling fleet was made available - at a charge of 26 cents per kilometre to recover 100 per cent of the cost of insurance, parking, gas and maintenance - to carpool groups that did not have access to a vehicle. Employees were required to sign an agreement to use the cars strictly for commuting purposes.

   When subsidies for employee parking were phased out, incentives were added to encourage carpooling. Carpool groups consisting of two employees could claim a 50 per cent reimbursement of parking payroll deductions. Groups of three or more could claim a 100 per cent reimbursement.

2. **Vanpool Empty Seat Insurance.** While all Vancouver commuters had access to a vanpool service operated by the Jack Bell Foundation, vanpools were sometimes forced to disband when a member dropped out, because a replacement could not be immediately found, which consequently increased the cost per person. The GVRD therefore offered Empty Seat Insurance to cover the cost of one empty seat for a period of up to two months per year. The two-month period was considered a reasonable time frame in which to find a replacement.

3. **Cycling Safety Workshops and Worksite Facility Upgrades.** Safety workshops were organized for employees who were prepared to cycle to work but were unsure about the best travel routes, or were concerned about traffic safety. Cycling coaches provided through an externally run group called Better Environmentally Sound Transportation (BEST) mapped out individualized routes and accompanied participants on a trial run. Free bicycle maintenance workshops were also provided.

   Improvements were also made to shower facilities at work sites, and more bicycle racks were installed. To increase visibility, one of the racks was placed at the building’s front entrance. In addition, a cage for up to 50 bicycles was provided in an underground parking lot, replacing some existing car parking spots.

4. **Guaranteed Ride Home Service.** A Guaranteed Ride Home Service was provided free-of-charge to ensure that individuals enrolled in the Employee Trip Reduction Program had a fail-safe means of getting home if their carpooling efforts failed.
Reduction Program were not left stranded at the office in cases of emergency, unscheduled overtime, or missed rides. The service was available to program participants, up to a maximum of four times per year, on days when they didn’t drive alone. A department receptionist would either arrange for use of a corporate car, or would call a taxi and issue a voucher.

5. **Flextime.** As long as it did not interfere with a department's operational requirements, participants could change the times they started and ended work by up to one-half hour, to create a work schedule that accommodated commuting via carpooling, public transit, cycling, walking, or jogging.

6. **Subsidized Transit Program.** BC Transit representatives held workshops at GVRD work sites. Participants received information about the most direct commuting routes, visually demonstrated using computers. Estimated travel times were also calculated. Each participant then received a personalized printout of the results.

To encourage use of public transit for local business travel, transit tickets were available free-of-charge from each department. Employees could also purchase monthly transit passes through payroll deduction and receive a 15 per cent discount. To receive the discount, employees were required to sign a contract with BC Transit agreeing to purchase the monthly transit passes for a period of 12 consecutive months. GVRD also promoted the use of public transit for local business activity by issuing free transit tickets to each department.

**Outreach**

Electronic mail and posters were the main means of promoting the six initiatives. Messages linked commuting choices with air quality and traffic congestion "hot issues in the community" as well as to other common motivators like saving money and time, and avoiding stress. Information about the program could be also obtained by calling a hot-line staffed by an Employee Transportation Coordinator, or by visiting one of three staffed Commuter Information Centers. The centers contained public transit maps and schedules, public transit pass applications, a cycling commuter map, a bulletin board with transportation related information, and up-to-date information on existing carpools.

To strengthen the motivation of participants, and to encourage non-participating staff to "join in", steps were taken to increase the visibility of participation by others. For example, a monthly employee newsletter included photographs of individuals using the promoted commuting practices. Designated carpool parking spots were clearly marked for all to see. In addition, prizes were given for participation in monthly Clean Air Days. Ballot boxes were located at receptionists' desks - highly visible locations. Additional communications encouraged employees to engage in other "clean air activities" such as planting trees, using a push lawn mower instead of a gas-powered one, and minimizing SOV use for non-commuting purposes.
Regional Trip Reduction Services: Go Green Choices
To help bring transportation alternatives to workplaces throughout the Greater Vancouver Area, the GVRD contracted out for the development of a program called Go Green Choices. When the Greater Vancouver Transportation Authority, also known as TransLink, was created in 1998, they took on responsibility for the Trip Reduction Program and the Employer Pass Program. The Trip Reduction Program included Go Green Choices and the Jack Bell Foundation rideshare programs. The Go Green Choices program offered these services:

- Distributing a brochure ("It's Your Business: Commuting Alternatives for your Workplace") to help in "selling" participation to key decision makers at each workplace.
- Training a designated employee at each workplace as a Go Green Coordinator, to create and manage the trip reduction program at the workplace.
- Providing a Go Green Coordinator's Kit, including a guide with step-by-step instructions and checklists; templates for e-mails, memos, and employee transportation surveys; and a brochure, poster and postcard for use with employees.
- Promoting the Jack Bell Foundation rideshare program.
- Offering free on-going assistance.

Lessons Learned
There were several factors influencing the success of this program, as follows:

- A full-time coordinator to initiate the first year of the program.
- Phasing out 60 percent of the employee parking subsidy.
- Designing a flexible program that met the needs of different types of lifestyles/people, Written approval received from all those wanting to participate in the program. Using a portion of parking revenues to fund part of the program.
- The "dynamics" of the carpool group is crucial to program success but be careful to match up compatible carpoolers.
- The Transit Pass Initiative that was originally devised as a monthly pay deduction approach covering the cost of a transit pass (at a 15 percent discount). However, this was changed to a yearly pay deduction approach after discovering the high administration requirements associated with the monthly deduction system. This has resulted in a more cost effective and easier administration system for the Go Green coordinators but has proven less flexible for the employee.
- Some employees are not satisfied with the yearly transit pass because it is inflexible. A six-month pass purchase program might be more useful to employees who chose to cycle or integrate other non-motorized forms of commuting parts of the year.

Results
The percentage of trips taken by each of the following commuting methods shifted, from 1996 to 1997, as follows:

- SOV commuter travel from 57 percent to 46 percent (1998 target was 40 percent)
- Carpooling from 15 percent to 21 percent (1998 target was 20 percent)
- Public transit from 19 percent to 22 percent (1998 target was 30 percent)
- Cycling from 3 percent to 5 percent (1998 target was 3 percent)
Walking/jogging stable at 6 percent (1998 target was 8 percent)
Telecommuting stable at 0 percent (1998 target was 3 percent)

Annual estimated greenhouse gas reductions were:
- 63,031 kg CO2 (equivalent to the effect of planting 1,300 to 1,400 trees)
- 4,728 kg of smog and other ground-level contaminants.

**Regional Municipality of Halifax TDM Program**

A regional TDM Coordinator was hired in August, 2003 to initiate a regional TDM program. The road network in Halifax is aging and the region suffers from severe congestion in the urban core and increasing pressure from commuters in large, rural subdivisions driving into the city. A Bike Plan was developed one year ago and the region is starting to implement it, as well as improving pedestrian facilities to get people walking. They are also working on integrating biking and walking into the public transit network. There are no HOV or bus only facilities at this time.

The TDM coordinator sees her primary role as developing and integrating TDM policies into the regional plan. She does not want to rush into a program that will not work. She is also interested in encouraging TMA formation and hopes to serve as a knowledge base for local transportation management programs.

The regional government works in partnership with TRAX, a local non-profit organisation promoting trip reduction programs. TRAX is a project that came out of the Ecology Action Centre (EAC), which is one of Nova Scotia’s oldest environmental organizations. EAC is a membership-based research oriented environmental group, and they address numerous issues ranging from ecology to transportation.

TRAX is loosely based on Go Green Choices. The focus is on trip reduction programs in large workplaces and offering incentives for people to reduce Single Occupant Vehicle (SOV) use. They also advocate for infrastructure improvements and awareness of alternative transportation. Programs include:
- Transit Promotion
  - Transit Pass lotteries
  - Selling transit tickets at their front counter
  - Marketing and education
- Ridematching through Commuter Connections website
- Vanpool Promotion. A local company (Greenrider) provides vanpool services.
- Bicycling Promotion
  - Fleet bicycles
  - Covered, secured bicycle parking
  - Bike recycling and providing them to people who cannot afford bikes
- Large awareness campaigns around Commuter Challenge and Bike to Work week
- High media representation, including TV, radio and print ads
- Safe Routes to School program
UPASS at St. Mary’s University
Idling awareness and vehicle emissions clinics

They get their funding from grants from the Climate Change Action Fund (Environment Canada), MOST, Ecoaction, Nova Scotia Sport and Recreation Commission, Community Health Board, Department of Energy and Natural Resources.

**Ottawa’s Commuter Challenge**

**Overview**

Ottawa’s Commuter Challenge is a weeklong event that encourages people of legal driving age (16+) to reduce air pollution by using active or sustainable transportation to get to and from work or school. People are asked to walk, cycle, and take the bus, telework, carpool, or a combination of those, instead of driving alone.

Numerous governmental, private and non-profits partnered to participate in the week long campaign held during the first week of June each year, and coincides with Canada's National Environment Week and Clean Air Day Canada, held the first Wednesday in June. Employees are encouraged to participate as a workplace team and compete against similar sized groups, but can also participate as individuals if their workplace is not registered.

On the Commuter Challenge web site, and in articles and radio interviews, cost savings were used to promote active and sustainable transportation. For example, the cost of operating a vehicle (figures from the Canadian Automobile Association) was compared to the cost of a yearly bus pass, or the purchase price of a new bicycle. The rising price of gas was also used as a financial disincentive to driving a single occupant vehicle and was referred to in radio interviews and articles.

An Information Kit was sent to any group that was interested in participating. The Kit provided suggestions on how to run the campaign at the workplace or school, and included eye-catching posters that sported the Commuter Challenge mascot (the "Walking Briefcase"), information on local transit services, a Regional cycling map, and a diskette that included a spreadsheet application for gathering information, and sample e-mail messages that could be sent to all of the group's participants. The main information document, spreadsheet, and sample e-mails, were also available on the Commuter Challenge web site as a downloadable file.

Auto Free Ottawa secured core funding of $14,000 from the Region of Ottawa-Carleton, and $8,500 from the private sector. In-kind donations of prizes, information materials, human resources, office supplies, telephone services, graphic design, mailing costs, and French language services, etc. represented at least another $10,000. Primary expenses included the coordinator's fees, printing, advertising, promotional buttons, translation, and web site and graphic design.

**Results**

10,939 people (one percent of the National Capital Region's population) from approximately 100 registered groups participated. This represented a diversion of almost 300 metric...
tonnes of air pollution had each of those participants been driving alone. Approximately 20 percent of all participants indicated that they normally drove a car alone, two days per week or more.

Many of the groups who had participated in previous years saw marked increases in their participation rates. For example, Export Development Corporation increased its participation from to 30 percent in 1999 to 70 percent in 2000, and Health Canada increased its participation from 23 percent in 1999 to 47 percent in 2000.

There was also an increase in the number of new groups who had never participated in the Commuter Challenge before. Approximately 20 percent of all groups were new registrations. School involvement was still quite low and was a direct result of the Commuter Challenge dates conflicting with the end of the school year, particularly for secondary schools.

TRAVELSMART, Western Australia

Overview
TravelSmart is a successful Western Australian community-based program, initiated by the City of Perth, Australia that encourages people to use alternatives to travelling in their private car. Currently (2002), there are 2.8 million driver-only car trips made per day in Perth. If present trends continue, this will increase to 4.7 million in 2029. By decreasing reliance on cars Perth realised they can reduce traffic congestion, improve air quality, reduce road trauma and improve health and fitness. Car use in the Perth Metropolitan Region is high by world standards with 63 per cent of all personal trips made by car as the driver. TravelSmart encourages people to make small changes in their travel behaviour - which makes a big difference over all.

One quarter of all trips are made by ‘environmentally friendly’ travel choices (i.e. walking, cycling or public transport). Three quarters of all trips are made by cars (drivers and passengers). Research shows that for 40 per cent of all trips the car is the only real option (e.g. for long distances, carrying grocery goods or taking passengers) and for 15 per cent of trips a car is not available. This leaves 45 per cent of trips where there are travel choices. Some (10 percent) are chosen to be made by ‘environment friendly’ options; most (35 percent) are made by car. It is these 35 per cent of trips where there is an alternative to the car that is the TravelSmart potential for change.

The South Perth TravelSmart project was used to test the effectiveness of individualised marketing and there were no changes made to transport services and infrastructure, land use planning or transport policies.

Individualised Marketing
TravelSmart Individualised Marketing is:
- A successful, innovative travel behaviour change program
- Proven and sustainable (reducing car travel by 17 percent)
- Cost-effective (a benefit: cost ratio of 30:1 saving $1 billion over 15 years)
- Popular with the community
- Applicable to all Australian cities

Prepared for the Regional Municipality of Peel by: UrbanTrans Consultants, Inc.
Individualised marketing is the name of the approach used to inform people of their travel choices and motivate them to consider walking, cycling or using public transport as an alternative to their car. Almost every household was contacted by telephone in a specific geographic area to identify those interested. Households were asked what information they would like to receive about walking, cycling and public transport and were delivered personalised packages of information specific to their situation (e.g., local bus service timetables and local cycling and walking maps).

A pilot marketing program in South Perth generated positive results. It showed that Perth people are keen to attain this change for both themselves and the general community. This has been translated into large-scale success for the entire City of South Perth.

At times, program staff visited participant’s homes to talk to them about using public transport and offer new users trial use with free tickets. If they requested, a personal visit by someone with practical skills and knowledge of walking and cycling (including local facilities) was arranged. Additionally, discount vouchers from local bike shops, or a "Heart Movers' Kit" designed to encourage them to walk more was provided.

Those people who already utilized public transport or cycling or walking regularly were encouraged to continue. These participants were rewarded with vouchers and small gifts (e.g., a sports drink bottle) as well as additional information as requested.

TravelSmart programs reach people through many different routes. They can become involved through individualised marketing to their own homes as stated above, or through workplaces, schools and major destinations (e.g., universities). The program provides information, advice, support and encouragement. Each individual is empowered to make the travel choice that suits their lifestyle and personal needs. Schools, businesses, local government and major destinations are encouraged to run their own TravelSmart programs.

**TravelSmart Workplace**
A TravelSmart program targeted to employers and their staff and focused on providing information and motivation to reduce peak hour commuter trips, with the benefits of reduced traffic congestion and improved air quality.

**TravelSmart Schools**
A curriculum-based program that raises awareness among school children about the impacts of high car use and encourages them to explore ways to reduce car use in the community and for their own trip to school.

**TravelSmart Local Government**
The TravelSmart Program works closely with local governments and their communities to develop and implement local plans to influence travel behaviour.

**TravelSmart Major Destinations**
TravelSmart also works closely with major travel destinations such as universities and hospitals to develop and implement travel behaviour change programs.
Results
Individualised marketing has been successful starting with a pilot project in the City of South Perth in 1997. This project reduced car trips by 10 percent. The pilot project changes had been sustained when they were measured again one and two years after the project. From February to June 2000, TravelSmart ran a large scale individualised marketing program in South Perth (pop 35,000). Out of 17,500 households, 15,300 were identified with a contact name and phone number and 94 percent were contacted. Of these 55 per cent chose to participate in the program.

Evaluation of these projects measured behaviour change. (The results are for the whole program, including households that chose not to participate.)

<table>
<thead>
<tr>
<th>Trips by</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car-as-driver</td>
<td>Down 14%</td>
</tr>
<tr>
<td>Public transport</td>
<td>Up 17%</td>
</tr>
<tr>
<td>Cycling</td>
<td>Up 61%</td>
</tr>
<tr>
<td>Walking</td>
<td>Up 35%</td>
</tr>
<tr>
<td>Car kilometres travelled</td>
<td>Down 17%</td>
</tr>
</tbody>
</table>

The 14 per cent drop in car-as-driver trips cut the number of vehicle kilometres travelled by 17 per cent. This was achieved by people changing to an alternative for just two trips each week. Overall, people did not reduce their travel; they still averaged 3.4 trips per person per day.

An overall increase in bus boardings of 26 per cent has been sustained resulting in an additional 300,000 passengers over the first twelve months following the program.

Next Steps
A staged program is planned to expand individualised marketing across half of the Perth Metropolitan Region involving 600,000 residents at an estimated cost of $26 million. This is equivalent to the construction cost of seven kilometres of four-lane dual carriageway with shoulder. The program is detailed in TravelSmart 2010 - A 10-year plan. The first stage of the program was in South Perth. Expansion beyond this is not yet fully funded.
Employer Based TDM Case Studies

Nortel Networks’ GreenCommute

Overview
In 1998, Nortel Networks initiated GreenCommute, a TDM program for its campus expansion in Ottawa, Ontario, that has grown into one of the most comprehensive TDM programs in Canada. Nortel Networks has since expanded the program to other sites in Canada and United States. This case study shows how key partnerships, pedestrian-oriented site design, and a strong commitment to “green” commuting can successfully engage employee participation.

When Nortel Networks, the global internet and communications corporation, decided to expand their Carling Avenue campus, one of the municipality’s approval conditions was that the company initiate a Transportation Demand Management (TDM) program at the site. The Carling Avenue site was located in a suburban area of Ottawa, Canada’s capital. With a population of over one million, Ottawa was the country’s fourth largest metropolitan area and a hub of its growing high technology sector.

In response, Nortel Networks designed GreenCommute and teamed up with the Regional Municipality of Ottawa-Carleton, the City of Nepean, OC Transpo (Ottawa’s transit system), and the National Capital Commission. (Note that as of January 2001, the Regional Municipality of Ottawa-Carleton, the City of Nepean, and ‘old City of Ottawa and the City of Kanata no longer exist and have been replaced by the amalgamated City of Ottawa. The remainder of this case study will refer to the City of Ottawa as the amalgamated City, recognizing that partnerships formed at the outset of the GreenCommute program have continued on with the amalgamated City of Ottawa.) Together, these partners initiated a wide-ranging TDM program that provided incentives for and decreased barriers to “green” commuting for the 8,000 people who would ultimately work at the site.

The overall goal of the GreenCommute program was “to enhance and promote alternative commuting practices in an effort to proactively confront environmental issues facing our communities.”

In May 1998, the City of Ottawa conducted a traffic count to gather information on how people arrived at the existing Carling campus. This information provided a benchmark on which to base objectives for improvement. Average auto occupancy was 1.12 persons per car, and only 12 percent used alternative transportation methods to get to work (e.g., transit, cycling, teleworking, walking/in-line skating).

At the same time, Nortel Networks conducted a comprehensive on-line survey of the 11,500 employees at its existing Ottawa campus. That survey consisted of about 50 questions on topics such as: home location, distance traveled to work, regular transportation habits, opinions on various alternatives, receptivity to trying alternative commuting methods, potential barriers and motivating factors.

In March 1999, a joint promotion with the City and OC Transpo provided employees at the Carling campus with a coupon redeemable for a free transit pass. Approximately 30 percent
(1,300) of people working at the Carling campus took advantage of this offer. Each pass recipient had to fill out a mini-questionnaire on existing commuting habits. According to that survey, 55 percent of the respondents usually commuted by car, 31 percent rode the bus regularly, 39 percent rode the bus occasionally, 20 percent hardly ever did, and 10 percent said they never rode the bus.

Prior to developing the formal TDM program, several fundamental elements were integrated into the site’s design to make access by pedestrians, cyclists, and transit users safer and easier. An extensive network of tree-lined pathways and sidewalks throughout the campus made for pleasant and safe walking, and stop signs at on-site intersections gave priority to pedestrians. Nortel Networks also significantly improved the existing cycling routes leading to its Carling site.

In addition, the company worked with the City and OC Transpo to develop a centrally located transit hub that provided a focal point where people could wait for buses and obtain information on routes and scheduling. A television screen at the hub displayed continuously updated bus arrival times. OC Transpo also doubled transit service to the site, increased peak period bus service and provided midday trips to key travel destinations. With these infrastructure elements in place, the stage was set for the initiation of the company’s TDM communications.

Nortel Networks kicked off GreenCommute internally by hiring a full-time TDM Coordinator in March 1998, demonstrating their ongoing commitment to the program’s success. In addition, having a Coordinator on-site ensured program consistency and leadership; having a single point of contact facilitated employee and partner participation.

Once the program identity and strategy were developed, an initial on-line survey introduced GreenCommute to people working at the Carling Campus. The survey provided basic information on the GreenCommute program, why it was being introduced, what its goals were, and told people that the program would be developed based on their needs and priorities. Information was requested on existing commuting habits and people were asked their opinion on the various alternative modes. By the time the GreenCommute program was formally launched a year later, on March 22, 1999, people were starting to move into the new buildings and were already taking advantage of the available infrastructure at the site – a key element of the program’s resources.

The on-line survey had identified that finding compatible carpool partners was a key barrier to on-site carpooling. After some background research, Nortel Networks developed its own custom intranet-based ride-matching system, which it launched in December 1998. This self-serve program allowed registered members to search for compatible carpool partners based on a variety of selected criteria.

As an incentive to carpool, specific parking areas (11 percent of all parking) were dedicated for carpoolers with two or more occupants. These areas were preferentially located (closer to the main building.) One of the three reserved lots, which provided underground parking, was originally reserved for carpoolers with three or more occupants; that was downgraded to two or more because of parking demand. In order to park in these areas, drivers had to
obtain a special GreenCommute sticker through the custom developed carpool registration system and place it on their windshield. This windshield sticker later evolved into a hangtag.

Ongoing Events
With the participation and support of their local partners, Nortel Networks’ GreenCommute program provided numerous activities and opportunities for the people working at their sites to learn more about and try alternative transportation methods and related resources.

- **Test Ride Transit** - In March 1999, a formal media event was held to promote Test Ride Transit, a joint promotion with the City of Ottawa, OC Transpo, and Nortel Networks. This event formally introduced the GreenCommute program, and inaugurated the new Transit Hub and passenger waiting area. On the day of the media event, people working at the Carling campus found kit folders enclosed in a reusable lunch bag waiting on their desks with information on alternative commuting specific to the Carling campus, along with a coupon redeemable for a free April transit pass. The pass was aimed at enticing those who had never tried or seldom used transit, to ride the bus for one month. An outstanding 29 percent (1,300 people) of Carling employees took advantage of this pass, and filled out a “pre-trial” questionnaire to gauge commuting habits. Because of the promotion, OC Transpo had a 25 percent increase in transit ridership for the month of April.

- **Cycling Promotion Week** - Held in May 1999, in association with the Nortel Networks Bicycle Users Group (NORBUG) and Citizens for Safe Cycling, GreenCommute sponsored an event to promote cycling as a viable form of commuting. This event included demonstrations on safe cycling and different bicycle designs, and resulted in a 50 percent increase in NORBUG’s Carling membership. As an additional benefit, GreenCommute engaged NORBUG, an employee-owned interest group, to become an active participant in company cycling issues.

- **Commuter Challenge** – The Commuter Challenge, a national grassroots event aimed at promoting environmental citizenship through “green” commuting practices, was an incredible success for the GreenCommute program in 1999, 2000 and 2001. Although Nortel Networks had participated in previous years, there had been no centralized corporate promotion and participation had been negligible. However, in 1999 and 2000 participation increased significantly. In 1999, Nortel Networks accounted for a phenomenal 29 percent of the entire National Capital Region’s participants and in 2000, 20 percent more Carling employees signed up compared to the previous year. In all three years, the company came first in its class (employers with over 1,000 employees) with the most participants. This clearly articulated the success of the GreenCommute initiative in building awareness and greater interest in alternative commuting.

- **What Moves You - Transportation Fair 2000** - Held in May 2000, this daylong on-site event was attended by 45 percent of employees at the Carling site. With the participation of all their partners and companies like Ford Motor Company, Health Canada, Environment Canada, Natural Resources Canada, the event was designed to provide information on a variety of commuting alternatives and included demonstrations and/or information on:
  - OC Transpo Rack & Roll bus, routes, schedules and future plans (free day passes were distributed)
  - Light rail in Ottawa
  - Bicycle maps and safety
• **Climate Change: The Scientific Basis for Concern** - In recognition of Canadian Environment Week and Clean Air Day Canada 2000, GreenCommute offered the opportunity to learn more about global climate change through a presentation by a leading scientist in the field. The event, held in an open area to attract pass-by traffic, captured the interest of over 175 people. OC Transpo brought interested people via shuttle bus to Carling from other Nortel Networks sites in Ottawa. Running concurrently with the presentation, a working demonstration of the Wireless Internet was displayed to allow people to register for the Commuter Challenge.

GreenCommute offered people working at Nortel Networks a dynamic intranet Web site with information and support on alternative commuting methods. The site was updated regularly with alerts and related articles to keep employees current on events, and remind them of upcoming activities. In addition, survey results were posted so that employees could gauge their own performance and rethink their commuting options, as was information on levels of participation at various events.

Promotion of the GreenCommute program was primarily email-driven, through e-mail web alerts describing each upcoming event or commuting-related issue, why Nortel Networks was initiating it, and what the benefits were. Additionally, random draw prizes were occasionally offered to encourage participation. Posters were also used, when necessary.

As of June 1999, Nortel Networks had invested over eight million Canadian Dollars to construct underground parking facilities; to protect building links; improve transit facilities, pedestrian and cycling paths to and through the site; and to maintain the GreenCommute program.

**Results**
Traffic count data showed that 15 percent of the approximately 5,200 employees were taking non-auto transportation (transit, telecommuting and cycling) to work in 2000, a 3 percent increase from 12 percent in 1998.

Outstanding employee participation in the numerous on-site events provided evidence of increased awareness and engagement. The Transportation Fair 2000 attracted 45 percent of Carling employees; Nortel Networks won the Commuter Challenge in their class three years in a row, and the Carling campus participation increased 20 percent from 1999-2000; NORBUG increased its Carling campus membership by 50 percent with the addition of 135 new members.

In addition, the GreenCommute Awareness Survey of 2000 found that almost all (96 percent) of staff had heard of GreenCommute, and 73 percent had tried at least one mode of alternative transportation during the past year. 90 percent of respondents thought the GreenCommute program provided a meaningful benefit, 79 percent said that it made it easier to get to work without a car, and 70 percent thought that the program caused them to think more about the impacts of commuting on the environment, health and the community.
The partners themselves also received benefits. Improved transit facilities, better routes, and faster travel times resulted in higher ridership for OC Transpo. Additionally, other associations such as Citizens for Safe Cycling benefited from the opportunities to spread their safety message on-site to Nortel Networks employees, and NORBUG increased its membership at the Carling campus.

**Los Angeles International Airport (LAX)**

LAX is ranked third in the world for number of passengers and tonnage of air cargo handled. The airport handled 75 percent of the passengers, 78 percent of the air cargo, and 100 percent of the international passengers and cargo traffic in the five-county Southern California region. An estimated 59,000 jobs, directly attributable to LAX, are located on or near the airport. Approximately 408,000 jobs, spread throughout the region, are attributable to LAX. The employment in the City of Los Angeles due to the airport is estimated to be 158,000 jobs. One in 20 jobs in Southern California is attributed to LAX operations. In 2001, more than 61.6 million people travelled through LAX and its air cargo system handled more than two million tons of goods.

Los Angeles World Airports (LAWA) is a self-supporting department within the City of Los Angeles. LAWA owns and operates an excellent system of four airports comprised of Los Angeles International, Ontario International, Palmdale Regional, and Van Nuys. LAWA's program currently comprises 60 custom vanpools, 25 carpools, public transit incentives, various marketing activities, and quarterly special events. This voluntary program is unsurpassed by any public and private employer in the region. LAWA's Vanpool Program alone saves more than 4.8 million commute miles per year, approximately 350,000 gallons of gasoline annually, thousands of dollars in insurance and vehicle depreciation costs, and countless hours spent on Southern California's over-burdened freeways. (Source: EPA)

TDM strategies being implemented at LAX are:

- Satellite parking lots with shuttle service
- Vanpool program
- Bus service to satellite parking lots
- Shuttle bus from light rail station
- Subsidized public transit
- Guaranteed ride home

**San Francisco International Airport**

The San Francisco International Airport has instituted a Transportation Management Program to mitigate the transportation impacts of the Airport’s Master Plan expansion, meet countywide congestion management goals, as well as to improve air quality and reduce traffic congestion in the region. The airport is approximately 4.4 million square feet of terminal space on 2,383 acres of developed land and employees roughly 30,000 employees that serve 41 million passengers. The program is intended to address transportation issues the airport faces as a major regional employer, as well as the region’s largest airport.
Specifically, the program seeks to reduce the percentage of air passengers and airport employees using single occupant vehicles to access the airport by two percent per year for the first five years of the Master Plan and one percent per year thereafter during the lifetime of the Airport’s Master Plan expansion.

Strategies being implemented by the airport are:

- Discontinue free employee parking and promote rideshare alternatives
- Marketing
- Transportation coordination with other employers, cities, and/or agencies
- Promote commuter rail
- Priority treatment given to High Occupancy Vehicles on access roads

**Seattle-Tacoma International Airport**

The Seattle-Tacoma International Airport is a 24-hour-a-day operation run by the Port of Seattle Aviation Division. The airport is a significant employer in the region with 14,500 airport employees, 6,000 airport related jobs off-site and 78,000 jobs in tourism tied indirectly to the airport. At the time of this study, the Port of Seattle was in the process of reviewing a potential goal that, if implemented, would reduce the number of vehicle trips, especially SOV trips, generated by the airport.

Strategies being considered are:

- Increase cost of employee parking
- Parking freeze – no new construction
- Organize/subsidize bus pool
- Guaranteed ride home
- Employee carpool newsletter
- Establish Congestion Management Agency
- Intercept parking lots with shuttle (park and ride)
- Elective work hours
- Telecommuting
- Preferential car/vanpool parking
- Alternative mode subsidies
- Eliminate parking subsidies

**Sacramento International Airport**

The Sacramento International Airport, which opened in 1967, is operated by the Sacramento County Airport System. Over 2,000 people are employed at the airport, including a Sheriff’s bureau, which assists with airport security. Service is available from twelve major carriers and one commuter airline. The airport also offers food and beverage facilities, retail shops, ground transportation, hotel accommodations and many other amenities. The airport’s economic impact on the area is more than $1.6 billion per year.
Some of the strategies being implemented are:

- Rideshare and match program
- Monthly newsletter
- Alternative transportation contest
- Guaranteed ride home
- Free bicycle lockers
- Subsidized bus pass

**Vancouver International Airport**

The Vancouver International Airport is Canada’s second busiest airport, with some 15.5 million passengers and 274,400 take offs and landings in 2001. The airport is also the second largest international passenger gateway on the west coast of North America. The future development of the airport is governed by the Airport Authority’s official Master Plan. The current plan was adopted in 1996 and approved by the Minister of Transport. As a part of the Master Plan, transportation demand management initiatives will be considered to create incentives to use public transit and to create disincentives to use private automobiles.

Some of the TDM strategies currently being used are:

- Bicycle facilities
- Ride matching program
- Telecommuting program
- Participation in transportation fairs
- Company vehicles

**University of Washington Campus Trip Reduction Program**

The University of Washington draws over 52,000 students, faculty, and staff to its 640-acre campus in Seattle, which includes the UW Medical Centre. The University District, in which UW is located, is King County’s largest employment and activity centre outside the downtown Seattle Central Business District. Over 225,000 vehicles per day enter the University District; more than 58,000 vehicle trips are made within the campus alone in a typical 24-hour period.

Washington’s Commute Trip Reduction Law requires employers of 100 or more people to reduce single-occupancy-vehicle trips. In 1983, years before the law was passed, the City of Seattle entered into an agreement with UW to reduce traffic and parking demand.

Over a five-year period, however, participation in the University’s transportation management program fell. A new initiative was needed to strengthen the effort to reduce traffic and parking demand within and around the University. UW’s development plan for 1991 through 2001, which would bring 10,000 more vehicle trips a day while eliminating 1,700 parking spaces, highlighted the need for a renewed trip reduction program.
The U-PASS (universal pass) program was developed in June 1990 to address the need to beef up transportation management. For a monthly fee, the U-PASS could be added to the University identification card used by students, faculty and staff. Faculty and staff now pay $12.50 a month for the U-PASS, while students pay $9. The U-PASS was specifically designed to provide flexibility of mode choice, so commuters would not feel locked in to a rigid system that might not suit their needs from one day or week to the next. Commuters can use their U-PASS to ride transit one day, carpool another, bicycle now and then, even drive occasionally—whatever makes sense for the individual.

U-PASS service alternatives include these options:

- **Transit**: Unlimited access to regular Metro bus and Community Transit (CT) routes seven days a week;
- **Shuttles**: an evening system called Night Ride operates nine months out of the year to take people to their destination in nearby neighbourhoods; ridership is up 44 percent over the period 1991-92 to 1995-96;
- **Carpools**: Carpools park for free if participants are U-PASS holders;
- **Vanpools**: All vanpool fares are included in the price of the U-PASS;
- **Ridematching**: The University offers two ridematching services to help people forming carpools and vanpools;
- **Bicycling**: Since U-PASS began, more than $450,000 has gone into improved bicycle U-PASS now costs $37.50 per quarter for facilities, including 200 new bike racks (which will hold 3,000 bikes), 161 additional improved lighting, and other enhancements;
- **Reimbursed Ride Home**: Faculty and staff U-PASS holders receive a quarterly allowance of 50 taxi miles. Users make a 10 percent co-payment for each trip, and the University reimburses them for the remainder. Average trips per month for the period 1991/92 to 1995/96 are down by 13 percent;
- **Discount Daily Parking Passes**: Since faculty and staff U-PASS holders occasionally need to drive to work, each quarter they get 25 daily parking passes at half-price; and
- **Merchant Discount**: U-PASS holders can get discounts on products or services from 44 participating businesses in the University District.

The introduction of the U-PASS was accompanied by a significant increase in parking fees. The increase was meant both to motivate people to use non-drive transportation modes, and to generate revenue that would cover much of the cost of the UPASS program.

When U-PASS was first implemented, parking fees were $24 per month for a faculty/staff permit, $0.75 per day for students, and $4.00 per day for visitors. With the advent of the U-PASS program, fees were raised to $36 for a faculty/staff monthly permit, $1.25 per day for students, and remained the same for visitors. Monthly permits now cost $42, gate-issued faculty/staff parking is $5/day, and gate-issued student parking runs $1.50/day.

U-PASS now costs $37.50 per quarter for faculty and staff, and $27 per quarter for students. Faculty and staff receive a free U-PASS, however, when they purchase a monthly parking permit. The free pass serves as an incentive for permit holders to refrain from driving whenever possible.
Seattle Metro and CT expanded service to accommodate increased ridership generated by the U-PASS program. Both systems added more than 60,000 hours of service annually (a 20 percent increase) for about the first two years of the program. Metro and CT added two-way bus service to the campus, which effectively made those routes into campus shuttles, improving circulation in and around UW. The cost of the increased service was evenly split by the transit agencies and the University.

A promotional campaign was launched to kick off the U-PASS program. UW has sustained its marketing efforts with a variety of communication tools and added a full-time information specialist to staff the program. In addition to joint marketing activities with Metro and CT, the University promotes U-PASS participation through brochures, campus commuter centres and kiosks, a U-PASS newsletter, and an annual transportation fair in the fall.

UW also instituted tracking mechanisms to facilitate ongoing program evaluation. The University conducts an annual traffic and parking survey, an annual mode choice survey, a biennial telephone survey (conducted jointly with Metro). UW also monitors each U-PASS program element on a monthly basis.

The U-PASS program’s annual budget is approximately $7 million, with over $6 million of that going to transit services. Revenue from parking (including parking fines) contributes 41 percent of the program’s funding, user fees kick in 50 percent, and the remaining nine percent comes from other UW sources.

UW set an ambitious goal of 75 percent participation in the U-PASS program—and came very close to meeting that target its first year. By 1991, campus-wide carpool participation was 72 percent (68 percent for faculty/staff, and 74 percent for students). Participation has fluctuated by a few percentage points in the years since, with the 1995-96 year showing 81 percent among students, and 64 percent for faculty and staff, with a total campus average of 74 percent.

Traffic counts show that the program is working to reduce trips. Since 1990, the U-PASS resulted in a 13 percent reduction in morning peak period (7:00 to 9:00 a.m.) trips to campus, and a 3 percent drop in evening (3:00 to 6:00 p.m.) trips leaving campus. Trip reduction could be enhanced for 1997, as construction will eliminate all remaining surface parking in the Southwest Campus area, constricting supply.

The U-PASS has also shifted transportation modes. Driving alone dropped among students, faculty, and staff. The percentage of students driving alone declined from 25 in 1989 to 15 in 1996. Faculty drive-alone figures dropped from 60 to 57 percent in the period from 1989 to 1996, while staff drive-alone rates dropped from 44 percent in 1989 to 40 percent in 1996.

Transit use increased. From 1989 to 1996, student transit use went from 21 to 34 percent, faculty use rose from 11 to 19 percent, and staff use climbed from 25 to 32 percent.

Carpooling and vanpooling has increased. Student pooling inched from nine percent in 1989 to 11 percent in 1996. During the same period, pooling went from 11 to 12 percent for...
faculty, and from 15 to 16 percent among staff. Permit carpools increased 36 percent (from 1,588 in 1990 to 2,158 in 1996); daily carpools went up 28 percent (from 760 in 1990 to 1,018 in 1996); total carpool participants climbed 36 percent (from 3,587 in 1990 to 4,877 in 1996). Vanpooling grew 238 percent, going from eight vanpools (with 79 participants) in 1990 to 27 vans (and 207 participants) in 1996.

Bicycling and walking rates increased slightly. Faculty appeared to walk less, however, with the rate dropping from seven percent in 1989 to three percent in 1996.

UW’s strategy of increasing parking costs while providing alternatives to driving alone seems to have paid off. Single-occupancy-vehicle parking-permit sales and parking use both dropped across all categories between 1990 and 1996. Faculty/staff permits decreased 24 percent, and student permits dipped eight percent. The number of parking spaces declined by 5 percent, spaces used dropped 13 percent, and overall parking lot use fell from 87.5 percent in 1990 to 80.3 percent in 1996.

*Cornell University Transportation Demand Management Program*

Transportation Demand Management (TDMP) is a program of Transportation and Mail Services in the Facilities and Campus Services Division of Cornell University. In 1990, Cornell University undertook a major campus planning effort. The realization was that demand for parking could eventually outstrip the ability of the university’s infrastructure to handle it. Planners studied the choices and concluded that unless parking demand was mitigated, the university would have to build as many as 2,500 additional parking spaces—1,200 of those, by necessity, in a parking garage. Therefore, the primary goal of TDMP is to reduce commuter demand for parking spaces by providing efficient, cost-effective and environmentally friendly alternatives to commuting via single-occupancy, personal vehicles (SOVs). TDMP concentrates on faculty and staff at the university, because it was their commuting habits that could be most affected, and as a group, students own or operate far fewer vehicles than do employees.

**TDMP employee commuting options (ECO-Trips):**

1. **Individual Parking Permits** - the campus parking system has been restructured into six tiers. As one gets closer to the central campus, the fees for parking permits increase. The new rate structure is intended to help alleviate some of the overcrowding in central campus, make better use of underutilized parking areas, and encourage more carpooling and use of public transit. The new system is more flexible: drivers can park in all tiers lower than their own, and parking signs specify each lot’s tier designation. Each zone has short-term visitor parking spaces. These spaces are not only for university guests, but central campus zone parkers may use these areas in any other zone for up to two hours. The flexibility of short-term parking is a key that makes the zone system work.

2. **OmniRide** - By securing the cooperation of city, county, and other municipal bus services, Cornell has been able to offer its employees partially- or fully-subsidized transit. Membership in OmniRide allows employees to take any bus in Tompkins County to any place at any time, and Cornell pays the fare. OmniRiders also receive
ten one-day parking permits every six months, in case they occasionally need to bring a car to campus. Out-of-county commuters pay a subsidized fare for travel from outside the county to Cornell, but still receive all of the in-county benefits (which include the use of any in-county bus for daytime service needs and errands).

3. **RideShare** - RideShare provides incentives for carpooling with other Cornell employees with a fee and rebate structure. Like an OmniRider, each RideSharer receives ten free one-day parking permits every six months for those days when carpooling does not work out. To ensure that TDMP genuinely reduces the number of vehicles driven to Cornell, only employees who work in an area requiring a parking permit are eligible to participate in RideShare.

4. **Occasional Parker** - Employees who don’t purchase an individual parking permit and who don’t participate in OmniRide or RideShare—because they are dropped off on campus by someone who is not an employee, or because they walk or bicycle to campus—may choose to become an “Occasional Parker.” Occasional Parkers receive, at no cost, 10 one-day parking permits every six months. This convenience program allows individuals who may need a vehicle for sporadic use—such as for a medical appointment or other personal need—to have parking provided on campus on that day.

5. **Park-and-Rides** - Cooperation with surrounding municipalities has encouraged the creation of Park-and-Ride lots that can be used by OmniRiders or where RideShare groups can meet.

**ECO-Trip Support Programs:**

1. **Ithaca Area Transit Map** - In anticipation of the TDMP, we coordinated development of the first countywide transit map—illustrating all bus service in the county and showing Park-and-Ride lots. This has been an important resource for the marketing success of the program.

2. **Commuter Connection** - RideSharers can use the “Commuter Connection,” a classified column found in the *Cornell Chronicle* and on CUINFO (Cornell’s computerized information system) to create or enlarge their RideShare groups.

3. **Family Care** - Family Care is a support service for individuals who have long-term child- or dependent-care responsibilities. Those individuals with documented responsibilities, which require them to drive an SOV to campus, are eligible to receive additional books of one-day parking permits. These responsibilities should not preclude participation in TDMP.

4. **Parking Hardship Review Board** - Those who are unable to take advantage of OmniRide or RideShare, for whom the no-fee A lot does not work, who need access to their car during the day, for whom FamilyCare is not appropriate, and who are unable to afford the parking fees do have recourse—there is a Parking Hardship Review Board which can give partial or full grants to pay parking fees.

5. **Emergency Ride** - During the formulation of the TDMP, employees voiced their anxiety of being without their car in case of a personal or family crisis. In response, we have vehicles and staff available to take people where they need to go in case of an urgent situation. The employee need only call 255-0000 and they will be given a ride. So far, only a few employees a month have required this service.
Beneficial Impacts of Program:
1. Reduced congestion and wear-and-tear on campus infrastructure.
2. Reduced traffic on roads surrounding and leading to the university.
3. Reduced environmental damage caused by automobile tailpipe emissions.
4. Preservation of the physical character of the campus.
5. Preservation of greenspace for future generations (no new parking lots or garages).
6. Provision of a less stressful commute for employees—either because they are participating in a program, driving in reduced traffic, or both.
7. Caveats aside, we say with a measure of confidence by the end of 1996-97, TDMP has saved the university a total of over $13 million. Extrapolated out at a modest $68,290 per year increase, by 2002-03 (the year that the first parking garage would have been paid off), the university will have saved nearly $36 million since the inception of TDMP.

University of Utah Campus Trip Reduction Program

With 25,000 students and 9,000 faculty and staff, the University of Utah is the largest campus and one of the largest public employers in the Salt Lake City area. Because the region does not meet federal standards for ozone, carbon monoxide, or particulates, the University and other public sector employers of 100 or more employees must comply with the Utah’s Department of Environmental Quality (DEQ) Regulation 307-11. The regulation, which took effect in 1995, will not apply to private sector employers unless the region’s air quality deteriorates.

Only faculty and staff are required to participate in the trip reduction program at the University, but many students comply voluntarily. The DEQ wanted the University to increase staff ridesharing by 20 percent. Because Salt Lake City is spread out over a wide area, solo driving is the norm. Transit service has expanded and ridership has increased at the University, but it is still modest, according to the DEQ.

The University is a “commuter campus,” with students who are mostly older than average and who live off-campus. Students usually have jobs to which they must travel before or after classes. Many are also married and have families. These demographics, combined with the typical drive-alone tendencies of the faculty and staff, make selling alternative commute modes a challenge.

Sell them it must, however, because even without the air quality requirements the University would continue to face both a serious land shortage and escalating costs for parking. With so many drive-alers among its 37,000 students, faculty, and staff, the 14,000 permit-only parking spaces are simply not enough to go around. On-campus construction and internal expansion have chipped away at those spaces at a rate of about 200 each year. Spill over parking in surrounding neighbourhoods has exacerbated residential concerns about campus creep.

Deep Discount Bus Pass Program

In 1991, at the University’s request, the Utah Transit Authority (UTA) established a deep discount bus program to offer annual subsidized bus passes for students, staff, and faculty. The University now provides parking-permit applicants with a free bus pass for use on all
regular and express routes within the UTA system. The pass is available to other students, faculty, and staff for $15 per year, prorated quarterly for students and part-time employees and biweekly for full-time employees.

Before the program, UTA ran one express bus route to the campus and averaged 1,200 University-bound riders per day. Since implementing the program, UTA offers five express routes to the campus and averages 4,500 to 5,000 riders daily.

The University’s efforts to promote transit in the past often met with two key objections: riding the bus takes too long, and it requires inconvenient transfers. The express service addresses both those objections.

The University’s bus pass program costs $700,000 per year. The program collects $12,000 annually from purchasers, and parking revenue pays for the rest.

The University coordinates with UTA to enhance transit services, and provides transit maps and bus schedules at key locations. Transit options are also explained to new employees during orientation sessions.

Carpool Program
The University reinstituted its carpool program in 1993 to reduce drive-alone commuting. As an incentive to form carpools, the University decided to discount parking passes for carpools by 50 percent off the regular cost of a permit. The carpool permit holder (presumably the driver) gets a free bus pass, as do all passengers. The passengers, however, are charged a $15 participation fee. Each carpool also receives 20 “day passes” at no extra charge, to allow for parking on those days when a carpool’s members are unable to ride together.

The University provides limited preferential or reserved carpool parking. Nine designated carpool-only spots are distributed among three different parking lots. The carpool parking spaces are available on a first-come, first-served basis. All vehicles used for carpools must display the carpool-parking permit.

To prevent abuses, the University monitors parking and parking permits closely. Carpool members cannot purchase any other type of parking permit while they are ridesharing. Moreover, while University employees working at remote sites where parking permits are not required can certainly carpool, they will not get a discounted carpool-parking permit, even if they want one for occasional use on the main campus.

Student, faculty, or staff requests for assistance in forming a carpool are referred to UTA, which operates a carpool-matching program.

Free Campus Shuttle System
Complementing both the transit and carpool initiatives, the University provides free shuttle connections throughout the campus. The shuttles operate Monday through Friday from 6:00 a.m. to 6:00 p.m., with some routes running later into the evening hours. A separate shuttle, specifically for passengers with disabilities, operates door to door with 24-hour advance notice.
The system consists of 15 shuttle vehicles serving 10 routes, at an annual cost of $836,520. Three routes travel clockwise around the campus every half hour at 10-minute intervals between buses. Three other routes travel counter clockwise in the same fashion. The four remaining routes each serve only specific parking lots or sub-areas of the campus. Each shuttle travels 130 to 160 miles per day, depending on its route.

**Emergency Ride Home Program**

Two emergency ride home programs are available. One was developed by UTA, and the other by the University’s Department of Parking and Transportation Services.

The UTA program is open to any University student, faculty, or staff person during and after normal work hours. UTA provides a ride home in the event of an emergency, or if a person works late and misses the bus available; (provided there is no bus service within a half hour of receiving the call for a ride). UTA either will issue a voucher good for a taxi ride home, or will send a UTA sedan for transport, depending on the situation. UTA’s program can be used a maximum of three times in a calendar year.

The University’s emergency ride home program is available only to faculty and staff, and only during normal working hours. The University provides a voucher for taxi service to get the person wherever he or she needs to go in a family emergency. The program imposes no limits on mileage or frequency use.

**Additional TDM Measures**

The University employs other strategies to manage parking demand and reduce traffic and emissions, including the following:

- A variety of on-site services minimize the need for driving, including a post office, credit union office, medical centre, transit shelters, cafeterias and lunch rooms, fitness centres and recreational facilities, and automated teller machines;
- Five child care centres have been opened on campus;
- Vanpool information fair was held in 1996. The Parking and Public Transportation Committee has recommended a vanpool leasing program; however, no vanpools are currently operating;
- Telecommuting and distance learning are available;
- Compressed work week/flexible work schedule programs are available;
- The University solicits feedback from employees through comment cards on shuttles and in the Parking and Transportation Services Office, published phone numbers of key personnel, and its Parking and Public Transportation Committee; and
- Merchant discounts, an Earth Week program, and free juice and bagels for bus riders round out the University’s efforts to recognize and reward users of alternative modes.

**Key Results**

After implementing the program, transit service expanded from one express bus route to the campus averaging 1,200 University-bound riders per day, to five express routes carrying nearly 5,000 riders daily. A variety of other measures augment drive-alone alternatives.
Municipal Based TDM Case Studies

City of Calgary TDM Program

In 1995, the city developed the Calgary Transportation Plan: GoPlan. It resulted in a number of policies, containing general guidelines to: modify travel behaviour, encourage people to get out of their cars, expand bike parking and initiate TDM programs and monitor their effectiveness. It also encouraged the city to adopt a leadership role with TDM.

In 2002, the current city council reviewed the numerous services that the city offers and prioritized about 60 in a document titled: Looking Ahead Moving Forward. Priorities included:

- Implementing and promoting TDM programs, which encourage carpooling, flexible work week/time options, biking, walking and telecommuting.
- Increasing use of public transit
- Reducing greenhouse gas emissions.

This resulted in the city’s participation in developing a regional rideshare database and hiring a full time TDM Specialist, Ron Schafer. Mr. Schafer’s primary objective is promoting and tracking ridesharing for city employees. The city has continued the efforts started during the Commuter Challenge week (held annually nationwide in June), including helping people with their commutes and giving prizes for those trying alternative transportation. They expanded on what the national challenge allows, as the city’s primary focus is to reduce traffic congestion. In addition to alternative modes

The city developed a self-managed database for their intranet to track commutes. Staff records their travel diary every day into the database (by the end of the year, database upgrades will allow staff to enter in information once a week, instead of every day). Mr. Shafer then pulls up the list of names and randomly selects participants for prizes.

- There is approximately 11,000 city staff, although about half of those do not have access to computers. Mr. Shafer started with 66 participants at the end of the year and now has 600 people registered (although not all registrants actively record their travel diary everyday).
- Two departments sponsor the prizes at $1,000 each (Transportation and Environmental Management) and about a dozen others periodically provide products (golf shirts, t-shirts, mugs, scarves, etc). Mr. Shafer gives out three prizes every month and the prizes range from gift certificates, to a bicycle (given away in June), to additional days off. A recent prize was a chance to drive the light rail train.
  - Some company’s give significant discounts on gift certificates and a local bicycling and outdoor adventure shop gave the city free gift

The city’s next step is to work with Teletrips on calculating emissions benefits.

- Teletrips started in Calgary and helped sponsor the commuter challenge. They found a US sponsor to assist in developing a program to capture the emissions reductions that result from not making the trip (teleworking).

Approximately, one year ago Commuter Connections (a British Columbia based non-profit group that does ridematching: www.carpool.ca) received a grant and city funding to initiate a citywide rideshare pilot program. They gained support from 30 of the larger company’s in
Calgary (with an employee population of 100,000) and started programs at those employers, providing companies with materials needed to promote ridesharing and conducting transportation fairs.

The pilot program resulted in:
- 143 carpools formed
- Annual savings of $1,227 per carpooler
- Pollution reduced by 852 tonnes
- Road repair savings of $1.8 million each year

The pilot program was expanded through grants from the federal government’s EcoAction ($20,000) and Climate Change Action Fund ($100,000) programs. The City of Calgary will be contributing $40,000 and Alberta’s Climate Change Central will be contributing $10,000. The system has been modified to match both ends of the commute by postal code, instead of site location. This resulted in involvement of more people (the entire population is 900,000, plus commuters in nearby suburbs). Commuter Connections provides the city with access to the rideshare database on the web.

The program is being launched during the City’s First Annual Rideshare Week, scheduled to take place October 20 through 24, 2003. Events include:
- Kick off event with sponsors and the media
- A local traffic reporter (who does TV and radio) will ride along with carpoolers
- TV and radio PSAs
- Banners around the city
- Signed park and pool lots at local businesses.
- Database tracking
- Surveys

The city and Commuter Connections work together to assist companies set up their TDM programs. The city has also informally integrated TDM strategies into their development permit process.

**City of Greeley, Colorado**

Located one hour north of Denver and thirty minutes from the Front Range of the Rocky Mountains, the City of Greeley is home to the world’s largest Fourth of July rodeo. Greeley’s convenient location to Denver combined with its small-town reputation is attractive to many Coloradans. Unfortunately, as more people become aware of Greeley’s attributes, the transportation infrastructure becomes stressed. Hence, Greeley’s employment and population growth have resulted in increasing traffic related problems.

In an effort to address growing traffic and congestion issues, the City of Greeley pursued active participation in the regional SmartTrips program- an alternative commute program. With seed money provided by the regional SmartTrips program the City of Greeley’s
Department of Public Works created and housed the Greeley SmartTrips program. The regional SmartTrips program provides the Greeley program funding and technical assistance in the form of survey development and analysis as well as transportation demand management research.

**Greeley SmartTrips Priorities**
The Greeley SmartTrips program has focused their efforts on four priority areas.

1. **TDM outreach to employers/businesses.** The success of TDM in Greeley clearly hinges on the ability of the program to connect with local businesses and employers. Greeley SmartTrips chose to focus efforts on the 11th Avenue Corridor that stretches from Greeley to Evans, features reliable bus service and is home to a variety of businesses and many commuters. Using professionally designed marketing materials Greeley SmartTrips approached and involved 84 businesses in a four-step business outreach model (see table below). This process was designed to increase the businesses level of participation in TDM efforts.

2. **Individual travel behaviour documentation.** Greeley SmartTrips uses surveys to track and analyze attitudes towards traffic and alternative modes of transportation. In addition, Greeley SmartTrips offers commuters an on-line "Mile Mapped" tool which tracks the number of miles they commute using alternative forms of transportation.

3. **Marketing:** Greeley SmartTrips recognized the need to create marketing materials that would build credibility in the private sector. Therefore, they developed high quality marketing materials that command attention within the private sector. Furthermore, marketing materials are produced in Spanish and English in order to reach every citizen of this multi-cultural city.

4. **Special events.** Events such as Bike Week and Bus Week command the attention of Greeley SmartTrips and offer opportunities to directly market to commuters. In addition, Greeley SmartTrips pursues opportunities to promote special event shuttles to community events and festivals such as the Greeley Independence Stampede.

**Greeley SmartTrips implementation experience**
Of the 84 businesses Greeley SmartTrips approached, 41 allowed them to implement employee surveys in their companies. Findings from these surveys shaped the TDM focus of Greeley SmartTrips. Because 70 percent of employees surveyed live within five to seven miles of work, Greeley SmartTrips has focused efforts in 2002 on bike commuting. They have created two programs that offer incentives and services to bike commuters.

1. **Commuter Bicycle Club:** Commuters who ride their bike to work at least four times are eligible to join the Commuter Bicycle Club. Each member receives a club card good for discounts at a variety of local retailers. The card also doubles as a bus pass for those times when mechanical problems occur or the commuter is simply too tired to ride. In addition, milestone prizes are awarded if commuters get a co-worker to start biking to work or they personally reach commute mileage milestones.

2. **Bicycle Depot:** Greeley SmartTrips has developed a bike depot housed at the City of Greeley office. The depot provides a convenient space for commuters to transition from commute-mode to work-mode. Restrooms and indoor secure bicycle parking are included in the depot. Additionally, an electric moped is available when bicycle
Commuters need to run errands during the workday. Within its first two months, the depot was used 92 times, yielding close to 600 VMT saved.

### Four Step Business Outreach Model:

**Step One: Initial Contact with Company**
- Contact, meet and identify transportation problems and needs
- Explanation of services, programs and resources
- Implement employee survey

**Step Two: Build Business Partnership**
- Compile and share survey results
- Establish company-specific TDM goals
- Gain support for at least one SmartTrips program, service or resource

**Step Three: Increase Employee Awareness and Participation**
- Identify a company transportation contact
- Promote special events
- Implement at least one SmartTrips program, service or resource

**Step Four: Maintain the Relationship**
- On-going marketing
- Continued tracking of travel data
- Recognition

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**Missoula, Montana**

Missoulians take pride in their enviable quality of life. Missoula, located in northwestern Montana, is a small city at the hub of five valleys along the Clarkfork River. For many, Missoula is an escape from urban ills. However, in recent years, traffic congestion and air pollution threaten this appeal.

Community and business leaders in Missoula recognize the importance of addressing growing traffic and parking issues, as well as their impact on land use and air quality. In 1996, Missoula incorporated a Transportation Demand Management (TDM) goal into the City’s Strategic Plan and the Missoula Urban Area Transportation Plan. The goal is to attain a 10 percent reduction in VMT by 2007. At the time of the public hearing that established these goals, residents and business people pledged to work together with government to create a Missoula-specific package of strategies to reduce vehicle traffic. The following eighteen strategies were subsequently identified:
- Parking controls
- Better transit service
- Flex-time
- More bicycle paths
- Parking charges (for employees)
- 4/40 work weeks
- Commuter subsidies
- “TDM-friendly” land use strategies
- Vanpool programs
- More walking routes
- Parking tax (all spaces)
- TDM ordinance
- Lower transit fares
- Telecommuting
- TMA
- Clean Air “No Drive” Days
- High Occupancy Vehicle (HOV) lanes

Missoula recognizes that TDM is not the only solution. However, TDM can be an effective tool for reducing some trips, as well as a complement to other strategies.

Implementation Efforts
Over the years, Missoula has made great strides towards the accomplishment of these goals. Some program highlights include:

1. Creation of Missoula-Ravalli Transportation Management Association (MR TMA) – MR TMA is a private non-profit designed to work with employers and residents in Missoula, Ravalli, Lake and Sanders Counties on their transportation needs. Commuters can utilize the various services and products, which include Carpool and vanpool matching, guaranteed ride home program, employee transportation coordination (ETC) network and training, school outreach for grades K-12, and TDM Resource Centre.

2. Vanpool Services – MR TMA’s vanpool program offers residents of the Bitterroot Valley, Mission Valley and Alberton areas (1-90 West) the opportunity to utilize the various vanpool routes. Currently there are five vanpools from the Bitterroot Valley, one from the Mission Valley (includes St. Ignatius, Arlee and Evaro), and one from the Alberton area (includes Huson and Frenchtown). In addition, MR TMA operates four vans with service to the University of Montana and the downtown areas. To support these vanpool efforts, MR TMA identified park-n-ride locations along the various corridors. The vanpool program will be adding two more routes soon and will continue to grow as funding permits.

3. Missoula in Motion – To support community outreach efforts, groups including the University of Montana, City of Missoula, Missoula Parking Commission, Mountain Line Transit, MR TMA and others joined forces under the umbrella name of Missoula in Motion. The purpose was to sponsor workshops and one-on-one outreach to local businesses, and to promote physical improvements that support TDM. Missoula in Motion is currently working with employers representing more than 8,000 employees to develop alternative transportation programs. For example, St. Patrick’s Hospital now provides valet parking for carpool and vanpool vehicles, discounted transit passes and a point incentive program. They are also developing a telecommute program that may involve up to 200 hospital administrative employees.

4. Parking Management – The Missoula Parking Commission is working with area employers to create on-street reserved parking spaces for carpools and vanpools. The Commission continuously attempts to secure these spaces in a convenient location.
adjacent to the entrance of major businesses. The Commission is also examining a reduced parking rate for carpoolers and vanpoolers who use city-owned off-street spaces. The Parking Commission uses a portion of the parking revenues to fund alternative transportation programs including MR TMA, Missoula in Motion, a free downtown shuttle circulator called “The Emerald Line,” and provides bicycle lockers at the central city-operated parking garage. In addition, the Commission co-sponsors a special event shuttle and has collaborated with the University of Montana and Mountain Line in an effort to establish a park-n-ride set-aside for downtown employees.

5. **Bike–Walk– Bus Week** – Every spring, Missoula hosts a series of events, competitions, prize drawings and retail discounts for participants to encourage alternative transportation.

6. **Free Bus Rides for Students** – The University of Montana negotiated an annual lump-sum payment to allow all students to ride Mountain Line Transit for free. Students simply show their student ID card when boarding the bus.

By creating a TMA and enlisting the cooperation and support of many private- and public-sector organizations, Missoula has made giant strides toward reducing its traffic and air pollution problems in a very short time.

**Available Contacts**

**Vancouver's Employee Trip Reduction Program**

Sam Hartley-Folz  
Program Manager Go Green Choices  
Better Environmentally Sound Transportation  
822 - 510 West Hastings St.  
Vancouver, BC V6B 1L8  
Tel: (604) 689-4467  
Fax: (604) 689-3224  
Email: sam@best.bc.ca  
www.best.bc.ca

**GVRD's Employee Trip Reduction Program**

Jennie Moore  
Employee Transportation Coordinator  
Greater Vancouver Regional District  
Air Quality Department  
4330 Kingsway, 17th floor  
Burnaby, BC V5H 4G8  
Tel: (604) 451-6683  
Fax: (604) 436-6707  
Email: jennie.moore@gvrd.bc.ca
Halifax
Roxanne MacGinnis, Regional Municipality of Halifax
TDM Coordinator
Ecology Action Centre: TRAX
Rebecca O’Brien, TRAX Coordinator/Transportation Issues

Ottawa
Commuter Challenge: http://ottawa.commuterchallenge.net
Canadian Commuter Challenge: www.commuterchallenge.net
E-mail: challenge@flora.org

TravelSmart
TravelSmart web site http://www.dpi.wa.gov.au/travelsmart
Department for Planning and Infrastructure
441 Murray Street, Perth
Phone: (08) 9216 8000
Facsimile: (08) 9216 8001
http://www.dpi.wa.gov.au

Nortel
Sharon Lewinson, P.Eng
TDM Program Manager
Commuting Solutions
Address:
Nortel Networks
3500 Carling Ave
Ottawa, ON K2H 8E9
Telephone: (613) 763-6677
Fax: (613) 723-8275
Email: lewinson@nortelnetworks.com or commutingsolutions@home.com
Website: http://www.nortelnetworks.com/corporate/community/environment/initiatives/commute_alt.html

Airport Case Studies
Ted Stevens Anchorage International Airport, Transportation Demand Management Plan,
DOWL Engineers, Anchorage, AK

University Case Studies
Source: Environmental Protection Agency

City of Calgary
Ron Schafer, Transport Demand Management Specialist
escape.the.rush@gov.calgary.ab.ca
www.calgary.ca

Missoula
Judee Harrison, Missoula-Ravalli TMA, 406.523.4944
Appendix D: TDM in the Existing Region of Peel Official Plan

The following table outlines the Region of Peel Official Plan sections pertinent to TDM strategies and evaluation.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Paragraph</th>
<th>Sub-paragraph</th>
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<tbody>
<tr>
<td>5: Regional Structure</td>
<td>3: The Urban System</td>
<td>1: General Objectives</td>
<td>5: To achieve an urban structure, form and densities which are pedestrian-friendly and transit-supportive.</td>
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<td>2: General Policies</td>
<td>6b: Support pedestrian-friendly and transit-supportive urban development, particularly by address appropriate residential densities</td>
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<td>6: Transportation System in Peel</td>
<td>1: General Objectives</td>
<td>2: To ensure the provision of an integrated transportation system in Peel that balances travel demand with transportation capacity of transportation facilities.</td>
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<td></td>
<td></td>
<td>2: General Policies</td>
<td>4: Ensure, in accordance with the requirements of the Region and the area municipalities, that development only proceed with adequate existing or committed improvements to regional transportation capacity and, if necessary, development be phased until that capacity is or will be available.</td>
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<td></td>
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<td>5: Encourage Provincial government and neighbouring municipalities to increase public transit usage and ridesharing as well as other travel demand management programs.</td>
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<td></td>
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<td></td>
<td>8: Encourage the area municipalities and the Ministry of Transportation to implement travel demand management strategies including car or vanpooling and ride-share programs.</td>
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<td></td>
<td>4: Major Road Network</td>
<td>2.14</td>
<td>Implement, in cooperation with the area municipalities and the Province, the Region of Peel’s High Occupancy Vehicle (HOV) network 2021, on Regional roads and encourage the area municipalities to implement HOV facilities on roads under their jurisdiction.</td>
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<td></td>
<td>5: Inter-and Intra-Regional Transit Network</td>
<td>All transit objectives and policies.</td>
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<td>Chapter</td>
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<td>7: Implementation</td>
<td>6: Regional Planning Initiatives</td>
<td>2: Policies</td>
<td>17: Coordinate, when appropriate, one or more joint planning studies in cooperation with the Region of York, City of Brampton, Town of Caledon and City of Vaughan, to establish mutual long-term transportation and transit implementation strategies and servicing infrastructure requirement respecting designated and proposed development.</td>
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<td></td>
<td>9: Monitoring Reviewing and Updating</td>
<td>2: Policies</td>
<td>1: Prepare with the area municipalities, information and monitoring systems to evaluate the level of progress in meeting the goals and objectives and policies in this Plan.</td>
</tr>
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Appendix E: Evaluation of TDM Strategies

The following table provides a qualitative evaluation of individual TDM strategies and how the strategies generally compare to one another. The legend for the following table is:

○ = Marginal
● = Fair
○ = Better
● = Best

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<th>Strategy</th>
<th>Modal Relationship</th>
<th>Modal Shift</th>
<th>VKT Reduction</th>
<th>Cost to Implement</th>
<th>Cost Effectiveness</th>
<th>Political Palatability</th>
<th>North American Adoption</th>
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<td>Modal Shift</td>
<td>VKT Reduction</td>
<td>Cost to Implement</td>
<td>Cost Effectiveness</td>
<td>Political Palatability</td>
<td>North American Adoption</td>
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<tr>
<td>Commuter Store</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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<td>High Occupancy Vehicle (HOV) priority</td>
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<td></td>
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<tr>
<td></td>
<td>Carpools, Vanpools</td>
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<td></td>
</tr>
<tr>
<td>Onsite amenities</td>
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<td></td>
<td></td>
<td></td>
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<td>o</td>
<td>o</td>
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<tr>
<td>Parking management</td>
<td>Indirect</td>
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<td>o</td>
<td>o</td>
</tr>
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<td>Parking maximum ratios</td>
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<td>o</td>
<td>o</td>
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<td>Preferential parking</td>
<td>Carpools, Vanpools</td>
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<tr>
<td>Protected pedestrian / bicycle corridors</td>
<td>Walking, Bicycling</td>
<td></td>
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<td>o</td>
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<tr>
<td>TDM Friendly Site Design</td>
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<td>Unbundled parking leases</td>
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<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
Appendix F: Effectiveness of TDM strategies

Each TDM strategy has its own inherent opportunities and limitations and the effectiveness of TDM strategies is increased when strategies complement one another. Generally, TDM effectiveness can be summarized by the application of packages. Essentially, the more aggressive the package, the better the results will be. The following provides North American effectiveness averages, as estimated by a reduction in single-occupant vehicle use per worksite in favour of the selected mode. A basic package includes the mode itself, enhanced offers support strategies and aggressive includes incentives and subsidies. Generally, packages are not cumulative, as the various TDM strategies employed at different levels of implementation will be somewhat repetitious. However, economies of scale also will enhance complementary modes.

Carpool
Carpooling impact effectiveness is easier to measure on a site-specific basis, as opposed to overall traffic. This is due, in part, to different levels-of-effort at worksites, as opposed to the overall city. The following travel reduction impacts for Peel worksites are based upon experience with communities that have similar characteristics as that of Peel. However, these effectiveness ranges do not account for subcommunity differences and results can vary greatly depending on land uses, existing transportation patterns and the availability of other modes.

<table>
<thead>
<tr>
<th>Package</th>
<th>Low estimate (site only)</th>
<th>High estimate (site only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>Enhanced</td>
<td>3%</td>
<td>12%</td>
</tr>
<tr>
<td>Aggressive</td>
<td>15%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Vanpool
Unlike carpooling, even the most successful vanpool programs are limited to the number of vans available. As such, vanpools tend to be viewed as an overall mobility option or, a means of addressing trip making for specific employers. Vanpooling is easier to measure on a site-specific basis, as opposed to overall traffic. The following travel reduction impacts for worksites:

<table>
<thead>
<tr>
<th>Vanpool Package</th>
<th>Low estimate (site only)</th>
<th>High estimate (site only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Enhanced</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Aggressive</td>
<td>5%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Transit
Transit service can be very effective area-wide, if the service is frequent and well utilized. TDM helps encourage the use of transit by reducing the cost and information barriers to utilization of bus service.
Transit service is easier to measure area-wide, as bus-boarding data is compiled this way. The following table identifies the net impact upon modal use (and does not account for the modal shift that has already occurred in Peel).

<table>
<thead>
<tr>
<th>Transit Package</th>
<th>Low estimate</th>
<th>High estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Enhanced</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Aggressive</td>
<td>7%</td>
<td>15%</td>
</tr>
</tbody>
</table>

**Bicycling/Walking**
There are inherent characteristics that limit the overall effectiveness of bicycling and walking, in particular, the time-of-year. Cold weather will sharply reduce the total number of commuters via bicycle or walking; warm weather will increase the number of commuters. Bicycling and walking is easier to measure on a site-specific basis. As such, travel reduction impacts, below, are for modal use per site where strategies are implemented.

<table>
<thead>
<tr>
<th>Bike/Ped Package</th>
<th>Low estimate (site only)</th>
<th>High estimate (site only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Enhanced</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Aggressive</td>
<td>4%</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Telework**
Some estimates indicate that up to 50 percent of all jobs are suitable for teleworking; however, many jobs require access to special materials and equipment, or frequent face-to-face meetings. Furthermore, not all employees want to telework or have suitable home conditions. Teleworking is easier to measure on a site-specific basis. As such, travel reduction impacts, below, are for modal use per site where strategies are implemented.

<table>
<thead>
<tr>
<th>Telework Package</th>
<th>Low estimate (site only)</th>
<th>High estimate (site only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Enhanced</td>
<td>7%</td>
<td>20%</td>
</tr>
<tr>
<td>Aggressive</td>
<td>15%</td>
<td>25%</td>
</tr>
</tbody>
</table>