



# TDM Supportive Guidelines For Development Approvals

**A handbook for practitioners**

Prepared for **Association for Commuter Transportation of Canada**

By **BA Consulting Group**

October 2008





# Table of Contents

<b>Executive Summary .....</b>	<b>i</b>
<b>1.0 Introduction .....</b>	<b>1</b>
1.1 Purpose of the Report .....	1
1.2 Scope of the Report .....	2
1.3 Organization of the Report .....	2
1.4 What Is TDM? .....	3
1.5 How to Use This Document.....	3
<b>2.0 Challenges and Opportunities for the Inclusion of TDM in the Land Development Process .....</b>	<b>4</b>
<b>3.0 Current TDM Land Development Practice in Canada .....</b>	<b>9</b>
3.1 Federal Approaches.....	9
3.2 Provincial Approaches.....	10
3.3 Municipal Approaches .....	11
3.3.1 Long Term Policy Approaches.....	11
3.3.2 Short Term Policy Approaches .....	14
3.4 Private Industry Approaches .....	20
<b>4.0 Recommendations for TDM and Land Development .....</b>	<b>23</b>
4.1 Overview .....	23
4.2 Context is Everything.....	23
4.2.1 Class 1: Low Density .....	24
4.2.2 Class 2: Medium Density / Moderate Congestion.....	25
4.2.3 Class 3: High Density / Heavy Congestion .....	26
4.3 Two Sets of TDM Recommendations.....	27
4.4 Policy Planning .....	28
4.4.1 Key Recommendations.....	28
4.5 Development Review.....	38
4.5.1 Key Steps .....	38
<b>5.0 Case Studies.....</b>	<b>44</b>
<b>6.0 Additional References and Resources.....</b>	<b>60</b>

## List of Appendices

<b>APPENDIX A:</b>	<b>Summary of Canadian Land Use Approvals Framework</b>
<b>APPENDIX B:</b>	<b>TDM Definition Glossary</b>
<b>APPENDIX C:</b>	<b>Attachments</b>



# Acknowledgements

This project would not have been possible without the financial assistance, strategic direction and professional contributions of the following organizations and staff members who made up the Steering Committee:

- Transport Canada – Eric Sévigny, Manager, Urban Transportation Programs
- City of Calgary – Ron Schafer, TDM Specialist; Tanya Laing, Environmental Specialist
- City of Edmonton – Darryl Mullen, Community Transportation Planning
- Region of Waterloo – JoAnn Woodhall, TDM Planner (now with TransLink)
- City of Ottawa – Wilf Koppert, Program Manager, TDM, Cycling and Pedestrian Facilities
- City of London – Allison Cook, Coordinator, TDM
- Town of Markham – Lorenzo Mele, TDM Coordinator
- Halifax Regional Municipality – Roxane MacInnis, TDM Planner; Roddy MacIntyre, TDM Coordinator
- Region of Peel – Wayne Chan, Manager of Transportation Planning
- BA Group – Ralph Bond, Vice President
- Commuting Solutions – Sharon Lewinson, President

ACT Canada particularly appreciates the support provided by Transport Canada's Transportation Planning and Modal Integration Initiatives fund.



# Executive Summary

## *Problem Statement*

Transportation planning in Canada has historically focused on supplying infrastructure to meet demand based “predict and provide” approaches with too little attention to managing transportation demand. This approach has traditionally been mirrored in the land development process.

However, the recent trend of increasing environmental awareness and changes in the perception of traditional transportation habits is causing municipalities in Canada to recognize the importance of making Transportation Demand Management (TDM) a key part of transportation planning.

Years of supply focused planning have created precedents and practices which are difficult to change. This has resulted in only limited success making TDM a consideration in the planning process for new development. A standardized approach for TDM in the land development and approvals process is needed to fully recognize its benefits.

## *Study Purpose and Objectives*

The objective of this study was to review how TDM is currently applied in the new development approval process in Canada and establish a recommended approach for improving the situation. This was completed by undertaking the following tasks:

- identification of challenges and opportunities for the improved application of TDM in the land development process;
- a review and summary of current TDM practice in the approvals process at the federal, provincial, and municipal levels;
- provision of guidelines and a recommended approach for municipalities to improve the integration of TDM into the land development process; and
- provision of several case studies of TDM supportive projects and policies from across Canada.

This study focuses largely on Canadian practice case studies and best practices including a review municipal experience from across the country. Where relevant and useful, examples and policies from the United States and the United Kingdom are also highlighted.

## *Summary of Recommendations*

The recommendations in this study are divided into two categories corresponding to the municipal staff that will utilize them:

- policy planning recommendations; and
- guidelines for development review staff.

## *Three Approaches Based On Three Urban Contexts*

Three approaches are proposed for both the policy planning and development review recommendations. These approaches have been developed to recognize that the successful incorporation of TDM into the land use approvals process depends on the characteristics of the urban environment in which a development resides.

The three classifications of urban context adopted for this study, and the corresponding approach developed for it, include:

- Class 1: Low density / low congestion areas
  - *Recommended Approach: 'TDM Light'*
- Class 2: Medium density / moderate congestion areas
  - *Recommended Approach: 'TDM Moderate'*
- Class 3: High density / heavy congestion areas.
  - *Recommended Approach: 'TDM Aggressive'*

## *Policy Planning Recommendations*

### **Implement Short-Term Policies**

Municipalities can achieve TDM success in the short term through the use of TDM checklists or guidelines (e.g. Transit Oriented Design Guidelines) for new developments in specific areas, or council directives regarding the preparation of TDM plans.

### **Review Zoning By-Law Parking Standards**

Most municipal zoning by-laws contain parking requirements that are founded on providing supply based on unconstrained demand. This approach encourages driving by making parking easy. Policy planners should review key parking requirements in the Zoning By-Law related to office, residential, and retail land uses to ensure that the parking requirements are consistent with the most current and progressive parking standards that emphasize minimising parking supply. The by-law requirements should also be updated to include



specific provisions for sustainable transportation modes such as bicycle parking, car-sharing, and carpool/vanpool parking.

### **Promote the Relationship between Parking and TDM**

Parking supply can be a controversial topic and some industry and municipal representatives may resist lowering parking supplies for various reasons (e.g. a business may cite the need for abundant free parking to remain competitive). TDM Practitioners need to actively engage key stakeholders (i.e. municipal council members, Business Investment Area representatives, municipal staff, residents, developers, etc.) so that they understand the benefits of effective parking supply management and its relationship with TDM.

### **Educate Municipal Staff**

The minimal application of TDM in the development approvals process has created a situation where municipal staff who are responsible for approvals do not fully understand the concept of TDM and its benefits. It is important that all development approval staff be educated regarding the benefits of TDM and how to include it in the review process.

### **Implement Long Term Policies**

Improvements to TDM policies contained in Official Plans are required. The majority of policies that do exist are broadly-based statements supporting sustainable transportation which do not require action, particularly at the development approvals level. As part of their next Official Plan review, municipalities need to incorporate stronger TDM policies that outline specific goals and objectives and indicate how they will be accomplished at the land use approval stage. Sample policies have been provided in this study based on the three approaches described above.

Other longer-term policy planning and implementation documents that also require more effective TDM policies include Secondary Plans and Transportation Master Plans (TMPs). Recommendations for both of these documents are discussed in this study.

### **Implement Civic TDM Program for Municipal Employees**

A municipality should implement the same TDM practices and policies that it will ask from new development at its own municipal offices in order to demonstrate leadership to the development community and showcase benefits to developers and major employers.

## *Development Review Recommendations*

### **Determine the Urban Context**

For every development application of significance, it is important to understand the urban context in which the development will be located. This will help development review personnel determine the most appropriate TDM approach (i.e. TDM Light, TDM Moderate, or TDM Aggressive).

### **Review TDM Elements of Proposal**

Once an approach for the development been established, municipal staff should review the proposal to determine if any TDM strategies have been included and create a list of TDM strategies that are desirable (e.g. hiring of commuter co-ordinators for large employers / developers, provision of on-site showers and change-rooms for bicycle users, provision of on-site amenities, etc.). In some cases potential TDM strategies can be discussed during preliminary meetings between municipal staff and the developer.

### **Create and Apply a TDM Evaluation**

A municipality should establish a method for quantifying the TDM benefits of a project by creating a checklist that scores each development. The checklists should clearly lay out the potential TDM strategies that are available, the method for calculating the score, and the minimum scoring threshold to be considered a TDM supportive project. Sample checklists for each TDM approach are provided in this study as a template for municipalities to follow.

### **Review TDM Evaluation with Applicant**

Once a TDM evaluation has been completed for a development, the results of the evaluation should be communicated back to the developer. Projects that do not meet minimum scores should be requested to improve their development proposal by incorporating specific TDM strategies.

### **Incorporate TDM Results into Standard Planning Rationale**

Lastly, the TDM evaluation should be incorporated into the planning documentation that is used as the basis for approval at municipal council. Projects that meet the TDM supportive threshold should be recognized in the planning report and used as part of the planner's development approval rationale. Non-supportive TDM evaluations should be incorporated into the development's review report. This TDM evaluation methodology can create value for a developer because it can be used to highlight the positive elements of the project and improve the likelihood of approval by city council.

# 1.0 Introduction

## 1.1 Purpose of the Report

Canadian governments are responding to the challenge of providing an efficient sustainable transportation system by reconsidering the effectiveness and desirability of traditional transportation planning solutions. “Predict and provide” approaches to infrastructure provision (i.e. simply extrapolating current trends to identify future travel needs) are rapidly falling out of favour. Across the country, communities are adopting growth management strategies that emphasize the integrated nature of land use and transportation systems. Strategies to manage mobility (rather than simply providing it) are a hot topic at gatherings of urban planners, engineers and municipal officials.

Transportation Demand Management (TDM) strategies seek to increase the efficiency of a transportation system by influencing travel behaviour.

Transportation Demand Management (TDM) strategies seek to increase the efficiency of a transportation system by influencing travel behaviour. This important goal can be achieved by encouraging people to utilize sustainable travel options, other than driving alone, especially during peak work commute periods. Examples include walking, cycling, carpooling, vanpooling, using public transit, or adopting flexible work arrangements.

To date, most TDM initiatives can be found in the form of marketing-based approaches that promote sustainable transportation choices, provide education and awareness regarding the benefits of sustainable transportation, and, in some cases, provide incentives such as transit pass discounts and priority parking for car/vanpoolers. While this approach has resulted in modest improvements in the use of sustainable transportation modes, the lack of clear guidelines for incorporating TDM within the land use development approvals process has resulted in missed opportunities, the creation of infrastructure gaps, and limitations in the potential effectiveness of TDM.

The integration of comprehensive TDM strategies into the land use planning and development approvals process will significantly improve the effectiveness of TDM, influence travel choice, and provide economic, environmental and social benefits to all concerned.

With this in mind, ACT Canada commissioned this study to provide TDM stakeholders, including municipal planners, engineers, TDM practitioners and politicians with background information, tools, and a set of guidelines on how to more effectively incorporate TDM into the land development approvals process.

## **1.2 Scope of the Report**

This report focuses on improving municipal TDM policies and requirements specifically as they pertain to the land development approvals process in order to facilitate a shift in travel modes at the individual development level.

There are many examples of proactive TDM initiatives currently being implemented by municipalities (e.g. education and awareness campaigns, promoting active transportation, etc.) that are not related to the development approvals process. These examples are not the focus of this report because they are not specifically related to the development approvals process.

## **1.3 Organization of the Report**

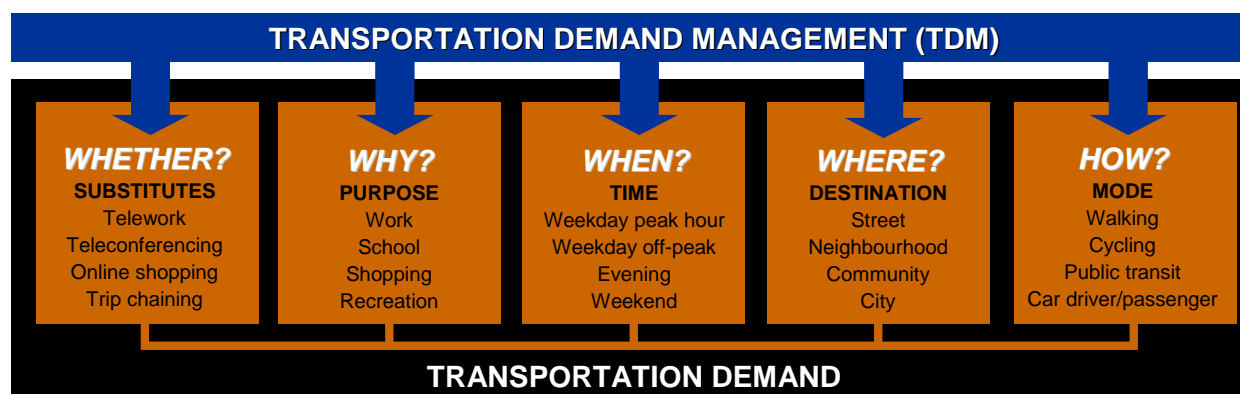
The following is a general outline of the content of this report.

- Discussion of the challenges and opportunities for greater incorporation of TDM into the land development process.
- Review of current practices at the municipal, provincial, and federal levels as they relate to TDM and the land development process.
- Summarization of findings and creation of guidelines and recommendations to facilitate the integration of TDM into land development policies and approvals.
- Identification of specific case studies where TDM supportive elements have been implemented into new development.

## 1.4 What Is TDM?

Transportation Demand Management (TDM) is the application of policies, programs, services and products to influence whether, why, when, where and how people travel. TDM measures help shape the economic and social factors behind personal travel decisions.

A more detailed description and definition of TDM is contained in the companion document to this report entitled: *The Case for TDM in Canada* (October, 2008), which has also been produced for ACT Canada.



Source: *The Case for TDM in Canada*, October 2008

## 1.5 How to Use This Document

This report provides a variety of policy and implementation recommendations for municipal staff to consider in order to improve the application of Transportation Demand Management strategies into the land development process. These recommendations should not be interpreted as a 'how-to' document which municipal staff must follow rigorously. The selection of the most appropriate approach will depend upon the land development and transportation context in each municipality or in each sub-area within larger municipalities. General guidance regarding the application of various initiatives in typical generic contexts is provided in order to assist the reader in developing an appropriate approach.

This report is designed to maximize the usefulness of the electronic format of this document. Attachments and sources provided in this study are embedded electronically in the Microsoft Word® document. As such, printed copies of this document may not contain all attachments referenced in the document in an effort to reduce paper consumption. All attachments are listed and attached in Appendix C. If a desired attachment is not included in hard copy format, please refer to the attachment index (in Appendix C) in the Microsoft Word version of this document and open it directly (by double-clicking on it) for viewing and printing.

## 2.0 Challenges and Opportunities for the Inclusion of TDM in the Land Development Process

There are various challenges regarding the incorporation of Transportation Demand Management into the land development approval process. Key challenges observed during the preparation of this study, and the potential opportunities arising from them, are described in this chapter.

### *Soft Policy Language*

Terminology that requires an action to be taken is essential in order to achieve effective incorporation of TDM policies and techniques into the approvals process.

Most regional governments or municipalities across the country have some type of transportation policies that support and promote the use of sustainable modes of transportation in their Official Plan. However, the nature of the policy language promoting sustainable practices and TDM is often broadly based and not focused enough to facilitate the effective incorporation of TDM into the land use approvals process.

Many transportation policies typically consist of generalized statements which present conciliatory, ambiguous goals, but are not assertive enough to compel specific action. Examples of such phrases where results are difficult to quantify include: “facilitate”, “work with”, “investigate”, “encourage”, “endeavour to support”. In contrast, terminology that requires an action to be taken (“shall”, “will implement” etc.) is essential in order to achieve effective incorporation of TDM policies and techniques into the approvals process.

The absence of specific action oriented TDM policies in Official Plans, District Plans, and Transportation Master Plans specifically related to development applications makes it very difficult to require effective TDM plans for projects that generally comply with the land use policies of the area. However, rezoning applications often provide the municipality with the opportunity to be more assertive regarding the inclusion of effective TDM initiatives in return for development approval.

The gap between policy and implementation must be eliminated to fully incorporate TDM into the approvals process. In creating policies with more definitive TDM language, governments must be able to clearly identify an action to be taken. Stronger language is necessary to ensure that policies are being implemented and that all stakeholders clearly understand the objective being sought.

## *Inter-Regional or Inter-Municipal Competition*

Inter-municipal competition often occurs between several municipalities in the same region that share common transportation characteristics (i.e. access to highways, distances to suppliers and services, etc.).

In these situations, municipalities that pro-actively enforce TDM policies and techniques for new development approvals are vulnerable to losing new development to other jurisdictions where TDM goals are not aggressively pursued.

The success of TDM at the development level will be improved if similar TDM policies are adopted *on a regional scale*.

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## *Recognition of TDM as a Valid Development Initiative*

The development approval process typically requires proponents to prepare a traffic impact study (TIS) which describes the impacts of the development and the resulting road improvements required to facilitate vehicular traffic.

In contrast, TDM measures have been typically applied as an afterthought in reaction to an existing problem such as attempts to relieve congestion or enhance transportation options.

Municipal staff, elected officials, and developers need to recognize that TDM should be a core tenet of all new development practice from the outset. This will require a change from the current vehicular traffic impact-based evaluation to a comprehensive transportation evaluation reflecting TDM as an integral strategy to mitigate transportation impacts (e.g. traffic, pedestrian, cycling, transit, etc.) of a development project.

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### *Limited Understanding and Awareness*

The absence of specific policy objectives regarding the inclusion of TDM in the development process creates a high level of uncertainty among approvals process staff regarding the importance of the issue.

Despite an increasing awareness of TDM, many in the development industry have little or no knowledge of TDM. As such, many developers view the implementation of TDM considerations with scepticism in terms of need or effectiveness.

For TDM to be successfully incorporated into the development approvals process, more education and awareness within the development community is essential. Much of this will come with making TDM a standard provision in the approvals process rather than an exception.

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### *TDM Viewed as an 'Extra' Cost*

Given the historical absence of TDM considerations at the development approval stage, some developers view these potential considerations as an added cost burden compared to their previous experience with other developments. This reinforces the perception that TDM is an optional, not necessary, component of the approvals process.

In order to address this issue, it is important that the municipality apply and implement TDM policy uniformly for all developments and not in 'one-of' situations. Once TDM becomes a standard component of the approvals process, the perception of TDM will change and developers will include TDM in project planning, including the project budgeting, from the outset.

### *Role of TDM Personnel within Municipalities*

Municipal TDM practitioners are primarily engaged in reaching out to, and creating education and awareness programs for, large employers, as well as municipal staff. As a result it is very difficult for TDM practitioners to provide input into all development applications.

When participation of TDM practitioners in the approvals process is limited, it is difficult for development review staff members to successfully engage developers in a discussion regarding the benefits of incorporating TDM considerations into specific projects.



It is, therefore, important that senior land use approval administrators understand the need for TDM and that specific guidance and direction be provided in planning policy, and implementation documents.

The role of the TDM practitioner should be to provide relevant expertise in the subject, including its application to the approval process. This expertise would extend beyond education and awareness campaigns to include the development of specific programs and the engagement of employers and developers.

Ideally, all municipal staff responsible for the review of TIS studies should also be well versed in the role of TDM and its application at the development approval stage such that TDM coordinators are not required to conduct detailed reviews of development applications. This will lead the shift to making TDM measures integral parts of routine review processes throughout the organization, versus a standalone objective of one staff position or department.

### *Non Supportive Zoning By-Law Parking Standards*

Most municipalities in Canada maintain zoning by-laws with parking requirements that rely on the “predict and provide” approach to set parking supply requirements for various land uses. Parking requirements are typically based on a combination of parking studies and practical experience regarding unconstrained parking demand in a traditional suburban setting where there is an abundant supply and no explicit cost for the user. The “predict and provide” approach to parking in many zoning by-laws does not support sustainable transportation choices, and often contradicts TDM initiatives that are being implemented by a municipality by making it easier to drive.

The “predict and provide” approach to parking in many zoning by-laws does not support sustainable transportation choices, and often contradicts TDM initiatives that are being implemented by a municipality by making it easier to drive.

A classic example of this is typical zoning by-law shopping centre parking requirements. Many municipalities still require parking to be provided at rates equal to or greater than 5.0 parking spaces per thousand square feet of Gross Leasable Area (GLA). However, recent research by the Urban Land Institute and the International Council of Shopping Centers (ULI / ICSC) concluded that parking demand at shopping centres between 400,000 square feet of GLA and 600,000 square feet of GLA ranged between 4.0 spaces to 4.5 spaces per thousand square feet of GLA.<sup>1</sup> The seeming reluctance to embrace lower requirements despite mounting evidence to the contrary, results in a substantial waste of resources and continues to send the wrong message in promoting alternative modes of transportation.

Similar to shopping centres, many municipalities require excessive parking supply for other land uses such as apartment buildings and office buildings and do not recognize the ability for mixed land uses

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<sup>1</sup> “Parking requirements for Shopping Centers, Second Edition”1999, Urban Land Institute/International Council of Shopping Centres.

to share parking due to the temporal variation in demand between such uses.

Municipalities should undertake to review recent technical research related to parking demand for various land uses, as well as a best practices review of parking standards in other municipalities. Opportunities to reduce parking standards where appropriate should be noted by staff for consideration in rezoning applications and recommended to council for incorporation into the Zoning By-law at the next available opportunity.

## 3.0 Current TDM Land Development Practice in Canada

### 3.1 Federal Approaches

Transport Canada is the department within the federal government which oversees national transportation issues, including the implementation of a safe, secure, efficient and environmentally responsible national transportation system.

There are two general ways that the federal government encourages better integration of transportation and land use planning with TDM measures. The first is through funding various programs / initiatives targeted at improving mobility options and environmental sustainability (e.g. Moving on Sustainable Transportation, Urban Transportation Showcase Program, ecoMOBILITY, and the Gas Tax Fund). The second is through infrastructure funding programs (e.g. transit/highway/local roads projects) provided through the Building Canada Fund.

#### *Programs / Initiatives*

Moving on Sustainable Transportation (MOST) is a program that is designed to produce the kinds of education, awareness, and analytical tools needed to make sustainable transportation a reality. The MOST program provides funding to projects that:

- stimulate the development of innovative tools, approaches and practices for increasing the sustainability of Canada's transportation system and the use of sustainable modes of transportation;
- realize quantifiable environmental and sustainable development results on Transport Canada's sustainable development priorities; and
- provide Canadians with practical information, tools and opportunities for better incorporating sustainable transportation options into their daily lives.

The Urban Transportation Showcase Program is a \$40 million program that allocates funds towards innovative community projects that have been developed to address issues of road congestion, operation costs and emissions. From the many proposals submitted, projects in Whitehorse, Greater Vancouver, Winnipeg, Greater Toronto, Hamilton, Region of Waterloo, Gatineau, Montreal, Quebec City, and Regional Municipality of Halifax, were selected for implementation.

The ecoMOBILITY program aims to reduce emissions from the urban passenger transportation sector by helping municipalities attract residents to less polluting forms of transportation. By increasing the modal share of transportation options such as walking, cycling, carpooling and public transit, harmful emissions can be reduced and other challenges, such as congestion and personal health, can be addressed. The ecoMOBILITY program contains two components that apply to the implementation of TDM measures – financial support to implement TDM projects, and a research and information component to build capacity through training and development of resources to implement TDM.

The Gas Tax Fund helps to build communities by providing predictable funding in support of municipal infrastructure that would enhance the environment and quality of life. As part of the Gas Tax Fund transfer program, communities are in the process of developing Integrated Community Sustainability Plans (ICSPs) which are holistic in nature and as such, typically include the integration of land use and sustainable transportation planning. These plans benefit communities by providing funding to increase the capacity of communities to undertake long term planning.

### *Transit / Highway / Local Roads Projects*

TDM is also leveraged as part of transportation projects under the Government of Canada's major infrastructure programs. Both the Canadian Strategic Infrastructure Fund and the Building Canada Fund encourage TDM. The Building Canada Fund in particular requires the implementation of TDM measures for transit to help build ridership and improve environmental outcomes and highway/local road projects in urban areas as part of the "Major Infrastructure Component".

## **3.2 Provincial Approaches**

The majority of provincial documentation regarding transportation consists of generic sustainable transportation policy language that is generally not linked to TDM.

The policies that do exist are intended to be flexible in nature to allow for lower-tier governments at the regional and municipal level to craft policies applicable to their area based upon a variety of factors: demographics, population, location relative to an urban centre, and availability of public transit.

These policies can be improved with stronger and more direct TDM language. Strong provincial direction is required to ensure that all municipalities, especially those with congestion problems, recognize TDM as a key requirement of any future transportation or land use planning process.

One example of a strong provincial policy is the Province of Ontario's Places to Grow: Growth Plan for the Greater Golden Horseshoe (2006) which specifically requires TDM action at the municipal level. This policy is notable because it requires all municipalities within the Greater Golden Horseshoe to include TDM policies in their Official Plans, thereby creating a degree of equalization among municipalities.

This policy is effective because of the corresponding timing related to the review of Official Plans. The Ontario Planning Act requires municipalities to review and update their Official Plans every 5 years. Therefore all municipalities in the Ontario Greater Golden Horseshoe area have to include TDM policies in their Official Plans where no such inclusion was previously mandated.

"Municipalities will develop and implement transportation demand management policies in official plans or other planning documents, to reduce trip distance and time, and increase the modal share of alternatives to the automobile."

*Ontario Places to Grow Act, 2006, Policy 3.2.2.5*

### 3.3 Municipal Approaches

Municipalities generally employ three distinct approaches when incorporating TDM into the development approvals process. The three approaches are:

- long term policy approaches; and
- short term policy approaches.

A description of the various strategies and approaches are set out below.

#### 3.3.1 Long Term Policy Approaches

There are a variety of long-term municipal policies related to TDM, transportation supply, and land development. These policies are generally included in documents such as Official Plans, Secondary Plans, District Plans, or Transportation Master Plans (TMPs) as goals and objectives.

The following discussion provides an overview of the different types of TDM policies that exist. A complete list of all TDM policies reviewed by this study from various municipalities across the country is included as attachment A1 (see Appendix C).

"Use parking supply and demand as a specific transportation demand management tool:

- manage the supply of long-stay parking in the Downtown to match a downtown travel to work modal split objective
- target the modal split to transit to 50% when a population of 1.25 million is reached
- gradually reduce the supply of long-stay parking, e.g., by absorbing peripheral commuter surface lots for development
- retain existing Downtown parking standards in the Land Use Bylaw 2P80."

*City of Calgary, Official Plan Section 3.2.2.A*

#### ATTACHMENT

A1 – Canadian Municipal TDM Policy Research

"HRM shall prepare a Transportation Demand Management Functional Plan as part of the overall Transportation Master Plan to balance the demand for transportation infrastructure with supply and to reduce costs and improve efficiency."

*Halifax Regional Municipality  
Official Plan, Policy T-10*

#### **Example: York Region ROPA 43**

An example of an alternative way to introduce TDM concepts into an Official Plan is from York Region Ontario. York Region developed a "Centres and Corridors" growth management strategy through Regional Official Plan Amendment # 43, which implemented Transit-Oriented Development (TOD) guidelines and requires completion of a corresponding evaluation checklist for developments along designated nodes and corridors in the Region.

### *Official Plan (OP) Policies*

Official Plan policies can generally be broken up into the following key categories:

- general sustainability policies;
- general policies encouraging TDM;
- TDM policies that apply to land development; and
- parking policies that are TDM supportive.

Most Canadian municipalities have included general 'sustainability language' in their Official Plans that support ways to reduce environmental impacts. This 'sustainability language' typically does not cite TDM specifically.

To a lesser extent, municipalities have enacted Official Plan policies which recognize TDM specifically or TDM policies that apply to new developments.

Examples of strong Official Plan TDM policies employed by a municipality are:

- The City of Calgary OP – Section 3.2.2.A;
- The City of Ottawa OP – Section 2.3.1.3; and
- Halifax Regional Municipality OP – Policy T-10.

### *Secondary Plans*

Secondary or District Plans, which are extensions of Official Plans, are intended to provide specific guidance and direction regarding various sub-areas within a municipality, including residential neighbourhoods, employment areas, and downtown core areas. In many cases the TDM policies in Secondary Plans are similar to those in Official Plans; however, some municipalities are beginning to apply stronger TDM policies in Secondary Plans to support redevelopment (e.g. additional density) and to improve the sustainable transportation options for the Secondary Plan area. A Secondary Plan can be a useful tool to improve the incorporation of TDM into the approvals process for a targeted area even if the prevailing TDM policies in the Official Plan are less proactive.

## Transportation Master Plans (TMPs)

Transportation Master Plans are complementary documents which reflect and support the transportation policies set out in Official Plans. Typically, TMPs are 20 to 30 year plans that set out broad transportation directions, goals and actions for a municipality. They can also include detailed implementation plans as well. Transportation Master Plans (TMPs) may also contain TDM policies relevant to land development. Policies related to TDM commonly included in municipal TMPs include:

- strategic policies to reduce auto demand;
- strategic policies related to parking management;
- policies to create and fill the position of TDM Co-ordinator to evaluate and implement TDM goals;
- policies that encourage monitoring the success of TDM initiatives;
- policies that encourage the fostering of partnerships with local business;
- policies that require a municipality to demonstrate a leadership role by adopting TDM initiatives at all civic buildings; and
- policies that set targets for trip reduction and mode splits in the municipality either in broad terms or for specific areas.

Examples of TDM policies in TMPs are:

- The City of Calgary TMP – Section 2;
- The City of Langley TMP – Section 2.7.2; and
- The City of London TMP – Section 3.3.

While the link between a TMP and OP transportation policies is clear, the link between TMP policies and the development approvals process is less so. TMP policies are generally not targeted at the development approvals process. More often, TMP recommendations focus on the provision of transportation infrastructure, with TDM considered only at a broad policy level. These projects and policies are then indirectly considered in approving specific development applications.

TMPs are the most common vehicle for a municipality to identify TDM, sustainable transportation, mode share, or trip reduction targets. However, these policies typically lack detail on how the

“Based on the potential success of various potential TDM strategies reported in Technical Appendix 6, an estimate of potential reductions in London trip making was made. With the combined effect of these potential reductions, it is estimated that on a daily basis, the City could experience an overall SOV reduction of approximately 10% below forecasts in 2024, but this would translate to only 6% of PM peak hour trips being eliminated if TDM targets were met.”

*City of London, Transportation Master Plan, Section 3.3*

“The target downtown modal split to transit is 50% by 2024...reducing the number of stalls from today's 31,000 to 29,000 over the next 30 years.”

*City of Calgary, Transportation Master Plan, Section 2*

“The City can be a regional leader in the TDM area by developing trip reduction programs for its own employees, and by working with City employers on programs to encourage workers to use alternative modes of transportation for their daily commute.”

*City of Langley, Transportation Master Plan, Section 2.7.2*



targets will be achieved and how they apply to the specific development approval level.

It is important that Official Plans, District Plans, and TMPs begin to incorporate specific action oriented TDM policies related to the land development approvals process in order to provide a strong foundation for specific TDM programs and facilities at the individual site level or the preparation of site specific TDM plans.

An additional resource to be consulted when incorporating TDM policies as part of a TMP update is a document completed for the City of Hamilton. That study provided potential TDM policy options that could be incorporated into the Hamilton TMP. It has been included as attachment A2.

#### ATTACHMENT

A2 – City of Hamilton, ON, TDM Policy Guidelines Report for Transportation Master Plan (2005)

### 3.3.2 Short Term Policy Approaches

Updates to municipal Official Plans and Transportation Master Plans are infrequent and often take lengthy periods of time to complete. The typical timeframe to update an Official Plan is approximately five (5) years.

While it is important to have TDM policies embedded in an Official Plan and TMP, there are other approaches that can be considered as interim measures in the short term as described below.

#### *Zoning By-Law (Parking Policy)*

Although zoning by-laws should reflect the primary goals and objectives of the Official Plan and sub-area district or Secondary Plans, amendments to Zoning By-laws can typically be accomplished in much less time than OP amendments. Therefore TDM supportive parking policies can be implemented in the periods between major OP reviews.

Some municipalities address this issue by developing parking policies within their zoning by-law to manage the amount of parking which can be provided for a development, with a focus on supplying only essential parking, thereby supporting TDM.

Typical TDM supportive parking policies implemented in Canadian zoning by-laws include:



- reduced parking requirements for various land uses;
- parking requirement credits for provision of car-sharing spaces;
- shared parking provisions;
- minimum and maximum parking requirements;
- requirements for car-share vehicle parking spaces;
- a cash-in-lieu (CIL) or payment-in-lieu (PIL) parking requirement; and
- requirements for bicycle and car/van pool parking.

Reduced parking requirements and parking supply minimum / maximums in zoning by-laws are most commonly applied in downtown areas of larger Canadian cities. These dense urban situations result in development economics that lend themselves to limited parking supplies for developments and the need to limit vehicular traffic impacts by encouraging the use of public transit.

Examples of TDM supportive zoning by-laws include the City of Calgary's Land Use Zoning By-Law, and the City of Regina Zoning By-Law. These are attached (see Appendix C).

#### ATTACHMENTS

A3 - City of Regina, SK, Excerpts from Zoning By-Law - Exceptions to Parking Requirements (2005)

A4 - City of Calgary, AB, Overview Presentation of Downtown Parking (.e. Cash-In-Lieu) Policy

A5 - City of Toronto, ON, Cash-In-Lieu (CIL) Policy

A6 - City of Toronto, ON, Motorcycle Parking By-Law

A7 - San Francisco, CA, USA, Zoning By-Law Car-share Requirement

The City of Toronto and City of Vancouver are examples of cities which employ zoning by-laws with parking supply maximums, reduced parking requirements, and parking credits for developments that provide some TDM benefits, such as dedicated car-sharing spaces or bicycle lockers.

#### Example: City of Regina

Regina has allowed for a relaxation of parking requirements, if parking spaces that promote TDM, such as carpooling, vanpooling, transit passes and proximity to transit stations, are included. Further details have been provided in attachment A6.

#### Example: City of Calgary

An example of a municipality successfully implementing a cash-in-lieu strategy for parking in new developments is the City of Calgary. Details of the characteristics of the Calgary downtown parking strategy, including the CIL policies, are contained in Attachment A7.

### **Example: City of Toronto**

Toronto City Council passed a resolution in 1990 that requires commercial / employment uses with more than 75 parking spaces to prepare a TDM Plan in support of the development application. An example of a development that had to provide a TDM Plan resulting from the council motion is summarized Case Study A.

### **Example: City of Kelowna**

Kelowna Civic Council passed a resolution that required all municipally owned parking lots in the downtown area to set the cost of monthly parking fees at 10% above that of a monthly transit pass to encourage transit usage. (In the case that the parking fares increased, transit pass costs would also increase to reflect the 10% difference)

## *Council Directives*

Council directives are formal motions passed by municipal councils that are not part of any specific document such as an Official Plan, Secondary Plan, or Zoning By-Law.

The implementation of a council motion or resolution is a faster process than the preparation of an Official Plan or Zoning By-Law Amendment, both of which require a significant contribution of effort and time by staff.

Council resolutions are specifically targeted policy statements developed by municipal staff and passed by council which provide explicit guidance in renewing development applications. Directives can require all new developments of a specific size or land use mix to prepare TDM plans, control the price of monthly parking at city controlled parking facilities, or encourage new developments to meet specific trip reduction targets.

Examples of municipalities that have passed council directives are the City of Kelowna and the City of Toronto.

## *TDM Checklists*

Checklists have been created by some municipalities to assist in assessing new projects for sustainable development practices particularly at the rezoning stage where site specific conditions can be negotiated. Checklists may also be helpful at the site plan approval level. Checklists are designed to make the implementation of sustainable transportation strategies and initiatives within a development application straightforward and easy to understand. Some checklists include TDM measures as part of the evaluation. Several examples of checklists that have been developed are:

- City of Edmonton, Alberta: Smart Choices TDM and Sustainability Checklists;
- Regional Municipality of York, Ontario: TOD Checklist for Nodes and Corridors; and
- Town of Markham, Ontario: Markham Centre Sustainability Checklist.

## *TDM Plans / Mobility Management Plans*

Infrastructure based TDM elements are generally easy to achieve within the land development process (i.e. the setting up of the local infrastructure and development to foster TDM activities). However, the implementation of TDM strategies after the development process is completed and occupancy permits have been acquired is much more difficult. A method of obtaining some additional TDM elements and post-completion monitoring is through the preparation of a TDM Plan (also known as Mobility Management Strategies or Travel Plans). In some municipalities these documents are required during the approvals process and typically commit the developer to not only provide TDM supportive infrastructure, but ongoing sustainable strategies once the project is completed.

TDM Plans are typically required by municipalities through a policy requirement in an Official Plan, Secondary Plan, a council directive, or incorporated into a development agreement.

Currently the majority of TDM plans are prepared by a developer or employer without any policy requirement because there is a significant congestion / transportation challenge in the area and the developer is seeking ways to improve the mobility options for the project. An example of this type of situation is the eBay mobility program implemented in Burnaby BC in connection with Translink (see Case Study K). In contrast, the City of Toronto uses a council policy directive which requires all new office developments with more than 75 parking spaces to prepare a site specific TDM plan, which must be approved by the City. The City of Toronto TDM Plan policy, as well as a similar policy from San Francisco California, has been attached to this report for reference purposes.

The United Kingdom (UK) also has a large amount of experience regarding the preparation of Travel (TDM) Plans for new development. Several examples from the UK pertaining to the preparation of TDM Plans have been attached.

### **ATTACHMENTS**

A8 – United Kingdom (UK) example of a Travel Plan (TDM Plan) for a generic development (2004)

A9 – Transport for London, UK, Travel Plan Preparation Guidelines for Employment Development (2008)

A10 – Transport for London, UK, Travel Plan Preparation Guidelines for Residential Development (2008)

A11 – Transport for London / British Standards Institution, Specifications for Work Place Travel Plans (TDM Plans) Draft (2008)

### **Example: City of Edmonton, SmartChoices Checklist**

Edmonton's Smart Choices Program was developed when it was realized that action was needed to address sustainable transportation policies in the development approvals process.

Smart Choices is a program designed to help the developer gauge the quality of their proposed development on several scales through a checklist. Eight initiatives form the basis for this program: neighbourhood reinvestment, residential infill, transit-oriented development, walkability, urban design, redevelopment of older commercial and industrial lands, planning education and public consultation, municipal growth scenario.

Within the approvals process, the checklist is applied after the pre-application meeting and submittal of the application. The application is then reviewed and completed by the planner. Following this, the applicant and staff will meet to discuss the application, comments and revisions to be made. The SmartChoices assessment is included at this stage as well as the report to Council.

Additional information on the Smart Choices program is provided in Case Study C in Section 5.0.

## ATTACHMENTS

A12 – San Francisco, CA, USA, TDM Plan Policy Requirement Extract

A13 – City of Toronto, ON, TDM Plan Requirement Council Directive (1990)

Recommendations for incorporating both TDM Plans and TDM checklists into the approvals process are set out in Section 4.0.

### *Urban Design Guidelines / Transit Oriented Design*

TDM strategies can be implemented through Transit Oriented Design (TOD) Guidelines and Urban Design policies which encourage sustainable travel choices by facilitating compact and mixed use developments.

TOD Guidelines set out specific criteria for new development with the aim of creating communities which rely primarily on transit as the preferred mode of access. Often, these developments will be located in the vicinity of a major transit station or along a major transit corridor (i.e. LRT or bus rapid transit line) and will contain mixed commercial, retail, service, residential and (occasionally), institutional uses. Examples of municipalities who have adopted TOD policies which contain TDM considerations include the City of Calgary in Alberta, The Region of York in Ontario, and the City of Kitchener in Ontario.

Urban Design Guidelines are another policy tool municipalities use in the approvals process. These guidelines complement TDM by focusing development into compact, mixed-use, walk-able, bike-able and transit-oriented communities, with emphasis on the reduction of surface parking lots, creating safe and comfortable pedestrian environments through effective streetscaping, the orientation and design of buildings to face the street, and advance planning for transit routes. An example of an urban design policy that encourages sustainable transportation is the City of Kitchener's Neighbourhoods Design Initiative.

Various example TOD and urban design guidelines have been included with this study for information purposes and are embedded in electronic format below and attached in hard copy as Appendix C.

## ATTACHMENTS

A14 - City of Calgary, AB, TOD Guidelines (2005)

A15 - York Region, ON, TOD Guidelines (2006)

A16 - City of Kitchener, ON, Neighbourhood Design Guidelines (2007)

## *Municipalities In A Leadership Role*

Municipalities should be prepared to take a leadership position and set examples within their own organization regarding their incorporation of TDM programs into their own municipal facilities. By implementing such measures and showcasing the benefits, other specific development sites will be encouraged to consider similar measures and be more receptive to TDM principles in general.

TDM initiatives which have been considered and applied at municipal buildings include:

- establishing preferential carpool / vanpool parking spaces;
- offering discounted or subsidized transit passes;
- provision of on-site shared vehicles for municipal staff;
- providing an Emergency Ride Home (ERH) program;
- reducing available free parking / charging monthly parking fees;
- creating a new staff position of TDM co-ordinator to manage programs and promote initiatives;
- providing transit information on-site; and
- providing an outlet to purchase transit fares / passes on-site.

## *Development Incentives*

Incentives are an additional tool which can be utilized by allowing developers to seek relief from development charges or obtain additional density in return for the incorporation of TDM initiatives in their proposals. Such incentives do not penalize development density by excluding the floor area devoted to TDM measures such as bicycle storage, shower & change rooms, and pedestrian considerations. They would also include reductions in parking supply which if acted upon would redevelopment costs.

An example of a development incentive policy written into a Secondary Plan that encourages TDM and sustainable transportation is attached in the North York City Centre Secondary Plan.

### **ATTACHMENT**

A17 - North York, ON, Extract from City Centre Secondary Plan-  
Development Incentives

### **Example: North York City Centre Secondary Plan**

An example of density incentives that have been written into a Secondary Plan is the North York City Centre Secondary Plan. North York Centre is located within the City of Toronto and is a designated centre for redevelopment, including transit-based employment and residential growth. Density is addressed in Section 3 and includes a list of incentives for which development charges are not calculated if a certain use is provided. These include the exclusion of internal floor areas that are supportive of sustainable transportation, such as bicycle storage, direct underground pedestrian connections to transit and a transit terminal. The gross floor area that is usually included in the calculation for development charges are excluded, providing the developer with some monetary relief in exchange for TDM supportive infrastructure. An excerpt from the North York City Centre Plan is provided in attachment A11.

## 3.4 Private Industry Approaches

### *Leadership in Environmental and Economic Design (LEED) Green Building Rating Systems*

The objective in the incorporation of LEED into building design is to provide facilities for environmentally sustainable practices after the development process.

The LEED Green Building Rating System® was developed by the U.S. Green Building Council (USGBC) as a group of standards for “high-performance, sustainable” building design. The Canadian Green Building Council (CaBC) has produced a Canadian version of the USGBC’s rating system to facilitate its application in Canada. Buildings receive points based on a series of sustainability credits for various initiatives incorporated into the building design such as efficient windows, green roofs, bicycle storage, preferred parking spaces for hybrid and alternate fuel vehicles, etc.

Municipalities are encouraging green and sustainable practices and consumers are taking notice of the developing trends in environmental sustainability, including the application of LEED in projects. LEED and TDM have similar goals – to improve environmental sustainability and to reduce the carbon footprint. As a result, there is much potential to encourage developers to capitalize on this trend by incorporating TDM plans as a way to market their product as being “environmentally friendly and sustainable” from a transportation and emissions standpoint.

#### **Example: City of Calgary**

The City of Calgary has introduced incentive programs to demonstrate leadership to influence and encourage other municipalities to promote environmentally sustainable choices. Developers who meet sustainable qualifications such as LEED are given a rebate that can be applied for up to 30% of the building permit value, to a maximum of \$100,000.

LEED can influence more than just the building design. While the credits are given for the structural/facility components, the corresponding transportation credits can encourage a change in travel behaviour from their tenants. The objective of incorporating LEED into building design is to provide facilities that encourage environmentally sustainable practices after the development process has concluded.

As LEED is quickly becoming a popular consideration in the development of buildings, there is potential for utilizing LEED as a means to better incorporate TDM strategies through their operations and management system. Five transportation-related credits are available through LEED, all of which address the provision of facilities to promote sustainable transportation. They include the following.

Five transportation related credits are available through LEED that support sustainable transportation and TDM.

#### **Credit 4.1 - Public Transportation Access**

The location of the development in relation to public transportation offers an alternative method to travel and can discourage the use of single occupancy vehicles. Locating the development within 800 metres of a transit line or within 400 metres of two (2) or more public bus lines that offer frequent service will allow the development to receive one (1) credit.



#### **Credit 4.2 - Bicycle Storage and Changing Rooms**

The use of sustainable modes of transportation includes cycling. To promote the use of cycling to and from work or school, one (1) credit is awarded if bicycle storage and changing rooms are provided.

#### **Credit 4.3 - Hybrid and Alternate Fuel Vehicles**

To reduce the amount of emissions produced, one (1) credit is awarded if hybrid or alternative fuel vehicles and their respective parking spaces are provided for 3% of the building or the installation of alternative-fuel refuelling stations are located within 500 metres of the site for 3% of the total vehicle parking capacity of the site.

#### **Credit 4.4 - Parking Capacity**

One strategy to discourage single occupancy vehicle use is to reduce the supply of parking available. To achieve this LEED credit, the development must not exceed the minimum parking standard, as set out in the zoning by-law, provide preferred and designated parking for carpools, vanpools or car co-ops, or add no new parking for rehabilitation projects and provide preferred parking and designated parking for carpools, vanpools, or car co-ops.

#### **Credit 7.1 - Heat Island Effect: Non-Roof**

Heat islands occur in developed areas where temperatures are different from their surrounding areas, usually as a result of changes in the landscape and the use of materials that conserve heat or contribute to waste heat, which impacts microclimates and wildlife habitats. One common area where these heat islands occur is parking lots. To minimize these impacts, the use of shade, light-coloured materials, or open grid pavement can be implemented. A LEED credit is awarded if these requirements are met.

The above LEED credits are several out of many credits available to enable developers to achieve LEED certification. As a result, it is possible for a development to become LEED accredited and not provide any of the five specific credits listed above. Notwithstanding, the transportation credits are relatively easy ways to achieve LEED credits for a development (e.g. a development can achieve a LEED credit by simply providing the minimum Zoning By-Law parking requirement) and should not be overlooked by municipal staff when reviewing development applications. Municipalities who work to emphasize TDM, could make any incentives they provide for LEED (e.g. reduced building permit costs) conditional on achieving some or all of the transportation related credits.

Furthermore, while a development may elect not to become LEED accredited, it can still utilize LEED transportation concepts to present itself in an environmentally sustainable manner. Encouragement from municipalities and politicians to look at transportation operations in the same manner can easily promote the inclusion of TDM practices to achieve goals similar to those LEED seeks to accomplish - reduced gas emissions, use of sustainable transportation

options, and reductions in the number of single occupant vehicle trips.

### *BOMA Go Green Plus Program*

Some private sector building operators promote sustainable practices through joining the BOMA (Building Owners and Managers Association) of Canada. BOMA has developed 'Go Green Plus', which is a certification program for existing commercial buildings which rates environmental efficiency. Similar to LEED, the program consists of an assessment in the form of a scoring report that measures energy use, environmental performance, and transportation sustainability. The cumulative score is based on multiple categories. Transportation credits do not need to be satisfied to achieve certification.

Unlike LEED, the Go Green Plus program is an ongoing process that requires recertification to be completed every three (3) years. The BOMA transportation evaluation criteria include:

- 1) Location of the building relative to public transportation
  - a. Building is located within 500 m of public transportation service
- 2) Frequency of public transportation service
  - a. Frequency of service is at least every 15 minutes during peak periods
- 3) Provision of cycling facilities available
  - a. Sheltered bike racks
  - b. Changing facilities and showers
- 4) Other measures that may be implemented to reduce car dependency
  - a. e.g.: carpooling, transit passes...etc.

Although it is currently a private sector initiative, the BOMA program is a potential vehicle by which municipalities can insist on some type of ongoing TDM compliance by requiring that a new development maintains this certification.

Similar to the LEED program, builders are able to achieve certification without specifically obtaining any of the transportation credits. However, municipalities could encourage achievement in these areas by making any incentive offered conditional on that goal.



## 4.0 Recommendations for TDM and Land Development

### 4.1 Overview

TDM needs to be a common consideration in the land development process; similar to the way that a traffic impact study is a common requirement for a new development.

The key to effective incorporation of TDM into the land development process is the creation of a practical TDM procedural and policy framework that is clearly understood by all municipal departments and the development community.

An effective municipal TDM framework includes:

- long-term TDM policies (e.g. Official Plans);
- short-term TDM strategies and policies (e.g. Council Directives);
- a supportive parking strategy (TDM supportive parking policies in the Zoning By-Law); and
- TDM goals (set targets to be achieved).

### 4.2 Context is Everything

There is a wide variation in urban context among the many municipalities across Canada, and within some of the larger municipalities themselves, that could benefit from the introduction of TDM supportive development approval guidelines.

For example, a suburban office development within 500m of a surface bus route can not reasonably be expected to provide the same TDM advantages as an office development in a Central Business District (CBD) in close proximity to rapid transit. In each of the above cases, the TDM solution is unique and must be reflective of the urban context. For instance, the suburban development can provide preferential carpool parking and administer a ride-matching service to assist employees in finding potential carpool opportunities. In contrast, the owner of the downtown office development could ensure that only a minimum amount of parking is provided while offering a subsidized transit pass program to promote the use of the nearby rapid transit.

In order to focus TDM initiatives on developments where the most beneficial results are likely to be achieved, it is important to determine what methods of TDM are appropriate for each new development. In many cases where staff do recommend the incorporation of TDM, they often struggle to justify why it should be implemented as there is currently no accepted guideline or expectation of what TDM measures are appropriate and what they are expected to accomplish. This has been identified as a gap in the implementation of TDM in municipalities, which this project is intended to address.

To reflect the various urban conditions that exist, this study has developed a three-tiered classification based on common characteristics that generally exist in urban environments.

- Class 1: Low Density / Low Congestion;
- Class 2: Medium Density / Moderate Congestion; and
- Class 3: High Density / High Congestion.

The purpose of the classifications is to provide a general understanding of what types of TDM strategies are reasonable in specific urban environments. A description of the three urban contexts and their relationship to TDM is set out below.

#### **4.2.1 Class 1: Low Density**

Class 1 urban contexts are generally the least dense urban environment and have the greatest mobility challenges for any travel mode but the private automobile. These environments can only support a basic TDM approach because transit service is typically basic in terms of convenience and frequency and there are typically few alternatives more convenient than the car. This basic approach is referred to as 'TDM Light'.

A typical Class 1 urban context has the following characteristics:

- minimal levels of traffic congestion;
- predominantly low density;
- little or no mixed uses in the area;
- car oriented (e.g.: suburban developments); and
- non-competitive transit service in the area.

Examples of Class 1 municipalities include: Lethbridge, AB, Kelowna, BC, and Stratford, ON.

Generally speaking, smaller municipalities (populations of approximately 100,000 or less) and suburban areas of municipalities (or developments in those areas) tend to exhibit Class 1 characteristics as they lack the density and critical mass necessary to justify the provision of competitive transit service. In some cases, much larger municipalities with some medium density uses can be considered Class 1 urban contexts if there is minimal congestion.

The most important criteria for a Class 1 urban context is that the area road system is generally uncongested, resulting in travel by car being relatively easy with little to discourage people from driving. This results in the use of transit being hard to justify given the ease and flexibility provided by the automobile.

#### **4.2.2 Class 2: Medium Density / Moderate Congestion**

Class 2 urban contexts have increased density but still experience primarily private automobile travel. There are, however, mobility choices in the area (including transit). As a result, Class 2 environments can support an increased level of TDM strategies.

A Class 2 urban context (TDM Moderate) has the following characteristics:

- experiences moderate to heavy levels of traffic congestion during typical peak periods with low levels of congestion outside of peak times;
- contains medium density land uses;
- has a nominal amount of mixed uses within the area;
- has an established bus-based transit service with headways of 20 to 30 minutes during peak periods; and
- generally still car oriented with a typical transit mode split of 5-10 percent.

Examples of Class 2 municipalities include: Kitchener, ON, Halifax, NS, and Regina, SK.

A Class 2 urban context (TDM Moderate) generally reflects the conditions experienced in the central business districts of mid-to-large sized cities (population between 100,000 and 600,000) or in employment nodes where there are concentrations of jobs and/or people.

Even if it is located within a municipality that is entirely low density (i.e. Class 1), an institutional use (such as a hospital or university) can

often be considered a Class 2 urban environment due to its size and the number of people it draws onto its campus.

#### **4.2.3 Class 3: High Density / Heavy Congestion**

Class 3 urban contexts are typically downtown areas (CBDs) of large cities (population 600,000 and greater) with high to very high densities. These areas experience high levels of traffic congestion (both vehicular and pedestrian) for extended periods of time. A Class 3 urban context generally has some type of higher-order transit in the area, such as Bus Rapid Transit (BRT) or a subway / metro / Light Rail Transit, although this is not always present.

A Class 3 urban context (TDM Aggressive) has the following characteristics:

- experiences heavy levels of congestion (vehicular and otherwise) over extended periods of time;
- contains high density land uses;
- has a large number of mixed uses and services within the area;
- has a well developed transit service with elements of high-order transit; and
- has a modal split demonstrating substantial dependence upon walking, transit, and cycling versus automobiles.

Examples of Class 3 municipalities include Calgary, AB, Vancouver, BC, Montreal, QC, and Ottawa, ON.

It should be noted that in many (if not all) circumstances only certain precincts of a municipality (e.g. downtowns or central business areas) would be Class 3 urban contexts. Locations outside of the downtowns would be subject to a lower classification in areas where a lower density suburban land use pattern exists. Examples of these types of municipality include: Mississauga, ON, Edmonton, AB, and Winnipeg, MB.

A table summarizing the various elements of the three urban contexts is provided on the following page.

**Table 1**  
**Summary of Urban Context Classifications**

	<b>Class 1</b> Low Density / Low Congestion <i>Approach: TDM Light</i>	<b>Class 2</b> Medium Density / Moderate Congestion <i>Approach: "TDM Moderate"</i>	<b>Class 3</b> High Density / Heavy Congestion <i>Approach: TDM Aggressive</i>
<b>Density</b>	Least dense	Medium to high density	High density
<b>Mobility</b>	Greatest mobility challenges	Mixed presence of mobility choice in area	Large number of accessible competitive mobility choices
<b>Congestion</b>	Minimal	Moderate to heavy during peak periods	Extended levels of congestion throughout the day
<b>Mixed Use</b>	Little or none. Wide separation of land uses	Moderate amounts of mixed uses	Large mix of uses with walk-able services located throughout the area
<b>Transit Service</b>	Non-competitive	Bus-based, with headways of 20 – 30 minutes during peak periods	Well developed with elements of high-order transit
<b>Modal Split</b>	Car dominated. Typical mode split is 5 percent or less	Car-oriented, typical transit mode split 10 – 15 percent	Transit mode split greater than 15 percent with a substantial use of walking, automobile, transit and cycling.
<b>Population Range</b>	Less than 100,000	100,000 – 600,000*	Greater than 600,000*
<b>Examples</b>	Kelowna BC, Lethbridge AB, Stratford ON, Waterloo ON, St. John NB, Charlottetown PEI	Hamilton ON, Halifax NS, Regina SK, Mississauga ON, London ON, Kelowna, BC, Laval QC, Surrey BC	Ottawa ON, Calgary AB, Winnipeg MB, Montreal QC, Vancouver BC, Toronto, ON, Edmonton AB, Mississauga ON

\* If a municipality is part of a larger region that shares a common transportation system the larger regional population can be considered when determining the urban context.

## 4.3 Two Sets of TDM Recommendations

Creating an effective TDM framework within a municipality requires close collaboration and the acceptance of TDM within the various municipal departments; specifically, municipal staff at both the policy planning level and the development planning / engineering level.

Both departments employ two distinct strategies in applying TDM. The recommendations in this study have therefore been subdivided into two distinct groups for improving TDM in the land development process.

- Policy Planning – Recommendations that apply to municipal policy planners who are responsible for creating and updating municipal policies.
- Development Review (Planning and Engineering) – Implementation steps and recommendations for development review planners (or engineers) on how to evaluate development proposals with respect to achieving better TDM compliance from developers, which would be beneficial for the municipality as a whole.

Creating an effective TDM framework within a municipality requires close collaboration and the acceptance of TDM within the various municipal departments

The combination of these two recommended approaches will result in a complete framework the effective implementation of TDM in the development approvals process.

## **4.4 Policy Planning**

### **4.4.1 Key Recommendations**

#### *Review Zoning By-Law Parking Standards*

Municipal staff should review their zoning by-law to ensure that the parking requirements are not excessive.

As a minimum, parking requirements which generate relatively high traffic volumes concentrated in one or two hour peak periods should be reviewed and compared to precedents in other municipalities with an eye to reducing parking requirements for the following land uses:

- retail / shopping centre uses;
- general employment / industrial uses;
- high-density residential uses; and
- office employment uses.

Generally, the emphasis should be on minimising the over-supply of parking by using the lowest requirement that is reasonable for the area in contrast to the usual approach of requiring extra parking just in case there is not enough.

Municipalities should also review other progressive zoning by-law policies that require shared parking provisions and priority location car/van-pool spaces, bicycle spaces, and specialty spaces for motorcycles. One example of a city that has implemented a policy for free on-street motorcycle parking is Toronto, ON. Other municipalities offer discounted parking charges for motorcycles, including Kingston, ON and Vancouver, BC. Parking supply reduction incentives should also be considered for developer-provided dedicated car-share spaces.

#### *Implement Short Term Policies*

Council directives are typically the most expedient way to incorporate TDM requirements into the land development process.

As discussed in section 3.3.2, the preferable approach to effectively incorporating TDM into the approvals process is through appropriate requirements in Official Plan policies and TMP documents, in careful alignment with district level policies, zoning by-laws, and site plan approval practices.

However, in the short term, a municipality can introduce TDM considerations into the approvals process, especially as it relates to site specific rezoning applications, by using council policy directives.

Examples of types of council directives that could be adopted are:

- a policy requirement for the creation of TDM plans / mobility plans for specific developments (number of parking spaces, land use types, amount of GFA, etc);
- a policy requirement for specific developments to complete a TDM checklist;
- a policy that encourages consideration or requirement of Transit Oriented Design (TOD) for specific development within proximity of good transit service;
- a policy that requires or directs staff to review potential applicability of LEED credits related to transportation;
- a policy requirement for specific development to join an area Transportation Management Association (TMA); and
- a policy that sets cost of monthly parking rates higher than that of a transit pass in all municipal parking facilities.

A summary of several potential recommended council directives / motions that could be adopted by a municipality are contained in Table 2 on page 33.

### *Implement Long-Term TDM Policies*

It is recognized that making changes to long-term strategic municipal documents cannot be accomplished quickly, and may take several years.

As such, it is recommended that municipalities review their long-term strategic documents for the purpose of incorporating more progressive TDM policy during the next Official Plan review or Zoning By-Law consolidation / review.

The following sections provide a brief discussion of the recommended approaches for the most common municipal documents.

### *Incorporate Better TDM Policies Into Official Plans*

There are numerous ways in which municipalities can embed TDM into an Official Plan (OP). This was confirmed through the review of existing OP policies across the country.

The recommended approach is to incorporate TDM into all relevant sections common to most Official Plans. These include:

- general transportation section policies (including goals and objectives);
- specific residential land use policies;
- specific commercial / mixed-use land use policies;
- specific employment land-use policies; and
- implementation policies (which require TDM traffic studies or TDM plans).

At a base level, municipalities should employ Class 1: Low Density TDM policies in their OP to cover all development. More specific TDM policies related to Class 2 / 3 areas should be employed in selected areas of a municipality either as a subsection of the OP or through area Secondary Plans.

Three sets of OP policy recommendations have been developed to reflect the three urban contexts that may exist in a municipality (i.e. Class 1/2/3). The recommendations are based on the best practices observed during the review of municipal TDM policies from across Canada. Table 2 on page 33 summarizes the recommended policies for each section of the Official Plan.

The methods presented in this guideline represent a recommended approach based on common elements found in most OPs.

Policy planners will need to carefully consider how the recommendations contained herein should be integrated, and evaluate each recommendation on its own merit for appropriateness as it relates to their municipality.

### *Incorporate TDM Policies into Master Plans*

Transportation Master Plans (TMPs) are long-term strategic municipal documents where TDM should be embedded.

Master Plan level TDM policies generally focus on the broader city-wide transportation network, rather than site specific developments because their aim is to require municipal action regarding the provision of a municipal service (such as transit or construction of a



new road). However, it would be beneficial to have a section in the TMP regarding the application of TDM at the development site level.

Similar to the OP approach, three individual sets of recommendations for Master Plans have been developed. A summary of the recommended TMP policies is set out in Table 2 on page 33.

### *Implement TDM Supportive Policies into Zoning By-Law*

As noted previously, a municipality should undertake a review of the parking requirements in their Zoning By-Law to ensure parking requirements are not excessive compared to findings of current technical research and compared to what other municipalities are doing. Opportunities for reducing parking supply requirements in the Zoning By-Law should be explored and implemented where feasible to complement the TDM initiatives being promoted and/or required.

Sample TDM supportive policies that should be considered within a municipal Zoning By-Law are:

- parking reductions for proximity to transit, provision of carpool/vanpool parking spaces;
- implementation of parking minimums / maximums;
- requirement of bicycle storage / shower facilities in new development where feasible (i.e. office uses).

Recommendations for TDM supportive Zoning By-Law parking policies for each urban context are provided in Table 2 on page 33.

### *Educate Municipal Staff*

In order to ensure that municipal planners and engineers involved in the development approvals process understand the benefits of TDM, and how it can be effectively implemented at the site specific level, it is important to provide educational sessions regarding the subjects discussed in this report. A municipality should be prepared to support this initiative by co-ordinating training through the TDM Practitioner and providing the resources and time necessary (e.g. making the training a formal task during working hours rather than voluntary unpaid time) to make the training effective.

Suggested topics for TDM sessions include:

- what effective TDM policies look like, where they are found, and how staff can apply them when reviewing new development;

A municipality should set a goal for all staff who draft new policy, and those who practice them, to have, at the very least, a baseline understanding of TDM, and how it relates to land development and other important policies such as parking.

- the need to broaden the current traffic impact focused approach to development review, and the benefits of incorporating TDM into new development;
- methods of evaluating TDM merit in new development and what a proper TDM checklist and TDM Plan contains; and
- effective parking management and the link between parking supply and TDM.

A municipality should set a goal for all staff who draft new policy, and those who practice them, to have, at the very least, a baseline understanding of TDM, and how it relates to land development and other important policies such as parking. A further discussion on the importance of the relationship between parking management and TDM is provided below.

### *Promote the Relationship Between Parking and TDM*

Typically with TDM, the emphasis is placed on developing effective transit service and on managing transportation infrastructure in a more efficient manner. Parking management, which can be a powerful tool in influencing travel mode choice, is often overlooked, or is specifically not considered because of internal resistance to modify 'status-quo' parking policies.

The probability of success of incorporating effective TDM policies and programs increases when all transportation services are planned and co-ordinated as a whole. Parking planning, design, management and operation are critical components of this system that can no longer be overlooked as independent considerations.

A more detailed discussion regarding the link between parking and TDM can be found in the CITE article: *The Link Between Parking and TDM*, published in 2007.

#### **ATTACHMENT**

A18 – February 2007 CITE Article, *The Link Between Parking and TDM*

Table 2 TDM Policy Recommendations	Class 1 Urban Contexts <i>Approach: TDM Light</i> Urban areas that are generally low density with minimal levels of traffic congestion	Class 2 Urban Contexts <i>Approach: TDM Moderate</i> Urban areas with moderate to heavy congestion at peak times with medium densities (such as employment nodes or CBDs) or large institutional uses such as Universities and Hospitals.	Class 3 Urban Contexts <i>Approach: TDM Aggressive</i> Downtown urban areas that have large amounts of congestion over extended periods or for specific high-density areas of cities such as downtowns, employment nodes, or intensification corridors.
<b>Short Term Implementation</b>			
<b>Council Directives</b> Recommended directives that can be adopted by council to encourage TDM before an Official Plan / Zoning By-Law can be updated.	<p>The municipality will integrate Transportation Demand Management (TDM) into all municipal approval processes to reduce greenhouse gas emissions (GHGs) and to encourage sustainable transportation habits in new development opportunities.</p> <p>The municipality will require the completion of TDM checklists for all significant new development, as deemed appropriate by council, for the purposes of evaluating the TDM and trip reduction merit of development applications.</p>	<p>The municipality will integrate Transportation Demand Management (TDM) into all municipal approval processes to reduce greenhouse gas emissions (GHGs) and to encourage sustainable transportation habits in new development opportunities.</p> <p>The municipality will require the completion of TDM checklists and /or the submission of a TDM plan, prepared by a qualified engineer/planner, for all significant new development, as deemed appropriate by council, for the purposes of evaluating the TDM and trip reduction merit of development applications.</p>	<p>The municipality will integrate Transportation Demand Management (TDM) into all municipal approval processes to reduce greenhouse gas emissions (GHGs) and to encourage sustainable transportation habits in new development opportunities.</p> <p>The municipality will require the completion of TDM checklists and /or the submission of a TDM plan, prepared by a qualified engineer/planner, for all significant new development, as deemed appropriate by council, for the purposes of evaluating the TDM and trip reduction merit of development applications.</p> <p>The municipality shall influence the cost of parking in strategic areas through control of the City’s public parking supply to ensure the cost of a monthly parking pass is greater than a monthly transit pass.</p>
<b>Long Term Implementation</b>			
<b>Official Plan</b>			
<b><i>General Transportation Section</i></b>  Recommended General Policies to be inserted into Transportation Section of Official Plan	<p><b><i>Goals</i></b></p> <ol style="list-style-type: none"><li>To encourage the use of alternative modes of transportation and reduce the number of single occupancy vehicle trips by developing programs that increase the number of occupants in a vehicle</li><li>To maximize the use of parking facilities by promoting shared parking in all new developments compatible with surrounding urban form, to be reflected in land use, urban design and transportation strategies. Council will amend the zoning by-law to incorporate shared parking standards.</li></ol> <p><b><i>Objectives</i></b></p> <ol style="list-style-type: none"><li>To support sustainable transportation habits through encouraging the application of Transportation Demand Management strategies in the approvals process for new development.</li></ol> <p><b><i>Policies</i></b></p> <ol style="list-style-type: none"><li>The municipality recognizes the role of Travel Demand Management in promoting the more efficient use of existing transportation infrastructure, making automobile use more sustainable, and promoting increased transit use.</li><li>The municipality shall encourage Community-Wide and area-specific Travel Demand Management programs.</li><li>The municipality shall encourage a coordinated approach between development approvals and the implementation and the monitoring of Travel Demand Management activities.</li><li>The municipality shall utilize Travel Demand Management to make more efficient use of the capacity of the existing transportation infrastructure and to minimize peak period transportation demands.</li></ol>	<p><b><i>Goals</i></b></p> <ol style="list-style-type: none"><li>To encourage the use of alternative modes of transportation and reduce the number of single occupancy vehicle trips by developing programs that increase the number of occupants in a vehicle</li><li>To maximize the use of parking facilities by promoting shared parking in all new developments compatible with surrounding urban form, to be reflected in land use, urban design and transportation strategies. Council will amend the zoning by-law to incorporate shared parking standards.</li></ol> <p><b><i>Objectives</i></b></p> <ol style="list-style-type: none"><li>To support sustainable transportation habits through encouraging the application of Transportation Demand Management strategies in the approvals process for new development.</li></ol> <p><b><i>Policies</i></b></p> <ol style="list-style-type: none"><li>The municipality will support sustainable transportation and Transportation Demand Strategies in the development approvals process by requiring studies identifying transportation demand, impact, improvements, and TDM plans for specific development applications.</li><li>The municipality will support TDM and maximize the use of parking facilities by promoting shared parking in all new developments compatible with surrounding urban form, to be reflected in land use, urban design and transportation strategies. Council will amend the zoning by-law to incorporate shared parking standards and to provide for variable parking standards that reflect the availability and degree of access to transit service.</li></ol>	<p><b><i>Goals</i></b></p> <ol style="list-style-type: none"><li>To encourage the use of alternative modes of transportation and reduce the number of single occupancy vehicle trips by developing programs that increase the number of occupants in a vehicle</li><li>To maximize the use of parking facilities by promoting shared parking in all new developments compatible with surrounding urban form, to be reflected in land use, urban design and transportation strategies. Council will amend the zoning by-law to incorporate shared parking standards.</li></ol> <p><b><i>Objectives</i></b></p> <ol style="list-style-type: none"><li>To support sustainable transportation habits through encouraging the application of Transportation Demand Management strategies in the approvals process for new development.</li></ol> <p><b><i>Policies</i></b></p> <ol style="list-style-type: none"><li>The municipality will support sustainable transportation and Transportation Demand Strategies in the development approvals process by requiring studies identifying transportation demand, impact, improvements, and TDM plans for specific development applications. These studies will identify improvements and strategies to reduce single occupancy vehicle use by &lt;logical %&gt;, where appropriate, or as specified by the Transportation Master Plan or the applicable district/secondary plan.</li><li>The municipality will support TDM and maximize the use of parking facilities by promoting shared parking in all new developments compatible with surrounding urban form, to be reflected in land use, urban design and transportation strategies. Council will amend the zoning by-law to incorporate shared parking standards and to provide for variable parking standards that reflect the availability and degree of access to transit service</li></ol>



		<div><div></div><div><div>3.</div><div>The municipality will work with existing major employers, institutions, retail centres and areas of high social activity to introduce new TDM initiatives that will reduce car dependency and rush-hour congestion.</div></div><div><div>4.</div><div>The municipality recognizes the role of Travel Demand Management in promoting the more efficient use of existing transportation infrastructure, making automobile use more sustainable, and promoting increased transit use.</div></div><div><div>5.</div><div>Council shall encourage community-wide and area-specific Travel Demand Management programs.</div></div><div><div>6.</div><div>The municipality will seek to influence the cost of parking in strategic areas through control of the City’s public parking supply to ensure the cost of a monthly parking pass is greater than a monthly transit pass.</div></div></div>	<div><div></div><div><div>3.</div><div>The municipality will work with existing major employers, institutions, retail centres and areas of high social activity to introduce new TDM initiatives that will reduce car dependency and rush-hour congestion by &lt;logical %&gt; or in accordance with targets as specified by the Transportation Master Plan, or respective district/secondary plans and/or municipal staff.</div></div><div><div>4.</div><div>The municipality recognizes the role of Travel Demand Management in promoting the more efficient use of existing transportation infrastructure, making automobile use more sustainable, and promoting increased transit use.</div></div><div><div>5.</div><div>Council shall encourage community-wide and area-specific Travel Demand Management programs.</div></div><div><div>6.</div><div>The municipality will seek to influence the cost of parking in strategic areas through control of the City’s public parking supply to ensure the cost of a monthly parking pass is greater than a monthly transit pass.</div></div><div><div>7.</div><div>The municipality will require in the development of sites that are in proximity to rapid-transit, located around a transportation hub, a major centre of activity, or along a major transit route, the establishment of minimum and maximum density limits, the application of minimum / maximum parking requirements, the limiting of surface parking, the development and retention of commuter parking spaces and preferential parking for carpool vehicles, vanpool vehicles, car-share vehicles, and hybrid/fuel-efficient vehicles.</div></div></div>
<div><div><div>Official Plan</div><div>Residential Uses Section</div></div><div>Recommended policies to be included in residential land use section of an OP.</div></div>	<div><div>Policies</div><div><div>1.</div><div>Council shall encourage the requirement of bicycle storage in zoning by-laws for high-density apartment residential developments.</div></div><div><div>2.</div><div>The municipality will create and review transit-oriented urban design guidelines for low-density residential developments to achieve attractive pedestrian friendly and transit-oriented communities to live.</div></div></div>	<div><div>Policies</div><div><div>1.</div><div>Council will require any new residential development containing more than 250 dwelling units to complete a Transportation Demand Management checklist as a means of evaluating how a proposed development supports sustainable transportation habits by incorporating Transportation Demand supportive elements into the site design.</div></div><div><div>2.</div><div>Council shall encourage the requirement of bicycle storage in zoning by-laws for high-density apartment residential developments.</div></div><div><div>3.</div><div>The municipality will create and review transit-oriented urban design guidelines for low-density residential developments to achieve attractive pedestrian friendly and transit-oriented communities to live.</div></div></div>	<div><div>Policies</div><div><div>1.</div><div>Council will require any new residential development containing more than 250 dwelling units to complete a Transportation Demand Management checklist as a means of evaluating how a proposed development supports sustainable transportation habits by incorporating Transportation Demand supportive elements into the site design.</div></div><div><div>2.</div><div>Council shall encourage the requirement of bicycle storage in zoning by-laws for high-density apartment residential developments.</div></div><div><div>3.</div><div>The municipality will create and review transit-oriented urban design guidelines for low-density residential developments to achieve attractive pedestrian friendly and transit-oriented communities to live.</div></div></div>



<b>Official Plan</b> <b>Commercial and Mixed-Use Section</b> Recommended policies to be included in commercial and mixed-use land use sections of an OP.	<b>Policies</b>  1. Council will require any new large scale shopping centre of significant size or regional importance to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will support sustainable transportation habits and achieve a significant reduction in private automobile trips.	<b>Policies</b>  1. Council will require any new large scale shopping centre of significant size or regional importance to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will support sustainable transportation habits and achieve a significant reduction in private automobile trips.	<b>Policies</b>  1. Council will require any new large scale shopping centre of significant size or regional importance to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will support sustainable transportation habits and achieve a significant reduction in private automobile trips.
<b>Official Plan</b> <b>Employment Uses Section</b>  Recommended policies to be included in employment land uses sections of OP.	<b>Policies</b>  1. Council will encourage the reduction of parking standards in the zoning by-law for employment uses that are on, or close (within 200m), to transit facilities or car-pool parking lots.  2. Council will encourage the requirement of bicycle parking as well as showers and change room facilities for employment uses in the zoning by-law.  3. Council will require any new employment development containing more than 150 parking spaces to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will achieve a significant reduction in private automobile trips.	<b>Policies</b>  1. Council will encourage the reduction of parking standards in the zoning by-law for employment uses that are on, or close (within 400m), to transit facilities or car-pool parking lots.  2. Council will encourage the requirement of bicycle parking as well as showers and change room facilities for employment uses in the zoning by-law.  3. Council will require any new employment development containing more than 150 parking spaces to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will achieve a significant reduction in private automobile trips.	<b>Policies</b>  1. Council will encourage the reduction of parking standards in the zoning by-law for employment uses that are on, or close (within 400m), to transit facilities or car-pool parking lots.  2. Council will encourage the requirement of bicycle parking as well as showers and change room facilities for employment uses in the zoning by-law.  3. Council will require any new employment development containing more than 150 parking spaces to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will achieve a significant reduction in private automobile trips.
<b>Official Plan</b> <b>Institutional Uses Section</b>  Recommended policies to be included for institutional land uses (e.g. hospitals, universities, etc.).	<b>Policies</b>  1. Council will require all new significant institutional developments to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will support sustainable transportation habits and achieve a significant reduction in private automobile trips.  2. Council will encourage the reduction of parking standards in zoning by-laws for institutional developments that on, or close (within 200m), to transit facilities or car-pool parking lots.	<b>Policies</b>  1. Council will require all new significant institutional developments to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will support sustainable transportation habits and achieve a significant reduction in private automobile trips.  2. Council will encourage the reduction of parking standards in zoning by-laws for institutional developments that on, or close (within 400m), to transit facilities or car-pool parking lots.	<b>Policies</b>  1. Council will require all new significant institutional developments to complete a Transportation Demand Management Plan and Implementation Strategy to demonstrate how the development will support sustainable transportation habits and achieve a significant reduction in private automobile trips.  2. Council will encourage the reduction of parking standards in zoning by-laws for institutional developments that on, or close (within 400m), to transit facilities or car-pool parking lots.
<b>Official Plan</b> <b>Implementation Section</b>  Recommended policies to be included in implementation section of an OP.	<b>Policies</b>  1. The municipality may require the completion of a Transportation Demand Management checklist or a Transportation Demand Management Plan as part of the review of any planning application or development proposal to facilitate the integration of TDM initiatives into the development approvals process.	<b>Policies</b>  1. A municipality may require the completion of a Transportation Demand Management Plan and/or a Transportation Demand Management Implementation Checklist as part of the review of any development proposal to evaluate how the proposal supports the municipality’s goals for sustainable transportation through integrating TDM supportive strategies into the site design.	<b>Policies</b>  1. A municipality may require the completion of a Transportation Demand Management Plan and/or a Transportation Demand Management Implementation Checklist as part of the review of any development proposal to evaluate how the proposal supports the municipality’s goals for sustainable transportation through integrating TDM supportive strategies into the site design. The TDM Plan should identify how the proposed development will meet targets for mode split and/or vehicle occupancy as set out in either the Official Plan, Transportation Master Plan, Secondary Plan for the area, or as directed by municipal staff.





Transportation Master Plan			
Recommended policies to be included in the municipal Transportation Master Plan.	<b>Policies</b> <ol style="list-style-type: none"><li>The municipality will create and retain the position of Transportation Demand Management (TDM) co-ordinator to develop, evaluate, monitor and implement TDM policies, Transportation Management Associations, and awareness programs that promote sustainable transportation practices.</li><li>The municipality will demonstrate public leadership in Transportation Demand Management by incorporating TDM strategies and supportive elements into all civic buildings as a method of promoting sustainable transportation habits for staff.</li><li>The municipality will develop land use and parking policies that manage the supply of parking that can be provided for a development with a focus on providing only essential parking and supporting Transportation Demand Management.</li><li>The municipality will apply Transportation Demand Management strategies as an essential part of land use and new development approvals process, and the provision of transportation infrastructure and services, in pursuit of a more sustainable transportation system.</li><li>The municipality will explicitly consider Transportation Demand Management in all municipal plans and studies (e.g. Class EA projects and Traffic Management Plans) including the degree to which it can help achieve key objectives, and what actions are required to do so.</li></ol>	<b>Policies</b> <ol style="list-style-type: none"><li>The municipality will create and retain the position of Transportation Demand Management (TDM) co-ordinator to develop, evaluate, monitor and implement TDM policies, Transportation Management Associations, and awareness programs that promote sustainable transportation practices.</li><li>The municipality will demonstrate public leadership in Transportation Demand Management by incorporating TDM strategies and supportive elements into all civic buildings as a method of promoting sustainable transportation habits for staff.</li><li>The municipality will develop land use and parking policies that manage the supply of parking that can be provided for a development with a focus on providing only essential parking and supporting Transportation Demand Management.</li><li>The municipality will apply Transportation Demand Management strategies as an essential part of land use and new development approvals process, and the provision of transportation infrastructure and services, in pursuit of a more sustainable transportation system.</li><li>The municipality will explicitly consider Transportation Demand Management in all municipal plans and studies (e.g. Class EA projects and Traffic Management Plans) including the degree to which it can help achieve key objectives, and what actions are required to do so.</li><li>The municipality will seek to reduce peak period automobile driver trips by &lt;logical %&gt; below transportation forecasts based on current trends for the &lt;year&gt; design year by developing a municipal Transportation Demand Management program.</li></ol>	<b>Policies</b> <ol style="list-style-type: none"><li>The municipality will create and retain the position of Transportation Demand Management (TDM) co-ordinator to develop, evaluate, monitor and implement TDM policies, Transportation Management Associations, and awareness programs that promote sustainable transportation practices.</li><li>The municipality will demonstrate public leadership in Transportation Demand Management by incorporating TDM strategies and supportive elements into all civic buildings as a method of promoting sustainable transportation habits for staff.</li><li>The municipality will develop land use and parking policies that manage the supply of parking that can be provided for a development with a focus on providing only essential parking and supporting Transportation Demand Management.</li><li>The municipality will apply Transportation Demand Management strategies as an essential part of land use and new development approvals process, and the provision of transportation infrastructure and services, in pursuit of a more sustainable transportation system.</li><li>The municipality will explicitly consider Transportation Demand Management in all municipal plans and studies (e.g. Class EA projects and Traffic Management Plans) including the degree to which it can help achieve key objectives, and what actions are required to do so.</li><li>The municipality will seek to reduce peak period automobile driver trips by &lt;logical %&gt; below transportation forecasts based on current trends for the &lt;year&gt; design year by developing a municipal Transportation Demand Management program.</li></ol>



### *Implement Civic TDM Program for Municipal Employees*

Lastly, TDM practitioners should seek to establish policies that support the creation and marketing of a mobility program for municipal staff who work at civic offices. A mobility program for municipal employees will demonstrate leadership and commitment to TDM principles and practices that set an example for the private sector and the community at large.

Elements of a civic TDM program that should be considered include the following.

- Hiring a TDM co-ordinator / mobility choice representative to act as point-person for all municipal staff's mobility needs.
- Supporting and participating in active transportation or sustainability promotional campaigns such as 'bike to work week' or commuter challenges.
- Implementing a discounted transit pass system for municipal employees.
- Providing preferential car-pool and/or van-pool parking spaces at all civic offices.
- Providing on-site shared vehicles for municipal staff with preferential parking.
- Entering into (or creating) a ride-matching system for all municipal staff.
- Charging for parking at civic parking lots.
- Providing secure bicycle parking, change rooms, and shower facilities to promote active transportation.

## 4.5 Development Review

The steps in this section are intended for municipal staff involved with the development review process. While this primarily focuses on planners and transportation planners, municipal staff in the traffic engineering and public works and transit departments responsible for development review will also need to stay informed about TDM strategies that planning staff are considering for a project. The role of TDM practitioners at this stage is essential and should be incorporated into the planning approvals process as they have the knowledge and background to ensure that the appropriate TDM strategies are selected for implementation.

The following key steps provide a general roadmap for municipalities for incorporating TDM into a typical development process, whether it be a rezoning or site plan application.

### 4.5.1 Key Steps

#### *Determine the Urban Context*

The location of a development site will influence the extent to which TDM strategies can and should be applied. The urban context is a reflection of transit availability, auto dependence, population, and development intensity of the area. Location of the site to nearby retail/services/amenities will influence the number of car trips taken; similarly, proximity to transit services will offer an alternative mode of travel, with increases in services likely to influence a decrease in car trips made. Determining the urban context of the area will ensure that realistic, achievable goals are set for the development.

Therefore, once a development application has been received, one of the first steps should be to determine the urban context, by considering the following questions:

- Does the area experience traffic (vehicular) congestion?
- If so, is the congestion experienced primarily during the commuter peak, or does it occur over extended periods of the day?
- Is the area planned for intensification?
- What is the overall density in the area?
- What is the primary means of transportation in the area?
- Does the area have good bicycle accessibility?
- Is the area walk-able?

- Is parking typically provided free to users in the area?
- What type of transit service is available to the development and how frequent is it? Are there plans to improve it in the near term?
- Are there mixed uses (i.e. convenience stores, retail, services, etc.) within 300m – 500m?
- Is the development near, or part of, an institution such as a hospital or university?

### *Review TDM Elements of Proposal*

Once a preliminary assessment of the urban context has been achieved, staff should review the application to determine the related TDM aspects of the proposal. Questions related to the proposal include the following.

- Is the proposal of sufficient size (number of employees, floor size, number of parking spaces) to warrant the application of TDM?
- What type of development application is it - rezoning or site plan? (This will determine what tools can be used to require TDM initiatives.)
- Does the proposal currently include any TDM related elements?
- Does the proposal exceed the minimum parking requirements as set out by the zoning by-law?
- Is the proposal supportive of bicycle use; does it include bicycle parking?
- Is the proponent requesting additional density? Could the transportation challenges associated with additional density be overcome (i.e. permitted) through TDM?
- Does the development meet the intended Official Plan objectives?
- Given the development's urban context, are there other TDM elements that should be considered?

## Apply TDM Evaluation

### TDM Checklists

The core recommendation of this guideline is that, at a minimum, municipal staff should utilize a TDM checklist as an evaluation tool for new developments. A TDM checklist will help staff measure the TDM effectiveness of a development. It can also be used as a tool to provide additional justification in a planning context relating to the application, and thus, gain council support or public approval during public consultations. A higher score on a TDM checklist can reflect a benefit for the local community, as well as for employees/tenants of a development.

A completed TDM checklist with a lower score (a development that is not TDM-supportive) may have less public support and lead to a longer, more costly development process with additional public consultations compared to a proposal that is TDM supportive.

Prototype TDM checklists have been developed to assist municipalities in establishing a checklist system of their own. The prototype checklists are based upon a combination of LEED standards, the City of Edmonton's SmartChoices Checklist, and general urban design concepts.

The checklists are designed to highlight TDM measures that should be included in the urban context, recognizing that various areas within municipalities will exhibit different characteristics (e.g. higher density business districts compared to suburban residential neighbourhoods).

The prototype TDM checklists are attached electronically below and attached in the appendix.

#### **TDM Checklist / Plan Example**

To demonstrate the potential usefulness of a TDM Checklist, the prototype 'TDM Light' checklist was applied to an example of a development located in Mississauga, Ontario.

The development is a 672,000 sq. ft. office development constructed in 2001. The proposal did not consider the incorporation of any TDM strategies at the time. It is located in a low-density business park area in close proximity to a major freeway. Transit service in the area is fair to poor (i.e. several surface bus routes with 15 minute headways).

The site is within a Class 2 urban context with significant traffic congestion during peak periods.

Given the nature of its urban context, this development would be a candidate for a 'TDM Moderate' checklist. However, a TDM Light checklist has been prepared to demonstrate how even a baseline TDM application can result in a significant improvement in the site design and impact. These are included as attachments A22 and A23.

Notwithstanding the discussion above, this development would have been an ideal candidate for the preparation of a TDM Plan to demonstrate how transportation demand would be managed (i.e. large scale, large traffic impact, in a Class 2 urban context). As such, a sample TDM Plan has also been prepared (see attachment A24).

#### **ATTACHMENTS**

A19 – Sample TDM Checklist – TDM Light Approach (Class 1)

A20 – Sample TDM Checklist – TDM Moderate Approach (Class 2)

A21 – Sample TDM Checklist – TDM Aggressive Approach (Class 3)

A22 – Meadowvale Example: Completed TDM Light Checklist – As Built

A23 – Meadowvale Example: Completed TDM Light Checklist – Improved

A24 – Meadowvale Example: Sample TDM Plan Prepared for Development

## **TDM Plans**

TDM Plans are a more arduous requirement intended for developments of significant scale in Class 2 or Class 3 urban contexts. TDM Plans outline strategies to be applied either during construction (e.g. bike racks) or post-construction, as part of an agreement among the developer, building management and municipality (e.g. emergency ride home).

In some cases, the TDM Plan contains an agreement to implement the Plan post-occupancy. This can be achieved through a letter of credit, or as part of a development agreement if the process being followed allows for it.

A successful TDM Plan begins with achievable goals. As the success of the TDM program builds, increasingly ambitious targets can be set. The implementation of a TDM Plan is designed to reduce peak hour single occupant automobile traffic. To do so, four key “goals” are considered throughout the development of a TDM Plan:

1. the use of sustainable travel modes (transit, cycling, walking);
2. an increase in vehicle occupancy;
3. a shift of travel to off-peak periods; and
4. a reduction in vehicle kilometres of travel.

It should be noted that a TDM Plan may be incorporated into a Traffic Impact Study (TIS) that may also be required by the municipality. Combining the two documents would be the logical way to serve the two related purposes.

## **Criteria for Determining Applicable Developments**

It is not reasonable to request TDM checklists, or to require TDM Plans, for each new development. To do so would consume an unreasonable amount of resources within a municipality just to review TDM related issues.

Rather, these tools are recommended for significant development applications that will result in a measured impact (traffic or otherwise) on the area around it. Municipalities should set criteria for what new developments will have to prepare; i.e., either a TDM checklist or a TDM Plan.

Criteria for specifying what a significant development should include: the provision of parking over a specified amount, if the development will generate more than a specified number of vehicle trips, or if the development contains more than a specified amount of floor area (or people) for various land uses.

An example of criteria based on parking is the City of Toronto, which requires any commercial development that provides more than 75 parking spaces to prepare a TDM Plan.

An approach for applying TDM Checklists / TDM Plans is discussed below. The thresholds for triggering the various TDM deliverables related to each approach are provided as sample only and should be modified to suit local circumstances. Each municipality needs to carefully weigh their desire for TDM change versus the practical reality of the additional work that will be required of municipal staff to make sure they are not overwhelmed with the review of too much TDM related material.

#### **Class 1 Urban Contexts**

- Require a 'TDM Light' checklist for any commercial office / employment development providing more than 150 parking spaces.

#### **Class 2 Urban Contexts**

- Require a 'TDM Moderate' checklist for any mid-to-high density apartment residential use having more than 250 units.
- Require TDM Plans for large scale institutional uses such as hospitals and universities.
- Require TDM Plans that, at a minimum, require compliance with LEED transportation credits for any large scale commercial office / employment development that provides more than 150 parking spaces.

#### **Class 3 Urban Contexts**

- Require a 'TDM Aggressive' checklist for any mid-to-high density residential apartment use having more than 250 units.
- Require TDM Plans for any institutional uses such as hospitals and universities with set trip reduction goals that commit to a monitoring program to evaluate success.
- Require TDM Plans for any commercial office / employment development that provides more than 150 parking spaces with set trip reduction goals that commits to a monitoring program to evaluate compliance.

In the case of large developments and institutions in a Class 3 urban context, municipalities should supplement the proposed TDM strategies by either reducing the parking supply for a development below the zoning by-law level, implementing parking maximums, or by enforcing a cash-in-lieu policy.



### *Review TDM Checklist / Plan With Applicant*

Once a development has been evaluated, staff should review the evaluation with the developer and raise any TDM strategies or elements that they believe should be implemented as part of the project. Developments with low TDM scores can be encouraged to increase their scores through the addition of other TDM elements. Discussing these options at this stage can be less confrontational and better accepted by the proponent.

### *Incorporate TDM Recommendations Into Staff Report To Council*

After the developer has had an opportunity to revise the proposal (if required in coordination with municipal staff) the TDM Checklist evaluation should be incorporated into the planning report to council.

The TDM score should be used as part of the planning rationale relating to the approval or non approval of the development, along with the other standard development approval criteria including traffic impact, servicing, urban design, landscaping, etc.

It is recommended that municipalities incorporate a standard discussion related to TDM in all planning / development reports brought before municipal council. The standard discussion would note the following key TDM elements:

- whether the development does / or does not require a TDM Checklist / TDM Plan;
- if a TDM Checklist is warranted, note whether or not the development proposal as it stands meets the minimum acceptable TDM score;
- if a TDM Plan is warranted, summarize the details of any TDM strategies to be employed by the developer; and
- the planner's (or engineer's) opinion as to whether or not the proposed elements of the TDM Plan proposal are sufficient.

An example of standard comments developed for planning applications has been developed by the City of Calgary and are included in attachment A25.

#### **ATTACHMENT**

A25 – City of Calgary, AB, Standard TDM Comments for Incorporation Into Planning Report

## 5.0 Case Studies

The following section includes selected Case Studies from throughout Canada that are examples of TDM supportive strategies or elements incorporated as part of land development process. Table 3 summarizes these Case Studies.

**Table 3**  
**List of Case Studies**

Case Study	Name	Location	Type	Population (in thousands)*
A	Simcoe Place – Phase 2	Toronto, ON	Office / Commercial	5,509.9
B	Oakridge Centre	Vancouver, BC	Mixed Use	2,285.9
C	Southeast False Creek	Vancouver, BC	Mixed Use	2,285.9
D	Grovenor / Glenora Redevelopment	Edmonton, AB	Residential	1,081.3
E	TCPL Tower	Calgary, AB	Office / Commercial	1,139.1
F	Nuera	Calgary, AB	Residential	1,139.1
G	Vaughan Mills	Vaughan, ON	Retail Commercial	240.0
H	Blocks 11,12, 18	Vaughan, ON	Residential	240.0
I	Kitchener Neighbourhoods	Kitchener, ON	Residential	204.7
J	McGill University Health Centre	Montreal, QC	Health Care	3,395.8
K	eBay Canada & TransLink	Burnaby, BC	Office Park	200.0
L	Nortel Networks, Carling Campus	Ottawa, ON	Office	860.9
M	Arlington Shopping Centre	Arlington, VA, USA	Mixed Use	189.5 ***
N	Town Centre Mall	Boca Raton, FL, USA	Retail Commercial	74.8 ***

\*Source: StatsCan, 2007(Cdn cities not including Vaughan)

\*\* Source: City of Vaughan, 2007

\*\*\*Source: U.S. Census Bureau, 2000

**Case Study A:**  
**TDM Supportive Elements:**

**Simcoe Place (Phase 2)**  
**Completed TDM Plan: site design provides preferential parking for car-share vehicles, bike facilities, weather protected pedestrian connection**

Location: Toronto, Ontario  
Building Type / Land Use: Commercial Office

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Simcoe Place Phase 2 is a commercial office development at 230 Front Street West in downtown Toronto. The site is approximately 3.8 ha (9.3 acres) in size and is located on the eastern portion of the block bounded by Wellington Street / John Street / Simcoe Street / Front Street.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	Class 3 - The surrounding density in the area is very high. There are many mobility options to from the site including: walking, cycling, transit, and auto. The site is connected to an extensive weather-protected pedestrian system (PATH). Congestion levels in the area are heavy and generally consistent throughout the day. Many personal and commercial services are located within easy walking distance. The area is extremely well-served by local, regional and intercity public transportation; TTC subway, bus and streetcar routes, as well as GO Rail and VIA Rail are located at Union Station which is within 800m of Simcoe Place. The mode split in the area features high transit and walking usage.
<b>Current Status</b>	Anticipated completion of construction – Spring 2009
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	<p>The development was required to complete a TDM Plan as part of the approvals process. The TDM Plan was prepared by a transportation consultant and reviewed by City Staff.</p> <p>The TDM Plan proposed several TDM supportive infrastructure elements including: preferential parking for carpool spaces, restricted parking supply, bicycle parking, change rooms and showers for cyclists, mixed-uses within the development, and a connection to weather-protected PATH system (connecting to subway), and a car-sharing service. The project also proposed hosting special events to promote alternate modes of transportation.</p>
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	<p>City of Toronto Council policy that requires a TDM plan to be completed and submitted for review and approval to the General Manager (GM) of Transportation Services prior to site plan approval.</p> <p>Upon completion of the project, a qualified Engineer of Planner must certify in writing to the GM of Transportation that the development has been designed and constructed in accordance with the approved TDM Plan.</p>
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	<p>The TDM Plan proposed that the facilities be monitored one year after substantial occupancy of the building to evaluate their utilization and effectiveness. Post-monitoring would assist in ensuring a relevant and up-to-date TDM program for Simcoe Place.</p> <p>Building management will be responsible for administering the operational elements of the plan throughout the life of the building. Building management will organize and undertake the monitoring program one year after substantial occupancy, refine the plan and establish on-going monitoring activities if required.</p>
<b>Attachment CS1</b>	Simcoe Place Phase 2 context map
<b>Attachment CS2</b>	Simcoe Place Phase 2 TDM Plan completed as part of approvals process
<b>Attachment A13</b>	Excerpt of City of 1990 Toronto council policy that requires the completion of TDM plans for commercial developments

**Case Study B:  
TDM Supportive Elements:**

**Oakridge Centre  
TOD development**

Location: Vancouver, BC  
Building Type / Land Use: Mixed-Use

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Oakridge Centre is an existing shopping centre situated on a 28-acre site at the southwest corner of Cambie St. and 41 <sup>st</sup> Ave. The shopping centre has 57,500 sq. metres of retail, service, and entertainment uses; 11,760 sq. metres of office space; and of 4,685 sq. metres of residential uses.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	Class 3 - Oakridge Centre is located in South Vancouver, approximately a 20 minute drive from downtown Vancouver. The area density is medium to high. Several mobility choices are available including walking, transit, and private automobile. Presently, public transit is provided via surface bus routes service. Construction is underway on a new underground LRT line (Canada Line), which will have a stop adjacent to the shopping centre. Many personal and commercial services are located within easy walking distance.
<b>Current Status</b>	A Policy Statement for Oakridge Centre was approved by City Council in April 2007 to guide development. Redevelopment is still in the planning stages and will occur through a series of construction phases over the next 10 to 20 years.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	TDM elements will be supplemented by requiring all new development in Oakridge Centre follow Transit Oriented Design (TOD) techniques. Alternatives to auto use will be promoted for all developments, with a focus on pedestrian connectivity, public transit availability, and cycling facilities.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The Oakridge Langara Policy Statement was passed in 1995 to direct ways to enhance neighbourhood centres, such as this. The role of the area at this intersection was to be re-evaluated in the event of a proposed rapid transit route. A new policy, Oakridge Centre Policy Statement was approved in 2007 by City Council to direct the development of this area. The Oakridge Centre Policy Statement requires that all new developments follow TOD criteria.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	Rezoning applications will be required to include a detailed phasing plan that identifies how each phase will independently function and contribute to an improved TOD, Neighbourhood Centre, and Municipal Centre.  TDM initiatives are not described in greater detail other than mention of implementation to reduce auto usage. However, they are incorporated within other concepts that are key to the development of TOD.
<b>Attachment CS3</b>	Oakridge Centre Context Map
<b>Attachment CS4</b>	Oakridge Centre Policy Report
<b>Attachment CS5</b>	Oakridge Centre Policy Statement

**Case Study C: Southeast False Creek Redevelopment**  
**TDM Supportive Elements: TOD development**

Location: Vancouver, BC  
 Building Type / Land Use: Mixed-Use

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Southeast False Creek (SEFC) is a brown-field redevelopment site located 5 minutes southeast of the downtown Vancouver Peninsula. The approximate size of the area is 36 hectares, and will ultimately house 14,000 new residents. It is also the future site of the athlete's village for the 2010 Vancouver Winter Olympic Games.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	Class 3 - The future area densities will be medium to high. The area is planned to ensure equal access to many mobility options including walking, transit, cycling, and private automobile. Transit service will be provided primarily by a proposed new east-west streetcar line running through the centre of the development area that will connect to the SkyTrain LRT and the future Canada Line LRT. The area will feature many personal and commercial services within easy walking distance.
<b>Current Status</b>	The first phase of SEFC is currently under construction. Additional phases are currently in the approvals process.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	Specific developments will be required to complete area TDM Plans to manage congestion. All developments will also be required to promote sustainable transportation modes through TOD with priority given to pedestrian, cycling, and public transit. Car-share spaces are required to be provided within new residential developments to reduce the need for residents to own vehicles.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	<p>The SEFC Policy Statement was passed by City Council in 1999 and amended in 2004. Once the Policy Statement was passed a Transportation Study for SEFC was prepared in 2002. An Official Development Plan (Secondary Plan) for SEFC was prepared in 2004 as well as a Green Building Strategy for all new development.</p> <p>The 1999 Policy Statement was the foundation for all following TDM supportive policies by reinforcing the priority of sustainable transportation modes over the private automobile. The Policy Statement promoted the need for area TDM plans to manage congestion. The 2002 Transportation Study supplemented the Policy Statement by recommending a 'short-list' of sustainable transportation strategies best suited for SEFC. The 2004 Official Development plan built upon the previous studies and requires only minimum vehicle parking to be provided for all development as well as TDM plans for specific developments. The Green Building Strategy developed as part of the Official Development Plan requires new development to follow LEED criteria as well as the provision of car-share spaces in residential developments.</p>
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	Specific developments in SEFC are required to complete TDM Plans that demonstrate what sustainable transportation options will be implemented. Monitoring of the implementation of any TDM supportive elements identified in TDM Plans is not defined.
<b>Attachment CS6</b>	South East False Creek (SEFC) Context Map
<b>Attachment CS7</b>	SEFC 1999 Policy Statement (Updated 2004)
<b>Attachment CS8</b>	SEFC 2002 Transportation Plan
<b>Attachment CS9</b>	SEFC 2004 Official Development Plan (Approved 2007)
<b>Attachment CS10</b>	SEFC Green Building Strategy

**Case Study D:  
TDM Supportive Elements:**

**Grovenor / Glenora Redevelopment  
SmartChoices TOD Program: pedestrian environment improvements, TOD,  
transit shelter incorporated into site design**

Location: Edmonton, AB  
Building Type / Land Use: Residential / Mixed-Use

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Grovenor / Glenora is a (primarily) residential redevelopment project on the boundary of the Grovenor and Glenora neighbourhood areas in Edmonton. The proposed redevelopment is situated on a 1.6 ha site located on the northeast corner of Stony Plain Road and 142 Street. The project will contain approximately 270 residential units and a maximum of 6,500 sq. metres of commercial office space in four towers of varying heights between 15 and 21 storeys.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 2</b> - The surrounding area is a one of Edmonton's older established neighbourhoods consisting of primarily low density residential homes. The project is located at the corner of two busy arterial streets that experience heavy congestion during peak periods with reduced congestion in off-peak times. The project is afforded good accessibility to several surface bus routes on both 142 <sup>nd</sup> Street (north-south service) and on Stony Plain Road (east-west service). Stony Plain Road is a planned high-order transit corridor with frequent bus service.
<b>Current Status</b>	A rezoning application and site specific by-law for the project was approved by Edmonton City council in late January 2008. The project is now proceeding with site plan application preparations.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	The site design will be mixed use with many amenities within walking distance to reduce automobile demand. A transit shelter will be incorporated within the design of the building. In addition, the pedestrian and walking environment will be improved, both throughout the site and around the site (i.e. upgraded sidewalk systems, provision of new lighting, sidewalk furniture, landscaping).
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The City of Edmonton implemented a program entitled "Smart Choices" in March 2004 to encourage sustainable development practices. Smart Choices is focused on ways to promote Transit Oriented Development (TOD) and neighbourhood re-investment. The Smart Choices program includes a series of checklists related to TOD, walkability, infill, etc. that must be filled out by development applicants. The checklist scores each development in terms of sustainability and 'smart' development principles based on what is being provided as part of development.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	The physical elements of TDM (connectivity, underground parking, sidewalks, etc.) can be enforced as part of Site Plan Approval process.
<b>Attachment CS11</b>	Grovenor / Glenora Redevelopment Context Map
<b>Attachment CS12</b>	City of Edmonton, Sample of Transit Oriented Development Smart Choices Checklist
<b>Attachment CS13</b>	City of Edmonton, Sample of General Smart Choices Checklist
<b>Attachment CS14</b>	Sample Smart Choices checklist completed for Grovenor / Glenora project

**Case Study E:**  
**TDM Supportive Elements:**

**TCPL Tower**  
**Bicycle parking, limited automobile parking supply provided on site**

Location: Calgary, AB  
 Building Type / Land Use: Commercial Office

Item	Description
<b>Description of Project</b> Size, location, and type of development.	The TransCanada Pipe-Lines (TCPL) Tower is a 38 storey, 936,000 sq. ft., "Class A" office tower in downtown Calgary. The building will serve as the head offices of TransCanada PipeLines. The site is located on 1 Street SW between 4 <sup>th</sup> and 5 <sup>th</sup> Avenues in downtown Calgary.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 3</b> - Mixed-use high density area that is connected to the City of Calgary's +15 network, which is an extensive weather-protected pedestrian system. Congestion in downtown Calgary area is heavy and consistent throughout the majority of the day. Many personal and commercial services are located within easy walking distance to the TCPL Tower. Numerous bus and bus rapid transit (BRT) routes are located within one block of the building and the site is located two blocks from LRT stations on 7 Avenue accessing the City's LRT rail network.
<b>Current Status</b>	Construction was completed in 2000.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	Bike parking was initially provided at a rate negotiated by developer and The City. Bike parking was located in a secured bike cage and in open racks in the structure. However, since opening, building management have been responsive to employee and tenant demands regarding bicycle parking and have provided an additional 40-50 bicycle racks in the parking structure. In addition, the development was only permitted to construct a portion of its by-law parking requirement with the remainder being paid cash-in-lieu to the City of Calgary.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The 19989 City of Calgary Land Use Bylaw requirements include bike parking for all developments. The City's Cash-in-lieu policy limits the number of on site parking stalls a developer can build. The balance is provided through a cash-in-lieu payment to the City to construct the remainder. The intent of the cash-in-lieu policy is to reduce downtown traffic congestion and manage long stay parking in the downtown core.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	Building management is responsible for administering the operational elements, distribution of access and promotion of any TDM facilities throughout the life of the building.  There is no requirement for management to undertake on-going monitoring or reporting activities.
<b>Attachment CS15</b>	TCPL Context Map



**Case Study F:**  
**TDM Supportive Elements:**

**Nuera**  
**Bicycle parking, provision of Hybrid Vehicle Parking**

Location: Calgary, AB  
 Building Type / Land Use: Residential Condominium

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Nuera is one of two 33 story residential condominium towers connected by a two story commercial podium located north of 17 <sup>th</sup> Avenue Southwest, east of 1 <sup>st</sup> Street East, just south of downtown Calgary.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	Class 3 - The project is located adjacent to the Stampede LRT station, immediately southeast of the Downtown core. The area, known as the Beltline, is dominated by medium density multi-residential developments with at-grade retail. Congestion in the Beltline area is heavy and consistent through the majority of the day. Several mobility choices are available in the area of Calgary including private automobile, cycling (via the Bow River regional pathway system), or transit (via the two nearby LRT stations). Modest commercial and office developments are integrated into the prevailing built-form.
<b>Current Status</b>	Under construction, anticipated completion in 2009.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	Bicycle parking was provided in the development as per rates set out in the 2007 Draft Bicycle Parking Handbook. The bicycle storage was provided in a mix of secured underground storage and at-grade racks. The development also proposed to provide two Smart Cars as shared vehicles for use by the members of the condominium association. The parking spaces for the shared vehicles are to be located in highly-visible, prime parking stalls within the development.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The bicycle parking was provided consistent with the 2007 Calgary Draft Bicycle Parking Handbook. There was no policy requirement for the development to provide the car-sharing parking spaces.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	The proposed TDM supportive elements were implemented through the site plan application process. The developer has committed to provide the two car-share vehicles for use by the condo corporation but there is no structured monitoring program in place to ensure the program / vehicles are maintained as shared vehicles.
<b>Attachment CS16</b>	Nuera - Context Map



**Case Study G:  
TDM Supportive Elements:**

**Vaughan Mills Shopping Centre  
Transit Terminal & Transit Plan**

Location: Vaughan, Ontario  
Building Type / Land Use: Suburban commercial shopping centre

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Vaughan Mills is a regional shopping centre located at the southeast corner of Rutherford Rd and Hwy 400, in the City of Vaughan north of Toronto. The shopping centre contains approximately 1.7 million sq. ft. of Gross Floor Area.
<b>Urban Context</b>  Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 2</b> - The area surrounding Vaughan Mills can be classified as low-density suburban, with some medium and high density uses being located in area. Congestion during the peak times is heavy on Rutherford Road and Jane Street with decreased levels during off-peak times. Mobility choices in the area are limited with the primary travel mode being the automobile. Before construction of the shopping centre, transit service in the area consisted of two surface bus routes. Walking and bicycling in the area is limited due to the spaced out nature of the surrounding land uses.
<b>Current Status</b>	Vaughan Mills was completed and opened November 4, 2004.
<b>TDM Supportive Elements Provided</b>  List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	The developer was required to provide an on-site transit terminal next to the shopping centre. As part of the approval, the developer was also required to enact a transportation consultant to provide a transit plan that reviewed the recommended number of bus bays for the terminal and what bus routes should be connected.  The transit terminal was constructed at the northeast portion of the site and has a total of 8 bus bays serves 3 bus routes. Provisions have been made for additional bus routes, as the surrounding area is developed.
<b>Policy Context</b>  Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The primary basis for the requirement of the transit terminal was a Regional Official Plan policy. The York Regional Official Plan (Policy 3.3.6) requires that retail facilities in excess of 30,000 gross leasable square metres (323,000 square feet) to undertake a Region-wide impact analysis that addresses the following: a) transportation requirements; b) the impact on existing and approved future retail facilities; c) transit access to the facilities; and d) the manner in which the proposal is supportive of the centre and corridor policies of this Plan.  Citing this broad policy, senior staff in the region requested the provision of a transit terminal during discussions with the developer. Continued insistence was required by municipal staff to the policy as the developer initially resisted, but the terminal was ultimately provided in exchange for a development charge credit equivalent to the regional transit component provided.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	Implementation of the transit terminal was obtained through a development agreement. There has been no post construction monitoring of the transit terminal by the developer. York Region transit is now responsible monitoring ridership levels on routes serving the Vaughan Mills transit terminal and for providing appropriate service as necessary to/from the shopping centre.
<b>Attachment CS17</b>	Vaughan Mills Mall, Context Map
<b>Attachment CS18</b>	Vaughan Mills Mall, Transit Terminal Council Report

**Case Study H:  
TDM Supportive Elements:**

**Blocks 11, 12, 18 Residential Neighbourhoods  
Pedestrian Connections, Bicycle Use, Web Portal for transit & carpool options**

Location: Vaughan, Ontario  
Building Type / Land Use: Low-density residential

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Blocks 11, 12, and 18 are part of a plan to develop low-density residential uses in the northern portion of Vaughan. The blocks designated for development are bounded by Bathurst Street, GO Newmarket line, Rutherford Road and Teston Road.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 1</b> - The surrounding area can be characterized as low density, suburban residential. Mobility choices in the area are limited mainly to private automobile. Congestion levels are very heavy during peak periods with decreased congestion during off-peak times. Currently transit (YRT) service is provided in the area on Bathurst and Rutherford Road. GO Transit buses and trains are also available at the GO Transit Newmarket Station.
<b>Current Status</b>	All three blocks have draft approval, with Phase 1 currently under construction. Road capacity and upgrades to the infrastructure are required before Phase 2 is approved for construction.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	Proposed TDM measures include: enhancements to current sidewalk, path and trail system, bicycle network opportunities, direct connections to transit, pedestrian accessibility opportunities from high density developments, transit integration into building street front, carpool spots in the development area, and an internet web-site that acts as a portal of information on alternative travel mode choices.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The area road network is congested during peak times with several intersections approaching capacity in the peak hours. To get Phase 2 of the development approved, the developers needed to find ways to reduce the transportation demand to the road network created by the new units. TDM strategies for the residential lands were proposed as a way to minimize the transportation demand associated with the Phase 2 lands.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	The developers will cover the costs for the infrastructure, but the responsibility for the creation of the web-portal is still part of an ongoing discussion between the developer and the Region.  Once created, the developers will be responsible for operating and monitoring the web portal for a 2 year period.
<b>Attachment CS19</b>	Vaughan Residential Subdivision, Blocks 11, 12, 18, Context Map

**Case Study I:  
TDM Supportive Elements:**

**Neighbourhood Design Initiative  
TOD - Transit “Spine”, Connected Neighbourhoods, Bicycle Use**

Location: Kitchener, Ontario  
Building Type / Land Use: Low-density residential

Item	Description
<b>Description of Project</b> Size, location, and type of development.	The Kitchener Neighbourhood Design Initiative is an urban design based policy approach to address the land use aspects of travel behaviour in the development of new subdivisions and communities that will contribute to greater success for any TDM measures.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 1</b> - The general built environment of the majority of residential developments in Kitchener can be characterized as low density. Mobility choices are the private automobile and transit however transit use is generally low. Walking to any great extent to access goods, services, and jobs is difficult due to spread out land uses. As a result, there is a low amount of walk-able mixed uses in the residential neighbourhoods.
<b>Current Status</b>	The Neighbourhood Design Initiative has been approved by Kitchener City Council; implementation is underway in several new subdivisions and the development of new communities.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	The urban design guidelines promote the development of a more compact, walk-able urban form with a transit line running along the main corridor. Transit use is promoted through requiring new residential developments to be located about a central transit “spine”, which all units must be within an average 5 minute walk of transit.  The guidelines also promote the development of connected street networks to encourage bicycle use, as well as higher intensity uses along identified major corridors.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	The Neighbourhood Design Initiative was implemented as an update to part of their Urban Design Manual regarding suburban neighbourhoods. The purpose of the initiative is to support City, Regional, and Provincial growth management strategies by promoting compact transit supportive development patterns and access to both park spaces and employment.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	Implementation of the design concepts is enforced through the plan of subdivision and draft plan review stage. There is no monitoring program proposed as part of the approvals process associated with the guidelines.
<b>Attachment CS20</b>	Kitchener Neighbourhood Design Initiative - Report to Council
<b>Attachment A16</b>	Kitchener Neighbourhoods Design Initiative - Suburban Development and Neighbourhood Design Brief

**Case Study J: McGill University Health Centre (MUHC)**  
**TDM Supportive Elements: LEED, BOMA Go Green Plus**

Location: Montreal, Quebec  
 Building Type / Land Use: Hospital / Healthcare Centre

Item	Description
<b>Description of Project</b> Size, location, and type of development.	MUHC is planning on closing several of its current facilities and replacing them with a state of the art campus located on a former rail yard. It will be known as the Glen Campus and is located approximately 4km southwest of downtown Montreal. The project is part of a \$1.579 billion grant from the Quebec Government.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 3</b> – The area density surrounding the campus is medium to high and surrounding land uses are quite mixed with residential, office, commercial, and industrial uses nearby. The new MUHC campus will be accessible by transit, cycling, walking, and cars. The new campus is located near the ‘Vendome’ Metro rapid transit station. However, without improvement, the station will be at maximum capacity with the advent of the hospital nearby.
<b>Current Status</b>	A Master Plan for the MUHC Glen campus has been developed. In June 2007 the project received approval from the Quebec government to proceed as a Public-Private Partnership. Construction is planned to start in 2009/2010. The redevelopment will be broken into 7 phases, over 10 buildings.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	As part of the plan, MUHC will expand the pedestrian tunnels to the Vendome Metro station to the hospital. Additional TDM supportive elements are incorporated into the “Operations” sections of the BOMA Go Green Plus program and LEED requirements; most notably the hiring of a TDM co-ordinator for the campus to promote sustainable transportation options. In addition, three bicycle paths will be provided to/from the campus to encourage cycling; one at grade, another on a viaduct, and the last underground.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	MUHC is part of the City of Montreal’s Strategic Sustainable Development Plan. The site is planned to be LEED Silver certified as well as BOMA Go Green Plus. These resulted in the hiring of an “Environment Management System” (EMS) Co-ordinator (i.e. TDM co-ordinator) to promote mobility options for people in the campus through active and public transportation.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	The implementation of the improvements to the connection to the transit station and the cycling connections to the neighbourhood are planned elements in the Master Plan that will be secured through the development approvals process at the City before construction is started.  Monitoring of the sustainable transportation elements, such as continued employment of the MED Co-ordinator, will be achieved through the recertification process as part of BOMA Go Green Plus, which This requires MUHC to ongoing monitoring and review of the transportation plans and operations.
<b>Attachment CS21</b>	McGill University Health Centre (MUHC) Context Map
<b>Attachment CS22</b>	MUHC Master Plan
<b>Attachment CS23</b>	MUHC - Circulation Map
<b>Attachment CS24</b>	MUHC - Access to Public Transportation Map
<b>Attachment CS25</b>	MUHC - LEED Qualifications

**Case Study K:  
TDM Supportive Elements:**

**eBay Canada & TransLink  
Subsidized rideshares/carpools, Commuter Co-ordinator, Transit Pass  
Discounts**

Location: Burnaby, British Columbia  
Building Type / Land Use: Office Park

Item	Description
<b>Description of Project</b> Size, location, and type of development.	eBay Canada operates a call centre and office with approximately 1,200 employees located in Burnaby, B.C. When it opened, the eBay call centre occupied approximately 75,000 sq. ft. of gross floor area (2004). Since then, eBay has combined with PayPal and expanded in 2006.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 2</b> - eBay is located in an area known as Willingdon Park, which is a low-density suburban office park, primarily oriented to automobiles. The area contains approximately 750,000 sq. ft. of GFA and is proposed to be expanded up to 1 million sq. ft. Internally the area is under-served by surface bus transit, however, it is less than one kilometre from to 2 SkyTrain LRT stations (Gilmore and Brentwood Town Centre) that provide rapid-transit connections to Vancouver and other municipalities in the region. There is a moderate amount of mixed uses in the area, with many services accessible primarily by auto due to the spacing of the land uses.
<b>Current Status</b>	The initial development was completed in 2004. eBay expanded there operations in 2006.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	A shuttle bus service is provided for eBay employees to the 2 SkyTrain stations less than a kilometre away to improve the attractiveness of transit. A ride-share program has also been established to assist in setting up carpools.  Other TDM supportive elements include: a Commuting Committee, a commuter co-ordinator, membership in the Employer Pass Program, increased fees for onsite parking, parking subsidies for rideshares/carpools, cost-sharing partnership with neighbours for transportation to nearby transit, and a unique umbrella loan program for employees who walk to work, or walk to transit.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	There was not overriding municipal policy that required this employer to act. The need for TDM strategies at this site was the result of a parking shortage driven by an increase in the employment levels from 100 to 600 employees in the first year. eBay contacted TransLink to develop sustainable transportation solutions to help manage the parking shortage and improve the mobility options to the site for staff.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	Translink prepared a TDM Plan to identify ways in which to deal with the mobility problem. The strategies implemented as part of the TDM Plan were evaluated between 2004 and 2006 by both eBay and Translink. The results indicated a decline of 4% in single occupant vehicle use, while the use of transit passes increased by 7%.  Ongoing monitoring and reporting is managed through the commuter co-ordinator to gauge the success of the various TDM initiatives.
<b>Attachment CS26</b>	eBay Burnaby, Context Map
<b>Attachment CS27</b>	eBay Burnaby - Approximate Shuttle Bus Route to SkyTrain Stations
<b>Attachment CS28</b>	eBay Burnaby TDM Program – Urban Transportation Showcase Program Case Study Overview (from Transport Canada website)
<b>Attachment CS29</b>	eBay Burnaby - Screenshots of employee Ride-Share program

**Case Study L:**  
**TDM Supportive Elements:**

**Nortel Networks**  
**Pedestrian Priority, Transit Hub, Bike Lanes, Parking Plan to**  
**“decommission” parking stalls**

Location: Ottawa, Ontario  
Building Type / Land Use: Commercial Office

Item	Description
<b>Description of Project</b> Size, location, and type of development.	The Nortel Carling Campus is located just outside Ottawa in Nepean, ON. The campus is comprised of 11 interconnecting buildings, with a total of 2.2 million square feet of GFA and covers 370 acres of land. Approximately 6,000 employees work at the campus.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 1</b> - Nortel Carling Campus is located in Nepean, just outside Ottawa. The area surrounding the campus is generally rural low-density uses. Mobility choices to/from the campus are limited with private automobile dominating the mode split. Walking and cycling to the campus are difficult given its remote rural location.
<b>Current Status</b>	The campus was completed in 2000. The TDM program, a joint effort between Nortel Networks, City of Ottawa and the National Capital Commission (NCC) had its inception in Spring 1998, prior to the occupation of the buildings on site.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	Design elements of the Carling campus include: extensive pedestrian pathways and sidewalks within the campus, traffic control measures (stop signs) installed internal to the site in order to provide pedestrian priority, improvement to existing bicycle routes leading to Carling Campus, additional bike lanes, provision of a centrally located “Transit Hub”, streamlined bus routing on-site, and a parking strategy to “decommission” parking stalls as the success of the TDM program increases.  In addition, a TDM Program was established for Nortel staff called GreenCommute. The program includes an on-line ride matching and carpool management system, strategic planning & design of a global GreenCommute intranet website, development of internal procedures and infrastructure that permits telecommuting, and general promotion of “green” commuting practices.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	One of the approval conditions for the 1997 Nortel Networks Carling site was the incorporation of TDM measure in the overall site design and the implementation of an on-going TDM program at Carling Campus. All levels of government were involved, including Region of Ottawa-Carleton, OC Transpo (transit authority), the National Capital Commission (NCC), City of Nepean and the Ministry of Transportation.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	The TDM Program was implemented through execution of the development agreement to permit the uses. Monitoring of the program and promotion of commuter services is carried out internally by Nortel.
<b>Attachment CS30</b>	Nortel Networks, Carling Campus - Context Map
<b>Attachment CS31</b>	Nortel Networks, Carling Campus – Green Commute TDM Status Report (2001)



**Cast Study M:  
TDM Supportive Elements:**

**Town Centre Mall  
Employee Transportation Coordinator, Shuttle Bus Service**

Location: Boca Raton, FL, USA  
Building Type / Land Use: Suburban shopping centre

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Boca Raton Town Centre is an existing shopping centre located in Palm Beach County Florida. Management of the shopping centre proposed to expand the mall to increase the amount of floor leasable area. Once expanded the mall would have up to 5,384,981 sq. ft. of Gross Floor Area.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 1</b> – Boca Raton Mall is generally surrounded by low-density uses in a suburban setting. It is well serviced by car in close proximity to a major highway. Mobility choices are limited due to the large separation of land uses and unfavourable pedestrian environment. The presence of mixed uses is low. Previous to the expansion, the mall was accessible by surface bus transit routes along the boundaries of the site.
<b>Current Status</b>	Construction of the expansion began in fall 2006 and completion of construction is anticipated in 2008.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	TDM initiatives included as part of the approvals process include: provision of a shuttle bus service, hiring of a full-time Employee Transportation Coordinator (ETC), agreement to provide an annual report describing the TDM program implemented, provision of a new shared-use pathway on-site, secure bicycle storage, contributions for a new on-site transit centre, and a reduction in the parking supply. A new on-site transit terminal was also proposed as part of the expansion located next to the mall, accessible by a walkway and bridge. It services 5 bus routes, with bus bays and also includes a kiosk and a continuous covered shelter. It also provides bicycle racks.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	There was no underlying municipal policy that required the developer to initiate the TDM elements. Rather, the provision of the TDM elements was largely driven by the need to reduce the on-site parking supply necessary to create the area for expanding the shopping centre. The site plan agreement completed in 2006 allowed for the expansion of a shopping mall in exchange for the implementation of a full time TDM plan for the mall to make up for the reduction in parking. On the basis of the TDM Plan, the development was granted an overall 5% peak hour reduction in the mall-generated trips. The developer also provided a contribution to the City Beautification Program.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	<p>The Employee Transportation Coordinator was responsible for undertaking a survey of the mall staff to determine how, where, and when they travelled to/from work. Based on the results of the survey, the Employee Transportation Coordinator had to prepare a TDM Plan. The TDM Plan had to be prepared in conjunction with the City of Boca Raton, and in accordance to the City TDM Ordinance 4677 and the management of the mall had to commit to the cost of implementing all TDM strategies identified in the TDM Plan.</p> <p>TDM strategies noted in the TDM plan included: reserved priority employee parking spaces for qualifying multiple occupant vehicles (carpool), short and long term bicycle parking, financial incentives for transit, and an extended shuttle systems to/from the nearby</p> <p>Monitoring of the TDM program was enforced through a condition of the development agreement where the shopping centre has to provide an annual report to the City and Palm Beach County each year, describing in detail the TDM Program implemented the impacts and effectiveness of the strategies, and potential adjustments.</p>

<b>Attachment CS32</b>	Boca Raton Town Centre Mall - Context Map
<b>Attachment CS33</b>	Boca Raton Town Centre Mall - Site Plan Development Agreement (2006)



**Case Study N:** **Arlington Shopping Centre**  
**TDM Supportive Elements:** **Ridesharing, Transit Promotion, Parking Management**

Location: Arlington, VA, USA  
 Building Type / Land Use: Mixed-use

Item	Description
<b>Description of Project</b> Size, location, and type of development.	Arlington, Virginia is a county adjacent to Washington, D.C, with a population of approximately 189,500.
<b>Urban Context</b> Built environment of the surrounding area including density, mobility choices, congestion levels, presence of mixed uses, relationship to transit, modal split, etc.	<b>Class 2</b> - It is an urban area with medium densities. Mobility choices in the area are largely based on private automobile and transit. Congestion levels in the downtown Arlington area are heavy during peak periods with reduced congestion levels in off peak times. Arlington is well served by transit with 3 rapid transit lines that connect to Washington D.C. and other adjacent counties.
<b>Current Status</b>	A TDM matrix has been used in reviewing and negotiating TDM strategies for all new development in Arlington through the site plan approval process since 1990.
<b>TDM Supportive Elements Provided</b> List / description of various TDM policies and initiatives implemented in the project as a direct result of approvals process.	A variety of required TDM strategies are set out specifically for individual developments based on the type of land use category it is. Sample TDM strategies highlighted in the TDM policy include: hiring or designating part time or full time transportation coordinators, ridesharing promotions, parking management, transit promotions, on-site construction measures, mutually agreed off-site provisions, lease arrangements, and monitoring & compliance.  Depending on the size of the development, some developers will be required to provide a shuttle bus service. Transit subsidy programs may also become available. Progressive employee policies may be added to spread peak hour volume traffic. Developments in the area will be encouraged to join a TMA.
<b>Policy Context</b> Description of any prevailing policies that resulted in the provision of TDM supportive elements.	A joint task force of Arlington County Planning and Transportation Commissions initiated a TDM Management policy. This program for site development was adopted by the County Board in 1990. A key element of TDM Management Policy is a TDM matrix that sets out specifically what types of TDM strategies apply to various developments.
<b>Implementation and Monitoring</b> Any monitoring of TDM supportive elements required or proposed as part of approvals process.	All developments must provide a TDM Plan outlining the set of TDM strategies forms part of the Site Plan Conditions and becomes known as the site's approved Transportation Management Plan (TMP).  Municipal staff will monitor the management plans to ensure compliance. Developers will be required to provide a performance guarantee for at least 3 years. Compliance will also be enforced through zoning. In projects with phases, subsequent phases will not be approved unless compliance with traffic mitigation and TDM is demonstrated.
<b>Attachment CS34</b>	Arlington Virginia TDM Policy (1990)

## 6.0 Additional References and Resources

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**APPENDIX A:**  
Summary of Canadian Land Use  
Approvals Framework

# The Canadian Land Use Approvals Framework

This attachment provides a general overview of the land use approval regulatory framework in Canada. Please note that this section is intended to provide a general summary only. The land use approvals framework differs slightly for each province in Canada and specific guidance regarding the various pieces of provincial legislation should be consulted separately.

## *Federal Policies*

Under the Canadian Constitution, urban planning is a provincial responsibility and, as such, the federal government does not have a specific role in the development planning and land use approvals in local communities. The current role the federal government fulfills related to land use guidance is through the promotion, investment and funding of programs which encourage economic growth, sustainable growth and safe communities. This is accomplished through various federal agencies: Transport Canada, Infrastructure Canada, the Canadian Mortgage and Housing Corporation, and National Capital Commission.

## *Provincial Policies*

Responsibility for issues related to transportation, urban affairs and housing fall under the jurisdiction of provincial governments. The way in which individual provinces legislate land use and development approvals is generally similar across Canada. For the most part, provinces utilize two pieces of legislation to delegate provincial responsibilities to regional and municipal governments: a Municipal Act (outlining municipal powers) and a Planning Act (planning and development responsibilities). In some provinces, these two acts are incorporated into a single piece of legislation. Table A1 (attached) summarizes the names and roles of the various provincial acts.

## *The Municipal Act*

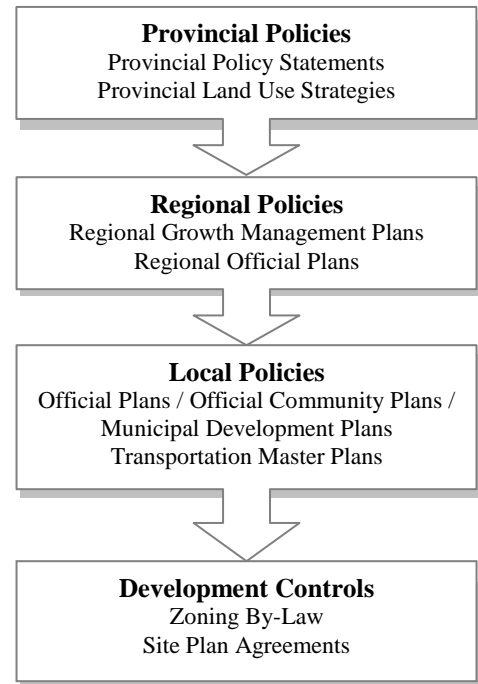
The Municipal Act (or Municipal Government Act) is a statute that sets out the powers and responsibilities that are given to municipalities by the province with regards to local government structure, administration and municipal affairs. The Municipal Act outlines the role of the party (i.e. the municipality) who is given the power to make land use planning decisions, as defined in the Planning Act.

## *The Planning Act*

The Planning Act (or a provincial equivalent) is legislation that integrates provincial interests, municipal planning decisions and land use planning which delegate the power and responsibility of planning to regions, counties, or local municipal governments. A provincial planning act describes what elements of land use and new development municipalities can legally regulate (e.g. parking, height, density, etc.). It also sets out the appeal process for development conflicts.

## *Provincial Policy Statements / Land Use Strategies*

In some cases, provinces develop Provincial Policy Statements or Provincial Land Use Strategies that acknowledge the complex inter-governmental relationships to protect provincial interests, manage growth, and develop communities in an economically, environmentally and culturally sustainable manner. Province-wide policies such



as these can: require changes in policy; set growth and population limits; or require action by local municipalities that must be adhered to, without any change to the Municipal Act or the Planning Act.

### *Regional Policies*

Regional /county /district governments typically comprise a group of local municipalities and are responsible for overseeing a long term planning process identifying growth management strategies and planning land development on a region-wide basis. They authorize lower-tier local municipalities to control future land development (e.g. Official Plans) and to ensure they support the area's overall goals for growth, including transportation. Any policies or programs that are implemented by regional or county governments must have regard for provincial policies, consistent with the applicable municipal and planning acts.

### *Local Municipal Policies*

Local governments are responsible for transportation, planning and land development, and community/social services within their borders. Municipalities are required by the planning act to create policies for long term strategic growth management (growth management plans and official plans).

Official Plans are the broad based municipal documents that set out the general planning goals and policies for a municipality, as well as land use designation. Zoning by-laws are required for each municipality to regulate and implement policies in Official Plans.





**Appendix A: Table A1**  
**Summary of Canadian Provincial Land Use Approval Framework (Primary Source: Plan Canada, Spring 2007 Issue)**

Province	Corresponding Provincial Ministry	Municipal Act Equivalent	Provincial Planning Legislation	Examples of Provincial Policy Statements	Plan / Zoning Appeal Body	Regional Plan	Municipal Land Use Plan	District Plan	Land Subdivision	Zoning	Site Plan Review
British Columbia	Ministry of Municipal Affairs and Housing – Integrated Land Management Branch	Municipal Act	Municipal Act	Provincial Land Use Strategy	--	Official Regional Plan	Official Community Plan	Area Development Plan / Comprehensive Development District	Preliminary Proposal / Plan of Subdivision	Zoning By-Law or Registered Land Use Control	Development Permit
Alberta	Alberta Department of Municipal Affairs	Municipal Government Act	Municipal Government Act	Northern East Slopes Strategy Eastern Slopes Policy Regional Sustainable Development Strategy for the Athabasca Oil Sands	Subdivision and Development Appeal Boards (local)	Intermunicipal Development Plan	Municipal Development Plan	Area Structure Plan / Area Redevelopment Plan	Proposed Plan / Plan of Subdivision	Land Use By-Law	Development Permit
Saskatchewan	Ministry of Municipal Affairs – Community Planning Branch	Planning	Planning and Development Act	Athabasca Land Use Plan Great Sand Hills Land Use Strategy	Development Appeals Board (local) / Saskatchewan Municipal Board	District Development Plan	Basic Planning Statement / Development Plan	Local Area Plan	Proposed Plan / Plan of Subdivision / Plans of Survey	Zoning By-Law	Development Standards; Site Plan Control; Architectural Controls
Manitoba	Ministry of Municipal Affairs	The Municipal Act The City of Winnipeg Act	Planning Act	Provincial Land Use Policies (excludes Winnipeg)	--	Joint Planning Scheme	Development Plan	Secondary Plan / Redevelopment Plan	Short-form / Registered Plan of Subdivision	Zoning By-Law / Zoning District Map	Development Permit
Ontario	Ministry of Municipal Affairs and Housing	Municipal Act The City of Toronto Act	Planning Act	Provincial Policy Statement Places to Grow Greenbelt Act Niagara Escarpment Plan	Ontario Municipal Board	Upper Tier Plan	Official Plan	Secondary Plan	Draft / Registered Plan of Subdivision	Zoning By-Law	Site Plan Control; Development Agreement
Quebec	Ministry of Municipal Affairs and Regions	Municipal Code of Quebec	Land Use Planning and Development Act (Loi sur l’aménagement et l’urbanisme)	Land Use Policy Statements Sustainable Development Plan & Act, Strategy and action plan on biodiversity	Commission municipale du Québec	Land Use Planning and Development Plan (Schema d’aménagement et de développement)	Planning Programme (Plan d’urbanisme)	Special Planning Programme (Programme particulier d’urbanisme)	Subdivision By-Law (Reglement de lotissement)	Zoning By-Law (Reglement de zonage)	Site Planning and Architectural Integration Programme (Plan d’implantation et d’integration architecturale)
New Brunswick	Ministry of Municipalities and Housing	Municipalities Act	Community Planning Act	Provincial Land Use Policy for Coastal Lands	--	Regional Development Plan	Municipal Plans	Development Scheme or Area Plan	Tentative / Final Plan of Subdivision	Zoning By-Law	Development Permit; Final Subdivision Plan
Prince Edward Island	Ministry of Communities, Cultural Affairs and Labour	Municipalities Act	Planning Act	PEI Lands Protection Act	Island Regulatory and Appeals Commission	Regional Plan	Official Plan	--	Preliminary / Final Subdivision Plan	Zoning and Development By-Law	Approved Subdivision



Appendix A: TABLE A1 (continued)

Province	Corresponding Provincial Ministry	Municipal Act Equivalent	Provincial Planning Legislation	Examples of Provincial Policy Statements	Plan / Zoning Appeal Body	Regional Plan	Municipal Land Use Plan	District Plan	Land Subdivision	Zoning	Site Plan Review
Nova Scotia	Department of Housing & Municipal Affairs	Municipal Government Act	Municipal Government Act	Statements of Provincial Interest	Nova Scotia Utility and Review Board	Regional Municipal Planning Strategy	Municipal Planning Strategy	Secondary Planning Strategy	Tentative / Final Plan of Subdivision	Land Use / Zoning By-Law	Site Plan Approval / Development Permit
Newfoundland and Labrador	Ministry of Municipal and Provincial Affairs	Municipalities Act	Urban and Rural Planning Act	Provincial Land Use Policy Natural Areas Plan	Four district appeal boards	Regional Plan or Joint Municipal Plan	Municipal Plan	Development Scheme or Comprehensive Development Area Plan	Subdivision Regulations	Land Use Zoning Regulations	Development Permit
Northwest Territories	Ministry of Municipal Affairs and Community Housing	Cities, Towns and Villages Act	Planning Act	Government of Northwest Territories Strategic Plan	Development Appeal Boards (local)	Regional Land Use Plan	General Plan	Development Scheme	Proposed Subdivision / Plan of Subdivision	Zoning By-Law	Development Permit
Yukon	Yukon Community and Transportation Services – Municipal and Community Affairs	Municipal Act	Municipal Act and Area Development Act	North Yukon Regional Land Use Plan	Yukon Municipal Board	Regional Land Use Plan	Official Community Plan / Local Area Plans	Area Development Scheme	Preliminary Plan / Proposed Subdivision	Zoning By-Law and Area Development Regulations	Development Permit
Nunavut	Ministry of Economic Development and Transportation / Nunavut Planning Commission	Municipal Act	Planning Act	Climate Change Action Program	Development Appeal Boards (local)	Regional Land Use Plan	Community Plan / General Plan	Development Scheme	Plan of Subdivision / Plan of Survey	Zoning By-Law	Development Permit



## **APPENDIX B:** TDM Definition Glossary

**Appendix B: TABLE B1 – TDM Definition Glossary**

TDM Initiative	Definition	Context for Application <sup>1</sup>			
		Workplace	School	Post-secondary	Residential
<b>Carpool pick-up / drop-off</b>	Pick-up / drop-off facilities to encourage carpooling or vanpooling	X	X	X	
<b>Carpools and/or Vanpools</b>	Shared use of a car by a driver and one or more passengers to a common destination, usually operated through individuals efforts	X	X	X	X
<b>Ridesharing</b>	Shared use of a car by a driver and one or more passengers, usually operated by employers / building managers / property management	X		X	X
<b>Para-transit (e.g: shuttle bus)</b>	Demand responsive passenger transportation that does not follow fixed routes or schedules	X		X	X
<b>Guaranteed ride home</b>	Provision of a reliable ride home (usually by cab) for transit / carpool / vanpool / cycling / walking commuters in case of unexpected emergencies (e.g: illness, personal emergencies)	X	X	X	
<b>Preferential parking for HOVs</b>	Reduced fees or parking in “premium parking locations” for carpool / vanpool vehicles located in close proximity to the entrance of the building	X	X	X	
<b>Restrict parking supply</b>	Limit parking supply to encourage use of other forms of transportation	X	X	X	X
<b>Pricing to encourage short term parking</b>	Increasing the price of parking in “premium” areas to shift travel to off-peak periods or encourage long-term parking in parking lots / garages	X			
<b>Parking pricing to encourage off-peak trips</b>	Increasing the price of parking during peak hours and decreasing the cost of parking during off-peak hours to encourage trips by auto to be made in the off-peak period	X			
<b>Elimination of free employee parking</b>	Eliminate free parking to encourage use of other travel modes by employees	X	X	X	
<b>Flexible work hours</b>	Alternate work hours or scheduling to allow employees to avoid rush hour / traffic congestion compared to traditional work days / weeks	X			
<b>Staggered work hours</b>	Spreading the peak commuting period by staggering work hours by 15 minutes up to an hour to increase vehicle occupancy and shift travel to off-peak periods	X			

<b>Compressed work week</b>	Work arrangements that increase the number of working hours per day to allow employees to take a half day or a day off at the end of the work week	X			
<b>Teleworking</b>	Working from home on an arranged schedule to reduce automobile travel	X			
<b>Subsidized transit fares</b>	Transit passes or fares that have been subsidized by the employer to encourage employees to take transit instead of commuting by car	X	X	X	X
<b>Bicycle Parking</b>	Provision of secure bicycle parking facilities	X	X	X	X
<b>Change rooms and showers for cyclists</b>	Provision of change rooms and showers for cyclists to encourage cycling to work or school	X	X	X	
<b>Other bike facility (e.g: air pump)</b>	Provision of bicycle facilities to encourage cycling, not limited to air pumps and other maintenance facilities	X	X	X	
<b>Mixed-use development</b>	Development containing a mix of uses to discourage auto travel by locating common amenities to residential uses	X			X
<b>On-site taxi stand</b>	Provision of a taxi stand on site	X		X	
<b>Weather-protected connection to transit</b>	Provision of a connection to transit that is protected from the elements (e.g: rain, wind, snow, etc) to encourage transit use through better walking / cycling environments	X	X	X	X
<b>Proximity to transit</b>	Location of the development to public transportation can discourage the use of single occupancy vehicles by providing another option for travel	X	X	X	X
<b>On-site sale of transit fares, transit shelters, benches, etc</b>	Provision of conveniently located transit elements to create pedestrian friendly environments that encourage transit-use	X	X	X	
<b>On-site transit information</b>	Provision of transit routes, maps and schedules on-site in conveniently located public areas to encourage transit use	X	X	X	X

<b>Car sharing</b>	Car rental targeted towards short-term auto rentals (per hour)	x		x	
<b>Bicycle sharing</b>	Bicycle-lending or renting program similar to carsharing, where members can sign out a bike or rent by hourly blocks of time for transportation / to complete errands	x	x	x	
<b>Special events to promote alternate modes</b>	Events that promote alternate modes (e.g: Commuter Challenge, Car-free day, etc)	x	x	x	x
<b>Lighting, sidewalks, etc. for pedestrians</b>	Provision of urban design elements to create pedestrian-friendly environments	x	x	x	x

















## **APPENDIX C:** Attachments









## List of Attachments

Report Attachment Number	Description	Embedded Attachment
<b>Attachment A1</b>	Canadian Municipal TDM Policy Research	 A1
<b>Attachment A2</b>	City of Hamilton, ON, TDM Policy Guidelines Report for Transportation Master Plan (2005)	 A2
<b>Attachment A3</b>	City of Regina, SK, Excerpts from Zoning By-Law - Exceptions to Parking Requirements (2005)	 A3
<b>Attachment A4</b>	City of Calgary, AB, Overview Presentation of Downtown Parking (i.e. Cash-In-Lieu) Policy	 A4
<b>Attachment A5</b>	City of Toronto, ON, Cash-In-Lieu (CIL) Policy	 A5
<b>Attachment A6</b>	City of Toronto, ON, Motorcycle Parking By-Law	 A6
<b>Attachment A7</b>	San Francisco, CA, USA, Zoning By Law Car-share Requirement	 A7
<b>Attachment A8</b>	Example of United Kingdom (UK) Travel Plan (TDM Plan) for a Generic Development (2004)	 A8
<b>Attachment A9</b>	Transport for London, UK, Travel Plan Preparation Guidelines for Employment Developments (2008)	 A9
<b>Attachment A10</b>	Transport for London, UK, Travel Plan Preparation Guidelines for Residential Developments (2008)	 A10
<b>Attachment A11</b>	Transport for London / British Standards Institution, Specifications for Work Place Travel Plans (TDM Plans) Draft - 2008	 A11
<b>Attachment A12</b>	San Francisco, CA, USA, TDM Plan Policy Requirement Extract	 A12

<b>Attachment A13</b>	City of Toronto, ON, TDM Plan Requirement Council Directive (1990)	 A13
<b>Attachment A14</b>	City of Calgary, TOD Guidelines (2005)	 A14
<b>Attachment A15</b>	York Region Ontario, TOD Guidelines (2006)	 A15
<b>Attachment A16</b>	City of Kitchener Neighbourhood Design Guidelines (2007)	 A16
<b>Attachment A17</b>	North York, ON, Extract from City Centre Secondary Plan - Development Incentives	 A17
<b>Attachment A18</b>	February 2007 CITE Article, The Link Between Parking and TDM	 A18
<b>Attachment A19</b>	Sample TDM Checklist – TDM Light Approach	 A19
<b>Attachment A20</b>	Sample TDM Checklist – TDM Moderate Approach	 A20
<b>Attachment A21</b>	Sample TDM Checklist – TDM Aggressive Approach	 A21
<b>Attachment A22</b>	Meadowvale Example: Completed TDM Light Checklist – As Built	 A22
<b>Attachment A23</b>	Meadowvale Example: Completed TDM Light Checklist – Improved Version (Post-TDM)	 A23
<b>Attachment A24</b>	Meadowvale Example: Sample TDM Plan Prepared for Development	 A24
<b>Attachment A25</b>	City of Calgary, AB, Standard TDM Comments for Incorporation Into Planning Report	 A25

Case Study Attachment Number	Description	Embedded Attachment
Case Study Attachment CS 1	Simcoe Place Phase 2 context map	 CS1
Case Study Attachment CS 2	Simcoe Place Phase 2 TDM Plan completed as part of approvals process	 CS2
Case Study Attachment CS 3	Oakridge Centre Context Map	 CS3
Case Study Attachment CS 4	Oakridge Centre Policy Report	 CS4
Case Study Attachment CS 5	Oakridge Centre Policy Statement	 CS5
Case Study Attachment CS 6	South East False Creek (SEFC) Context Map	 CS6
Case Study Attachment CS7	SEFC 1999 Policy Statement (Updated 2004)	 CS7
Case Study Attachment CS8	SEFC 2002 Transportation Plan	 CS8
Case Study Attachment CS9	SEFC 2004 Official Development Plan (Approved 2007)	 CS9
Case Study Attachment CS10	SEFC Green Building Strategy	 CS10
Case Study Attachment CS11	Grovenor / Glenora Redevelopment Context Map	 CS11
Case Study Attachment CS12	City of Edmonton, Transit Oriented Design Smart Choices Checklist	 CS12
Case Study Attachment CS13	City of Edmonton, General Smart Choices Checklist	 CS13

<b>Case Study Attachment CS14</b>	Sample Smart Choices checklist completed for Grovenor / Glenora project	 CS14
<b>Case Study Attachment CS15</b>	TCPL Tower Context Map	 CS15
<b>Case Study Attachment CS16</b>	Nuera Context Map	 CS16
<b>Case Study Attachment CS17</b>	Vaughan Mills Mall, Context Map	 CS17
<b>Case Study Attachment CS18</b>	Vaughan Mills Mall, Transit Development Charge Credit Agreement	 CS18
<b>Case Study Attachment CS19</b>	Vaughan Residential Subdivision, Blocks 11, 12, 18 Context Map	 CS19
<b>Case Study Attachment CS20</b>	Kitchener Neighbourhood Design Initiative – Report to Council	 CS20
<b>Case Study Attachment CS21</b>	McGill University Health Centre (MUHC) Context Map	 CS21
<b>Case Study Attachment CS22</b>	MUHC Master Plan	 CS22
<b>Case Study Attachment CS23</b>	MUHC - Circulation Map	 CS23
<b>Case Study Attachment CS24</b>	MUHC - Access to Public Transportation Map	 CS24
<b>Case Study Attachment CS25</b>	MUHC - LEED Qualifications	 CS25
<b>Case Study Attachment CS26</b>	eBay Burnaby - Context Map	 CS26

<b>Case Study Attachment CS27</b>	eBay Burnaby – Approximate Shuttle Bus Route to SkyTrain Stations	 CS27
<b>Case Study Attachment CS28</b>	eBay Burnaby TDM Program – Urban Transportation Showcase Program Case Study Overview (from Transport Canada website)	 CS28
<b>Case Study Attachment CS29</b>	eBay Burnaby - Screenshots of employee Ride-Share program	 CS29
<b>Case Study Attachment CS30</b>	Nortel Networks, Carling Campus – Context Map	 CS30
<b>Case Study Attachment CS31</b>	Nortel Networks, Carling Campus - Green Commute TDM Status Report # 3, December 2001	 CS31
<b>Case Study Attachment CS32</b>	Boca Raton Town Centre Mall - Context Map	 CS32
<b>Case Study Attachment CS33</b>	Boca Raton Town Centre Mall – Site Plan Development Agreement (2006)	 CS33
<b>Case Study Attachment CS34</b>	Arlington, Virginia, TDM Policy (1990)	 CS34