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ISBN 978-1-55187-200-5

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Transportation Association of Canada

Urban Transportation Indicators

THIRD SURVEY

February 2005

TAC REPORT DOCUMENTATION FORM

Project No. Account# File#	Report No.	Report Date February 2005	IRRD No.

Project Manager

Katherine Forster

Title and Subtitle

Urban Transportation Indicators THIRD SURVEY

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Abstract

In 1993, the Urban Transportation Council (UTC) of the Transportation Association of Canada (TAC) proposed a *New Vision for Urban Transportation*, describing 13 principles which point the way to desirable future transportation systems and related urban land use. The Council recognized that periodic surveys of transportation indicators would be required to monitor progress towards achieving the Vision. To this end, a pilot survey that included eight urban areas was carried out in 1995 using 1991 as the study year. This established baselines that would be used to compare with all future surveys. A follow-up survey was done in 1999 using 1996 as the study year and it included fifteen urban areas, which built on the first survey and compared the two study years.

This report describes the third survey, which included all 27 Census Metropolitan Areas (although the level of their participation varies) and was carried out in 2003 for the 2001 study year. This report describes the survey process and results, draws conclusions on trends from the resulting database (which includes 1991, 1996 and 2001 data and which is mounted on the TAC website) and discusses progress towards achieving the TAC Vision in light of the survey findings and in comparison to international data.

The 59-page (plus appendices) main report, Volume I, is broken down into sections. Section S.1 provides an introduction to the project. Section S.2 discusses the process of implementing the survey and response rates achieved. Section S.3 presents the major urban transportation trends. Section S. 4 presents the land use and transportations initiatives while S. 5 details the transportation costs. S. 6 discusses the key performance indicators. S. 7 offers an international comparison, and Section S. 8 presents conclusions, including comments on the progress towards TAC's *New Vision for Transportation.*

Volume II, containing 66 pages, gives individual regional profiles of all the Census Metropolitan Areas that participated in the survey.

Keywords

- Economics and Administration
- Traffic and Transport Planning
- Urban Area
- Public Transport
- Trend (Stat)
- Analysis (Math)
- Statistics
- Method

No. of Pages	No. of Figures and Photographs	Language	Price
Volume 1: Survey and Key Results: 59 p. + app. Volume 2: Individual Regional Profiles: 66 p.			

Supplementary Information

Disclaimer

This report presents data and statistics based on information submitted in response to the *Urban Transportation Indicators Survey* questionnaire prepared and administered by the Transportation Association of Canada. The questionnaire was completed by a single agency/municipality on behalf of an entire region often representing several municipalities and/or agencies. Although some limited data validation was undertaken, the information is generally as reported by each participating municipality. As a result, the data should be observed with a degree of caution. It should also be recognized that techniques and methodologies for data collection and reporting could vary between regions.

The fact of distribution does not constitute responsibility by TAC or any researchers or contributors for omissions, errors or possible misrepresentations that may result from use or interpretation of the material herein contained.

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ISBN: 978-1-55187-200-5

Acknowledgements

The Third Survey of the Urban Transportation Indicators was made possible by funding provided by several agencies. TAC gratefully acknowledges the following sponsors for their generous contributions to the project.

Alberta Transportation
Greater Vancouver Regional District
Greater Vancouver Transportation Authority
Ministère des Transports du Québec
Ministry of Transportation of Ontario
Natural Resources Canada
Transport Canada

Project Team

This project was developed under the supervision of the Transportation Planning and Research Standing Committee on behalf of the Urban Transportation Council. TAC would like to express its appreciation to the project steering committee members who contributed their time and effort to the project.

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This study is a result of the efforts put forth by many dedicated individuals. Along with the Steering Committee and the Consulting Team, each municipal partner and especially the technical contacts should be recognized for the considerable time and effort they spent in gathering and validating survey data.

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1. Introduction

Source: www.pedbikeimages.org/Dan Burden

Background

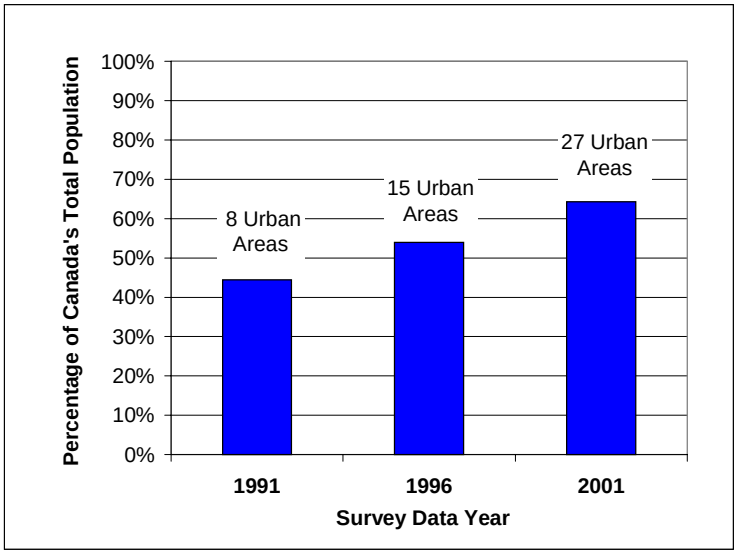
The Transportation Association of Canada's *Urban Transportation Indicators (UTI) Survey* was conceived in 1993 to monitor the progress of Canadian urban regions in achieving TAC's *New Vision for Urban Transportation*. The *Vision,* developed by the Urban Transportation Council of the Transportation Association of Canada (TAC), identified key strategies to help make urban regions more efficient, environmentally friendly, and desirable to live in. The *Vision* is supported by 13 decision-making principles that point the way to a more desirable future.[1] *(Superscript numbers refer to Endnotes beginning on Page 59.)*

This report sets out of the results of the third *UTI Survey* and provides some analysis of them. The first *UTI Survey*, a pilot survey conducted in 1995, provided 1991 information about eight urban areas across Canada. Paralleling the five-year period of the Census of Canada, the second *UTI Survey*, conducted in 1999, provided 1996 data on seven of the pilot survey urban areas and an additional eight. The third *UTI Survey* targeted the 27 Census Metropolitan Areas identified by Statistics Canada for 2001. Of these, 24 participated.

As shown in Exhibit 1.1, the increase in the number of areas covered by the *UTI Surveys* provides a more complete picture of Canada's urban transportation: 64% of the country's population is now included in the survey, 80% of its urban population. The continuing urbanization of the Canadian population strengthens the relevance of this survey of urban areas. Since 1991, the proportion of Canadians living in urbanized areas has increased from 76.6% to 79.6%.[2]

This report on the third *UTI Survey* provides a basis for measuring progress toward TAC's *Vision* by setting out indicators in six key areas: **land use, transportation supply, transportation demand, transportation system performance, transportation costs and finance, and environmental impacts of transportation**. In addition, the survey provides a snapshot of various transportation and land-use initiatives and transportation funding developments in each urban area. Taken together, this information can provide useful input into the transportation planning and related policy-making processes conducted in Canada's urban areas.

Exhibit 1.1: Proportion of Canada's population covered by the three *UTI Surveys*



Survey Participants

This report on the third *UTI Survey* provides varying degrees of information on all 27 Census Metropolitan Areas (CMAs) in Canada as displayed geographically on Exhibit 1.2 and listed in Exhibit 1.3. Compared with the second survey, the geographic representation across Canada has been significantly improved. The number of urban areas from Québec increased from one to six and the survey now has representation from the Atlantic region. Seven urban regions have now completed the survey three times and another nine urban areas have completed the survey twice. The remaining 11 urban areas are new survey participants.

For each urban region a survey partner coordinated the completion of the survey response. In many cases, the partner represented several municipalities, drawing on their input as required to complete the survey. A list of individuals who helped with the survey and their affiliations appears on Page iv.

Exhibit 1.2: Survey coverage

Exhibit 1.3: Participation in the three *UTI Surveys*

Region	Partner	2001 Population	Participated in			Selected indicators for 2001 provided by study team	2001 Survey Completion by Part		
			1991	1996	2001		Part A Transportation and Land Use Initiatives	Part B Transportation Financing	Part C Land Use and Transportation
Toronto	City of Toronto	4,682,897	✓	✓	✓		✓	✓	✓
Montréal	Communauté métropolitaine de Montréal	3,426,350	✓	✓	✓		✓	✓	✓
Vancouver	Greater Vancouver Regional District	1,986,965	✓	✓	✓		✓	✓	✓
Ottawa - Gatineau	City of Ottawa/Ville de Gatineau	1,063,664	✓	✓	✓		✓	✓	✓
Calgary	City of Calgary	951,395		✓	✓		✓	✓	✓
Edmonton	City of Edmonton	937,845	✓	✓	✓		✓	✓	✓
Québec	Communauté métropolitaine de Québec	682,348	✓		✓		✓	✓	✓
Winnipeg	City of Winnipeg	671,274		✓	✓		✓	✓	✓
Hamilton	City of Hamilton	662,401	✓	✓	✓		✓	✓	✓
London	City of London	432,451	✓	✓	✓		✓	✓	✓
Kitchener - Waterloo	Regional Municipality of Waterloo	414,284		✓	✓		✓	✓	✓
St. Catharines-Niagara	Regional Municipality of Niagara	377,009		✓	✓		✓	✓	✓
Halifax	Regional Municipality of Halifax	359,183			✓		✓	✓	✓
Victoria	Capital Regional District	311,902		✓	✓		✓	✓	✓
Windsor	City of Windsor	307,877		✓	✓		✓	✓	✓
Oshawa	Region of Durham	296,298			✓		✓	✓	✓
Saskatoon	City of Saskatoon	225,927		✓		✓			
Regina	City of Regina	192,800		✓	✓		✓	✓	✓
St John's	City of St John's	172,918			✓		✓		
Sudbury	City of Greater Sudbury	155,601			✓		✓		✓
Saguenay	Ville de Saguenay	154,938			✓		✓	✓	✓
Sherbrooke	Ville de Sherbrooke	153,811			✓		✓	✓	✓
Abbotsford	City of Abbotsford	147,370			✓		✓	✓	
Kingston	City of Kingston	146,838			✓		✓	✓	✓
Trois-Rivières	Ville de Trois-Rivières	137,361			✓		✓	✓	✓
Saint John	City of Saint John	122,678				✓			
Thunder Bay	City of Thunder Bay	121,986				✓			

Report Outline and Objectives

This report is published as two documents:

> **Volume I** provides an overview of the survey and key results.
>
> **Volume II** provides results for individual regions using a similar template for all areas, adjusted to reflect survey participation over time and availability of data.

Volume I, the present document, addresses the following objectives:

- To describe the survey process;
- To update the key urban indicators as derived from the survey, describing 2001 conditions;
- To discuss the indicators' current levels and recent evolution (where 1991 and 1996 results make comparisons possible);
- To discuss progress towards TAC's *Vision* in light of the results of the third *UTI Survey* and to make recommendations for future surveys.

Following the introductory comments of this section, Section 2 of the present document describes the data collection process, including the survey instrument and other data sources. Section 3 describes major urban transportation trends, with observations on densities, transit and automobile use, and environmental impacts. Section 4 considers the degree of implementation of land-use and transportation initiatives, from the perspective of both their individual deployment and their frequency throughout the country. Section 5 looks at the different means and sources of funding available to urban areas for the development and operation of their infrastructure. Section 6 describes the performance of Canada's urban transportation systems. Section 7 provides an international perspective on key urban transportation indicators. Finally, drawing on the results of the survey, Section 8 addresses the questions as to whether or not Canada's urban areas are becoming more sustainable[3] and as to how TAC's future *UTI Surveys* will continue to provide key measures of progress.

A decade has elapsed since the first *UTI Survey*, providing an opportunity to identify changes in key variables over this period. Meaningful conclusions can be drawn about changes in the indicators for several of the urban regions considered. Consistency in the survey instrument, particularly since the second survey—with only small changes in the questions posed and the definitions of terms—has increased the reliability of these observations. Available with this report is an electronic compilation of all data from the three surveys.

General Note: ***Unless otherwise indicated, exhibits display regions in decreasing order of population, to facilitate comparisons of regions having similar sizes.***

USES OF THE TAC URBAN INDICATORS SURVEY

The TAC Urban Indicators Survey is a valuable resource for individuals and organizations at all levels engaged in developing policies impacting Canada's urban regions. This includes municipal planners, provincial and federal governments and research organizations.

"Coordinating completion of the UTI Survey has fostered increased communication among various planning agencies in our region as well as strengthening links between individual departments within our City."

Don Stephens

2. The Survey

Urban Transportation Indicators - Survey #3

Survey Overview and General Instructions

Survey Overview

The Urban Transportation Indicators (UTI) Survey #3 performed by TAC tracks sustainable transportation performaence measures over time for urban areas across Canada. The current survey is intended to reflect conditions in 2001, corresponding to the most recent Census. 27 Urban Areas from across Canada have been asked to complete the survey. The survey consists of three parts:

Part A: Status of Transportation and Land Use Initiatives (4 pages)
Part B: Transportation Financing (2 pages)
Part C: Land Use and Transportation Data (4 pages)

IBI Group is administering the UTI Survey #3 on behalf of TAC. Should you have any questions regarding the survey, please do not hesitate to contact us.

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IBI Group
(416) 596-1930

Regional Contact:
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In addition, a project website has been set up to provide regular progress updates and answers to frequently asked questions. See http://private/urban/survey2003/index-e.htm

Survey Geographic Areas

Four geographic areas are considered in this survey:

Region: Defined as the Census Metropolitan Area (CMA) (as defined in the 1996 Census)
Existing Urban Area (EUA): Representing the current built-up area within the Region
Central Area (CA): Representing an area of typically mixed use development surrounding the CBD
Central Business District (CBD): Representing the pre-eminent employment centre for the urban area

Parts A and B of the Survey deal with the EUA only while Part C considers all four areas. The Region, EUA and CBD have been pre-defined by TAC and are shown on the attached map. Respondents are asked to define their own Central Area based on criteria provided in Part C of the Survey.

Instructions for Responding for Multiple Municipalities

In some cases respondents will be required to answer for several municipalities making up an urban area. If this is the case for your urban area, please use your judgement to provide an answer that would be most representative to all the municipalities inside the EUA combined. Further instructions are provided in Part A and B.

Survey Submission

Please complete this survey by September 12, 2003 and submit electronically to bhollingworth@ibigroup.com

Survey Questionnaire

The survey was distributed electronically and in paper copy to each of the 24 survey coordinators, in English or French as appropriate. A copy of the survey is included here as Appendix A. To facilitate observation of trends, questions were mostly kept consistent with the previous surveys. The general format and sequence of the questions were not changed. However, some questions were combined, refined or clarified, allowing for greater detail in the answers without compromising analysis of an indicator's evolution. For example, rather than one question about bicycle lane-kilometres there were two, providing information about use of on- and off-street infrastructure.

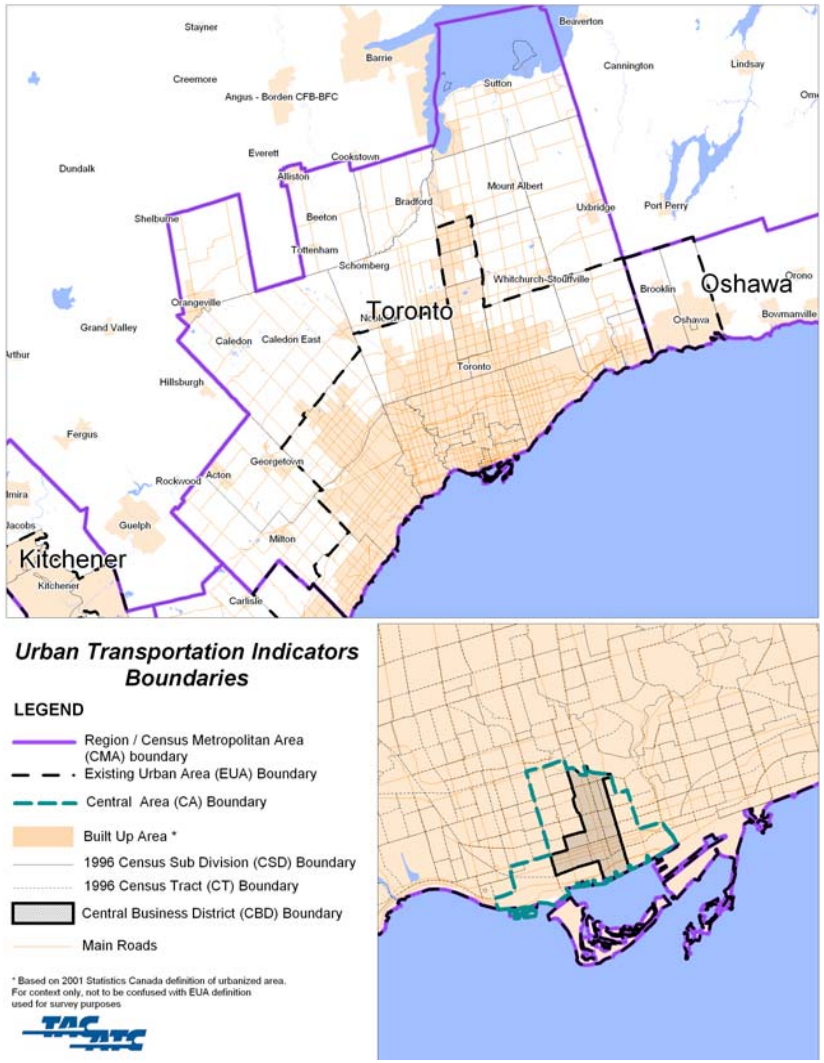
The questionnaire was structured as follows:

- **Part A** assessed the level of deployment of 71 land-use initiatives in 10 different target areas ranging from urban design to goods movement. The level of deployment of each initiative was requested, using a six-point scale ranging from "not a priority" to "implementing throughout municipality".
- **Part B** first asked 21 questions regarding funding sources and distribution, and then posed two qualitative questions regarding decision-making processes and cost assessment.
- **Part C** sought 121 numerical data points about each respondent's area, through 21 questions. These detailed system use, supply, performance, and urban structure.

Definition of Geographic Areas

The urban indicators in this study have been compiled for one or more of four different geographic scales: Region (defined by the CMA boundaries), Existing Urbanized Area (EUA), Central Area (CA) and Central Business District (CBD). Exhibit 2.1 illustrates the different geographic areas using Toronto as an example. Analyzing at several scales allows for a better evaluation of the geographic extent of certain phenomena such as densification, and allows the indicators to be based on truly urban environments, differentiating them from their adjoining rural areas.

Exhibit 2.1: Example of survey geographies – Toronto



For both the current and previous surveys, areas except the Central Area were defined by the *UTI Survey* team in consultation with Statistics Canada to achieve consistency in the interpretation of each area definition. No more than minor modifications had been made in the geographies for some urban areas since the previous survey, reflecting changes in the limits of the region (CMA) boundary to account for urban expansion.

To allow appropriate analysis and to ensure availability of base data such as employment statistics, area limits were compatible with census classifications, census tracts, and municipal boundaries (i.e., Census Subdivisions).

The criteria for defining geographic areas were as follows:

Region

The Census Metropolitan Areas (CMA) boundaries specified in the 2001 Canadian Census defined the limits of each of the urban regions surveyed, as illustrated in the region profiles in Volume II. Statistics Canada defines a CMA as one or more adjacent municipalities centred on an urban core that has a population of at least 100,000, and where included adjacent municipalities have a high degree of integration with the urban core, as measured by commuting flows derived from Census place-of-work data.[4]

Existing Urbanized Area (EUA)

The Existing Urbanized Area (EUA) is the current built-up area within a region (in most cases the region as visible from an airplane). It typically represents around 85% of the region, and its extent is determined by the population and density of census subdivisions. With the exception of a few cases as discussed below, EUAs were aligned with one or more Census Subdivisions, as defined by Statistics Canada.

Central Area (CA)

The Central Area (CA) is typically a mixed-use area with high concentrations of employment and residential population that embraces the CBD. This area was defined by respondents because of the need for familiarity with the region. Respondents were asked to align the borders of their areas with census tract boundaries and make the Central Area two to three times larger in geographic size than the CBD.

Central Business District (CBD)

The Central Business District is the area in the region with the highest historic concentration of employment. TAC determined the limits of CBDs based on analysis of concentrations of employment in the tertiary sector (including finance, real estate, government, accommodation, and food service) at the census tract level. Kitchener-Waterloo, St-Catharines-Niagara, Thunder Bay, and Saguenay were found to have multiple CBDs. In most cases these correspond to centres of historically independent cities brought together by urban growth and amalgamation. In such cases, data from the separated CBDs were aggregated.

CHANGES TO GEOGRAPHIC DEFINITIONS

For urban regions that participated in the 1996 *UTI Survey*, geographic definitions were unchanged, with two exceptions. Montréal requested adjustments to the boundary of its CA to include a high- density residential area adjoining the previously defined CA. Ottawa-Gatineau requested adjustment to the boundaries of both its CBD and its EUA. Therefore, caution must be observed when examining the evolution of activities with respect to these parts of the Montréal and Ottawa-Gatineau regions.

Between 1996 and 2001, several urban areas in Canada saw the amalgamation of local municipalities into a larger single municipality. These include Hamilton, Ottawa, and Toronto, among others. Because Census Subdivisions typically correspond to municipal boundaries, this meant that urban areas that previously consisted of several Census Subdivisions now comprised a single large Census Subdivision. This made it difficult to define the EUA on the basis of Census Subdivisions. For example, the smallest Census Subdivision for Hamilton now corresponds to the entire area of the former Region of Hamilton-Wentworth, which previously comprised six local municipalities. To obviate this problem, the 1996 Census Subdivision definitions were used to define all EUAs.

Several CBD, CA, and EUA boundaries had been changed between the 1991 and 1996 surveys. These changes, and the survey's expansion to additional regions, make comparisons involving 1991 data unreliable. However, for many indicators (e.g., demographic, fuel sales, and transit data) it was possible to create or recalculate consistent indicators for 1991 and 1996 for all urban regions using the geographic boundaries used for the 2001 *UTI Survey*. For these cases, it was possible to show progress towards or away from sustainable transportation for all 27 urban regions.

Data Collection and Validation Procedure

Questionnaires were sent to survey partners in June 2003. An initial deadline of mid-September was set for completion of the surveys. Several questionnaires were returned by this deadline but, as expected, many returns were delayed by limitations in staff resources and difficulties in obtaining data. To encourage the completion of responses, the survey team made regular contact with survey respondents both before and after the targeted completion deadline. Steering Committee members also helped secure questionnaire returns.

A resource developed for this survey to improve the quality of data was a Frequently-Asked-Question (FAQ) page, set up on TAC's website. Throughout the survey process, several questions were submitted by questionnaire respondents with answers posted on the website.

Validation of survey results was carried out at several levels. Immediately after entering the data from respondents, the survey team conducted a scan of the responses to identify possible outliers or erroneous data. Where data appeared suspect, a call was made to the technical contact to clarify the response. The second level of validation occurred when compiling and comparing results across urban areas. In some instances, this identified inconsistent data. The final level of validation of results occurred during the review of the draft report, by the Steering Committee and by survey participants, as well as by members of the survey team.

This report essentially presents and describes the data as received from municipalities. **The reader should bear in mind that practices for collecting and reporting data differ by jurisdictions.**

Response Rates

The degree of completion of the questionnaire varied among the urban areas. Full or partially completed questionnaires were received from 24 of the 27 regions targeted. For the regions unable to complete the questionnaire, standardized indicators based on readily available data from other sources were included and are discussed in this report.

As shown in Exhibit 2.2, almost all respondents were able to complete Parts A and B of the questionnaire. The level of completion of Part C, which required numerical input, was lower. Many urban areas do not have the resources to carry out regular travel surveys, necessary for completion the questions relating to travel demand. This issue of the availability of travel surveys is discussed in more detail in Section 8.

Comparison of the response rates for regions participating in both the 1996 and 2001 surveys indicated a slight decline in the availability of data for Part C. For example, Regina, Edmonton, and Ottawa have not conducted travel surveys since the last *UTI Survey*. For Ottawa, adjustments were made to the travel data based on proxies such as cordon counts.

For this third UTI Survey, 24 out of 27 targeted urban areas submitted survey responses. Drawing on standard data sources, several indicators were developed for all 27 areas.

Exhibit 2.2: Overview of questionnaire responses

Question	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton	London	Kitchener-Waterloo	St. Catharines-Niagara	Halifax	Victoria	Windsor	Oshawa	Regina	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivieres
Part A - Transportation and Land Use Initiatives																								
1 Urban Structure/Land Use	●	●	●	●	●	●	●	●	●	◐	●	●	●	●	●	●	●	●	●	●	●	○	●	●
2 Urban Design	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	●
3 Walking	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4 Cycling	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
5 Transit	●	●	●	●	●	●	●	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
6 Parking	●	●	●	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●
7 Road System Optimization	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8 Goods Movement	●	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●
9 Special User Needs	●	●	●	●	●	●	●	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10 Energy, Environment and TDM	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	◐	●
Part B - Transportation Financing																								
1 Revenue sources for improvements	●	●	●	●	●	●	●	●	◐	●	●	◐	●	●	●	●	●	○	○	●	●	●	●	●
2 Sources of funding	●	●	●	●	●	●	●	●	◐	●	●	◐	●	◐	●	●	●	○	○	●	●	◐	●	●
3 Financial analysis techniques	●	●	●	●	●	●	●	●	●	○	●	●	●	○	●	●	●	○	○	●	●	●	●	●
4 Costs of Congestion	●	●	●	●	●	●	●	●	●	○	●	●	●	○	○	●	●	○	○	●	●	●	●	●
Part C - Land Use and Transportation																								
Urban Structure																								
Definition of the Central Area	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	○	●	●	●	●	●	●
Transportation Supply																								
4 Roadway lane-kilometers	●	●	●	◐	●	●	●	◐	◐	◐	◐	◐	◐	◐	○	●	◐	○	●	●	●	○	●	●
5 Bike lane/bike path kilometers	●	●	◐	●	●	●	●	○	●	●	◐	○	●	●	●	●	●	○	●	●	●	○	●	●
6 Transit seat-km	●	●	○	●	●	○	●	●	○	●	●	○	◐	○	●	●	●	○	●	●	●	○	●	●
8 Designated park-and-ride spaces	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	●	●	●	○	●	●
9 Off-street parking spaces	●	●	◐	●	●	●	○	◐	◐	●	◐	○	●	●	◐	●	●	○	◐	○	◐	○	◐	◐
Transportation System Use																								
10 Mode Shares for CBD	●	●	●	●	●	●	●	●	●	○	●	●	◐	◐	○	●	○	○	●	○	●	○	◐	●
11 Mode Shares for EUA	●	●	●	●	●	●	●	●	●	◐	●	●	◐	○	◐	●	○	○	●	○	●	○	○	●
12 Transit Use[1]	●	●	●	●	●	◐	●	●	◐	●	◐	◐	●	◐	◐	●	◐	◐	●	●	●	◐	◐	●
13 Arterial/ regional road use	◐	●	○	●	●	●	●	●	○	○	●	○	○	○	○	◐	○	○	●	○	●	○	○	◐
14 Multi-lane highways/freeway use	◐	●	○	●	●	○	●	●	○	●	○	○	○	○	○	◐	○	○	●	○	●	○	○	●
Transportation System Performance																								
15 Average home-work trip distance[2]	●	●	●	●	●	●	●	●	○	○	●	○	○	●	○	●	○	○	●	○	●	○	●	●
16 Annual injuries & fatalities	●	●	○	●	●	●	●	●	●	○	●	●	●	○	●	●	●	○	●	●	●	○	●	●
17 Annual GHG emissions[3]	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Transportation Costs and Finance																								
18 Municipal/ Regional Road Budget	●	●	○	●	●	●	●	●	◐	○	●	○	●	○	●	●	●	○	●	●	●	○	●	●
19 Provincial Road Budget	○	●	○	●	●	◐	●	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	●	●
20 Transit Budget	●	●	◐	●	●	●	●	●	●	●	●	○	●	●	●	●	●	○	◐	●	●	○	●	●
21 Transit Fare Box Revenue	●	●	●	●	●	●	●	●	○	●	●	○	●	●	●	●	●	○	●	●	●	○	●	●

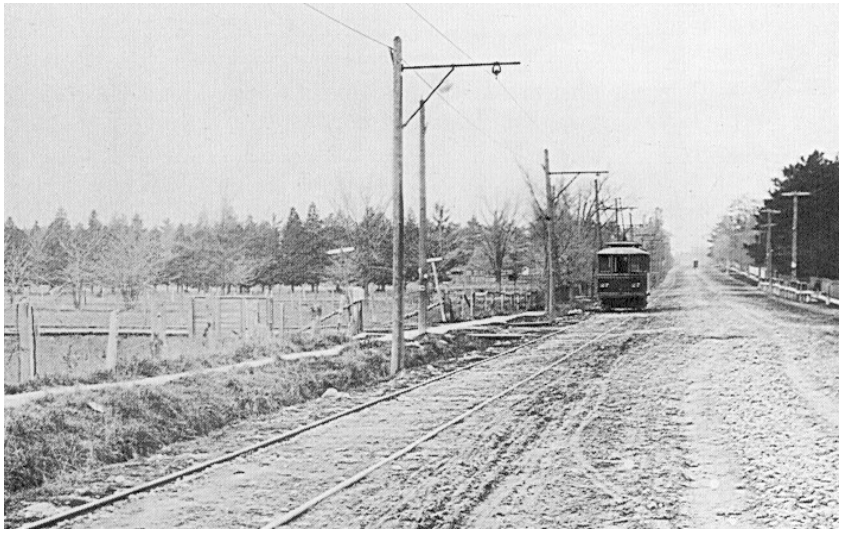
Completion rates: ● 80% or more ◐ 21% to 79% ○ 20% or less

1 Response rates reflect data provided by respondents. In some cases data was subsequently obtained by study team from CUTA.

2 Response rates reflect data provided by respondents. The survey form indicated that data from Statistics Canada's Journey-to-Work Survey would be provided by study team.

3 Response rates reflect data provided by respondents. During the survey, respondents were informed that this data could be provided by study team based on fuel sales data.

3. Major Urban Transportation Trends and Effects



Source: City of Toronto Archives

Urban Structure

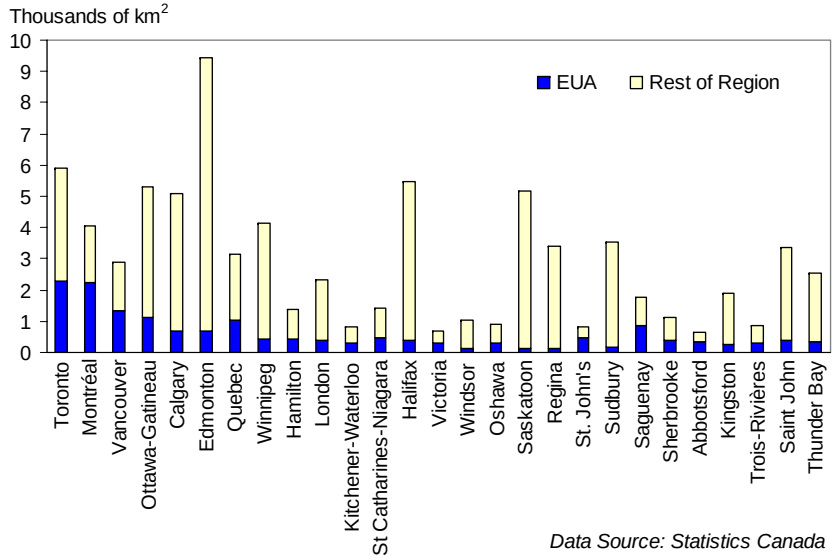
The size and structure of Canada's major urban regions vary significantly. The size of urban regions covered by the 2001 *UTI Survey* ranged from Abbotsford's 626 to Edmonton's 9,419 square kilometres (km^2). Regional populations ranged from Thunder Bay's 122,000 to Toronto's 4.7 million. Exhibits 3.1 and 3.2 display the land area and population of each of the 27 urban regions.

Although the EUA, by definition, contains the majority of a region's population, it does not represent a consistent proportion of the region's total land area. Moreover, the regional (total) land area and population are not well correlated. To avoid distortion of analyses by the often large differences in region size and population, and to put regions on a more equal footing, many indicators were normalized, i.e., expressed on a per-km^2 or a per-capita basis.

There was considerable variation in the changes in population and employment between the 1996 and 2001 *UTI Survey*s. As shown in Exhibit 3.3, population increased in most of the larger urban areas between 1996 and 2001, but decreases were observed in several smaller areas. Changes in employment generally mirrored those of population.

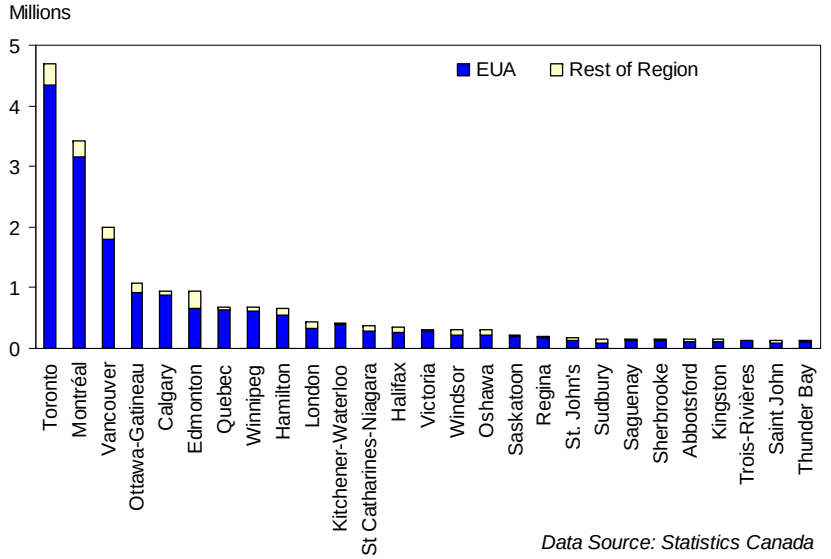
Exhibit 3.4 illustrates the differences between the percentage change in population in the EUA vs. that in the region outside the EUA, which in most urban areas represents the area beyond the urban boundary. For most urban areas, growth in the area outside the EUA increased at a higher rate than in the EUA, although the absolute growth in the outer areas was much lower, generally around 10% of the total population growth in most urban areas. The growth outside is important because it is generally considered to represent urban sprawl, although this depends on its density, on whether it is transit-supportive, and on whether it occurs on previous undeveloped (greenfield) land.

Exhibit 3.1: Region and EUA land area in 2001



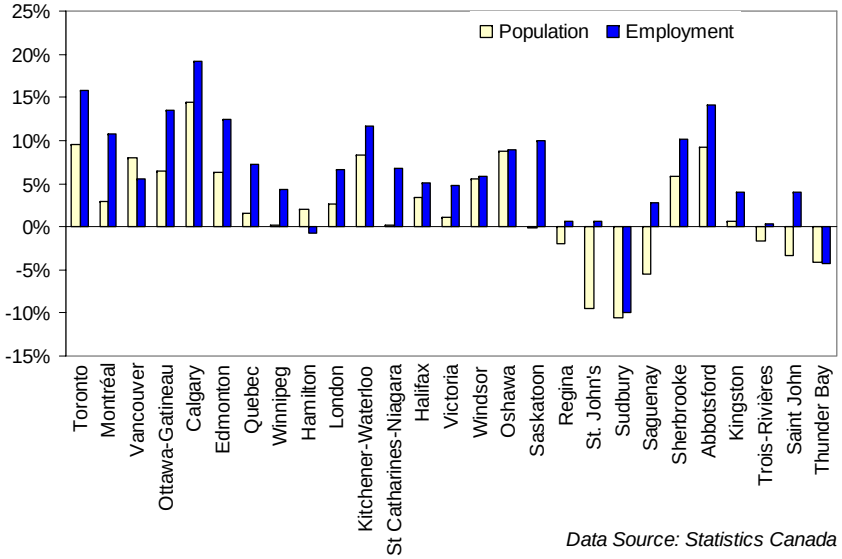
Data Source: Statistics Canada

Exhibit 3.2: Region and EUA population in 2001



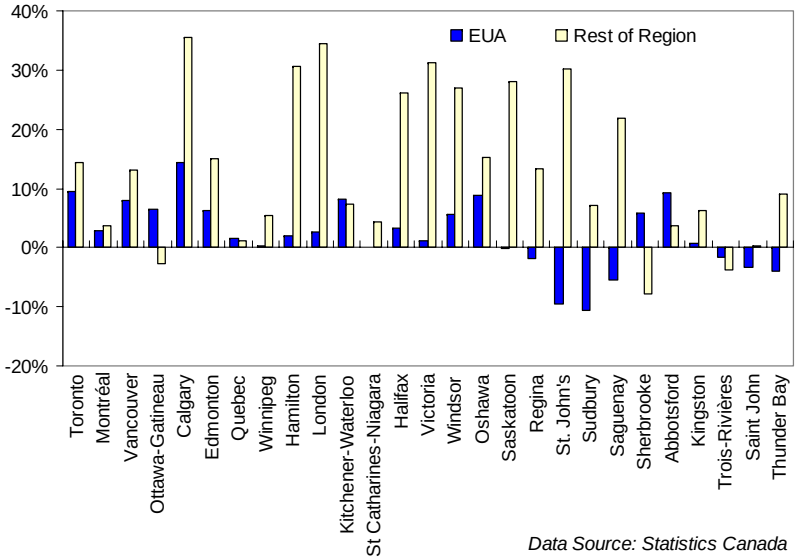
Data Source: Statistics Canada

Exhibit 3.3: Percent change in region (EUA) population and employment 1996-2001



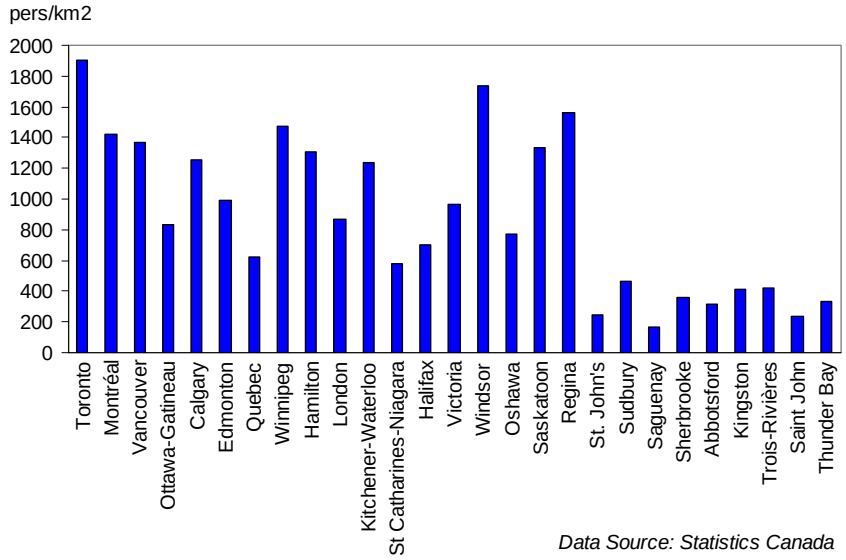
Data Source: Statistics Canada

Exhibit 3.4: Percent changes in population of EUA and the rest of the region, 1996-2001



Data Source: Statistics Canada

Exhibit 3.5: EUA residential density in 2001



Data Source: Statistics Canada

At the scale of the EUA, gross residential densities ranged from 1,905 persons/km^2 in Toronto to 163 persons/km^2 in Saguenay, as shown in Exhibit 3.5. There is a difference in average density between regions with populations above and below 200,000. The former are all above 500 persons per square kilometre; the latter are all below this density. Within each group, densities appear not to be linked to population or land area. For example, Saskatoon's EUA is almost as dense as Vancouver's. It should be cautioned, that densities depend in part on the definitions of EUAs adopted for this survey, which have been determined in part by political boundaries. They may therefore be affected by the inclusion of some rural or greenfield areas.

As with total population and employment, patterns of employment density by urban area generally mirror those of population density and are therefore not plotted here.

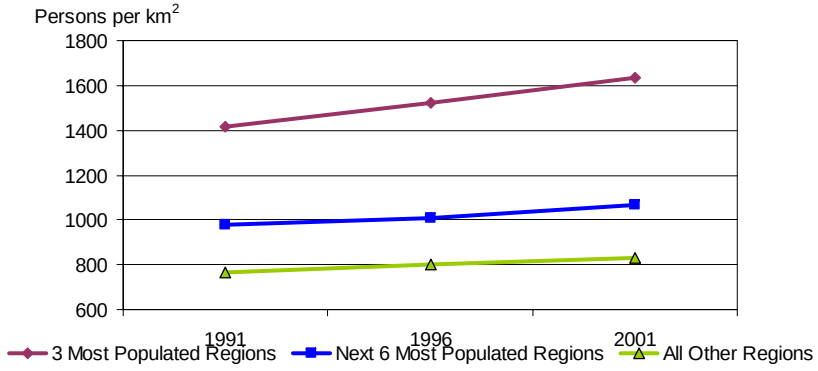
Overall, urban regions may be becoming more densely populated, at least at the broad urban level. As shown in Exhibit 3.6, the average residential density of EUAs has increased since 1991, particularly for larger regions (by as much as 14% in the case of Calgary). This is in part because some EUAs included greenfield areas at the time of the

earlier surveys, and whose development resulted in higher EUA densities at the time of later surveys.

The concentration of employment within a Central Business District (CBD) can have a significant impact on the extent of transit use in an urban area because transit can serve single-point destinations more easily and efficiently than scattered destinations. As shown in Exhibit 3.7, employment densities in the CBDs of areas surveyed varied considerably: Toronto's CBD had an employment density of 55,000 jobs/km^2; Thunder-Bay's was 2,700 jobs/km^2.

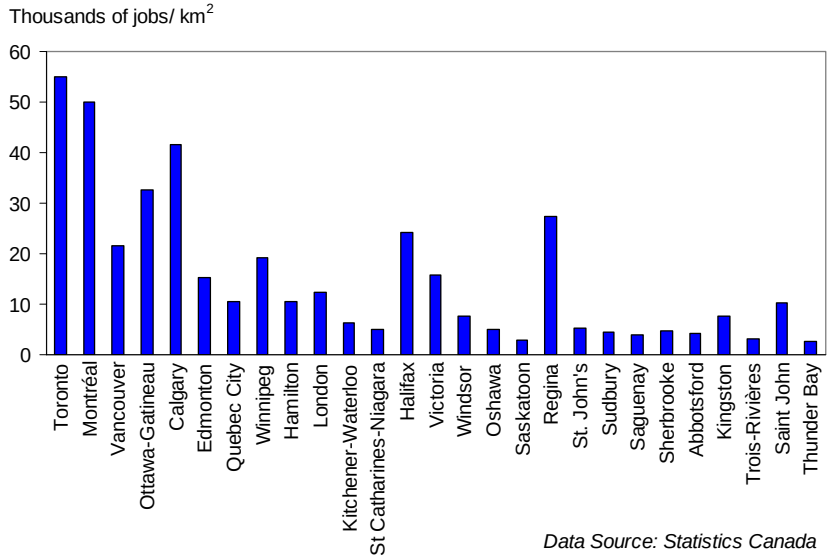
On average, the CBDs of the 27 urban areas held about a fifth of total regional employment, varying from 9% to over 25%. Exhibit 3.8, shows that this proportion has been decreasing for most urban areas, i.e., jobs have been decentralizing, although this was not evidently the case for the largest regions. Saskatoon reported among the largest declines, but caution must be observed in interpreting this because the CBD is a relatively small area.

Exhibit 3.6: Evolution of urban densities, 1991-2001



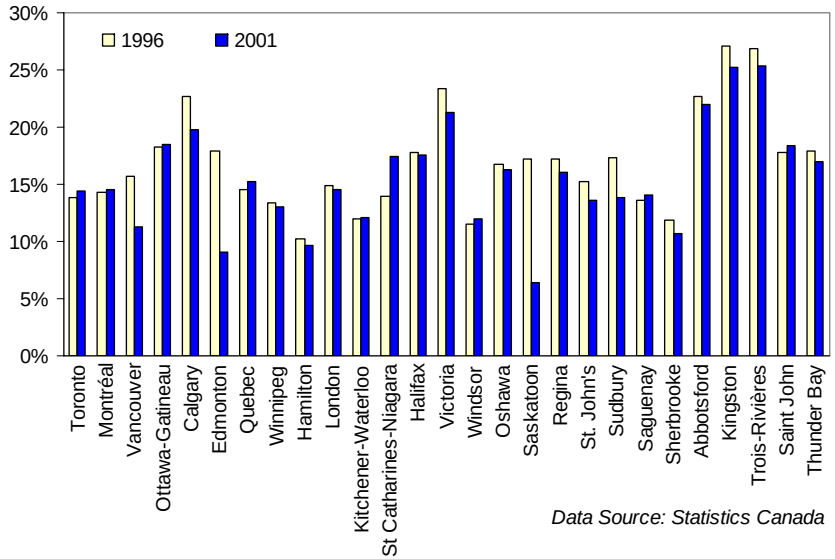
Data Source: Statistics Canada

Exhibit 3.7: Employment densities in the CBD in 2001



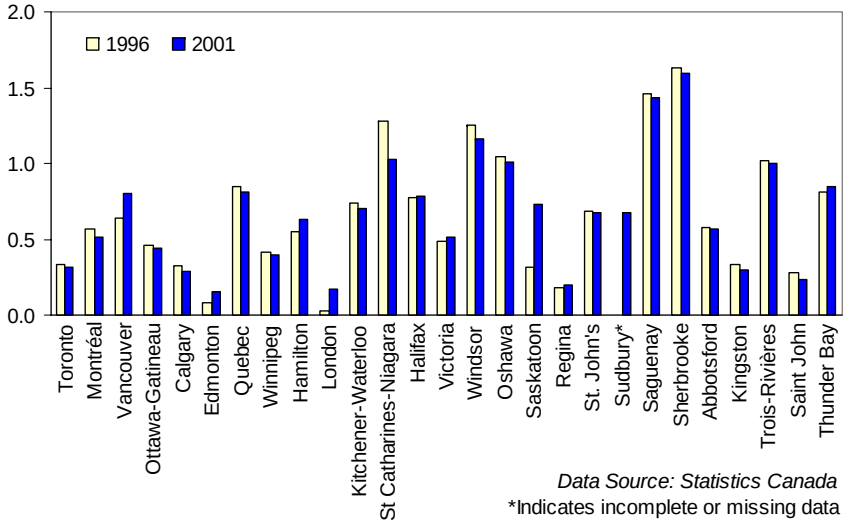
Data Source: Statistics Canada

Exhibit 3.8: Proportion of region employment located in the CBD in 1996, and 2001



Data Source: Statistics Canada

Exhibit 3.9: Ratio of population to employment in CA in 1996 and 2001



Data Source: Statistics Canada
*Indicates incomplete or missing data

Another basic indicator of urban structure is the ratio of population to employment in the Central Area. A large number of residents in and near downtowns can contribute to reduced travel distances and higher levels of transit use. Exhibit 3.9 shows that in most of the regions the ratio of residents to jobs in Central Areas decreased between 1996 and 2001. The decreases in ratio were mostly small, as were all the increases.

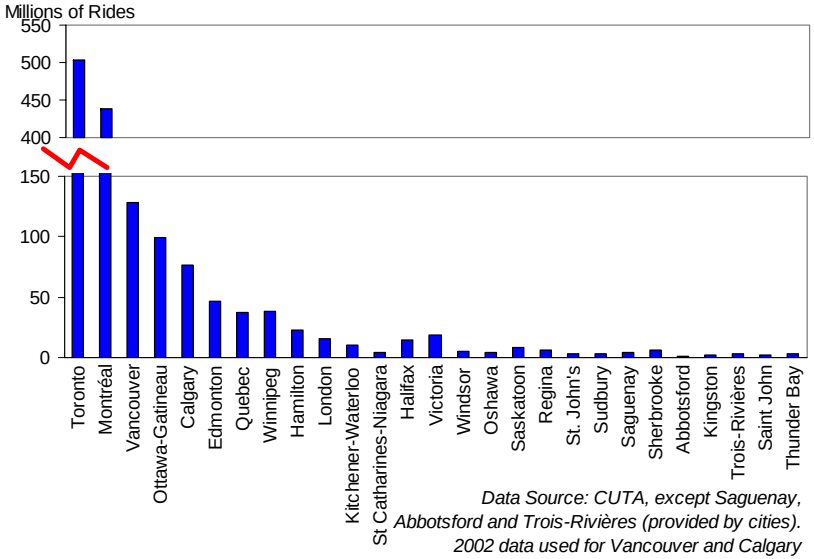
Exhibit 3.9 also suggests that the ratio of residents to jobs in Central Areas does not appear to be directly related to city size. Most of these ratios were below 1.0, meaning that there were more jobs than residents in the CA. St. Catharines-Niagara, Windsor, Oshawa, Saguenay, and Sherbrooke had more residents in the CA than jobs. This is in part due to the size of the Central Area defined for these regions, but also perhaps to the nature of their local economies. A higher proportion of economic activity in the primary and secondary sectors (resource extraction and manufacturing, for example), which typically locate outside of the Central Area, could result in a higher proportion of jobs located outside the central area, and therefore a central area that is more residential in nature.

Transit Use

Data collected by the Canadian Urban Transit Association (CUTA) provide a comprehensive picture of transit use in 24 of the urban regions covered by this survey (not Abbotsford, Saguenay, and Trois Rivières). For these cities, data from the respondents was used. Transit data is reported for the transit service area, which is similar to the EUA. Total transit ridership is closely related to the size of the EUA, with Toronto having the highest total ridership at 500 million rides per annum (Exhibit 3.10).

In general, absolute transit ridership declined in almost all regions between 1991 and 1996, with Calgary and Montréal being the exceptions (Exhibit 3.11). Several regions recovered some of this ridership between 1996 and 2001 with London and Ottawa-Gatineau seeing the highest percentage gains (over 30%). It should be noted that 2002 data was used for Vancouver and Calgary because of strikes lasting 128 and 50 days respectively. 2001 data for Victoria may be slightly lower than expected because of a 14 day strikes.

Exhibit 3.10: Annual transit ridership in 2001



Data Source: CUTA, except Saguenay, Abbotsford and Trois-Rivières (provided by cities). 2002 data used for Vancouver and Calgary

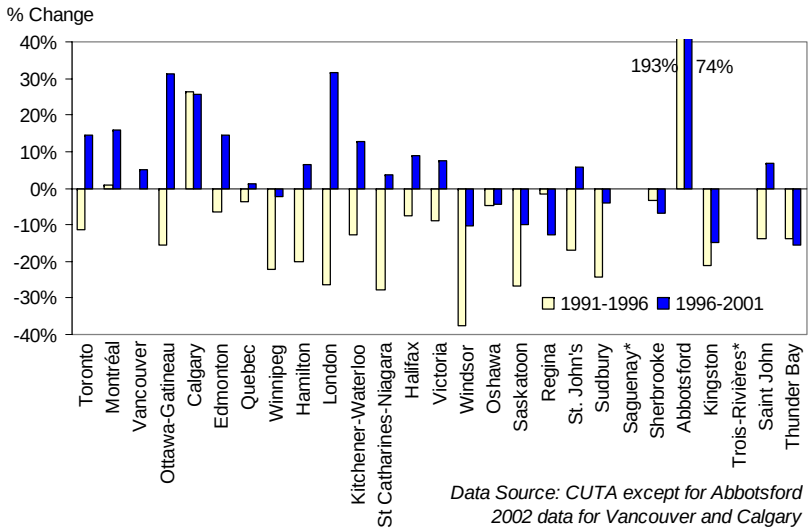
The larger EUAs tended also to have higher transit ridership when measured on a per-capita basis, with the highest level being

achieved by Montréal at 139 trips per capita per annum (Exhibit 3.12). There appears to have been a marked difference between regions with EUA populations of more than 250,000 residents and those with fewer residents. The latter all reported less than 50 transit trips per resident per year.

Comparison of Exhibits 3.11 and 3.13 shows that changes in transit ridership per capita were similar to changes in total transit ridership, with most urban areas experiencing significant declines between 1991 and 1996. More than half of the urban areas also saw decreases in per-capita transit use between 1996 and 2001. However, some of the larger regions, including Toronto, Montréal, Ottawa-Gatineau, and Edmonton, as well as some smaller regions, recorded increases in per-capita transit use across these years.

Between 1996 and 2001, several regions reversed a trend of declining transit ridership per capita. They included Toronto, Montréal, Ottawa, Edmonton, Hamilton, Kitchener-Waterloo, London, Victoria, St. Catharines-Niagara, Halifax, St. John's, and Saint John.

Exhibit 3.11: Change in annual transit ridership 1991-2001



Data Source: CUTA except for Abbotsford
2002 data for Vancouver and Calgary
*indicates incomplete or missing data

Exhibit 3.12: Annual transit rides per capita in EUA in 2001

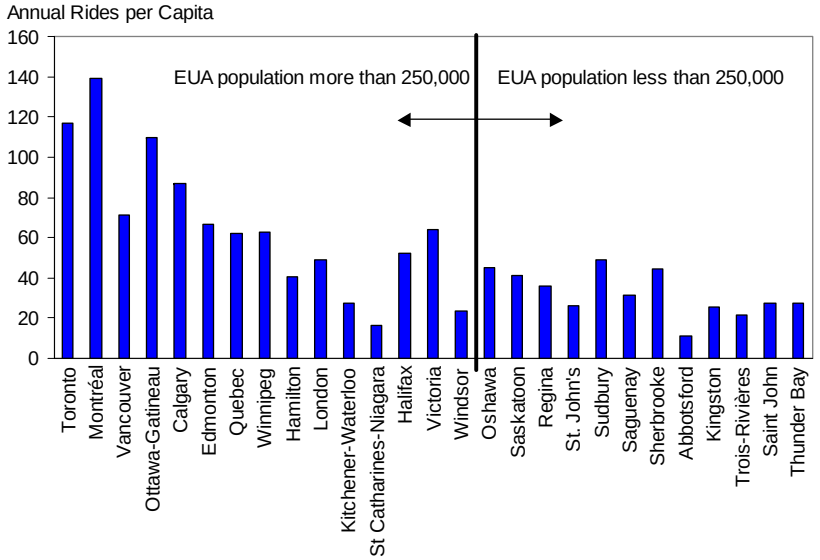
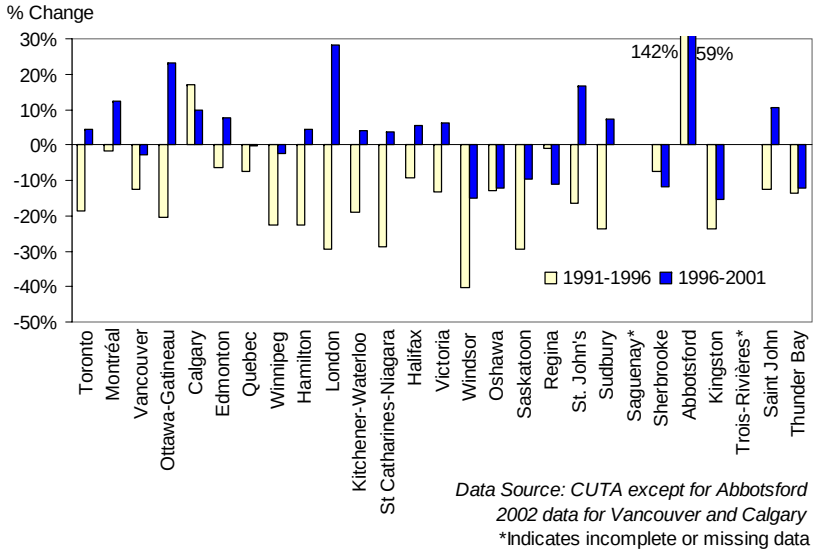


Exhibit 3.13: Change in annual transit rides per capita in EUA 1991-2001



Data Source: CUTA except for Abbotsford
2002 data for Vancouver and Calgary
*Indicates incomplete or missing data

Vehicle Ownership

Registration of light-duty motor vehicles—which include regular automobiles, trucks, vans, SUVs, and motorcycles—generally describe the supply of motor vehicles available to the population for personal transportation (although about a quarter of light-duty trucks are used primarily for commercial purposes). Statistics Canada defines a light-duty vehicle as one weighing up to 4.5 tonnes. The remaining vehicles, mostly trucks and buses, are described here as heavy-duty vehicles. Per-capita registrations of light- and heavy-duty vehicles are shown on Exhibit 3.14, with the rates for heavy-duty vehicles multiplied by ten to accommodate their relatively few numbers.

Ownership of automobiles (including other personal vehicles such as SUVs) is an important factor in modal choice and travel behaviour. In turn, these have wide-ranging impacts on infrastructure requirements, and associated effects such as land consumption and environmental degradation as well as more direct impacts such as air emissions. In general, ownership of a vehicle is associated with use, i.e., if a car is owned it is likely to be used.[5]

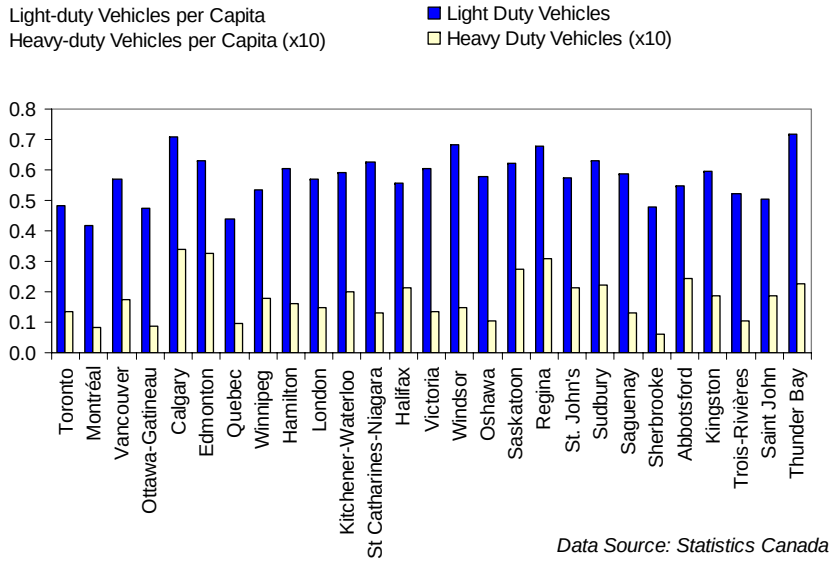
In 2001, Montréal had the lowest rate of motor-vehicle ownership as determined by vehicle registrations: 0.43 light-duty vehicles per capita. Thunder Bay and Calgary both had the highest: 0.74 vehicles per capita. The four most populous regions had relatively low rates of vehicle ownership. Otherwise there was no consistent relation between auto ownership and population size or density. Other factors such as income levels and access to transit may be more significant.

There was no obvious change in automobile ownership between 1996 and 2001; however, comparison is difficult because of a change in how these data were collected.

In 2001, there were almost 9 million light duty vehicles registered in the 27 regions covered by this survey. This represents 1.4 vehicles for every household or approximately one vehicle for every two persons.

Exhibit 3.14: Vehicle registrations per capita in 2001

Note: Development of the vehicle registration data is detailed in Appendix D



Data Source: Statistics Canada

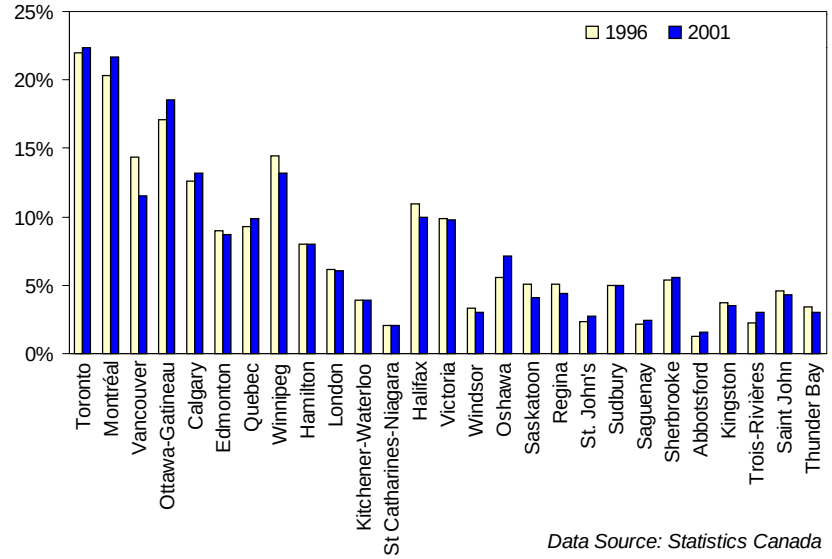
Journey-to-Work Trends

Beginning in 1996, questions have been asked in the Census of Canada about Canadians' work-related trips. This includes information on mode of transportation and trip distance. 1996 data regarding journey to work distances for Kingston and Abbotsford are not available.

Exhibit 3.15 shows that transit's share of these trips was highest in the largest regions, and generally decreased with region size. Toronto had the highest share with 22%; for regions with population under one million, except Calgary and Winnipeg, the share was less than about 10%. The low shares may be related in part to the lack of transit infrastructure in these regions. Only the six most populous regions have rapid transit systems; the other systems are bus based. Consistent with the trends in transit ridership per capita noted above, most of the larger regions recorded a modest increase in transit mode share between 1996 and 2001. Smaller regions, below 500,000 residents, showed no consistent trend; decreases were slightly more frequent than increases. Furthermore, only Montréal, Ottawa-Gatineau, and Oshawa show increases by more than one percentage point. Most losses were by a greater amount. Note that Vancouver in particular had a transit strike that affected the 2001 mode share.

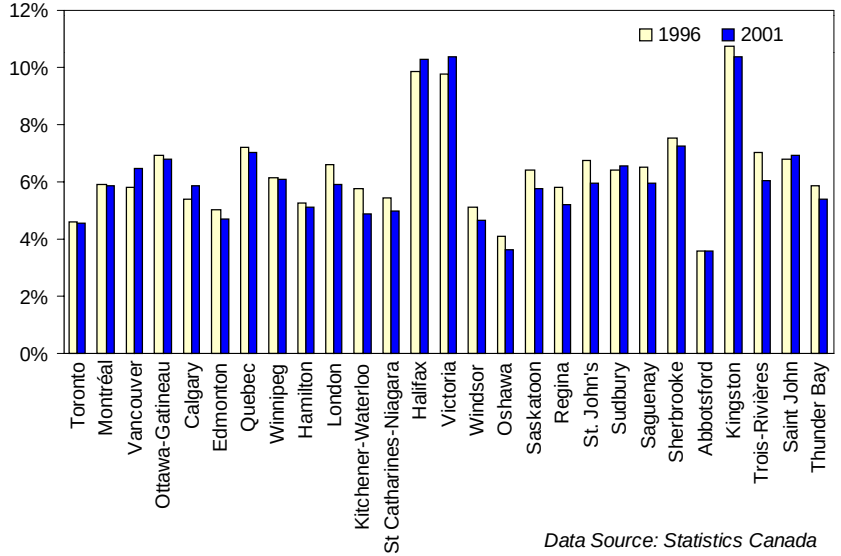
Exhibit 3.16 shows trends in what may be the most sustainable form of transportation: walking. Walking represents a relatively rare but distinguishable mode of transportation to work, generally comprising between 5% and 7% of work trips, with a high of 10% in Halifax and a low of 4% in Oshawa. Exhibit 3.17 shows that cycling accounted for less than 2% of trips, except in Victoria (5%) and Saskatoon (3%). Together, walking and cycling usually comprised less than 10% of work trips. Walking and cycling trends between 1996 and 2001 followed a similar but less consistent pattern to transit mode shares: all changes were by less than one percentage point. Shares increased in Toronto, Montréal, Vancouver, Hamilton, Québec, Sudbury, Victoria, Halifax, and Saint John. Declines cannot be attributed to increased transit use or vice versa, as the trends differ. Only in the largest regions has there been a shift towards increased walking and cycling, the direction promoted in TAC's *Vision*.

Exhibit 3.15: Journey-to-work transit mode shares in 1996 and 2001



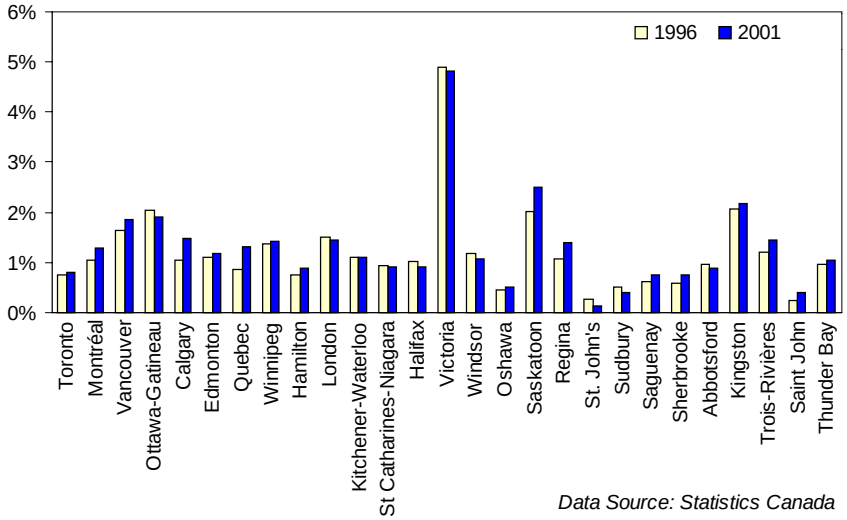
Data Source: Statistics Canada

Exhibit 3.16: Journey-to-work walk mode shares in 1996 and 2001



Data Source: Statistics Canada

Exhibit 3.17: Journey-to-work cycling mode shares in 1996 and 2001



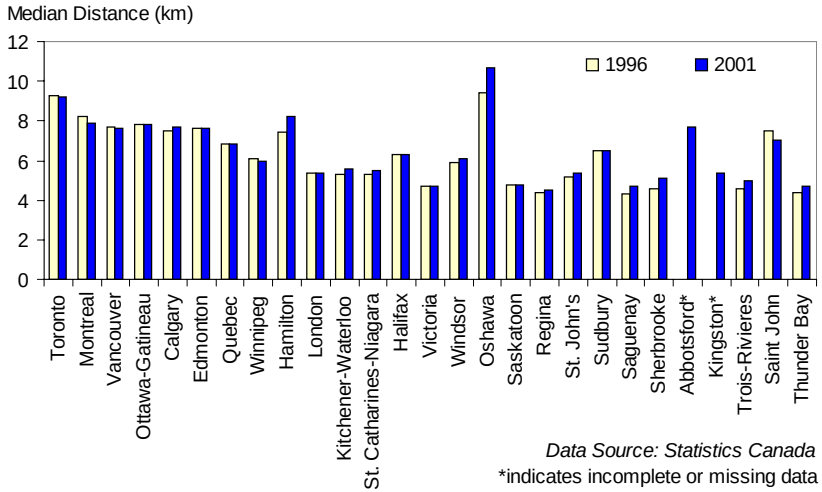
Data Source: Statistics Canada

Thus, transit mode share appears to vary with region size—it is higher for regions with more than about 500,000 residents—but mode shares of walking and cycling show no clear relationship to region size.

Exhibit 3.18 illustrates trends in journey-to-work distance, expressed as median straight-line distance. This distance generally ranged from 5 to 9 km, increasing with the size of cities. Larger centres such Toronto and Montréal reported high median commuting distances, reflecting the spread of jobs and households across a larger area. Higher values were also observed in regions that have a large portion of out-commuting to adjacent metropolitan regions; notably Hamilton, Oshawa, and Abbotsford.

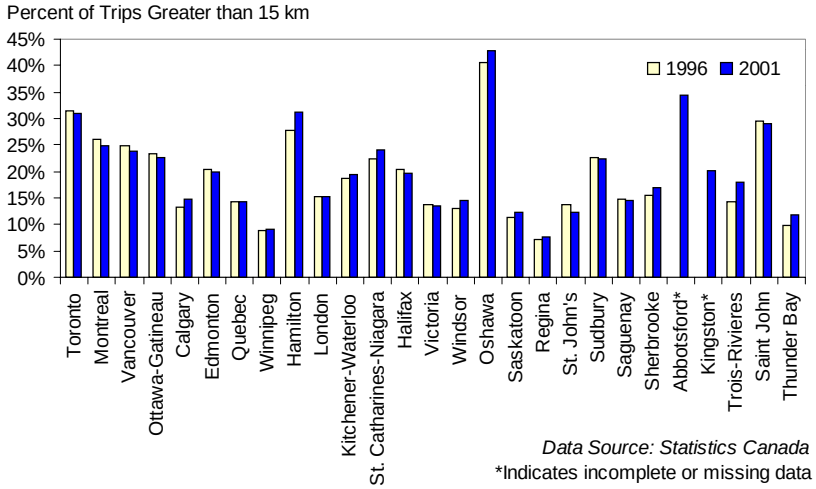
Between 1996 and 2001 twelve regions experienced an increase in longer trips—i.e., greater than 15 kilometres—representing a trend away from sustainable transportation because longer trips are generally harder to serve by transit. In particular, Calgary, Hamilton, Windsor, Sherbrooke, Trois-Rivières, and Thunder Bay reported increases of 10% or more in the number of work trips longer than 15 kilometres (see Exhibit 3.19). For the 27 regions, the median work-trip distance remained constant between 1996 and 2001 at 7.6 kilometres.

Exhibit 3.18: Median work-trip distance, 1996-2001



Data Source: Statistics Canada
*indicates incomplete or missing data

Exhibit 3.19: Share of work trips longer than 15km, 1996-2001



Data Source: Statistics Canada
*Indicates incomplete or missing data

Energy Use

Gasoline consumption is a key indicator addressed by the *UTI Surveys*. It is an immediate measure of our transport system's energy requirements. It is closely associated with greenhouse gas emissions, and thus relevant to Canada's potential obligations with respect to the 1997 Kyoto Protocol. There are also growing concerns that worldwide oil production will not be able to keep up with growing worldwide demand for oil, resulting in much higher transport fuel prices and corresponding growth in importance of transit systems and other alternatives to automobile use.

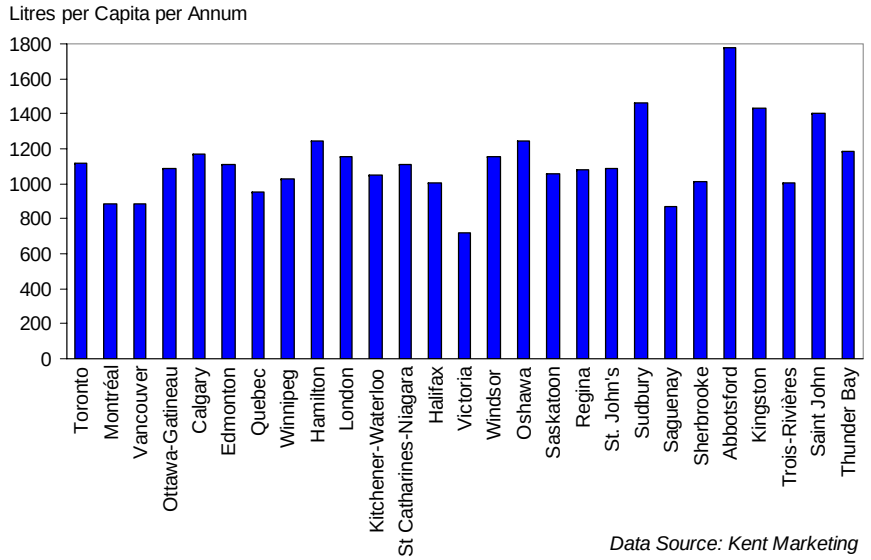
Available fuel use data represent gasoline sales at gas stations within each EUA. There are few diesel-powered vehicles in the personal-vehicle fleet and relatively little gasoline is used for commercial vehicles. Thus, gasoline sales are generally representative of personal automobile use (although slightly less so over the period of the surveys because of strong growth in gasoline use for goods movement).

Exhibit 3.20 shows that reported annual per-capita fuel use in 2001 was lowest in Victoria and Saguenay, at 723 and 869 litres, respectively. Abbotsford recorded the highest use: 1,780 litres. These sales figures may be inflated by purchases made by neighbouring GVRD residents, as there is an additional gasoline tax in the GVRD. The population-weighted average was 1,039 litres.

Between 1991 and 2001, fuel use per capita increased in all the regions covered by this survey except Saskatoon and Regina. Perhaps more significant, in most regions the increases between 1996 and 2001 were larger than those between 1991 and 1996. With population growth, this has meant significantly greater levels of fuel consumption. That the largest increases occurred in regions close to the U.S. border suggest a border effect, e.g., decreasing purchases in the U.S. as the value of the Canadian dollar declined. Changes in Abbotsford are partially a result of the implementation of the GVRD fuel tax, which Abbotsford is adjacent to but not a part of. Gasoline sales are also impacted by growth in freight movement by gas trucks.

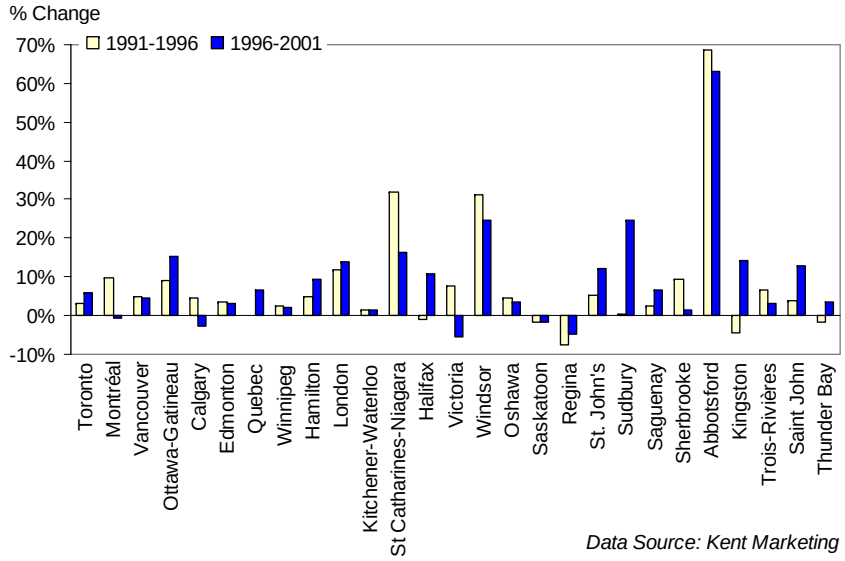
In 1991, the combined annual gasoline fuel sales for all 27 EUAs amounted to 14.2 billion litres. By 2001, this had risen to 17.7 billion litres, a 25% increase in total sales and an 11% increase in per capita gasoline sales, representing a trend away from more sustainable urban transportation.

Exhibit 3.20: Annual fuel use per capita in 2001



Data Source: Kent Marketing

Exhibit 3.21: Change in annual fuel use per capita, 1991-2001



Data Source: Kent Marketing

Goods Movement

Goods movement is critical to the economic health and survival of our urban centres. The *UTI Surveys* have been unable to provide extensive data on goods movement activity at the urban level. The data do not exist in most regions. One question was asked, concerning commercial vehicle-kilometres. Less than a third of respondents were able to provide even an approximation.

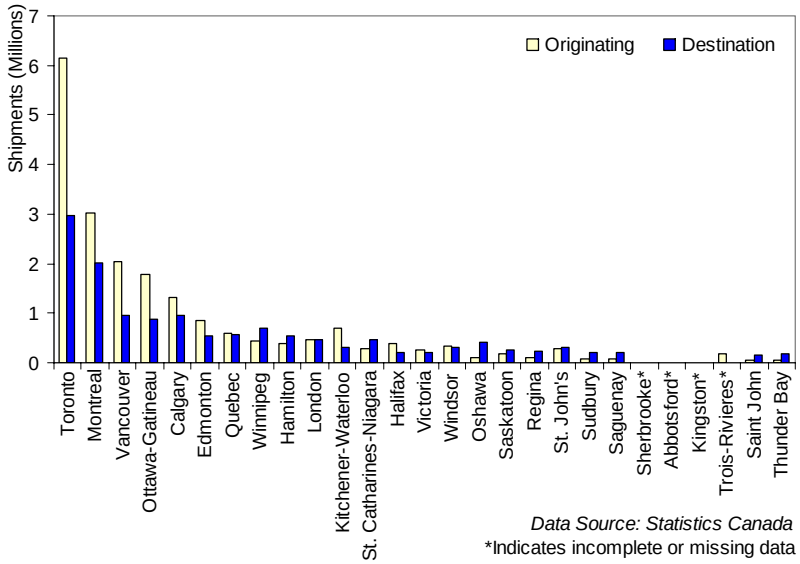
To provide some perspective on goods movement trends, this report draws on information collected by Statistics Canada.

Consideration of shipments over 25 kilometres, as described in Statistics Canada's *Trucking in Canada* reports,[6] yields expected results: larger cities generate more shipments, with Toronto as the highest generator, responsible for over 6 million shipments annually. It should be noted that the Statistics Canada reports may cover only a small proportion of urban trips. Most trips within urban areas are under 25 kilometres; and the reports cover only shipments by 'for-hire' trucks owned by larger companies, often less important within urban regions than shipments by other trucks.[7]

As illustrated in Exhibit 3.22, the six largest regions were not only the origin of more shipments, but they were also more frequently the origin of shipments than their destination, whereas the converse is true for smaller regions except Halifax and Kitchener-Waterloo. The number of shipments do not represent directly the amount of freight transport activity. This is shown in Exhibits 3.23 and 3.24, where it can be seen that tonne-kilometres performed has been rising more steeply than the number of shipments, especially originating shipments. Available data suggest that this was primarily because shipments became larger, but also because they were moved for greater distances. Both factors point to more extensive use of larger trucks, including within cities.

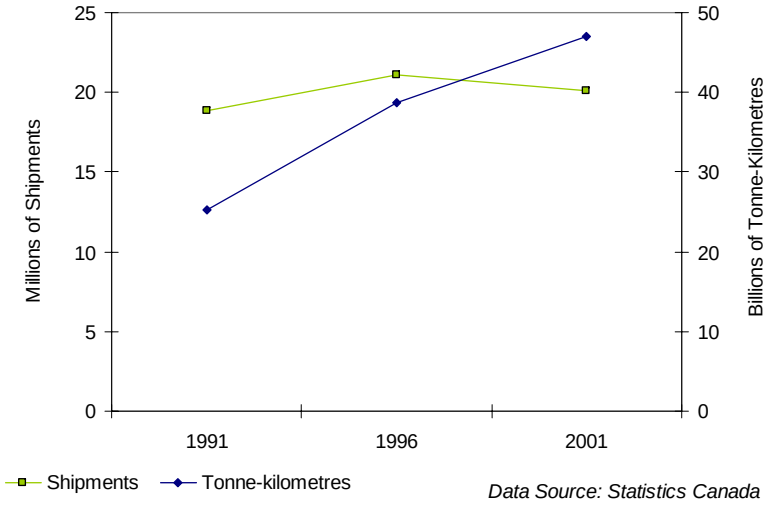
The lack of data on urban goods transport suggests that urban goods movement may not be being given sufficient attention in most regions, and may not be being approached in a consistent way across the country.

Exhibit 3.22: Shipments to and from CMAs, 2001



Data Source: Statistics Canada
*Indicates incomplete or missing data

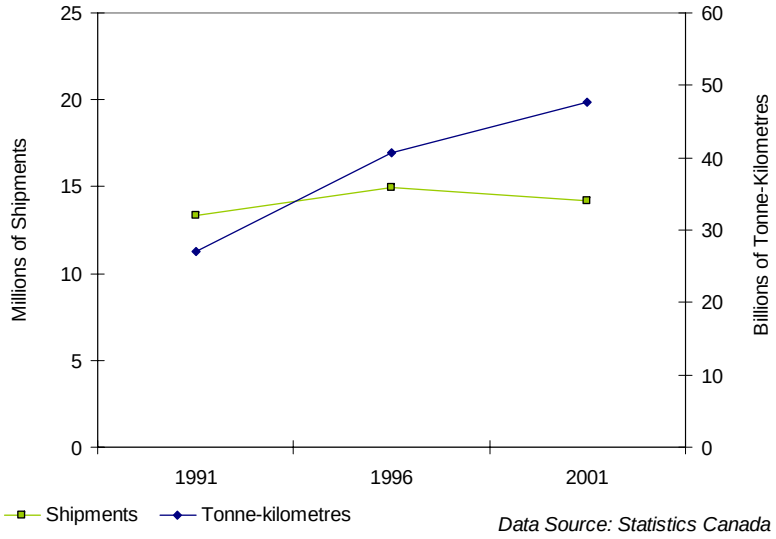
Exhibit 3.23: Shipments originating in CMAs



Data Source: Statistics Canada

Note: Above graphs exclude most intra-urban trips

Exhibit 3.24: Shipments destined to CMAs



Data Source: Statistics Canada

4. Land Use and Transportation Initiatives

Tracking Progress on Land Use and Transportation Initiatives

Part A of the *UTI Survey* asked respondents to indicate the level of implementation of various land-use and transportation initiatives in ten policy areas that generally parallel the policies described in TAC's *Vision for Urban Transportation*. These ten categories are shown in Exhibit 4.1 together with a listing of specific initiatives and examples.

For each type of measure, respondents selected from one of six responses (or 'not applicable'): not a priority at present, studying the issue, have adopted policies/guidelines, implementing pilot projects, implementing in specific areas, and implementing throughout the study area. The responses provide an indication of the degree to which a municipality has been implementing measures consistent with attaining more sustainable transportation, and allow some comparisons in this respect with 1991 and 1996. The intent of these questions was not to produce a detailed 'report card' on individual initiatives but to provide a high-level overview of progress in the general directions described by the different categories. The initiatives queried were intended to represent a sample of possible initiatives rather than a suggested list of policies. Some measures may be appropriate for a given municipality; others may not. Moreover, variations among provinces in the management and funding of transportation produce variations in implementation processes and in the ability of different municipalities to act in specific ways.

A simple rating system was developed to track progress on land-use and transportation initiatives. It involved assigning a score to each response and then averaging the scores for each type of measure. The response 'not a priority' was scored as 1 and 'implementing throughout the study area' was scored as 6, with corresponding scores for the intervening types of response. The average numerical score was then calculated for each category of measure. Again, it is important to stress that the average score is less important than the evolution of the initiatives over time.

Exhibit 4.1: Categories of land-use and transportation initiatives

Category/measure	Description or Example
1 URBAN STRUCTURE/LAND USE	
(a) long-term, integrated municipal land-use/transportation plan	Official Plan considers transportation implications of land development patterns
(b) transit-related high-density, mixed-use centres/nodes	Incentives/special policies for higher density nodes
(c) higher-density, mixed-use transit corridors	Incentives/special policies for higher density corridors
(d) limiting urban development within designated urban boundaries	Restrictions on development beyond urban boundary
(e) re-urbanization/intensification transit corridors	Incentives for brownfield development
(f) relating transit service levels to density	All areas with urban densities of more than X persons/hectare have bus services
(g) appropriate population/employ-ment ratio at municipal level	Employed labour force is in balance with number of jobs thereby encouraging more efficient live-work relationships
(h) appropriate population/employ-ment ratio at node/community level	Employed labour force is in balance with number of jobs thereby encouraging more efficient live-work relationships
(i) encouraging residential uses in/near downtown area	Zoning policies permit residential development in Central Areas
(j) taxation and/or other incentives for compact, mixed-use development	Development charges waived in Central Areas
2 URBAN DESIGN	
(a) transit-supportive urban design (macro level)	
(b) transit-supportive site/ building design (micro level)	Street patterns facilitate transit, buildings oriented to street, transit stops within reasonable walking distance of major activity generators
(c) cycling-supportive streetscaping	Mandatory bicycle parking, provision of secure parking
(d) pedestrian-supportive streetscaping	Street patterns minimize walking distances, building entrances oriented to street, requirements for sidewalks on all streets
(e) traffic calming	Policies in place to allow traffic calming measures where appropriate (e.g. speed humps, curb extensions, road closures)

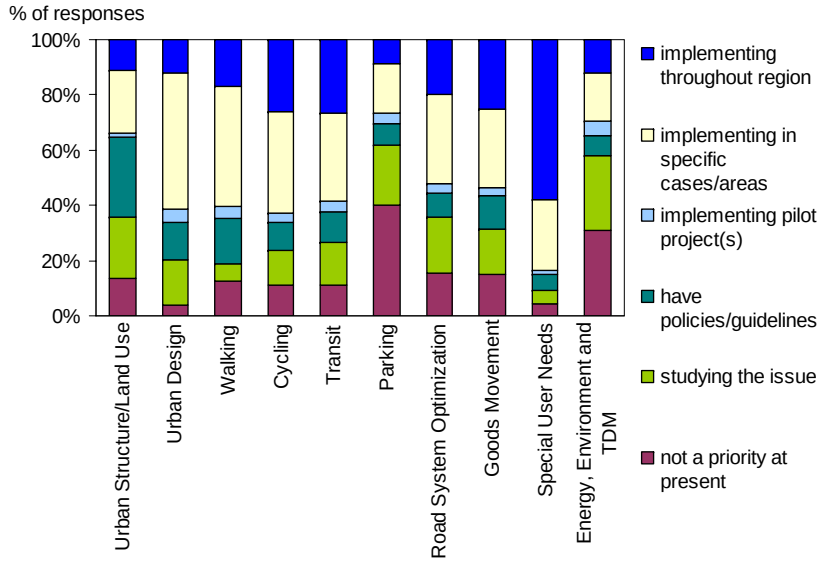
Category/measure	Description or Example
3 WALKING	
(a) enhanced pedestrian amenities	Site design guidelines promote wider sidewalks, weather protection, wind protection
(b) adequate road crossing facilities	Protected crossings provided in high-demand locations
4 CYCLING	
(a) network of on-street cycling lanes/ specially widened curb lanes	Dedicated bike lanes on many streets
(b) network of off-street cycling paths	Off-street cycling paths connect to major destinations
(c) secure parking for cycles	Bike ring program
(d) municipal participation on cycling advisory/awareness committees	Cycling committees have say in major decisions regarding transportation infrastructure
(e) cycling amenities in new development	Programs to promote bike lockers, showers, etc.
5 TRANSIT	
(a) transit priority by means of HOV or reserved bus lanes	High occupancies vehicle lanes/reserved bus lanes implemented on numerous corridors
(b) other transit priority measures	Signal pre-emption for transit, queue jump lanes
(c) stops within walking distance of places of residence/employment	Transit service standards address maximum walking distances
(d) park-and-ride lots	Park-and-ride lots located throughout urban area
(e) transit pick-up and drop-off facilities	Key transit stations have ‘kiss-and-ride’ facilities
(f) bike-and-ride facilities	Weather protected bike parking at key transit stations, provisions for bikes on buses in off-peak
(g) inter-municipal service coordination	Adjacent municipalities operating integrated services
(h) inter-municipal fare coordination	Regional smart-card
(i) "seamless" transit across region	Transit passengers don't need to transfer at municipal boundaries
(j) transit safety/security programs	Well-lit bus shelters, ‘request stop’ in late evening
(k) integration of urban transit with inter-city services	Inter-modal transit station, integrated fare systems
(l) fare structure, incentives, and/or subsidy to encourage transit use	Discounts for multiple ride tickets, student transit pass
(m) user information services	Pre-trip planning information, information kiosks; dynamic signs at stations
6 PARKING	
(a) parking standards related to level/ proximity of transit service	Reduced parking requirements near rapid transit
(b) maximum parking standards	Cap placed on parking ratios for new development
(c) cap on overall parking supply	Policies to restrict buildings from being demolished and replaced by surface parking
(d) pricing to discourage use of public parking lots by commuters	Rate structures to discourage long-term parking
(e) tax or other measure to discourage use of private lots by commuters	Policies to discourage free employer-provided parking
(f) restrictions on on-street parking on arterial roads in peak periods	Peak period no-parking and no-stopping restrictions (where required to expedite traffic or transit)
7 ROAD SYSTEM OPTIMIZATION	
(a) recognizing all road user needs in planning of road system	Non-motorized transportation alternatives considered in planning process
(b) considering person-capacity as well as vehicular capacity	Level of service based on person capacity as opposed to vehicle capacity
(c) HOV lanes and promotion/facilitation of ridesharing	HOV lanes implemented on many arterials
(d) transportation systems management program	Driver information systems, smart work zones
(e) intersection improvement program (geometric improvements)	On-going program of geometric improvements
(f) real-time traffic signal control and coordinated signal timing	SCOOT or similar adaptive traffic control system
(g) incident management system	Incident response strategies; CCTV monitoring of road systems; ITS used for early detection
8 GOODS MOVEMENT	
(a) consideration of goods movement in transportation system planning	Regional goods movement strategy developed
(b) consultation with goods movement industry to identify/resolve issues	Forum for goods movement, industry input into goods movement strategy
(c) provision of adequate, accessible off-street loading facilities	Zoning by-laws require off-street loading facilities

/table continues on the next page

Category	Description or Example
(d) designation of appropriate truck routes	Truck routes system is in place and consistent between municipalities
(e) development of inter-modal freight terminals and/or freight consolidation terminals	Inter-modal freight terminals present in urban area
9 SPECIAL USER NEEDS	
(a) transit vehicles accessible to physically challenged	Low-floor buses on most routes
(b) transit stations/stops accessible to physically challenged	Elevators in transit stations where required
(c) paratransit to supplement regular transit for special needs	Transit system is in place to hande special needs users
(d) curb cuts/ramps on pedestrian facilities	All sidewalks are accessible to wheelchairs, scooters
(e) designated parking spaces for physically challenged	Handicap parking space program in place and enforced
(f) audible pedestrian signals	Signals to assist visually impaired pedestrians
10 ENERGY, ENVIRONMENT, AND TRAVEL DEMAND MANAGEMENT (TDM)	
(a) alternative fuels for municipal vehicles	Municipal fleets include propane, natural gas, ethanol or electricity fuelled vehicles
(b) alternative fuels for transit vehicles	Bus fleet includes natural gas, ethanol, or fuel cell vehicles
(c) fuel-efficient vehicles for municipal fleets	Municipal fleets meet maximum fuel consumption standard
(d) promoting emissions control maintenance and inspection	Emissions testing program in place throughout urban area
(e) environmental assessment for new transportation facilities/services	EA process followed by municipalities
(f) environmental assessment for land-use plans, development proposals	Full environmental impacts of new development considered in planning process
(g) overall municipal TDM strategy	TDM strategy developed
(h) TDM strategy including road pricing initiatives	Road tolls, congestion pricing
(i) Transportation Management Associations	Publicly funded agencies to promote TDM programs for employers
(j) TDM outreach/advisory programs for public sector employees	Elimination of free parking for municipal employees
(k) Advanced Traveller Information Systems	Trip planning tools, real-time traffic information website, on-route information
(l) Established target for GHG reductions	GHG targets set

Exhibit 4.2 provides an overview of the degree of implementation of measures in the ten-land use and transportation categories for the 24 regions responding to Part A of the questionnaire in 2001. Most regions reported a reasonable degree of implementation of initiatives involving urban design, walking, cycling, transit, road system optimization, goods movement, and special user needs. Less progress was reported on initiatives involving land use, parking, and the environment. Of the regions, 13 have not fully implemented controls to limit development beyond designated urban boundaries; three indicated it was not a priority. The low degree of implementation of land-use initiatives may have significant impacts on the ability to make substantial reductions in auto-dependence in the foreseeable future.

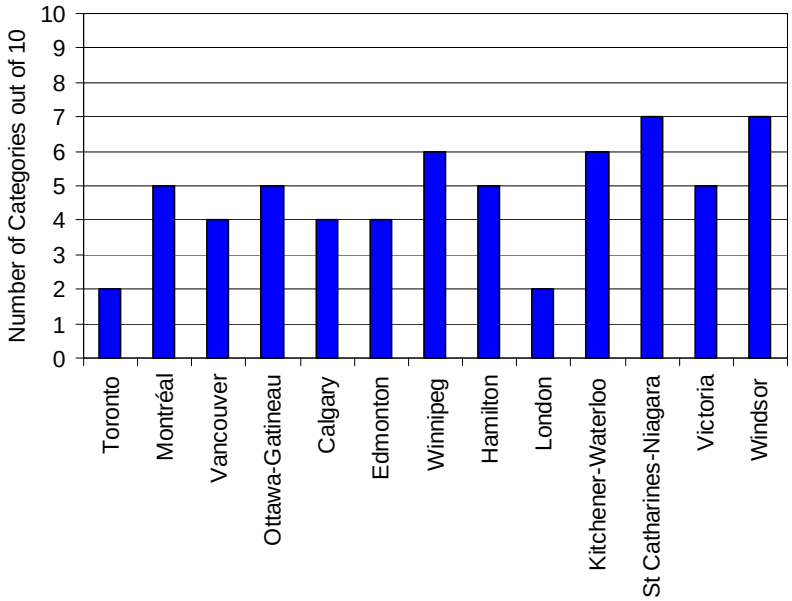
Exhibit 4.2: Degree of implementation of transportation and land-use initiatives in 2001



Another area where progress has not been made is in the establishment of measures to reduce the energy and environmental impacts of transportation. One question asked in the 2001 *UTI Survey* was whether or not greenhouse gas reduction targets had been established for the region. Only Calgary and Edmonton indicated that targets had been established. In the other regions, targets were not a priority or were being studied.[8]

Exhibit 4.3 illustrates in approximate terms the changes in average degree of implementation of land use and transportation initiatives for the 15 regions participating in the previous *UTI Survey*. The chart shows the number of categories (out of 10) for which a higher level of implementation was reported for 2001 than for 1996. Acknowledging the subjective nature of many of these responses, it would nevertheless appear that progress has been made on the implementation of measures to promote more sustainable transportation.

Exhibit 4.3: Change in extent of deployment of initiatives, 1996-2001
(Categories with a higher level of implementation in 2001; reporting urban areas only)



5. Transportation Costs and Finance

Transportation Expenditures

Reported expenditures per capita for roads and transit, presented in Exhibits 5.1 and Exhibit 5.2 respectively, vary considerably. They range from $46 (Winnipeg) to $287 (Sudbury) per capita for road expenditures by municipalities, and from $75 (Trois-Rivières) to $356 (Montréal) per capita for gross transit expenditures, i.e., including use of fare-box revenue. It should be noted that Sudbury and Ottawa reported among the highest per-capita road expenditures, but they provided data for the region rather than the EUA.

Road costs per capita did not vary in a systematic way with the size of the region; they may depend more on the characteristics of the road system, state of repair, and level of construction activity in the reporting year. Furthermore, the reported expenditures do not include contributions by provincial governments, whether for municipal roads or for roads for which those governments were directly responsible. Differences in reporting methods may also explain some of the variation, but these are difficult to assess.

Comparison of Exhibits 5.1 and 5.2 shows that *net* transit expenditures (i.e., expenditure of income other than fares) were generally lower than road expenditures per capita, i.e., governments were spending less on transit than on roads. Road interests might argue that such comparisons should account for fuel and other taxes on motor vehicles, thereby reducing the net road expenditures. However, only in a few instances do such taxes benefit municipalities (Calgary, Edmonton, Montréal, and Vancouver).

Transit expenditures appear more closely tied to population size than road expenditures. Per-capita expenditures tended to be higher in larger regions, as were transit ridership per capita and peak-period mode share (see Section 3). Ridership and extent of funding appear to be linked, although which causes which is unclear.

Exhibit 5.1: Municipal road expenditures per capita in EUA

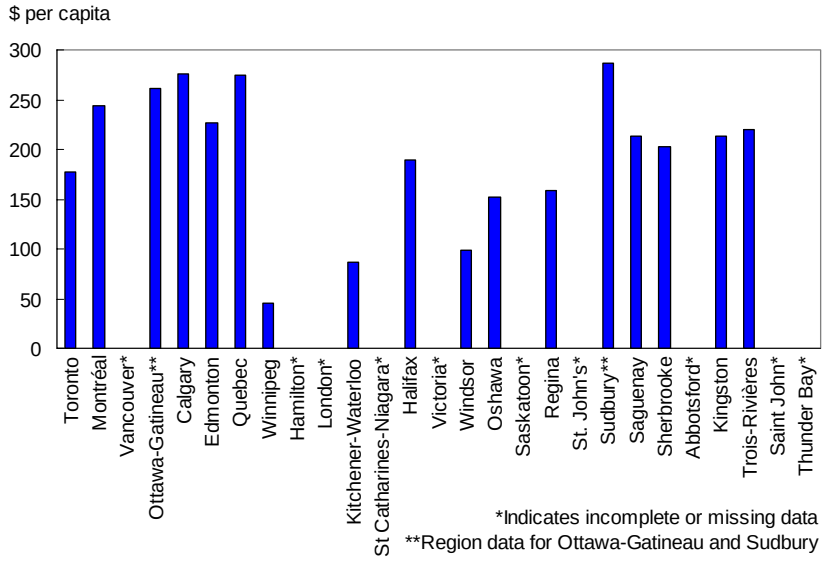


Exhibit 5.2: Gross and net transit expenditures (capital and operating) per capita in EUA

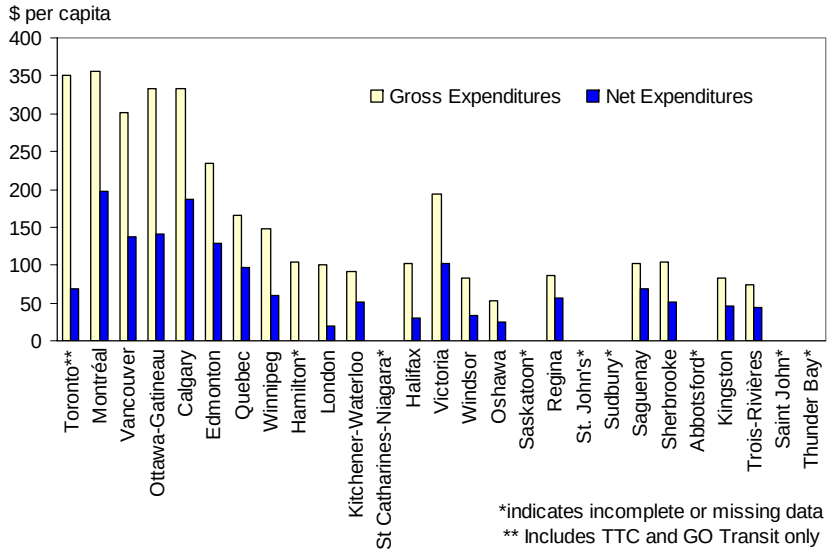


Exhibit 5.3: Sources and uses of transportation funding

						How Funding is Used					Why Funding is Not Used				
	No Response	Used		Not Used		Placed in General Revenue	Applied to Transit	Applied to Other Capital Improvements	Applied to Municipal Roads	Applied to Federal or Provincial Roads	Under Consideration	No need	No Legislative Authority	Not Considered	Not Available to Area
FUNDING SOURCE	*freq.*	*freq.*	*%*	*freq.*	*%*										
Federal/Provincial subsidies/ grants															
Recurring Federal subsidy	2	4	20%	16	80%	0%	0%	25%	0%	75%	0%	0%	13%	0%	88%
Recurring Provincial subsidy	1	12	57%	9	43%	0%	67%	25%	42%	42%	0%	11%	0%	0%	89%
One-time Federal grants	0	15	68%	7	32%	0%	47%	33%	73%	20%	14%	0%	14%	0%	43%
One-time Provincial grants	1	18	86%	3	14%	0%	50%	44%	78%	28%	5%	0%	0%	33%	33%
User fees/parking taxes/surcharges															
Surcharge on public parking rates	0	2	9%	20	91%	50%	0%	50%	0%	0%	0%	0%	30%	40%	30%
Tax on private parking revenues	0	0	0%	22	100%	0%	0%	0%	0%	0%	5%	0%	27%	36%	32%
Transit user fees	1	18	86%	3	14%	11%	100%	0%	0%	0%	0%	0%	33%	33%	0%
Road pricing (incl. Tolls)	1	3	14%	18	86%	0%	0%	67%	0%	67%	5%	0%	28%	28%	33%
Designated fuel tax	1	5	24%	16	76%	0%	100%	20%	60%	0%	5%	6%	31%	19%	38%
Vehicle registration tax	2	3	15%	17	85%	0%	100%	0%	0%	0%	0%	0%	47%	12%	41%
Local taxes/surcharges															
Municipal property tax	0	21	95%	1	5%	76%	43%	24%	48%	10%	0%	0%	0%	100%	0%
Local dedicated fuel or emissions taxes	0	1	5%	21	95%	0%	100%	0%	100%	0%	0%	0%	29%	24%	43%
Development levies/cost recovery															
Benefit-sharing levy on development	1	6	29%	15	71%	33%	33%	0%	83%	0%	10%	7%	27%	53%	0%
Frontage levy on development	2	7	35%	13	65%	29%	14%	0%	43%	0%	10%	15%	15%	46%	8%
Cost recovery for new development	1	12	57%	9	43%	25%	33%	25%	100%	0%	5%	0%	0%	56%	11%
Other	14	4	50%	4	50%	75%	25%	25%	25%	0%	0%	0%	0%	50%	25%

TAC's *Vision* stressed the need to find sustainable sources of funding for transportation facilities, particularly for the improvement and maintenance of infrastructure for sustainable transportation. Improvements to transportation systems are funded through a variety of sources, summarized in Exhibit 5.3, as reported by 21 of the urban regions. (Because they are in different provinces, Ottawa and Gatineau are treated as separate regions. Exhibit 5.3 thus represents a total of 22 regions.)

The most common source of funding for system improvements is municipal property taxes. Of those who do use property taxes, 75% of the respondent regions place them in general revenue with no guarantee that these revenues will be allocated to transportation. Some municipalities, however, do reserve taxes specifically for transit and municipal roads. The next most common source of funding for improvements is transit user fees (i.e., fares).

Federal and provincial subsidies were used in many cases. Recurring federal subsidies (four regions) were used mainly for federal or provincial roads, but not for transit or municipal roads. Recurring provincial funding was used by 57% of responses, two thirds of whom used it for transit. More often funding for transit was not recurrent. Such one-time subsidies were being used increasingly: 86% of respondents reported receipt of them from one or both senior governments in 2001 versus 73% in 1996. The funding was welcomed by municipalities. However, its nature may indicate increasing instability in funding sources for system improvements, making long-term plans more difficult.

In some provinces, including Nova Scotia and Québec, all highways and freeways are under provincial jurisdiction, and financed entirely by one or both senior governments. Questionnaire respondents were usually by representative of municipal governments; thus, these expenditures may not be fully represented.

Other than the transit-user fees mentioned above, few regions rely on user fees or surcharges. Kingston and Vancouver had parking surcharges; none reported a tax on parking revenues. From 2001, all Québec regions have vehicle registration taxes dedicated to transit.[9] Calgary, Edmonton, Vancouver, Victoria, and Montréal benefit from dedicated provincial fuel taxes used in all cases for transit and in some cases for municipal roads. These trends signal significant progress since the 1996 *UTI Survey*, for which parking surcharges and vehicle registration taxes were not reported as used for improvements; and there was less use of dedicated fuel taxes.

Levies on and cost recovery from new development were also relatively common in 2001: 55% of respondents used cost recovery and around a third used each of benefit-sharing and frontage levies. This revenue was most often used for municipal roads. The levies were also placed in general revenues and used for transit, but frontage levies were less often directed to the latter. Use of levies and cost recovery methods were not as common for the new regions participating in the 2001 *UTI Survey*. All areas participating in the 1996 survey reported using at least one of the three noted types of development levy. In 2001, only 14 of 20 regions used at least one of these levies.

Exhibits 5.4 to 5.7 illustrate sources of funding for different types of expenditure on each of roads and transit. It should be noted that municipal roadways do not include provincially or federally operated roads. Almost all municipal roadway capital funding comes from local taxes. However, Calgary and Edmonton rely significantly on user fees and surcharges (predominantly in the case of Calgary). Local taxes provide the funding for an even larger proportion of road operating expenses, over 95% in all cases but five, and over 75% for these five. Development charges and cost recovery through the provision of services to other municipalities, or to agencies or the private sector made up the difference for Oshawa, Québec, and Trois-Rivières; user fees (e.g., parking fees, tolls) made up the difference for Toronto and Ottawa.

Transit capital expenditures were mostly funded by a combination of federal or provincial funding and local taxes. Eight regions reported funding of capital projects through user fees (including fares), while only three had contributions from development charges. Transit relied much more than roads on direct user fees to cover its operating expenses, supplemented to varying degrees by local taxes and provincial subsidies. The ‘fare-box ratio’—fare revenue divided by transit operating expenditures—as calculated from data provided by municipalities, varied between 32% in Saguenay and 80% in Toronto. The percentage of transit operating costs funded by user fees is not necessarily the same as the fare-box ratio as some municipalities use a portion of fare revenue for capital expenditures.

Exhibit 5.4: Municipal road system capital expenditures

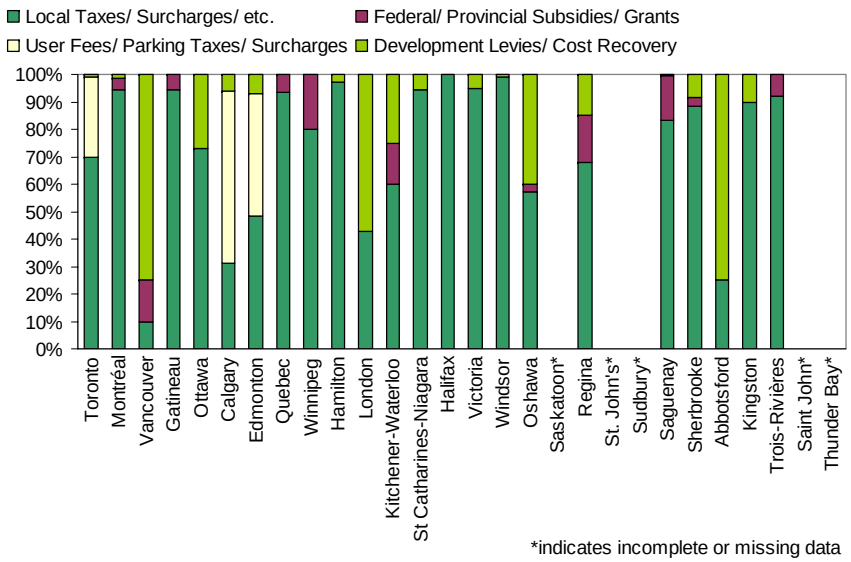


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Exhibit 5.5: Municipal road system operating expenditures

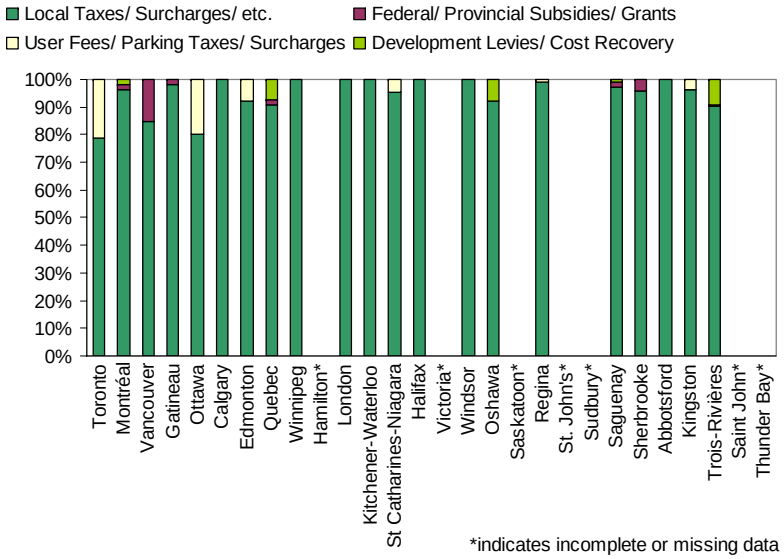

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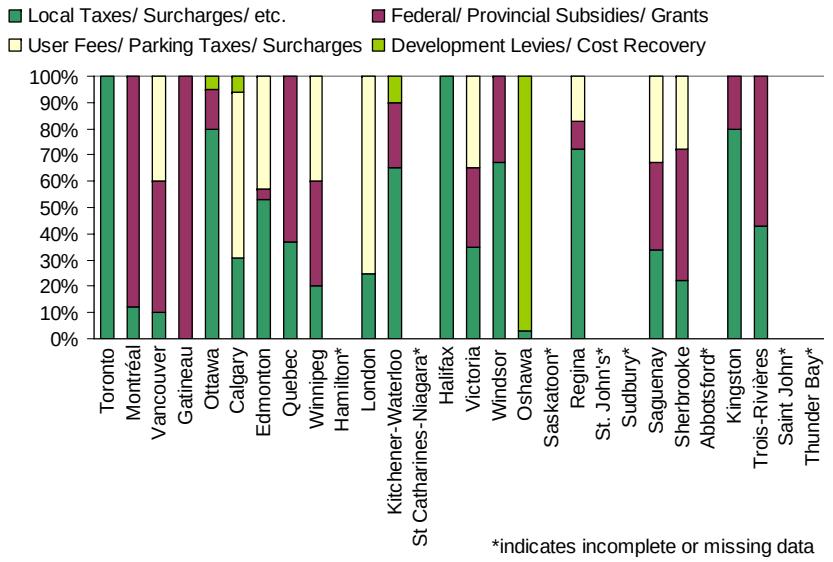
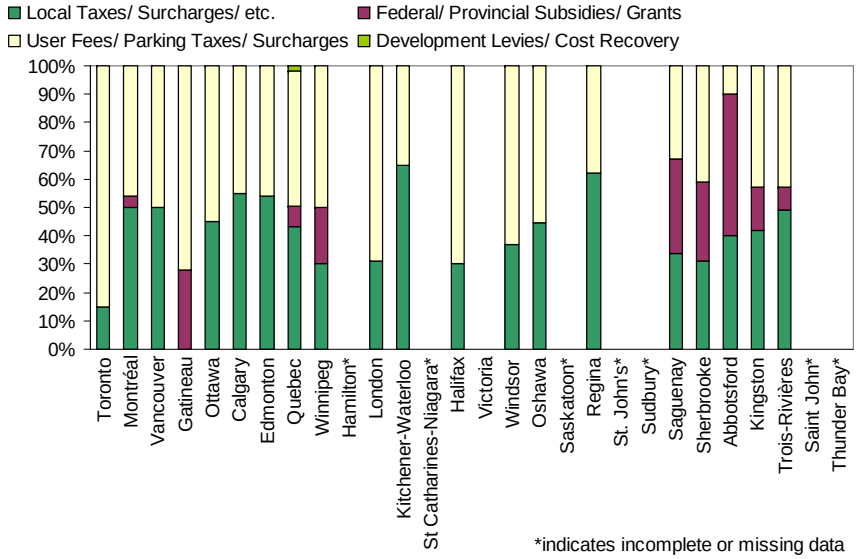
Exhibit 5.6: Transit system capital expenditures



*indicates incomplete or missing data

Exhibit 5.7: Transit system operating expenditures



*indicates incomplete or missing data

6. Key Transportation Performance Indicators

Transportation Supply

The infrastructure available to residents sets the context for their daily travel decisions and patterns and is a factor in the prevalence of particular modes. For example, reserved rights-of-way favour use of certain modes over others. An urban area with more dedicated bicycle lanes than expressway lanes can be said to promote use of bicycles over automobiles. Similarly, High Occupancy Vehicle (HOV) lanes favour carpooling and transit lanes favour transit use.

Exhibit 6.1 displays reported road supply (collectors, arterials, freeways, and highways). These roads are used primarily by motor vehicles, including commercial vehicles. Even where the presence of cyclists and pedestrians is not prohibited, speeds and geometry are often intimidating and discourage their use. Only Toronto, Montréal, Vancouver, Winnipeg, and St. Catharines-Niagara have less than four lane-kilometres of road per thousand residents. Saguenay has the highest value of this indicator (9.4) followed by Sherbrooke (8.2). These areas had among the lowest residential densities (see Exhibit 3.5). They also have extensive road networks to support access to natural resources.

Because of changes in reporting methods and incomplete answers to road-supply questions, changes in road supply could be tracked only for a few urban areas. The results, shown on Exhibit 6.2, suggest that trends have not been consistent. The length of roads per thousand residents remained relatively constant in Toronto and Montréal, but a large increase was reported for Edmonton (1996-2001) and a progressive decline for Vancouver.

Exhibit 6.1: Road lane-kilometres per thousand residents in 1996 and 2001

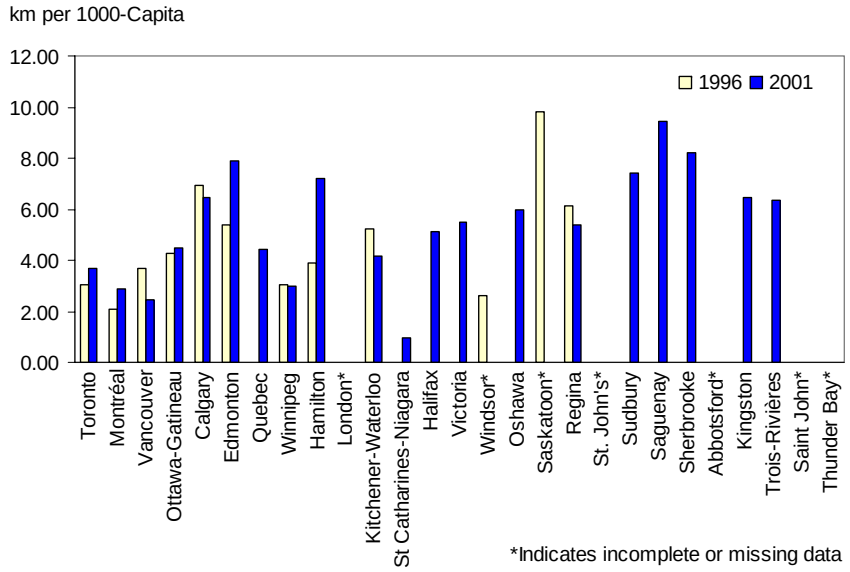
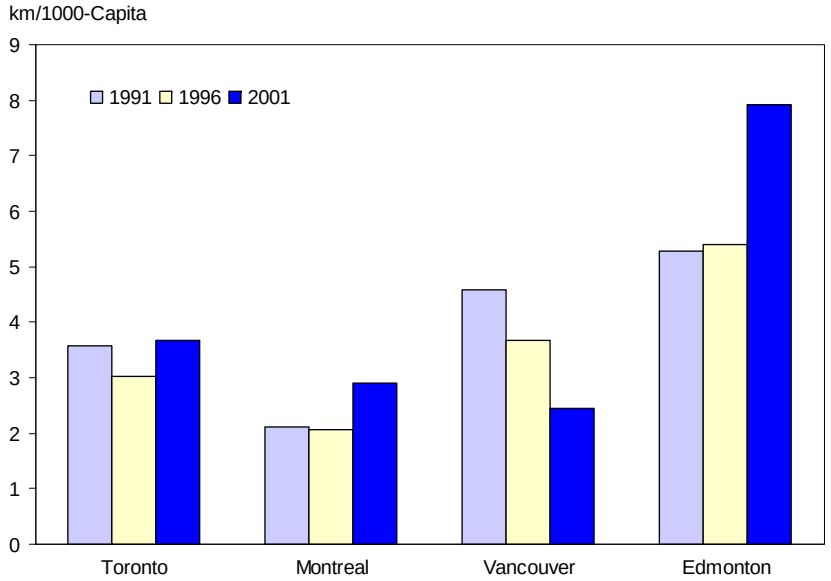
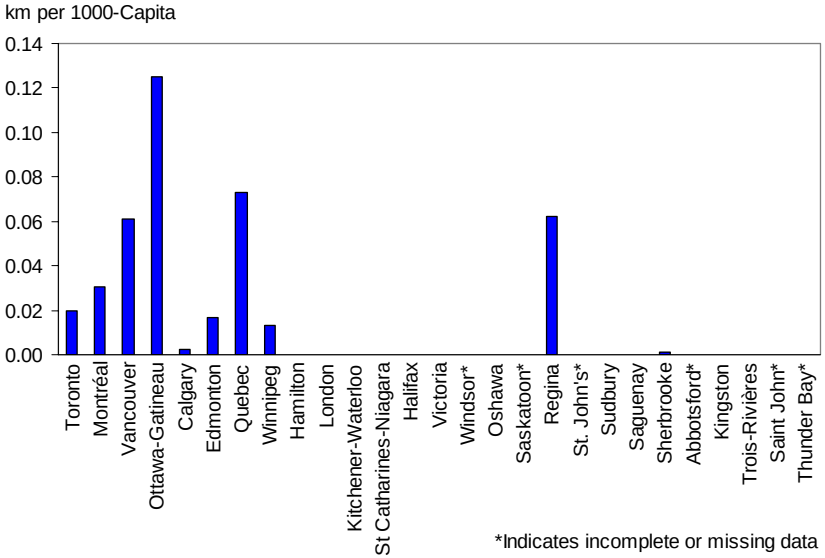


Exhibit 6.2: Road lane-kilometres per thousand residents in 1991, 1996, and 2001



Of the nineteen regions reporting HOV-lane supply, ten indicated no HOV lanes. Of the other nine, Ottawa reported having by far the greatest length at 0.125 kilometres per thousand residents (Exhibit 6.3) followed by Québec at 0.073 and Vancouver at 0.061. The regions with HOV lanes all had urban populations over 600 000, except Regina and Sherbrooke.

Exhibit 6.3: HOV lane-kilometres per thousand residents in 2001



There were generally more transit seat-kilometres per capita in the more populous regions. Exhibit 6.4 shows that all five of the largest regions had at least 6.5 daily seat-kilometres per capita, with the highest being 8.8 for Ottawa-Gatineau. Other urban areas reported between 1.7 and 5.7 daily seat-kilometres per capita. Analysis suggests that the spread cannot be attributed solely to the land area or road length of the urban areas considered and thus must be somewhat driven by policy. Daily seat-kilometres per capita (Exhibit 6.4) and transit ridership per capita (Exhibit 3.12) appear to be strongly associated.

Exhibit 6.5 shows trends in transit seat-kilometres per capita for the regions with available data. Except for Toronto, this indicator changed little across the three *UTI Surveys*.

Exhibit 6.4: Daily transit seat-kilometres per capita in 2001

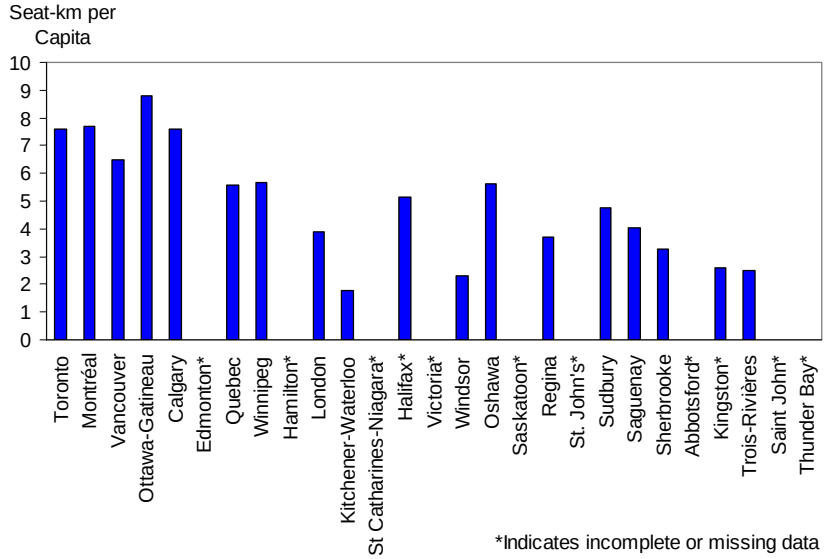
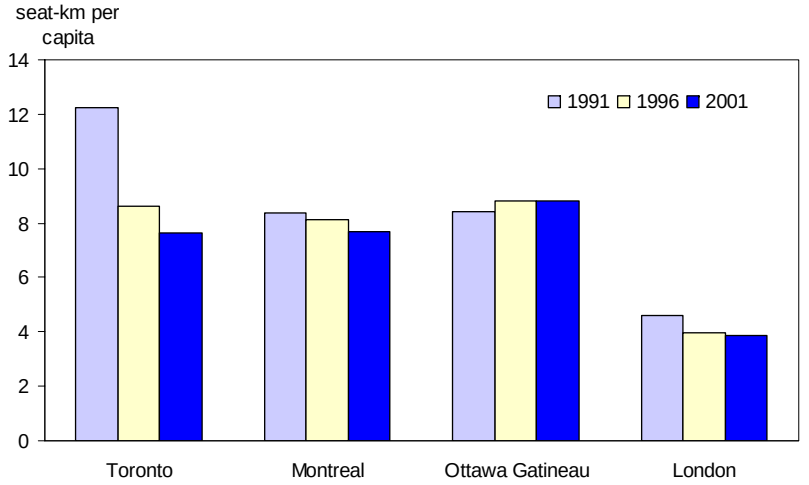


Exhibit 6.5: Transit seat-kilometres per capita for selected urban areas in 1991, 1996, and 2001



A bright spot in progress towards sustainable transportation in Canada's urban regions has been the establishment of facilities for cyclists. The 2001 *UTI Survey* determined the lengths of both on-street and off-street designated bike lanes. Exhibit 6.6 summarizes the combined length of these facilities per thousand residents for reporting urban areas. The variation in this indicator is large, ranging from zero to Calgary's 0.92 lane-kilometre per capita. Comparison of Exhibits 6.3 and 6.6 suggest that bike lanes are far more extensive than HOV lanes. Time trends are not shown because the wording changed between *UTI Surveys* and because there were few responses to the relevant questions in the 1991 and 1996 surveys.

Another supply indicator tracked by the *UTI Survey* concerns parking, off-street and on-street. Parking is the specific object of one of the policies in TAC's *Vision*, which encourages the adoption of a parking management strategy. However, parking is seldom monitored comprehensively. Most municipalities record only publicly available parking, and are unable to report on private parking such as employers might provide for employees and visitors. With the exception of Winnipeg and Edmonton, which have 2.0 and 1.1 parking spaces per employee in the CBD, respectively, regions that monitor parking reported fewer than 0.6 spaces per employee. (Graph not shown)

The report on the 1996 *UTI Survey* observed that usually only regions with populations above 600,000 had park-and-ride facilities. As illustrated in Exhibit 6.7, smaller region reported spots in 2001. Halifax, Victoria, Oshawa reported 835, 300, and 3,545 spots respectively. In the last case, spaces are associated with the GO Transit system, which provides service between Oshawa and Toronto.

Exhibit 6.6: Length of bicycle lanes per thousand residents in 2001

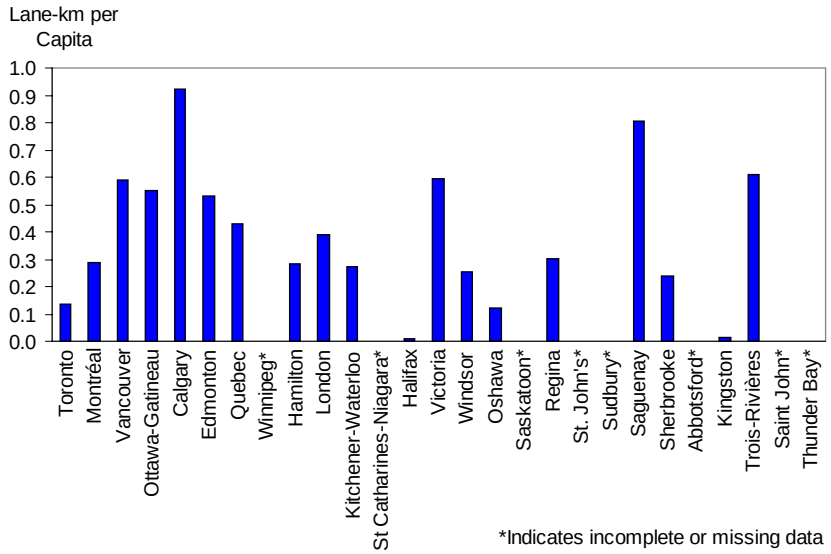
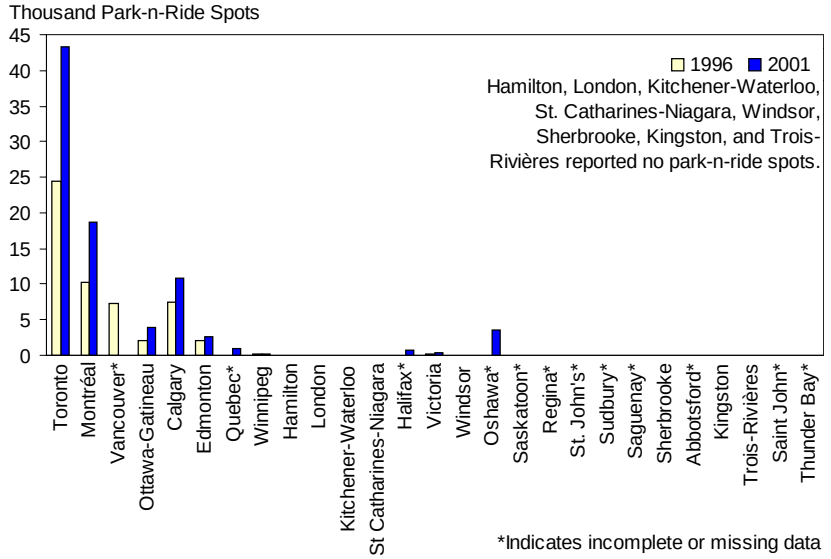


Exhibit 6.7: Park-and-ride spots, 1996 and 2001



Transportation Demand

The *UTI Surveys* have tracked information on both the level of transportation activity (i.e., trips, vehicle-kilometres, and passenger-kilometres) and the relative role of each mode in handling passenger transportation demand (i.e., mode shares). Each of these indicators of demand trends is discussed below.

TRANSPORTATION ACTIVITY

Only 12 regions reported on vehicle-kilometres of travel. Their results, expressed on a per-capita basis, are shown on Exhibit 6.8. They appear to be closely related to average trip distance, discussed in Section 3. Exhibit 6.9 shows trends in arterial vehicle-kilometres per capita for the regions for which data are available.

Exhibit 6.10 summarizes daily trip generation per capita by region (motorized and non-motorized trips). These figures should be interpreted with some caution because the regions define trips differently (e.g., some include only trips made by persons 12 and older, others do not include the shortest trips). Changes in per-capita trip rates are shown on Exhibit 6.11. In general, trips per capita have been increasing or decreasing slightly in most of the regions examined with larger increases in Calgary, Ottawa and Edmonton. The exception is a major apparent reduction in activity in Vancouver, most likely explained by differences in reporting methods.

Exhibit 6.8: Daily vehicle-kilometres travelled by passenger vehicles per capita in 2001

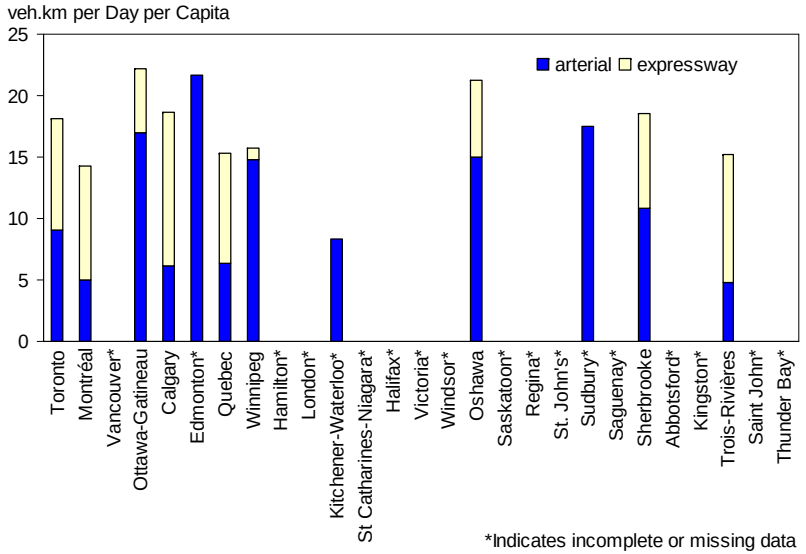


Exhibit 6.9: Daily arterial vehicle-kilometres travelled by passenger vehicles, 1991-2001

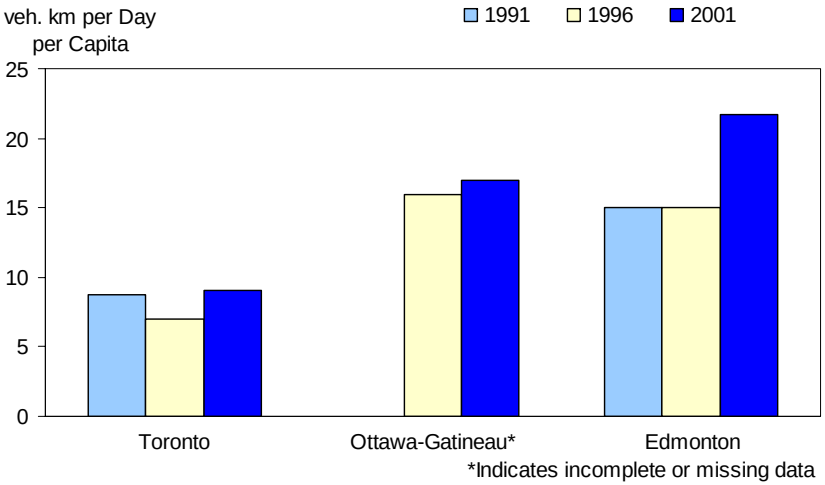


Exhibit 6.10: Daily trips per capita in 2001

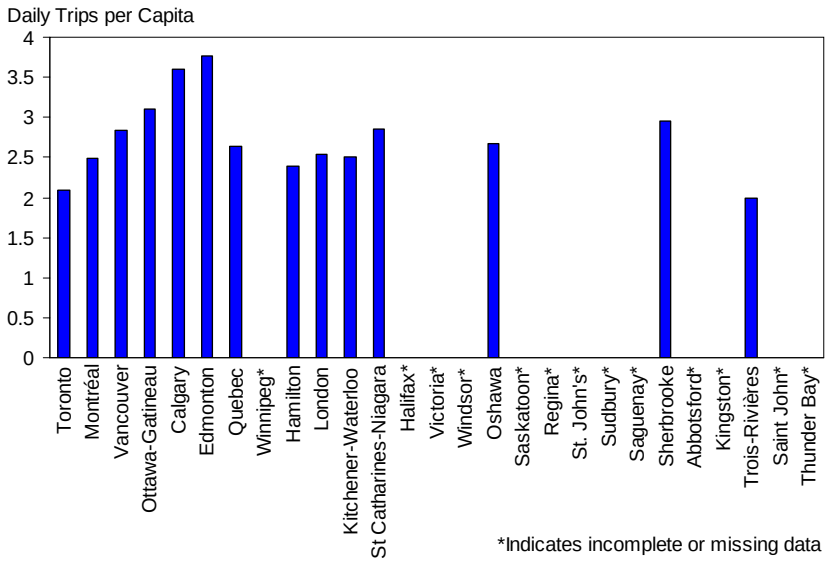
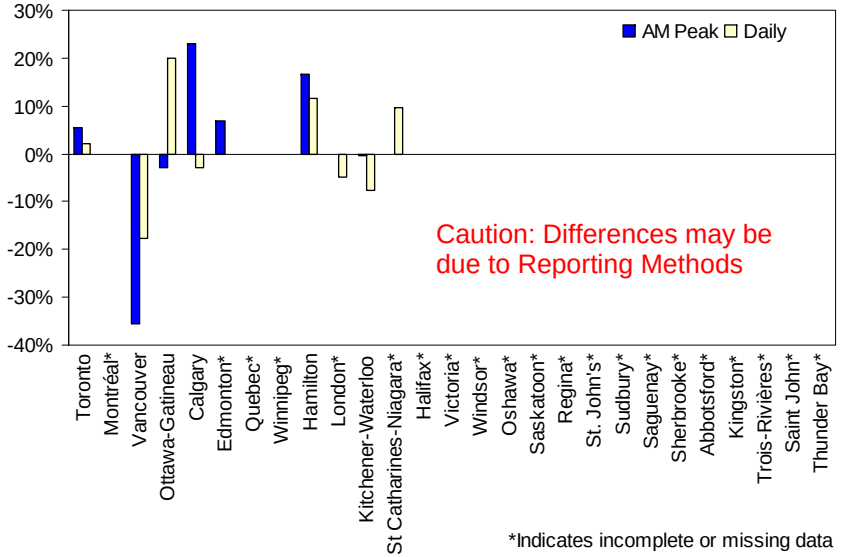


Exhibit 6.11: Changes in trips per capita 1996-2001



MODE SHARES

Modal-share data highlight the prevalence of the personal automobile compared with the more sustainable modes of transit, walking, and cycling. Furthermore, where auto drivers and passengers are differentiated, auto occupancy can be calculated, offering an indication of the efficiency of use of the private automobile.

Mode shares for transit, walking, and cycling for work trips were discussed at the region level in Section 3. This section focuses on highlighting differences and trends in mode shares between different geographic levels and different time periods.

Exhibit 6.12 shows that mode shares for non-auto modes (i.e., transit, walking, and cycling) were significantly higher for the CBD than for the total urban area. This is largely because CBDs have higher concentrations of employment that can in turn justify higher levels of transit service. Exhibit 6.13 shows the same indicator for peak periods and for the whole of the 24 hours, for the EUAs. In every case where a comparison can be made, the peak-period share of non-auto modes was higher.

Exhibit 6.12: Typical daily CBD and EUA non-automobile mode shares

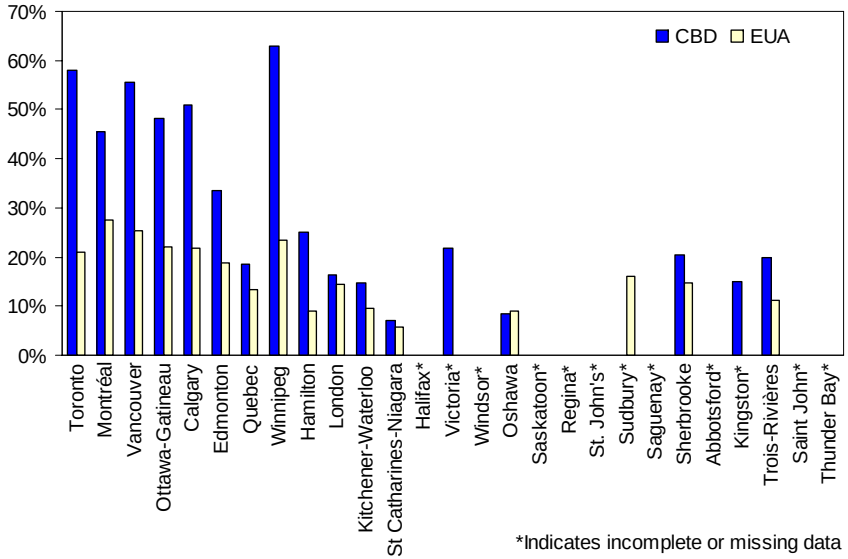
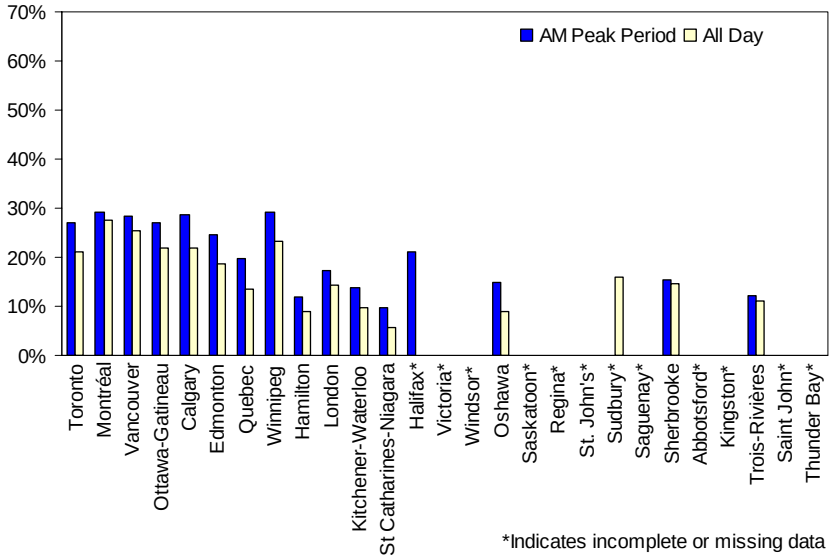


Exhibit 6.13: Peak period and daily EUA non-auto mode shares



Environmental Impact

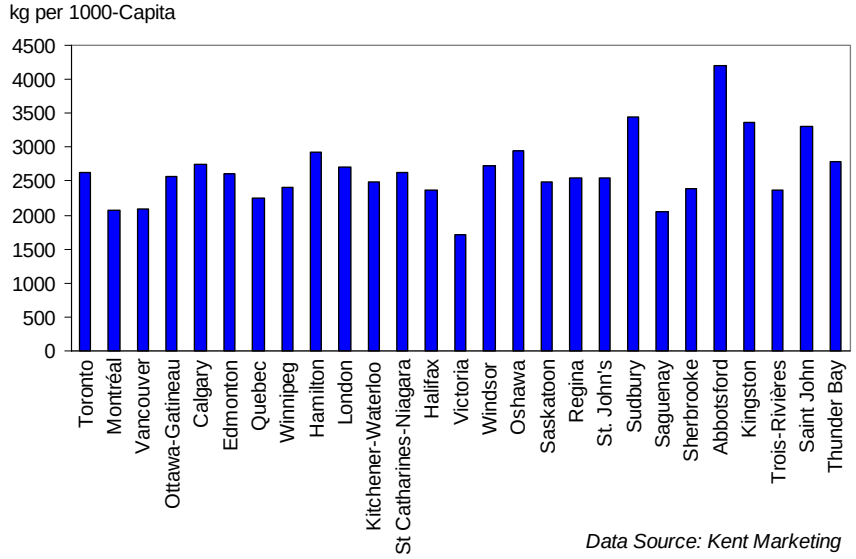
Urban areas are structured and to a degree defined by the transportation systems that serve their activities, exchanges, and organization. Seen from an airplane, transportation infrastructure leaves a clear physical mark. Recent agreements such as the 1997 Kyoto Protocol testify to our society's growing awareness of the consequences of greenhouse gas emissions, caused in significant part by transportation.

The key variable used in the *UTI Survey* to track environmental impact is fuel use for transportation, which is almost precisely correlated with emissions of carbon dioxide, which comprises about 80% of the total greenhouse impact from transportation. Environment Canada has reported that transportation is the source of 26% of all GHG emissions from human activities in Canada with road transportation being by far the highest contributor.[10]

Exhibit 6.14 shows that per-capita GHG emissions from transportation operations in the 27 regions ranged from below 2,000 kilograms (Victoria) to above 4,000 kilograms (Abbotsford) per year. Factors influencing these rates include automobile mode shares, daily trip rates, and trip distances, all discussed previously.

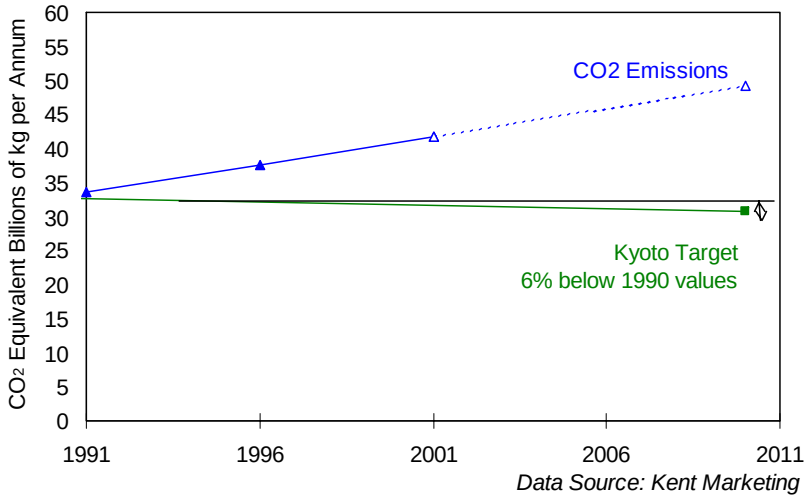
Exhibit 6.15 shows estimated GHG emissions from transportation in the 27 regions for the three survey years and projected on this basis for 2010, the nominal year (actually 2008-2012) by when the Kyoto Protocol indicates that Canada's GHG emissions should be reduced by 6% below the 1990 value. In 2001, GHG emissions were 25% higher than in 1991. If this increase continues, in 2010 GHG emissions from transportation in Canada's main urban regions will be about 50% above the 1990 level.

Exhibit 6.14: Annual greenhouse gas emissions per thousand residents* 2001



Data Source: Kent Marketing

Exhibit 6.15: Trends in annual greenhouse gas emissions* in Canada's regions



Data Source: Kent Marketing

* GHG emissions are estimated from gasoline fuel sales, as detailed in Appendix F.

Safety

Annual injuries and fatalities have varied considerably among the regions. For example, as shown in Exhibit 6.16, reported injuries per thousand residents for 2001 ranged from a low of 3.4 (Kingston) to a high of 11.7 (Edmonton). Such large differences could in part be the result of differences in reporting methods, including differences in the cut-off values for mandatory reporting.

Where data have been available over time, the sum of injuries and fatalities per capita has increased or remained about the same since 1996, as shown in Exhibit 6.17.

Exhibit 6.16: Injuries and fatalities per thousand residents in 2001

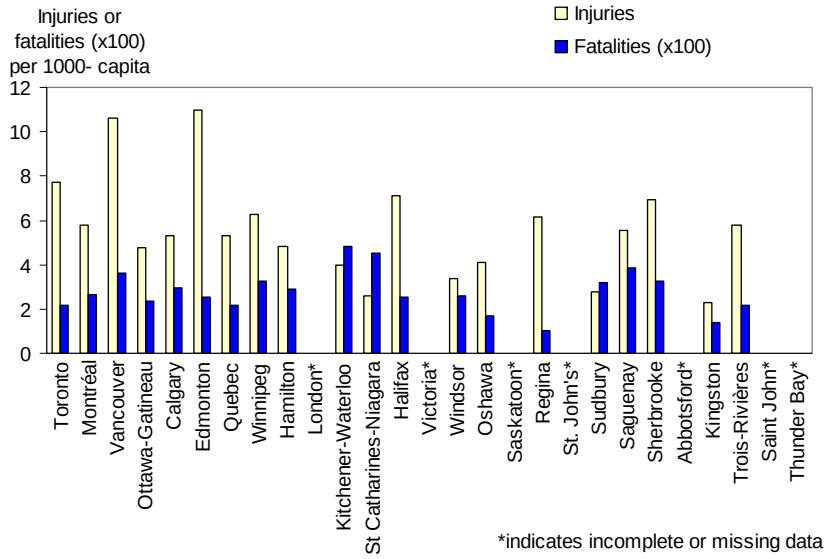
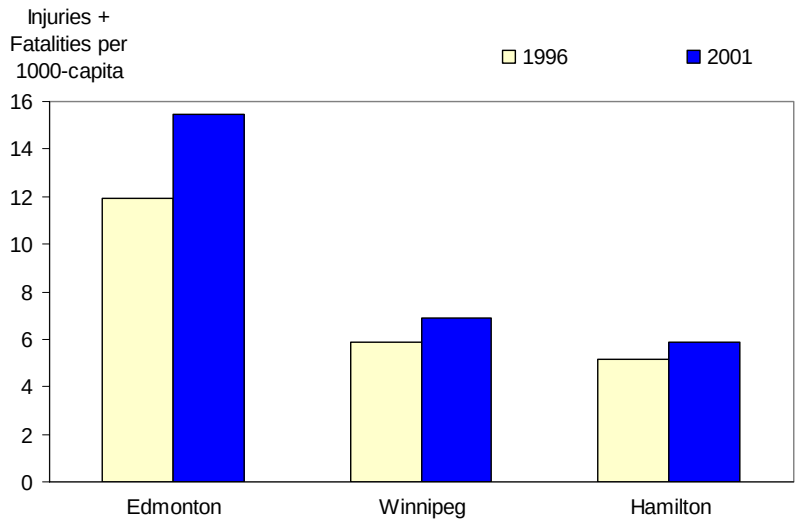


Exhibit 6.17: Injury-plus-fatality trends for selected EUAs 1996-2001



7.International Comparisons

Basis for Comparisons

This section provides comparisons of selected data from the 2001 *UTI Survey* with data from the *Millennial Cities Database* published by the Brussels-based Union Internationale des Transports Publics (UITP).[11]. The UITP database comprises more than 200 data points on transportation in 60 affluent and 40 other urban regions, all for 1995. The comparisons here are with 57 of the affluent urban regions; the other three often have insufficient data points. A list of the affluent urban regions appears in Exhibit 7.1, organized by country or geographic region. Five of these regions are in Canada: Calgary, Montréal, Ottawa, Toronto, and Vancouver.

There are two important differences between the surveys. The *UTI Survey* concerns 2001 conditions; the *UITP Survey* concerns 1995 conditions.[12] The *UTI Survey* is based on Census Metropolitan Areas; in the case of two of the five included Canadian regions—Toronto and Vancouver—and possibly more—the *UITP Survey* is based on a different definition of the region.

The comparisons here are made using a standard chart type for each variable. It shows data from each of the 57 urban regions in the *UITP Survey* together with population-weighted averages of three groups of regions in the *UTI Survey*. The three groups are these: the three largest regions; the six next-largest regions; and the remaining eighteen regions. They are listed in Exhibit 7.2.

Exhibit 7.3 shows the eight variables in the *UTI Survey* that are compared here with corresponding variables in the *UITP Survey*. The table includes notes on the comparability of the variables and on the transformations that were undertaken to provide comparability.

The remainder of this section provides a chart and associated text for each of the eight variables.

Exhibit 7.1: Urban regions in the *UITP Survey*

ASIAN AFFLUENT CITIES	WESTERN EUROPE
Hong Kong, PR China [HKSAR]	Amsterdam, Netherlands
Osaka, Japan	Athens, Greece
Sapporo, Japan	Barcelona, Spain
Singapore, Singapore Republic	Berlin, Germany
Tokyo, Japan	Berne, Switzerland
	Bologna, Italy
AUSTRALASIA	Brussels, Belgium
Brisbane, Australia	Copenhagen, Denmark
Melbourne, Australia	Düsseldorf, Germany
Perth, Australia	Frankfurt, Germany
Sydney, Australia	Geneva, Switzerland
Wellington, New Zealand	Glasgow, United Kingdom
	Graz, Austria
CANADA	Hamburg, Germany
Calgary	Helsinki, Finland
Montréal	London, United Kingdom
Ottawa	Lyon, France
Toronto	Madrid, Spain
Vancouver	Manchester, United Kingdom
	Marseille, France
UNITED STATES OF AMERICA	Milan, Italy
Atlanta	Munich, Germany
Chicago	Nantes, France
Denver	Newcastle, United Kingdom
Houston	Oslo, Norway
Los Angeles	Paris, France
New York	Rome, Italy
Phoenix	Ruhr, Germany
San Diego	Stockholm, Sweden
San Francisco	Stuttgart, Germany
Washington	Vienna, Austria
	Zurich, Switzerland

Exhibit 7.2: Grouping of *UTI Survey* urban regions

LARGEST 3	OTHER 18	Sherbrooke
Montréal	Abbotsford	St. John's
Toronto	Halifax	Sudbury
Vancouver	Kingston	Thunder Bay
	Kitchener-Waterloo	Trois-Rivières
NEXT 6	London	Victoria
Calgary	St. Catharines-Niagara	Windsor
Edmonton	Oshawa	
Hamilton	Regina	
Ottawa-Gatineau	Saguenay	
Québec	Saint John	
Winnipeg	Saskatoon	

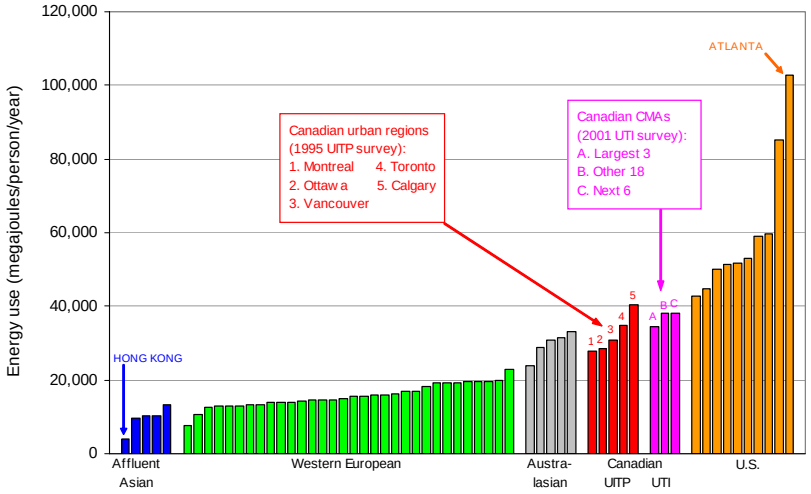
Exhibit 7.3: Concordance of *UTI Survey* and *UITP Survey* variables presented in this section

Variable.	*UTI Survey* variable	*UITP Survey* variable	Comments
1.	Annual fuel usage per capita [for private vehicles]	Private passenger transport energy use per capita	*UTI Survey* data are in litres of gasoline; thus multiplied by 34.84 to covert to megajoules.[13]
2.	Automobiles per capita	Passenger cars per 1000 people	*UTI Survey* data are per person; thus multiplied by 1000 to give automobiles per 1000 residents.
3.	[Car] vehicle-kilometres per capita (based on fuel sales)	Passenger car kilometres per capita per year	*UTI Survey* data are based on annual fuel sales; thus no conversion is necessary.
4.	Total road expenditures ($ per capita per year) (public sector capital and operating/ maintenance costs)	Total road expenditures (US$ per capita per year)	*UTI Survey* data are in Canadian dollars; thus divided by 1.5 to give US$ per capita per year
5.	24h transit seats per capita	Total public transport seat kilometres of service per capita	*UTI Survey* provides seat-kilometres per day; multiplied by 300 to give annual seat-kilometres per person.
6.	Annual transit rides per capita	Total public transport boardings per capita	*UTI Survey* data are rides; data are unlinked boardings; divided by 1.5 to give annual rides per person (based on estimated 1.5 boardings/ride).
7.	Residential density (CMA)	Population/Area of region	Note that in the *UITP Survey* the same population estimate is used for each density estimate; for the *UTI Survey*, there is a different population estimate for each area.
8.	Residential density (EUA)	Population/Area of urbanised part of region	

Fuel (Energy) Use by Automobiles

As discussed above, energy use by automobiles is a fundamental indicator of the transportation's impact on the environment, among other things. Exhibit 7.4 suggests that, expressed as energy use per capita, residents of Canadian urban areas appear to use less fuel for their automobiles than residents of U.S. regions, about the same amount as residents of Australian urban regions, and more—in some cases considerably more—than residents of affluent urban regions in Europe and Asia.

Exhibit 7.4: Annual fuel (energy) use per capita by private automobiles

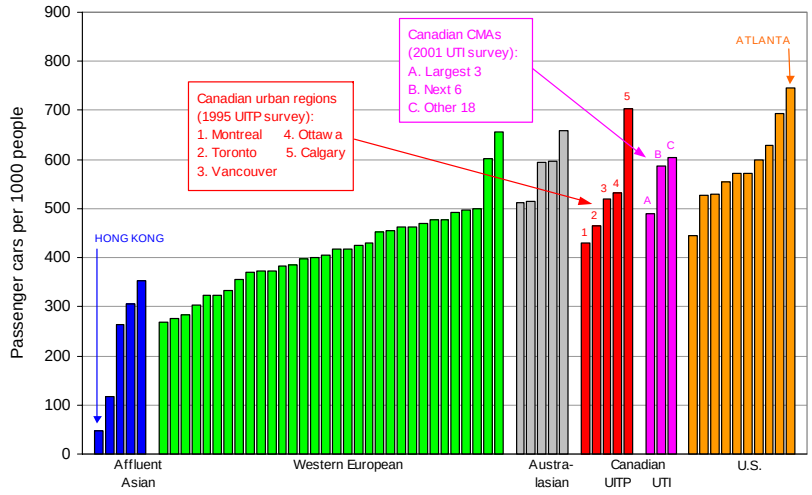


Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Automobile Ownership

Exhibit 7.5 suggests that for the most part automobile ownership varies less among the cities than energy consumption for automobile use (see Exhibit 7.4). Per-capita vehicle ownership in Canadian urban regions is similar to the highest European rates and the lowest U.S. rates.

Exhibit 7.5: Automobiles per capita

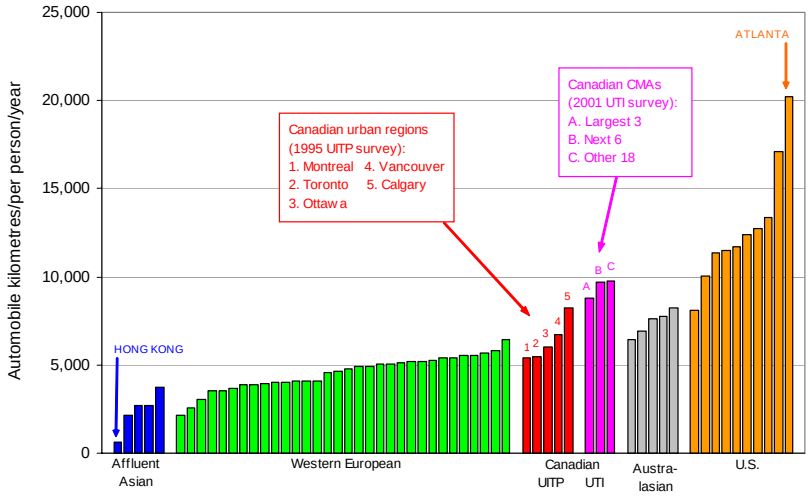


Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Automobile Activity

Automobile activity expressed as vehicle-kilometres per capita per year is shown in Exhibit 7.6. Automobile activity essentially mirrors energy use by automobiles.

Exhibit 7.6: Annual private automobile-kilometres per capita

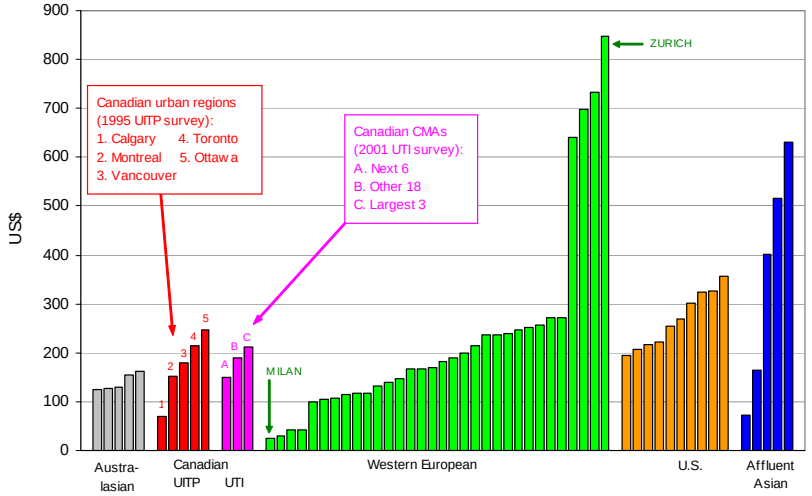


Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Expenditure on Roads

Comparing annual expenditure on roads is challenging due to differences in reporting methods, and the uneven nature of road investments. The data in Exhibit 7.7 suggest that less is spent on roads in Canadian urban areas than in most comparable U.S. and affluent Asian urban regions, and in some European regions.

Exhibit 7.7: Annual per-capita expenditure on roads (in US$)

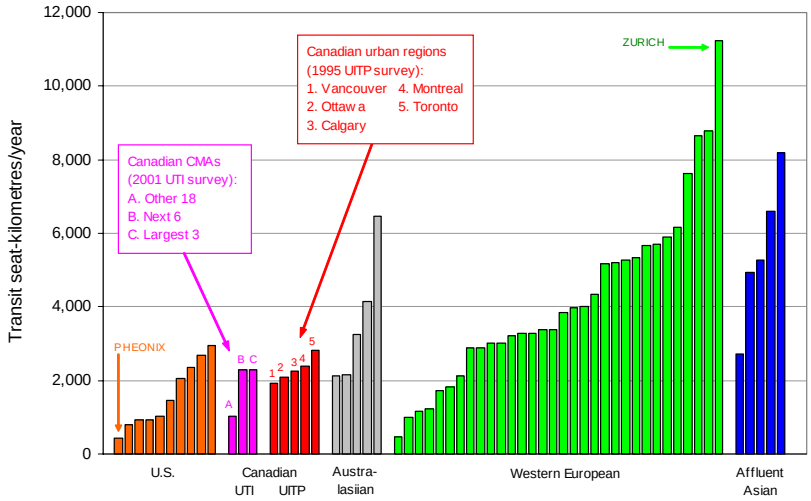


Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Transit Service

Transit service, as measured by available seat-kilometres per capita per year (Exhibit 7.8), displays the opposite trends to those for energy use and automobile activity. On average, U.S. regions had the smallest amount of service available and European and affluent Asian regions had the largest amounts.

Exhibit 7.8: Available transit seat-kilometres per person per year

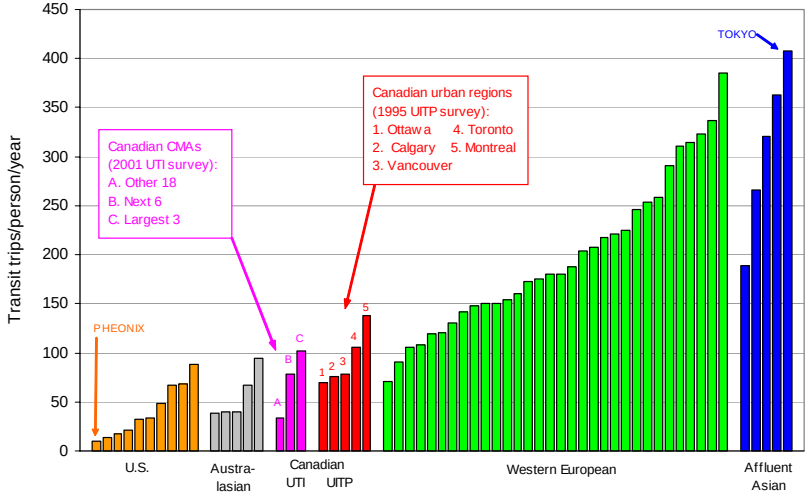


Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Transit Ridership

Annual transit ridership per person appears to be four or more times higher in affluent Asian urban areas and several Western European urban areas than in Canadian regions (Exhibit 7.9). In turn, ridership per capita in Canadian regions is higher than in US regions. Ridership patterns are generally related to supply patterns (Exhibit 7.8), although it should be noted that Canadian and affluent Asian urban regions tend to have higher ridership levels than might be expected from the supply data, i.e., their systems are relatively efficient. The causal relationships between transit supply and transit ridership are unclear. Do some regions have high levels of supply because they have high transit ridership, or do they have high levels of ridership because the level of supply is high? Likely both are true.

Exhibit 7.9: Annual transit trips per capita

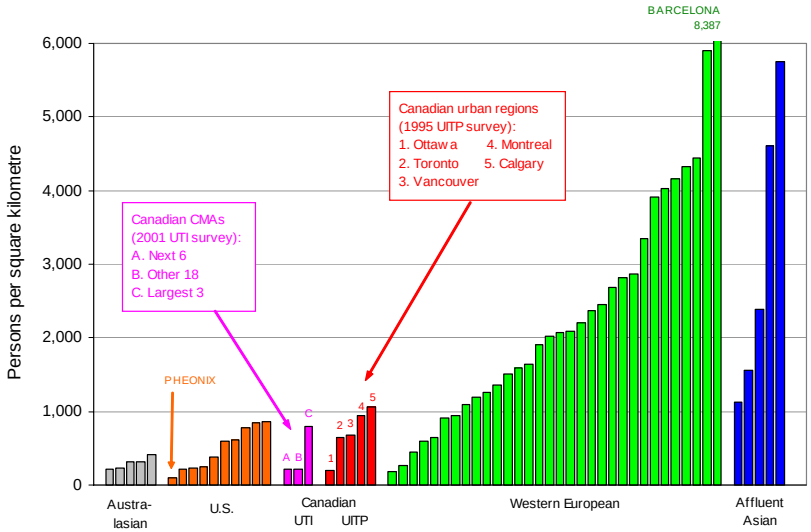


Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Residential Density

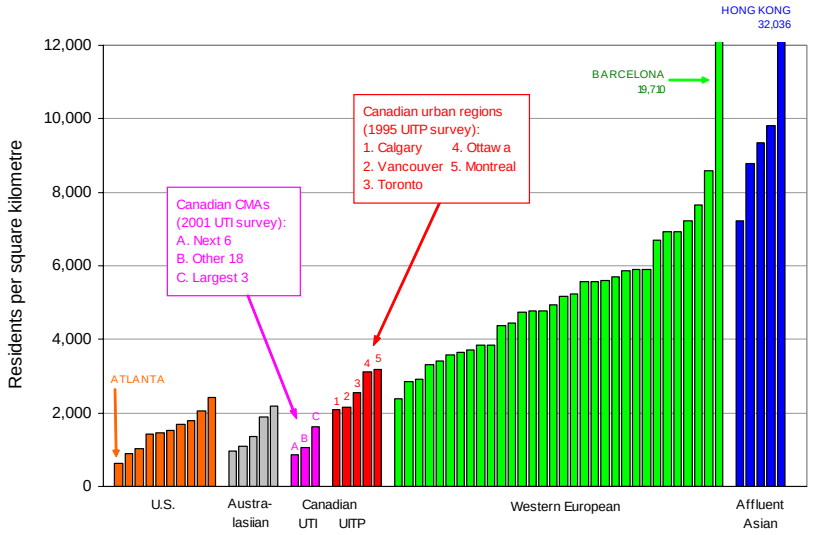
Residential density may be the fundamental driver of most if not all of the variables presented in this section. Comparison of Exhibit 7.10 or Exhibit 7.11 with previous exhibits in this section often shows strong similarity (e.g., with Exhibits 7.8 and 7.9 concerning transit service and use) or opposite relationships (e.g., Exhibits 7.4, 7.5, and 7.6, concerning energy use and automobile ownership and use). High densities mean that, other things being equal, trips are shorter and transit is more feasible. Two charts are shown for density for the reason given in Exhibit 7.3: the *UITP Survey* result is unclear as to whether its population data correspond to the region or to the Extended Urban Area. Accordingly, either Exhibit 7.10 or Exhibit 7.11 could show a more correct comparison of the two surveys.

Exhibit 7.10: Residential density of the whole urban area



Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

Exhibit 7.11: Residential density of existing urbanized area



Sources: *UTI Survey* for the mauve bars (2001 data);
UITP Survey for all other bars (1995 data)

8. Summary and Conclusions

Are Canada's Urban Areas Becoming More Sustainable?

It has been more than a decade since TAC released its *New Vision for Urban Transportation* calling for "transportation systems that better serve the economic and social needs of urban residents and protect the environment". The *UTI Surveys* provide a means of tracking progress towards, or away from, the *Vision*.

The 13 decision-making principles that point the way to a more desirable future, as presented in the *Vision*, provide a basis for tracking progress with respect to sustainable transportation. Exhibit 8.1 provides a discussion of trends in relation to each of these principles over the last 10 years, drawing on the results of the *UTI Surveys*.

Exhibit 8.1: Tracking of progress against TAC's *Vision*

Vision Principle	Progress	Supporting discussion based on the 2001 and earlier *UTI Surveys*
1. Plan for increased densities and more mixed land use		Within Existing Urban Areas, residential densities have been increasing. However, the rates of population growth outside the EUAs have been higher than the rates within, indicating that urban sprawl has occurred. Most Central Areas now exhibit a relatively even balance of population and jobs.
2. Promote walking as the preferred mode for person trips		On average, walking trips accounted for 5.7% of work trips made in the 27 urban areas in 2001, compared with 5.8% in 1996. Facilities for walking are generally well established.
3. Increase opportunities for cycling as an optional mode of travel		Cycling represented a low percentage of total trips in existing urban areas in 2001, an average of 1.2% for urban areas reporting this figure, but higher in Central Areas. Cycling accounted for 1.3% of all work trips in 2001, compared with 1.2% in 1996. In some urban areas, the length of designated bicycle lanes is approaching 10% of the length of lane-kilometres of arterials and expressways. In most urban areas, there was an increase in the degree of deployment of initiatives involving cycling.
4. Provide higher quality transit service to increase its attractiveness relative to the private automobile		Between 1996 and 2001, several regions demonstrated an increase in transit trips per capita, in many cases reversing or partially reversing decreases experienced between 1991 and 1996. Use of public transportation was up in 17 of 27 regions between 1996 and 2001, but was down in 22 of 25 regions between 1991 and 2001. The more recent increases occurred in spite of a general absence of improvements in transit service levels. On average, transit accounts for only 15% of work trips in the 27 regions, and a much lower share of all trips. The immediate reason is the high level of attractiveness of the private automobile.
5. Create an environment in which automobiles can play a more balanced role		In areas reporting detailed mode-share data, automobiles accounted for approximately 70% of total peak-period trips. Outside Central Areas, sustainable travel modes—walking, cycling, and transit—have been used for only a small portion of daily trips; they appear to remain unfeasible or not cost- or time-effective compared with automobile use.
6. Plan parking supply and price to be in balance with walking, cycling, transit and auto priorities		Most regions were able to provide few data on parking supply; data on parking prices were not requested. Few municipalities reported implementing caps or taxes/surcharges on parking to encourage more efficient forms of travel. (Implementation of parking taxes/surcharges on private parking is not permitted in most provinces.)

Vision Principle	Progress	Supporting discussion based on the 2001 and earlier *UTI Surveys*
7. Improve the efficiency of the urban goods distribution system	☹	Most regions reported a high degree of implementation of initiatives involving goods movement. By analogy with private automobile trends, and knowledge of goods movement trends from other data sources, there would seem to be a trend to higher dependence on trucks for urban goods movement. This may imply decreased efficiency of urban goods movement as trucks are caught in growing traffic congestion.
8. Promote inter-modal and inter-line connections	😐	Only the three largest regions and a few others reported having fully implemented the development of inter-modal freight terminals. On the passenger side, the lack of significant progress in improving transit, cycling, and walking mode shares may indicate that inter-modal connections are not being improved.
9. Promote new technologies which improve urban mobility and help protect the environment	😐 Emissions ☹ Energy	Most regions indicated a low degree of deployment of initiatives to encourage the use of alternative fuels and use of fuel-efficient vehicles in municipal fleets. However, 8 out of 18 regions have emissions-testing programs in place. The sharp increases in fuel use per capita, and resulting greenhouse gas emissions, suggest that vehicle efficiency improvements have not been keeping pace with demand. The surveys have not tracked trends in emissions of criteria air contaminants, which are not so directly related to fuel consumption, but data from other sources show a downward trend in some of these emissions..
10. Optimize the use of existing transportation systems to move people and goods	😐	Almost all of the regions participating in both the 1996 and 2001 surveys reported an increase in deployment of initiatives related to road system optimization, mainly comprising various Intelligent Transportation Systems (ITS) technologies. Consistent data on total lane-kilometres per capita were available for only five regions; four of theses reported an increase in this indicator suggesting that roads may have become less efficiently used, or that vehicular demand and associated road needs have been out-pacing population growth. Only nine regions reported having HOV lanes.
11. Design and operate transportation systems which can be used by the physically challenged	☺	All regions surveyed reported a high level of deployment of initiatives pertaining to special user needs. Urban areas participating in both the 1996 and 2001 surveys reported a slight increase in initiatives for special user needs.
12. Ensure that urban transportation decisions protect and enhance the environment	☹	Only a few survey questions pertained directly to the relationship between urban transportation decisions and the impact on the environment. Trends in modal shares, GHG emissions, energy use, and vehicle ownership together suggest that urban transportation decisions have not resulted in significant environmental improvements.
13. Create better ways to pay for future urban transportation systems	☺	The transportation community has argued that improved methods of financing urban transportation infrastructure are required, including more use of dedicated user fees and taxes. Four regions now have some form of dedicated user fees for transportation: Vancouver, Calgary, Edmonton, and Montréal. The six regions in Québec have access to a dedicated source for transit funding: a $30 annual tax on private vehicles registered in their areas.

Where Do We Go From Here?

The Transportation Association of Canada's *UTI Surveys* provide substantial value to decision makers in Canada's major urban areas. Partial or complete coverage of all 27 major areas facilitates benchmarking of performance in the matters covered and provides a means of tracking progress on measures to promote more sustainable transportation. The *UTI Surveys* provide a unique picture of key aspects of transportation trends in Canada.

Transportation and land use data are fundamental inputs to planning decisions. The extent of data collection in Canada's urban areas does not reflect this. For example, eight out of 27 regions have not completed an urban travel origin-destination survey during the last two decades. A further five regions rely on surveys conducted in or before 1996. Only a few regions have a program to conduct travel surveys at reasonable intervals (e.g., every five years). The resulting lack of comprehensive and standardized information makes it difficult to track changes in urban travel behaviour. Without this knowledge, policy-makers cannot with precision develop policies to respond to these changes and promote more sustainable transportation patterns. A key recommendation of this project therefore involves promotion of the need for timely and comprehensive data collection at all levels. There is also a need to standardize data collection and indicators across Canada to ensure comparability of results.

The data situation is not entirely bleak. Several sources provide some information about land use and transportation in urban areas. They include demographic, vehicle registration, and journey-to-work data compiled by Statistics Canada, transit-operating statistics compiled by the Canadian Urban Transit Association, and gasoline sales data compiled for Natural Resources Canada. The *UTI Surveys* have made good use of these sources, which are expected to continue to provide basic indicators of urban transportation trends. However, they are not substitutes for timely and comprehensive data collection at the regional level.

As urban transportation issues grow more prominent in the agendas of policy-makers, data from TAC's recent and future *UTI Surveys* will play increasingly important roles in identifying areas of emphasis in the assessment of both problems and solutions. Data collected through the *UTI Surveys* and other performance measures can help with the determination of where and how funding for transportation should be allocated.

A final recommendation is that the efforts of individuals involved in this survey should be recognized. Respondents undoubtedly committed considerable amounts of time to completion of the questionnaires, in some cases well beyond the scope of their job requirement. Municipalities should acknowledge the efforts of these individuals and consider initiatives to improve the ease of gathering and reporting data within their respective jurisdictions.

Appendix A:

Key Land Use and Transportation Indicators

Indicator Description	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton
Background									
Population in Region	4,682,897	3,426,350	1,986,965	1,063,664	951,395	937,845	682,348	671,274	662,401
Employment in Region	2,359,890	1,622,715	897,540	552,360	485,490	448,035	323,390	326,385	265,675
Population in EUA	4,346,206	3,162,972	1,806,488	930,042	878,866	666,099	636,290	616,052	547,521
EUA Land Area (km^2)	2,281	2,228	1,317	1,116	702	670	1,021	419	419
Land Use Characteristics									
Population Density in EUA (people/km^2)	1,905	1,420	1,372	833	1,252	994	623	1,471	1,305
Emp Density EUA	984	692	639	469	662	525	302	747	536
Employment to Population Ratio in CA	3.18	1.94	1.25	2.27	3.43	6.35	1.24	2.55	1.58
Transportation Supply									
Arterial and Collector Lane-km per 1000 Capita in EUA	2.99	1.91	1.95	4.00	5.00	6.58	2.94	2.79	7.08
Expressway Lane-km per 1000 Capita in EUA	0.69	0.99	0.49	0.50	1.48	1.33	1.49	0.19	0.14
HOV Lane-km per 1000 Capita in EUA	0.02	0.03	0.06	0.13	0.00	0.02	0.07	0.01	0.00
Bike Lane-km per 1000 Capita in EUA	0.14	0.29	0.59	0.55	0.92	0.53	0.43		0.28
Automobiles per Capita in EUA	0.50	0.42	0.59	0.48	0.74	0.66	0.45	0.55	0.62
AM Peak Period Hourly Transit Seat-km per Capita in EUA	0.67	0.67	1.59	0.83	1.01		0.75	0.47	
24h Transit Seat-km per Capita in EUA	7.61	7.70	6.50	8.81	7.62		5.58	5.69	
Off-Street Parking Spaces per Employee CBD	0.16	0.14		0.16	0.48	1.18		0.53	0.21
Transportation Demand									
AM Peak Period Transit Share to/from CBD	59%	53%	38%	33%	31%	27%	19%	33%	16%
AM Peak Period Auto Share to/from CBD (driver + pass.)	33%	41%	46%	52%	53%	67%	65%	52%	70%
AM Peak Period Auto Share for EUA (driver + pass.)	70%	62%	70%	66%	67%	72%	70%	70%	78%
AM Peak Period Auto Occupancy to/from CBD	1.21	1.21	1.23	1.31	1.30	1.22	1.24	1.36	1.14
AM Peak Period Auto Occupancy for EUA	1.21	1.24	1.28	1.18	1.35	1.42	1.23	1.18	1.18
AM Peak Period (1-h) EUA Person-Trips per Capita	0.17	0.19	0.20	0.21	0.32	0.32	0.28	0.14	0.17
24h Person Trips per Capita for EUA	2.09	2.48	2.85	3.10	3.60	3.77	2.64		2.38
Annual Transit Rides per Capita for EUA	116.7	138.8	71.2	109.9	86.6	66.3	62.2	62.7	40.7
Average-Day Veh-km per Capita, from Fuel Sales	27.2	21.5	21.6	26.5	28.5	27.0	23.2	25.0	30.3
Year of Travel Demand Survey	*2001*	*1998*	*1999*	*1995*	*2001*	*1994*	*2001*		*2001*
Transportation System Performance									
Average Home-Work Trip Distance in EUA	13.5	13.3	12.1	13.9	12.6	10.3	10.4	8.6	8.2
Annual Injuries and Fatalities per 1000 Capita in EUA	8.3	6.3	11.7	5.5	5.8	15.5	5.7	6.9	5.9
Fuel Usage per Capita in EUA (L/capita/year)	1,117	883	884	1,088	1,167	1,110	953	1,025	1,242
Fuel Usage per Person-Trip in EUA (L/trip)	1.46	0.97	0.85	0.96	0.89	0.81	0.99		1.43
CO_2 Emissions per Capita in EUA (tonnes/year)	2,631	2,080	2,084	2,562	2,750	2,614	2,245	2,416	2,927
Transportation Costs and Finance									
Total Road Expenditures per Capita in EUA	$176.92	$243.76		$298.15	$276.15	$226.57	$275.30	$45.78	
Total Transit Expenditures per Capita in EUA	$351.03	$355.99	$300.67	$260.69	$332.82	$234.00	$166.20	$147.71	$104.37
Farebox Revenue/ Operating and Maintenance Budget	80%	45%	55%	57%	44%	45%	41%	59%	

Indicator Description	London	Kitchener	Niagara	Halifax	Victoria	Windsor	Oshawa	Saskatoon	Regina
Background									
Population in Region	432,451	414,284	377,009	359,183	311,902	307,877	296,298	225,927	192,800
Employment in Region	195,785	205,665	158,825	172,200	142,245	139,225	103,885	104,990	95,695
Population in EUA	334,755	387,309	274,435	273,087	292,519	226,087	226,464	193,374	171,627
EUA Land Area (km^2)	385	314	475	391	304	130	292	145	110
Land Use Characteristics									
Population Density in EUA (people/km^2)	869	1,233	578	699	961	1,739	775	1,333	1,562
Emp Density EUA	422	608	251	403	456	906	300	659	796
Employment to Population Ratio in CA	5.81	1.42	0.97	1.28	1.94	0.86	0.99	1.37	5.12
Transportation Supply									
Arterial and Collector Lane-km per 1000 Capita in EUA		3.66	0.51	3.16	5.26		5.55		4.44
Expressway Lane-km per 1000 Capita in EUA	0.00	0.50	0.44	1.96	0.21		0.41		0.95
HOV Lane-km per 1000 Capita in EUA	0.00	0.00	0.00	0.00	0.00		0.00		0.06
Bike Lane-km per 1000 Capita in EUA	0.39	0.27		0.01	0.59	0.25	0.12		0.30
Automobiles per Capita in EUA	0.59	0.61	0.64	0.58	0.62	0.70	0.59	0.65	0.71
AM Peak Period Hourly Transit Seat-km per Capita in EUA	0.35	0.17				0.23	0.41		0.27
24h Transit Seat-km per Capita in EUA	3.89	1.79		5.14		2.29	5.61		3.70
Off-Street Parking Spaces per Employee CBD	0.55	8.85		0.38	0.34	0.35	0.69		0.82
Transportation Demand									
AM Peak Period Transit Share to/from CBD	10%	8%	3%		9%		7%		
AM Peak Period Auto Share to/from CBD (driver + pass.)	82%	78%	84%		71%		87%		
AM Peak Period Auto Share for EUA (driver + pass.)	78%	83%	84%	78%			82%		
AM Peak Period Auto Occupancy to/from CBD	1.10	1.25	1.16		1.35		1.16		
AM Peak Period Auto Occupancy for EUA	1.12	1.20	1.16	1.15			1.18		
AM Peak Period (1-h) EUA Person-Trips per Capita	0.27	0.17					0.21		
24h Person Trips per Capita for EUA	2.54	2.50	2.85				2.67		
Annual Transit Rides per Capita for EUA	48.7	27.5	16.5	52.0	63.7	23.7	45.4	41.0	36.0
Average-Day Veh-km per Capita, from Fuel Sales	28.1	25.7	27.1	24.6	17.6	28.2	30.4	25.8	26.3
Year of Travel Demand Survey	*2002*	*2001*	*2001*		*2001*		*2001*		*1989*
Transportation System Performance									
Average Home-Work Trip Distance in EUA	5.4	10.2	5.5	6.3	8.7	6.1	19.9	4.8	4.5
Annual Injuries and Fatalities per 1000 Capita in EUA		4.3	3.6	9.4		4.6	5.4		7.0
Fuel Usage per Capita in EUA (L/capita/year)	1,152	1,053	1,113	1,008	723	1,157	1,248	1,060	1,078
Fuel Usage per Person-Trip in EUA (L/trip)	1.24	1.15	1.07				1.28		
CO_2 Emissions per Capita in EUA (tonnes/year)	2,713	2,480	2,623	2,374	1,704	2,725	2,941	2,498	2,539
Transportation Costs and Finance									
Total Road Expenditures per Capita in Region		$86.64		$189.12		$98.46	$151.84		$158.27
Total Transit Expenditures per Capita in Region	$101.14	$91.11		$103.07	$194.52	$83.15	$52.67		$86.17
Farebox Revenue/ Operating and Maintenance Budget	81%	45%		70%	47%	60%	52%		35%

Indicator Description	St. John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivieres	Saint John	Thunder Bay
Background									
Population in Region	172,918	155,601	154,938	153,811	147,370	146,838	137,361	122,678	121,986
Employment in Region	76,080	63,005	62,290	68,780	50,620	69,060	57,855	51,590	52,780
Population in EUA	122,496	82,284	139,759	139,388	115,711	100,402	122,395	88,767	109,016
EUA Land Area (km^2)	494	178	858	385	363	241	289	377	328
Land Use Characteristics									
Population Density in EUA (people/km^2)	248	462	163	362	319	417	423	235	332
Emp Density EUA	131	269	71	167	116	233	173	123	155
Employment to Population Ratio in CA	1.47	1.47	0.70	0.63	1.77	3.34	1.00	4.20	1.19
Transportation Supply									
Arterial and Collector Lane-km per 1000 Capita in EUA		7.41	8.79	6.77		6.46	4.34		
Expressway Lane-km per 1000 Capita in EUA		0.00	0.63	1.46		0.00	1.99		
HOV Lane-km per 1000 Capita in EUA		0.00	0.00	0.00		0.00	0.00		
Bike Lane-km per 1000 Capita in EUA			0.80	0.24		0.01	0.61		
Automobiles per Capita in EUA	0.60	0.65	0.60	0.48	0.57	0.61	0.53	0.52	0.74
AM Peak Period Hourly Transit Seat-km per Capita in EUA		1.46	0.06	0.27			0.18		
24h Transit Seat-km per Capita in EUA		4.77	4.06	3.26		2.62	2.52		
Off-Street Parking Spaces per Employee CBD				0.26		0.48			
Transportation Demand									
AM Peak Period Transit Share to/from CBD				9%		3%	6%		
AM Peak Period Auto Share to/from CBD (driver + pass.)				68%			79%		
AM Peak Period Auto Share for EUA (driver + pass.)				71%			68%		
AM Peak Period Auto Occupancy to/from CBD				1.25			1.18		
AM Peak Period Auto Occupancy for EUA				1.23			1.20		
AM Peak Period (1-h) EUA Person-Trips per Capita				0.29			0.18		
24h Person Trips per Capita for EUA				2.96			1.99		
Annual Transit Rides per Capita for EUA	26.0	49.1	31.2	44.6	11.0	25.5	21.7	27.4	27.1
Average-Day Veh-km per Capita, from Fuel Sales	26.4	35.6	21.2	24.6	43.4	34.9	24.6	34.2	28.9
Year of Travel Demand Survey				*2003*		*2002*	*2000*		
Transportation System Performance									
Average Home-Work Trip Distance in EUA	5.4	6.5	4.7	11.9	7.7	6.2	6.9	7.0	4.7
Annual Injuries and Fatalities per 1000 Capita in EUA		5.3	6.2	7.7		3.4	6.5		
Fuel Usage per Capita in EUA (L/capita/year)	1,084	1,460	870	1,011	1,780	1,430	1,009	1,403	1,185
Fuel Usage per Person-Trip in EUA (L/trip)				0.94			1.39		
CO_2 Emissions per Capita in EUA (tonnes/year)	2,555	3,439	2,049	2,381	4,193	3,370	2,376	3,306	2,793
Transportation Costs and Finance									
Total Road Expenditures per Capita in Region		$286.87	$212.77	$202.67		$213.63	$220.21		
Total Transit Expenditures per Capita in Region			$101.51	$104.60		$82.67	$74.71		
Farebox Revenue/ Operating and Maintenance Budget		51%	32%	51%		44%	41%		

Appendix B: Survey Questionnaire

Urban Transportation Indicators - Survey #3

PART A

Status of Transportation and Land Use Initiatives

Part A Overview

This section deals with the status of transportation and land use initiatives inside the Existing Urban Area (EUA). The section lists various initiatives grouped into 10 categories. For each initiative, respondents are asked to indicate the level of implementation within their EUA.

Following each category, space is provided for respondents to indicate examples of initiatives that are considered to be representative of key examples of progress or 'best practices' within the urban area. This is not intended to be comprehensive, but rather an opportunity for municipalities to showcase initiatives.

As noted in the instructions, if the area you are dealing with consists of several municipalities, then use your judgement to provide an answer that would be most representative to the majority of municipalities inside the EUA. For example, if only one municipality out of several has fully implemented the initiative, you would check "Implementing in specific cases or areas."

Following this section, examples are provided for each measure to help respondents identify initiatives in their region. It is recommended that the examples' table be printed and referred to for clarification when responding to Part A.

Instructions for smaller municipalities: Please note that not all initiatives listed below will apply to smaller urban areas (e.g. incident management system). If this is the case (i.e. for smaller muncipalities only), respondents may check not applicable.

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
		Low →		Level of Deployment →			High
1 URBAN STRUCTURE/LAND USE							
(a) long-term, integrated municipal land-use/transportation plan	☉	☐	☐	☐	☐	☐	☐
(b) transit-related high-density, mixed-use centers/nodes	☐	☐	☐	☐	☐	☐	☐
(c) higher-density, mixed-use transit corridors	☐	☐	☐	☐	☐	☐	☐
(d) limiting urban development within designated urban boundaries	☐	☐	☐	☐	☐	☐	☐
(e) re-urbanization/intensification transit corridors	☐	☐	☐	☐	☐	☐	☐
(f) relating transit service levels to density	☐	☐	☐	☐	☐	☐	☐
(g) appropriate population/employment ratio at municipal level	☐	☐	☐	☐	☐	☐	☐
(h) appropriate population/employment ratio at node/community level	☐	☐	☐	☐	☐	☐	☐
(i) encouraging residential uses in/near downtown area (s)	☐	☐	☐	☐	☐	☐	☐
(j) taxation and/or other incentives for compact, mixed-use development	☐	☐	☐	☐	☐	☐	☐
Please provide description of key examples or 'best practices':							

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
		Low →		Level of Deployment →			High
2 URBAN DESIGN							
(a) transit-supportive urban design (macro level)	☐	☐	☐	☐	☐	☐	☐
(b) transit-supportive site/ building design (micro level)	☐	☐	☐	☐	☐	☐	☐
(c) cycling-supportive streetscaping	☐	☐	☐	☐	☐	☐	☐
(d) pedestrian-supportive streetscaping	☐	☐	☐	☐	☐	☐	☐
(e) traffic calming	☐	☐	☐	☐	☐	☐	☐
Please provide description of key examples or 'best practices':							

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
		Low →		Level of Deployment →			High
3 WALKING							
(a) enhanced pedestrian amenities	☐	☐	☐	☐	☐	☐	☐
(b) adequate road crossing facilities	☐	☐	☐	☐	☐	☐	☐
Please provide description of key examples or 'best practices':							

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
		Low →		Level of Deployment →			High
4 CYCLING							
(a) network of on-street cycling lanes/ specially widened curb lanes	☐	☐	☐	☐	☐	☐	☐
(b) network of off-street cycling paths	☐	☐	☐	☐	☐	☐	☐
(c) secure parking for cycles	☐	☐	☐	☐	☐	☐	☐
(d) municipal participation on cycling advisory/awareness committees	☐	☐	☐	☐	☐	☐	☐
(e) cycling amenities in new development	☐	☐	☐	☐	☐	☐	☐
Please provide description of key examples or 'best practices':							

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
		Low →		Level of Deployment →			High
5 TRANSIT							
(a) transit priority by means of HOV or reserved bus lanes	☐	☐	☐	☐	☐	☐	☐
(b) other transit priority measures	☐	☐	☐	☐	☐	☐	☐
(c) stops within walking distance of places of residence/employment	☐	☐	☐	☐	☐	☐	☐
(d) park'n'ride lots	☐	☐	☐	☐	☐	☐	☐
(e) transit pick-up and drop-off facilities	☐	☐	☐	☐	☐	☐	☐
(f) bike'n'ride facilities	☐	☐	☐	☐	☐	☐	☐
(g) inter-municipal service coordination	☐	☐	☐	☐	☐	☐	☐
(h) inter-municipal fare coordination	☐	☐	☐	☐	☐	☐	☐
(i) "seamless" transit across region	☐	☐	☐	☐	☐	☐	☐
(j) transit safety/security programs	☐	☐	☐	☐	☐	☐	☐
(k) integration of urban transit with inter-city services	☐	☐	☐	☐	☐	☐	☐
(l) fare structure, incentives, and/or subsidy to encourage transit use	☐	☐	☐	☐	☐	☐	☐
(m) user information services	☐	☐	☐	☐	☐	☐	☐
Please provide description of key examples or 'best practices':							

6 PARKING

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
	Low → Level of Deployment → High						
(a) parking standards related to level/ proximity of transit service	☐	☐	☐	☐	☐	☐	☐
(b) maximum parking standards	☐	☐	☐	☐	☐	☐	☐
(c) cap on overall parking supply	☐	☐	☐	☐	☐	☐	☐
(d) pricing to discourage use of public parking lots by commuters	☐	☐	☐	☐	☐	☐	☐
(e) tax or other measure to discourage use of private lots by commuters	☐	☐	☐	☐	☐	☐	☐
(f) restrictions on on-street parking on arterial roads in peak periods	☐	☐	☐	☐	☐	☐	☐

Please provide description of key examples or 'best practices':

7 ROAD SYSTEM OPTIMIZATION

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
(a) recognizing all road user needs in planning of road system	☐	☐	☐	☐	☐	☐	☐
(b) considering person-capacity as well as vehicular capacity	☐	☐	☐	☐	☐	☐	☐
(c) HOV lanes and promotion/ facilitation of ridesharing	☐	☐	☐	☐	☐	☐	☐
(d) transportation systems management program	☐	☐	☐	☐	☐	☐	☐
(e) intersection improvement program (e.g. geometric improvements)	☐	☐	☐	☐	☐	☐	☐
(f) real-time traffic signal control and coordinated signal timing	☐	☐	☐	☐	☐	☐	☐
(g) incident management system	☐	☐	☐	☐	☐	☐	☐

Please provide description of key examples or 'best practices':

8 GOODS MOVEMENT

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
(a) consideration of goods movement in transportation system planning	☐	☐	☐	☐	☐	☐	☐
(b) consultation with goods movement industry to identify/resolve issues	☐	☐	☐	☐	☐	☐	☐
(c) provision of adequate, accessible off-street loading facilities	☐	☐	☐	☐	☐	☐	☐
(d) designation of appropriate truck routes	☐	☐	☐	☐	☐	☐	☐
(e) development of intermodal freight terminals and/or freight consolidation terminals	☐	☐	☐	☐	☐	☐	☐

Please provide description of key examples or 'best practices':

9 SPECIAL USER NEEDS

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
	Low → Level of Deployment → High						
(a) transit vehicles accessible to physically challenged	☐	☐	☐	☐	☐	☐	☐
(b) transit stations/stops accessible to physically challenged	☐	☐	☐	☐	☐	☐	☐
(c) paratransit to supplement regular transit for special needs	☐	☐	☐	☐	☐	☐	☐
(d) curb cuts/ramps on pedestrian facilities	☐	☐	☐	☐	☐	☐	☐
(e) designated parking spaces for physically challenged	☐	☐	☐	☐	☐	☐	☐
(f) audible pedestrian signals	☐	☐	☐	☐	☐	☐	☐

Please provide description of key examples or 'best practices':

10 ENERGY, ENVIRONMENT, AND TRAVEL DEMAND MANAGEMENT (TDM)

check which box applies most (one box only in each row)

	Not Applicable	Not a priority at present	Studying the issue	Have adopted policies/ guidelines	Implementing pilot project(s)	Implementing in specific case(s) or area(s)	Implementing throughout study area
(a) alternative fuels for municipal vehicles	☐	☐	☐	☐	☐	☐	☐
(b) alternative fuels for transit vehicles	☐	☐	☐	☐	☐	☐	☐
(c) fuel-efficient vehicles for municipal fleets	☐	☐	☐	☐	☐	☐	☐
(d) promoting emissions control maintenance and inspection	☐	☐	☐	☐	☐	☐	☐
(e) environmental assessment for new transportation facilities/services	☐	☐	☐	☐	☐	☐	☐
(f) environmental assessment for land-use plans, development proposals	☐	☐	☐	☐	☐	☐	☐
(g) overall municipal TDM strategy	☐	☐	☐	☐	☐	☐	☐
(h) TDM strategy including road pricing initiatives	☐	☐	☐	☐	☐	☐	☐
(i) Transportation Management Associations	☐	☐	☐	☐	☐	☐	☐
(j) TDM outreach/advisory programs for public sector employees	☐	☐	☐	☐	☐	☐	☐
(k) Advanced Traveller Information Systems	☐	☐	☐	☐	☐	☐	☐
(l) Established Target for GHG Reduction	☐	☐	☐	☐	☐	☐	☐

Please provide description of key examples or 'best practices':

Urban Transportation Indicators - Survey #3

PART B

Transportation Financing

Part B Overview

Part B of the UTI survey relates to Transportation Finance issues. There are four questions presented on two pages.

As for Part A, if the area you are dealing with consists of several municipalities, then use your judgement to provide an answer that would be representative to the majority of municipalities inside the EUA combined.

1 Which of the following revenue sources does your area utilize to finance (directly or indirectly) transportation system improvements and how is it applied?

	If utilized, how applied? (check all that apply)						If not utilized, why? (check only one)			
	Placed in a general revenue account	Applied to local or regional transit	Applied to municipal roads	Applied to other roads (e.g. provincial or federal)	Applied to other transportation capital improvements	Being considered	No need to use	No legislative authority to use	Has not been considered	Not available to area
Federal/Provincial subsidies/grants										
(a) Recurring (on-going) Federal subsidy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(b) Recurring (on-going) Provincial subsidy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(c) one-time Federal grants	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(d) one-time Provincial grants	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
User fees/parking taxes/surcharges										
(e) surcharge on public parking rates	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(f) tax on private parking revenues	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(g) transit user fees	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(h) road pricing (incl. Tolls)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(i) designated fuel tax (e.g. portion of provincial fuel taxes dedicated to transportation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(j) vehicle registration tax	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Local taxes/surcharges										
(k) municipal property tax	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(l) local dedicated fuel or emissions taxes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Development levies/cost recovery										
(m) benefit-sharing levy on development	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(n) frontage levy on development	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(o) cost recovery for new development	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(p) other (please describe below)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

description of "other" (I.e. hydro surcharge)

2 Approximately what percentage of your transportation funding for different types of expenditures is derived from the categories of sources listed?

	Municipal road system capital expenditures	Municipal road system operating expenditures	Transit system capital expenditures	Transit system operating expenditures	Other transportation expenditures
(a) Federal/Provincial subsidies/grants					
(b) User fees/parking taxes/surcharges					
(c) Local taxes/surcharges/etc.					
(d) Development levies/cost recovery					
Total	100%	100%	100%	100%	100%

3 Does your area conduct cost-effectiveness, cost/benefit, or similar financial analysis as part of your assessment of the suitability and/or priority of transportation projects? What type of analysis do you use? Is this done generally or only in specific cases? - please describe.

4 Has your area attempted to estimate the costs incurred as a result of congestion to transit service? auto users? commercial goods movement? If so, briefly describe such efforts.

Urban Transportation Indicators - Survey #3

PART C

Land Use and Transportation

Part C Overview

Part C of the UTI Survey deals with data on land use and transportation in four geographic areas. The section contains 4 pages with 21 multi-part questions. In some cases, data has already been provided in the survey form based on Canada-wide data sources (e.g. Statistics Canada). Please verify that this data is correct and note any discrepancies if they exist.

In all cases, data for 2001 is requested. If data for 2001 is not available for some questions, please provide data for the next closest year, indicating the year of data in the column provided.

Instructions on specific questions are provided throughout the survey form.

Defining the Central Area

Questions 1-3 deal with urban structure and request data on land area, population and employment. These data have been provided for the Region (CMA), Existing Urban Area (EUA), and the Central Business District (CBD). You are asked to define the Central Area (CA) on the base map provided and supply land area, population and employment for this area for 2001. The CA map indicates the CBD boundaries to assist you. The CA boundaries you define should be based on the following guidelines:

a) It should be 2 to 3 times larger in geographic size than the CBD.
b) The area should contain relatively high employment and population densities.
c) To support data compatibility with census information, the CA boundaries should coincide with Census Tract boundaries.

Note: For cities that participated in the previous survey and defined a Central Area, these definitions and the associated demographic data have been adopted for the current survey. Please that these are still applicable and that the data is correct.

Important Information

What is the time period defined for the AM peak period: _____ (e.g. 6 AM - 9 AM)

PM peak period: _____ (e.g. 3 PM - 6 PM)

How are trips defined in your travel survey (if available)? _____

(e.g. Any trip made by persons aged 11 and over)

How are arterial roads defined in your area? _____

Notes: For #1-3, please define your central area on the map provided. See instructions above to assist you in defining this area.

URBAN STRUCTURE	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
1 Land area (sq.km.)	CMA		2001	Statistics Canada
	EUA		2001	
	CA			
	CBD		2001	
2 Residential population	CMA		2001	
	EUA		2001	
	CA			
	CBD		2001	
3 Total employment (includes both full and part-time employment)	CMA		2001	To be provided by IBI Group when data is available from Statistics Canada
	EUA		2001	
	CA			
	CBD		2001	

TRANSPORTATION SUPPLY	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
4 (a) Local roads lane-kilometres (lane-km)	EUA			
(b) Arterial/Collector (or regional) lane-km				
(c) Non HOV multi - lane highways/freeways lane-km				
(d) HOV (inc. exclusive/reserved transit lanes) lane-km				
5 Bike lane/bike path km	EUA			
(a) Designated or marked on-street facilities				
(b) Designated or marked off-street facilities				
6 Transit seat-km	EUA			
Tip: transit seat-km is typically calculated as service frequency (vehicles per peak period) mulitplied by the route length (km) and then by the number of seats per vehicle.				
(a) AM peak period				
(b) PM peak period				
(c) 24 -hr transit seat-km				
7 Vehicles Registered	EUA			To be provided by IBI Group when available from Statistics Canada
(a) Passenger Vehicles (incl. Cars, vans and light trucks)				
(b) Light Duty Commercial Vehicles (incl. Cars, vans and light trucks)				
(c) Heavy Duty Commercial Vehicles				
8 Designated park-and -ride spaces	EUA			
9 Off-street parking spaces	CBD			
(a) -publicly owned (available for use by pubic)				
(b) -privately owned (available for use by public)				
(c) -spaces not available for use by public				

TRANSPORTATION SYSTEM USE	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
Note: Some of the questions in this section rely on travel surveys (I.e. mode split). If your area does not regularly conduct travel surveys, try to fill in the responses to the best of your ability. If data is not readily available for both the AM and PM peak period, one or the other is sufficient.				
10 Mode Shares for Central Business District				
Note: If no CBD data is available, then provide CA data instead and indicate as such. Modal shares are for trips destined to or originating from (and within) the CBD. Do not include trips passing through the CBD. Please estimate mode share if no measurements exist.				
		Destined To (excludes trips starting in CBD)	Originating From (includes trips starting and ending in CBD)	
(a) AM peak period modal shares [%]				
-Private vehicle driver	CBD			
-Private vehicle passenger				
-Transit				
-School bus				
-Cycle				
-Walk				
-Other (taxi, motorcycle etc.)				
		100%	100%	
Total number of AM peak period trips				
(b) PM peak period modal shares [%]		Dest. To	Orig. From	
-Private vehicle driver	CBD			
-Private vehicle passenger				
-Transit				
-School bus				
-Cycle				
-Walk				
-Other (taxi, motorcycle etc.)				
		100%	100%	
Total number of PM peak period trips				

TRANSPORTATION SYSTEM USE (continued)	AREA	DATA		YEAR	YOUR REMARKS (SOURCES)
		Dest. To	Orig. From		
10 (c) 24-hour modal shares [%]					
-Private vehicle driver	CBD				
-Private vehicle passenger					
-Transit					
-School bus					
-Cycle					
-Walk					
-Other (taxi, motorcycle etc.)					
			100%		
Total number of trips in 24-hour period					
11 Mode Shares for EUA					
Note: Modal shares are for trips to, from, and within the EUA (I.e. includes trips within the EUA).					
(a) AM peak period modal shares					
-Private vehicle driver	EUA				
-Private vehicle passenger					
-Transit					
-School bus					
-Cycle					
-Walk					
-Other (taxi, motorcycle etc.)					
			100%		
Total AM Peak Period Trips in EUA					
(b) PM peak period modal shares					
-Private vehicle driver	EUA				
-Private vehicle passenger					
-Transit					
-School bus					
-Cycle					
-Walk					
-Other (taxi, motorcycle etc.)					
			100%		
Total PM Peak Period Trips in EUA					
(c) 24-hour modal shares					
-Private vehicle driver	EUA				
-Private vehicle passenger					
-Transit					
-School bus					
-Cycle					
-Walk					
-Other (taxi, motorcycle etc.)					
			100%		
Total 24-hour Trips in EUA					
12 *Note: One ride represents a trip for which a single fare was paid*	EUA				
(a) Annual transit riders (excludes school buses)					
(b) Riders on a typical weekday					
(c) 24-hour transit passenger - km					

Notes: For No. 14 and 15, the percent commercial vehicles are calculated on a vehicle-km basis. If this is not possible, the percent commercial may be calculated as an average based on traffic classification counts. These percentages should be of total vehicle traffic.

TRANSPORTATION SYSTEM USE (continued)	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
Note: Trips are to, from and within the EUA				
Tip: Vehicle-km can be estimated by multiplying link traffic volumes by link length. Alternatively, data may be estimated from travel surveys using a transportation model. If these methods are not available, please call IBI Group.				
13 Arterial Road (or regional road) vehicle - km	EUA			
(a) AM peak period (Passenger Vehicles)				
(b) PM peak period (Passenger Vehicles)				
(c) 24-hour vehicle-km (Passenger Vehicles)				
(d) 24-hour vehicle-km (Medium and Heavy Commerical Vehicles)				
14 Multi-lane highways/freeway vehicle - km	EUA			
(a) AM peak period (Passenger Vehicles)				
(b) PM peak period (Passenger Vehicles)				
(c) 24-hour vehicle-km (Passenger Vehicles)				
(d) 24-hour vehicle-km (Medium and Heavy Commerical Vehicles)				

TRANSPORTATION SYSTEM PERFORMANCE	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
Note: Trip distance should be for trips to, from & within the EUA. The actual distance is preferred over the straight-line distance (please indicate which is used) . Average home-work person trip distance can be derived from travel behaviour surveys. Home-work trip distance from Statistics Canada POR-POW data (straight line) is provided for reference.				
15 Average home-work trip distance (km)	EUA			
Average home-work distance (Statistics Canada)			2001	To be provided by IBI
16 Annual injuries & fatalities	EUA			
(a) Injuries				
(b) Fatalities				
17 Annual GHG emissions from Transportation (tonnes)	EUA			

TRANSPORTATION COSTS & FINANCE	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
18 (a) Annual Municipal/Regional Road capital budget (incl. Major Rehabilitation)	EUA			
(b) Annual Municipal/Regional Road operating & maintenance budget				
19 (a) Annual Provincial Road capital budget	EUA			
(b) Annual Provincial Road operating & maintenance budget				
20 (a) Annual transit capital budget	EUA			
(b) Annual transit operating & maintenance budget				
21 Annual transit Fare Box Revenue	EUA			

Appendix C: Survey Responses

PART A – STATUS OF TRANSPORTATION AND LAND USE INITIATIVES

	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton	London	Kitchener-Waterloo	St. Catharines-Niagara	Halifax	Victoria	Windsor	Oshawa	Regina	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivieres
1 Urban Structure/Land Use																								
a. long-term, integrated municipal land-use/transportation plan	5	2	5	6	6	6	2	3	2		3	6	2	2	3	3	6		2	1	5		2	5
b. transit-related high-density, mixed-use centers/nodes	5	5	5	6	3	5	5	2	3		3	3	2	5		3	3		5	1			2	5
c. higher-density, mixed-use transit corridors	5	3	5	3	3	1	6	2	3		3	3	2	3		3	3		5	1	1		2	5
d. limiting urban development within designated urban boundaries	5	2	6	3	6	1	5	3	3		6	6	2	3		6	1	1	3	3	6		2	5
e. re-urbanization/intensification transit corridors	5	2	4	3	5	1	4	2	3	3	3	2	2	3		3	3		3	1	1		2	
f. relating transit service levels to density	5	4	3	6		6	5	5	3	5	3	2	1	3		2	2		6	1			2	
g. appropriate population/employment ratio at municipal level	3	1	2	5	3	1	2		3	3		2	2	3		3	1			1	1		2	
h. appropriate population/employment ratio at node/community level	3		2	5	3	1	2			3		2	2	3		2	1			1			2	
i. encouraging residential uses in/near downtown area (s)	5	6	5	5	6	6	5	5	5	3	5	6	3	3	2	3	6	3	5	5	1		2	5
j. taxation and/or other incentives for compact, mixed-use development	6	5	2	3	1	2	2	2	5	1		3	2	3		2	5	1	5	1	5		5	5
cumulative score (average value of responses for category)	*4.7*	*3.3*	*3.9*	*4.5*	*3.9*	*6.0*	*3.8*	*3.0*	*3.3*	*3.0*	*3.7*	*3.5*	*2.0*	*3.1*	*2.5*	*3.0*	*3.1*	*1.7*	*4.3*	*1.6*	*2.9*		*2.3*	*5.0*
2 Urban Design																								
a. transit-supportive urban design (macro level)	5	5	5	5	6	6	6	5	3	5	5	2	3	3	1	2	2		2	1	5		2	5
b. transit-supportive site/ building design (micro level)	5	5	5	6	6	5	6	5	3	6	5	2	3	3	5	2	2		2	1	5		2	5
c. cycling-supportive streetscaping	5	2	5	6	5	5	5	5	5	5	5	6	3	3	3	2	5		3	4	5		2	5
d. pedestrian-supportive streetscaping	5	5	2	6	5	5	6	5	5	5	5	3	3	3	3	2	6		5	1	6		5	5
e. traffic calming	5	5	5	5	5		5	5	5	5		5	4	3	2	4	5		2	4	5	4	2	5
cumulative score	*5.0*	*4.4*	*4.4*	*5.6*	*5.4*	*5.0*	*5.6*	*5.0*	*4.2*	*5.2*	*5.0*	*3.6*	*3.2*	*3.0*	*2.8*	*2.4*	*4.0*		*2.8*	*2.2*	*5.2*	*4.0*	*2.6*	*5.0*
3 Walking																								
a. enhanced pedestrian amenities	5	5	3	5	5	5	5	5	6	1	1	6	3	3	3	3	5	1	5	1	1	5	4	1
b. adequate road crossing facilities	5	4	3	5	5	6	5	6	2	6	5	6	5	3	5	5	6	3	5	5	5	6	2	2
cumulative score	5.0	4.5	3.0	5.0	5.0	5.0	5.0	5.5	4.0	3.5	3.0	6.0	4.0	3.0	4.0	4.0	5.5	2.0	5.0	3.0	3.0	5.5	3.0	1.5

1 = not a priority at present; 2 = studying the issue; 3 = have policies/guidelines; 4 = implementng pilot projects; 5 = implementing in specific cases/ areas; 6 = implementing throughout region

	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton	London	Kitchener-Waterloo	St. Catharines-Niagara	Halifax	Victoria	Windsor	Oshawa	Regina	St. John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivieres
4 Cycling																								
a. network of on-street cycling lanes/ specially widened curb lanes	5	6	6	6	5	5	5	6	5	5	6	6	4	3	6	3	5		5	5	5	5	2	5
b. network of off-street cycling paths	5	5	6	6	6	5	5	5	6	6	6	5	4	3	6	5	6		5	5	1	2	2	5
c. secure parking for cycles	5	5	5	5	5	5	5	5	3	4	2	1	4	3	3	1	6		1	1	1	1	2	2
d. municipal participation on cycling advisory/awareness committees	5	5	6	6	5	6	6	6	6	6	6	6	6	3	6	5	6		2	6	1	5	2	5
e. cycling amenities in new development	5	2	3	6	1	5	1	5	5	2	2	2	3	3	3	3	5		5	1	1	1	2	2
cumulative score	*5.0*	*4.6*	*5.2*	*5.8*	*4.4*	*5.0*	*4.4*	*5.4*	*5.0*	*4.6*	*4.4*	*4.0*	*4.2*	*3.0*	*4.8*	*3.4*	*5.6*		*3.6*	*3.6*	*1.8*	*2.8*	*2.0*	*3.8*
5 Transit																								
a. transit priority by means of HOV or reserved bus lanes	5	5	5	5	4	5	5	5	2	3	2	2	5		1	2	6			5	5	1	2	2
b. other transit priority measures	5	5	5	6	5	5	5	5	2	2	3	2	5	3	5	2	2			1	1	1	2	5
c. stops within walking distance of places of residence/employment	5	6	6	6	5	6	6	6		5	6	1	3	3	3	3	6	3	3	3	3	5	6	6
d. park'n'ride lots	5	6	5	6	5	5	5	6		1	2		6	3	2	5						1	2	2
e. transit pick-up and drop-off facilities	5	5	5	6	5	5	1	5		1	2		6		5	5		3				4	5	5
f. bike'n'ride facilities	5	5	5	5	5	5	2	5	3	1	6		1	3	4	2	1			1		1	2	1
g. inter-municipal service coordination	5	5	6	6	5	6	2				6	5		3	2	2		3			5	6	6	
h. inter-municipal fare coordination	5	6	6	6	5	6	4				6	2		3	2	5		3			5	6	6	
i. "seamless" transit across region	2	5	6	6	5	6	2				6	2	6	3	2	2		3	4			1	6	
j. transit safety/security programs	5	5	6	6	5	6	2	6		1	3	1	5	3	3	1	6		4	5	6	1	6	6
k. integration of urban transit with inter-city services	5	5	5	5	5	1	1	2		1	4	2	1	3	2	5			4	6		1	5	
l. fare structure, incentives, and/or subsidy to encourage transit use	5	6	6	6	5	6	6	6		5	2	2	1	3	4	2	5		5	6	2	6	5	6
m. user information services	2	5	6	6	5	6	6	6		4	6	1	6	3	6	2	5	3	5	6	6	6	5	6
cumulative score	*4.5*	*5.3*	*5.5*	*5.8*	*4.9*		*3.6*	*5.2*	*2.3*	*2.4*	*4.2*	*2.0*	*4.1*	*3.0*	*3.2*	*2.9*	*4.4*	*3.0*	*4.2*	*4.1*	*4.1*	*3.1*	*4.5*	*4.3*

1 = not a priority at present; 2 = studying the issue; 3 = have policies/guidelines; 4 = implementng pilot projects; 5 = implementing in specific cases/ areas; 6 = implementing throughout region

	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton	London	Kitchener-Waterloo	St. Catharines-Niagara	Halifax	Victoria	Windsor	Oshawa	Regina	St. John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivieres
6 Parking																								
a. parking standards related to level/ proximity of transit service	2	5	2	5	3	5	1	1	2	4		1	5	1	2	1	3		5	1		1		
b. maximum parking standards	3	2	2	2	3	5	2	1	2	1		3	1	1	2	1	1			1		6		2
c. cap on overall parking supply	2	2	2	4		1	1	2		1		2	5	1	2	1	1			1	5		2	2
d. pricing to discourage use of public parking lots by commuters	5	1	5	4		1	1	1		1		1	1	5		1	1			1			2	
e. tax or other measure to discourage use of private lots by commuters	2	1	2	4		1	1	1		1			1			1				1			1	
f. restrictions on on-street parking on arterial roads in peak periods	6	6	5	6	3	6	5	6	3	5	6	3	5	5	5	5	6			1		6		
cumulative score	*3.3*	*2.8*	*3.0*	*4.2*	*3.0*	*5.0*	*1.8*	*2.0*	*2.3*	*2.2*	*6.0*	*2.0*	*3.0*	*2.6*	*2.8*	*1.7*	*2.4*		*5.0*	*1.0*	*5.0*	*4.3*	*1.7*	*2.0*
7 Road System Optimization																								
a. recognizing all road user needs in planning of road system	5	5	5	6	3	6	5	3		6	6	6	2	3	6	3	6		6	3	2	5	3	5
b. considering person-capacity as well as vehicular capacity	5	5	5	5	2	6	2	2		2	2	1	2	2	1	2	1			3	1	1	1	
c. HOV lanes and promotion/ facilitation of ridesharing	5	4	5	5	6	1	2	2		2	4		2		1	2	1		1	1	1	1	2	
d. transportation systems management program	5	5	2	5	5	5	5	6		2	6	2	2	3	1	2	1	3		2	1	1	2	
e. intersection improvement program (e.g. geometric improvements)	5	3	5	6	5	6	5	6		5	6	6	5	3	6	6	6	5	5	2	6	6	5	5
f. real-time traffic signal control and coordinated signal timing	5	2	5	6	4	4	5	5		4	6	6	6	5		6	6	5	5	5	5	5	5	5
g. incident management system	5	5	2	5	3	5	5	1		2	5	6	2	3	5	2	1	1		1	1	1	2	
cumulative score	*5.0*	*4.1*	*4.1*	*5.4*	*4.0*	*6.0*	*4.1*	*3.6*		*3.3*	*5.0*	*4.5*	*3.0*	*3.2*	*3.3*	*3.3*	*3.1*	*3.5*	*4.3*	*2.4*	*2.4*	*2.9*	*2.9*	*5.0*
8 Goods Movement																								
a. consideration of goods movement in transportation system planning	5	2	5	6	4	6	3	5	6	2	2		1	3	6	2	1	5	6	2	1	1	2	
b. consultation with goods movement industry to identify/resolve issues	5	6	5	5	5	6	1	5	5	2	5		2	3		2	1	5	6	2	1	1	2	
c. provision of adequate, accessible off-street loading facilities	5	5	5	6	4	6	5	6		3	3		1	3	3	6	5	3	6	5	3	6	2	5
d. designation of appropriate truck routes	5	5	6	6	3	6	5	6	6	3	6		6	3	6	2	6	5	6	2	6	1	2	6
e. development of intermodal freight terminals and/or freight consolidation terminals	5	5	5	3	4	6	5	5		1	5		1	5	2	2	1		1	5	1	1	2	
cumulative score	*5.0*	*4.6*	*5.2*	*5.2*	*4.0*	*5.0*	*3.8*	*5.4*	*5.7*	*2.2*	*4.2*		*2.2*	*3.4*	*4.3*	*2.8*	*2.8*	*4.5*	*5.0*	*3.2*	*2.4*	*2.0*	*2.0*	*5.5*

1 = not a priority at present; 2 = studying the issue; 3 = have policies/guidelines; 4 = implementng pilot projects; 5 = implementing in specific cases/ areas; 6 = implementing throughout region

	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton	London	Kitchener-Waterloo	St. Catharines-Niagara	Halifax	Victoria	Windsor	Oshawa	Regina	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivieres
9 Special User Needs																								
a. transit vehicles accessible to physically challenged	6	5	6	6	6	6	5	6		5	6	2	6	3	6	6	5	6	5	6	5	6	5	6
b. transit stations/stops accessible to physically challenged	6	5	6	6	6	6	5	6		5	5	2	5	3	6	3	5	1	6	1	1	6	2	
c. paratransit to supplement regular transit for special needs	6	6	6	6	6	6	6	6		6	5	2	6	3	6	6	6	6	6	6		6	6	6
d. curb cuts/ramps on pedestrian facilities	6	5	6	5	6	6	5	6	6	6	6	2	6	3	6	6	6	6	5	6	6	6	5	5
e. designated parking spaces for physically challenged	6	6	6	6	6	6	6	6		6	6	2	6	3	6	6	6	6	6	6	6	6	5	6
f. audible pedestrian signals	5	4	5	5	5	5	5	6	5	4	6	3	5	3	1	1	5	5	5	1	5	5	2	5
cumulative score	*5.8*	*5.2*	*5.8*	*5.7*	*5.8*	*5.0*	*5.3*	*6.0*	*5.5*	*5.3*	*5.7*	*2.2*	*5.7*	*3.0*	*5.2*	*4.7*	*5.5*	*5.0*	*5.5*	*4.3*	*4.6*	*5.8*	*4.2*	*5.6*
10 Energy, Environment and TDM																								
a. alternative fuels for municipal vehicles	4	4	1	5	2	5	5	5		5	4	1	1	3	5	2	5		2	1		4		
b. alternative fuels for transit vehicles	4	2	1	5	2	4	1	2		5	5		2		5	2	5	1	4	1		1	4	1
c. fuel-efficient vehicles for municipal fleets	5	5	1	2	2	6	2	2		1	5	1	1	3	5	2	1	1	2	1	5	4		
d. promoting emissions control maintenance and inspection	5	1	6	5		1	5	2		2	3	6	1		6	6	5	3	2	1	2	6	3	
e. environmental assessment for new transportation facilities/services	6	6	6	6	6	5	2	3		6	6	1	1		5	6	5		5	1	6	1		
f. environmental assessment for land-use plans, development proposals	5	2	6	6	6	5	6	3		6	3	6	1	3		6	6	1	5	1	2	5		
g. overall municipal TDM strategy	3	3	3	3	5	1	4	2		5	6	2	2	5	5	2	1	1	2	1	1	1	2	
h. TDM strategy including road pricing initiatives	2	1	3	2	1	1	1	2		1	1	2	2	2		2	1			1	1	1	2	
i. Transportation Management Associations	5	4	5	2	1	1	2	1		2	1	2		2		2	1			1	1	1	2	
j. TDM outreach/advisory programs for public sector employees	5	1	5	2	5	1	5	2		1	3	1	2	2	2	2	1			1	1	1	2	
k. Advanced Traveller Information Systems	2	4	4	5	3	2	2	1		1	1	2			5	2	1			1	1	1	2	
l. Established Target for GHG Reduction	2	2	2	5	6	6	2	2		1	2	1	3	2			6	2	2	1	1	1	1	
cumulative score	*4.0*	*2.9*	*3.6*	*4.0*	*3.5*	*5.0*	*3.1*	*2.3*		*3.0*	*3.3*	*2.3*	*1.6*	*2.8*	*4.8*	*3.1*	*3.2*	*1.5*	*3.0*	*1.0*	*2.1*	*2.3*	*2.3*	*1.0*

1 = not a priority at present; 2 = studying the issue; 3 = have policies/guidelines; 4 = implementng pilot projects; 5 = implementing in specific cases/ areas; 6 = implementing throughout region

PART B – TRANSPORTATION FINANCING

Sources of Funding (%)	Toronto	Montreal	Vancouver	Ottawa	Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton	London	Kitchener-Waterloo	St. Catharines-Niagara	Halifax	Victoria	Windsor	Oshawa	Regina	St. John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivières
Municipal Road System Capital Expenditures																									
a Federal/Provincial Subsidies Grants	0	4	15	0	5	0	0	6	20	0	0	15	0	0	0	0	3	17			16	3	0	0	8
b User fees/ Parking taxes/ Surcharges	29	0	0	0	0	63	45	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0
c Local taxes / surcharges/ etc.	70	94	10	73	95	31	49	94	80	97	43	60	95	100	95	99	57	68			83	89	25	90	92
d Development Leveies/ Cost Recovery	1	2	75	27	0	6	7	0	0	3	57	25	6	0	5	1	40	15			0	8	75	10	0
Municipal Road System Operating Expenditures																									
a Federal/Provincial Subsidies Grants	0	2	15	0	2	0	0	2	0		0	0	0	0		0	0	0			2	4	0	0	0
b User fees/ Parking taxes/ Surcharges	21	0	0	20	0	0	8	0	0		0	0	5	0		0	0	1			0	0	0	4	0
c Local taxes / surcharges/ etc.	79	96	85	80	98	100	92	91	100		100	100	95	100		100	92	99			97	96	100	97	91
d Development Leveies/ Cost Recovery	0	2	0	0	0	0	0	7	0		0	0	0	0		0	8	0			1	0	0	0	9
Transit System Capital Expenditures																									
a Federal/Provincial Subsidies Grants	0	88	50	15	100	0	4	63	40		0	25		0	30	33	0	11			33	50		20	57
b User fees/ Parking taxes/ Surcharges	0	0	40	0	0	63	43	0	40		75	0		0	35	0	0	17			33	28		0	0
c Local taxes / surcharges/ etc.	100	12	10	80	0	31	53	37	20		25	65		100	35	67	3	72			34	22		80	43
d Development Leveies/ Cost Recovery	0	0	0	5	0	6	0	0	0		0	10		0	0	0	97	0			0	0		0	0
Transit System Operating Expenditures																									
a Federal/Provincial Subsidies Grants	0	4	0	0	28	0	0	7	20		0	0		0	0	0	0	0			33	28	50	15	8
b User fees/ Parking taxes/ Surcharges	85	46	50	55	72	45	46	48	50		69	35		70	0	63	55	38			33	41	10	43	43
c Local taxes / surcharges/ etc.	15	50	50	45	0	55	54	43	30		31	65		30	0	37	45	62			34	31	40	42	49
d Development Leveies/ Cost Recovery	0	0	0	0	0	0	0	2	0		0	0		0	0	0		0			0	0	0	0	0
Other Expenditures																									
a Federal/Provincial Subsidies Grants		4				0					0	0		0			0					0			0
b User fees/ Parking taxes/ Surcharges		0				63					0	25		0			0					0			39
c Local taxes / surcharges/ etc.		94				31					100	75		100			0					100			61
d Development Leveies/ Cost Recovery		2				6					0	0		0			0					0			0

PART C – LAND USE AND TRANSPORTATION

	AREA	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton
Urban Structure										
*1 Land area (km^2)**	*Region*	*5,903*	*4,047*	*2,879*	*5,318*	*5,083*	*9,419*	*3,154*	*4,151*	*1,372*
	EUA	*2,281*	*2,228*	*1,317*	*1,116*	*702*	*670*	*1,021*	*419*	*419*
	CA	*17.29*	*21.74*	*26.36*	*14.48*	*7.53*	*2.11*	*30.12*	*6.86*	*2.04*
	CBD	*5.87*	*4.49*	*4.42*	*2.98*	*2.22*	*2.11*	*4.46*	*2.12*	*2.04*
*2 Residential population**	*Region*	*4,682,897*	*3,426,350*	*1,986,965*	*1,063,664*	*951,395*	*937,845*	*682,348*	*671,274*	*662,401*
	EUA	*4,346,206*	*3,162,972*	*1,806,488*	*930,042*	*878,866*	*666,099*	*636,290*	*616,052*	*547,521*
	CA	*131,363*	*179,617*	*177,129*	*65,752*	*38,152*	*5,037*	*97,952*	*29,215*	*13,613*
	CBD	*52,432*	*30,199*	*31,708*	*7,786*	*8,429*	*5,037*	*22,284*	*11,899*	*13,613*
*3 Total employment**	*Region*	*2,359,890*	*1,622,715*	*897,540*	*552,360*	*485,490*	*448,035*	*323,390*	*326,385*	*265,675*
	EUA	*2,245,710*	*1,540,710*	*841,680*	*523,760*	*464,720*	*351,770*	*308,505*	*312,940*	*224,645*
	CA	*418,100*	*348,560*	*220,610*	*148,975*	*130,730*	*31,985*	*121,000*	*74,530*	*21,565*
	CBD	*322,660*	*224,200*	*94,800*	*96,940*	*92,090*	*31,985*	*46,970*	*40,850*	*21,565*
Transportation Supply										
4 Roadway lane-kilometers										
a Local roads lane-kilometres	EUA	12,630	19,451	5,368	7,160	7,040	3,559	5,553	5,030	2,082
b Arterials and Collectors	EUA	13,000	6,039	3,524	3,722	4,390	4,384	1,869	1,720	3,876
b Collectors	EUA	1,800	3,454	1,607		2,530	1,671	477		
b Arterials (or Regional Roads)	EUA	11,200	2,585	1,917		1,860	2,713	1,392		
c Non HOV multi-lane highways/freeways	EUA	3,000	3,131	891	463	1,300	884	948	120	74
d HOV (inc. reserved transit lanes)	EUA	87	97	110	117	2.3	11	46.4	8	0
5 Bike lane/bike path kilometers										
a Designated or marked on-street facilities	EUA	130	350		192	260	140	111		84.1
b Designated or marked off-street facilities	EUA	470	560		319	550	213	161		70.8
6 Transit seat-km										
a AM peak period (hourly)	EUA	2,899,433	2,133,000	2,868,000	769,180	889,050		477,500	291,947	
b PM peak period (hourly)	EUA	2,691,967	1,950,000	2,946,000	750,506	890,100		424,000	291,287	
c 24 -hr transit seat-km	EUA	33,088,700	24,360,000	11,736,000	8,193,319	6,696,800		3,550,000	3,507,800	
*7 Vehicles Registered**	*EUA*	*2,163,646*	*1,343,551*	*1,060,624*	*447,842*	*651,840*	*442,383*	*286,196*	*341,770*	*339,611*
*light duty vehicles**	*EUA*	*2,105,420*	*1,316,777*	*1,029,301*	*439,630*	*622,138*	*420,605*	*280,205*	*330,750*	*330,896*
*heavy duty vehicles**	*EUA*	*58,226*	*26,774*	*31,323*	*8,212*	*29,702*	*21,778*	*5,991*	*11,020*	*8,715*
8 Designated park-and-ride spaces		43,394	18,729	7,209	3,854	10,900	2,600	950	240	0
9 Off-street parking spaces										
a publicly owned	CBD	6,000	2,443		8,498	1,900	1,800			4,570
b privately owned	CBD	32,700	24,168		5,411	10,300	23,000		15,500	
c spaces not available for use by public	CBD	13,000	4,461		1,430	32,400	12,900		6,200	

** Data Obtained from Statistics Canada, described in Appendix D*

	AREA	London	Kitchener - Waterloo	St. Catharines - Niagara	Halifax	Victoria	Windsor	Oshawa	Saskatoon	Regina
Urban Structure										
*1 Land area (km^2)**	*Region*	*2,333*	*827*	*1,406*	*5,496*	*695*	*1,023*	*903*	*5,192*	*3,408*
	EUA	*385*	*314*	*475*	*391*	*304*	*130*	*292*	*145*	*110*
	CA	*1.91*	*15.30*	*18.00*	*19.00*	*5.79*	*4.63*	*5.94*	*2.11*	*1.10*
	CBD	*1.91*	*3.71*	*4.28*	*1.14*	*1.87*	*1.84*	*2.87*	*2.11*	*0.51*
*2 Residential population**	*Region*	*432,451*	*414,284*	*377,009*	*359,183*	*311,902*	*307,877*	*296,298*	*225,927*	*192,800*
	EUA	*334,755*	*387,309*	*274,435*	*273,087*	*292,519*	*226,087*	*226,464*	*193,374*	*171,627*
	CA	*4,066*	*35,176*	*38,323*	*61,209*	*23,518*	*23,655*	*18,619*	*4,441*	*4,047*
	CBD	*4,066*	*8,613*	*7,079*	*4,004*	*5,956*	*9,661*	*8,903*	*4,441*	*558*
*3 Total employment**	*Region*	*195,785*	*205,665*	*158,825*	*172,200*	*142,245*	*139,225*	*103,885*	*104,990*	*95,695*
	EUA	*162,580*	*190,880*	*119,430*	*157,475*	*138,735*	*117,835*	*87,755*	*95,650*	*87,490*
	CA	*23,630*	*50,030*	*37,195*	*78,200*	*45,720*	*20,410*	*18,435*	*6,075*	*20,730*
	CBD	*23,630*	*22,990*	*20,865*	*27,640*	*29,480*	*14,175*	*14,235*	*6,075*	*14,010*
Transportation Supply										
4 Roadway lane-kilometers										
a Local roads lane-kilometres	EUA			1,160	2,053		425	1,308		1,134
b Arterials and Collectors	EUA		1,416	140	862	1,540		1,256		762
b Collectors	EUA							269		
b Arterials (or Regional Roads)	EUA							987		
c Non HOV multi-lane highways/freeways	EUA	0	192	120	536	60		94		163
d HOV (inc. reserved transit lanes)	EUA	0	0	0	0	0		0		10.7
5 Bike lane/bike path kilometers										
a Designated or marked on-street facilities	EUA	100			0.7	112	17	0		18
b Designated or marked off-street facilities	EUA	30			2.3	62	40	28		34
6 Transit seat-km										
a AM peak period (hourly)	EUA	117,806	66,666				52,890	92,839		46,251
b PM peak period (hourly)	EUA	119,422	73,333				33,739	93,894		169,760
c 24 -hr transit seat-km	EUA	1,301,742	692,000		1,404,000		518,735	1,271,056		635,784
*7 Vehicles Registered**	*EUA*	*196,025*	*236,800*	*174,920*	*157,821*	*180,164*	*157,216*	*133,185*	*125,948*	*121,533*
*light duty vehicles**	*EUA*	*191,140*	*229,029*	*171,400*	*152,030*	*176,275*	*153,870*	*130,813*	*120,625*	*116,258*
*heavy duty vehicles**	*EUA*	*4,885*	*7,771*	*3,520*	*5,791*	*3,889*	*3,346*	*2,372*	*5,323*	*5,275*
8 Designated park-and-ride spaces		0	0	0	835	300	0	3,545		
9 Off-street parking spaces										
a publicly owned	CBD	4,117	203,550		1,955	3,000	4,900	1,539		46
b privately owned	CBD	2,456			1,132	6,000		6,286		5,052
c spaces not available for use by public	CBD	6,523			7,339	1,000		1,981		6,336

** Data Obtained from Statistics Canada, described in Appendix D*

	AREA	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivières	Saint John	Thunder Bay
Urban Structure										
*1 Land area (km^2)**	*Region*	*805*	*3,536*	*1,754*	*1,108*	*626*	*1,907*	*880*	*3,360*	*2,548*
	EUA	*494*	*178*	*858*	*385*	*363*	*241*	*289*	*377*	*328*
	CA	*1.64*	*4.60*	*13.85*	*14.34*	*2.19*	*1.83*	*13.09*	*0.83*	*3.16*
	CBD	*1.64*	*1.47*	*2.22*	*1.46*	*2.19*	*1.83*	*3.88*	*0.83*	*3.16*
*2 Residential population**	*Region*	*172,918*	*155,601*	*154,938*	*153,811*	*147,370*	*146,838*	*137,361*	*122,678*	*121,986*
	EUA	*122,496*	*82,284*	*139,759*	*139,388*	*115,711*	*100,402*	*122,395*	*88,767*	*109,016*
	CA	*5,970*	*9,335*	*30,325*	*33,981*	*5,223*	*4,237*	*21,400*	*2,027*	*7,291*
	CBD	*5,970*	*2,066*	*5,869*	*3,830*	*5,223*	*4,237*	*5,704*	*2,027*	*7,291*
*3 Total employment**	*Region*	*76,080*	*63,005*	*62,290*	*68,780*	*50,620*	*69,060*	*57,855*	*51,590*	*52,780*
	EUA	*64,535*	*47,815*	*60,580*	*64,225*	*41,980*	*56,140*	*50,055*	*46,360*	*50,820*
	CA	*8,800*	*13,737*	*21,125*	*21,355*	*9,245*	*14,155*	*21,415*	*8,510*	*8,645*
	CBD	*8,800*	*6,595*	*8,520*	*6,900*	*9,245*	*14,155*	*12,680*	*8,510*	*8,645*
Transportation Supply										
4 Roadway lane-kilometers										
a Local roads lane-kilometres	EUA		625	1,289	1,278		1,075	1,325		
b Arterials and Collectors	EUA		610	1,228	944		649	531		
b Collectors	EUA		280	98	245		210	215		
b Arterials (or Regional Roads)	EUA		330	1,130	699		439	316		
c Non HOV multi-lane highways/freeways	EUA		0	88	204		0	243		
d HOV (inc. reserved transit lanes)	EUA		0	0	0.2		0	0		
5 Bike lane/bike path kilometers										
a Designated or marked on-street facilities	EUA			70	16		0	44		
b Designated or marked off-street facilities	EUA			42	17		1.3	31		
6 Transit seat-km										
a AM peak period (hourly)	EUA		119,852	8,503	37,520			22,000		
b PM peak period (hourly)	EUA		109,052	9,240	35,746			22,000		
c 24 -hr transit seat-km	EUA		392,564	567,000	454,114		262,680	308,000		
*7 Vehicles Registered**	*EUA*	*73,096*	*53,803*	*83,678*	*67,460*	*66,236*	*61,488*	*65,403*	*46,586*	*80,571*
*light duty vehicles**	*EUA*	*70,497*	*51,976*	*81,876*	*66,623*	*63,426*	*59,594*	*64,114*	*44,937*	*78,099*
*heavy duty vehicles**	*EUA*	*2,599*	*1,827*	*1,802*	*837*	*2,810*	*1,894*	*1,289*	*1,649*	*2,472*
8 Designated park-and-ride spaces				0	0		0	0		
9 Off-street parking spaces										
a publicly owned	CBD				1,823		2,335			
b privately owned	CBD				0		4,406			
c spaces not available for use by public	CBD									

** Data Obtained from Statistics Canada, described in Appendix D*

	AREA	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton
Transportation System Use										
Duration (h) of AM peak period		3	3	3	3	2	2	2	2	3
Duration (h) of PM peak period		3	3	3	2.5	2	2	2.5	2	1
10 Mode Shares for Central Business District										
a AM peak period modal shares (%)										
Destined to the CBD										
Private vehicle driver	CBD	27%	33%	38%	36%	41%	55%	53%	40%	64%
Private vehicle passenger	CBD	6%	7%	9%	14%	13%	13%	14%	15%	9%
Transit	CBD	63%	56%	48%	37%	34%	30%	21%	34%	14%
School bus	CBD	0%	0%		1%	0%	0%	1%		0%
Cycle	CBD	1%	1%	3%	2%	2%	0%	1%	0%	0%
Walk	CBD	3%	2%	1%	9%	8%	2%	10%	10%	12%
Other (taxi, motorcycle etc.)	CBD	0%	1%	1%	2%	1%	1%	1%	0%	0%
Total number of trips	CBD	239,445	182,080	78,112	87,000	91,100	48,765	40,423	29,885	15,575
Originating from the CBD (including trips starting and ending in CBD)										
Private vehicle driver	CBD	42%	48%	38%	58%	34%	56%	50%	29%	54%
Private vehicle passenger	CBD	3%	6%	8%	4%	5%	8%	8%	6%	6%
Transit	CBD	25%	24%	20%	15%	12%	2%	13%	25%	22%
School bus	CBD	0%	2%		1%	2%	0%	1%		0%
Cycle	CBD	1%	1%	1%	1%	1%	0%	2%	1%	1%
Walk	CBD	28%	18%	32%	21%	45%	35%	26%	39%	16%
Other (taxi, motorcycle etc.)	CBD	1%	1%	2%	2%	2%	1%	1%	0%	1%
Total number of trips	CBD	31,537	19,388	39,832	18,000	13,500	5,915	12,820	4,850	4,335
b PM peak period modal shares (%)										
Destined to the CBD										
Private vehicle driver	CBD	42%	40%	40%	59%	57%	51%	44%	29%	59%
Private vehicle passenger	CBD	10%	10%	9%	8%	9%	25%	9%	7%	17%
Transit	CBD	37%	38%	32%	18%	17%	19%	15%	25%	18%
School bus	CBD	0%	0%		1%	1%	0%	0%		0%
Cycle	CBD	2%	1%	2%	1%	1%	0%	1%	0%	1%
Walk	CBD	8%	9%	16%	13%	15%	5%	30%	40%	5%
Other (taxi, motorcycle etc.)	CBD	2%	2%	0%	1%	0%	1%	1%	0%	0%
Total number of trips	CBD	46,619	43,288	41,957	20,000	10,400	9,995	17,230	4,383	8,680
Originating from the CBD (including trips starting and ending in CBD)										
Private vehicle driver	CBD	25%	30%	26%	35%	37%	50%	49%	34%	61%
Private vehicle passenger	CBD	6%	7%	6%	13%	11%	12%	13%	13%	12%
Transit	CBD	59%	53%	39%	35%	33%	27%	22%	41%	16%
School bus	CBD	0%	0%		1%	0%	0%	0%		0%
Cycle	CBD	2%	1%	3%	1%	2%	0%	1%	0%	0%
Walk	CBD	7%	8%	25%	14%	16%	11%	13%	11%	10%
Other (taxi, motorcycle etc.)	CBD	1%	1%	1%	2%	1%	1%	1%	0%	1%
Total number of trips	CBD	242,205	196,998	107,381	89,000	93,700	54,185	43,348	26,191	20,605

	AREA	London	Kitchener - Waterloo	St. Catharines - Niagara	Halifax	Victoria	Windsor	Oshawa	Saskatoon	Regina
Transportation System Use										
Duration (h) of AM peak period		2	3		1	2	2	3		
Duration (h) of PM peak period		3	3		1.5	2	3	3		
10 Mode Shares for Central Business District										
a AM peak period modal shares (%)										
Destined to the CBD										
Private vehicle driver	CBD	75%	61%	77%	53%			77%		
Private vehicle passenger	CBD	8%	17%	11%	11%			12%		
Transit	CBD	11%	10%	2%	19%			7%		
School bus	CBD	1%	3%	5%				1%		
Cycle	CBD	1%	0%	1%	1%			1%		
Walk	CBD	4%	8%	4%	15%			2%		
Other (taxi, motorcycle etc.)	CBD	0%	1%	0%	1%			0%		
Total number of trips	CBD	17,378	16,042	21,413				12,508		
Originating from the CBD (including trips starting and ending in CBD)										
Private vehicle driver	CBD	71%	65%	68%	14%			70%		
Private vehicle passenger	CBD	2%	11%	12%	0%			11%		
Transit	CBD	9%	5%	5%	2%			8%		
School bus	CBD	0%	0%	4%				2%		
Cycle	CBD	1%	2%	1%	1%			1%		
Walk	CBD	9%	16%	9%	82%			8%		
Other (taxi, motorcycle etc.)	CBD	7%	1%	0%	1%			1%		
Total number of trips	CBD	3,515	4,960	20,339				6,091		
b PM peak period modal shares (%)										
Destined to the CBD										
Private vehicle driver	CBD	78%	68%	72%				70%		
Private vehicle passenger	CBD	5%	17%	20%				20%		
Transit	CBD	8%	6%	3%				7%		
School bus	CBD	0%	1%	1%				1%		
Cycle	CBD	1%	1%	1%				1%		
Walk	CBD	4%	7%	2%				1%		
Other (taxi, motorcycle etc.)	CBD	4%	0%	1%				0%		
Total number of trips	CBD	6,509	10,886	28,857				10,131		
Originating from the CBD (including trips starting and ending in CBD)										
Private vehicle driver	CBD	73%	65%	73%				72%		
Private vehicle passenger	CBD	10%	16%	16%				17%		
Transit	CBD	9%	9%	2%				5%		
School bus	CBD	1%	2%	2%				1%		
Cycle	CBD	1%	0%	1%				1%		
Walk	CBD	5%	8%	5%				4%		
Other (taxi, motorcycle etc.)	CBD	0%	1%	0%				1%		
Total number of trips	CBD	19,307	20,860	4,543,200				19,231		

	AREA	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivières	Saint John	Thunder Bay
Transportation System Use										
Duration (h) of AM peak period			2	1.75	2		1	2		
Duration (h) of PM peak period			3	2.5	2		1	2		
10 Mode Shares for Central Business District										
a AM peak period modal shares (%)										
Destined to the CBD										
Private vehicle driver	CBD				53%			69%		
Private vehicle passenger	CBD				15%			12%		
Transit	CBD				9%			5%		
School bus	CBD				16%			7%		
Cycle	CBD				0%			1%		
Walk	CBD				7%			5%		
Other (taxi, motorcycle etc.)	CBD				0%			1%		
Total number of trips	CBD				9,048			8,752		
Originating from the CBD (including trips starting and ending in CBD)										
Private vehicle driver	CBD				61%			62%		
Private vehicle passenger	CBD				9%			12%		
Transit	CBD				9%			8%		
School bus	CBD				2%			5%		
Cycle	CBD				0%			2%		
Walk	CBD				19%			12%		
Other (taxi, motorcycle etc.)	CBD				1%			0%		
Total number of trips	CBD				2,328			2,856		
b PM peak period modal shares (%)										
Destined to the CBD										
Private vehicle driver	CBD				57%			58%		
Private vehicle passenger	CBD				18%			15%		
Transit	CBD				6%			7%		
School bus	CBD				1%			2%		
Cycle	CBD				0%			2%		
Walk	CBD				16%			16%		
Other (taxi, motorcycle etc.)	CBD				1%			1%		
Total number of trips	CBD				3,523			4,822		
Originating from the CBD (including trips starting and ending in CBD)										
Private vehicle driver	CBD				50%			68%		
Private vehicle passenger	CBD				17%			12%		
Transit	CBD				10%			3%		
School bus	CBD				15%			5%		
Cycle	CBD				0%			2%		
Walk	CBD				8%			10%		
Other (taxi, motorcycle etc.)	CBD				1%			1%		
Total number of trips	CBD				8,537			9,036		

		AREA	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton
10 c	24-hour modal shares (%)										
	Destined to the CBD										
	Private vehicle driver	CBD	33%	36%	40%	42%	46%	56%	47%	30%	60%
	Private vehicle passenger	CBD	8%	9%	10%	10%	14%	15%	12%	6%	14%
	Transit	CBD	52%	47%	38%	34%	26%	24%	17%	23%	17%
	School bus	CBD	0%	0%		1%	0%	0%	0%		0%
	Cycle	CBD	2%	1%	2%	1%	2%	0%	1%	2%	0%
	Walk	CBD	4%	5%	8%	11%	12%	4%	22%	38%	7%
	Other (taxi, motorcycle etc.)	CBD	1%	2%	1%	2%	1%	1%	1%	1%	1%
	Total number of trips	CBD	437,125	380,578	226,407	194,000	168,500	163,095	111,204	38,830	41,573
	Originating from the CBD (including trips starting and ending in CBD)										
	Private vehicle driver	CBD	32%	33%	31%	38%	31%	46%	46%	30%	58%
	Private vehicle passenger	CBD	8%	9%	8%	10%	9%	12%	12%	6%	13%
	Transit	CBD	47%	42%	27%	26%	18%	18%	17%	23%	17%
	School bus	CBD	0%	0%		1%	0%	0%	0%		0%
	Cycle	CBD	2%	1%	2%	1%	1%	0%	1%	2%	0%
	Walk	CBD	9%	13%	31%	23%	39%	22%	22%	38%	9%
	Other (taxi, motorcycle etc.)	CBD	2%	2%	1%	2%	1%	1%	1%	1%	2%
	Total number of trips	CBD	500,614	442,751	348,859	245,000	261,100	120,705	110,716	5,615	44,870
11	Mode Shares for Existing Urban Area										
a	AM peak period modal shares (%)										
	Private vehicle driver	EUA	58%	50%	55%	56%	50%	51%	56%	60%	66%
	Private vehicle passenger	EUA	12%	12%	15%	10%	18%	22%	13%	11%	12%
	Transit	EUA	18%	19%	13%	15%	14%	13%	10%	21%	7%
	School bus	EUA	3%	8%		1%	4%	2%	1%		0%
	Cycle	EUA	1%	1%	2%	1%	1%	1%	10%	1%	4%
	Walk	EUA	8%	10%	13%	11%	13%	11%	1%	8%	1%
	Other (taxi, motorcycle etc.)	EUA	0%	1%	1%	6%	0%	1%	10%	0%	10%
	Total number of trips	EUA	2,245,081	1,775,947	1,073,173	574,000	562,500	420,000	354,880	168,200	272,779
b	PM peak period modal shares (%)										
	Private vehicle driver	EUA	61%	52%	54%	60%	57%	60%	59%	58%	69%
	Private vehicle passenger	EUA	13%	15%	17%	12%	19%	23%	16%	10%	16%
	Transit	EUA	17%	17%	13%	13%	12%	9%	9%	22%	6%
	School bus	EUA	1%	4%		1%	2%	0%	1%		0%
	Cycle	EUA	1%	1%	2%	2%	1%	1%	6%	1%	2%
	Walk	EUA	6%	10%	13%	10%	9%	7%	1%	8%	1%
	Other (taxi, motorcycle etc.)	EUA	0%	1%	1%	3%	1%	0%	9%	0%	6%
	Total number of trips	EUA	2,489,892	2,084,575	1,366,358	661,000	618,300	438,025	424,050	137,800	433,340
c	24-hour modal shares (%)										
	Private vehicle driver	EUA	62%	53%	57%	61%	56%	56%	60%	67%	69%
	Private vehicle passenger	EUA	15%	14%	17%	15%	20%	23%	15%	9%	17%
	Transit	EUA	14%	15%	11%	9%	7%	8%	8%	15%	6%
	School bus	EUA	1%	4%		1%	2%	1%	1%		1%
	Cycle	EUA	1%	1%	2%	1%	1%	0%	5%	2%	2%
	Walk	EUA	5%	12%	13%	12%	14%	10%	1%	7%	1%
	Other (taxi, motorcycle etc.)	EUA	1%	1%	1%	3%	1%	2%	11%	1%	5%
	Total number of trips	EUA	9,321,075	7,855,671	5,140,188	2,886,000	3,162,400	2,512,430	1,679,623		1,304,236

		AREA	London	Kitchener - Waterloo	St. Catharines - Niagara	Halifax	Victoria	Windsor	Oshawa	Saskatoon	Regina
10 c	24-hour modal shares (%)										
	Destined to the CBD										
	Private vehicle driver	CBD	73%	65%	74%				72%		
	Private vehicle passenger	CBD	10%	19%	19%				20%		
	Transit	CBD	9%	7%	3%				5%		
	School bus	CBD	1%	1%	2%				0%		
	Cycle	CBD	1%	1%	1%				1%		
	Walk	CBD	5%	6%	2%				1%		
	Other (taxi, motorcycle etc.)	CBD	2%	1%	1%				1%		
	Total number of trips	CBD	44,296	57,708	99,639				46,437		
	Originating from the CBD (including trips starting and ending in CBD)										
	Private vehicle driver	CBD	72%	65%	72%				71%		
	Private vehicle passenger	CBD	8%	18%	17%				19%		
	Transit	CBD	9%	7%	3%				6%		
	School bus	CBD	1%	1%	2%				0%		
	Cycle	CBD	1%	1%	1%				1%		
	Walk	CBD	8%	7%	4%				3%		
	Other (taxi, motorcycle etc.)	CBD	1%	1%	1%				1%		
	Total number of trips	CBD	48,132	62,804	132,053				55,988		
11	Mode Shares for Existing Urban Area										
a	AM peak period modal shares (%)										
	Private vehicle driver	EUA	70%	69%	72%	68%			69%		
	Private vehicle passenger	EUA	8%	14%	12%	10%			13%		
	Transit	EUA	9%	4%	2%	11%			6%		
	School bus	EUA	4%	3%	6%				3%		
	Cycle	EUA	1%	1%	1%	1%			1%		
	Walk	EUA	8%	9%	7%	9%			8%		
	Other (taxi, motorcycle etc.)	EUA	1%	4%	0%	1%			0%		
	Total number of trips	EUA	181,227	197,289	140,488				139,875		
b	PM peak period modal shares (%)										
	Private vehicle driver	EUA	75%	69%	73%			79%	71%		
	Private vehicle passenger	EUA	8%	17%	18%			7%	16%		
	Transit	EUA	7%	4%	2%			5%	5%		
	School bus	EUA	1%	2%	2%				2%		
	Cycle	EUA	2%	1%	1%			2%	0%		
	Walk	EUA	0%	7%	4%			7%	6%		
	Other (taxi, motorcycle etc.)	EUA	7%	2%	0%				0%		
	Total number of trips	EUA	228,920	260,250	252,791				180,976		
c	24-hour modal shares (%)										
	Private vehicle driver	EUA	73%	70%	74%				72%		
	Private vehicle passenger	EUA	9%	18%	18%				17%		
	Transit	EUA	7%	3%	2%				4%		
	School bus	EUA	2%	1%	2%				2%		
	Cycle	EUA	0%	1%	1%				0%		
	Walk	EUA	7%	6%	3%				4%		
	Other (taxi, motorcycle etc.)	EUA	1%	2%	0%				0%		
	Total number of trips	EUA	849,854	969,144	782,332				605,359		

		AREA	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivières	Saint John	Thunder Bay
10 c	24-hour modal shares (%)										
	Destined to the CBD										
	Private vehicle driver	CBD				57%			62%		
	Private vehicle passenger	CBD				16%			15%		
	Transit	CBD				8%			4%		
	School bus	CBD				5%			2%		
	Cycle	CBD				0%			2%		
	Walk	CBD				13%			14%		
	Other (taxi, motorcycle etc.)	CBD				1%			1%		
	Total number of trips	CBD				26,708			34,696		
	Originating from the CBD (including trips starting and ending in CBD)										
	Private vehicle driver	CBD				57%			62%		
	Private vehicle passenger	CBD				16%			15%		
	Transit	CBD				8%			4%		
	School bus	CBD				5%			2%		
	Cycle	CBD				0%			2%		
	Walk	CBD				12%			14%		
	Other (taxi, motorcycle etc.)	CBD				1%			1%		
	Total number of trips	CBD				26,745			34,623		
11	Mode Shares for Existing Urban Area										
a	AM peak period modal shares (%)										
	Private vehicle driver	EUA				58%			57%		
	Private vehicle passenger	EUA				13%			11%		
	Transit	EUA				5%			4%		
	School bus	EUA				12%			19%		
	Cycle	EUA				0%			1%		
	Walk	EUA				10%			7%		
	Other (taxi, motorcycle etc.)	EUA				1%			0%		
	Total number of trips	EUA				81,976			44,636		
b	PM peak period modal shares (%)										
	Private vehicle driver	EUA				62%			67%		
	Private vehicle passenger	EUA				16%			16%		
	Transit	EUA				5%			2%		
	School bus	EUA				7%			8%		
	Cycle	EUA				2%			1%		
	Walk	EUA				9%			5%		
	Other (taxi, motorcycle etc.)	EUA				1%			0%		
	Total number of trips	EUA				87,235			45,859		
c	24-hour modal shares (%)										
	Private vehicle driver	EUA		68%		64%			64%		
	Private vehicle passenger	EUA		9%		16%			17%		
	Transit	EUA		9%		4%			2%		
	School bus	EUA		1%		5%			8%		
	Cycle	EUA		7%		0%			1%		
	Walk	EUA		0%		10%			8%		
	Other (taxi, motorcycle etc.)	EUA		7%		1%			0%		
	Total number of trips	EUA				412,467			243,067		

	AREA	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton
12 Transit										
a Annual transit riders	EUA	507,159,800	439,002,000	128,580,064	102,250,150	76,100,000	44,173,754	39,600,000	38,600,000	22,284,798
b Riders on a typical weekday	EUA	1,680,300	1,249,000	428,600	390,998	272,400	288,700	124,300	134,700	
c 24-hour transit passenger - km	EUA	23,588,600	10,840,000	6,119,521	2,959,000	2,600,000		871,000	1,077,600	
Transportation System Use										
13 Arterial Road (or regional road) vehicle-km										
a AM peak period (Passenger Vehicles)	EUA	9,196,000	3,440,135		2,996,000	820,000	2,035,000	841,000	740,000	
b PM peak period (Passenger Vehicles)	EUA	9,622,000	4,166,579		3,627,000	925,000	2,295,000	1,037,600	860,000	
c 24-hour (Passenger Vehicles)	EUA	39,427,000	15,701,459		15,771,000	5,430,000	14,450,000	4,023,600	9,100,000	
d 24-hour (Medium and Heavy Commerical Vehicles)	EUA		1,670,540		1,616,000	265,000	845,000	273,000	400,000	
14 Multi-lane highway-freeway vehicle-km										
a AM peak period (Passenger Vehicles)	EUA	7,694,500	6,336,799		918,000	1,595,000		1,186,000	50,000	
b PM peak period (Passenger Vehicles)	EUA	8,277,000	7,181,394		1,111,000	1,830,000		1,370,700	58,000	
c 24-hour (Passenger Vehicles)	EUA	39,325,000	29,524,057		4,833,000	10,915,000		5,741,500	580,000	
d 24-hour (Medium and Heavy Commerical Vehicles)	EUA		5,119,646		501,000	819,000		647,100	60,000	
Transportation System Performance										
15 Average home-work trip distance (km)	EUA	13.5	13.3	12.1	13.9	12.6	10.3	10.4	8.6	8.2
*Average home-work distance (Statistics Canada)**	*EUA*	*9.2*	*7.9*	*7.6*	*7.8*	*7.7*	*7.6*	*6.8*	*6.0*	*8.2*
16 Annual injuries & fatalities	EUA									
a Injuries	EUA	36,050	19,900	21,111	5,051	5,055	10,284	3,623	4,208	3,209
b Fatalities	EUA	102	91	72	25	28	24	15	22	19
17 Annual GHG Emissions from Transportation (tonnes)	EUA	14,040,000		7,509,113	3,070,000					
Transportation Costs and Finance										
18 a Annual Municipal/Regional Road Capital Budget (incl. Major Rehabilitation)	EUA	417,534,500	329,000,000		132,218,825	146,400,000	88,052,000	57,235,000	15,700,000	30,957,000
b Annual Municipal/Regional Road Operating & Maintenance Budget	EUA	351,404,900	442,000,000		145,070,855	96,300,000	62,868,000	117,938,000	12,500,000	
19 a Annual Provincial Road Capital Budget	EUA		259,000,000		14,000,000	8,500,000	17,758,000	25,900,000		
b Annual Provincial Road Operating & Maintenance Budget	EUA		54,000,000		6,200,000	4,400,000		11,498,000		
20 a Annual Transit Capital Budget	EUA	446,249,900	180,000,000	130,000,000	98,372,042	120,000,000	44,030,000	9,145,700	10,900,000	87,076
b Annual Transit Operating & Maintenance Budget	EUA	1,079,415,500	946,000,000	413,152,161	210,610,183	172,500,000	111,836,000	96,606,300	80,100,000	57,058,997
21 Annual Transit Fare Box Revenue	EUA	868,176,600	422,000,000	225,301,316	120,701,000	75,600,000	50,288,000	39,791,000	47,600,000	

** Data Obtained from Statistics Canada, described in Appendix D*

	AREA	London	Kitchener - Waterloo	St. Catharines - Niagara	Halifax	Victoria	Windsor	Oshawa	Saskatoon	Regina
12 Transit										
a Annual transit riders	EUA	16,300,000	10,646,117	4,521,353	14,195,468	18,630,216	5,356,769	10,271,048	7,920,747	6,178,000
b Riders on a typical weekday	EUA	55,807	38,000		63,900	19,197,263	25,000	33,456		19,979
c 24-hour transit passenger - km	EUA				1,400,000	78,000		265,539		
Transportation System Use										
13 Arterial Road (or regional road) vehicle-km										
a AM peak period (Passenger Vehicles)	EUA		645,650					595,013		
b PM peak period (Passenger Vehicles)	EUA		775,000					774,756		
c 24-hour (Passenger Vehicles)	EUA		3,228,250					3,401,107		
d 24-hour (Medium and Heavy Commerical Vehicles)	EUA		193,700							
14 Multi-lane highway-freeway vehicle-km										
a AM peak period (Passenger Vehicles)	EUA	0						248,277		
b PM peak period (Passenger Vehicles)	EUA	0						323,277		
c 24-hour (Passenger Vehicles)	EUA	0						1,419,158		
d 24-hour (Medium and Heavy Commerical Vehicles)	EUA	0								
Transportation System Performance										
15 Average home-work trip distance (km)	EUA	5.4	10.2	5.5	6.3	8.7	6.1	19.9	4.8	4.5
*Average home-work distance (Statistics Canada)**	*EUA*	*5.4*	*5.6*	*5.5*	*6.3*	*4.7*	*6.1*	*10.7*	*4.8*	*4.5*
16 Annual injuries & fatalities	EUA									
a Injuries	EUA		1,638	984	2,545		1,033	1,207		1,191
b Fatalities	EUA		20	17	9		8	5		2
17 Annual GHG Emissions from Transportation (tonnes)	EUA									
Transportation Costs and Finance										
18 a Annual Municipal/Regional Road Capital Budget (incl. Major Rehabilitation)	EUA		21,750,000		22,945,554		15,500,000	19,566,029		11,427,000
b Annual Municipal/Regional Road Operating & Maintenance Budget	EUA		11,807,396		28,700,000		6,759,647	14,820,034		15,736,300
19 a Annual Provincial Road Capital Budget	EUA									
b Annual Provincial Road Operating & Maintenance Budget	EUA									
20 a Annual Transit Capital Budget	EUA	8,149,900	5,900,825		350,000	13,500,000	2,672,707	79,810		885,000
b Annual Transit Operating & Maintenance Budget	EUA	25,706,500	29,386,953		27,795,800	43,400,000	16,126,448	11,847,626		13,903,900
21 Annual Transit Fare Box Revenue	EUA	20,822,800	13,179,887		19,546,951	20,614,800	9,633,981	6,217,937		4,825,900

** Data Obtained from Statistics Canada, described in Appendix D*

		AREA	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivières	Saint John	Thunder Bay
12	Transit										
a	Annual transit riders	EUA	3,187,273	4,038,029	4,355,000	6,211,469	1,272,025	2,560,000	2,659,756	2,435,096	2,956,951
b	Riders on a typical weekday	EUA		15,000	18,700	25,219		12,500	10,567		
c	24-hour transit passenger - km	EUA		9,814		129,000			64,000		
Transportation System Use											
13	Arterial Road (or regional road) vehicle-km										
a	AM peak period (Passenger Vehicles)	EUA		144,000		211,500			76,000		
b	PM peak period (Passenger Vehicles)	EUA		144,000		290,600			114,700		
c	24-hour (Passenger Vehicles)	EUA		1,440,000		1,504,700			590,800		
d	24-hour (Medium and Heavy Commerical Vehicles)	EUA		75,000		87,300					
14	Multi-lane highway-freeway vehicle-km										
a	AM peak period (Passenger Vehicles)	EUA				179,000			189,700		
b	PM peak period (Passenger Vehicles)	EUA				215,300			261,500		
c	24-hour (Passenger Vehicles)	EUA				1,078,000			1,272,400		
d	24-hour (Medium and Heavy Commerical Vehicles)	EUA				171,600			337,100		
Transportation System Performance											
15	Average home-work trip distance (km)	EUA	5.4	6.5	4.7	11.9	7.7	6.2	6.9	7.0	4.7
	*Average home-work distance (Statistics Canada)**	*EUA*	*5.4*	*6.5*	*4.7*	*5.1*	*7.7*	*5.4*	*5.0*	*7.0*	*4.7*
16	Annual injuries & fatalities	EUA									
a	Injuries	EUA		429	863	1,068		335	792		
b	Fatalities	EUA		5	6	5		2	3		
17	Annual GHG Emissions from Transportation (tonnes)	EUA									
Transportation Costs and Finance											
18 a	Annual Municipal/Regional Road Capital Budget (incl. Major Rehabilitation)	EUA		10,047,201	8,404,898	11,900,000		12,548,694	6,440,800		
b	Annual Municipal/Regional Road Operating & Maintenance Budget	EUA		34,589,497	21,331,851	16,350,000		8,900,000	20,512,000		
19 a	Annual Provincial Road Capital Budget	EUA			43,525,772	959,000		0	5,535,000		
b	Annual Provincial Road Operating & Maintenance Budget	EUA			2,965,393	2,480,500		0	1,400,000		
20 a	Annual Transit Capital Budget	EUA			2,000,000	1,983,600		1,200,000	1,391,604		
b	Annual Transit Operating & Maintenance Budget	EUA		9,623,177	12,187,000	12,596,700		7,100,000	7,752,923		
21	Annual Transit Fare Box Revenue	EUA		4,890,888	3,900,000	6,375,705		3,157,000	3,212,900		

** Data Obtained from Statistics Canada, described in Appendix D*

NOTES REGARDING SURVEY DATA

TORONTO

Part B

2 – Road expenditures for City of Toronto only, transit expenditures for GO and TTC only.

Part C

4.a – Toronto, Oakville, Ajax and Pickering, Mississauga and Brampton Only

4.b, 4.c, 4.d – Used 2001 emme/2 network.

9 – 2003 Toronto Parking Inventory Data

10 – 2001 Transportation Tomorrow Survey

12.a – CUTA 2001 Fact Book (incl. GO Transit)

12.b, 12.c – Estimates from respondents (incl. GO Transit)

13, 14 – Estimates from network assignments using 2001 TTS Auto Driver flows

15 – 2001 TTS H-B-W 24hour Straight Line Distance

17 – Toronto and Mississauga and Brampton Only

18 – 2001-2003 Excl. Ajax and Pickering

20, 21 – CUTA 2001 Fact Book (Incl. GO Transit)

MONTREAL

Part C

6.a, b – MTQ-SMST estimate

6.c, 8, 12 – Agence Métropolitaine de Transport (AMT)

4 – 2003 data, MTQ-SMST compilation

5 – Guide Vélo-Mag, 2002

9 – MTQ-SMST compilation based on 1998 inventory

10, 11 – based on 1998 forecasting model adjusted to 2001

13, 14, 15 – 1998 regional transportation model

16 – SAAQ, compiled by MTQ Direction de la sécurité en transport

18 – MAMSL municipal financial reports, MTQ-SMST compilation

19, 20, 21 – MTQ – Direction Générale de Montréal et de l'Ouest (DGMO)

VANCOUVER

Part C

4 – 2003 data, Based on the 2003 BC Road Atlas

4.d – Making Buses a Priority-2001 Status Report on Bus Priority Measures, TransLink 2001

10, 11, 15.a – All mode split calculations based on the 1999 Trip Diary, a 0.4% sample of GVRD trips

12.a, 12.b, 20.b – 2002 data used due to transit strike in 2001

12.c – 1999 data

17 – 2000 GVRD Mobile Greenhouse Gas Emission Inventory (includes all transportation modes including rail, air and marine estimates)

20.a – 2004 data, for debt servicing

OTTAWA-GATINEAU

Part C

10, 11 – 1995 data, based on fall 1995 OD survey and screenline counts.

16 – Gatineau: SAAQ, compiled by MTQ Direction de la sécurité en transport.

17 – Draft Greenhouse Gas Inventory and Emission Reduction Strategies for Transportation and Waste Sectors in the City of Ottawa, Feb. 2002; 2,476 kilotonnes for Ottawa; Gatineau estimate based on 24% contribution to total vehicle-kms in region

18 – Data for the CMA

CALGARY

Part C.

4 – Figures are a linear extrapolation between 2000 and 2002 data.

4.d – The City of Calgary has an experimental HOV designated at rush hours only, inbound during the morning, outbound during the evening, on Centre St N from 5 Ave S to 20 Ave N - a total of 2,274 m. This would be 2.3 ln km and is not included in the data.

6 – 2002 data: data for 2001 unavailable due to transit strike.

10, 11 – From the 2001 Household Activity Survey performed by the City of Calgary. Does not include commercial vehicles.

12 – 2002 data: data for 2001 unavailable due to transit strike.

13 – Data is extracted from the City of Calgary 2001 RTM.

15.a – From the 2001 Household Activity Survey performed by the City of Calgary.

18, 19 – actual expenditures.

EDMONTON

Part B

2 - Based on draft 2004-2008 Capital Plan / 2003 Operating

Part C

4 – Lane-km based on area of roadway data divided by lane width I.e. includes turn lanes etc.

5 – Off-Street includes 75 km Adjacent to Road, 138 km multi-use trail.

9 – 1800 publicly owned includes 1600 on-street meters (Previous survey included these)

10 – Data from 1994. Travel from November 1994 Weekday Household Travel Survey (2% sample) for Edmonton and Region.

11 – Data from 1994. Includes city and region residents, previously given for region residents only.

13 – Also includes highways (question 14). Travel Model plus counts. Data given for ALL arterials in City I.e. both basic arterial plus highway model.

QUEBEC

Part C

4 – 2003 data. MTQ-SMST

5 – Ville de Québec

6 – MTQ-SMST estimates, based on 2001 transit network model

8 – RTC

10, 11 – 2001 O-D Survey

12, 20, 21 – RTC and CITRSQ data, MTQ-SMST compilation

13, 14, 15 – MTQ-SMST estimates from network assignments using 2001 demand on 1996 transportation model

16 – SAAQ; compiled by MTQ - Direction de la sécurité en transport.

18 – MAMSL Municipal financial reports; compilation by MTQ-SMST.

19 – MTQ Direction générale de Québec et de l'Est (DGQE)

WINNIPEG

Part C

4.a – Includes collectors

4.b – Regional streets

4.c – Provincial Hwys

4.d – Some HOV lanes operate peak hour only

6.c – assumed an average 45 seats per bus

8 – An additional 150 Park & Ride spots are available during Football Season

9 – 1997 Data

10. a, 10.b – 1992 work and post secondary education trip survey, Home to work and work to home trips. For 10: Based on Winnipeg downtown traffic zones (similar to CA).

10.c – Statistics Canada Journey to Work data. Assumed that "destined to" is number of people working in CBD, and "originating from" is number of people living in the CBD that made a work trip. Includes intra CBD home to work trips. Multiple home to work trips by same person not included. 1 home to work trip per employed person only.

11.a, 11.b – 1992 work and post secondary education trip survey. Home to work and work to home trips.

11.c – Statistics Canada Journey to Work data. Multiple home to work trips by same person not included.

13.a, 13.b – Regional streets, includes all vehicles.

14 – Manitoba highways within City of Winnipeg - all vehicles

15 – Estimated from model - vehicle driver mode only

16 – Includes pedestrians and cyclists.

18 – Regional streets

HAMILTON

Part C

4 – pms data collection. City of Hamilton only.

5, 8, 9, 16, 18 – City of Hamilton only.

10, 11 – Transportation Tomorrow Survey, 2001

20 – CUTA Factbook, 2001

LONDON

Part C

6.a, 6.b – 1999 data

9 – 1991 data

10 – 2002 data, does not include trips made by residents outside the EUA

KITCHENER-WATERLOO

Part C

5 – 1999 data

6 – 1998 data

10 – Transportation Tomorrow Survey, 2001

ST. CATHARINES-NIAGARA

Part C

4 – Local roads includes all municipal roads, arterials/collectors are regional roads, multilane highways are provincial roads.

10 – Transportation Tomorrow Survey, 2001

HALIFAX

Part B

2 – Transit system operating expenses assumed to be funded 70% by user fees and 30% by local taxes, based upon farebox ratio.

Part C

4 – HRM GIS Data

6,8 – HRM Metro Transit

10 – 2001 Census of Canada, Journey to Work data.

18 – 2001 -2002 HRM Financial Services

20,21 – HRM Metro Transit

VICTORIA

Part C

4 – Provincial road inventory

5 – All bike data is for CMA Another 129 km of marked shoulders (exclude signs) part of cycling network. Total existing bike network - 366km.

10, 11 – 2001 O/D Household travel survey & trip diary. % are for all trips & all purposes. School bus is included in other.

WINDSOR

Part C

5 – 2002 Data

OSHAWA

Part C

4 – City of Oshawa, Town of Whitby. Local arterial and collector lane-km deducted from overall lane-km under local jurisdiction; Regional Road and Structure Appraisals Report, 2001 and ArcGIS

5 – Estimate based on Durham Trails map and Oshawa Bicycle Plan

6 – Oshawa Transit Commission, Whitby Transit, Estimate of GO Transit

10, 11 – TTS

12 – CUTA and estimate for GO Transit

13, 14 – Durham EMME/2 Model

15 – TTS

16 – Durham Works Dept.

18 – Region of Durham, City of Oshawa, Town of Whitby

20 – CUTA; does not include GO Transit

REGINA

Part C

4.a – 2003 data; local roads: assuming two lanes;

4.b – 2003 data; arterial/collectors: assuming two driving lanes for collector undivided, avg. three driving lanes for collector divided, three driving lanes for undivided arterial and four driving lanes for divided arterial;

4.c – 2003 data; highways: average five driving lanes per direction;

4.d – 2003 data; HOV: peak hours only.

5 – 5.6 km is bicycles only, 12.8 km is shared bicycle/parking lanes

SUDBURY

Part C

13, 14 - Taken from unverified road database. am and pm peak estimated as 10% of 24 hour volume

18 – Capital budget for roads and maintenance is for is for the entire Greater City of Sudbury

SAGUENAY

Part B

2 – Road Expenditure information provided by Ministère des Transports du Quebec. Transit expenditure information provided by Société de Transport du Saguenay.

Part C

4 – 2003 data, MTQ – SMST

5, 8, 9 – Ville de Saguenay : Service du Génie, de l'Urbanisme et de l'Aménagement du Territoire

6 – Société de Transport du Saguenay (STS)

7 – SAAQ

12, 20, 21 – STS

16 – SAAQ, Compiled by MTQ - Direction de la sécurité en transport.

18 – MAMSL Municipal financial reports; Compiled by MTQ-SMST.

19 – MTQ Direction générale de Québec et de l'Est.

SHERBROOKE

Part C

4 – 2003 Data, MTQ-SMST

5, 8, 9 – Ville de Sherbrooke

10, 11 – 2003 O-D Survey

12 – Société de Transport de Sherbrooke (STS)

13, 14, 15 – MTQ-SMST 2003 Transportation model

16 – SAAQ, Compiled by MTQ - Direction de la sécurité en transport.

18 – MAMSL, Finance des organismes municipaux, Rapports financiers, Exercice 2001

19 – Source MTQ, Direction générale de Montréal et de l'Ouest, Suivi budgétaire 2001-2002 final saison et BDI-0017

20, 21 – STS 2001 capital budget, 2001 STS Annual Report, operating expenses

ABBOTSFORD

Part C

1, 2, 3 – Did not provide a CA definition, assumed for calculations to be identical to CBD.

KINGSTON

Part C

No distinction was made between Kingston's CA and CBD.

1,2,3 – No distinction made between CA and CBD.

4, 8 – 2003 data

9 – 2003 data, includes 2604 at Queens.

10 – Vehicle driver includes passengers, TMP focused on PM peak, AM peak assumed to have same mode splits.

15 – average straight-line all-day trip length, data for 2002.

16 – number of collisions

18 – 2003 data

19 - Annual capital expenditures vary by year, we make an annual contribution of $1.2 M to our capital reserve.

TROIS-RIVIÈRES

Part B

2 – MAMSL 2001 financial reports for roads, STTR for transit

Part C

4 – 2003 Data, MTQ-SMST

5 – Ville de Trois-Rivières, MTQ

10, 11 – 2000 O-D Survey

12 a – STTR

12 b, c, 13, 14, 15 – MTQ-SMST estimate based on fall 2000 transportation model.

16 – SAAQ, Compiled by MTQ - Direction de la sécurité en transport.

18 – MAMSL Municipal financial reports; Compiled by MTQ-SMST.

19 – MTQ - Direction de la Mauricie-Centre-du-Québec

20, 21 – Société de transport de Trois-Rivières (STTR)

Appendix D:
Statistics
Canada Data

Definitions

The demographic variables included in Appendix C but obtained from Statistics Canada are defined below. Definitions and remarks quoted are from the Statistics Canada Census Dictionary. Data for Land Area, Population, and Employment were calculated using data at the census tract level.

CENSUS METROPOLITAN AREA (CMA)

A census metropolitan area (CMA) is formed by one or more adjacent municipalities centred on a large urban area (known as the urban core). The census population count of the urban core is at least 100,000 to form a census metropolitan area. To be included in the CMA, other adjacent municipalities must have a high degree of integration with the central urban area, as measured by commuting flows derived from census place of work data. All CMAs are subdivided into census tracts.

LAND AREA

Land area is the area in square kilometres of the land-based portions of standard geographic areas.

Remarks:

The data are derived from the National Geographic Base (NGB), including selected water polygon layers. The NGB's Lambert Conformal Conic projection is transformed to the Albers Equal-area Conic projection, since the property of equal area is indispensable for calculating land area. Separate projection parameters (two standard parallels, central meridian and latitude of projection origin) are used for each province/territory, since greater accuracy is achieved by this approach. Land area is calculated using the Arc/Info® GIS software. The data are calculated and stored in square kilometres at the block level, and then aggregated to the higher level geographic units.

Since the NGB is a digital base using three input map scales (1:50,000, 1:250,000 and 1:1,000,000), greater land area accuracy is achieved at larger scales – that is, there is less generalization regarding the symbolization and number of hydrographic features. Land area errors may occur due to digitizing or linkage discrepancies, and when water polygons do not line up or are symbolized differently between different map scales.

Users should note that even when the boundaries of standard geographic areas did not change between the 1996 and 2001 Censuses, the land areas differ because the methodology for calculating land area changed. Land area for 1996 was manually calculated using a planimeter, and for 2001, it is calculated using software applied to the new National Geographic Base.

EMPLOYMENT

Number of employed persons of 15 years of age or more whose primary place of work is within the designated area, regardless of their place of residence.

ROAD MOTOR VEHICLES - REGISTRATION

Data provided by Statistics Canada was referenced to place names. These were then grouped by the study team to obtain the number of vehicle registrations to residents in each region.

Statistics on light vehicles, heavy vehicles (trucks), buses, trailers and off-road vehicles registrations obtained from the provincial and territorial governments.

In 1999, Statistics Canada implemented a revised methodology for Motor Vehicle Registration Data in Canada. In previous years, data were obtained by a questionnaire sent to the provinces and territories. Starting in 1999, the sources are files obtained from the vehicles licensing bureau of the provinces and territories.

For the purposes of this study, light duty vehicles include light duty vehicles under 4.5 tonnes and motorcycles and scooters. Heavy vehicles are defined as trucks and buses.

JOURNEY TO WORK COMMUTING DISTANCE

Refers to the distance, in kilometres, between the respondent's residence and his or her usual workplace location. The variable relates to non-institutional residents 15 years of age and over who worked at some time since January 1 2000. The variable usually relates to the individual's job held in the week prior to enumeration. However, if the person did not work during that week but had worked at some time since January 1, 2000, the information relates to the job held longest during that period.

Reported for: Population 15 years of age and over, excluding institutional residents, who worked at some time since January 1, 2000, and who had a usual place of work

Remarks: Workplace locations are coded to a geographic point location. This geographic point location is a block-face, block, dissemination area or census subdivision representative point. Commuting distance is calculated as the straight-line distance between the residential block representative point and the workplace location representative point.

To better represent the actual distance travelled to work, straight-line home-work distances have been multiplied by 1.3.

JOURNEY TO WORK MODE OF TRANSPORTATION

Refers to the mode of transportation to work of non-institutional residents 15 years of age and over who worked at some time since January 1, 2000. Persons who indicate in the place of work question that they either had no fixed workplace address, or specified a usual workplace address, are asked to identify the mode of transportation they most frequently use to commute from home to work. The variable usually relates to the individual's job in the week prior to enumeration. However, if the person did not work during that week but had worked at some time since January 1, 2000, the information relates to the job held longest during that period.

Reported for population 15 years of age and over, excluding institutional residents, who worked at some time since January 1, 2000 at a usual workplace address, or had no fixed workplace address.

Responses: Car, truck or van as driver; Car, truck or van as passenger; Public transit (e.g. bus, streetcar, subway, light-rail transit, commuter train, ferry); Walked to work; Bicycle; Motorcycle; Taxicab; Other method

Remarks: Persons who use more than one mode of transportation are asked to identify the single mode they use for most of the travel distance. As a result, the question provides data on the primary mode of transportation to work. The question does not measure multiple modes of transportation, nor does it measure the seasonal variation in mode of transportation or trips made for purposes other than the commute from home to work.

Data Collected from Statistics Canada

	AREA	Toronto	Montreal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Quebec	Winnipeg	Hamilton
1 Land area (km^2)	Region	5,903	4,047	2,879	5,318	5,083	9,419	3,154	4,151	1,372
	EUA	2,281	2,228	1,317	1,116	702	670	1,021	419	419
	CA	17.29	21.74	26.36	14.48	7.53	2.11	30.12	6.86	2.04
	CBD	5.87	4.49	4.42	2.98	2.22	2.11	4.46	2.12	2.04
2 Residential population	Region	4,682,897	3,426,350	1,986,965	1,063,664	951,395	937,845	682,348	671,274	662,401
	EUA	4,346,206	3,162,972	1,806,488	930,042	878,866	666,099	636,290	616,052	547,521
	CA	131,363	179,617	177,129	65,752	38,152	5,037	97,952	29,215	13,613
	CBD	52,432	30,199	31,708	7,786	8,429	5,037	22,284	11,899	13,613
3 Total employment	Region	2,359,890	1,622,715	897,540	552,360	485,490	448,035	323,390	326,385	265,675
	EUA	2,245,710	1,540,710	841,680	523,760	464,720	351,770	308,505	312,940	224,645
	CA	418,100	348,560	220,610	148,975	130,730	31,985	121,000	74,530	21,565
	CBD	322,660	224,200	94,800	96,940	92,090	31,985	46,970	40,850	21,565
7 Vehicles Registered	EUA	2,163,646	1,343,551	1,060,624	447,842	651,840	442,383	286,196	341,770	339,611
light duty vehicles	EUA	2,105,420	1,316,777	1,029,301	439,630	622,138	420,605	280,205	330,750	330,896
heavy duty vehicles	EUA	58,226	26,774	31,323	8,212	29,702	21,778	5,991	11,020	8,715
15 Average home-work distance	EUA	9.2	7.9	7.6	7.8	7.7	7.6	6.8	6.0	8.2

	AREA	London	Kitchener - Waterloo	St. Catharines - Niagara	Halifax	Victoria	Windsor	Oshawa	Saskatoon	Regina
1 Land area (km^2)	Region	2,333	827	1,406	5,496	695	1,023	903	5,192	3,408
	EUA	385	314	475	391	304	130	292	145	110
	CA	1.91	15.30	18.00	19.00	5.79	4.63	5.94	2.11	1.10
	CBD	1.91	3.71	4.28	1.14	1.87	1.84	2.87	2.11	0.51
2 Residential population	Region	432,451	414,284	377,009	359,183	311,902	307,877	296,298	225,927	192,800
	EUA	334,755	387,309	274,435	273,087	292,519	226,087	226,464	193,374	171,627
	CA	4,066	35,176	38,323	61,209	23,518	23,655	18,619	4,441	4,047
	CBD	4,066	8,613	7,079	4,004	5,956	9,661	8,903	4,441	558
3 Total employment	Region	195,785	205,665	158,825	172,200	142,245	139,225	103,885	104,990	95,695
	EUA	162,580	190,880	119,430	157,475	138,735	117,835	87,755	95,650	87,490
	CA	23,630	50,030	37,195	78,200	45,720	20,410	18,435	6,075	20,730
	CBD	23,630	22,990	20,865	27,640	29,480	14,175	14,235	6,075	14,010
7 Vehicles Registered	EUA	196,025	236,800	174,920	157,821	180,164	157,216	133,185	125,948	121,533
light duty vehicles	EUA	191,140	229,029	171,400	152,030	176,275	153,870	130,813	120,625	116,258
heavy duty vehicles	EUA	4,885	7,771	3,520	5,791	3,889	3,346	2,372	5,323	5,275
15 Average home-work distance	EUA	5.4	5.6	5.5	6.3	4.7	6.1	10.7	4.8	4.5

	AREA	St John's	Sudbury	Saguenay	Sherbrooke	Abbotsford	Kingston	Trois-Rivières	Saint John	Thunder Bay
1 Land area (km^2)	Region	805	3,536	1,754	1,108	626	1,907	880	3,360	2,548
	EUA	494	178	858	385	363	241	289	377	328
	CA	1.64	4.60	13.85	14.34	2.19	1.83	13.09	0.83	3.16
	CBD	1.64	1.47	2.22	1.46	2.19	1.83	3.88	0.83	3.16
2 Residential population	Region	172,918	155,601	154,938	153,811	147,370	146,838	137,361	122,678	121,986
	EUA	122,496	82,284	139,759	139,388	115,711	100,402	122,395	88,767	109,016
	CA	5,970	9,335	30,325	33,981	5,223	4,237	21,400	2,027	7,291
	CBD	5,970	2,066	5,869	3,830	5,223	4,237	5,704	2,027	7,291
3 Total employment	Region	76,080	63,005	62,290	68,780	50,620	69,060	57,855	51,590	52,780
	EUA	64,535	47,815	60,580	64,225	41,980	56,140	50,055	46,360	50,820
	CA	8,800	13,737	21,125	21,355	9,245	14,155	21,415	8,510	8,645
	CBD	8,800	6,595	8,520	6,900	9,245	14,155	12,680	8,510	8,645
7 Vehicles Registered	EUA	73,096	53,803	83,678	67,460	66,236	61,488	65,403	46,586	80,571
light duty vehicles	EUA	70,497	51,976	81,876	66,623	63,426	59,594	64,114	44,937	78,099
heavy duty vehicles	EUA	2,599	1,827	1,802	837	2,810	1,894	1,289	1,649	2,472
15 Average home-work distance	EUA	5.4	6.5	4.7	5.1	7.7	5.4	5.0	7.0	4.7

Appendix E:
CUTA Data

Data for annual transit ridership was collected from the CUTA annual transit Fact Book for 2001. This Data is reported to CUTA by individual transportation providers. CUTA did not however publish information regarding Saguenay, Trois-Rivieres, or Abbotsford.

Region	Name of Operator	Regular Service Passenger Trips	
		Operator	Total
Toronto			**503,685,634**
	Ajax Pickering	2,244,897	
	Brampton	7,116,771	
	Mississauga Transit	24,640,876	
	Oakville Transit	2,128,357	
	TTC	419,993,000	
	York Region	7,689,301	
	GO Transit (92% of total trips only)	43,339,600	
Montreal			**415,862,461**
	Agence métropolitaine de transport	12,833,000	
	STL - Société de transport de la ville de Laval	17,662,951	
	STM - Société de transport de Montréal	354,940,000	
	STRSM - Société de transport de la rive sud de Montréal (Longueuil)	30,426,510	
Vancouver	Translink	95,711,413	**95,711,413**
Ottawa -Gatineau			**99,170,451**
	OC Transpo	84,735,456	
	STO - Société de Transport de l'Outaouais	14,434,995	
Calgary	Calgary Transit	60,487,700	**60,487,700**
Edmonton			**46,489,005**
	Edmonton Transit System	44,173,755	
	St Albert	1,032,848	
	Strathcona	1,282,402	
Quebec	STCUQ - Société de transport de la communauté urbaine de Québec	37,286,201	**37,286,201**
Winnipeg	Winnipeg	38,567,000	**38,567,000**
Hamilton			**22,284,798**
	Burlington Transit	1,540,695	
	Hamilton	20,744,103	
London	LondonTransit	15,850,600	**15,850,600**
Kitchener - Waterloo	Grand River	10,236,046	**10,236,046**
St. Catharines - Niagara			**4,521,353**
	Niagara Transit	1,092,870	
	St.Catherines	3,111,378	
	Welland Transit	317,105	
Halifax	HRM Metro Transit	14,195,468	**14,195,468**
Victoria	BC Transit	18,630,216	**18,630,216**
Windsor	Transit Windsor	5,419,933	**5,419,933**
Oshawa			**3,846,459**
	Oshawa Transit Commission	2,946,305	
	Whitby Transit	900,154	
Saskatoon	Saskatoon Transit Services	7,920,747	**7,920,747**
Regina	City of Regina	6,178,193	**6,178,193**
St. John's	Metrobus	3,187,273	**3,187,273**
Sudbury	Greater Sudbury	3,448,089	**3,448,089**
Saguenay			
Sherbrooke	Corporation Métropolitaine de Transport de Sherbrooke	6,211,469	**6,211,469**
Abbotsford			
Kingston	Kingston Transit	2,355,570	**2,355,570**
Trois-Rivieres			
Saint John	Saint John Transit	2,435,096	**2,435,096**
Thunder Bay	TBT	2,956,951	**2,956,951**

Appendix F: Fuel Sales Data and Estimation of Greenhouse Gas Emissions

Fuel sales data was obtained from Kent Marketing for all three survey years (1991, 1996, 2001). Fuel sales data are collected for individual fuel markets which may differ from the current municipal boundaries. Each market was located and aggregated only if it was within the region's EUA.

CO_2 volumes are determined by applying a conversion factor of 2.356 kg of CO_2 per litre of gasoline sold.

Daily vehicle-km traveled were estimated based on EUA population and gasoline sales, assuming a constant fuel efficiency of 0.1124 litres of gasoline per vehicle-kilometre.

ENDNOTES

[1] TAC's *New Vision for Urban Transportation*, available at the URL below, identified 13 decision making principles as follows:
1. Plan for increased densities and more mixed land use
2. Promote walking as the preferred mode for person trips
3. Increase opportunities for cycling as an optional mode of travel
4. Provide higher quality transit service to increase its attractiveness relative to the private auto
5. Create an environment in which automobiles can play a more balanced role
6. Plan parking supply and price to be in balance with walking, cycling, transit and auto priorities
7. Improve the efficiency of the urban goods distribution system
8. Promote inter-modal and inter-line connections
9. Promote new technologies which improve urban mobility and help protect the environment
10. Optimize the use of existing transportation systems to move people and goods
11. Design and operate transportation systems which can be used by the physically challenged
12. Ensure that urban transportation decisions protect and enhance the environment
13. Create better ways to pay for future urban transportation systems

http://www.tac-atc.ca/english/pdf/urban.pdf. Accessed March 26, 2004

[2] Statistics Canada, 1991 Census and 2001 Census. Detailed information is available at the URL below.
http://www.statcan.ca, Accessed March 26, 2004.

[3] Throughout this report the word sustainable is used in general terms. A commonly used definition of sustainable transportation is that of the Center for Sustainable Transportation, available at the URL below.
http://www.cstctd.org/CSTmissionstatement.htm, Accessed March 26, 2004.

[4] The definition of a CMA is at the URL below.
http://www.statcan.ca/english/census2001/dict/geo009.htm. Accessed March 22, 2004.

[5] The basic evidence for the relationship between ownership and use is the considerable constancy of kilometres travelled per automobile from year to year. For data on this point, see the URL below.
http://oee.nrcan.gc.ca/neud/dpa/tableshandbook/pdftran_00_7_e.pdf. Accessed March 23, 2004.

[6] Statistics Canada, 'Domestic For-Hire Trucking 2001 (1996, 1991): Ranking of Census Metropolitan Areas by Originating/Destination Movements, Selected Estimates based on Revenues' in *Trucking in Canada* (2001, 1996, 1991), available from Statistics Canada at the URL below.
http://www.statcan.ca, Accessed March 26, 2004.

[7] 'Other trucks' include for-hire trucks operating by companies with less than one million dollars in annual revenue and, probably more important in urban areas, 'private' trucks, i.e., trucks owned by the companies whose goods are being moved. The 1998 Industry Canada report *Profile of Private Trucking in Canada*, available at the URL below, suggested that private trucks predominate for distances shorter than about 200 kilometres.
http://strategis.ic.gc.ca/epic/internet/ints-sdc.nsf/vwGeneratedInterE/fd01101e.html. Accessed March 1, 2004.

[8] Other cities may have targets they did not acknowledge.

[9] Saguenay, Trois-Rivières, and Sherbrooke took a municipal standpoint in their responses to this question. As the tax is provincially controlled, and disbursed directly to transit operators, municipal agencies are unable to account for it. The registration tax was extended to all Québec municipalities in 2001, and has since provided $62 million annually to the six regions.

[10] Environment Canada, *1990-2001 National and Provincial GHG Emissions*, available at the URL below. http://www.ec.gc.ca/pdb/ghg/canada_2001_e.cfm, Accessed March 26, 2004.

[11] For information about how to acquire and access the UITP survey, see the URL below. http://www.uitp.com/project/index4.htm. Accessed December 21, 2003.

[12] UITP has commissioned a 2001 update of its 1995 survey; results will not be available until 2005.

[13] According to U.S. Bureau of Transportation Statistics, *National Transportation Statistics*, 2002, footnote to Table 4-16M, Page 419 (available at the URL below), the heat equivalent factor of gasoline is 34,839,537 joules/litre. http://www.bts.gov/publications/national_transportation_statistics/2002/index.html. Accessed March 26, 2004.