Transportation Association of Canada

Urban Transportation Indicators

Fourth Survey

May 2010

Transportation Association of Canada

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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 (TAC). 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.

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Abstract

The Urban Transportation Indicators Fourth Survey report is based on data gathered during the 2006 Canadian Census for 33 Census Metropolitan Areas (CMAs). The report also contains supplementary data from 31 CMAs that responded to a detailed TAC survey, which looked at the status of transportation and land use initiatives, transportation financing, and land use and transportation. Also included are Kent Marketing data on fuel sales and summary statistics from the Canadian Urban Transit Association.

The urban transportation indicators survey series was established by TAC's Urban Transportation Council in 1994. The surveys assess progress by Canadian urban areas on key sustainable transportation initiatives. These initiatives are based on 13 decision-making principles supporting a desirable future transportation system and associated land use identified in TAC's *New Vision for Urban Transportation.* The survey program's goal is to provide consistent transportation and related data for Canadian urban areas from which trends can be analyzed both among urban areas and over time.

Keywords

Traffic and Transport Planning
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Network (Traffic)
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Accident Rate
Statistics
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Interview

Supplementary Information

The previous three survey reports – Urban Transportation Indicators in Eight Canadian Urban Areas (1996), Urban Transportation Indicators: 1996 Survey 2 (1999) and Urban Transportation Indicators Third Survey (2005) are available from the TAC on-line bookstore or by contacting TAC at www.tac-atc.ca

La publication intitulée, *Indicateurs de transports urbains de l'ATC - Quatrième enquête*, sera affichée gratuitement dans le **centre de ressources** du site Web de l'ATC au printemps 2010.

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TransLink

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This report was developed under the supervision of a project steering committee. The participation of the committee members was integral in the development of the report and is gratefully acknowledged:

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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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Abbreviations and Acronyms

CA	Central Area
CBD	Central Business District
CMA	Census Metropolitan Area
CSD	Census Sub-Division
CUTA	Canadian Urban Transit Association
EUA	Existing Urbanized Area
GHG	Greenhouse Gas
GIS	Geographic Information Systems
HOV	High-Occupancy Vehicle
TAC	Transportation Association of Canada
TDM	Travel Demand Management
UTC	Urban Transportation Council
UTI	Urban Transportation Indicators

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1. Introduction

1.1 Project Background

The Urban Transportation Indicators (UTI) Survey was developed by the Urban Transportation Council of the Transportation Association of Canada (TAC) in 1994. The UTI Surveys assess the progress by Canadian urban areas on key sustainable transportation initiatives. These initiatives are based on the 13 decision-making principles towards a desirable future transportation system and supporting land use identified in TAC's New Vision for Urban Transportation[1]. The survey has now grown into one of the most significant sources of data on urban transportation. The survey program's goal is to provide consistent transportation and related data for Canadian urban areas whereby trends can be analysed both among urban areas and over time.

Three surveys have been completed to date:

- **Pilot survey** – The survey program began as a pilot survey carried out in 1995, which covered eight urban areas as defined by current Census Metropolitan Areas (CMAs), and drew on data from 1991-1993.
- **1996 survey** – A second survey involving 15 urban areas was carried out in 1998/99 using 1996 as the base year.
- **2001 survey** - A third survey followed in 2003 based on 2001 data. This survey involved 24 participating CMAs, with additional select indicators developed for the remaining 3 CMAs.

The current 2006 survey presents a tremendous opportunity for increasingly important cross-sectional analysis of trends in transportation policy and behaviour across major Canada urban areas.

A copy of the Fourth UTI Survey Questionnaire is included in this report as Appendix A.

[1] http://www.tac-atc.ca/english/resourcecentre/readingroom/pdf/urban.pdf

1.2 Survey Participants

All 33 Census Metropolitan Areas (CMAs) in Canada identified by Statistics Canada in 2006 were asked to participate in this UTI Survey. In total, 31 out of 33 CMA's agreed to participate in the survey which compares to 24 of the 27 CMAs in 2001 for the third UTI survey. Exhibit 1.1 summarizes participation in the four UTI surveys to date.

Some information was obtained for all CMAs, including Statistics Canada population and employment, journey-to-work and vehicle registration data, and fuel sales data from Kent Marketing, and annual ridership and budget figures for transit providers from Canadian Urban Transportation Association (CUTA) summary statistics. These sources are cited on relevant exhibits.

1.3 Outline of Survey Questionnaire

The general format of the survey questionnaire remained unchanged from previous surveys, allowing for analysis of historical trends. The three-part structure of the surveys includes the following:

- **Part A: Status of Transportation and Land Use Initiatives** – This section assesses the level of deployment of 64 initiatives grouped into 10 different target categories using a six-point scale of implementation. The list of initiatives was streamlined from 71 to 64 and some questions were phrased more specifically so that responses are less subjective and more comparable.
- **Part B: Transportation Financing** – This section includes questions regarding funding sources and types of expenditures. This section had minimal change to content.
- **Part C: Land Use and Transportation** – This section requested numerical data on urban structure, transportation supply, system use, system performance, and finance and resources. A few small changes to this section were made between the 2001 and 2006 surveys.

CMA	Survey Year			
	1991	1996	2001	2006
Abbotsford			●	●
Barrie				●
Brantford				●
Calgary		●	●	●
Edmonton	●	●	●	●
Greater Sudbury			●	●
Guelph				●
Halifax			●	●
Hamilton	●	●	●	●
Kelowna				●
Kingston			●	●
Kitchener		●	●	●
London	●	●	●	●
Moncton				●
Montréal	●	●	●	●
Oshawa			●	●
Ottawa - Gatineau	●	●	●	●
Peterborough				x
Québec	●	x	●	●
Regina		●	●	●
Saguenay			●	●
Saint John			x	●
Saskatoon		●	x	●
Sherbrooke			●	●
St. Catharines - Niagara		●	●	●
St. John's			●	●
Thunder Bay			x	x
Toronto	●	●	●	●
Trois-Rivières			●	●
Vancouver	●	●	●	●
Victoria		●	●	●
Windsor		●	●	●
Winnipeg		●	●	●
No. of CMAs Surveyed	**8**	**15(+1)**	**24(+3)**	**31(+2)**

Legend:

⍟ Submitted response

x non-participant: select indicators developed using alternate sources

Exhibit 1.1: Responses by Urban Area by Year

1.4 Definition of Geographic Areas

Four geographic areas are considered in this survey: Region, Existing Urbanized Area (EUA), Central Area (CA) and Central Business District (CBD). Maps of the definitions for each urban area are included as Appendix B.

For the first three UTI surveys, the desire to keep the boundaries of the geographic areas fixed over time was stressed to allow for temporal comparison of data. Given the challenges in maintaining these definitions as urban areas evolve, the fourth UTI survey represents somewhat of a paradigm shift in the approach to defining geographic areas, now taking into account the reality that urban areas are dynamic, and allowing for these boundaries to change over time to best represent the urban area each survey year. It was felt that the geographic area definitions needed to be put on a more solid and sustainable footing to allow for fairer comparison among geographic areas.

The definition and changes from previous surveys for each geographic area are described below.

- **Region**: The region is defined as the Statistics Canada Census Metropolitan Area (CMA). The 2006 survey uses the current CMA boundaries, whereas previous surveys retained the 1996 CMA definitions except for new CMAs, which used the boundaries for the year during which they started participating in the survey.

- **Existing Urbanized Area (EUA)**: The highest proportion of questions in the UTI survey is with respect to the EUA. In the first three surveys, the EUA definitions were based on Census Sub-Divisions (CSDs), which generally correspond to lower-tier urban areas, in 1996 or in the year that the region began participating in the survey.

  However, urban area boundaries change and in several CMAs municipalities have amalgamated or otherwise changed their boundaries since the survey program began, obviating the benefit of data collection based on the original urban area boundaries. In addition, the inclusion of CSDs was generally based on the population and densities of the CSD, though there were no explicit decision rules as to their inclusion.

For the 2006 survey, the EUAs have been redefined with census tracts as building blocks rather than CSDs. Census tracts are included if more than 33% of land area falls within Statistics Canada's urbanized area definition This definition better isolates the area that is truly urban, and increases comparability both among urban areas and over time.

To allow for historical trend analysis of urban structure changes, 2001 EUA population and employment were re-estimated using the 2006 EUA boundaries.

- **Central Business District (CBD) and Central Area (CA):** The CBD is the area in the region with the highest historic concentration of employment; some regions have multiple CBDs. The CA is typically a mixed-used area with high concentration of employment and residential population that includes the CBD, and is generally two to three times larger than the CBD. The CBD and CA are generally based on census tracts to allow for calculation of population, employment and land area from census tract data.

For past surveys, respondents were discouraged from splitting census tracts in their CBD and CA definitions, although exceptions were made for some previous surveys. For the 2006 survey, it was recognized that census tract boundaries do not always correspond to natural boundaries defining a CBD. Respondents were not discouraged from splitting census tracts, as long as the proper population and employment could be provided for the new area.

1.5 Survey Response Rates

Exhibit 1.2 summarizes the level of completion of individual survey sections or questions by individual respondents. CMAs are listed in alphabetical order, with CMAs that have not provided responses listed on the right side of the table.

Part A has the highest levels of completion, with gaps in three or more sections by only five respondents.

In Part B, the section on Revenue Sources was answered fairly completely for 14 CMAs, not at all by two CMAs, and partially answered for the remainder. The section on Sources of Funding for transportation expenditures was less completely answered, with several respondents leaving this question unanswered.

Part C has varying levels of response by section and question. Under Urban Structure, most data were filled in by IBI Group from Statistics Canada data. CMAs that did not have a previously defined Central Area (CA) or did not define a CA for the current survey had a CA definition provided for them by IBI Group. A small number of definitions have been changed since the previous survey.

The Definitions and Data Availability section asks about the availability of travel survey data for the area, transportation demand models, and other definitions regarding travel information reported in the survey. Travel survey availability is summarized in Exhibit 1.3.

For Transportation Supply questions, vehicle registrations by community were available from Statistics Canada; these were compiled by IBI Group for each EUA. The remaining questions were answered to varying levels of completeness based on questionnaire responses.

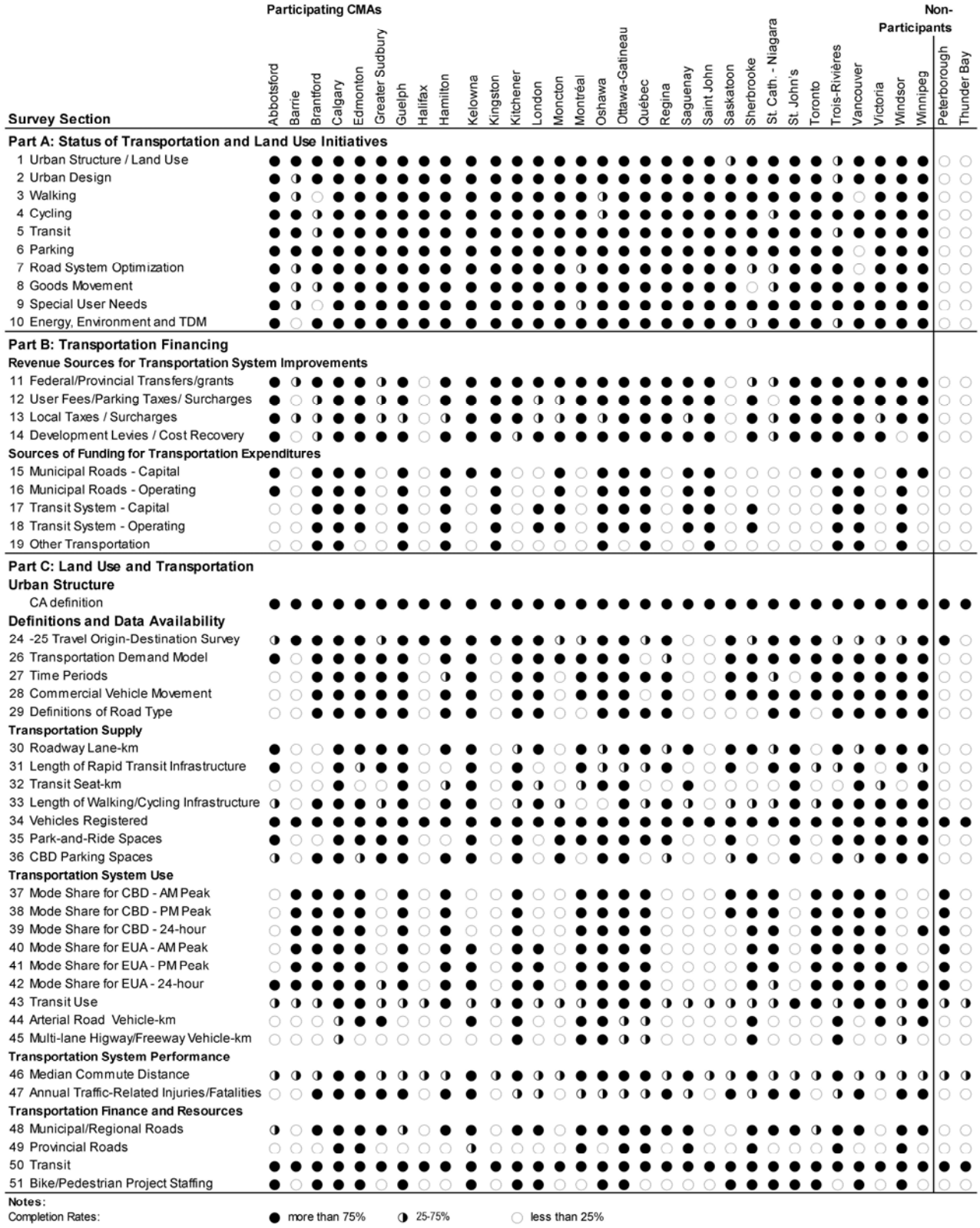


Exhibit 1.2: Response Rates per Survey Section

Urban Area	Travel Survey Available	Date of Most Recent Survey	Date of data used for 2001 TAC UTI survey
Abbotsford	✓	2004	n/a
Barrie	✓	2006	n/a
Brantford	✓	2006	n/a
Calgary	✓	**2001	2001
Edmonton	✓	2005	1994
Guelph	✓	2006	n/a
Halifax	×	-	2001 Stat Can
Hamilton	✓	2006	2001
Kelowna	✓	2007	n/a
Kingston	×	-	2002
Kitchener	✓	2006	2001
London	✓	**2002	2002
Moncton	×	-	n/a
Montréal	✓	2003	1998
Oshawa	✓	2006	2001
Ottawa-Gatineau	✓	2005	1995
Peterborough	✓	2006	n/a
Québec	✓	2006	2001
Regina	✓	-	1989
Saguenay	×	-	-
Saint John	×	-	-
Saskatoon	×	-	-
Sherbrooke	✓	*2003	2003
St. Catharines - Niagara	✓	2006	2001
St. John's	×	-	-
Greater Sudbury	✓	2003	-
Thunder Bay	×(assumed)	-	-
Toronto	✓	2006	2001
Trois-Rivières	✓	*2000	2000
Vancouver	✓	2004	1999
Victoria	✓	2006	2001
Windsor	✓	1997	1996
Winnipeg	×	-	1992

Note:

* Indicates survey answers were derived from travel survey data adjusted by model to 2006 demographics

** Indicates Urban Areas used the same travel survey to complete Part C as for previous TAC survey.

Exhibit 1.3: Status of Urban Travel Surveys in Responding CMAs

1.6 Purpose and Outline of Report

This report provides a detailed summary of the results of the fourth instalment of the TAC Urban Indicators Survey. Where possible based on participation from previous surveys, historical data are also presented along with some interpretation of the trends and potential causal relationships. The main purpose of the report, however, is to simply present the data from the current and previous surveys and it is envisioned that users of the fourth survey will, over time, draw additional insights and conclusions. This will be aided by the use of the Microsoft Access database of indicators developed for this study, which includes data from all four surveys.

Following this introduction are eight chapters, as follows:

- Chapter 2 provides a high level summary of the key trends and findings revealed by the completion of the fourth survey;
- Chapter 3 analyses land use and transportation initiatives reported in Part A of the survey;
- Chapter 4 presents summary of indicators related to land use and urban structure, along with a discussion of the likely relationship to transportation trends;
- Chapter 5 presents information on overall transportation activity and key impacts such as safety, energy use and environmental performance;
- Chapters 6, 7 and 8 provide additional data on individual modes including public transit, active transportation and roads/motor vehicle use;
- Chapter 9 summarises the financial components of the survey including operating and capital expenditures by mode;
- Chapter 10 provides some high level conclusions on the merits of the UTI survey and recommendations for future surveys.

The Fourth UTI Survey Questionnaire is included as Appendix A of this report. Appendix B provides the Geographic Area Definitions and Appendix C presents the key land use and transportation indicators for all 33 CMAs.

A database (MS Access) containing raw data from this fourth survey and previous surveys is available for use on the TAC website.

2. Key Findings

As this survey now covers significantly more CMAs than the previous iterations, throughout this report, urban areas are grouped by their CMA population according to Exhibit 2.1 in order to help broadly discern patterns that may vary with these different CMA sizes. Additional details of these groupings can be found in section 3.2 (page 16) of this report.

	CMA Population	Number of CMAs
Group A	More than 2,000,000	3
Group B	500,000 to 2,000,000	6
Group C	190,000 to 500,000	9
Group D	Less than 190,000	15

Exhibit 2.1: CMA Group Definitions

The Role of Urban Areas is Increasing

Increasingly, Canada is becoming more urbanized. In fact, since 1851 there has never been a time period where the proportion of people living in urban areas has not increased[2]. Even among urban areas, the trend has been that larger areas are growing faster. As of 2006, there were approximately 33.6 million people residing in Canada of which 21.5 million (64%) resided in the 33 CMAs covered by this survey (see Exhibit 2.2). Similarly, 10.3 million jobs were located in these 33 CMAs. Therefore, understanding transportation trends and opportunities in urban areas is critical to achieving progress on initiatives related to sustainable transportation, and transportation performance in general.

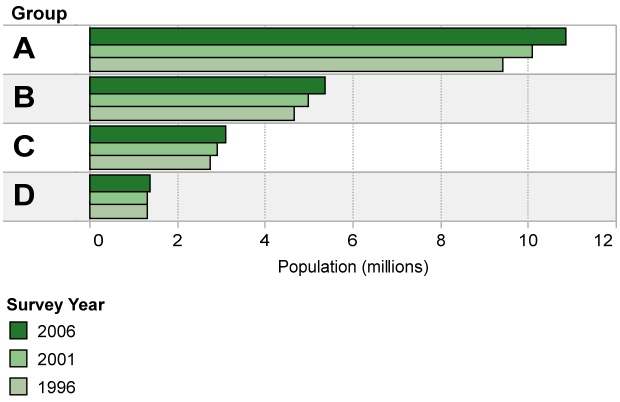


Exhibit 2.2: Total CMA Population by Urban Area Group, 1996-2006 [3]

Urban Structure Changes are Mixed

Many transportation trends are influenced by land use patterns such as density and mix of uses. The TAC Urban Indicators Survey tracks urban structure trends at a broad level using the four geographic areas defined previously.

Between 2001 and 2006, population increased in all but two urban areas: Saguenay and Saint John. Similarly, an increase in employment was observed in all of the regions in the survey. Notwithstanding that the defined EUA area was held constant between 2001 and 2006 for comparison purposes, it would appear that urban densities are increasing (see Exhibit 2.3). The only exceptions are Sherbrooke, Kingston and Thunder Bay in Group D, where population densities have decreased. In addition, population density within the defined EUA is increasing faster than the density in the rest of the CMA, or urban fringe, as shown in Exhibit 2.4, in large and medium-sized urban areas. Overall, these trends are a signal that urban sprawl is slowing, which is positive from a transportation perspective in that the viability for transit, walking and cycling trips tends to increase with density.

[2] Statistics Canada, Population Urban and Rural by Province and Territory, September 2005

[3] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough are excluded as they were not CMAs in 2001.

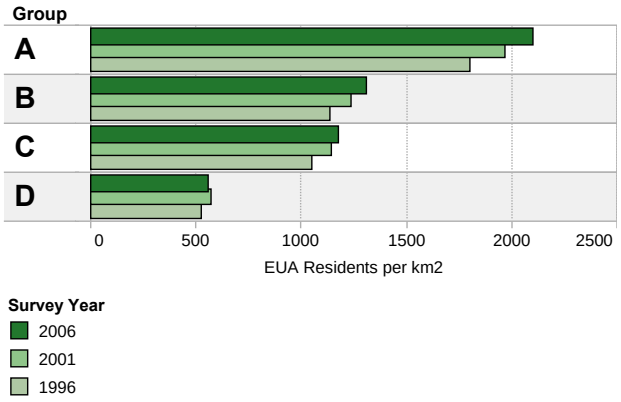


Exhibit 2.3: EUA Population Density by Urban Area Group, 1996-2006 [4]

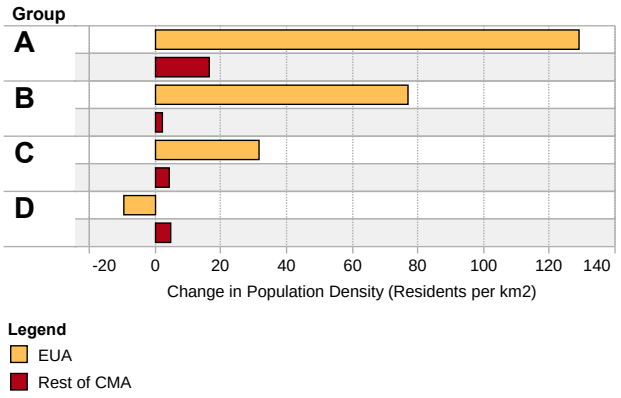


Exhibit 2.4: Change in Population Density per Group, 2001-2006

Within each urban area, the trends are less clear. For example, the proportion of employment located within the CBD is declining in most areas suggesting a decentralization of employment. Conversely, several of the larger urban areas saw an increase in population in their Central Areas between 2001 and 2006. Though more analysis of this trend is warranted, it may be that some people are starting to take advantage of the transportation benefits of urban living; that is, people living in central areas are more likely able to walk or bike to work, or get to many destinations using transit.

The Impacts of Automobile Use are Still Increasing

As can be expected, transportation activity has increased with population and employment growth.

[4] For Exhibit 2.3 and 2.4, Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough are excluded as they were not CMAs in 2001.

Overall, since the previous survey, people living in Canada's Urban Areas own more vehicles, travel further to work, and consume more fuel for transportation. As illustrated in Exhibit 2.5, daily fuel use and light-duty vehicles per capita have increased since 2001. In 2006, people living in urban areas burned approximately 58 billion litres of fuel, some 6 billion litres more than in 2001. This data suggests that for the 33 urban regions covered by this study, total transportation-related GHG emissions are now ***44.1*** percent ***above*** 1990 levels – far from the Kyoto target of being 6 percent ***below*** 1990 levels. Thus, addressing transportation sustainability is crucial to dealing with the recent Copenhagen Accord and any future GHG emission reduction targets.

On the positive side, it appears that the rate of increase is slowing and there are signs that more people are switching to other modes of travel for specific trip purposes. For example, almost half of the urban areas in the survey saw an increase in the percentage of journey-to-work transit mode shares (see Exhibit 2.5). Similarly, most cities saw an increase in the use of cycling modes for work trips, although walk mode shares decreased. The challenge, however, is that these modes still represent a small proportion of total travel and therefore what seem like large changes are still not enough to change the overall absolute impacts of auto travel on energy use and emissions.

	2001	2006
Light-Duty Vehicles per Capita	0.51	0.55
Fuel Use per Capita (L/Day)	2.79	2.96
Annual Transit Trips per Capita	87.7	90.3
Work Trip Transit Mode Shares	14.8%	15.2%
Work Trip Walk Mode Shares	5.7%	5.7%
Work Trip Cycle Mode Shares	1.3%	1.4%

Exhibit 2.5: Summary of Automobile and Non-Automobile Indicators, 2001-2006

Most Urban Areas are Investing in Transit

Trends in transportation supply are somewhat difficult to track as cities tend to take on major infrastructure projects on a sporadic basis – for example building a new expressway or constructing a rapid transit line. Nevertheless, most urban areas reported increases in investment levels for both roads and transit.

With respect to investment in roads and transit, Exhibit 2.6 shows capital and operating expenditures for urban areas with available data for all categories and both years. The trend in most areas has been an increase in the absolute capital and operating expenditures on roads. However, this has not translated into an increased supply of roads on a per capita basis. In other words, the investment levels in roads have not kept pace with population growth. This trend could be in part attributed to substantial increases in construction costs between 2001 and 2006, but it is also a sign that urban areas are refocusing attention on transit and other non-automobile investments. This is confirmed by the fact most urban areas with available 2001 and 2006 data, increased their per capita investment levels in transit, also shown in Exhibit 2.6.

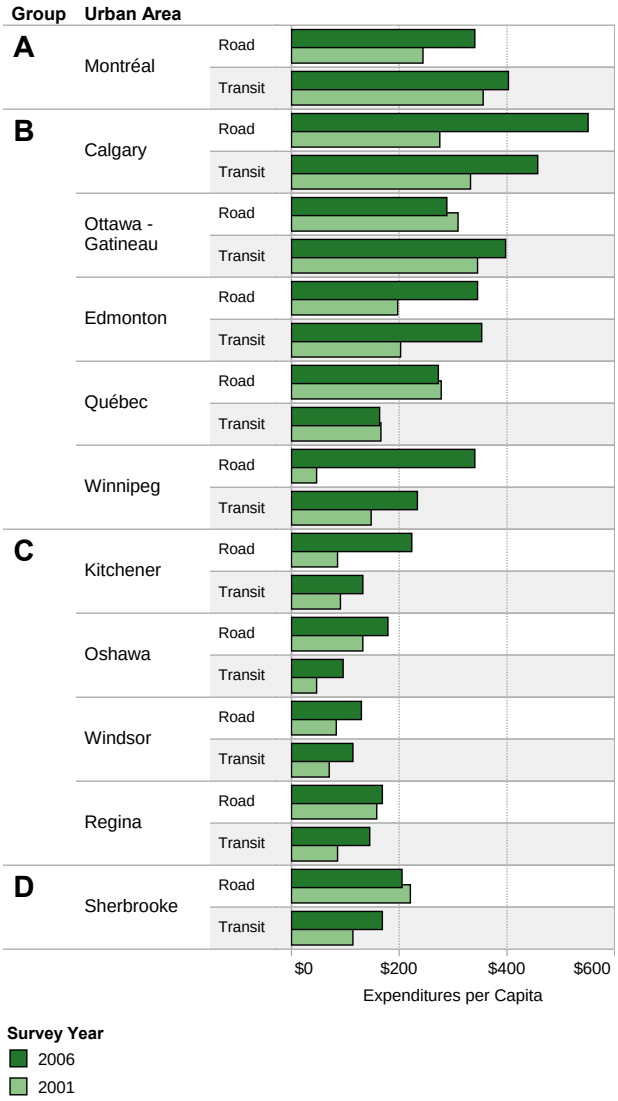


Exhibit 2.6: Road and Transit Expenditures per Capita, 2001-2006 [5]

[5] Data are missing or incomplete for the omitted EUAs.

Policy Changes are Encouraging

Notwithstanding the fact that actual transportation trends are not all heading in the desired direction, specifically the per capita consumption of fossil fuels is still increasing, there are signs that policies to achieve a reversal of trends are increasingly being put into place.

There has been positive movement in several areas on land use and transportation initiatives based on the results of Part A of the UTI survey. For example, ten urban areas reported having implemented greenhouse gas emissions targets throughout their urban areas in 2006 compared to just three in the previous survey. Similarly, many urban areas reported a higher degree of implementation of initiatives related to land use such as implementing controls to limit development beyond designated urban boundaries.

Although the responses to questions on land use and transportation initiatives are somewhat subjective and dependent on the perspective of the survey respondent, one of the trends emerging from this fourth survey is that progress on several initiatives has been most positive for the largest urban areas and the smallest urban areas, whereas progress in medium sized areas has been regressing. This difference is most apparent in indicators related to walking, urban design, land use, road system optimization, energy and the environment. One explanation for the trend in smaller vs. medium size communities may be that something such as a new bike lane or revised parking policies may be of greater visibility to the smaller community than in a larger centre.

2.1 Sustainability Scorecard

One of the original motivations for conducting the TAC Urban Indicators Survey was to track progress on the *New Vision for Urban Transportation* published by TAC in 1993. This Vision identified 13 decision-making principles that point the way to a more sustainable future, as presented in the *Vision*, and provide a basis for tracking progress with respect to sustainable transportation.

Building on a similar table presented in the third UTI survey report,
Exhibit 2.7 provides a discussion of trends in relation to each of these principles over the last 10-15 years, drawing on the results of the *UTI Surveys*.

Vision Principle	Progress 1996 - 2001	Progress 2001 - 2006	Supporting discussion based on the 2006 and earlier *UTI Surveys*
1. Plan for increased densities and more mixed land use	😐	☺	Within Existing Urban Areas, residential densities have been increasing between 2001 and 2006 and the ratio of growth within the EUA is much higher than in the rest of the region (urban fringe). Most Central Areas now exhibit a relatively even balance of population and jobs.
2. Promote walking as the preferred mode for person trips	😐	☺	Between 1996 and 2001, walk mode shares for work trips decreased from 5.8% to 5.7%. In 2006, this figure remained steady at 5.7%. Twenty (20) out of 33 urban areas saw an increase or stabilization of work trip walking mode shares between 2001 and 2006.
3. Increase opportunities for cycling as an optional mode of travel	☺	☺	Journey-to-work mode shares for cycling have been steadily increasing since 1996 and are now at 1.4% of all trips. The highest use of cycling occurs in Victoria, which has a 5.7% modal share for work trips. The rate of expansion of dedicated cycling facilities is difficult to track due to inconsistencies in defining such facilities, but one encouraging trend is that many smaller urban areas have been very aggressive at expanding facilities. In several urban areas, the length of on-street bikeways per lane kilometre of roadway is between five and ten percent.
4. Provide higher quality transit service to increase its attractiveness relative to the private automobile	😐	☺	Use of transit continues to grow with all urban areas seeing an increase in transit ridership per capita, which was not the case for the previous survey. The largest percentage changes in transit use occurred in small to medium sized urban areas with many increases around 10-20%. Transit mode shares for work trips also increased since the last survey, and averaged close to 15.2% in 2006. Despite these positive changes, the prevalence of the automobile continues to grow.
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 very limited data on parking supply, and trends from the previous survey were difficult to track. From a policy perspective, there has been significant progress with many urban areas now implementing parking management plans. The lack of parking pricing throughout urban areas remains an issue from a travel demand management perspective.

Exhibit 2.7: Tracking of Progress of TAC's Vision

Vision Principle	Progress 1996 - 2001	Progress 2001 - 2006	Supporting discussion based on the 2006 and earlier *UTI Surveys*
7. Improve the efficiency of the urban goods distribution system	☹	☹	Data on urban goods movement are sparse and limit the ability to assess efficiency.
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 😐	☺	Emissions control technologies are continuing to improve. Since the last survey, regions that had indicated a low degree of deployment of initiatives to encourage the use of alternative fuels and use of fuel-efficient vehicles in municipal fleets are now reporting significant improvements.
	Energy ☹	☹	In terms of energy use, the results are very disappointing with almost every region seeing an increase in per capita fuel consumption, which translates into increased per capita GHG emissions. This is largely due to increases in average trip lengths.
10. Optimize the use of existing transportation systems to move people and goods	😐	😐	Reporting on initiatives related to optimization of existing infrastructure was similar to previous survey. Use of high-occupancy vehicle lanes has not increased measurably.
11. Design and operate transportation systems which can be used by the physically challenged	☺	☺	Consistent with past surveys, deployment of initiatives pertaining to special user needs received the highest level of application of all initiatives listed in Part A of the survey. The average level of utilization increased from 79% to 84% between 2001 and 2006.
12. Ensure that urban transportation decisions protect and enhance the environment	☹	😐	Based on the survey results on of level of implementation of land use and transportation initiatives, there has been a significant increase in the level of deployment of policies and other initiatives related to sustainable transportation. The largest improvements have occurred in large and small urban areas, whereas progress has been less in medium-sized urban areas.
13. Create better ways to pay for future urban transportation systems	☺	☹	The initiatives with the least reported levels of implementation were those related to pricing or taxation. Trends on transportation findings vary widely, suggesting that most urban areas do not have stable and predictable funding. However, there has been a significant increase in the use of federal and provincial subsidies as well as fuel taxes in transportation.

Exhibit 2.7: Tracking of Progress of TAC's Vision (Continued)

3. Land Use and Transportation Initiatives

3.1 Structure and Analysis Method

Part A of the Urban Transportation Indicators (UTI) survey enjoyed high levels of completion by survey respondents relative to the remaining survey sections (see Exhibit 1.2).

As with past surveys, Part A asked respondents to indicate the level of implementation of various practical and best practice land-use and transportation initiatives in ten policy areas. These categories and their specific initiatives are listed in Exhibit 3.1, along with notation identifying changes in wording between the 2001 and 2006 surveys.

For each type of initiative, respondents selected from one of seven responses, with higher numbers generally representing increasing levels of implementation:

1. Not applicable
2. Not a priority at present
3. Studying the issue
4. Have adopted policies / guidelines
5. Implementing pilot project(s)
6. Implementing in specific case(s) or area(s)
7. Implementing throughout study area

Responses, therefore, provide a scale indicating the degree to which an urban area (or metropolitan area) has been implementing measures consistent with attaining more sustainable transportation and land use patterns. Since the categories for indicating the degree of implementation essentially correspond to increasing levels, each response category is assigned incrementally increasing on a scale from 0 to 100%, with "Implementing throughout study area" corresponding to 100%. These ratings could then be averaged across categories (as shown in Exhibit 3.2 for 2006) or survey years to broadly compare various aggregations of implementation levels. Note that in many cases, urban areas did not provide answers to all of the questions. Implementation levels were therefore normalized based on the number of answers provided rather than the absolute total number of questions. For example, if the survey had five questions and an urban area only answered one, its total score is divided by one, and the score of another area that answered all five is divided by five.

It is possible to draw some comparisons against the 2001 survey; however, many modifications were made to the types of initiatives listed in the 2006 survey, which complicates such comparisons. 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 since all initiatives are not necessarily appropriate for all urban areas.

1. URBAN STRUCTURE/LAND USE	
	a. long-term, integrated municipal land-use/transportation plan
●	b. density targets for mixed-use centres/nodes
	c. limiting urban development within designated urban boundaries
●	d. incentives/special policies for infill and brownfield development
	e. taxation and/or other incentives for compact, mixed-use development
	** 4 initiatives deleted since 2001*
2. URBAN DESIGN	
●	a. transit-supportive site design guidelines or policies
	b. cycling-supportive streetscaping
	c. pedestrian-supportive streetscaping
	d. traffic calming
3. WALKING	
●	a. pedestrian plan
+	b. mid-block pedestrian crossings in areas of high pedestrian activity
●	c. pedestrian-friendly intersection design
+	d. clearing of snow and ice from sidewalks
+	e. municipal participation on pedestrian advisory/awareness committees
	** 1 initiative deleted since 2001*
4. CYCLING	
●	a. cycling plan with proposed cycling network
●	b. municipal bike parking program
	c. municipal participation on cycling advisory/awareness committees
●	d. zoning by-laws require cycling amenities bike parking, showers, etc.. in new development
+	e. bike sharing programs
+	f. delivery of/support for cycling skills training
5. TRANSIT	
	a. Transit priority by means of HOV or reserved bus lanes
	b. Other transit priority measures
	c. Bike'n'ride facilities
	d. Inter-municipal service coordination
	e. Inter-municipal fare coordination e.g., Regional smart-card.
	f. Integration of urban transit with inter-city services e.g., intermodal transit station.
●	g. University/college student transit pass program e.g., U-Pass.
●	h. Bulk purchase transit discount program e.g., Employer transit discount.
●	i. Web-based trip planning information
●	j. Real-time transit arrival information
	** 5 initiatives deleted since 2001*
6. PARKING	
●	a. parking standards related to local conditions e.g., level/ proximity of transit service, walkability of area, etc..
+	b. encouragement of shared parking arrangements
	c. maximum parking standards
	d. pricing to discourage use of public parking lots by commuters
	e. tax or other measure to discourage use of private lots by commuters
	** 2 initiatives deleted since 2001*

Exhibit 3.1: Categories of Land Use and Transportation Initiatives

7. ROAD SYSTEM OPTIMIZATION
● a. transportation/traffic impact studies must consider access for all modes of transportation
● b. HOV lanes
+ c. carpool parking lots
d. transportation systems management program
● e. master plan identifies intersections requiring improvement
f. real-time traffic signal control and coordinated signal timing
g. incident management system
8. GOODS MOVEMENT
● a. goods movement strategy
● b. consultation activities with goods movement industry
● c. zoning by-laws require off-street loading facilities
● d. designation of truck routes
e. development of intermodal freight terminals and/or freight consolidation terminals
9. SPECIAL USER NEEDS
a. transit vehicles accessible to persons with disabilities
b. transit stations/stops accessible to persons with disabilities
c. paratransit to supplement regular transit for special needs
d. curb cuts/ramps at designated pedestrian crossing points
e. mobility disabled parking requirements
f. audible pedestrian signals
10. ENERGY, ENVIRONMENT, AND TRAVEL DEMAND MANAGEMENT (TDM)
● a. alternative fuels/high efficiency vehicles for municipal fleets
● b. alternative fuels/high efficiency vehicles for transit vehicles
● c. mandatory emissions control strategies
● d. regional/municipal TDM strategy
● e. road pricing initiatives
● f. TDM services delivered to workplaces
● g. TDM services delivered to schools e.g., walk/bike to school programs.
● h. carpool ridematching services
● i. Support for private or non-profit car sharing services
j. established target for GHG reduction
+ k. established target for other air pollutant reduction
** 1 initiative deleted since 2001*

Notes:
+ Initiative added in 2006 survey
● Modified wording in 2006 survey

Exhibit 3.1: Categories of Land Use and Transportation Initiatives (Continued)

3.2 Urban Area Groupings

With the increasing number of participating urban areas, identification of trends becomes more challenging. For some analyses, as noted in Section 2, it is helpful to have urban areas segmented into groups based on population thresholds, with threshold levels based on similarities in region population and employment totals as well as urban densities within each grouping. The resulting groupings are as follows:

- **Group A** – population over 2 million. This group includes the three largest metropolitan areas: Toronto, Montréal and Vancouver. The population of the smallest of these is twice as high as the population of the largest urban area in Group B.

- **Group B** – population between 500,000 and 2 million. This group includes the next six largest metropolitan areas: Ottawa-Gatineau, Calgary, Edmonton, Québec, Winnipeg and Hamilton. Actual population levels in this group fall in the range of about 700,000 to 1.1 million.

- **Group C** – population between 190,000 and 500,000. This group includes nine regions with smaller population than the above groups but higher employment levels and densities than Group D: London, Kitchener, St. Catharines - Niagara, Halifax, Oshawa, Victoria, Windsor, Saskatoon and Regina.

- **Group D** – population less than 190,000. This includes the remaining fifteen CMAs: Sherbrooke, St. John's, Barrie, Kelowna, Abbotsford, Greater Sudbury, Kingston, Saguenay, Trois-Rivières, Guelph, Moncton, Brantford, Thunder Bay, Saint John and Peterborough.

3.3 2006 Survey Overview

Exhibit 3.2 illustrates the proportion of responses for each implementation level by category.

Of all ten categories, parking initiatives were the most frequently cited as not presently being a priority. However, the level of implementation for "maximum parking standards" and "parking standards related to local conditions" showed significant improvements, each increasing over 15% from 2001.

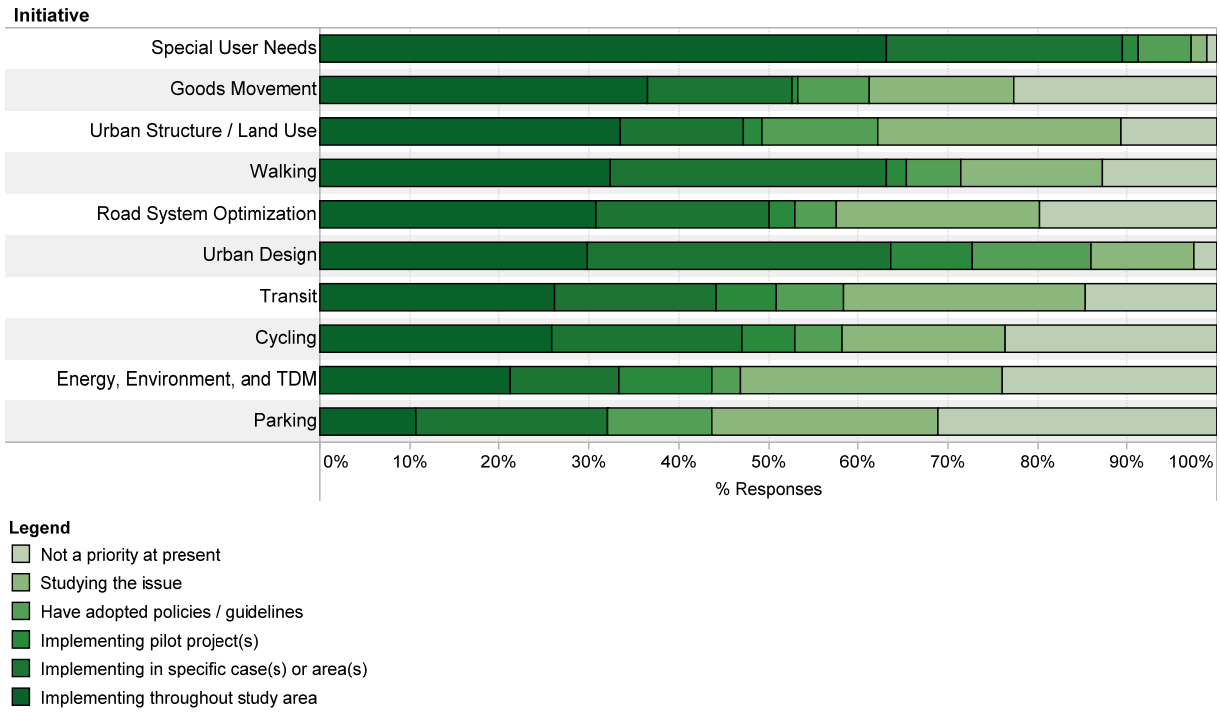


Exhibit 3.2: Degree of Implementation of Land Use and Transportation Initiatives, 2006

Furthermore, comparing ratings for individual initiatives, maximum parking standards showed the third largest increase in level of implementation over 2001 ratings. Several urban areas cited having implemented them in specific cases or areas: Guelph, Trois-Rivières, Oshawa, St. Catharines - Niagara, Victoria, Calgary, Ottawa-Gatineau, and Toronto. Previously, only Abbotsford and Edmonton said they were doing so.

Energy, Environment, and TDM initiatives appear to be those most commonly under study, followed closely by land use, parking, and transit initiatives. Energy, Environment, and TDM initiatives are also the most common pilot projects, just ahead of transit, cycling, and urban design pilots. Being very context sensitive, it is not surprising that urban design and walking initiatives were the most cited for being implemented in specific areas. Lastly, special user needs initiatives were clearly the most commonly implemented throughout CMAs.

3.4 Progress from 2001 to 2006

Exhibit 3.3 shows the combined implementation progress of all 31 urban areas that responded, across the ten categories of initiatives for 2001 and 2006. Comparing the current results against 2001, initiatives addressing special user needs remained by far the most widely implemented in 2006. Unfortunately, there remains little progress in the areas of parking, or energy, environment, and TDM, which appear to remain a low priority (although the latter improved from 2001 to 2006 while the reverse was true for cycling and transit). This is the same pattern that surfaced in 2001 and it continues to moderate the potential to substantially reduce auto-dependence in the foreseeable future. Among specific initiatives, the following trends are noteworthy:

- Ten urban areas reported having implemented greenhouse gas targets throughout their regions, where previously only Regina, Calgary and Edmonton had done so. Relative to 2001, this initiative shows the second highest increase in the level of implementation compared to all other initiatives. Curiously, Calgary reports that they are now studying the issue and Edmonton reports that it is no longer a priority.
- The trends toward using high-efficiency municipal and transit vehicles are also encouraging, with 14% and 21% having implemented such initiatives throughout their urban area respectively, compared to 0% in both cases for 2001.
- Related to mandatory emissions control strategies, there is a significant spread in responses to this initiative with 25% of respondents having implemented such strategies throughout their urban area but 28% claiming it is not a priority.

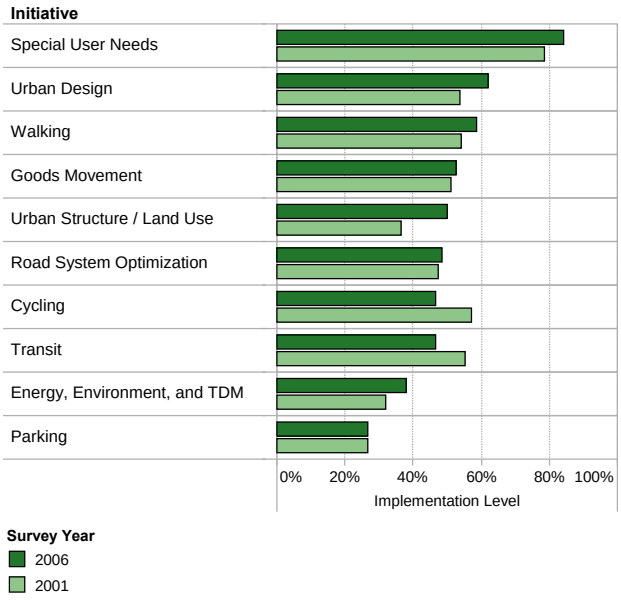


Exhibit 3.3: Average Implementation Levels by Category, 2001-2006

There was little change in the relative priorities of the other initiative categories, except for cycling initiatives dropping from second place in 2001 to seventh place in 2006, and transit initiatives also dropping from third place in 2001 to eighth place in 2006. In terms of cycling, the general experience in the area of active transportation planning supports this result, as recent interest had not quite taken off until after 2006. Furthermore, even with a recent peak in interest around active transportation policy, research completed for the TAC Active Transportation study shows that all levels of government struggle to actually implement initiatives. These two downward trends may truly be the result of urban areas legitimately experiencing difficulties in implementing initiatives under these categories, but, as suggested above,

comparisons between 2006 and 2001 must be made cautiously since several adjustments were made to the questionnaire. The questions in seven of the categories changed considerably, while remaining essentially unchanged in the other three: special user needs, urban design, and goods movement.

Moving up the list, there appears to have been some headway in the area of land use initiatives. Since 2001, seven of the urban areas that reported not having fully implemented controls to limit development beyond designated urban boundaries have now done so; only two respondents indicated it was not a priority. Some of the positive trends may be a result of the Province of Ontario's Growth Plan, which established urban boundaries for several of the urban areas participating in this survey. Only Hamilton cited implementing taxation and/or incentives for compact or mixed use development throughout its urban area, but 36% of respondents indicated having such policies in specific areas.

3.5 Trends in Urban Areas

To explore how priorities might vary between different sizes of urban areas, Exhibit 3.4 shows how implementation levels compare across the different urban area groupings.

Overall, the largest urban areas (Group A) appear to be the group most aggressively pursuing sustainable transportation and land use initiatives. In particular, the three Group A urban areas stand out for putting considerably more emphasis on parking initiatives than all other groups, whereas smaller urban areas indicated higher priorities for walking and cycling.

It is interesting that the smallest urban areas (Group D) are generally more aggressive with implementation than their larger peers in Group C. That said, the smallest urban areas also tended to be the group citing the fewest initiatives, as seen in Exhibit 3.5, which illustrates the average number of initiatives cited by urban area groupings.

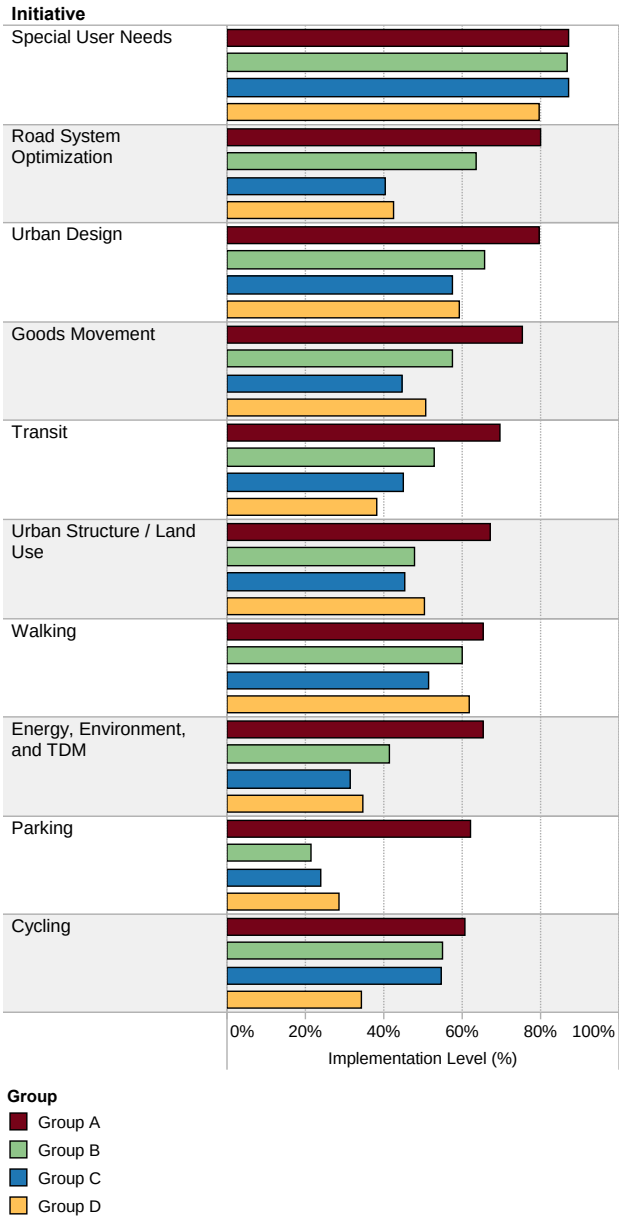


Exhibit 3.4: Grouped Average Implementation Levels by Category, 2006

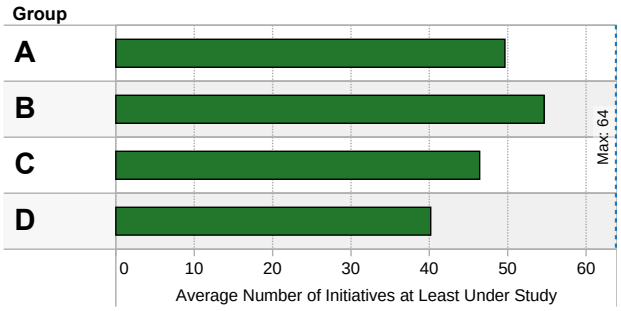


Exhibit 3.5: Average Number of Initiatives Cited, 2006

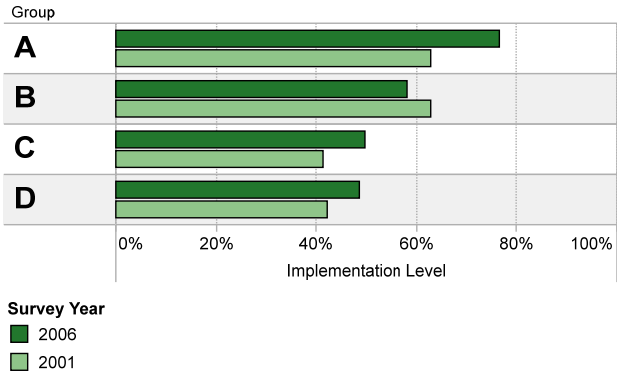


Exhibit 3.6: Implementation Level for Unchanged Questions, 2001-2006

Examining only the questions that were identical in both the 2001 and 2006 surveys, Exhibit 3.6 shows a similar overall trend to Exhibit 3.4, with larger urban areas showing the highest overall degree of implementation. The largest and smallest urban areas show the most significant advancements compared to 2001, with Group B showing a surprisingly high overall regression. More specifically, of the questions that did not change, the two biggest drops in the level of implementation since 2001 related to inter-municipal transit:

- inter-municipal fare coordination (e.g. regional smart card); and,
- inter-municipal service coordination.

For both, the number of urban areas that indicated these initiatives were not presently a priority rose from 0% to 17%. However, in both cases, 24% of respondents indicated they had implemented such initiatives throughout their urban areas, which includes some smaller urban areas such as Kelowna, Kingston, Oshawa, and Kitchener.

The five initiatives that saw large increases in implementation levels since 2001 were the following:

- Long-term integrated municipal or regional land use/transportation plan
- Limiting urban development to within designated urban boundaries
- Transit stations/stops accessible to persons with disabilities
- Audible pedestrian signals
- Established target for GHG reduction

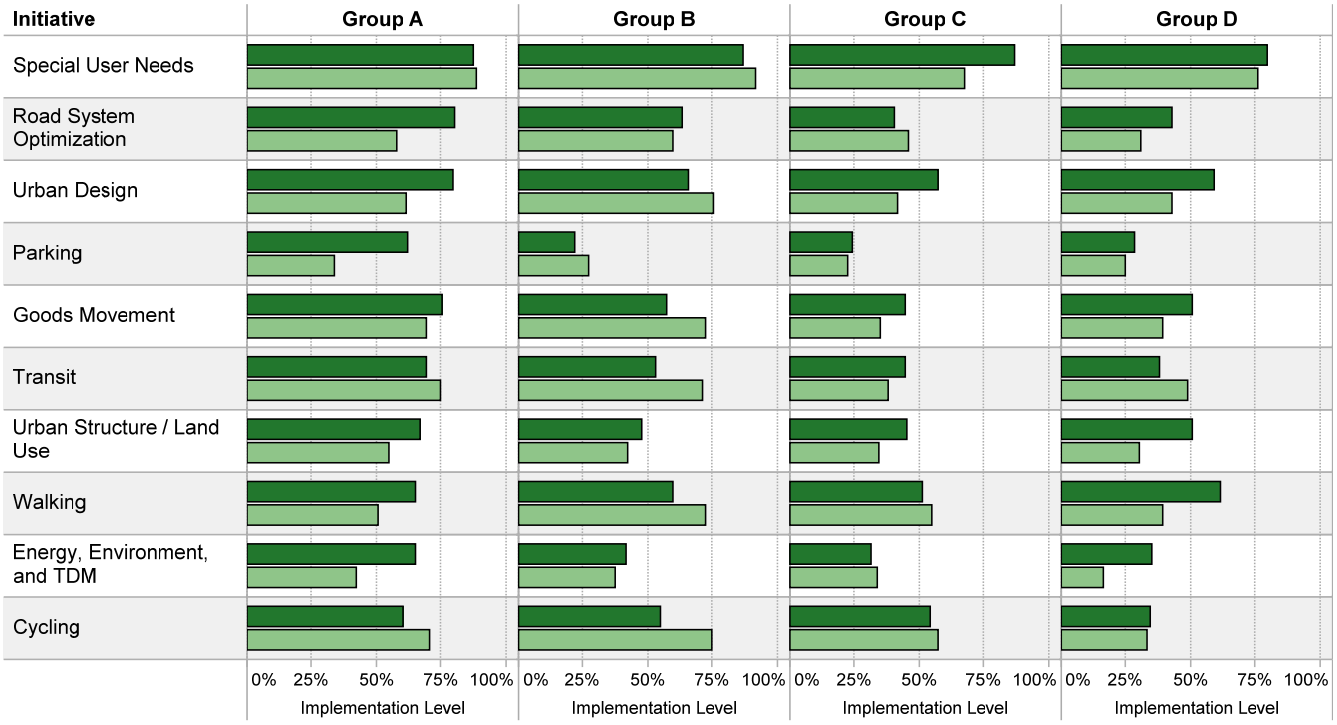


Exhibit 3.7: Implementation Levels by Groups, 2001-2006

Exhibit 3.7 shows the level of implementation for the ten categories of initiatives for each urban area group. This exhibit suggests that the progress in parking initiatives for large urban areas is a recent phenomenon. More generally, there appears to be considerable progress in a number of areas in large urban areas. Of all the urban area groupings, the larger urban areas were the only ones that consistently reported significantly more success implementing sustainable transportation and land use initiatives in 2006 than in 2001, the major two exceptions being transit and cycling, with a slight decline also in special user needs.

Group B urban areas generally show the opposite trend, with the 2006 degree of implementation significantly lower in the areas of urban design, walking, goods movement, cycling, and transit.

Group C urban areas appear to show more of a mix of results, with the areas of land use and urban design showing the largest increase in overall implementation and the largest decrease being related to goods movement, followed by transit, cycling and road system optimization. These differences could simply be the result of noise due to changes to the actual questions since 2001 combined with changes in the staff responding to the survey.

Similar to larger urban areas, Group D show promising progress compared to 2001 in several areas: walking, urban design, land use, road system optimization, energy, environment, TDM, and parking. The largest increases are related to land use and parking. Transit initiatives were the only category to show a significant drop in progress.

Exhibit 3.8 shows the average level of implementation for each responding urban area, which shows that even within each grouping of urban areas there is considerable variation in progress, suggesting that the size of an urban area may not be a strong influence.

In a number of cases, responding urban areas did not provide responses for all questions. Exhibit 3.8 also shows normalized ratings for each city based on the maximum possible score for the questions that were answered. Naturally, this increases implementation ratings overall, but the relative progress of Saskatoon, Barrie, and Brantford jumps considerably, suggesting these urban areas left several questions unanswered but indicated significant progress with those that were answered.

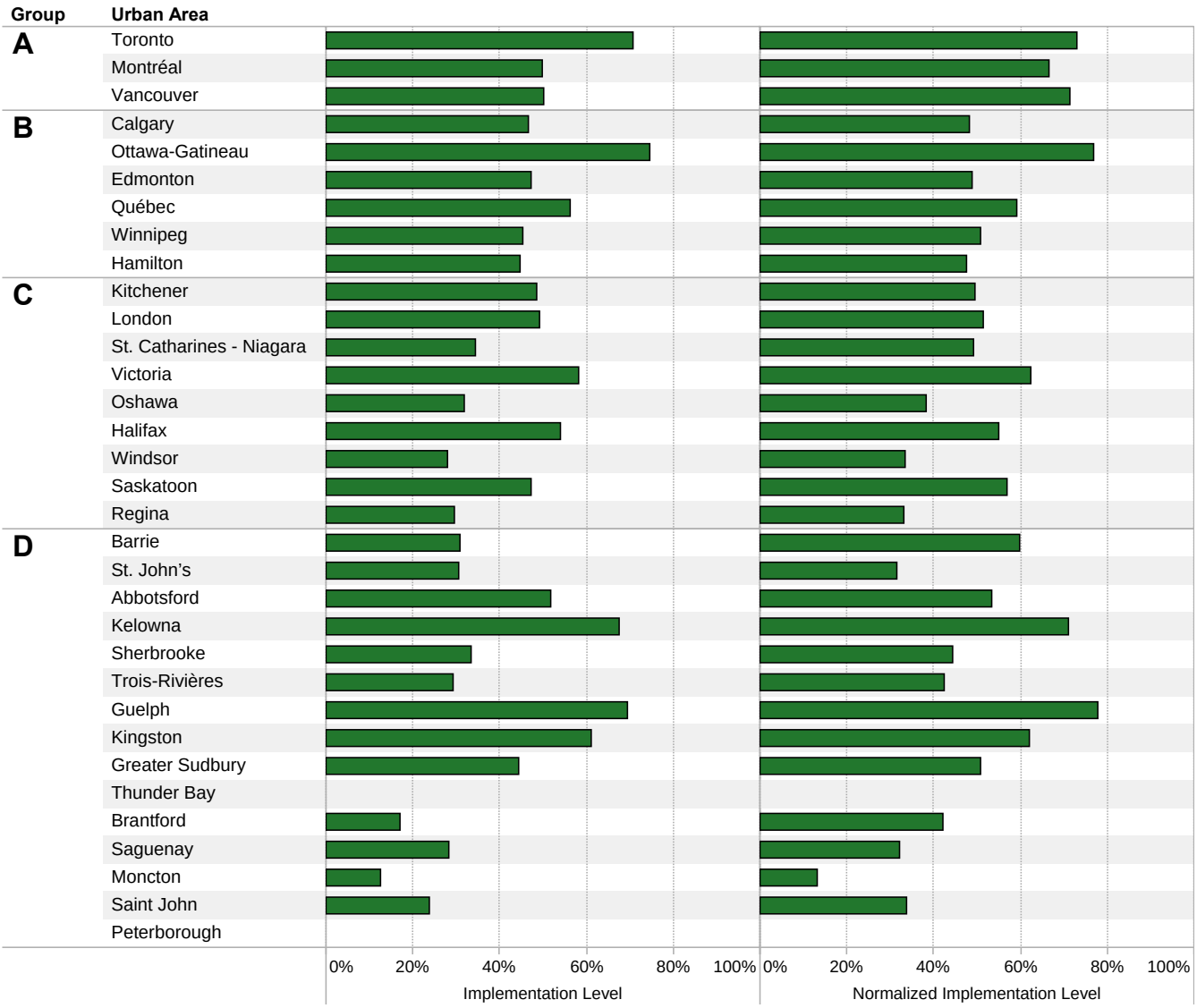


Exhibit 3.8: Implementation Levels by City, 2006

3.6 Trends Related to Specific Initiatives

Considering all of the initiatives, there was the most variation among urban areas in the level of implementation for the following five initiative types:

- Delivery of/support for cycling skills training
- Goods movement strategy
- Zoning by-laws requiring off-street loading facilities
- Mandatory emissions control strategies
- Carpool ride matching services

Exhibit 3.9 shows the ten least-implemented initiative types. Not surprisingly, three of the bottom four relate to pricing. The least implemented type, road pricing initiatives, was cited by 48% of respondents as not a priority and 17% stating that they are studying the issue.

Exhibit 3.10 illustrates the ten most widely implemented initiatives, six of which related to special user needs. Although absent from this list, of all the Part A questions that were consistent between the 2001 and 2006 surveys, "established target for GHG reduction" initiatives showed the largest increase in the level of implementation from urban areas that also responded in 2001.

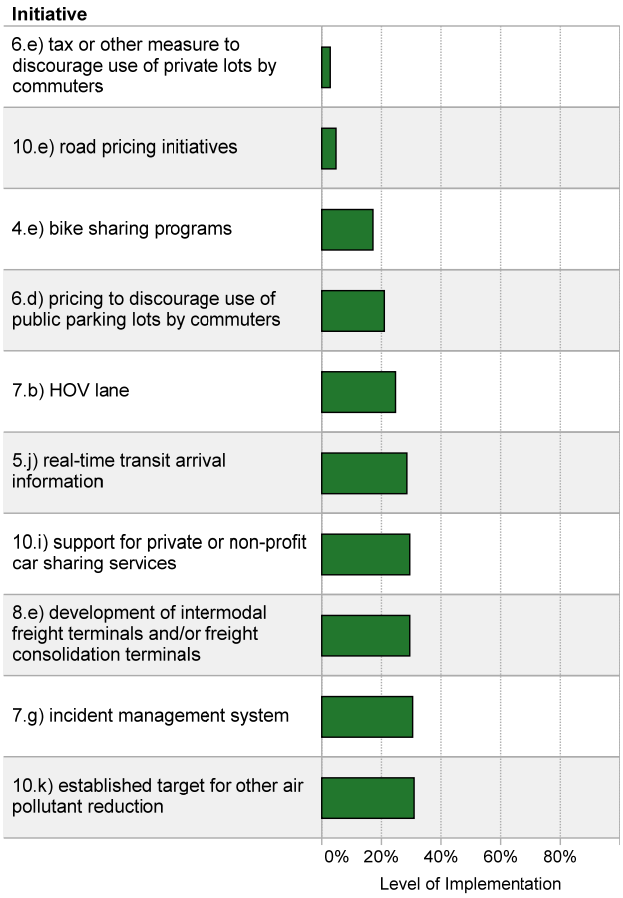


Exhibit 3.9: Ten Least-Implemented Initiatives, 2006

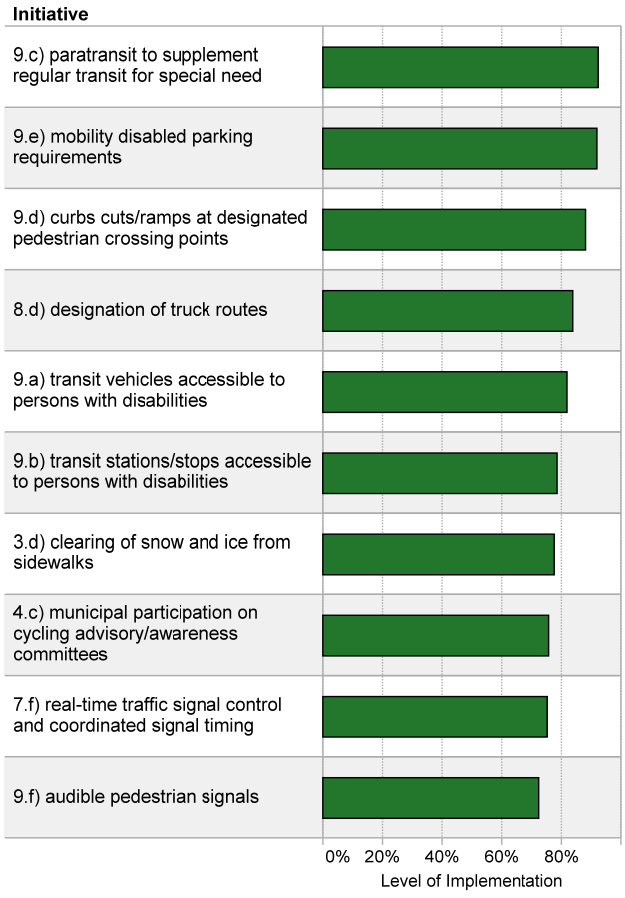


Exhibit 3.10: Ten Most-Implemented Initiatives, 2006

4. Urban Structure

Urban structure affects transportation performance and related policy directions in several ways. At the national level, the distribution of population and employment among cities is noteworthy because more rapidly growing cities have a greater opportunity (and also obligation) to shape land use for more efficient travel. At the regional level, the distribution of population and employment among different geographic areas within cities is also important in that this has a major influence on travel patterns. At the local level, trends in the amount and mix of population and employment in the central business district and central area are interesting as these areas have traditionally experienced some of the greatest transportation challenges as well as transportation opportunities.

The remainder of this section explores some of the key land use trends that are known to affect travel patterns, transportation behaviour and opportunities for more sustainable transportation in general. Exhibit 4.1 illustrates the total CMA population for all 33 urban areas, highlighting the portion that resides in the EUA. Detailed data are provided in Appendix C.

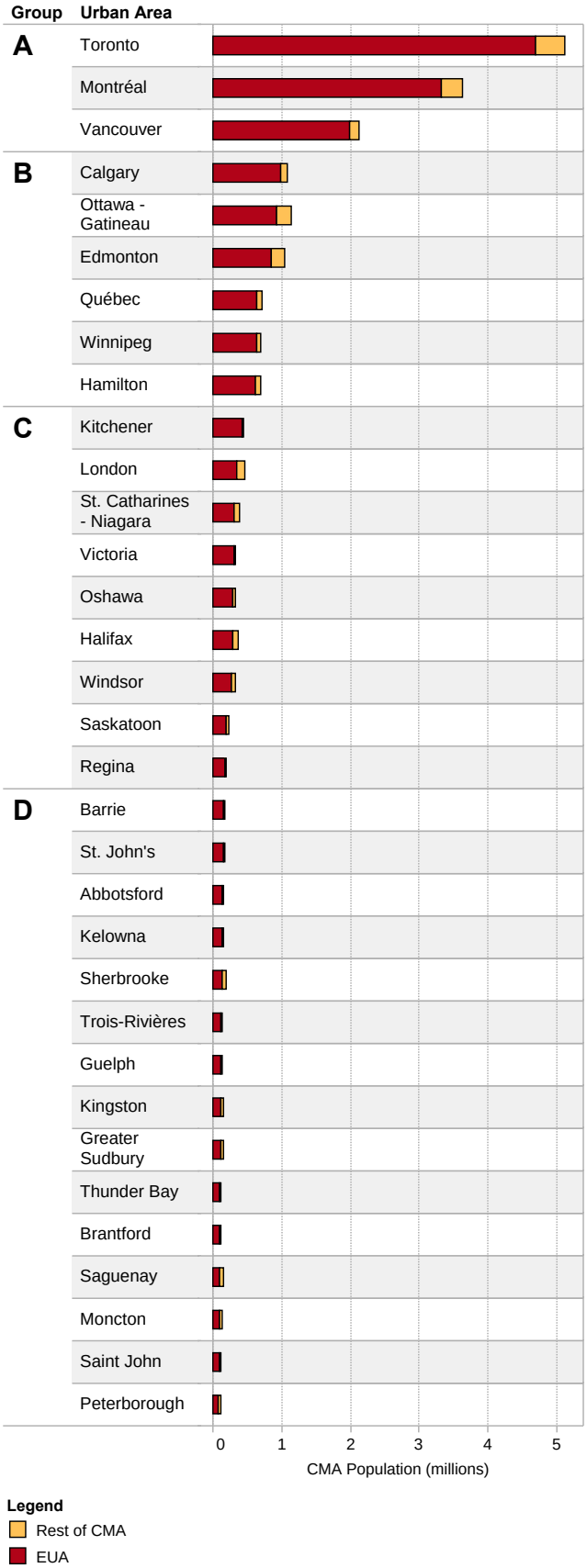


Exhibit 4.1: CMA and EUA Population, 2006

4.1 Components of Population and Employment Growth

National Trends

Between 1996 and 2006, the 33 CMAs covered by the UTI survey added some 3.4 million people, or about 2% per year. The largest part of this growth (42%) occurred in the top three CMAs – Toronto, Montreal and Vancouver (see Exhibit 4.2). In general, the trend over the past 10 years has been that larger cities are growing faster than smaller cities in both absolute growth as well as percentage terms. From a transportation perspective, this is positive in that larger cities have more developed transit systems, but as discussed later, it also presents a challenge in that as cities increase in size, transportation patterns tend to be more dispersed, and trips longer, on average.

In general, employment trends mirror those of population at the national scale (see Exhibit 4.3) with the exception that most regions show a faster rate of employment growth than population growth between 2001 and 2006, consistent with general economic and demographic trends over that period, given a faster rate of growth in labour force activity compared to total population.

Regional Trends

The UTI survey provides the opportunity to track changes in land use within each of the urban areas for the defined geographies. Several changes were made to the current survey to allow a more consistent tracking of urban structure trends; most importantly, the boundaries of existing urbanized areas were allowed to change based on urban density. For several indicators, where noted, population and employment data was retroactively adjusted for previous surveys based on the 2006 EUA area definitions.

One question related to urban structure that is often asked, but not well answered, is whether urban areas are experiencing "urban sprawl". There are many definitions of urban sprawl, but essentially the term refers to the spreading of an urban area at relatively low densities over rural land at the fringe of development or beyond. From a transportation perspective, urban sprawl creates several problems in that residents and employees almost exclusively rely on private automobiles for most trips, and if major development outside the urban boundary occurs, it may necessitate an expansion of transportation infrastructure.

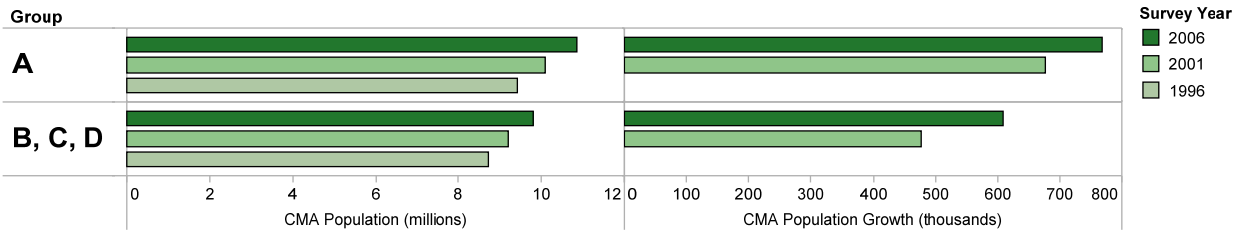


Exhibit 4.2: CMA Population Levels and Growth, 1996-2006

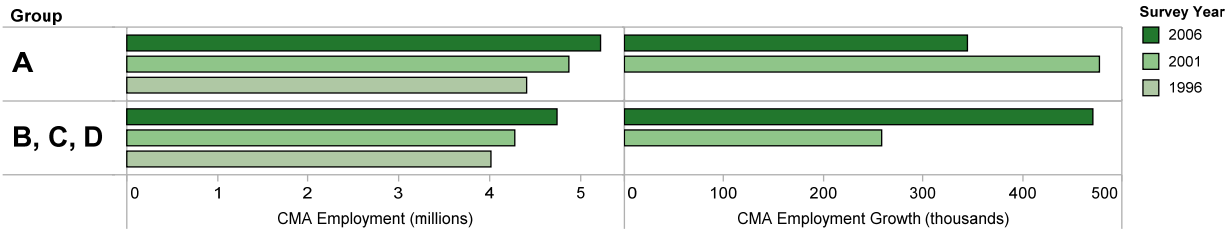


Exhibit 4.3: CMA Employment Levels and Growth, 1996-2006

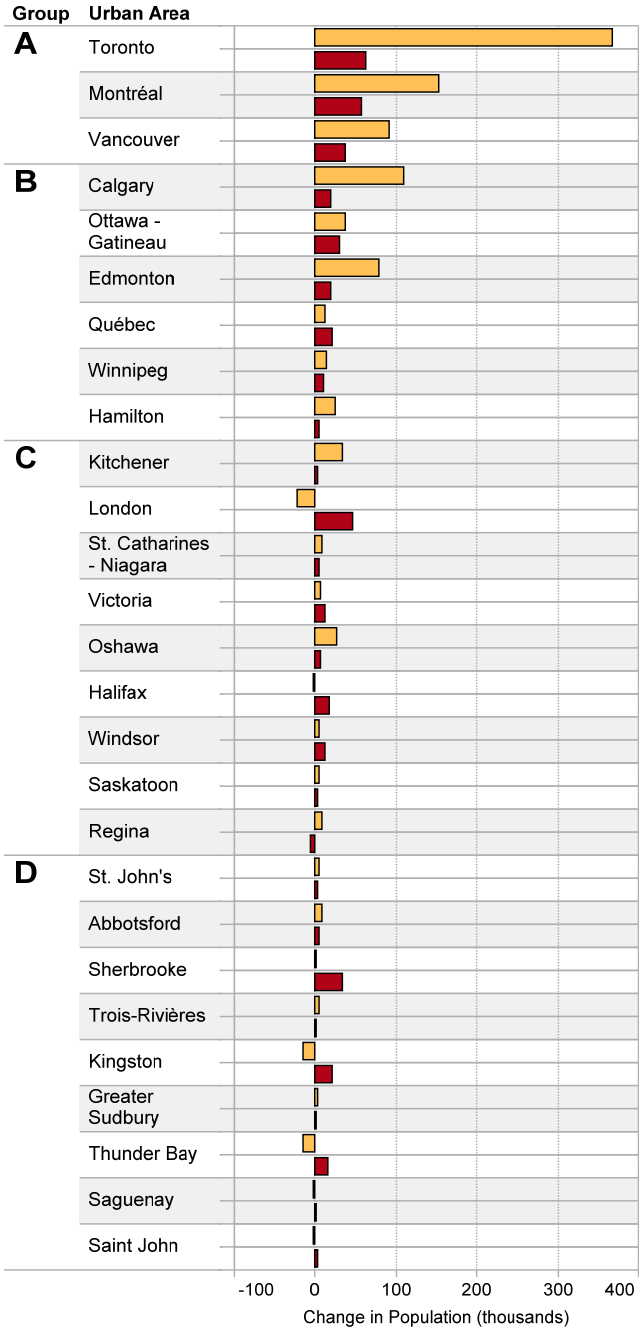


Exhibit 4.4: Changes in Population of EUA versus Rest of CMA, 2001-2006[6]

Exhibit 4.4 provides an indication of the degree to which urban areas are sprawling by plotting the absolute changes in population for the EUA vs. the change for the area between the EUA and the CMA boundary (i.e. the rest of the CMA). For this exhibit, 2006 EUA boundaries were used to estimate the 2001 EUA populations. In almost all cases (except where there have been boundary changes in the CMA[7]), most of the population growth that occurred with each urban area was accommodated in the EUA. For example, in the Toronto CMA, approximately 85% of the population growth occurred in the EUA while only 15% occurred in the rest of the CMA. Similar trends occurred in most of the larger urban areas suggesting that policies aimed at controlling urban boundary expansion are starting to take effect.

A similar exercise was undertaken to look at changes in employment in the urban fringe; however, since the EUA definitions are based on population density, changes in EUA areas between 2001 and 2006 tended to skew some of the comparisons. Instead, comparisons of changes in CBD employment and in terms of densities are provided next.

[6] See footnote on changes to CMA definitions. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

[7] The following are the changes that were made to the CMA/Region definitions from the 2001 survey to the 2006 survey, with the 2006 survey reflecting Statistic's Canada's current CMA definitions:

- Montréal: addition of Verchères, L'Epiphanie, Coteau-du-Lac, Les Coteaux and Saint-Zotique CSDs in 2006 definition.
- Ottawa-Gatineau: addition of Denholm and L'Ange-Gardien CSDs in Québec, and the removal of Kemptville and Casselman CSDs in Ontario due to the amalgamation of neighborouring rural municipalities.
- Québec: addition of Saint-Henri CSD to 2006 definition.
- Winnipeg: addition of MacDonald CSD in 2006 definition.
- London: addition of Strathroy-Caradoc and Adelaide-Metcalfe CSDs in 2006 definition.
- Sherbrooke: addition of Magog and Compton CSDs in 2006 definition.
- Greater Sudbury: expansion of Greater Sudbury CSD in northeast and southeast of the region in 2006 definition.

Employment Growth and Role of the CBD

In most urban areas, the Central Business District (CBD) contains the largest concentration of employment, usually around 10 to 20% of the region's employment as shown in Exhibit 4.5. It should be noted that Calgary and Edmonton's CBD definitions changed in 2006.

In recent years, the role of the CBD in accommodating new employment growth has been declining in several urban areas, which implies a decentralization of employment. Notable exceptions are Vancouver, Calgary and Kingston, which saw increases in the proportion of employment located in their CBDs.

The absolute magnitude of the changes over a longer period of time is illustrated in Exhibit 4.6. In all cases, growth in employment in the CMA has greatly outpaced growth in employment in the CBD, and in over half of the urban areas shown, there has been little or no growth in CBD employment. This trend has implications for transit in that most transit systems are focused on the CBD. With a decentralization of employment, cities must look at ways to broaden the coverage and directness of routing for transit to non-CBD employment destinations.

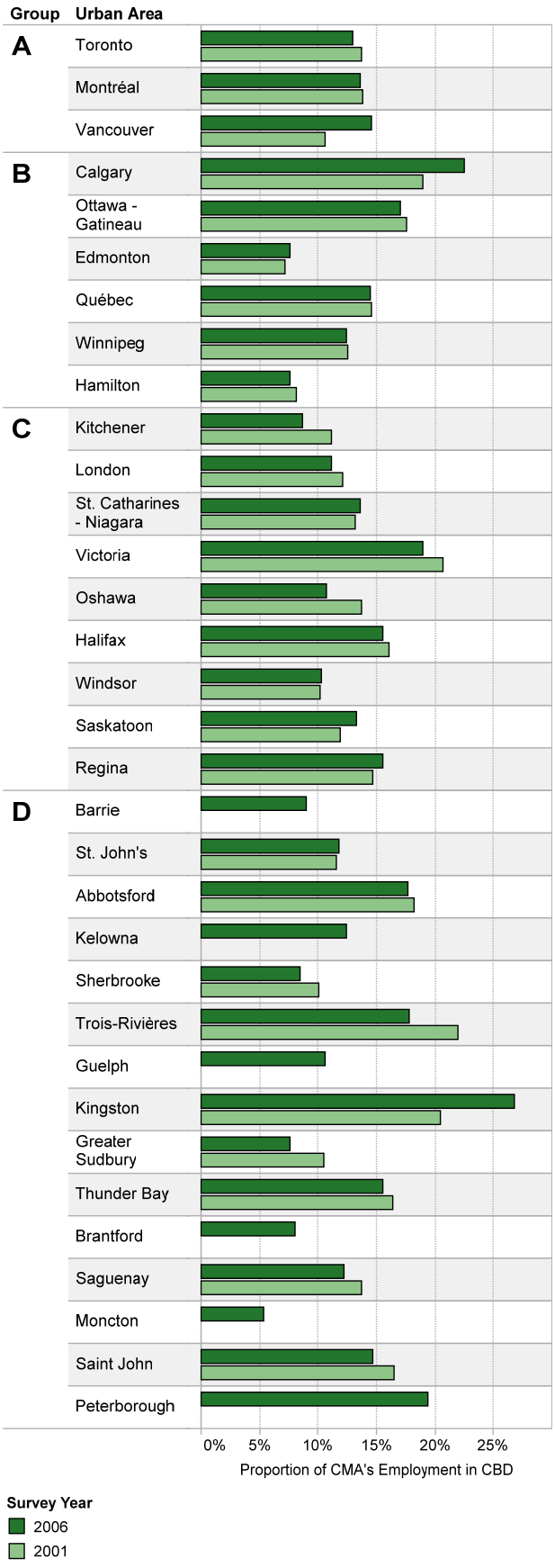


Exhibit 4.5: Proportion of Employment in CBD, 2001-2006 [8]

[8] Calgary, Edmonton CBD definitions changed in 2006. See footnote on changes to CMA definitions. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

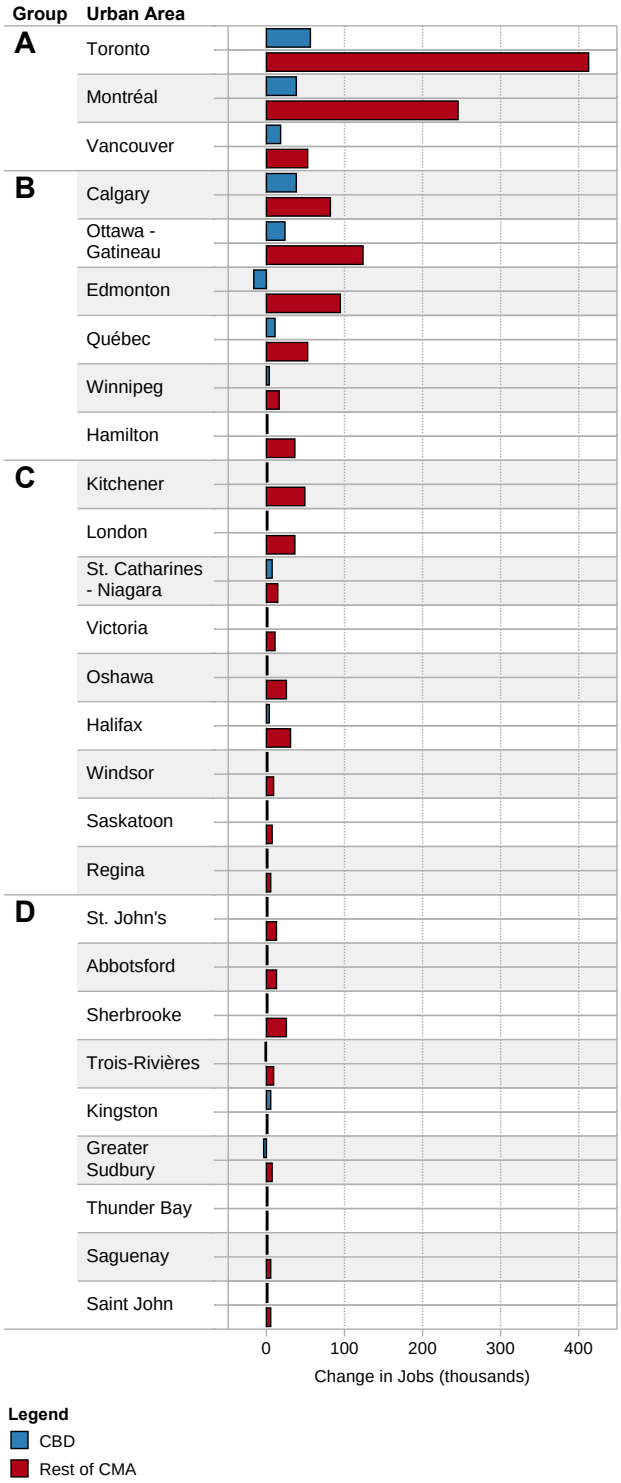


Exhibit 4.6: Change in CBD Employment versus Rest of CMA, 1996-2006 [9]

[9] Calgary, Edmonton CBD definitions changed in 2006. See footnote on changes to CMA definitions. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

Population Growth and Role of the Central Area

A much talked about trend in some urban areas is the apparent increase in residential development in downtown areas. Exhibit 4.7 shows the change in population in the CA and the rest of the CMA for CMAs that have not changed their CA geographic boundaries and were CMAs in previous years. Data shown in Exhibit 4.7 confirm this trend of high residential development for downtowns in cities such as Vancouver and Toronto, where the downtown skylines are dotted with cranes. In Toronto and Vancouver, as well as Victoria and Regina, the rate of growth in population in the Central Area has actually been higher than in the CMA as a whole. However, most of the CMAs in Exhibit 4.7 show the opposite trend: a greater percentage growth in the rest of CMA than in the Central Area.

From a transportation perspective, growth in central area population is an interesting trend to watch. In many urban areas, policies have been put in place to promote residential growth within or near downtown cores as a means of reducing trips into the central area – i.e. the rationale being that those who live in the downtown are also likely to work in the downtown and be able to walk or cycle to work. People living in downtown environments are also more likely to be able to take advantage of emerging opportunities such as car-share programs, thereby reducing their need to own an automobile. In some smaller urban centres, policies to encourage downtown living are also seen as a way to revitalize retail areas and increase pedestrian activity.

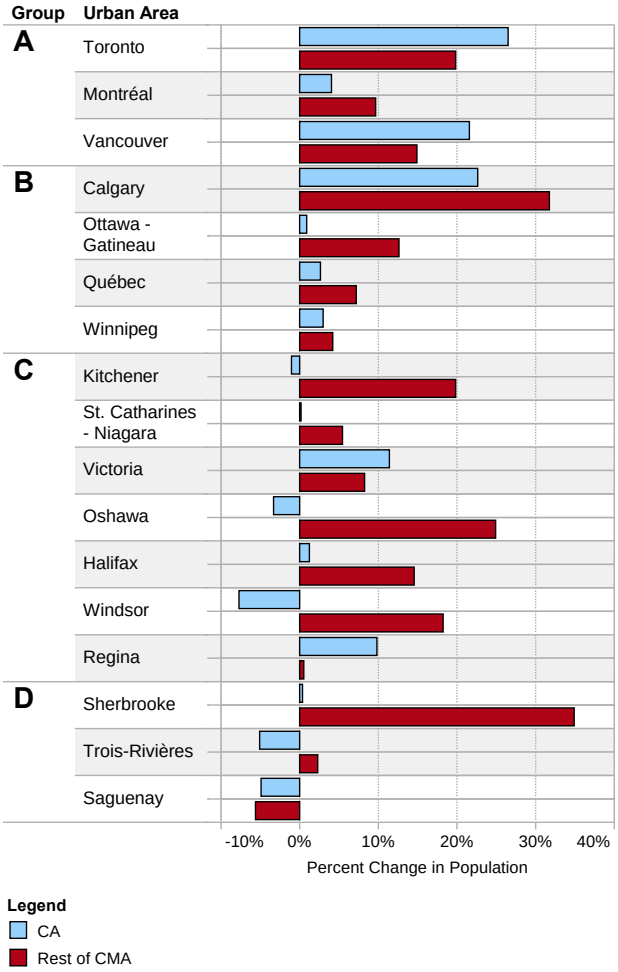


Exhibit 4.7: Percent Change in CA Population versus Rest of CMA, 1996-2006 [10]

[10] Edmonton, Hamilton, London, Saskatoon, St. John's, Abbotsford, Greater Sudbury, Kingston, Thunder Bay and Saint John changed their CA definition in 2006. See footnote on changes to CMA definitions. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

4.2 Urban Densities

Planning for increased densities and more mixed land use was a key principle of TAC's New Vision for Urban Transportation in 1993 and remains so today. The principle, as stated in the Vision, "will reduce dependence on the private auto, shorten trip lengths and encourage modal shifts to walking, cycling and transit."

Note that for Exhibit 4.8 and Exhibit 4.9, 2006 EUA boundaries were used to estimate the 2001 EUA populations and employment.

As shown in Exhibit 4.8, urban density in 2006 ranged from 4,000 persons plus jobs per square km^2 in Toronto, to 540 per km^2 in Thunder Bay. While urban density does not appear to be directly related to city size, there is a marked difference between larger regions (Groups A to C) and smaller-sized urban areas (Group D), with all EUAs in Groups A to C having an urban density greater than 1,000 persons plus jobs per km^2.

Overall, Exhibit 4.8 shows an increase in urban density between 2001 and 2006 for almost all CMAs; London, Thunder Bay, and Kingston noted decreases. Toronto continues to have the highest EUA employment density (1,330 jobs per km^2) and population density (2,670 persons per km^2). In contrast, all other CMAs have employment densities below 1,000 jobs per km^2 and population densities below 2,000 persons per km^2.

The relative changes in EUA population and employment densities are shown in Exhibit 4.9. Kitchener and Trois-Rivières had the highest increases in EUA employment density, both above 40%. On the other hand, London, Halifax, Sherbrooke, Kingston, Thunder Bay, Saguenay and Saint John note a decrease in EUA population densities. Many of the other CMAs show changes in EUA employment and population densities of less than 20%. For the majority of CMAs, especially the larger ones in Groups A to C, the growth rates for employment densities were higher than the population rates; some more than double.

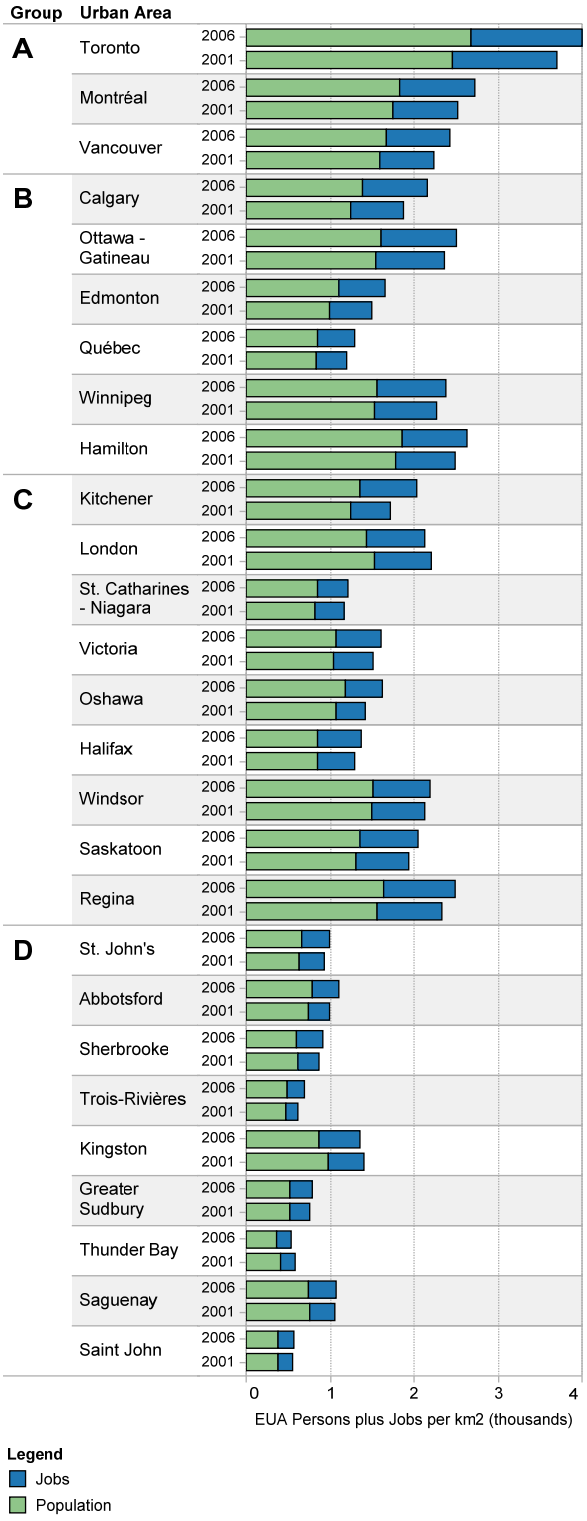


Exhibit 4.8: EUA Urban Density (Population + Jobs), 2001-2006[11]

[11] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

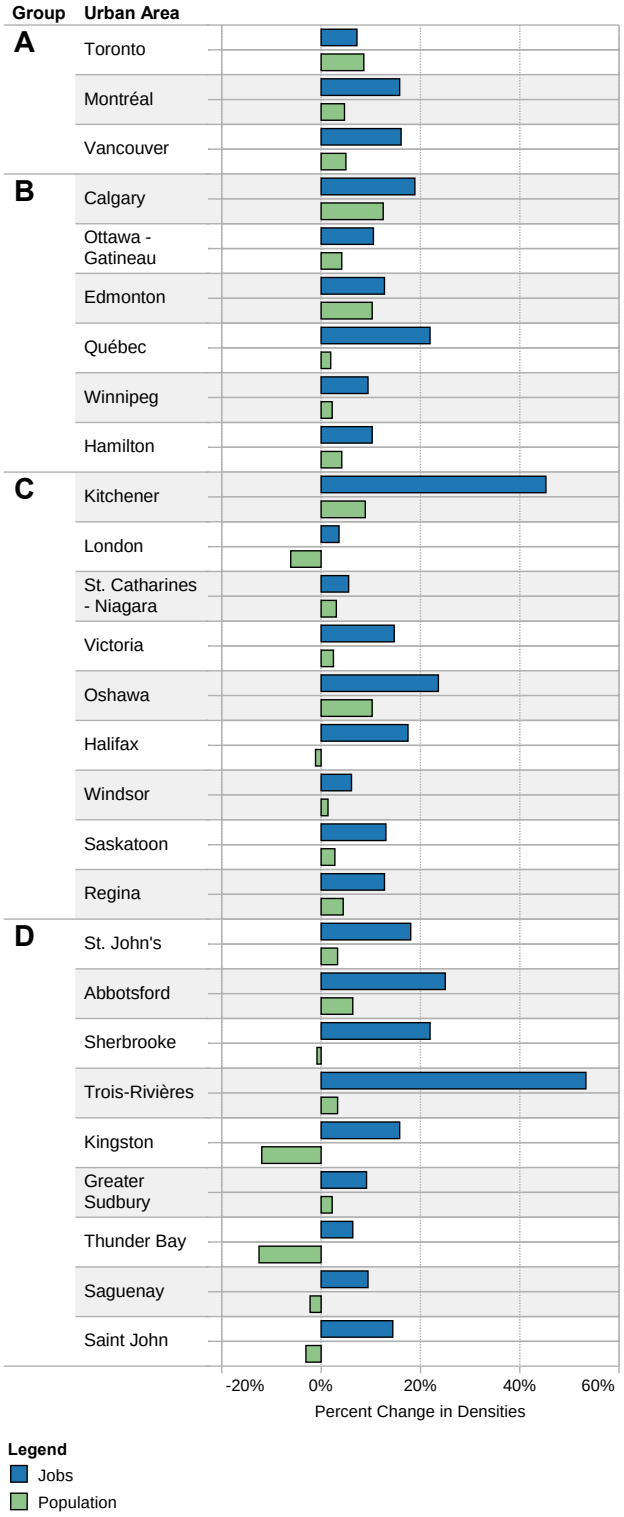


Exhibit 4.9: Percent Change in EUA Densities, 2001-2006[12]

[12] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

5. Overall Transportation Activity and Impacts

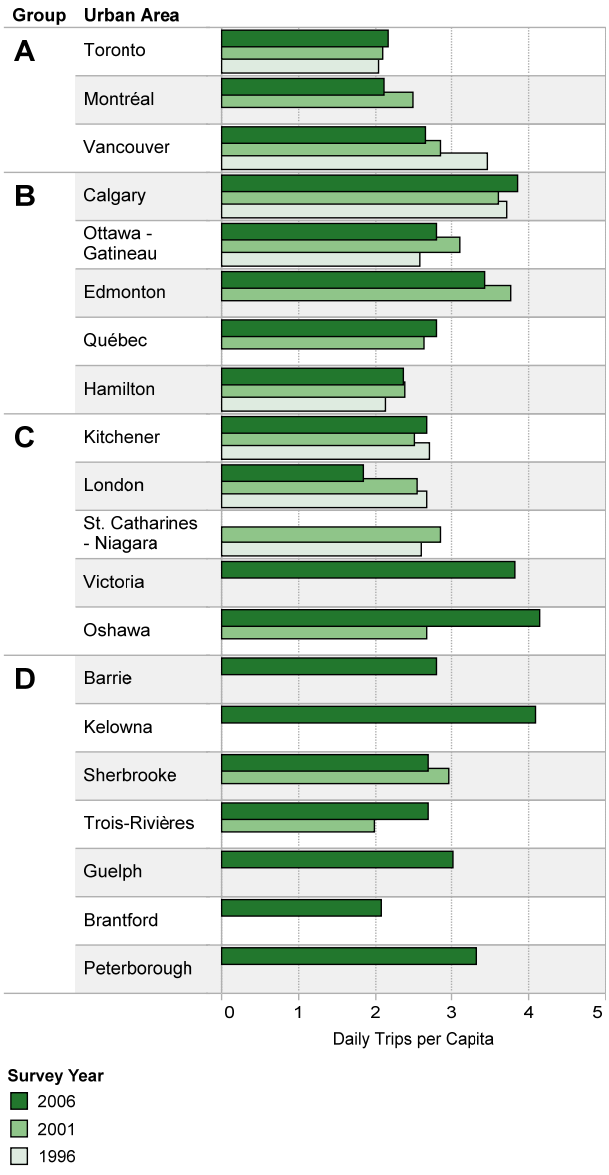


Exhibit 5.1: EUA Daily Trips per Capita, 1996-2006 [13]

5.1 Trip Making

Exhibit 5.1 shows the daily trips per capita based on 24 hour trip totals. The trip data vary considerably among regions due in part to differing methods of defining a trip and conducting travel surveys. Typically travel surveys and the transportation demand models used to generate these data tend to under-represent non-motorized trips, thus it is not surprising that the urban areas exhibiting lower trip rates also tend to have lower non-motorized mode shares. Trends are difficult to discern, although Vancouver and London show consistently decreasing trip rates, while trips in Toronto are increasing slightly.

Journey-to-work distances by CMA were derived from Statistics Canada 2006 Census data. These are shown in Exhibit 5.2. Toronto, Oshawa, and Barrie stand out for their high median commuting distances, which in the case of Oshawa exceeds 10 km. As low-density urbanization continues to expand, most CMAs show steady increases in commuting distances, particularly St. Catharines - Niagara, Oshawa, Windsor, and Saguenay. Notably, Vancouver, Victoria, Abbotsford, Sherbrooke, and Saint John, NB show decreasing trends.

Exhibit 5.3 illustrates median commute trip distance in the EUA provided by survey respondents. The results for median commuting distances within existing urban areas (EUAs) are less consistent than those for CMAs. Most cases of CMAs with 2006 data show very different trends from that of their corresponding CMAs. For many CMAs, the considerable differences between survey years suggest the possibility of inconsistencies in reporting.

[13] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001. Québec did not participate in 1996 survey.

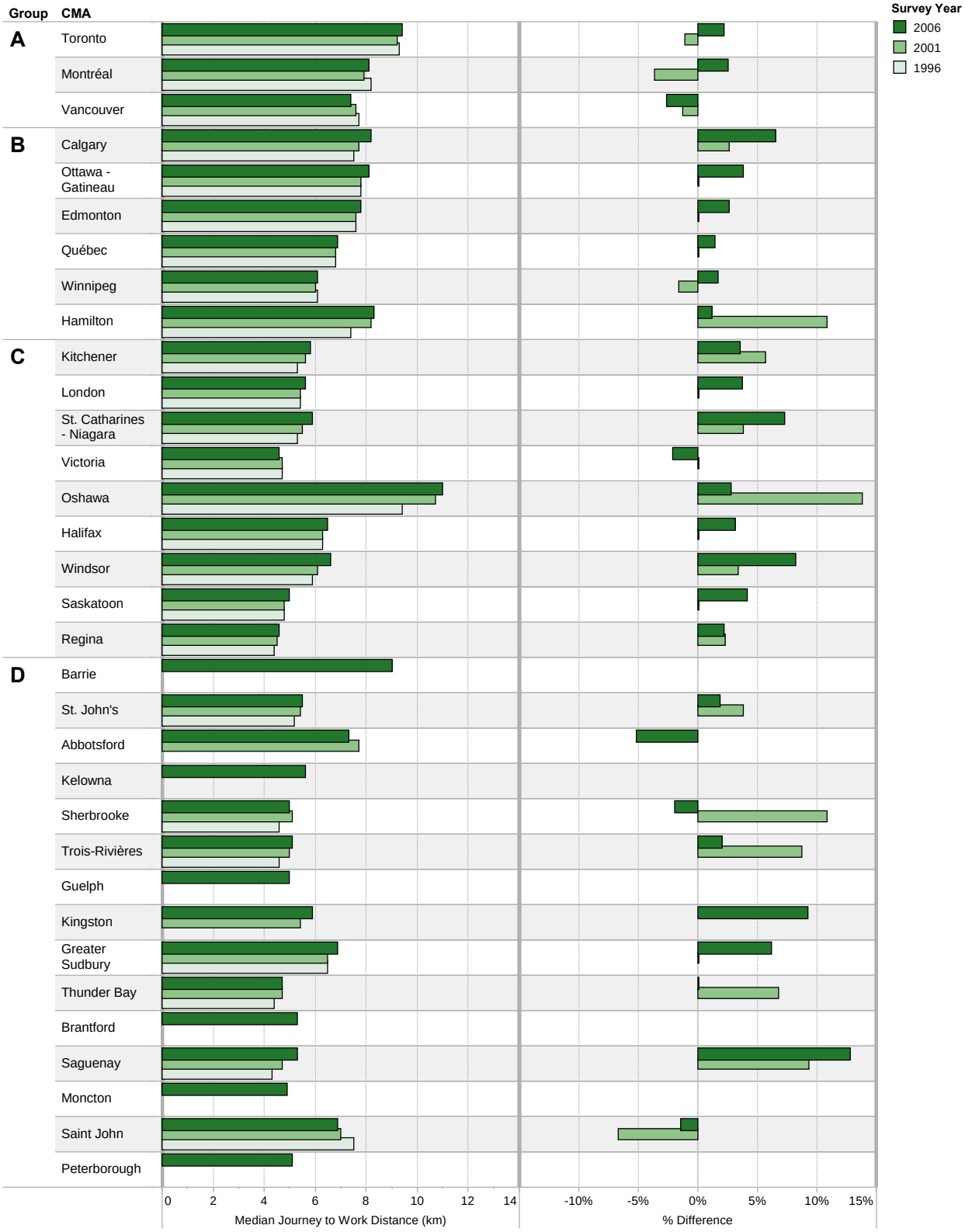


Exhibit 5.2: Median CMA Journey-to-Work Trip Distances, 1996-2006 [14]

Source: Statistics Canada

[14] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

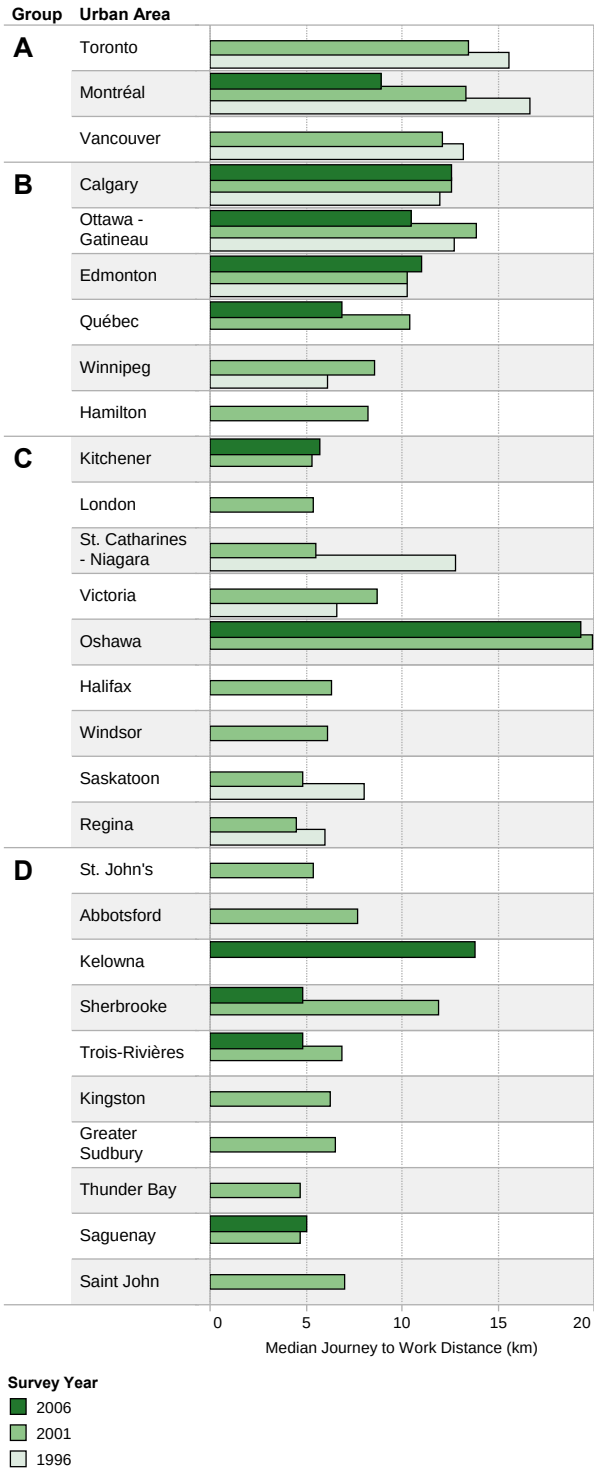


Exhibit 5.3: Median EUA Journey-to-Work Trip Distances, 1996-2006 [15]

5.2 Modal Shares

Exhibit 5.4 shows the mode shares for EUA daily trips in 2006. For this exhibit as well as Exhibit 5.5, auto mode shares include shares reported as "Other (taxi, motorcycle, etc.)" by the urban areas.

As expected, the larger urban areas continue to show the highest transit mode shares, although Ottawa-Gatineau and Winnipeg also have relatively high levels of transit use (see Exhibit 5.4). Victoria and Calgary appear to have the highest levels of walking and cycling at approximately 15 percent each. However, definitions for walking and cycling trips vary considerably between datasets (and regions), thus comparing active transportation levels across urban areas is problematic.

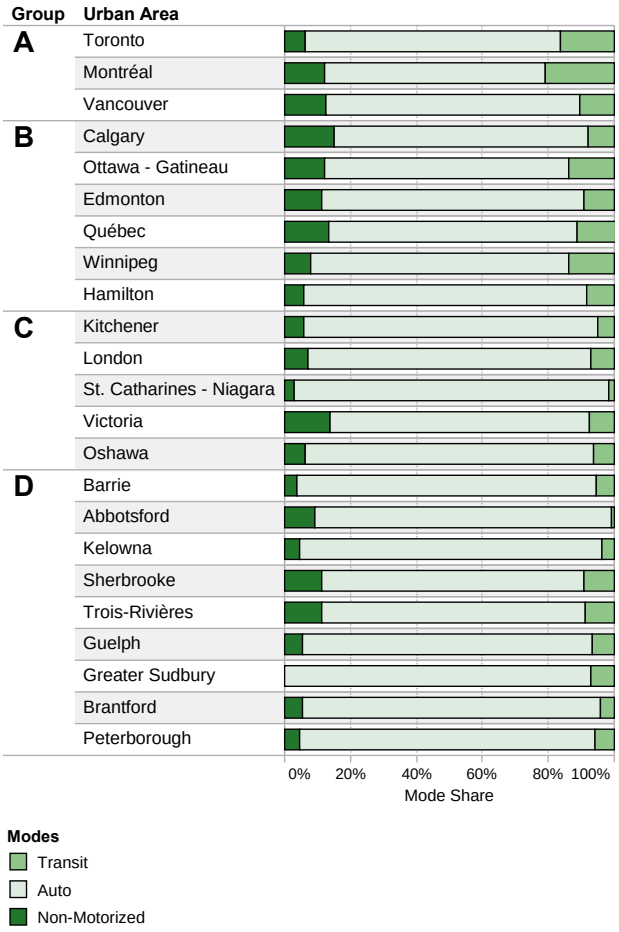


Exhibit 5.4: EUA Mode Shares for Daily Trips (24-h), 2006 [16]

[15] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001. Québec did not participate in 1996 survey.

[16] Data are missing or incomplete for the omitted EUAs.

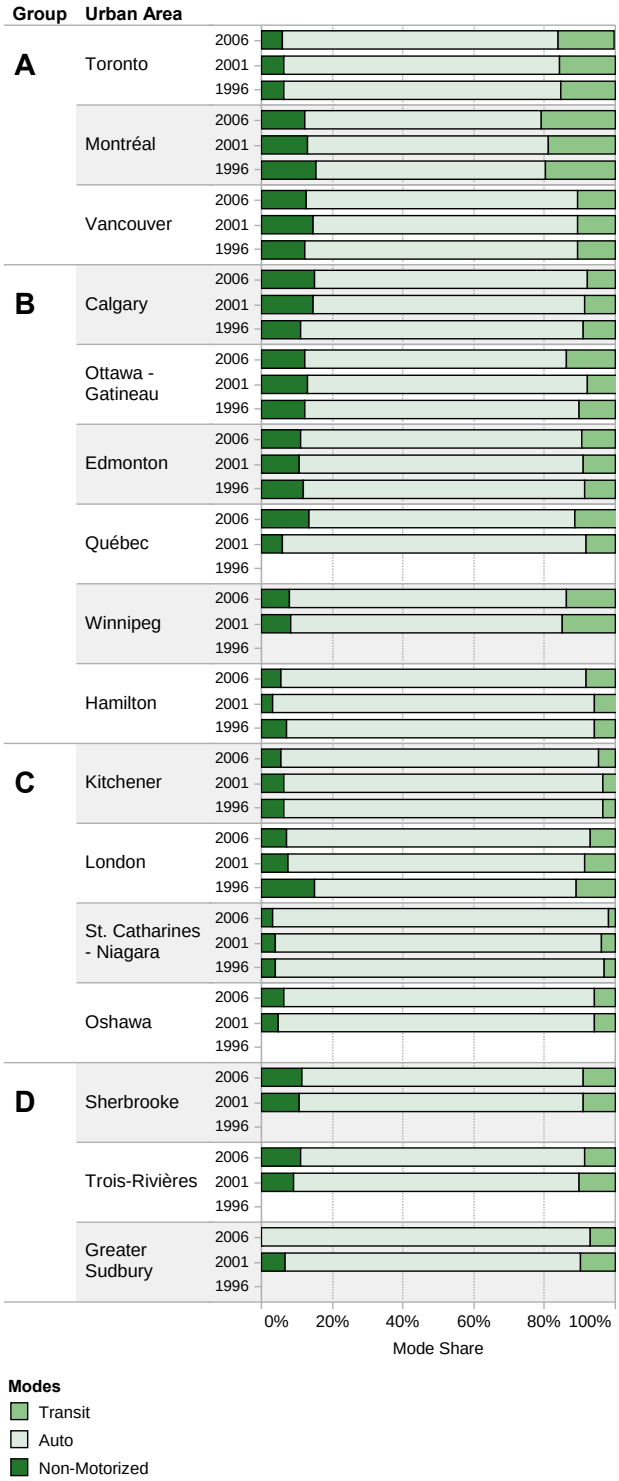


Exhibit 5.5: EUA Mode Shares for Daily Trips (24-h), 1996-2006 [17]

Exhibit 5.5 shows urban areas with historical data on transit mode share trends at the EUA level. These trends vary from urban area to urban area with most of the smaller urban areas (Groups C and D) showing a decline or marginal change in transit share. Kitchener is the only urban area in these two groups that shows a clear increase in transit share. Among the larger urban areas, Toronto, Montréal, Ottawa-Gatineau, Edmonton, Québec and Hamilton all show slight increases in transit share.

As for non-motorized mode shares in the EUA, only Calgary, Québec, Oshawa, Sherbrooke, and Trois-Rivières show increasing levels of active transportation over the past 5-10 years, although Hamilton doubled its walking and cycling share from 2001.

Census data for CMAs available from Statistics Canada[18] (see Exhibit 5.6) show that active transportation mode shares have remained fairly steady, with Victoria, Halifax and Kingston recording the highest shares of 17%, 11% and 13%, respectively. Victoria also noted the highest increase from 15% in 2001. However, the CMA journey-to-work data in Exhibit 5.6 show only modest changes in the transit mode share relative to 2001. Clearly, the auto mode remains dominant for trips at the CMA scale.

[17] Data are missing or incomplete for the omitted EUAs. Québec did not participate in 1996 survey.

[18] Data on the primary mode of transportation to work. Census table on employed labour force by mode of transportation and place of residence – 20% sample.

Source: Statistics Canada

Exhibit 5.6: CMA Journey-to-Work Mode Shares, 1996-2006[19]

[19] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

As expected, automobile travel clearly plays a much smaller role in the CBDs of denser urban centres (see Exhibit 5.7). Auto mode shares of 2006 trips within CBDs are less than 50% of all such trips only in the five most populous urban areas (Toronto, Montréal Vancouver, Calgary and Ottawa-Gatineau); auto mode shares are larger in the CBDs of smaller CMAs, in the 80-90% range for the Group C and D CMAs shown in Exhibit 5.7. Toronto and Montréal show particularly high transit shares in their CBDs, both of which are significantly higher than in 2001. In the other central business districts, transit share remains on par with 2001 levels. Again, active transportation modes shares are problematic to compare across regions, exemplified by the fact that the busy urban centres of Toronto and Montréal report a non-motorized transportation mode share of only around 10%. However, some interesting trends do surface. Ottawa-Gatineau, Edmonton and Québec show very significant increases in active transportation rates in their CBDs.

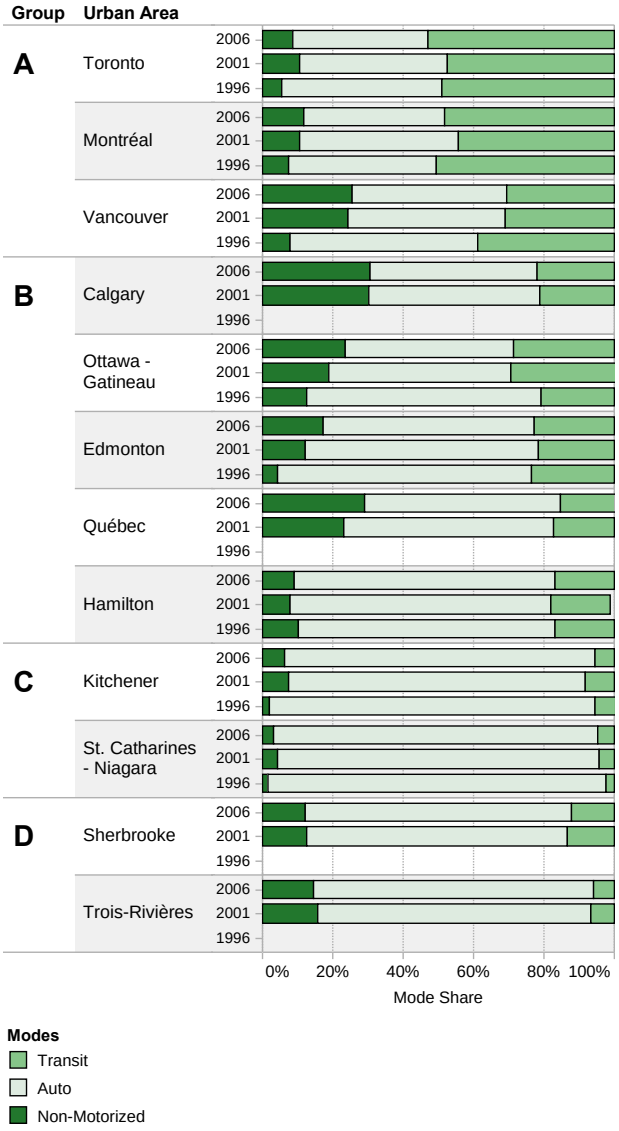


Exhibit 5.7: CBD Mode Shares for Daily Trips (24-h), 1996-2006 [20]

[20] Data are missing or incomplete for the omitted urban areas. Québec did not participate in 1996 survey.

5.3 Safety

Despite a positive small decrease in per capita injuries and fatalities for all of the surveyed urban areas, 2006 data suggest there has been a significant increase since 2001 (see Exhibit 5.8), although these data do not yet include the Toronto urban area. Beyond the devastating consequences of such accidents, these incidents also represent a very real cost burden borne by all Canadians. Based on aggregate national 2004 data and without any transportation-related injuries or fatalities for Toronto, in 2006 these accidents represent $306M of direct and indirect costs[21].

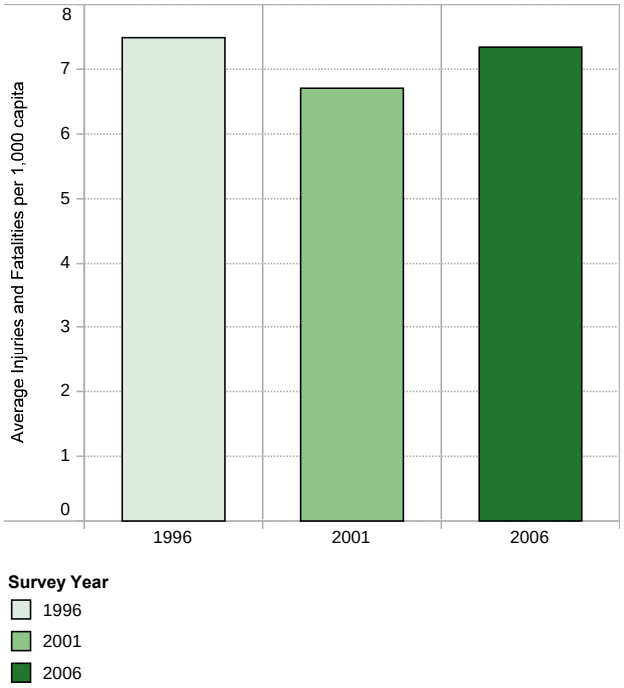


Exhibit 5.8: Injuries and Fatalities per 1,000 Capita

Injuries per 1,000 vehicle-kilometres in 2006 are shown in Exhibit 5.9. As also shown in previous UTI survey years, injuries, and particularly fatalities, vary considerably among urban areas. In 2006, it was as low as 0.05 injuries per 1,000 vehicle-km in St. Catharines - Niagara and as high as 1.3 in Vancouver (see Exhibit 5.10). Comparing injury statistics across urban areas and provinces, however, is particularly prone to methodological issues due to varying definitions of injury and differing reporting requirements. Fatality statistics are less vulnerable to these methodological issues, but there are relatively few cases so that it is difficult to discern any obvious trends across urban areas or survey years.

Comparing injuries per vehicle-km in selected urban areas with stable time series data reveals that injuries per vehicle-km appear to be levelling or decreasing in most cases, except Vancouver, Kitchener, Saskatoon, and Regina (see Exhibit 5.10). For Vancouver, the 2006 figure is so much higher than in previous years likely as the result of methodological inconsistencies, given that 2006 data reported are for Greater Vancouver and Fraser Valley area, which is larger than the region boundaries.

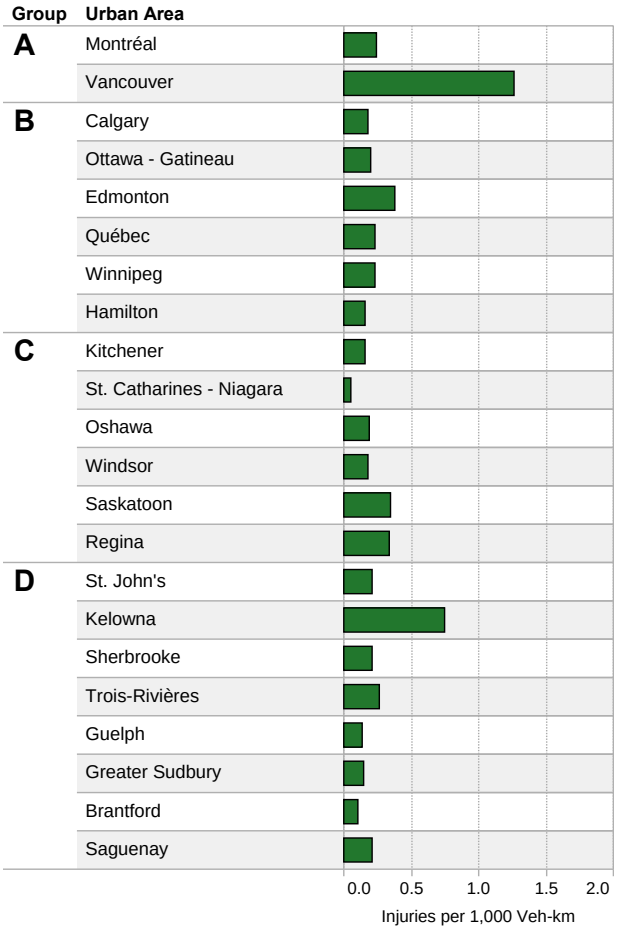


Exhibit 5.9: EUA Injuries per 1,000 Veh-km, 2006
[22]

[21] Adjusted to 2006 dollars. Cost per incident derived from SMARTRISK (2009) The Economic Burden of Injury in Canada. [Accessed September 23, 2009 online: http://www.smartrisk.ca/]

[22] Data are missing or incomplete for the omitted EUAs.

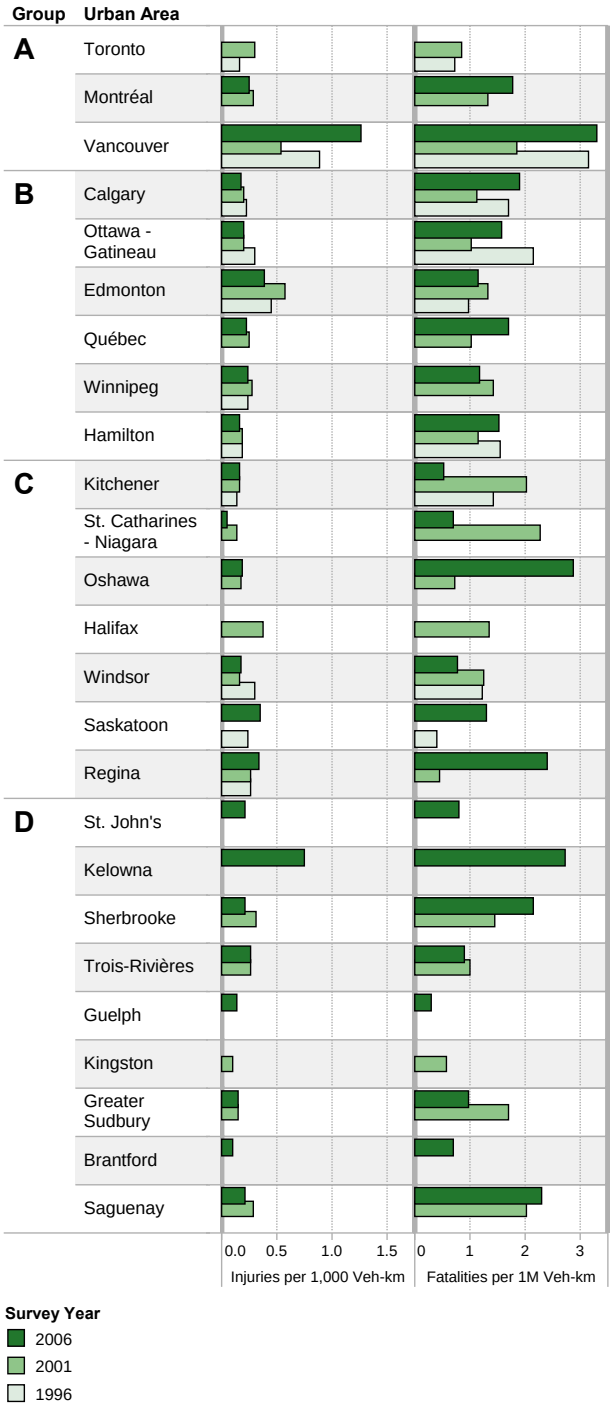
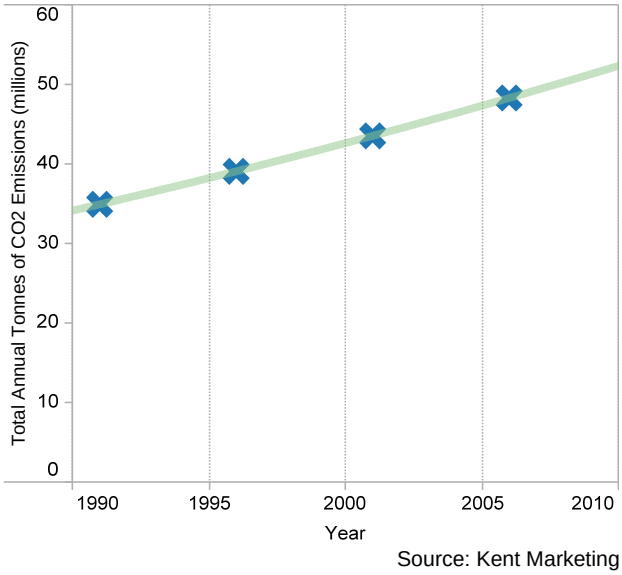


Exhibit 5.10: EUA Injuries and Fatalities per Veh-km, 1996-2006 [23]

[23] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

5.4 Energy and Environment

As with previous surveys, fuel use is the main variable used in this survey to track energy consumption in the transportation sector, which is well correlated with CO_2 emissions. Carbon dioxide is by far the most significant of the transportation sector's greenhouse gases, responsible for approximately 80% of its total greenhouse impact. Environment Canada estimates that the transportation sector is the source of 29 percent of Canada's increase in greenhouse gas (GHG) emissions from human activities since 1990, of which passenger transportation is by far the largest contributor[24]. Although light vehicle engine efficiencies have improved significantly, the popularity of sport utility vehicles, just-in-time delivery by heavy-duty trucks, and increasing average horsepower per private vehicle have worked to offset this gain and overall CO_2 emissions continue to rise, as shown in Exhibit 5.11.



Source: Kent Marketing

Exhibit 5.11: Total Transportation-Related CO_2 Emissions

Exhibit 5.12 shows daily fuel use per capita and annual tonnes of CO_2 emissions per capita. Fuel use data for urban areas were obtained from Kent Marketing for each survey year[25]. Annual tonnes of CO_2 emissions were estimated using a conversion factor of 2.385 kg of CO_2 per litre of gasoline[26].

Although most urban areas show steadily increasing transportation-related CO_2 emissions, as illustrated in Exhibit 5.12, interestingly there are several that show a decrease in 2006: Calgary, Victoria, Regina, Sherbrooke, Thunder Bay and Saint John. Emissions per capita in Oshawa, Halifax, Windsor and Greater Sudbury appear to have increased considerably.

The relative emissions of the various urban areas has not changed much since the 2001 survey, with Victoria residents still showing the lowest per capita transportation-related CO_2 emissions at 1.5 metric tonnes, followed closely by Vancouver and Montréal residents. Residents of smaller urban areas such as Oshawa, Abbotsford and Barrie tended to have the highest per capita emissions at 2.7, 2.9, and 3.6 metric tonnes, respectively.

Despite reductions in GHG emissions for a few urban areas, overall per capita emissions continue to increase and, combined with population increases, this has resulted in a continuing increase in total emissions. Exhibit 5.11 shows estimated total transportation-related GHG emissions for the 33 CMAs across all four survey years, with a projection to 2010. Although trends show improvement over previous projections, these urban regions are now 44.1 percent ***above*** 1990 levels which is well above the Kyoto target of being 6 percent ***below*** 1990 levels.

[24] Environment Canada (2001) 1990-2001 National and Provincial GHG Emissions. http://www.ec.gc.ca/pdb/ghg/inventory_report/2008_trends/trends_eng.cfm#toc_annex_1 [Accessed September 22, 2009]

[25] 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.

[26] Factor from Transport Canada's Urban Transportation Emissions Calculator.

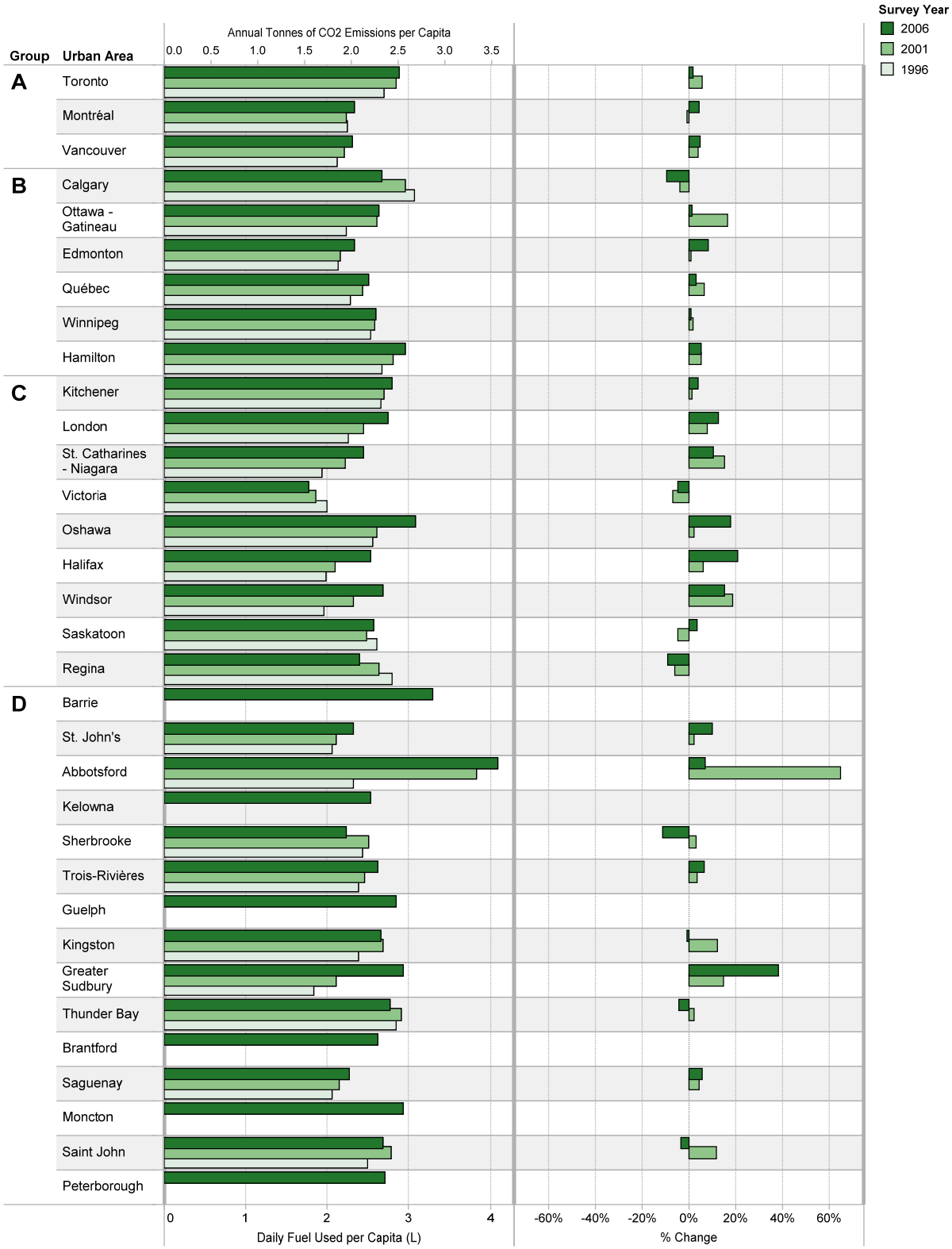


Exhibit 5.12: Daily Fuel Use and Annual CO_2 Emissions per Capita, 1996-2006 [27]

Source: Kent Marketing

[27] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

6. Public Transit

6.1 Transit Demand

Annual Transit Ridership

Annual transit ridership is generally available for all urban areas from annual statistics compiled by the Canadian Urban Transit Association (CUTA). In some cases where CUTA statistics were not available or were not available disaggregated to individual urban areas, ridership data from the respondents or their transit authorities' annual reports were used. Annual ridership statistics for Oshawa includes portions of Durham Region Transit and an estimate of GO Transit. Toronto data for 2006 includes total GO Rail system ridership (the portion of GO rail annual transit ridership applicable to Oshawa could not be disaggregated).

While total absolute ridership is significantly higher in larger urban areas and ridership increases in absolute terms remain the highest among larger urban areas, the relative percentage changes observed by group have been greater for medium to smaller-sized urban areas between 2001 and 2006. Exhibit 6.1 illustrates the absolute and relative changes in total ridership per group (i.e. the sum of annual transit ridership of urban areas in a group). The period of 1996-2001 saw a high growth rate in larger urban areas (Group A) and a low increase in total ridership of smaller urban areas (Groups C and D) – with many regions reporting a decrease in ridership as noted in Exhibit 6.2. However, this trend in growth rates per group has changed for 2001-2006. Total ridership for the three largest urban areas (Toronto, Montréal and Vancouver) continues to increase, but at a lower rate than that observed in 1996-2001 and than the 2001-2006 rates for Groups B and C. In other words, total transit ridership of medium to smaller-sized urban areas grew more rapidly relative to the rate of larger urban areas. Even though Group A reported 89 million more annual trips between 2001 and 2006 and Group C had an increase in annual ridership of almost 18 million in the same time period, Group C's total ridership increased 21% compared to 8% for Group A.

Exhibit 6.2 shows annual transit ridership in absolute terms for 1996 to 2006. Total transit ridership among all 33 regions with available data was over 1.7 billion in 2006. Annual transit ridership is closely tied to region population, with Toronto and Montréal reporting the highest ridership for all three reporting years. All urban areas in Groups A and B reported more than 20 million trips a year in the past decade.

The period from 1996 to 2001 saw some decreases in annual ridership, while almost all urban areas saw an increase in total ridership between 2001 and 2006 (with the exception of St. John's). In some cases (Winnipeg, Windsor, Saskatoon and Kingston), regions have recovered from the ridership loss between 1996 and 2001, reporting 2006 ridership above that of 1996. The highest percentage increases in 2001-2006 were reported by Abbotsford, St. Catharines - Niagara and Edmonton.

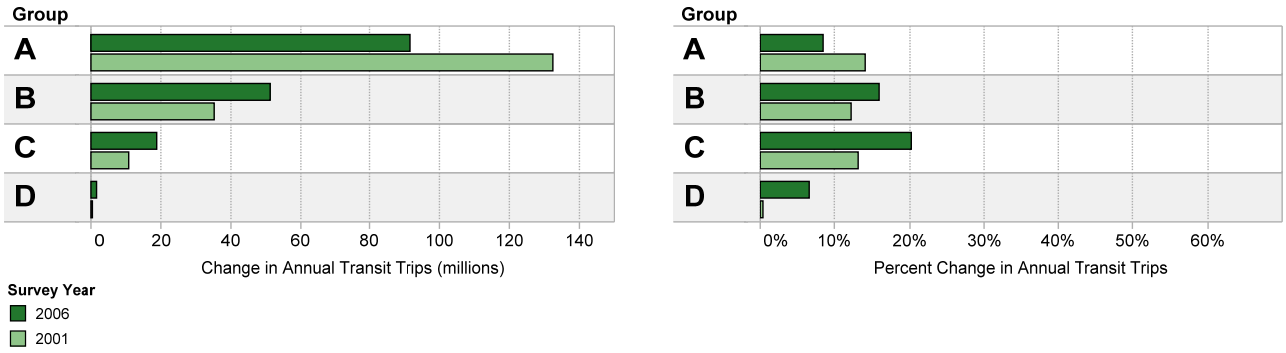


Exhibit 6.1: Changes in Annual Transit Ridership per Group, 1996-2006 [28]

[28] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

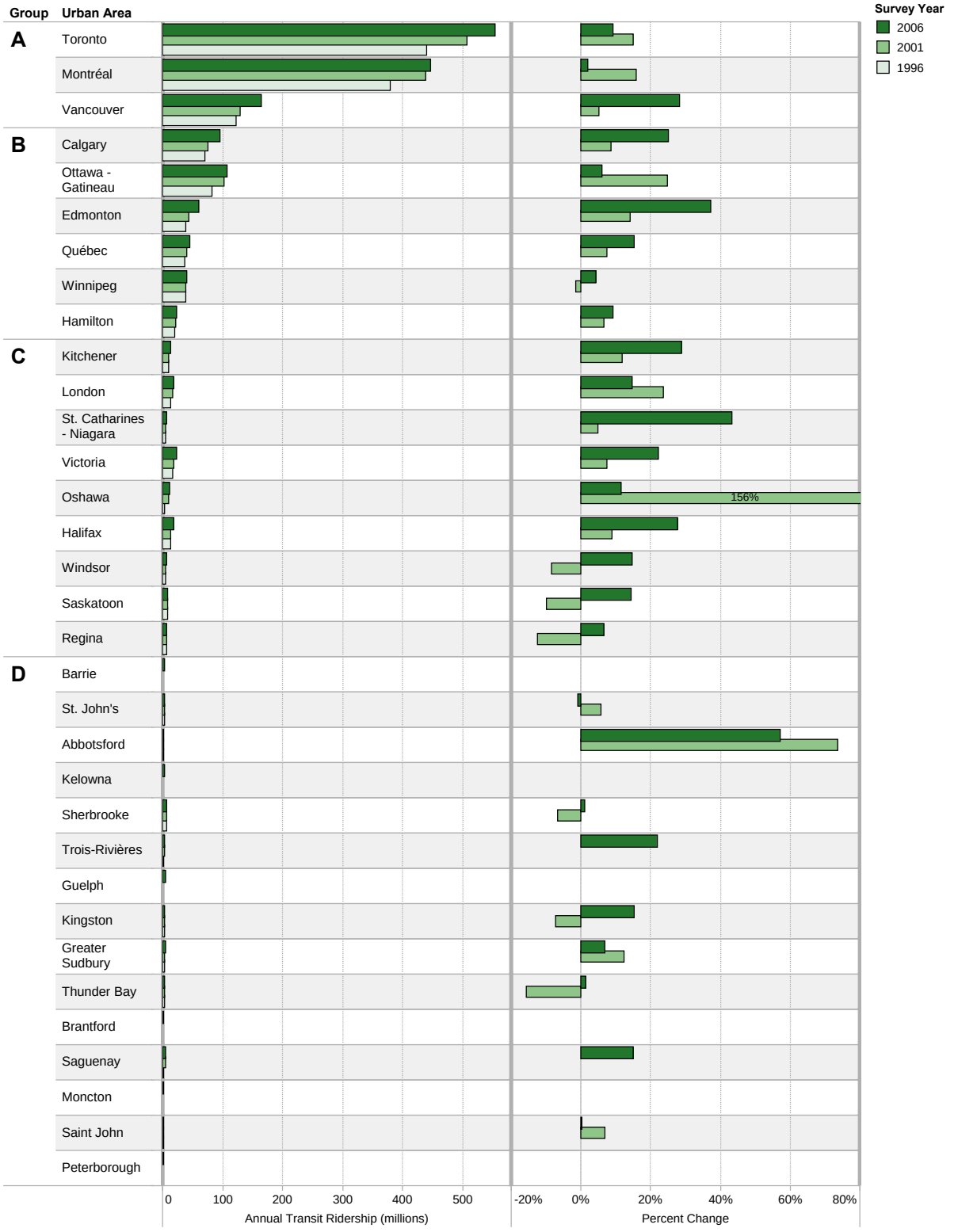


Exhibit 6.2: Annual Transit Ridership, 1996-2006 [29]

[29] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

Annual transit ridership on a per-capita basis and percentage changes are shown in Exhibit 6.3. In 2006, Toronto, Montréal and Ottawa-Gatineau reported the highest levels of per-capita transit ridership, at over 100 rides per person. Changes in ridership per capita were similar to those observed in annual transit ridership (
Exhibit 6.2). High percentage changes were observed for St. Catharines - Niagara, Halifax, Abbotsford and Kingston among the small to medium-sized urban areas, and for Vancouver and Edmonton among the larger urban areas. All regions with decreases in ridership per capita for 1996-2001 reported an increase for 2001-2006, although in some cases transit rides per capita in 2006 remain below those reported in 1996.

It should be noted that the largest percentage increase in transit ridership in the past decade can be seen in Oshawa, with a large spike between 1996-2001 in
Exhibit 6.2 and Exhibit 6.3. This is primarily due to the inclusion of GO rail ridership in the 2001 ridership data number. The majority of transit ridership in the Oshawa region is GO rail ridership, mostly to/from the Toronto CBD. In 2000, GO rail service was upgraded from limited peak-period to all-day service with full service to Whitby, but with only limited weekend and holiday service to Oshawa. Full service was extended to Oshawa in 2006. It should also be noted that, Durham Region Transit was created in 2006, amalgamating service from what were previously individual transit providers.

Journey-to-Work Transit Mode Shares

Transit mode shares for journey-to-work data from Statistics Canada are shown in Exhibit 6.4 for 1996 through 2006. Journey-to-work transit mode shares range from over 20% for Toronto and Montréal, to less than 5% for more than half of the urban areas – mostly those that are smaller in population – generally decreasing with population. Transit mode shares in 2006 for the five most populous areas exceeded 15%. Exhibit 6.4 also illustrates the changes in journey-to-work transit mode shares for the 1996-2001 and 2001-2006 time periods. Vancouver, which had seen a decline from 1996-2001 due in part to the transit strike in 2001, reported the highest increase in transit mode shares (from 11.5% to 17.2%, a 50% increase). Other urban areas reporting an increase in transit mode share greater than 2% include Calgary and Halifax. Oshawa reported a decrease of 3% in transit mode shares. The remaining regions remained relatively the same (change less than 2%). There does not appear to be a consistent trend between transit ridership changes (Exhibit 6.3) and changes in journey-to-work transit mode shares.

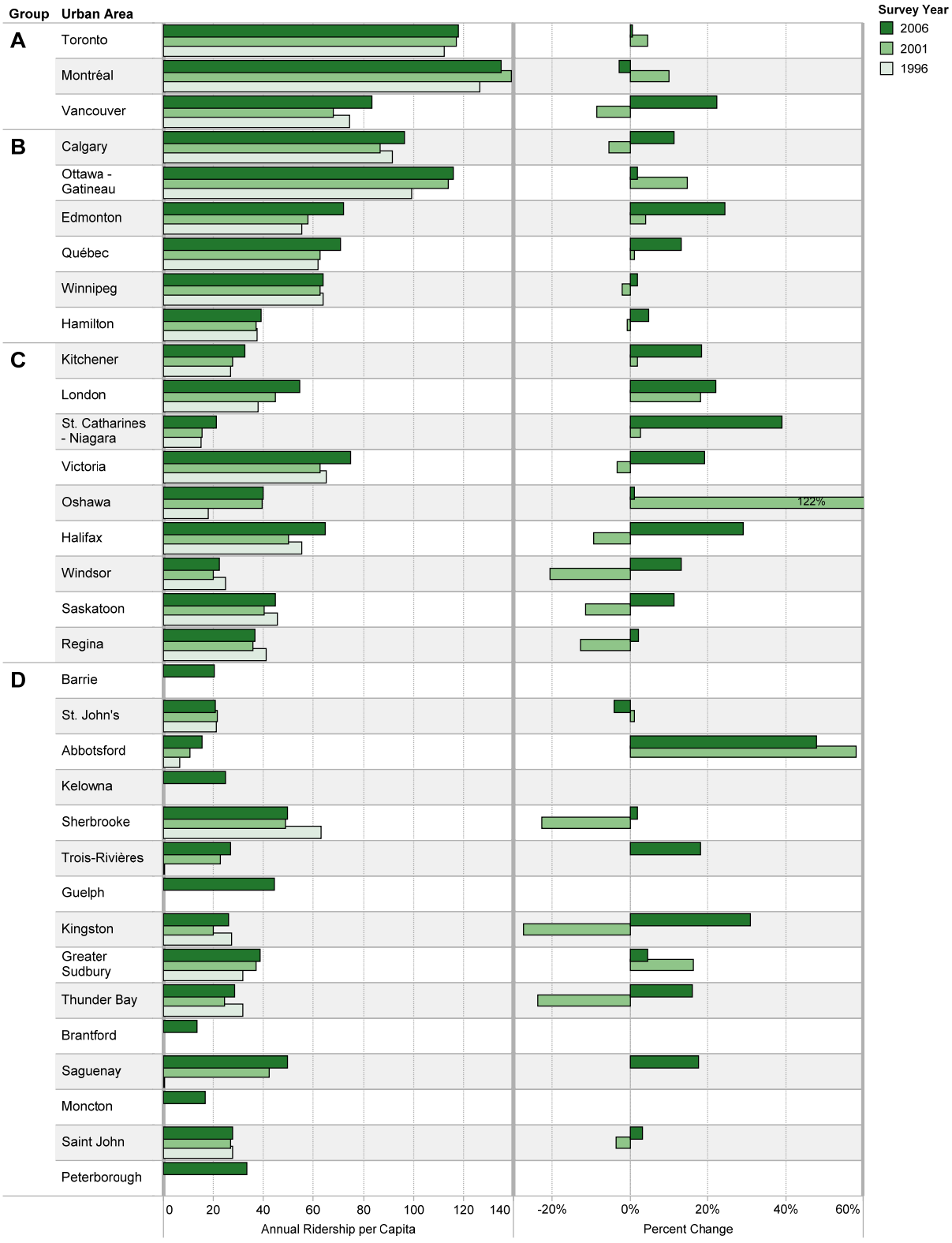


Exhibit 6.3: Annual Transit Rides per Capita, 1996-2006 [30]

[30] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001.

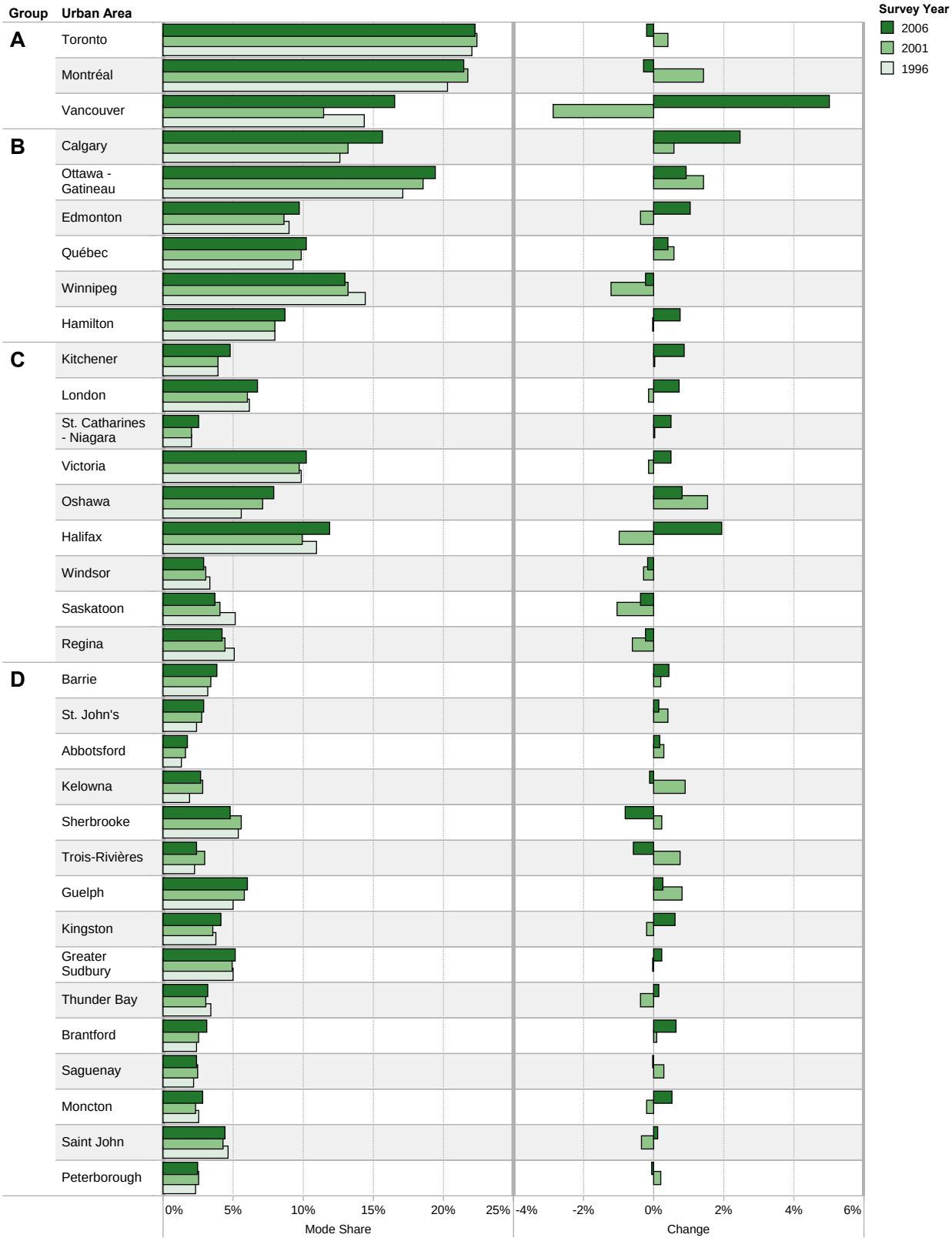


Exhibit 6.4: CMA Journey-to-Work Transit Mode Shares, 1996-2006

Source: Statistics Canada

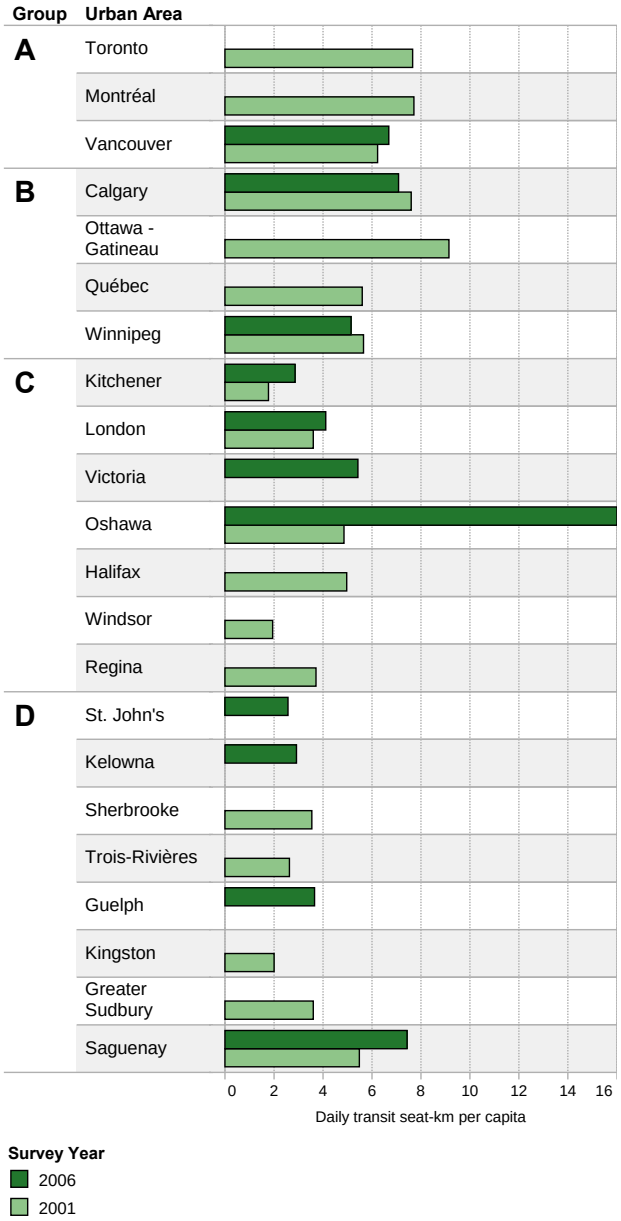


Exhibit 6.5: Daily Transit Seat-km per Capita, 2001-2006 [31]

6.2 Transit Supply

Transit Seat-km

For Exhibit 6.5 and Exhibit 6.6, 2006 EUA boundaries were used to re-estimate 2001 populations.

Exhibit 6.5 shows reported transit seat-kilometres per capita in 2001 and 2006. Of the 11 urban areas with 2006 data, 4 reported having more than 6 transit seat-kilometres per capita. The trend remains that the larger urban areas tend to provide more transit seat-km on a per capita basis, although only 2 of the 5 most populous urban areas reported transit seat-km data in 2006. Data provided by Montréal and Ottawa-Gatineau have been excluded as data were provided in vehicle-km and for Ottawa only, respectively. Among CMAs with both 2001 and 2006 data, 5 reported an increase in transit seat-km per capita (Vancouver, Kitchener, London, Oshawa, and Saguenay), while the remaining 2 (Calgary and Winnipeg) show a decrease. The increases for these 5 urban areas appear to be well correlated with changes in annual transit ridership per capita (Exhibit 6.3), although supply and demand changes for Winnipeg were very minor. The figure for Oshawa in 2006 includes Durham Region Transit and GO Transit, which accounts for the high value of transit seat-kilometres.

Exhibit 6.6 illustrates transit seat-kilometres for 5 regions with available data for 1996, 2001 and 2006. The results have not been consistent. While half of the urban areas reported an increase and the other half reported a decrease, only Kitchener had a change greater than 1.0 transit seat-km per capita.

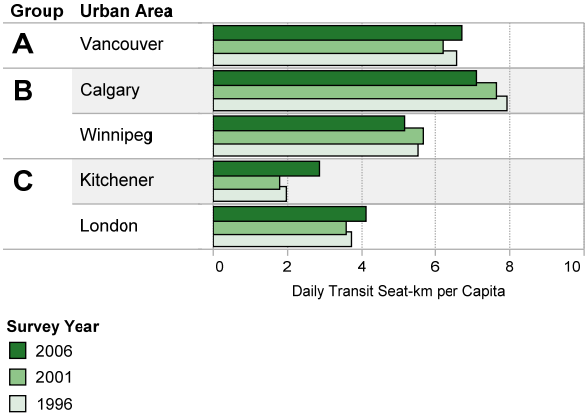


Exhibit 6.6: Daily Transit Seat-km per Capita for Selected Cities, 1996-2006

[31] Data are missing or incomplete for the omitted urban areas. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001. Exhibit excludes Ottawa-only data provided for 2006.

Park-and-Ride

Exhibit 6.7 shows the number of designated park-and-ride spaces per capita in the EUA for 1996 to 2006. Population (per capita) for 1996 and 2006 was estimated using 2006 EUA boundaries. Eighteen (18) urban areas provided information in the 2006 UTI survey, with 9 of these reporting zero park-and-ride spaces (Kitchener, Windsor, Saskatoon, Regina, St. John's, Kelowna, Greater Sudbury, Trois-Rivières and Guelph).

The six most populous CMAs (with more than 1 million residents) have more than 3 park-and-ride spaces per 1,000 capita. This is directly attributed to the fact that these urban areas are the only ones with a rapid transit system that supports the need for greater park-and-ride facilities. Although Toronto did not report data in 2006 and Ottawa-only data has been excluded, park-and-ride facilities are known to be available in Ottawa and from the Toronto Transit Commission, GO Transit and other local transit services in the Toronto area. Park-and-ride counts in 2006 for Ottawa alone were over 4,800, and Toronto data reported in 2001 exceeded 43,000 park-and-ride spaces. The one exception is Oshawa with 14.6 park-and-ride spots per 1,000 capita, which are associated with the GO rail system service between Oshawa and Toronto. Montréal reported the highest number of park-and-ride spots in 2006 – 28,000 – which represents an increase of almost 10,000 spaces since 2001. Among CMAs with both 2001 and 2006 data, Vancouver and Victoria show a decrease in spaces per capita, while the remaining regions have remained the same or report an increase.

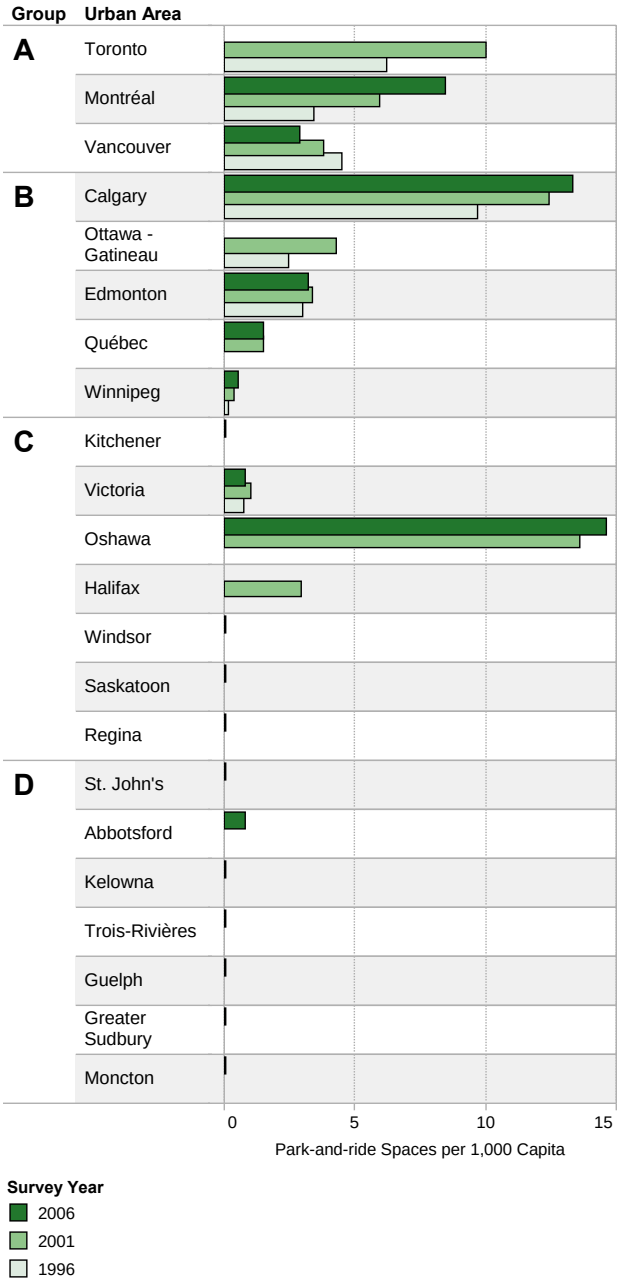


Exhibit 6.7: Park-and-Ride Spaces per 1,000 Capita, 1996-2006 [32]

[32] Data are missing or incomplete for the omitted urban areas. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001. Exhibit excludes Ottawa-only data provided for 2006.

7. Active Transportation

7.1 Walking and Cycling Demand

Exhibit 7.1 shows the commuting mode share for cycling, derived from Statistics Canada 2006 Census journey-to-work data. Victoria shows, by far, the highest cycling rate at 5.8% in 2006, which is a significant increase over the 2001 level of 4.8%, which is already relatively high. Kitchener, St. Catharines - Niagara, and Thunder Bay also show considerable increase in 2006. Interestingly, the only urban area that showed a significant gain in cycling mode share in both 2001 and 2006 was Montréal. Most other urban areas show either relatively little change over time, or steady increases in cycling rates as shown by the difference column. While Vancouver walking and cycling mode shares appear to have declined since 2001, caution is noted due to the transit strike in 2001.

Census data also contain walk mode share, which shows a similar upward trend from 2001 to 2006 after declining rates of walking were highlighted from 1996 to 2001 (see Exhibit 7.2). Nearly every urban area that saw a drop in the mode share of walking commute trips in 2001 saw the trend reverse in 2006. The only two urban areas that continued to show declining rates of walking are Windsor and Saguenay. The proportion of those walking to work in Victoria continued to grow, reaching as high as 11% in 2006, followed closely by two other university towns, Kingston and Halifax.

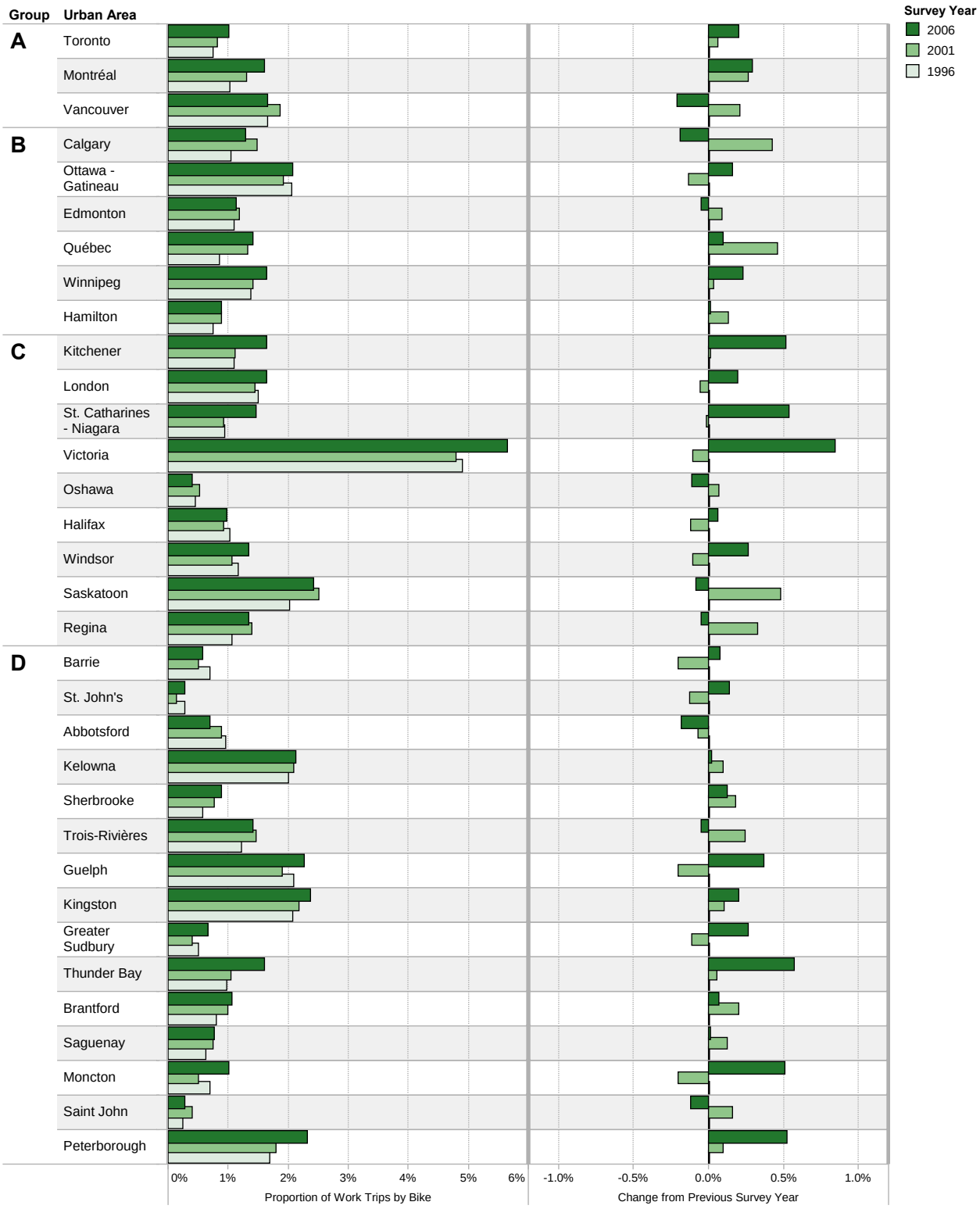


Exhibit 7.1: CMA Journey-to-Work Cycling Mode Shares, 1996-2006

Source: Statistics Canada

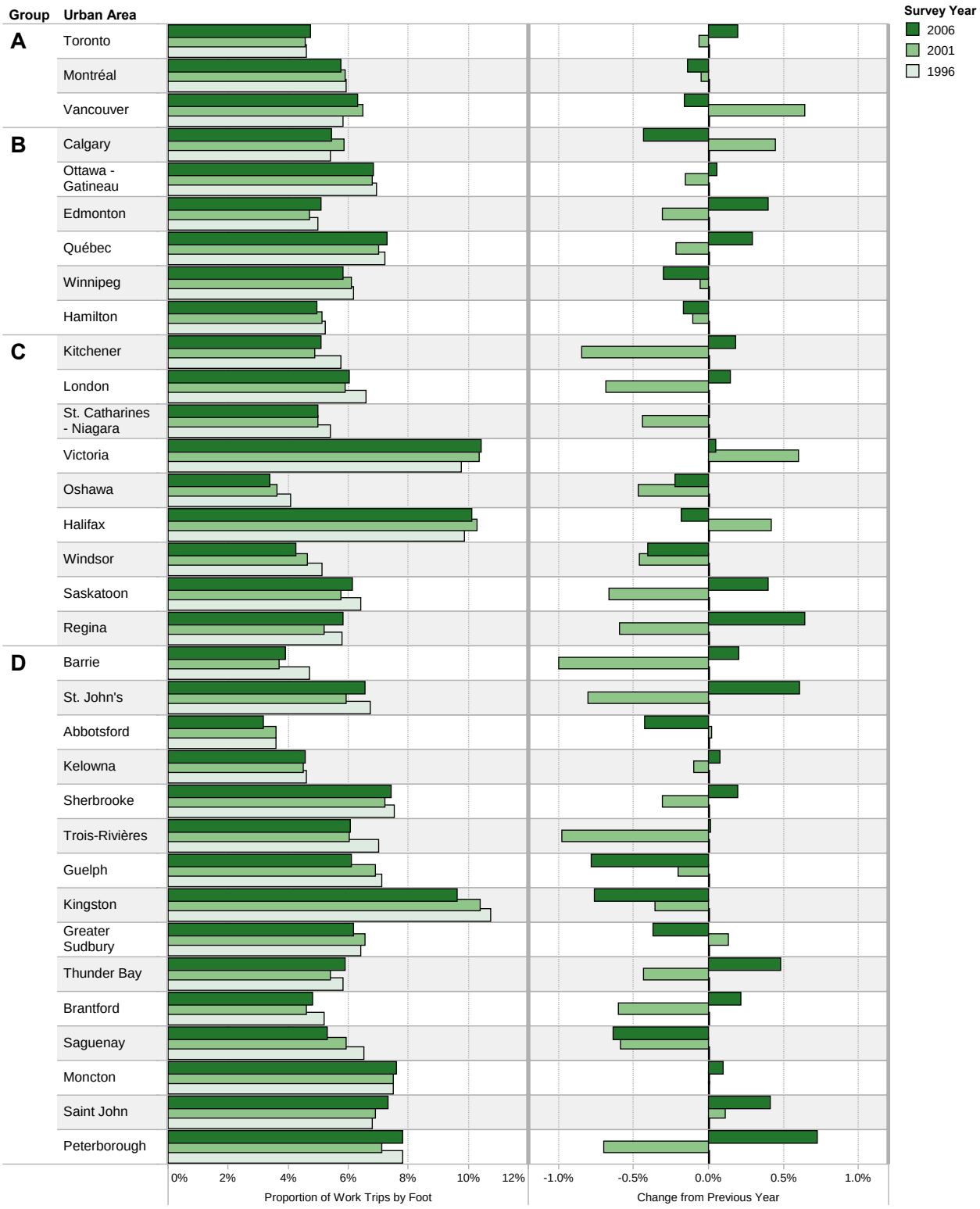


Exhibit 7.2: Walking Mode Share for Work Trips, 1996-2006

Source: Statistics Canada

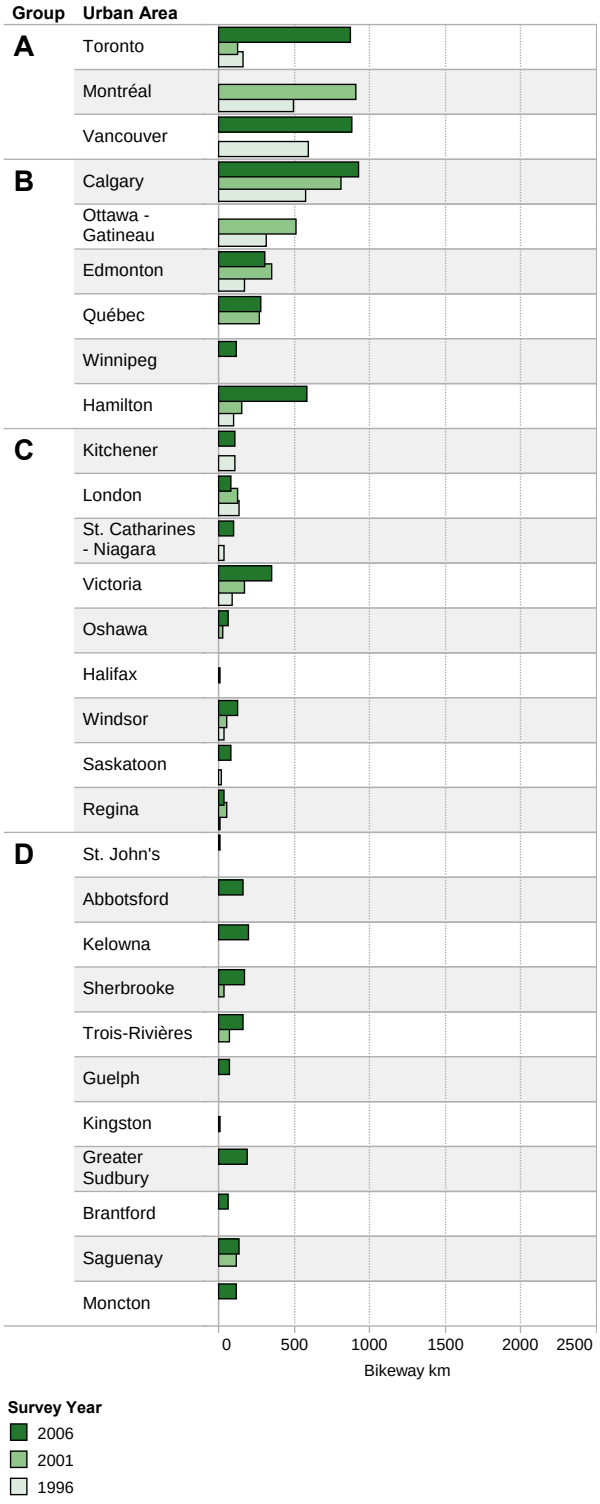


Exhibit 7.3: Total EUA Bikeway Kilometres, 1996-2006 [33]

7.2 Cycling Supply

Exhibit 7.3 shows total bikeway kilometres[34] in the EUA since 1996. In addition, as the 2001 survey distinguished between on-street and off-street facilities, recent trends in the allocation of road space to bike use can be explored.

In 2006, Toronto, Vancouver and Calgary reported relatively high route-kilometres of all types of bikeways, while the majority of urban areas have less than 500 kilometres. Urban areas continue to expand their bikeway facilities, with the exception of Edmonton, London and Regina. In addition, in some cases, such as Toronto, Hamilton, Victoria, and Sherbrooke, the expansion appears to be speeding up dramatically. There is considerable variety in the different types of bikeways, as they include bike boulevards, cycle tracks, bike lanes, bike paths and signed routes among others. As previous surveys collected only very aggregate bikeway kilometre data, there are many uncertainties surrounding data from previous years. For example, Toronto had not included bike path facilities, which may have been the case with Hamilton as well. Similarly, several urban areas showed highly unlikely decreases in the number of route-km, suggesting inconsistencies in analysis methods across survey years. Thus, since the 2001 survey, TAC has aimed to progressively improve the questionnaire to better determine the spectrum of existing bikeway facilities in the urban areas.

Although bikeway data are sparse, 2006 numbers suggest several of the smaller urban areas have been very aggressive in dedicating road space to cyclists, matching as much as 11% and 8% percent of roadway lane-km in Abbotsford and Sherbrooke respectively (see Exhibit 7.4). Hamilton and Victoria stand out among mid-sized urban areas, each matching 5% of roadway kilometres. Unfortunately, among the larger urban areas, only Vancouver was able to provide this information for 2006. In terms of trends, Québec, Hamilton, Sherbrooke, and Trois-Rivières stand out for quickly expanding their networks since 2001. Oddly, Edmonton, Windsor, and Regina appear to have regressed.

[33] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 1996 and 2001. Exhibit excludes Ottawa-only data provided for 2006.

[34] Bikeway kilometres are presented as linear kilometres (i.e. route-km), not lane kilometres.

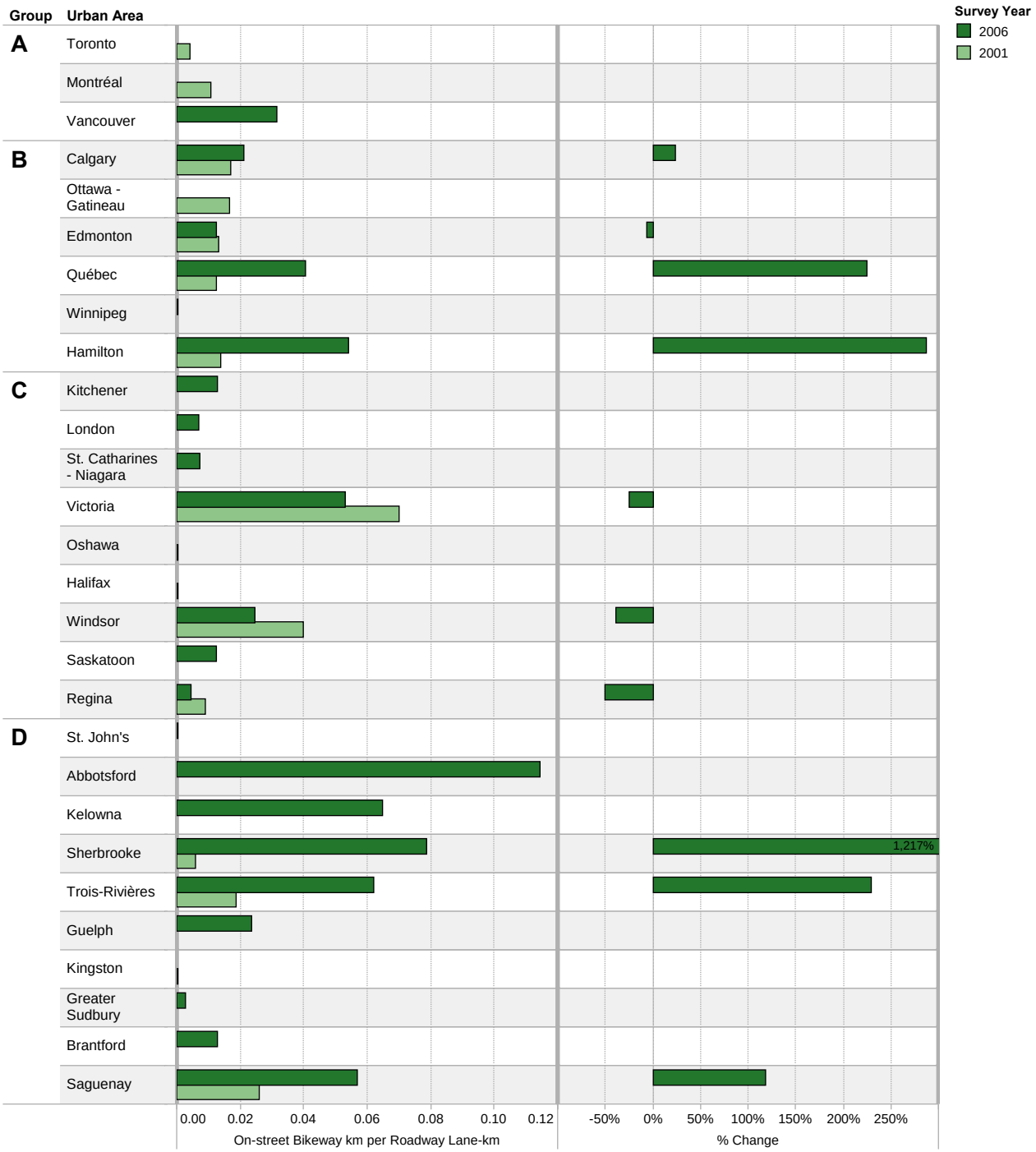


Exhibit 7.4 : EUA Route-km of On-Street Bikeways per Roadway Lane-km, 2001-2006 [35]

[35] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001. Exhibit excludes Ottawa-only data provided for 2006.

In the 2006 survey, the number of categories of bikeway facilities was significantly expanded to begin painting a better picture of the quality of existing facilities. For example, if the basic signed routes are excluded from the totals in Exhibit 7.4, then the facilities provided by Québec, Abbotsford, Kelowna, Sherbrooke, Trois-Rivières, and Saguenay more prominently stand out (see Exhibit 7.5). Since off-street bikeways by definition do not involve re-allocating road space, this form of bikeway supply is compared against urbanized land area (see Exhibit 7.6). For Exhibit 7.6, 2006 EUA boundaries were used to re-estimate 2001 land area for EUAs. Calgary's extensive multi-use trail network is the densest among all urban areas. As with on-street bikeways, several of the smaller urban areas also stand out for having high densities of off-street facilities.

The number of urban areas showing a significant increase in their density of off-street bikeways over 2001 levels is very encouraging. Hamilton, Oshawa, Windsor and Sherbrooke all show remarkable increases over their 2001 densities of off-street bikeways. This positive picture for off-street bikeways (such as multi-use trails) may be the result of growing interest in providing cycling facilities, and may also result from significant socio-political and institutional barriers exist to reallocating precious road space.

New to the 2006 survey, respondents were also asked to identify the number of full-time equivalent municipal staff dedicated to bike and pedestrian projects, which is illustrated in Exhibit 7.8. Clearly this is a challenging number to determine where many staff are involved in active transportation projects to varying degrees, spanning projects in many departments such as parks and recreation, policy planning, transportation planning, community planning, urban design, infrastructure management, and traffic management. For example, data for Toronto and Vancouver are only for the City of Toronto and for the City of Vancouver and TransLink, respectively. In general, the idea was to determine how many full time equivalent staff were being used in 2006 per 100,000 capita for explicitly pedestrian or bike projects. Smaller urban areas again stand out for dedicating relatively high per-capita resources to active transportation, particularly in Kelowna (see Exhibit 7.8).

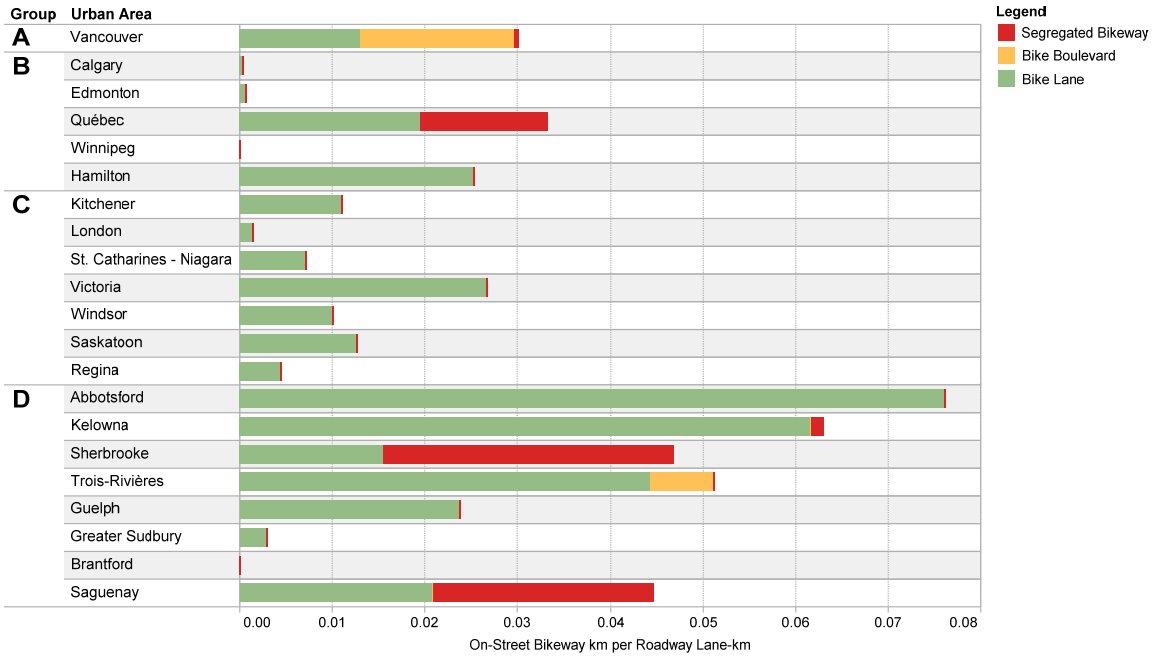


Exhibit 7.5: Categorized Route-km of On-Street Bikeways per Roadway Lane-km, 2006 [36]

[36] Data are missing or incomplete for the omitted urban areas. Exhibit excludes Ottawa-only data provided for 2006.

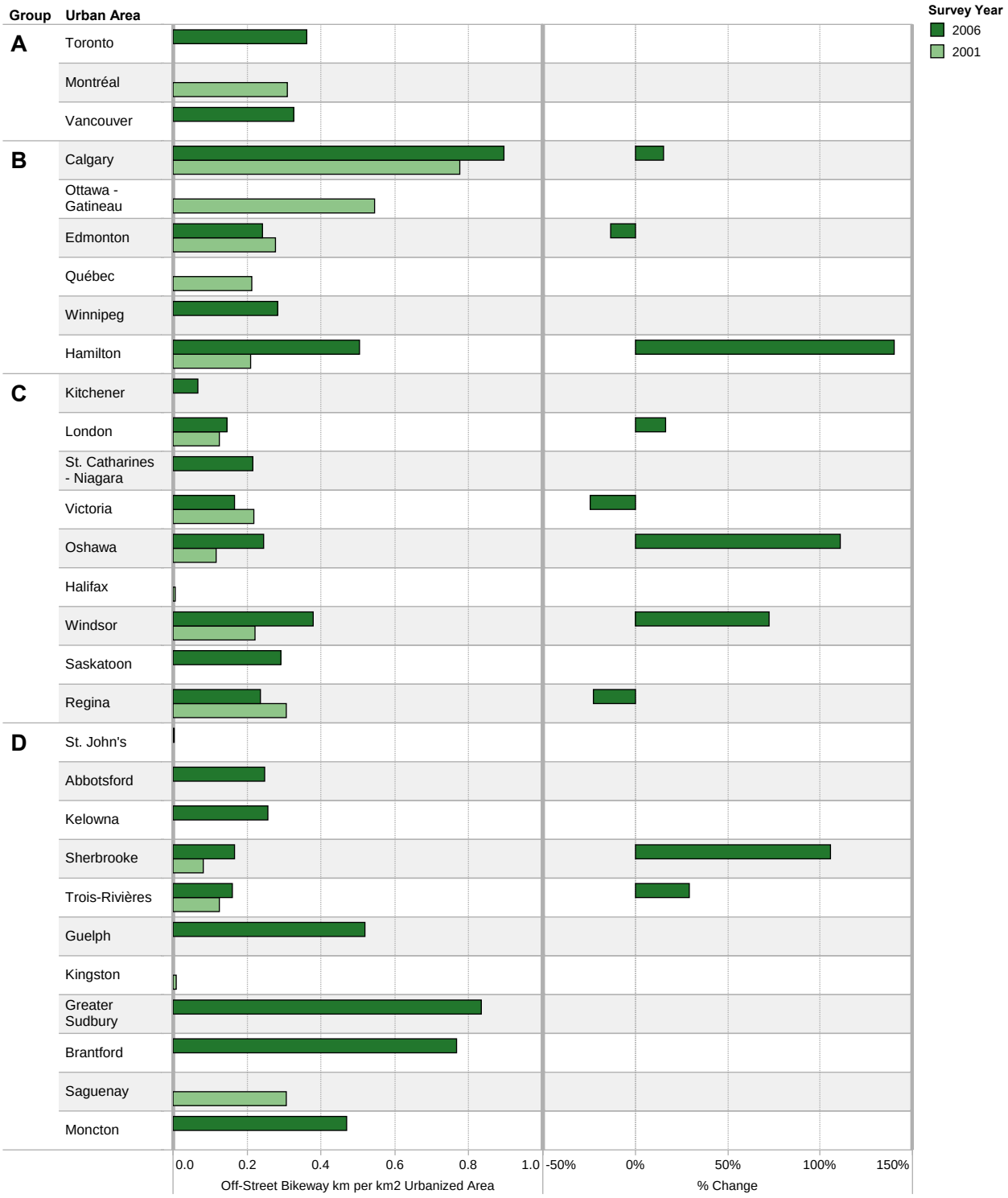


Exhibit 7.6: EUA Off-Street Bikeway Path-km per km^2 Urbanized Land Area, 2001-2006 [37]

[37] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001. Exhibit excludes Ottawa-only data provided for 2006.

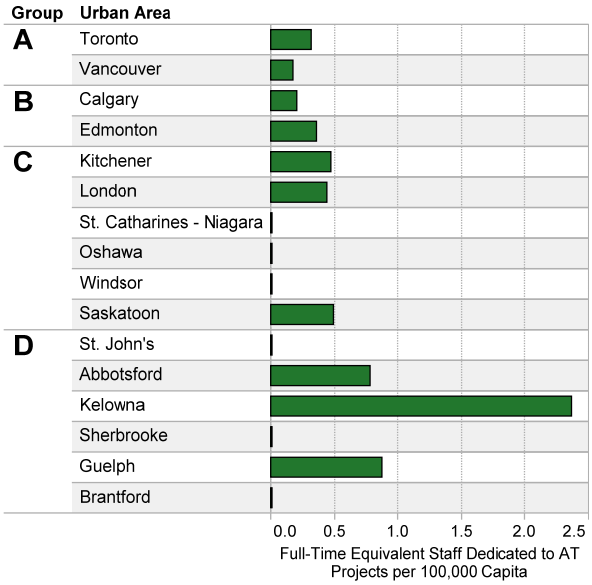


Exhibit 7.7: EUA Full-Time Equivalent Staff Dedicated to Pedestrian and Cycling Projects per 100,000 Capita, 2006 [38]

7.3 Pedestrian and Cyclist Safety

The transportation injury and fatality data shown in Exhibit 7.8 also included pedestrian and cyclist categories. As indicated earlier, safety data are especially problematic to compare across regions and the 2006 data suggests few discernable patterns, except for relatively high pedestrian injury rates in Montréal, Vancouver, Saskatoon, and Kelowna and a similarly high cyclist injury rate in Kelowna, as shown in Exhibit 7.8. It will be informative to compare these results against injury rates in the next iteration of the survey.

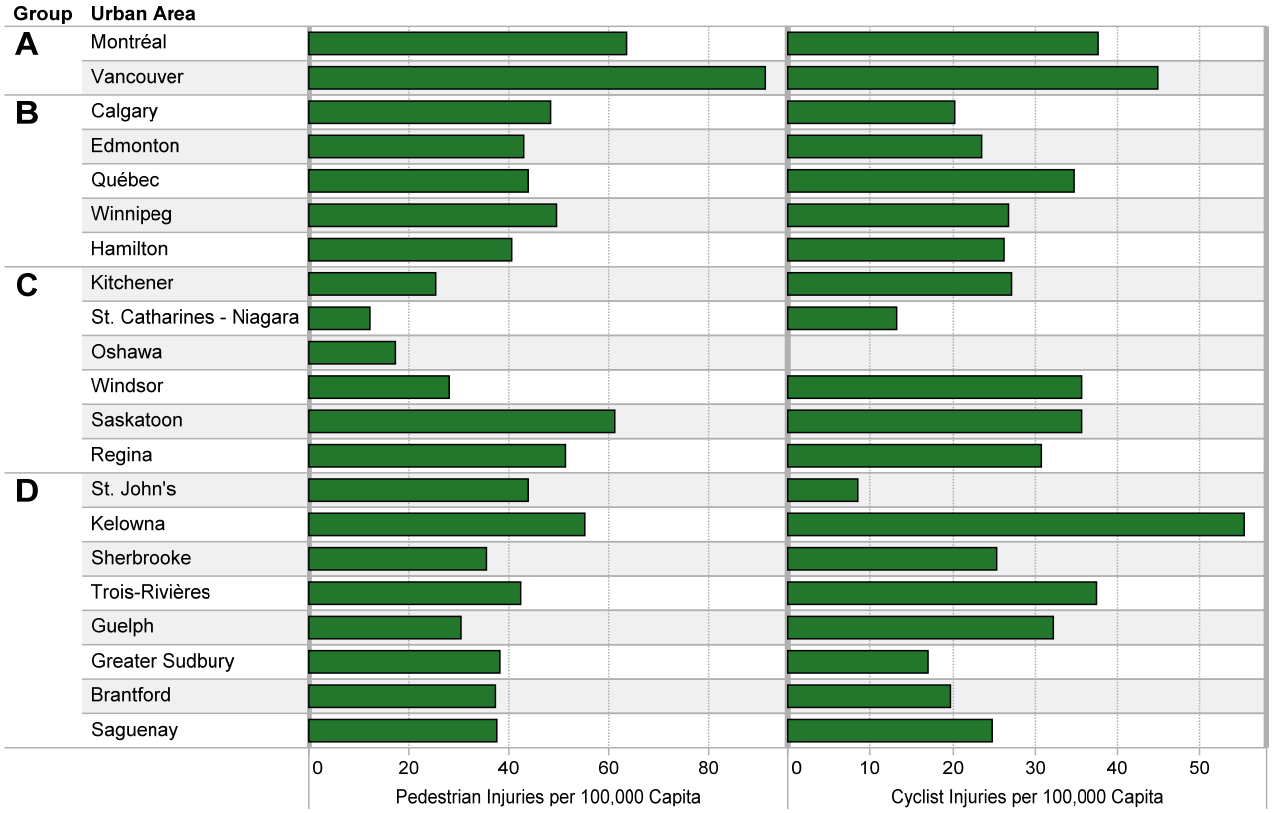


Exhibit 7.8: EUA Pedestrian and Cyclist Injuries per 100,000 Capita, 2006

[38] Data are missing or incomplete for the omitted EUAs. Exhibit excludes Ottawa-only data provided for 2006. Toronto data only for City of Toronto. Vancouver data only for City of Vancouver and TransLink.

8. Roads and Motor Vehicle Use

Motorized vehicles account for approximately 80% of all passenger trips in Canada's urban areas. Similarly, trucks are the dominant mode for moving goods within urban areas. Motorized vehicles will remain the dominant mode of urban transportation for the foreseeable future so long as urban structure and energy prices remain stable. This is largely due to their comfort, security, efficiency and convenience over other modes for many types of trips. Notwithstanding the prevalence of roads and motorized vehicles, there is a growing emphasis in most urban areas on creating environments in which automobiles can play a more balanced role. This section provides some basic indicators on the current role of roads and motorized vehicles and how this has been changing.

8.1 Road Supply

With the proliferation of Geographic Information Systems (GIS), road supply is becoming easier to measure consistently, something that has been a challenge in previous surveys. Trends in road supply (expressway, arterial and collector lane kilometres) per capita are shown on Exhibit 8.1. Not surprisingly, the road supply per capita in most cities decreased between 2001 and 2006. This is most likely reflects an increasing focus by urban areas on maintaining and optimizing road capacity before expansion. In some cases, it may also be because urban population growth is outpacing the road authorities' ability to expand the road network due to factors such as urban disruption, environmental concerns and high financial requirements. This is likely the case for Calgary and Edmonton, which experienced significant increases in population growth between 2001 and 2006.

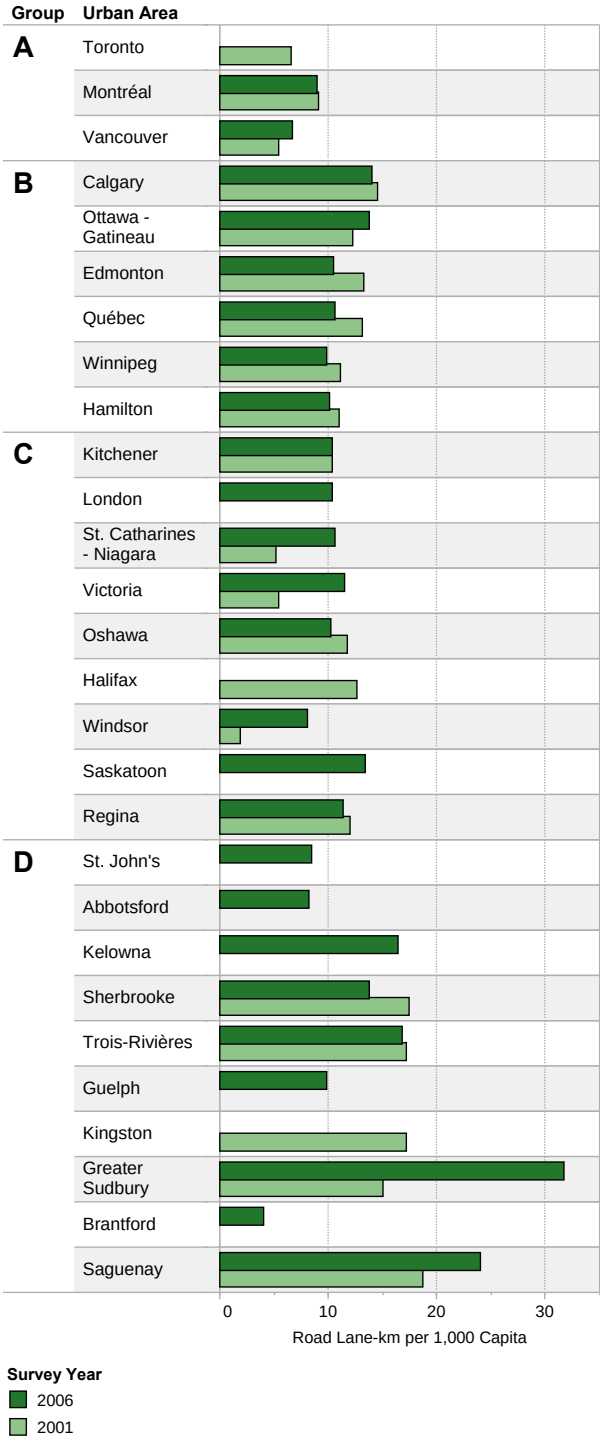


Exhibit 8.1: EUA Road Lane-Kilometres per thousand Residents, 2001-2006 [39]

[39] Data are missing or incomplete for the omitted EUAs. Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001. Kitchener data in 2001 was re-estimated using 2006 EUA boundary.

8.2 Parking Supply

Parking supply is one of the single biggest influences on the built environment. Parking supply and cost affects the choice of mode of travel to work, school, shopping and other activities. Parking also affects the cost of development as well as the overall attractiveness of an urban area.

Within an urban area, parking types include on-street and off-street parking, as well as different levels of accessibility ranging from completely private parking to fully accessible public parking. Given the range of parking types and challenges of measuring private parking supply, most urban areas do not keep track of parking supply across the urban area. However, many urban areas do observe parking supply in their CBDs.

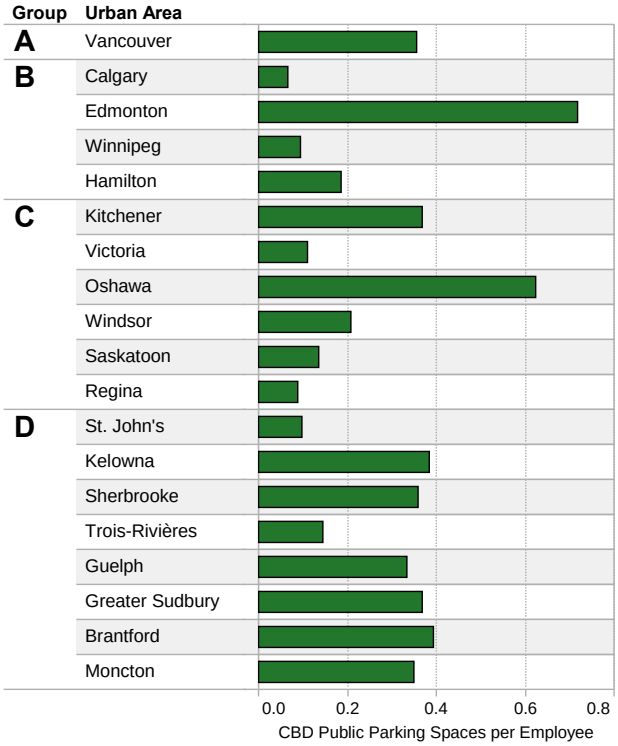


Exhibit 8.2: Parking Supply per Employee in the CBD, 2006 [40]

As with previous TAC surveys, not all urban areas could provide data on parking and, for those that could, there were significant disparities between previous surveys. There are also limitations in the data in that only publicly-owned parking is reported here, whereas in some urban areas, private parking operators provide a significant supply of parking.

Notwithstanding the limitations regarding the parking data, Exhibit 8.2 provides a comparison of the public parking supply per employee in the CBD for selected urban areas. From a sustainability perspective, a low amount of public parking supply can be as challenging as a high amount since it generally means the municipality has less influence over the price and design of parking. The exhibit shows that the number of parking spaces per employee in the CBD bears little relationship with CMA population size.

Transportation studies within urban areas demonstrate that parking supply, convenience and pricing in sub-areas significantly affect the proportion of trips to individual sub-areas by auto, particularly where alternative modes (e.g. transit, cycling, walking) are reasonably competitive with auto for many trips. This suggests that future TAC UTI surveys should try to obtain more parking supply and pricing data to provide a better understanding of this important policy variable.

[40] Data are missing or incomplete for the omitted urban areas. Exhibit excludes Ottawa-only data provided for 2006.

8.3 Motor Vehicle Ownership

Passenger Vehicles

Data on motor vehicle ownership are collected by Statistics Canada on an annual basis, based on data provided by provinces and territories. The categories of vehicles recorded include: motorcycles and mopeds, trailers, off-road vehicles, buses, light vehicles weighing less then 4,500 kg, trucks weighing between 4,500 kg and 15,000 kg and trucks weighing more than 15,000 kg.

For the purpose of tracking trends in passenger vehicle ownership, the TAC UTI survey has adopted the approach of using all light-duty vehicles under 4,500 kg, motorcycles and mopeds to represent passenger vehicles. Some light-duty vehicles may in fact be used for commercial purposes, but this is felt to be a small percentage.

Since 1999, Statistics Canada has adopted a standardized methodology for collecting motor vehicle registration data that has overcome previous issues about consistency of reporting. Starting in 1999, the sources are files obtained from the vehicle licensing bureau in each province and territory, whereas in previous years, data were obtained by a questionnaire sent to the provinces and territories. Therefore, this section reports data for 2001 and 2006 only.

Exhibit 8.3 shows the light-duty vehicle registrations per capita in the EUA of all 33 CMAs for 2001 and 2006, with the percentage changes. On average, there is about 1 vehicle for every 2 persons living in Canada's urban areas. The majority of CMAs report an increase, with Québec and Abbotsford having the highest percentage change of 36% and 30%, respectively. Ottawa-Gatineau, Halifax, Windsor, St. John's, and Greater Sudbury had declines over 5% in light-duty vehicles per capita. It is suspected that the very high percentage increases in Québec and other urban areas may be due to differences in reporting or geographic definitions.

Notwithstanding the uniquely large percentage changes in some areas, there is a clear trend of increasing or stable vehicle ownership in almost all urban areas. One of the potential influencing factors may be linked to the aging of population with fewer children in households and more persons becoming of driving age, therefore pushing the per capita auto ownership rate up; however, further research beyond this study would be required to confirm this trend.

Although it is not the intent of this report to examine relationships between possible causal factors and transportation behaviour, it is interesting to note the strong correlations between auto ownership and auto driver mode shares as shown on Exhibit 8.4. In general, there is a strong correlation between auto ownership and auto usage; there are also exceptions to the trend. For example, Victoria, Calgary and Kelowna all have higher than expected auto ownership rates given their auto mode shares. Victoria and Calgary also have very high rates of walking and cycling use, suggesting that it may be possible to "break" the link between auto ownership and use of more sustainable modes. Notwithstanding these selected areas, a key policy direction for achieving more sustainable transportation is to reduce auto ownership.

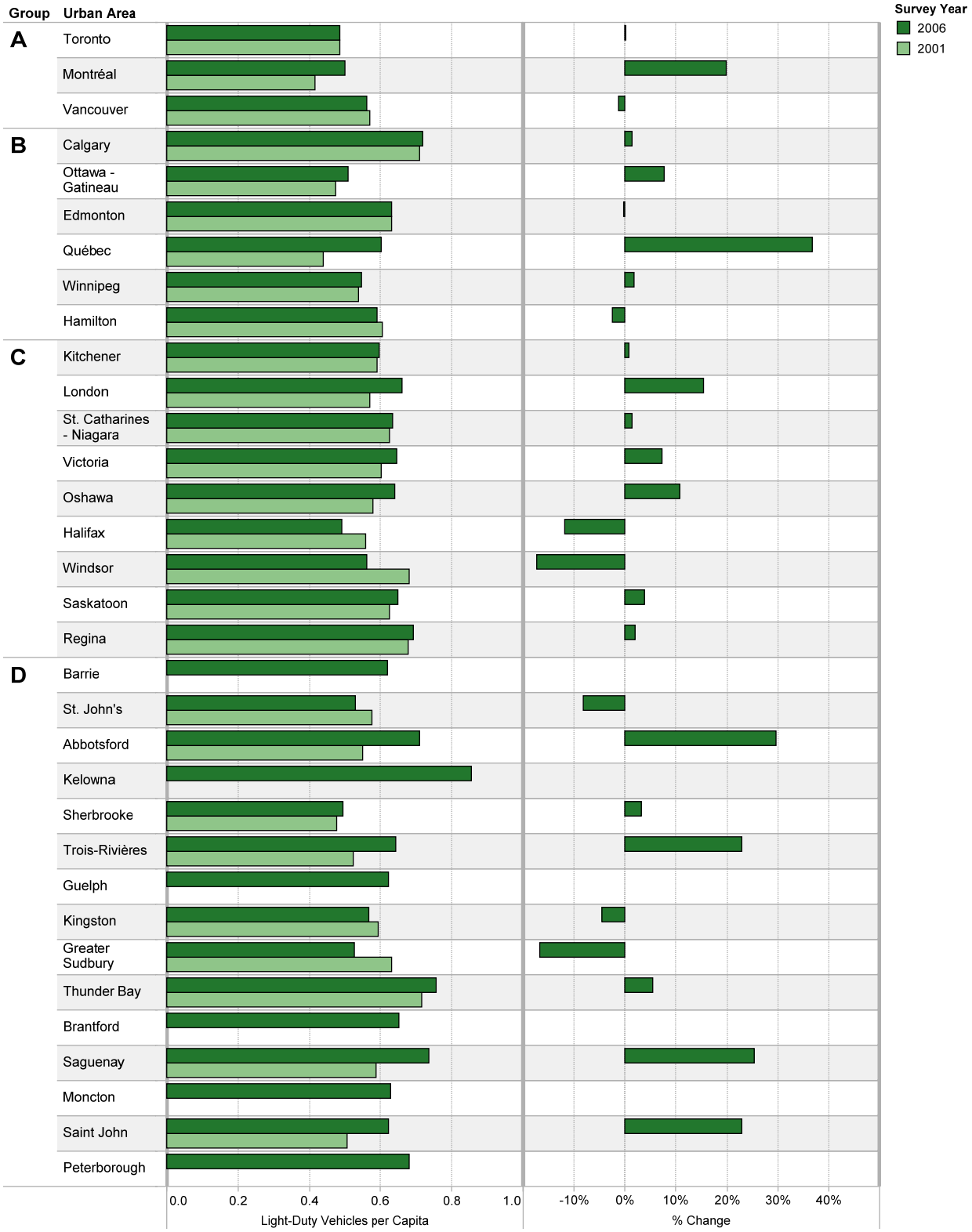


Exhibit 8.3: EUA Light-Duty Vehicles per Capita, 2001-2006 [41]

Source: Statistics Canada

[41] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

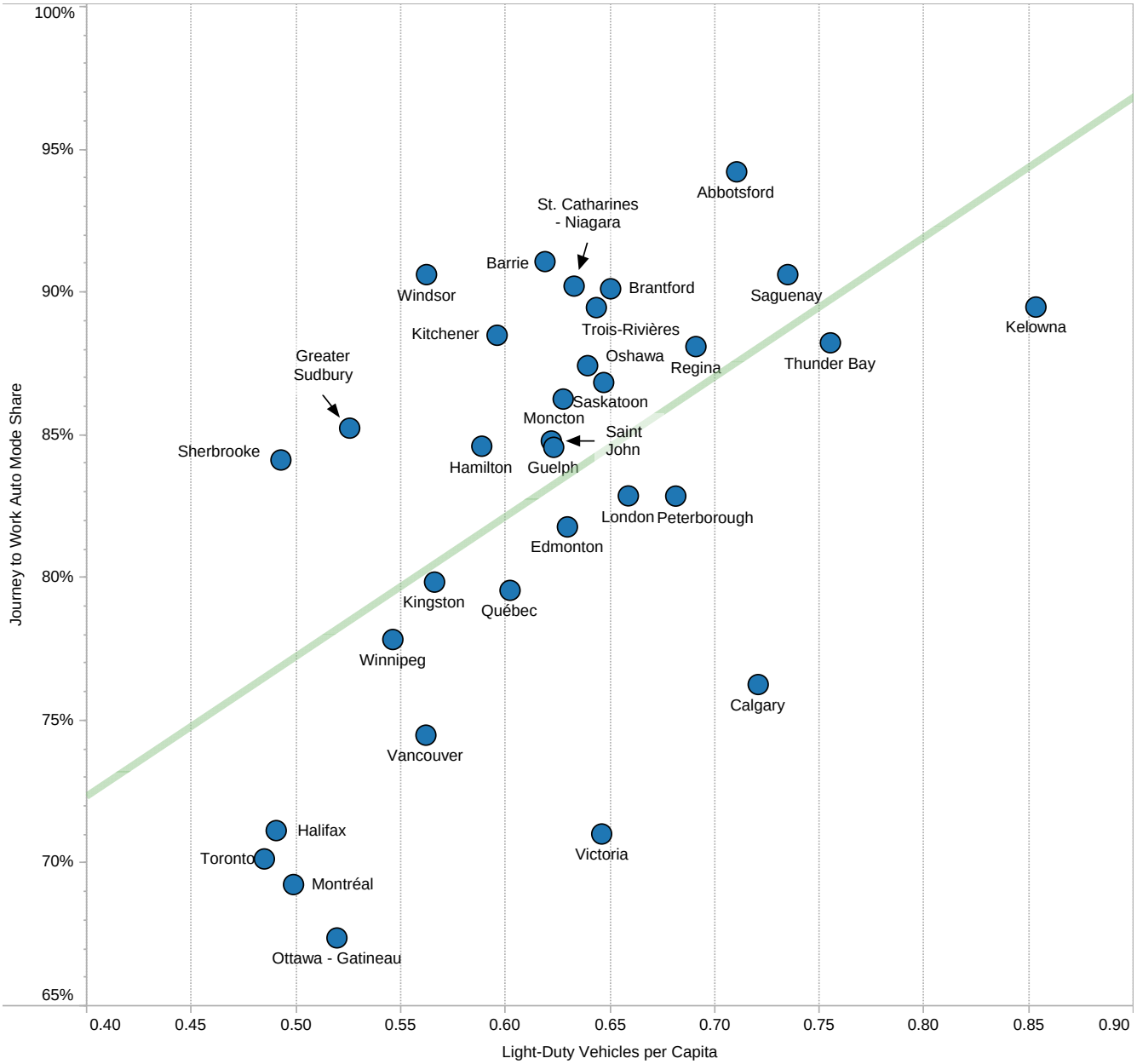


Exhibit 8.4: Trend in Light-Duty Vehicles per Capita and Journey-to-Work Auto Mode Shares, 2006 [42]

Source: Statistics Canada

[42] Data are missing or incomplete for municipalities not shown.

Commercial Vehicles

Trends for commercial vehicles as represented by heavy vehicles and buses are shown on Exhibit 8.5. Figures are normalized by population of the respective urban areas. Overall, there have not been significant increases in the per capita rates of heavy vehicles registrations and many urban areas have seen a decrease. Rates are notably higher in western CMAs, most likely due to larger distances between urban areas, farming activities and perhaps oil sands development.

Other than commercial vehicle registrations, the TAC UTI survey does not request information on goods movement demand. This is largely due to the fact that most municipalities do not track data on commercial vehicle movements, except through sporadic traffic volume counts.

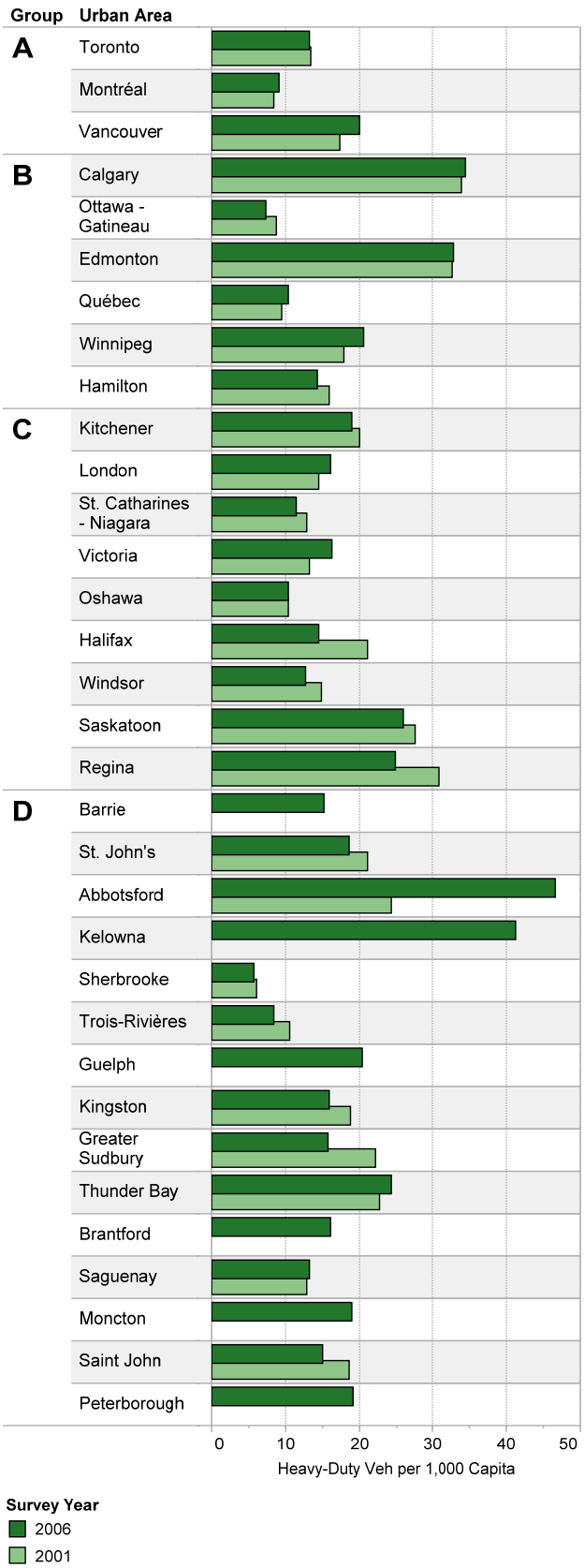


Exhibit 8.5: EUA Heavy-Duty Vehicles per 1,000 Capita, 2001-2006 [43]

Source: Statistics Canada

[43] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

8.4 Road Usage

Measuring roadway usage on an area-wide scale is difficult for most urban areas as it requires either a comprehensive travel demand model, or extensive traffic count data. Several urban areas were able to provide an estimate of vehicle-kilometres of travel by roadway type, however, as displayed on Exhibit 8.6. As shown, the distribution of travel between arterials and expressways (or multi-lane highways) varies by urban area, and is largely a function of the make-up of roadways in each area. For example, Calgary, Montréal and Trois-Rivières all have a high ratio of expressways to arterials.

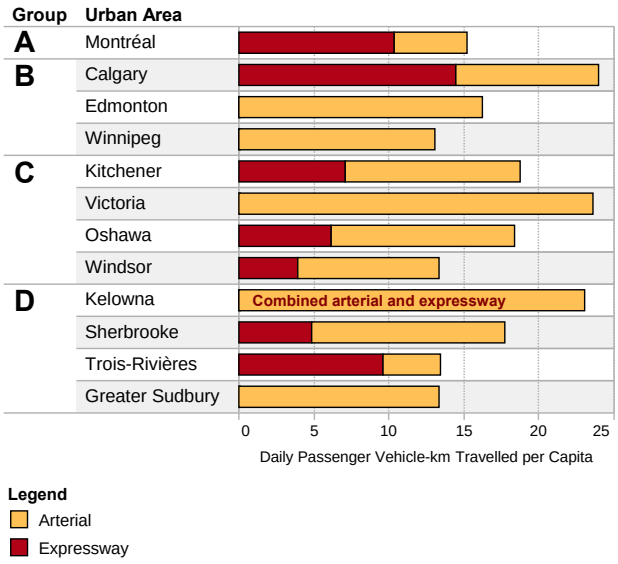


Exhibit 8.6: Daily Vehicle-kilometres Travelled by Passenger Vehicles per Capita, 2006 [44]

Exhibit 8.7 shows the longitudinal changes in vehicle-kilometres per capita for urban areas that have at least two years of data[44]. Most of the changes are likely due to differences in reporting methods, but two urban areas in particular stand out: Toronto and Calgary. Both Toronto and Calgary have reported significant increases in daily vehicle-km per capita and this is consistent with urban growth patterns in these areas. In the case of Calgary, it is also consistent with the large increase in median work trip distances, as reported earlier in this report.

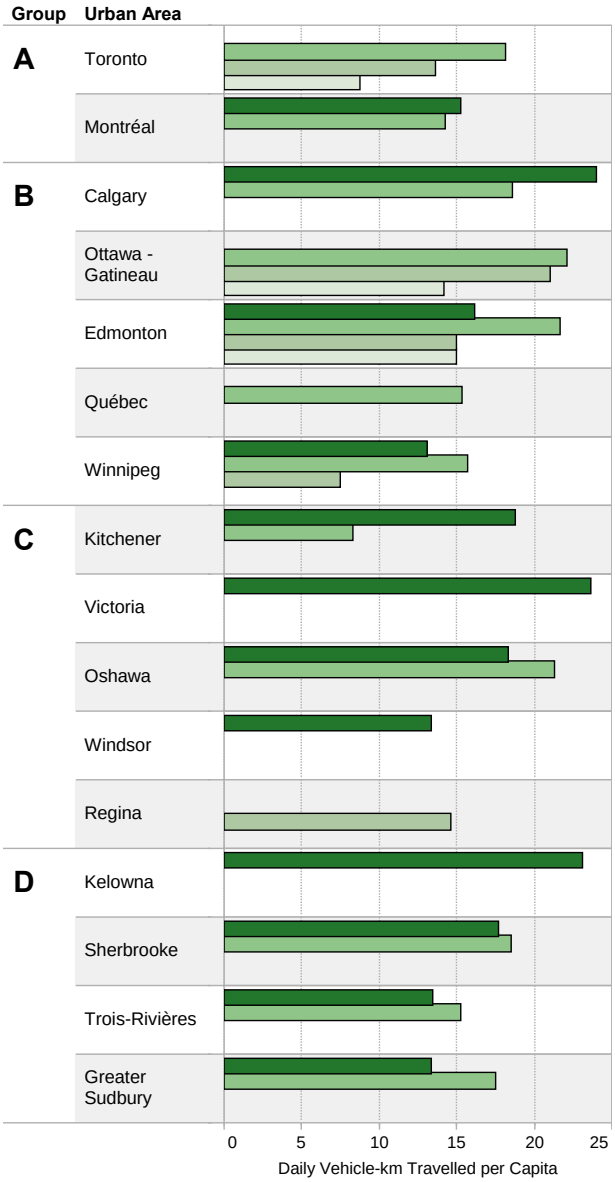


Exhibit 8.7: Daily Vehicle-kilometres Travelled per Capita, 1991-2006

[44] Data are missing or incomplete for the omitted urban areas.

9. Transportation Costs and Finance

This chapter reports on the Transportation Financing questions asked in Part B of the 2006 UTI survey, and the Transportation Finance and Resource questions of Part C of the 2006 UTI survey (questions 48 through 50). Part B of the survey asked respondents about the revenue sources utilized to finance transportation systems as well as the source and percent of funding for different types of expenditures. Questions 48 through 50 asked respondents for data on capital and operating budgets for municipal/regional roads, provincial roads and transit.

9.1 Revenue Sources

Exhibit 9.1 summarizes the survey responses received for Part B, Questions 11 through 14. The two most common sources of funding continue to be municipal property taxes and transit fares. Twenty-nine (29) CMAs responded that they are utilizing municipal property taxes as a funding source, of which 76% stated they apply these funds to transit and municipal roads. This represents a shift from 2001 when the majority of respondents reported placing them in general revenue. Transit fares remain the most common source of user fees or surcharges with 88% of respondent CMAs applying these funds directly back into transit and 15% utilizing them as general revenue. Urban areas placing transit user fees in general revenue include Saguenay, Calgary, Vancouver and Hamilton; the latter reported application of these funds to both transit and general revenue.

There is a general trend towards increased utilization of recurring federal and provincial subsidies, with more respondent CMAs reporting use of these funds in 2006 than in 2001. In addition, application of these funds is more varied in 2006. This is especially noted of recurring federal subsidies, which were reported in 2001 to be used primarily for federal and provincial roads.

Almost all respondent CMAs utilize or are currently considering one-time federal and regional subsidies, with varied allocations across the five categories given. The trend in 2006 is similar to that in 2001, with many CMAs applying these funds to transit and municipal roads.

Another major trend is the increase in CMAs using designated fuel taxes as a funding source – an increase from 5 CMAs in 2001 to 19 in 2006. The majority of CMAs apply these funds to transit, although some CMAs also reported using them towards municipal roads and other capital improvements. Other user fees and surcharges were less utilized by CMAs. None reported road pricing as a source of funding, although Toronto, Montréal and Winnipeg are considering it. Five CMAs reported utilizing vehicle registration taxes – four of which are in Québec[45] and Toronto places these funds in general revenue.

Vancouver is the only CMA reporting parking surcharges, taxes on parking and levied taxes on fuel or emissions, all of which are placed in general revenue.

Development levies and cost recovery were used in about half of the respondent CMAs. Placement of these funds varied significantly among CMAs, with municipal roads being the most common use for each of the levies. In 2006, 18 CMAs reported utilizing at least one type of levy and cost recovery.

[45] The vehicle registration tax in Quebec includes, for municipalities of the six CMAs, a special annual contribution of 30$ to public transit. As the tax is provincially controlled and disbursed directly to transit authorities, municipal agencies are unable to account for it. Sherbrooke was the only Québec municipality not reporting use.

Exhibit 9.1: Summary of Responses to Sources and Uses of Transportation Funding, 2006

	No Response	Utilized		Being Considered		Not Utilized		Placed in General Revenue	Applied to Transit	Applied to Municipal Roads	Applied to Federal or Provincial Roads	Applied to Other Capital Improvements
	freq.	*freq.*	%	*freq.*	%	*freq.*	%					
Federal/Provincial transfers/grants												
(a) Recurring (on-going) Federal contribution	6	14	52%	2	7%	11	41%	14%	57%	57%	7%	50%
(b) Recurring (on-going) Provincial contribution	6	21	78%	1	4%	5	19%	14%	90%	43%	33%	38%
(c) one-time Federal grants	5	23	82%	4	14%	1	4%	4%	52%	74%	26%	43%
(d) one-time Provincial grants	6	21	78%	4	15%	2	7%	5%	62%	81%	38%	52%
User fees/parking taxes/surcharges												
(e) surcharge on public parking rates	7	1	4%	2	8%	23	88%	100%	0%	0%	0%	0%
(f) tax on private parking revenues/facilities	9	1	4%	1	4%	22	92%	100%	0%	0%	0%	0%
(g) transit fares	5	26	93%	0	0%	2	7%	15%	88%	0%	0%	0%
(h) road pricing (incl. Tolls)	9	0	0%	3	13%	21	88%	0%	0%	0%	0%	0%
(i) designated fuel tax (e.g. portion of provincial/federal fuel taxes dedicated to transportation)	7	19	73%	4	15%	3	12%	5%	74%	47%	5%	32%
(j) vehicle registration tax	10	5	22%	2	9%	16	70%	40%	60%	0%	0%	0%
Local taxes/surcharges												
(k) municipal property tax	4	29	100%	0	0%	0	0%	66%	76%	76%	17%	55%
(l) municipally/regionally levied tax on fuel or emissions	15	1	6%	1	6%	16	89%	100%	0%	0%	0%	0%
Development levies/cost recovery												
(m) benefit-sharing levy on development	7	11	42%	4	15%	11	42%	27%	45%	82%	18%	36%
(n) frontage levy on development	8	10	40%	2	8%	13	52%	40%	40%	80%	10%	40%
(o) cost recovery for new development	7	14	54%	3	12%	9	35%	14%	14%	71%	14%	29%
(p) other (please describe below)	15	5	28%	3	17%	10	56%	40%	40%	40%	20%	20%

9.2 Municipal Roads

Exhibit 9.2 illustrates the annual per capita budgets of capital and operating and maintenance expenditures on municipal and regional roads. Population for 2001 per capita was re-estimated using 2006 EUA boundaries. Larger urban areas reported high capital expenditures, many above $200; the exceptions include Toronto, which provided City of Toronto data only, and Vancouver, which includes only TransLink's expenditure on the major road network and does not include expenditures made directly by municipalities. In addition, the budget provided for Greater Sudbury is for the entire City of Greater Sudbury, resulting in the high value of $762 per capita in Greater Sudbury. Among the remaining urban areas and those with 2001 and 2006 data available, Calgary, Edmonton, Winnipeg, Hamilton, Kitchener reported a notable increase over $100 in municipal road expenditures per capita.

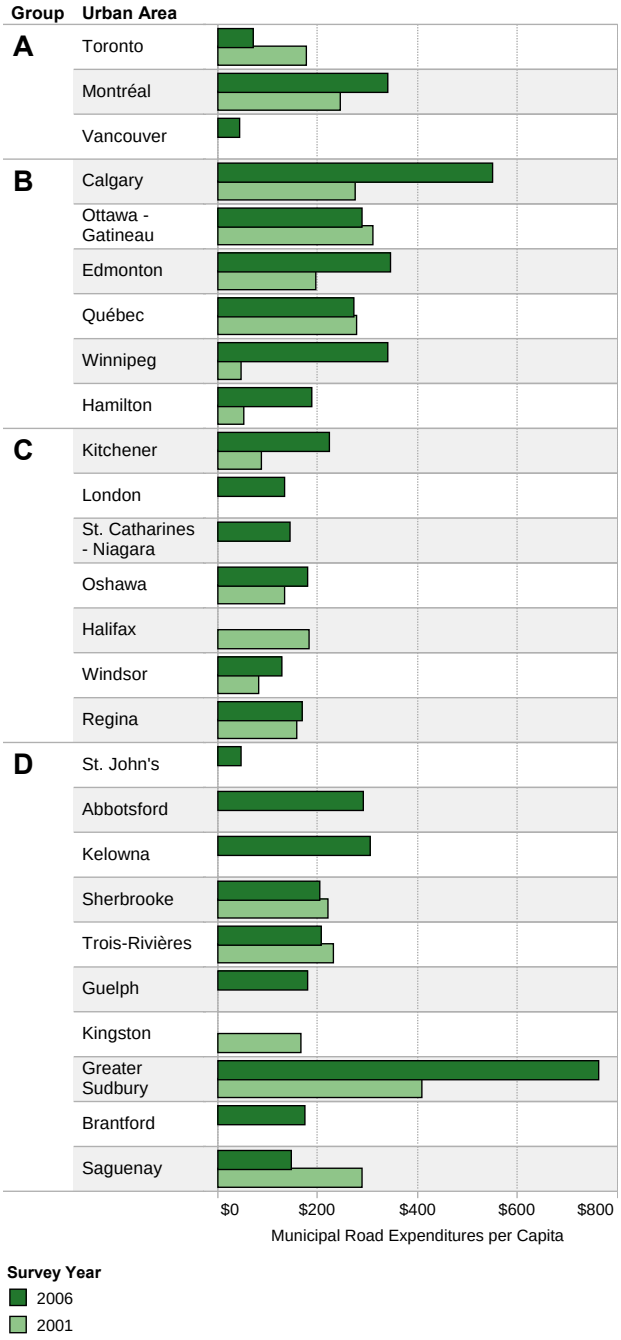


Exhibit 9.2: Municipal Road Expenditures per Capita in EUA, 2001-2006 [46]

[46] Data are missing or incomplete for the omitted EUAs.

Percentages of funding sources reported in 2006 for capital expenditures on municipal roads (2006 Survey, Part B, Question 15) are summarized in Exhibit 9.3[47]. The primary sources of funding for the respondent CMAs were Local Taxes / Surcharges and Federal / Provincial Subsidies / Grants. Local taxes fund more than half of municipal roadway capital expenditures for the majority of the CMAs. Federal and provincial subsidies, as also noted in the previous section, are becoming more common. In 2006, 17 urban areas reported percentages between 6% and 65% for use of federal and provincial subsidies. In comparison, in 2001, only 11 regions reported federal and provincial subsidies as a funding source, with all percentages below 20%. Consistent with Exhibit 9.1, many CMAs used levies and cost recovery from new development to fund their municipal roads. Vancouver and Hamilton were the only CMAs to report a significant portion of funding from user fees, taxes and surcharges.

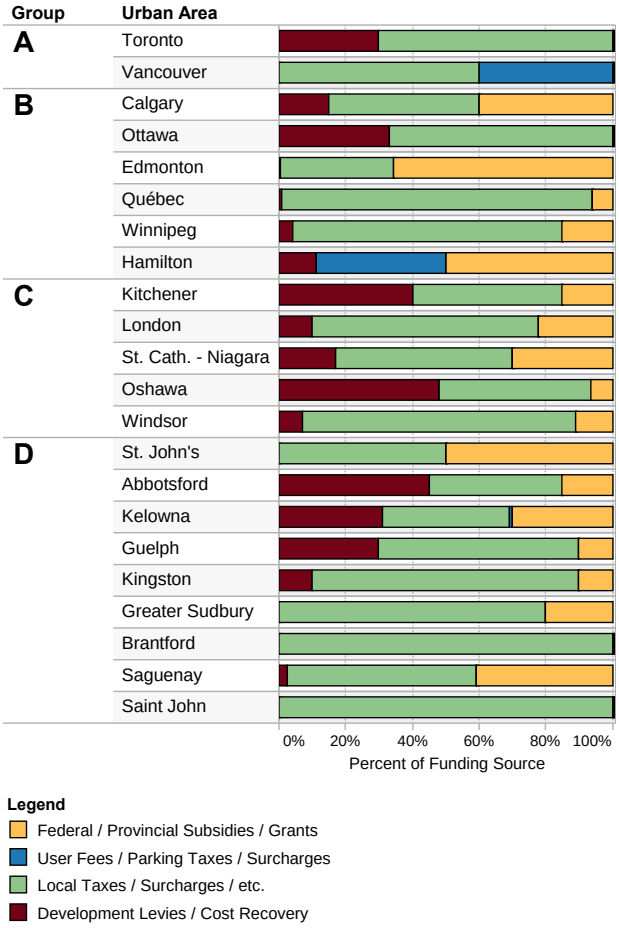


Exhibit 9.3: Funding Sources for Municipal Road System Capital Expenditures, 2006

[47] Data are missing or incomplete for the omitted urban areas. Note data for Ottawa only; Gatineau data not reported.

Exhibit 9.4 summarizes 2006 survey responses from Part B, Question 16 regarding the percentages of funding used on municipal road operating expenditures[47]. All but one of the respondent CMAs reported that more than 80% of operating expenditures on municipal roads are covered through local taxes and surcharges. The exception was Vancouver, which reported a percentage breakdown of 60 / 40 between local taxes and user fees and surcharges – the latter being the highest among the respondent CMAs. Other funding sources were less common, being reported by only three CMAs: Edmonton, Québec and Saguenay. Federal and provincial subsidies were reported by Quebec and Saguenay only, and were less than 2% of municipal road operations funding in each of these two CMAs.

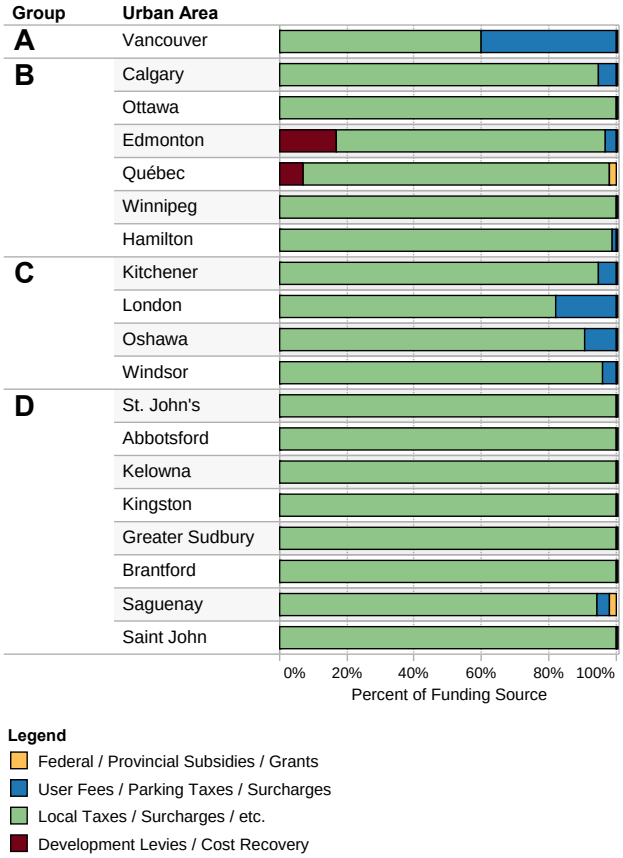


Exhibit 9.4: Funding Sources for Municipal Road System Operating Expenditures, 2006

9.3 Transit Systems

Exhibit 9.5 summarizes the 2006 survey responses on percentages of funding sources reported for transit system capital expenditures (2006 Survey, Part B, Question 17)[48]. Similar to capital expenditures for municipal roads, the primary sources of funding are Local Taxes / Surcharges and Federal / Provincial Subsidies / Grants. However, for transit systems, federal and provincial grants and subsidies are more widely use by CMAs. Only eight CMAs reported funding of capital projects through levies and cost recovery, and four CMAs reported a percentage of their funding sources from user fees and surcharges.

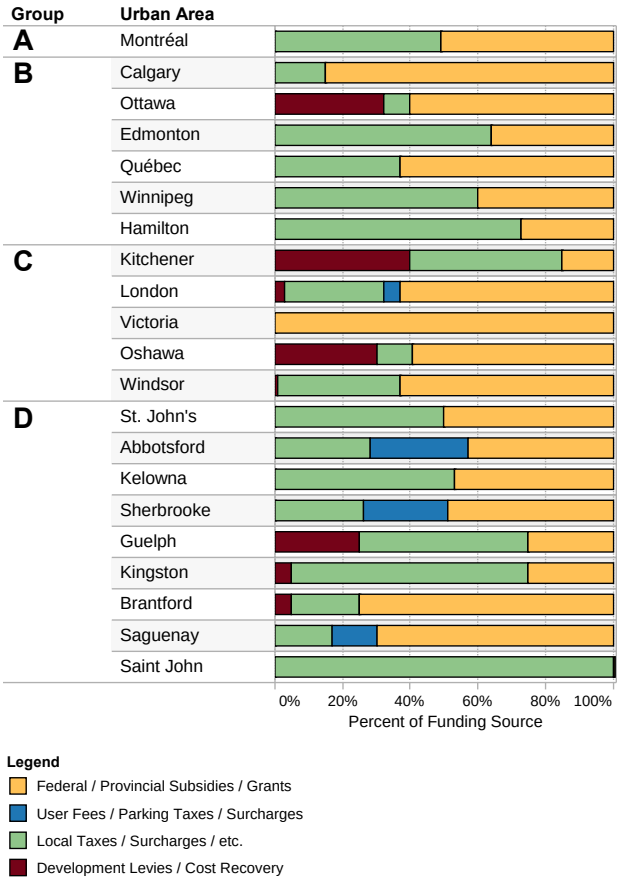


Exhibit 9.5: Funding Sources for Transit System Capital Expenditures, 2006

[48] Data are missing or incomplete for the omitted urban areas. Note data for Ottawa only; Gatineau data not reported.

In contrast, many more CMAs utilize user fees and surcharges as a primary source for transit system operating expenses, as shown in Exhibit 9.6[48]. These ranged between 30% and 60% (the higher number reported for Windsor and Winnipeg). Local taxes are the other primary source reported for transit operating funding. Federal and provincial subsidies appear to be more common among smaller-sized urban areas. Similar trends were observed from the 2001 UTI Survey. Funding percentage levels above 10% from levies and cost recovery were reported for London and Victoria.

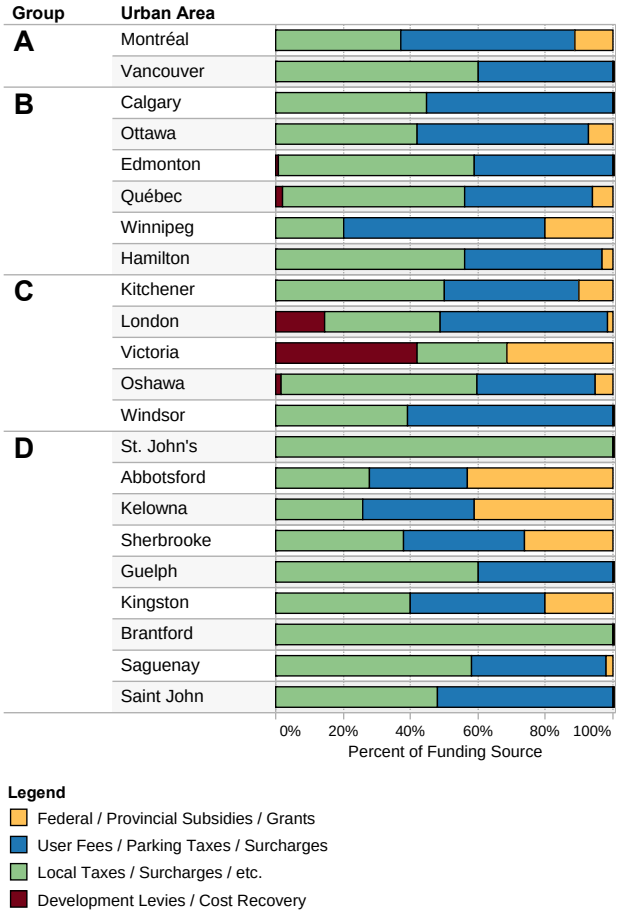


Exhibit 9.6: Funding Sources for Transit System Operating Expenses, 2006

Exhibit 9.7 shows annual transit capital and operating and maintenance budgets on a per capita basis[49]. For this exhibit and Exhibit 9.8, population for 2001 was re-estimated using 2006 EUA boundaries. As expected, the six most populous CMAs, which are the only regions with rapid transit systems, have the highest per capita expenditures on transit, all above $300. Per capita transit expenditures tend to follow population size, as well as transit ridership per capita (Exhibit 6.3), with all other urban areas except Winnipeg, Halifax and Victoria, having transit expenditures below $200 per capita. All of the CMAs with 2001 and 2006 data available, except Québec, reported a significant increase in transit expenditures per capita, ranging from $25 in Hamilton to $150 in Edmonton.

Annual transit farebox revenue per capita for 2001 and 2006 are shown in Exhibit 9.8[49]. The four largest urban areas – Toronto, Montréal, Vancouver and Ottawa-Gatineau – report the highest farebox revenue per capita, all above $150. Farebox revenue also appears to follow population size and transit ridership, with the majority of the medium to smaller-sized urban areas reporting farebox revenues below $50 per capita. Toronto, Québec and Regina are the only regions reporting a decrease in farebox revenue per capita, while all other regions with available data have increased revenues per capita between 2001 and 2006.

Farebox recovery ratios, calculated as the annual transit farebox revenue divided by the annual operating budget, are shown in Exhibit 9.9[49]. Despite Toronto's significant decrease since 2001, the ratio remains high, as does Windsor. Several other urban areas such as London, Oshawa, Halifax, Sherbrooke, and Greater Sudbury saw a large drop in their farebox recovery rates. On the other side, Montréal and Kingston showed significant increases.

[49] Barrie, Brantford, Guelph, Kelowna, Moncton and Peterborough were not CMAs in 2001.

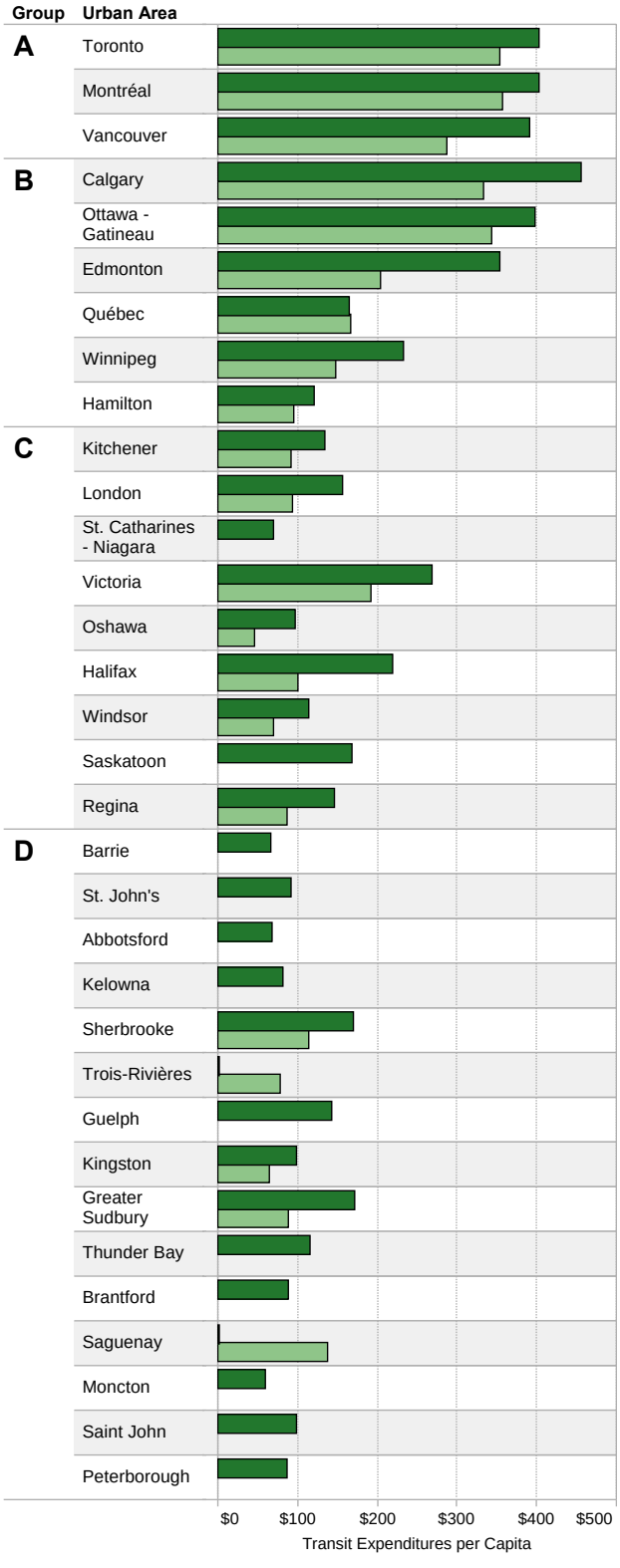


Exhibit 9.7: Transit System Expenditures per Capita, 2006

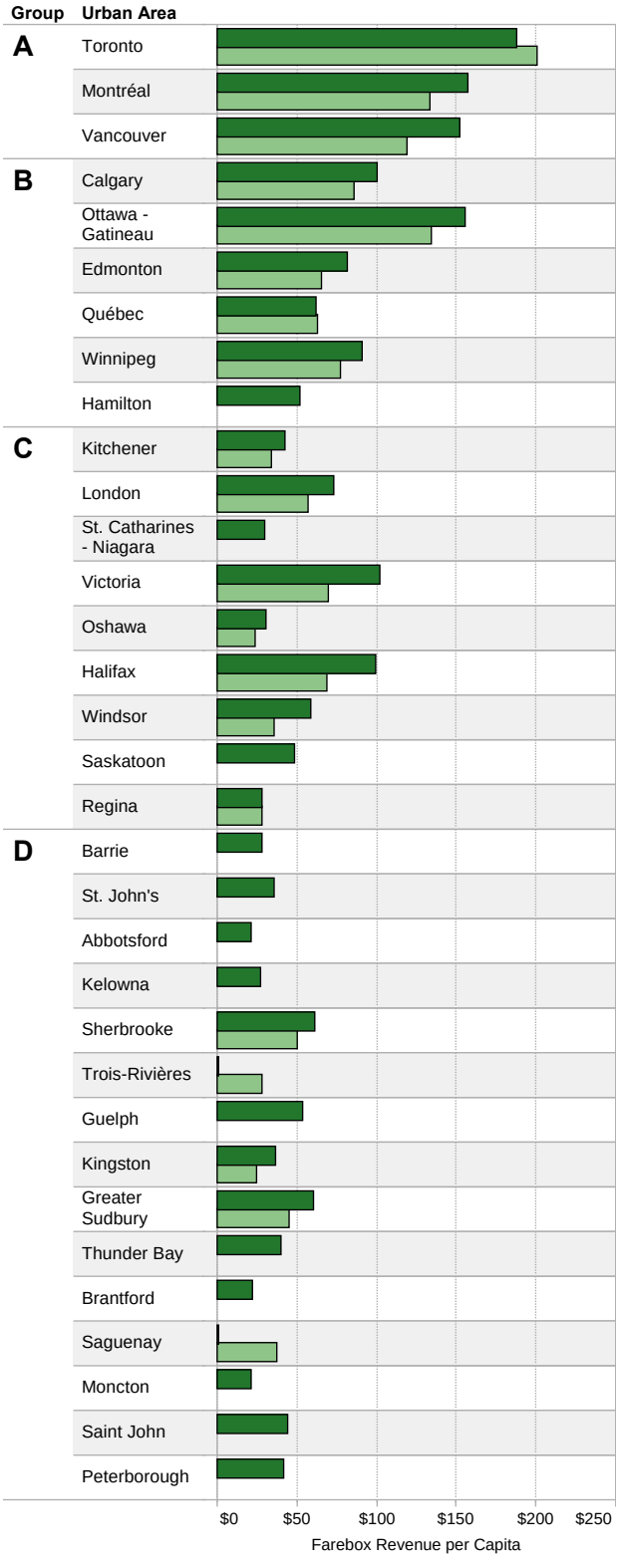


Exhibit 9.8: Annual Transit Farebox Revenue per Capita, 2001-2006

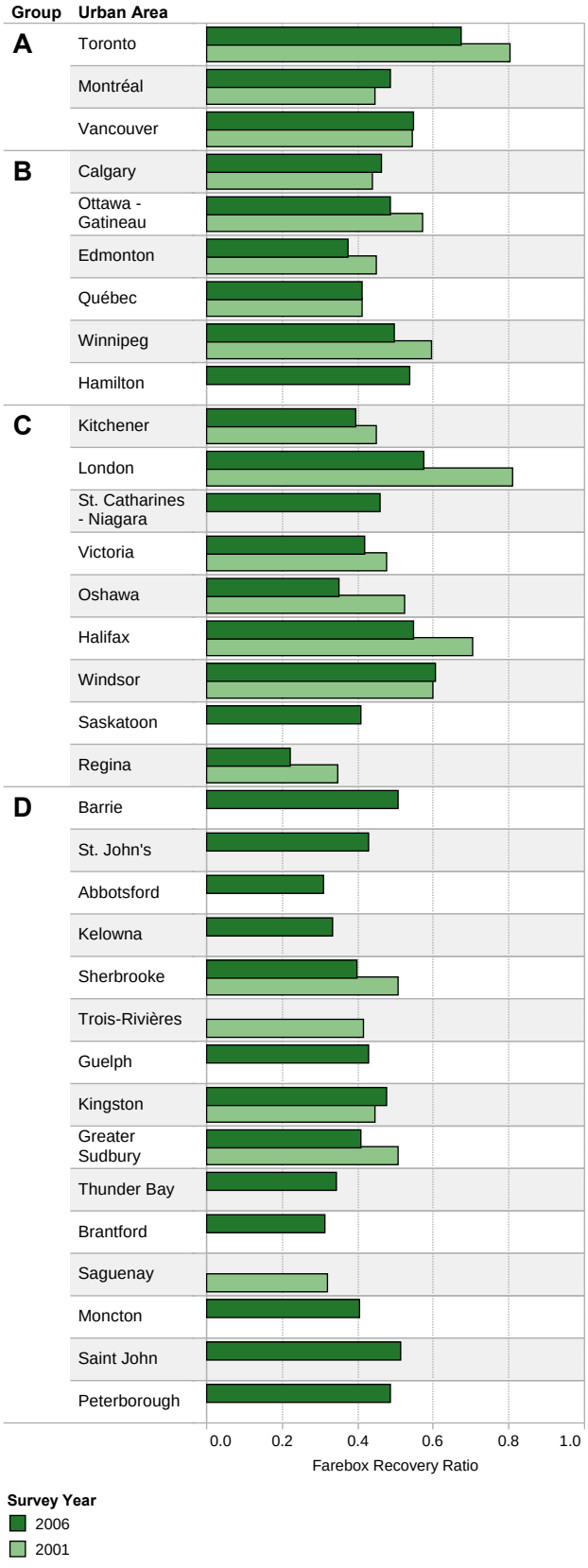


Exhibit 9.9: Farebox Recovery Ratio, 2001-2006

10. Conclusions and Possible Improvements for Future Surveys

It has been 15 years since the Urban Transportation Council initiated the first Urban Transportation Indicators Survey. Now in its fourth iteration, the UTI survey provides urban areas the ability to readily benchmark their performance against others on a variety of transportation indicators. Perhaps more importantly, the survey data enables the tracking of progress across Canada on measures to promote more sustainable transportation.

The fourth survey is considered a success in that it was the largest to date, covering 33 Census Metropolitan Areas, and also had the highest response rate of all the surveys with 31 areas responding to some or all of the survey questions. However, as with previous surveys, there are many challenges with respect to the availability and consistency of data for many indicators. It is noteworthy that some of the strongest indicators in the survey are derived from standardized data assembled by others including Statistics Canada and the Canadian Urban Transit Association. With few resources to do so, many urban areas do not collect data on many of the indicators in the survey. The challenge of integrating the information across a multitude of urban areas and transit authorities in the largest CMAs must also not be overlooked.

Overall, the UTI surveys conducted at five-year intervals are seen as providing significant value to the Urban Transportation Council, survey participants and the broader transportation community including key decision makers. However, there is always room for improvement. Several possibilities are discussed below for consideration.

Expand reliance on standardized indicators

As noted above, some of the most consistent and reliable urban transportation indicators are based on data collected outside of this survey (i.e. land use data, transit ridership, fuel use, journey-to-work mode shares and vehicle registrations). One approach for future surveys may be to selectively reduce the number of data items requested from survey participants, for example some or all of the questions on transportation system use, and simply rely on the external data sources. This is consistent with the Urban Transportation Council's request to Statistics Canada to expand the number of questions on transportation on the census. The main disadvantages of eliminating some of the more specific questions on the survey is that it gives up the possibility of tracking these indicators consistently from the earlier UTI surveys and it risks possible discontinuance of some important data series if Statistics Canada or other external data sources are unable to provide the expected data.

Focus on emerging issues

With a greater reliance on external data, there may be an opportunity to utilize the questionnaire component of the UTI survey to answer questions on emerging issues or trends related to sustainable transportation. As noted in this report, there are major deficiencies in data on cycling activity and infrastructure, pedestrian facilities, parking supply and pricing. This is partially related to the fact that some urban areas simply do not collect or record this information, but it may also be because collecting the data requested would require more effort to obtain or compile than the survey respondents have time and use for. Fewer survey questions may address the latter issue. In addition, there may be value in collecting information on emerging trends such as car-sharing or use of programs offered by Transportation Management Associations (i.e. guaranteed ride home, ride-matching) that are available in some urban areas. The intent of these questions would be to provide new baseline data for comparisons among peer communities.

Promote the use of the survey to the research community

One of the biggest values of the UTI survey is that it provides data to answer questions involving transportation and sustainability, and the relationships among various causal factors and transportation performance. This

report starts to explore some of these relationships, but considerably more research is both possible and warranted. TAC should consider marketing the UTI database more widely to all post-secondary institutions with a transportation or urban planning program as a means of broadening its use as a basis for valuable research and policy evaluation.

Continue to expand use of electronic data and GIS

For the UTI surveys as currently conducted every five years, population and employment data are available at the census tract level. Similarly, it is now possible or will soon be possible to easily obtain GIS data on transit routes and stops, cycling facilities and road infrastructure. The combination of these two provides the opportunity to create significantly more refined indicators of urban transportation supply levels and performance, while also relying on external data. Example indicators could include the percent of population within 400 m of a transit stop or number of employees within 1 km of a bicycle route.

Refine and improve the TAC UTI Survey Program

Work with Urban Transportation Council (UTC) Standing Committees and relevant external agencies – in particular Statistics Canada – to agree on future data provision by these agencies and refine/focus the UTI survey questionnaire in light of such agreements. This will help ensure that Canadian urban areas and their municipal governments have available, on a cost-effective basis, the basic data and insights required to achieve more sustainable transportation and measure progress towards this increasingly important goal.

In addition, the recommendation is made that Ottawa and Gatineau data be collected and reported as separate regions for subsequent UTI surveys. Collection and ensuring consistency in reporting of combined data has proven a challenge. And although comparison with previous survey responses would be problematic, separating them may yield more consistent trends in initiatives and urban transportation for these areas in future UTI surveys.

Appendix A

Survey Questionnaire

Survey Overview and General Instructions

Survey Overview

The Fourth Urban Transportation Indicators (UTI) Survey performed by the Transportation Association of Canada (TAC) tracks sustainable transportation performance measures over time for urban areas across Canada. The current survey is intended to reflect 2006 conditions, corresponding to the most recent Census. 33 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 (3 pages)
Part B: Transportation Financing (2 pages)
Part C: Land Use and Transportation Data (4 pages)

IBI Group is administering the UTI Survey #4 on behalf of TAC. Should you have any questions regarding the survey, please do not hesitate to contact us.

Anna Mori (uti.itu@ibigroup.com)
Brian Hollingworth (bhollingworth@ibigroup.com)
IBI Group
(416) 596-1930

In addition, a project website has been set up to provide regular progress updates and answers to frequently asked questions.

See www.uti-itu.ca

Survey Geographic Areas

Four geographic areas are considered in this survey:

Region: Defined as the Census Metropolitan Area (CMA) (as defined in the 2006 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 of all the municipalities inside the EUA combined. Further instructions are provided in Part A and B.

Survey Submission

Please complete the online version of the survey and submit it by **March 20, 2009.**

We understand that the completion of this survey may involve many individuals.
Please use this section to recognize as many individuals as you choose.
Names of participants will be published in the final survey report.

Technical representative

Name: _____
Role _____
Agency _____
Phone: _____
email: _____

Other contributor

Name: _____
Role _____
Agency _____
Phone: _____
email: _____

Other contributor

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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 EUA. This is not intended to be comprehensive, but rather an opportunity for municipalities to showcase initiatives, which may be included in the final survey report.

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."

		check which box applies most (one box only in each row)						
1	**URBAN STRUCTURE / LAND USE**	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) long-term, integrated municipal or regional land-use/transportation plan	☐	☐	☐	☐	☐	☐	☐
	(b) density targets for mixed-use centres/nodes	☐	☐	☐	☐	☐	☐	☐
	(c) limiting urban development within designated urban boundaries	☐	☐	☐	☐	☐	☐	☐
	(d) incentives/special policies for brownfield development	☐	☐	☐	☐	☐	☐	☐
	(e) taxation and/or other incentives for compact, mixed-use development	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							
2	**URBAN DESIGN**	check which box applies most (one box only in each row)						
	(a) transit-supportive site design guidelines or policies	☐	☐	☐	☐	☐	☐	☐
	(b) cycling-supportive streetscaping guidelines or policies	☐	☐	☐	☐	☐	☐	☐
	(c) pedestrian-supportive streetscaping guidelines or policies	☐	☐	☐	☐	☐	☐	☐
	(d) traffic calming policies	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							
3	**WALKING**	check which box applies most (one box only in each row)						
	(a) pedestrian plan	☐	☐	☐	☐	☐	☐	☐
	(b) mid-block pedestrian crossings in areas of high pedestrian activity	☐	☐	☐	☐	☐	☐	☐
	(c) pedestrian-friendly intersection design	☐	☐	☐	☐	☐	☐	☐
	(d) clearing of snow and ice from sidewalks	☐	☐	☐	☐	☐	☐	☐
	(e) municipal participation on pedestrian advisory/awareness committees	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
4	**CYCLING**	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) cycling plan with proposed cycling network	☐	☐	☐	☐	☐	☐	☐
	(b) municipal bike parking program	☐	☐	☐	☐	☐	☐	☐
	(c) municipal participation on cycling advisory/awareness committees	☐	☐	☐	☐	☐	☐	☐
	(d) zoning by-laws require end of trip cycling facilities (bike parking, lockers, showers, etc.) in new development	☐	☐	☐	☐	☐	☐	☐
	(e) bike sharing programs	☐	☐	☐	☐	☐	☐	☐
	(f) delivery of/support for cycling skills training	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
5	**TRANSIT**							
	(a) transit priority by means of HOV or reserved bus lanes	☐	☐	☐	☐	☐	☐	☐
	(b) other transit priority measures	☐	☐	☐	☐	☐	☐	☐
	(c) bike'n'ride facilities	☐	☐	☐	☐	☐	☐	☐
	(d) inter-municipal service coordination	☐	☐	☐	☐	☐	☐	☐
	(e) inter-municipal fare coordination	☐	☐	☐	☐	☐	☐	☐
	(f) integration of urban transit with inter-city services (e.g., intermodal transit station)	☐	☐	☐	☐	☐	☐	☐
	(g) university/college student transit pass program	☐	☐	☐	☐	☐	☐	☐
	(h) bulk purchase transit discount program	☐	☐	☐	☐	☐	☐	☐
	(i) web or cell phone-based trip planning information	☐	☐	☐	☐	☐	☐	☐
	(j) real-time transit arrival information	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
6	**PARKING**							
	(a) parking standards related to local conditions (e.g., level/ proximity of transit service, walkability of area, etc.)	☐	☐	☐	☐	☐	☐	☐
	(b) encouragement of shared parking arrangements	☐	☐	☐	☐	☐	☐	☐
	(c) maximum parking standards	☐	☐	☐	☐	☐	☐	☐
	(d) pricing to discourage use of public parking lots by commuters	☐	☐	☐	☐	☐	☐	☐
	(e) tax or other measure to discourage use of private lots by commuters	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
7	**ROAD SYSTEM OPTIMIZATION**							
	(a) transportation/traffic impact studies must consider access for all modes of transportation	☐	☐	☐	☐	☐	☐	☐
	(b) HOV lanes	☐	☐	☐	☐	☐	☐	☐
	(c) carpool parking lots	☐	☐	☐	☐	☐	☐	☐
	(d) transportation systems management program	☐	☐	☐	☐	☐	☐	☐
	(e) master plan identifies intersections requiring improvement	☐	☐	☐	☐	☐	☐	☐
	(f) real-time traffic signal control and coordinated signal timing	☐	☐	☐	☐	☐	☐	☐
	(g) incident management system	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
8	**GOODS MOVEMENT**	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) goods movement strategy	☐	☐	☐	☐	☐	☐	☐
	(b) consultation activities with goods movement industry	☐	☐	☐	☐	☐	☐	☐
	(c) zoning by-laws require off-street loading facilities	☐	☐	☐	☐	☐	☐	☐
	(d) designation of truck routes	☐	☐	☐	☐	☐	☐	☐
	(e) development of intermodal freight terminals and/or freight consolidation terminals	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
9	**SPECIAL USER NEEDS**	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) transit vehicles accessible to persons with disabilities	☐	☐	☐	☐	☐	☐	☐
	(b) transit stations/stops accessible to persons with disabilities	☐	☐	☐	☐	☐	☐	☐
	(c) paratransit to supplement regular transit for special needs	☐	☐	☐	☐	☐	☐	☐
	(d) curb cuts/ramps at designated pedestrian crossing points	☐	☐	☐	☐	☐	☐	☐
	(e) mobility disabled parking requirements	☐	☐	☐	☐	☐	☐	☐
	(f) audible pedestrian signals	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

		check which box applies most (one box only in each row)						
10	**ENERGY, ENVIRONMENT, AND TRAVEL DEMAND MANAGEMENT (TDM)**	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/high efficiency vehicles for municipal fleets	☐	☐	☐	☐	☐	☐	☐
	(b) alternative fuels/high efficiency vehicles for transit vehicles	☐	☐	☐	☐	☐	☐	☐
	(c) mandatory emissions control strategies	☐	☐	☐	☐	☐	☐	☐
	(d) regional/municipal TDM strategy	☐	☐	☐	☐	☐	☐	☐
	(e) road pricing initiatives	☐	☐	☐	☐	☐	☐	☐
	(f) TDM services delivered to workplaces	☐	☐	☐	☐	☐	☐	☐
	(g) TDM services delivered to schools (e.g., walk/bike to school programs)	☐	☐	☐	☐	☐	☐	☐
	(h) carpool ridematching services	☐	☐	☐	☐	☐	☐	☐
	(i) support for private or non-profit car sharing services	☐	☐	☐	☐	☐	☐	☐
	(j) established target for GHG Reduction	☐	☐	☐	☐	☐	☐	☐
	(k) established target for other air pollutant reduction	☐	☐	☐	☐	☐	☐	☐
	Comments or examples:							

PART B

Transportation Financing

Part B Overview

Part B of the UTI survey relates to Transportation Finance issues in 2006, spanning 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.

	Which of the following revenue sources does your area utilize to finance (directly or indirectly) transportation system improvements and how is it applied?	Utilized?			If utilized, how applied? (check all that apply)				
		Yes	Being Considered	No	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
11	**Federal/Provincial transfers/grants**								
	(a) Recurring (on-going) Federal contribution	☐	☐	☐	☐	☐	☐	☐	☐
	(b) Recurring (on-going) Provincial contribution	☐	☐	☐	☐	☐	☐	☐	☐
	(c) one-time Federal grants	☐	☐	☐	☐	☐	☐	☐	☐
	(d) one-time Provincial grants	☐	☐	☐	☐	☐	☐	☐	☐
12	**User fees/parking taxes/surcharges**								
	(e) surcharge on public parking rates	☐	☐	☐	☐	☐	☐	☐	☐
	(f) tax on private parking revenues/facilities	☐	☐	☐	☐	☐	☐	☐	☐
	(g) transit fares	☐	☐	☐	☐	☐	☐	☐	☐
	(h) road pricing (incl. Tolls)	☐	☐	☐	☐	☐	☐	☐	☐
	(i) designated fuel tax (e.g. portion of provincial/ federal fuel taxes dedicated to transportation	☐	☐	☐	☐	☐	☐	☐	☐
	(j) vehicle registration tax	☐	☐	☐	☐	☐	☐	☐	☐
13	**Local taxes/surcharges**								
	(k) municipal property tax	☐	☐	☐	☐	☐	☐	☐	☐
	(l) municipally/regionally levied tax on fuel or emissions	☐	☐	☐	☐	☐	☐	☐	☐
14	**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)								

15-19 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 transfers/grants					
(b) User fees/parking taxes/surcharges					
(c) Local taxes/surcharges/etc.					
(d) Development levies/cost recovery					
Total	100%	100%	100%	100%	100%

20 Additional notes or comments:

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 23 multi-part questions.

In all cases, data for 2006 are requested. If data for 2006 are 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 21-23 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), which were defined by the project team. In some cases, we also proposed a definition for the Central Area (CA). Such boundaries are shown on the maps included in your survey package (and available on the UTI website: www.uti-itu.ca). If you need to modify these established geographic boundaries, please send either a list of the census tracts to be included or a map/image file outlining the new boundary to the project team immediately so that they may begin recalculating socio-demographic indicators for the newly defined region. 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

Note: For municipalities 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 confirm that these are still applicable.

Note: For #27-29, please define your central area on the map provided. See instructions on the previous page to assist you in defining this area.

URBAN STRUCTURE	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
21 Land area (sq.km.)	CMA		2006	Statistics Canada
	EUA			
	CA			
	CBD			
22 Residential population	CMA		2006	
	EUA			
	CA			
	CBD			
23 Total employment (includes both full and part-time employment)	CMA		2006	
	EUA			
	CA			
	CBD			

DEFINITIONS AND DATA AVAILABILITY

24 Has your region conducted a travel origin-destination survey? Y/N | Year | Time of Year

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

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

26 Does your region have a transportation demand model? Y/N | Base Year | Time Period

Please describe your model (if available).

(e.g. modes included, data used to develop the model, etc.)

27 In your responses below, what is the time period defined for
the AM peak period: (e.g. 6 AM - 9 AM)
the PM peak period: (e.g. 3 PM - 6 PM)

28 What information does your region collect on commercial vehicle movements?

(e.g. road truck counts, O-D survey, roadside surveys, etc.)

29 How does your area differentiate between multi-lane highways/freeways and arterial roads?

TRANSPORTATION SUPPLY	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
30 Roadway lane-kilometres	EUA			
Note: If lane-kilometres cannot be determined for these categories, please report the closest available data and provide a description in the column provided.				
(a) Local road lane-km				
(b) Collector road lane-km				
(c) Arterial (or regional) lane-km				
(d) Multi-lane highway/freeway lane-km (non-HOV)				
(e) HOV lane-km (incl. exclusive/reserved transit lanes)				
31 Kilometres of rapid transit infrastructure	EUA			
Note: Measured by the length of the line, not lane-km				
(a) Transitway/right of way (km)				
(b) Metro/subway/advanced guideway transit (km)				
(c) Commuter Rail (km)				
32 Transit seat-km	EUA			
Tip: transit seat-km is typically calculated as service frequency (vehicles per peak period) multiplied 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				
33 Kilometres of walking and cycling infrastructure	EUA			
(a) On-street dedicated bike lanes or cycle tracks physically separated from motorized vehicular traffic by a barrier (route-km)				
(b) On-street dedicated bike lanes designated by striping, signing or pavement markings for the exclusive use of bicyclists (route-km)				
(c) Bicycle-priority shared streets with traffic calming and road crossing features to ensure preferred use by cyclists (route-km)				
(d) Signed and/or marked shared bike routes (route-km)				
(e) Multi-use trails or off-street, bicycle paths (route-km)				
(f) Other (route-km)				
(g) Sidewalks (km)				
34 Vehicles registered (excluding buses)	EUA		2006	Statistics Canada
(a) Light-Duty Vehicles (incl. Cars, vans and light trucks<4.5 t)				
(b) Medium-Duty Commercial Vehicles (Trucks 4.5-15 t)				
(c) Heavy Duty Commercial Vehicles (Trucks>15 t)				
35 Designated park-and -ride spaces	EUA			
36 CBD parking spaces	CBD			
(a) Publicly owned on-street (available for use by public)				
(b) Publicly owned off-street (available for use by public)				
(c) Maximum cost of one hour of parking (on-street)				
(d) Maximum cost of monthly permit parking (off-street)				

Note: Some of the questions in this section rely on travel surveys (e.g., 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.

TRANSPORTATION SYSTEM USE	AREA	DATA		YEAR	YOUR REMARKS (SOURCES)
Mode Shares for Central Business District		Destined to (excludes trips starting in CBD)	Originating from (includes trips starting and ending in CBD)		
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.					
37 (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					
38 (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					
39 (c) 24-hour 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 trips in 24-hour period					
Mode Shares for EUA					
Note: Modal shares are for trips to, from, and within the EUA (i.e. includes trips within the EUA).					
40 (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					
41 (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					

TRANSPORTATION SYSTEM USE (continued)	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
42 (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				
43 Transit use	EUA			
Note: To be consistent with CUTA statistics, one ride represents a linked trip (a one-way trip from origin to final destination) using a single transit operator. Trips that transfer between transit operators should be counted as multiple trips.				
(a) Annual transit riders (excludes school buses)				
(b) Riders on a typical weekday				
(c) 24-hour transit passenger - km				
Vehicle Kilometres Travelled	EUA			
Tip: Vehicle-km can be estimated by multiplying link traffic volumes by link length. Link volumes may be determined from traffic counts or a transportation model. Please indicate which method is used.				
Note: If Vehicle-km results cannot be broken down for arterial roads and highways, please report combined values and indicate as such.				
44 Arterial Road (or regional road) vehicle - km				
(a) AM peak period (Light-Duty Passenger Vehicles)				
(b) PM peak period (Light-Duty Passenger Vehicles)				
(c) 24-hour vehicle-km (Light-Duty Passenger Vehicles)				
45 Multi-lane highway/freeway vehicle - km	EUA			
(a) AM peak period (Light-Duty Passenger Vehicles)				
(b) PM peak period (Light-Duty Passenger Vehicles)				
(c) 24-hour vehicle-km (Light-Duty Passenger Vehicles)				

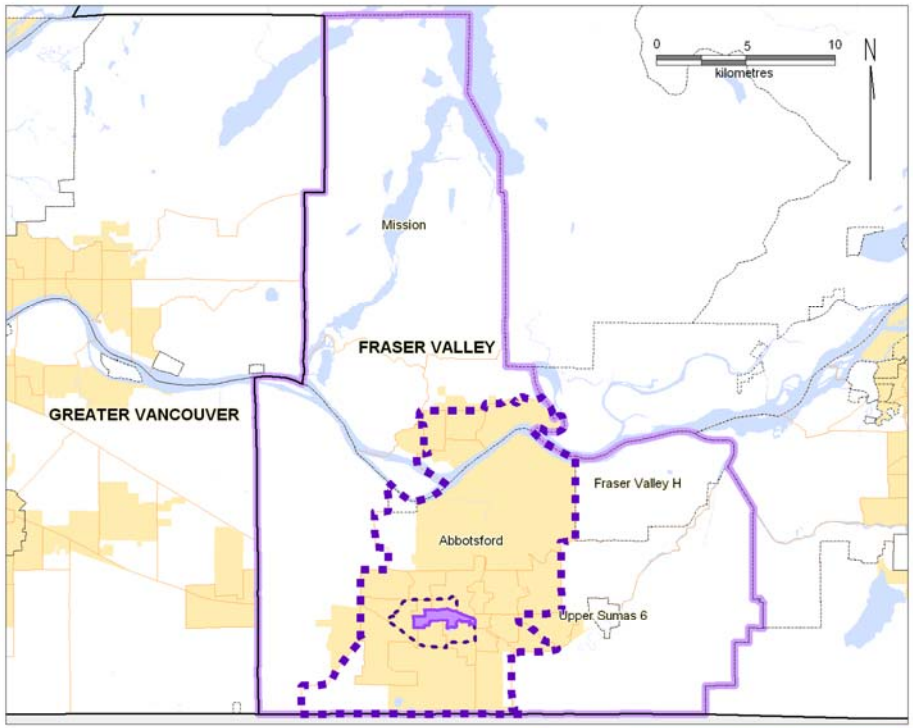
TRANSPORTATION SYSTEM PERFORMANCE	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
Note: Commute trip distance should be for all work trips to, from & within the EUA. The actual distance is preferred over the straight-line distance (please indicate which is used) . Commute trip distance from Statistics Canada data (straight line) is provided for reference.				
46 Median commute trip distance (km)	EUA			
Median commute trip distance (km)	CMA		2006	Statistics Canada
47 Annual traffic-related injuries & fatalities	EUA			
(a) Motorist Injuries				
(b) Motorist Fatalities				
(c) Pedestrian Injuries				Please indicate if data for pedestrians and cyclists is aggregated together.
(d) Pedestrian Fatalities				
(e) Cyclist Injuries				
(f) Cyclist Fatalities				
(g) Total Injuries				
(h) Total Fatalities				

TRANSPORTATION FINANCE & RESOURCES	AREA	DATA	YEAR	YOUR REMARKS (SOURCES)
48 Municipal/Regional Roads				
(a) Annual Municipal/Regional Road capital budget (incl. Major Rehabilitation)	EUA			
(b) Annual Municipal/Regional Road operating & maintenance budget				
49 Provincial Roads				
(a) Annual Provincial Road capital budget	EUA			
(b) Annual Provincial Road operating & maintenance budget				
50 Transit				
(a) Annual transit capital budget				CUTA
(b) Annual transit operating & maintenance budget	EUA			CUTA
(c) Annual transit fare box revenue				CUTA
51 Number of full-time equivalent staff dedicated to bike/pedestrian projects	EUA			

Appendix B

Definition of Geographic Areas

Abbotsford



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
LEGEND/ *LEGENDE*

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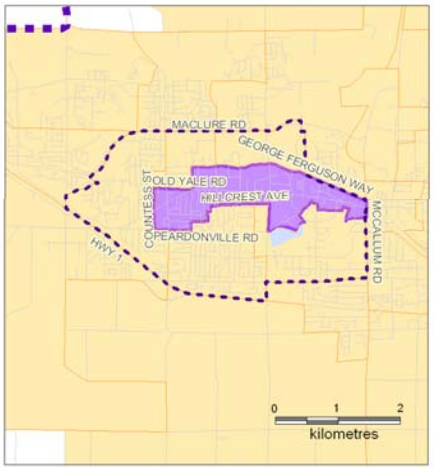
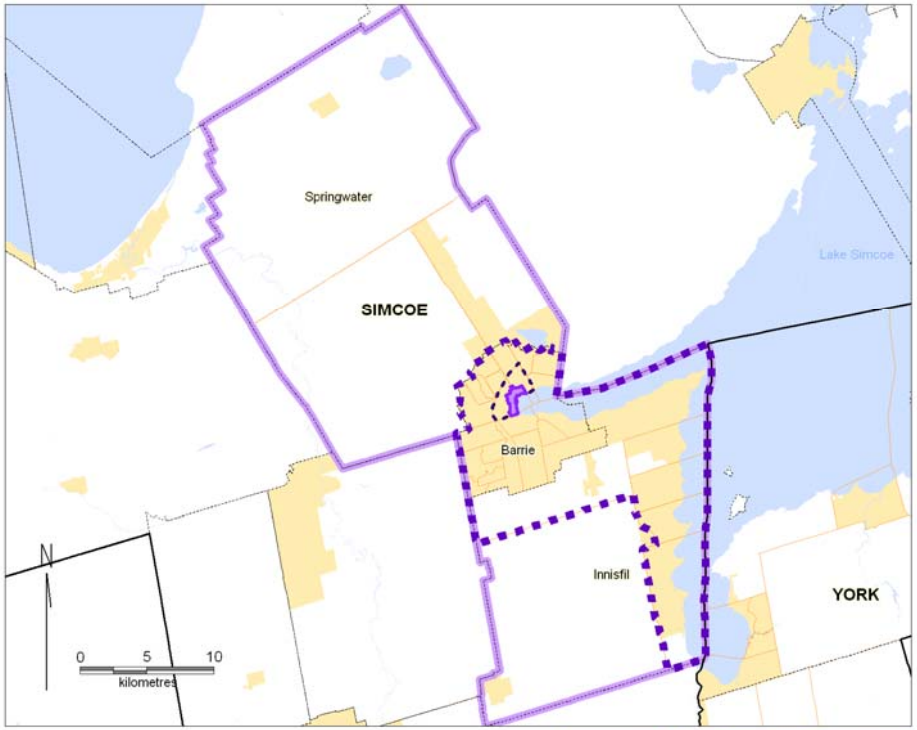


Barrie



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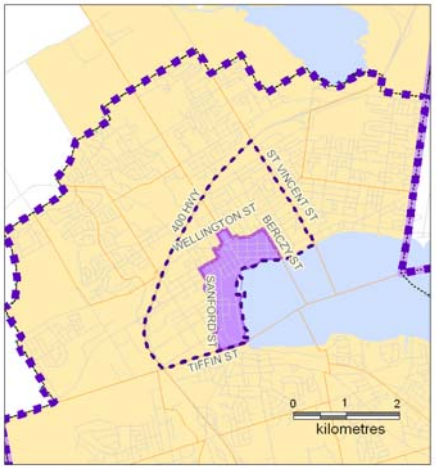
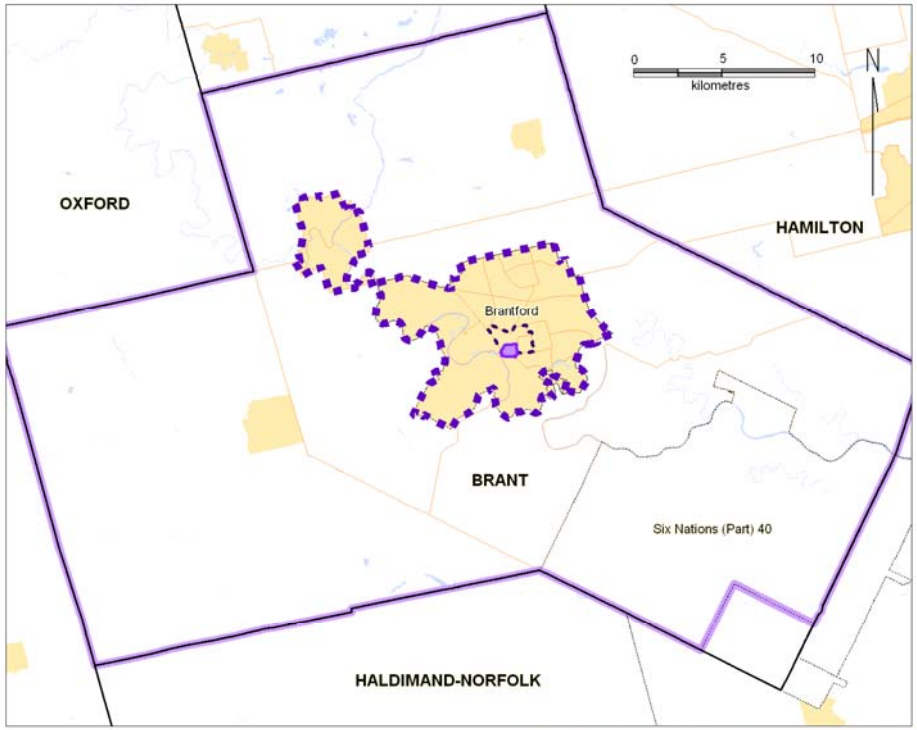


Brantford



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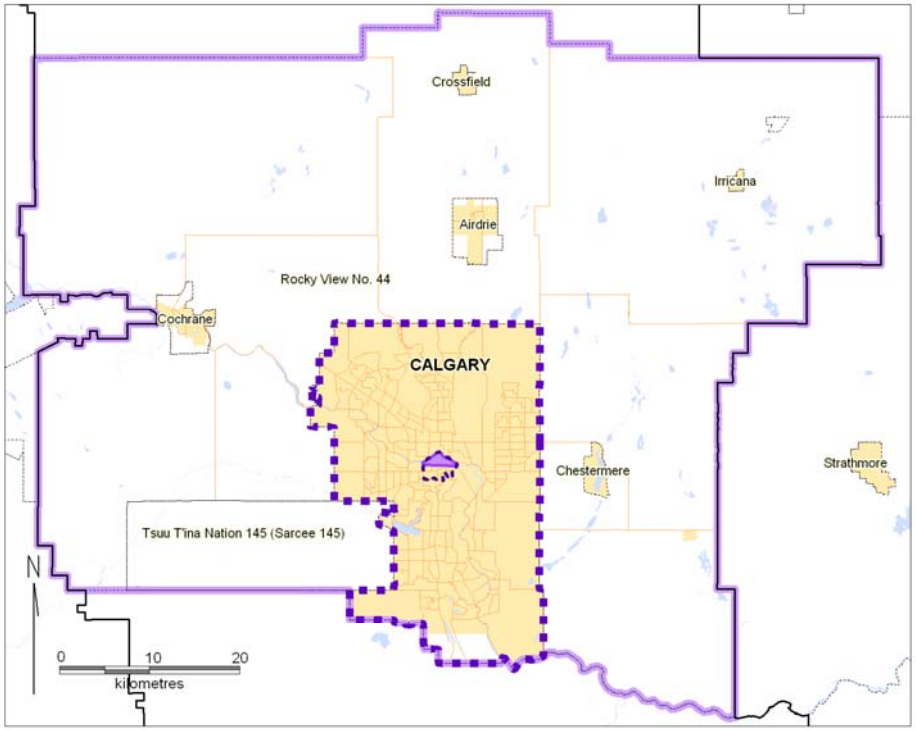
Calgary



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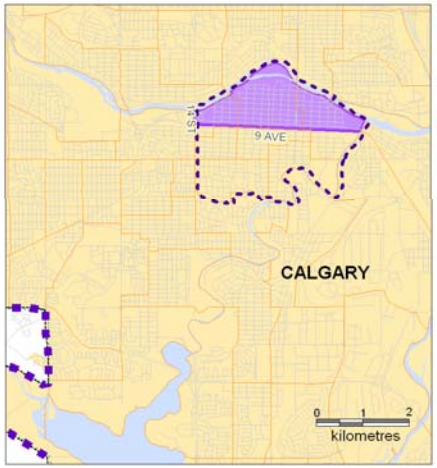
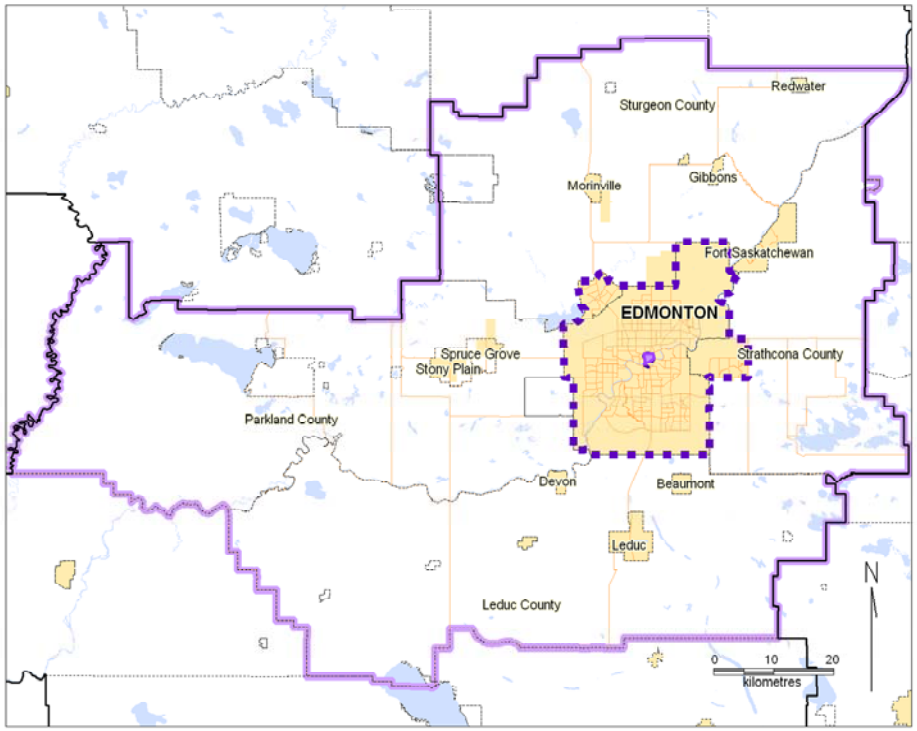


Edmonton



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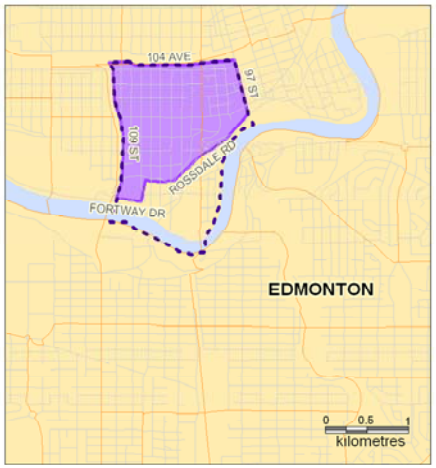
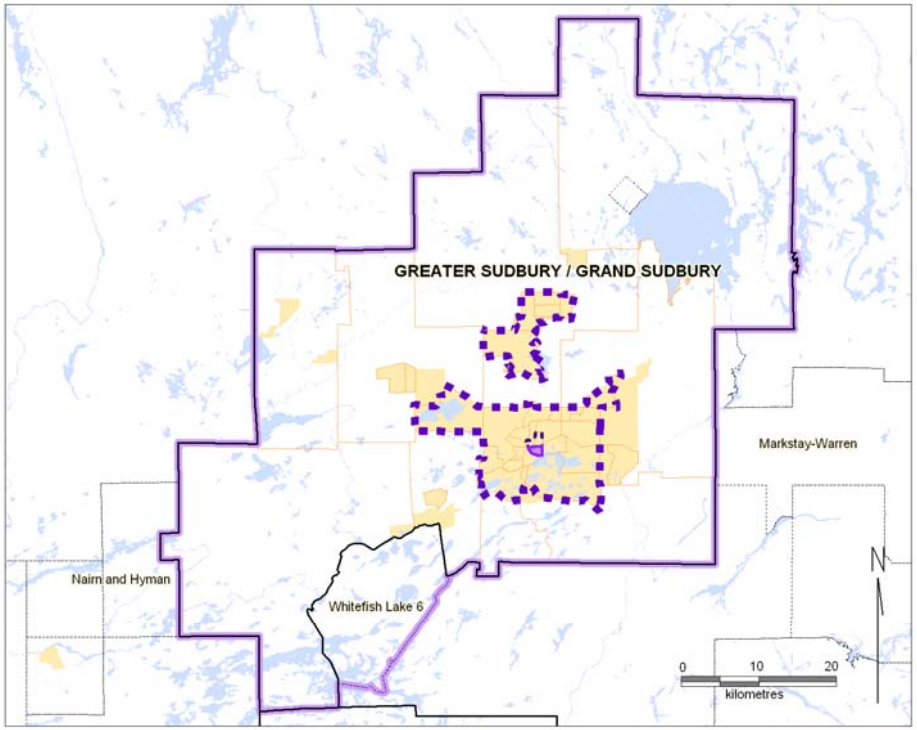


Greater Sudbury



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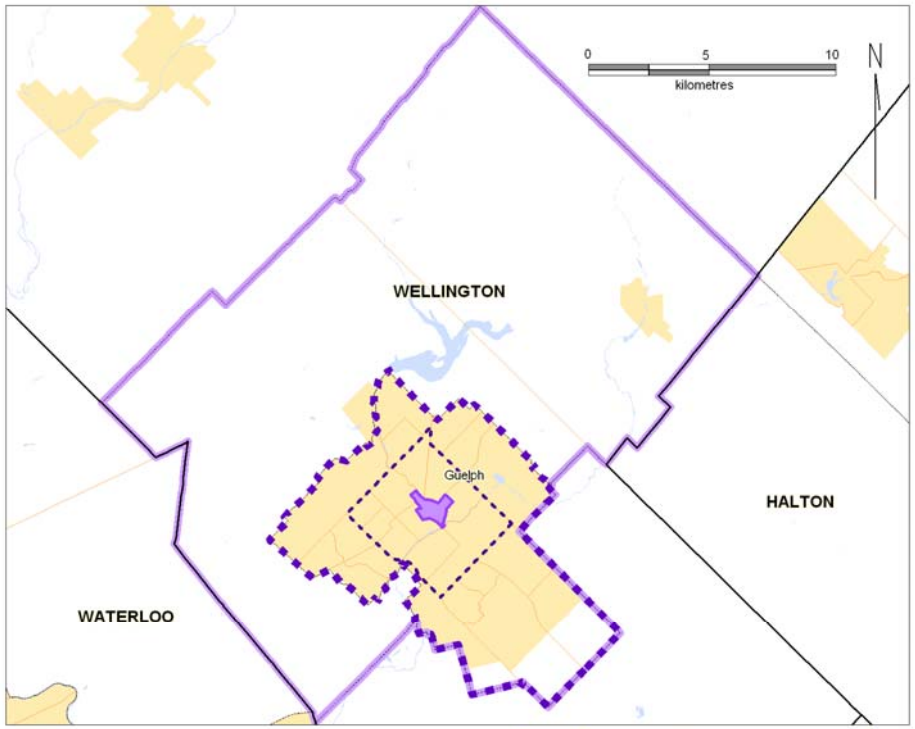
Guelph



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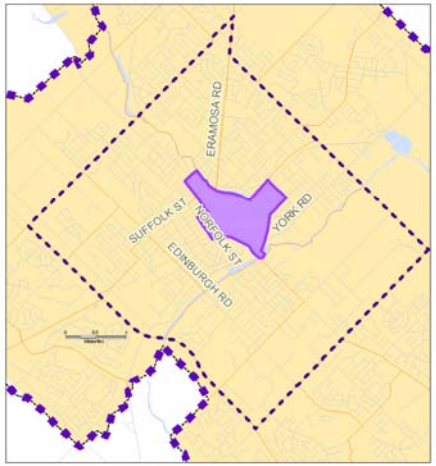
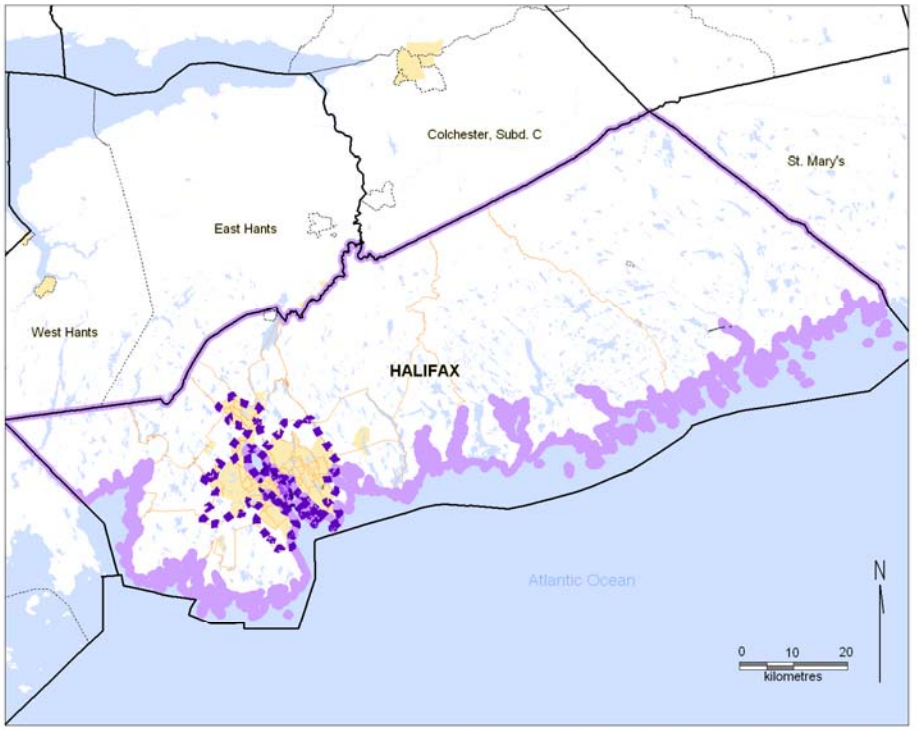


Halifax



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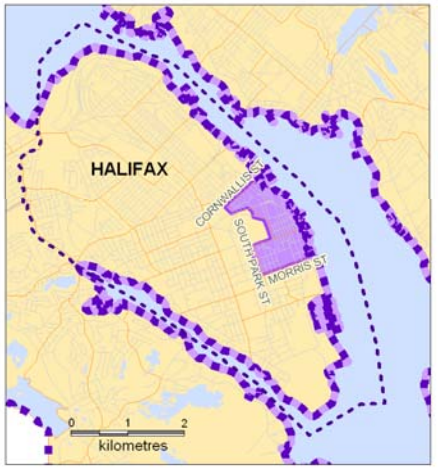
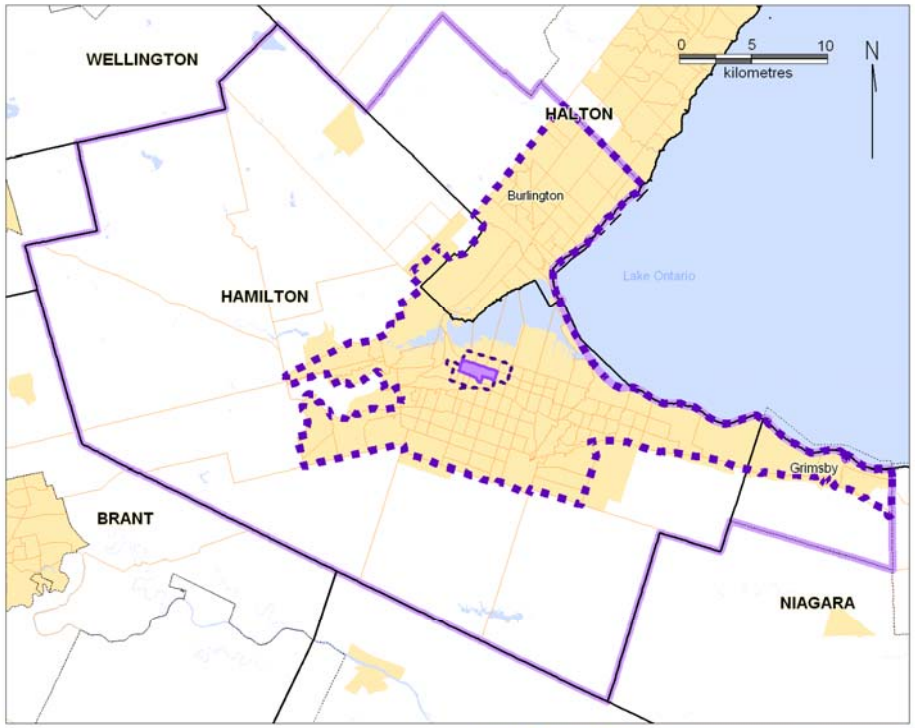


Hamilton



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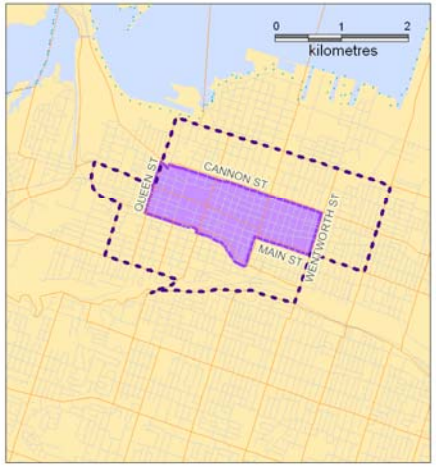
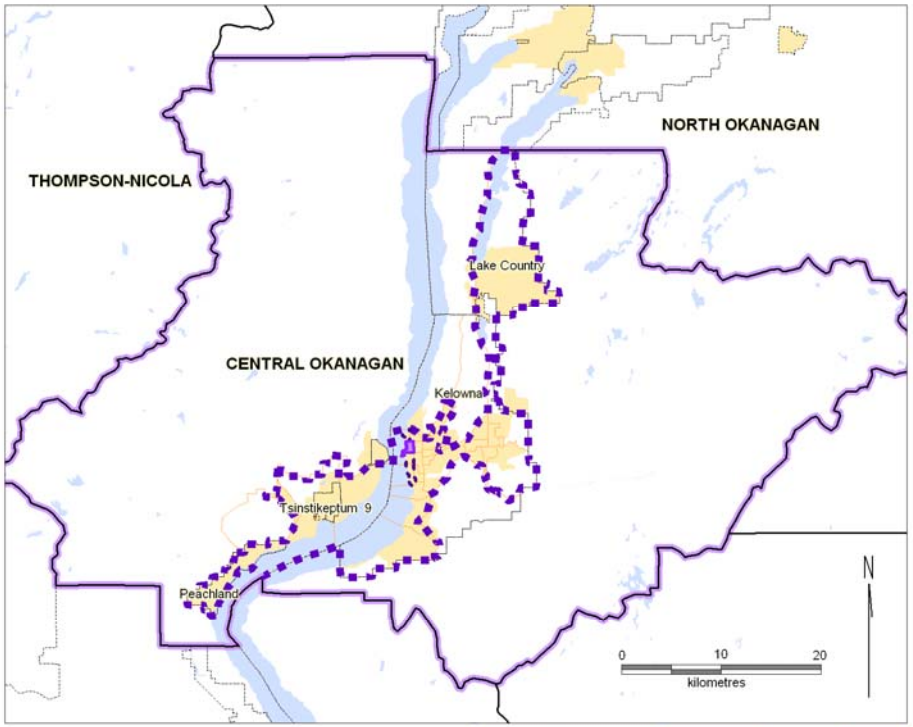


Kelowna



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
LEGEND/ *LEGENDE*

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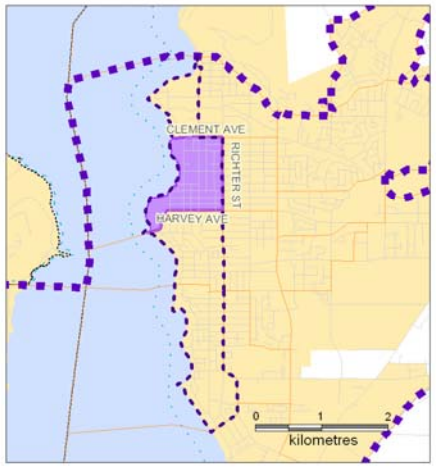
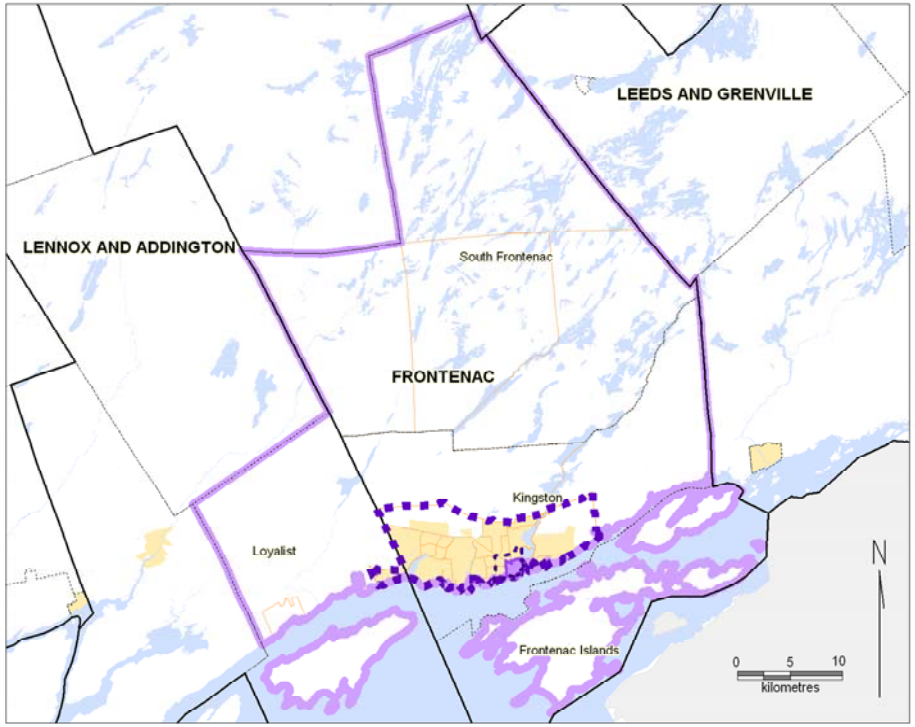


Kingston



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*

LEGEND/ *LEGENDE*

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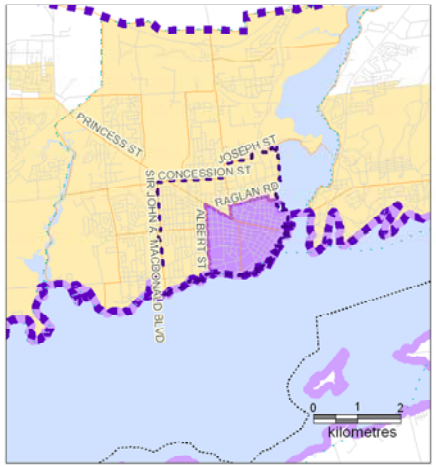
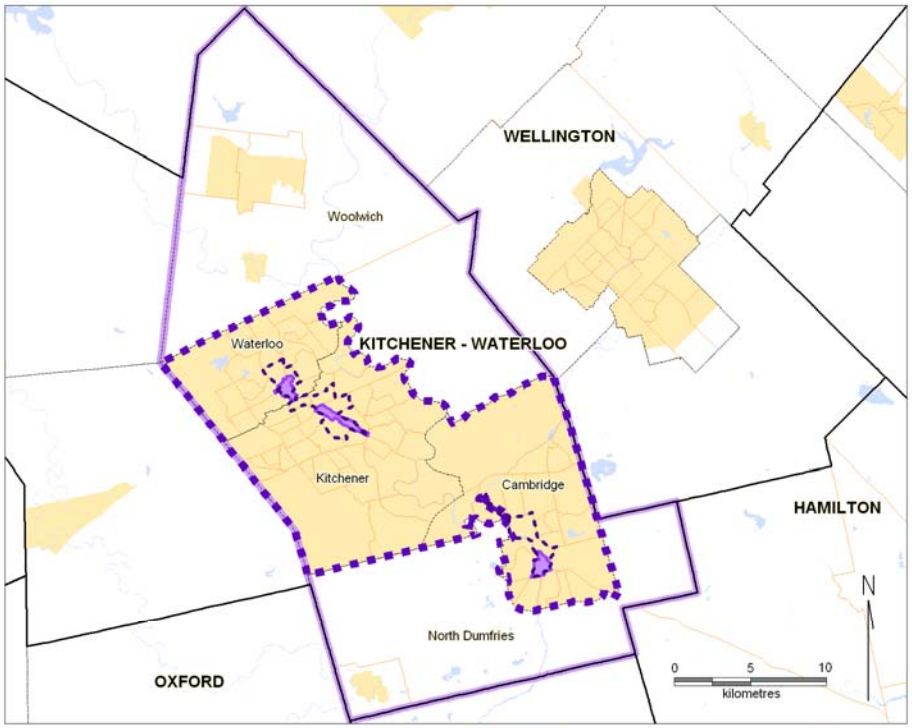


Kitchener



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*

LEGEND/ *LEGENDE*

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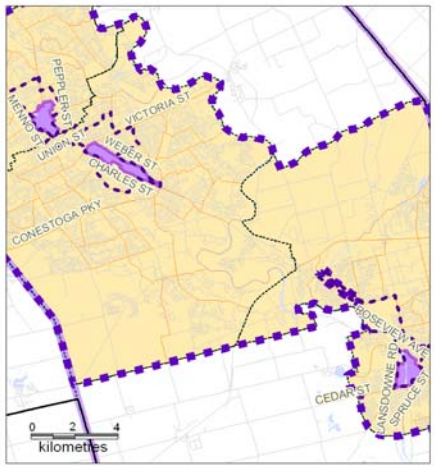
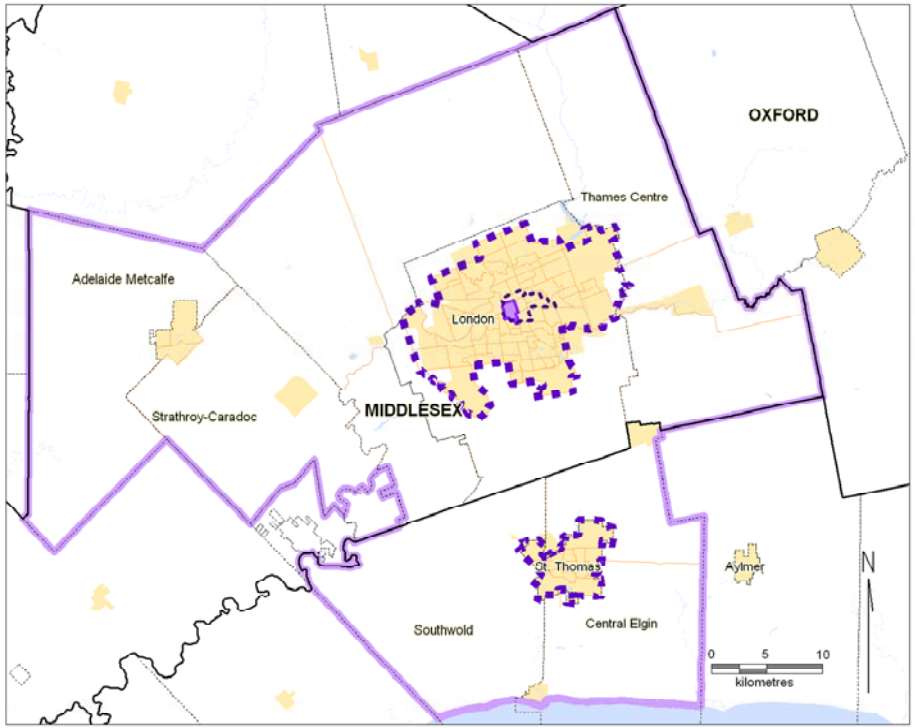


London



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
LEGEND/ *LEGENDE*

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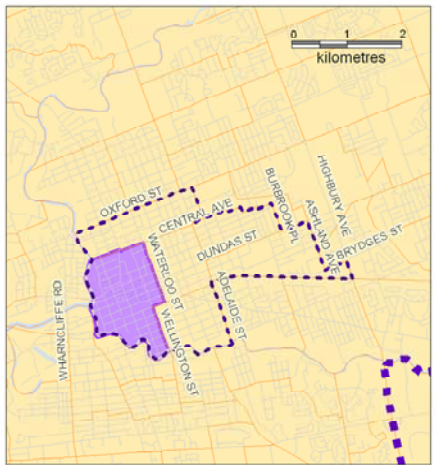
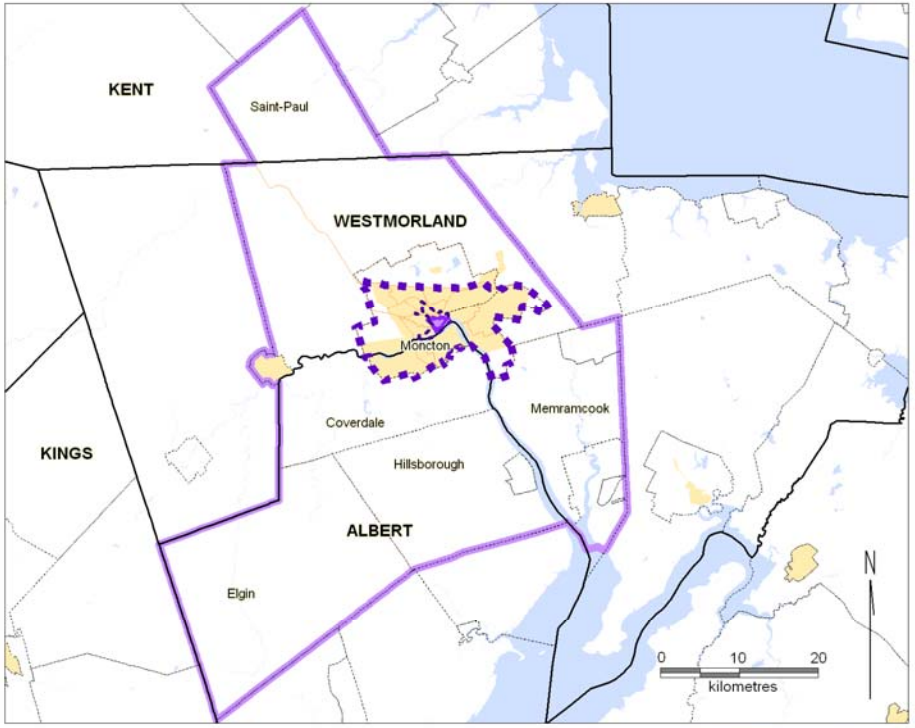


Moncton



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
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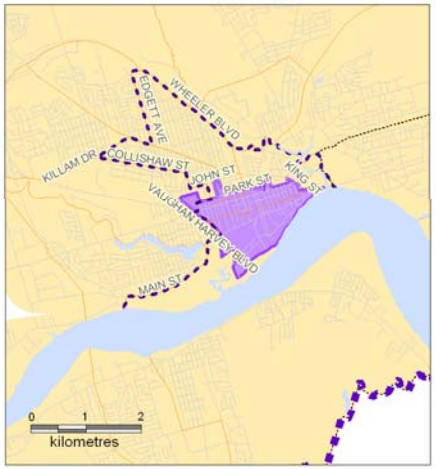
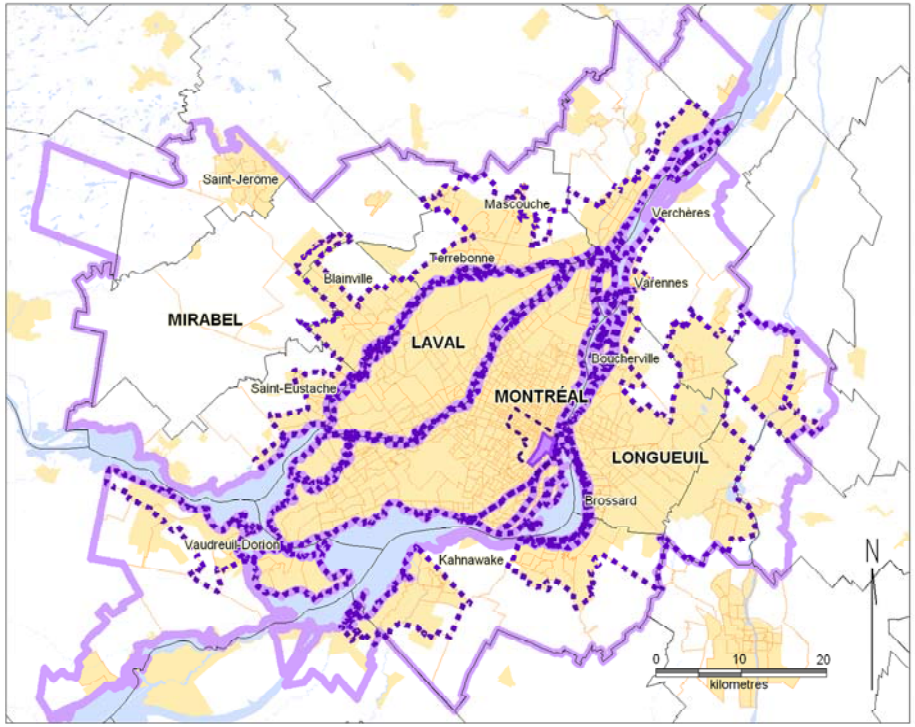


Montréal



Urban Transportation Indicators
Indicateurs de Transport Urbains

Boundaries/ *Limites*

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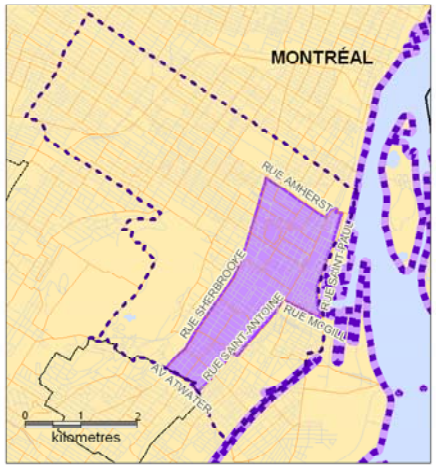
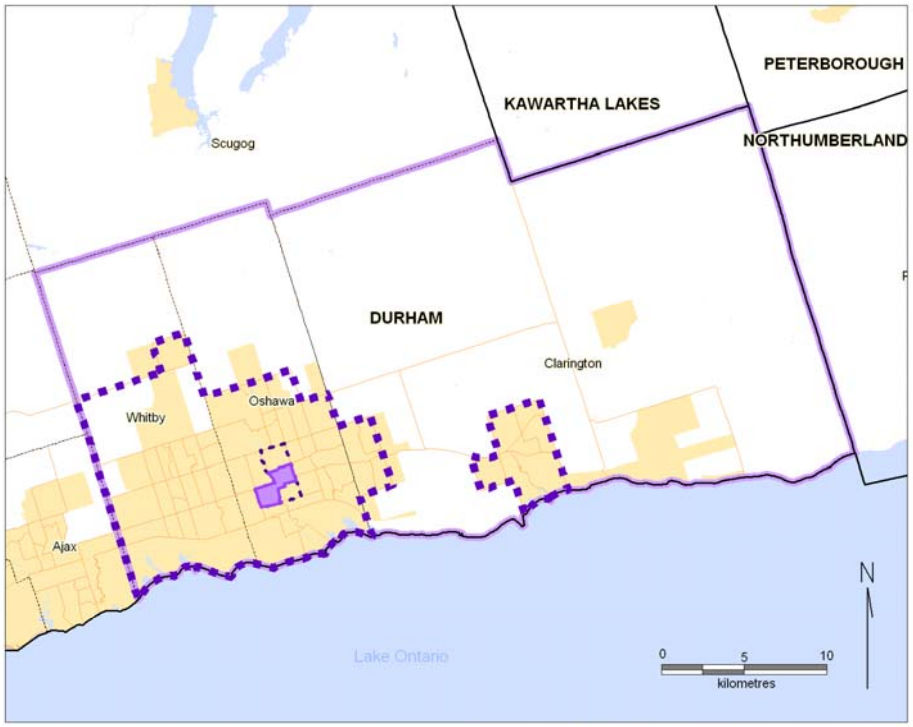


Oshawa



Urban Transportation Indicators
Indicateurs de Transport Urbains

Boundaries/ *Limites*

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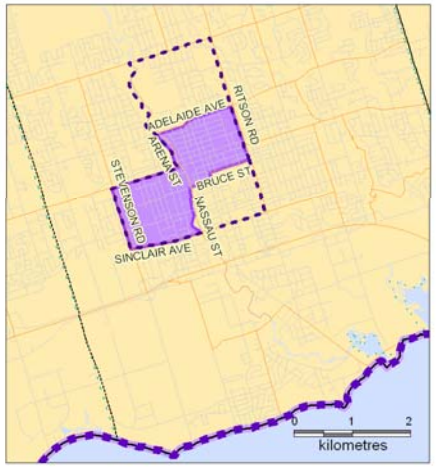
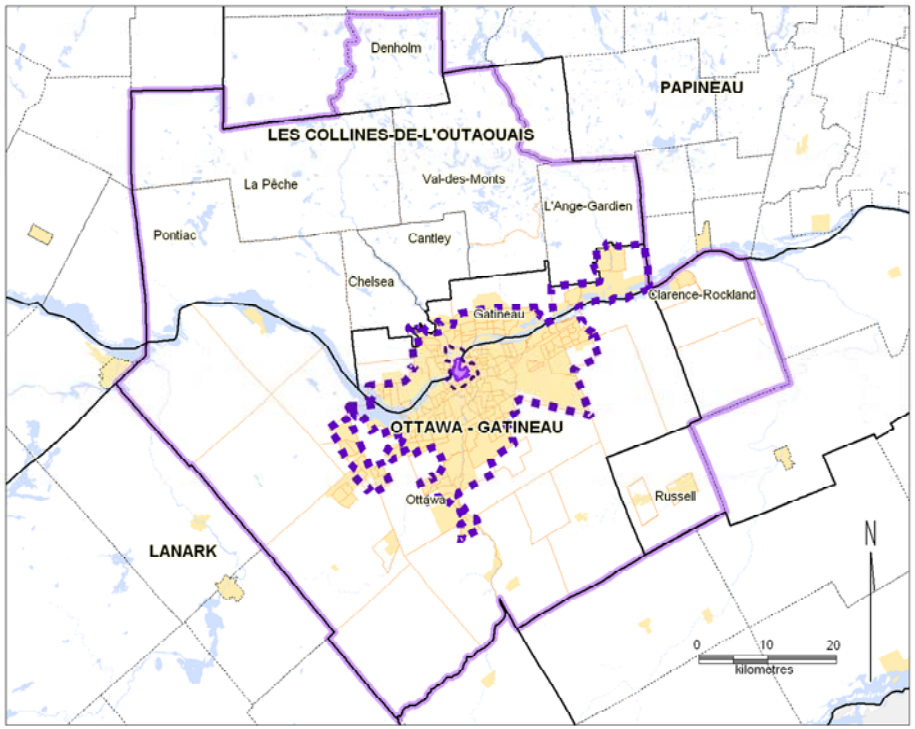
- Census Subdivision 2006 / *Subdivision de recensement 2006* (abc)
- Census Tract 2006 / *Secteur de recensement 2006*
- Road/*Route*
- Built-Up Area (Statistics Canada Urbanized Area) / *Cadre Bâti (selon la définition de Statistiques Canada)*



Ottawa – Gatineau



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
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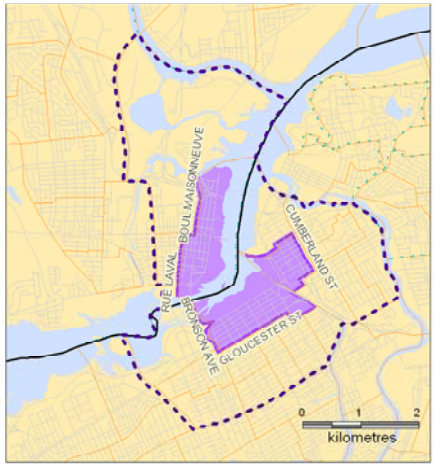
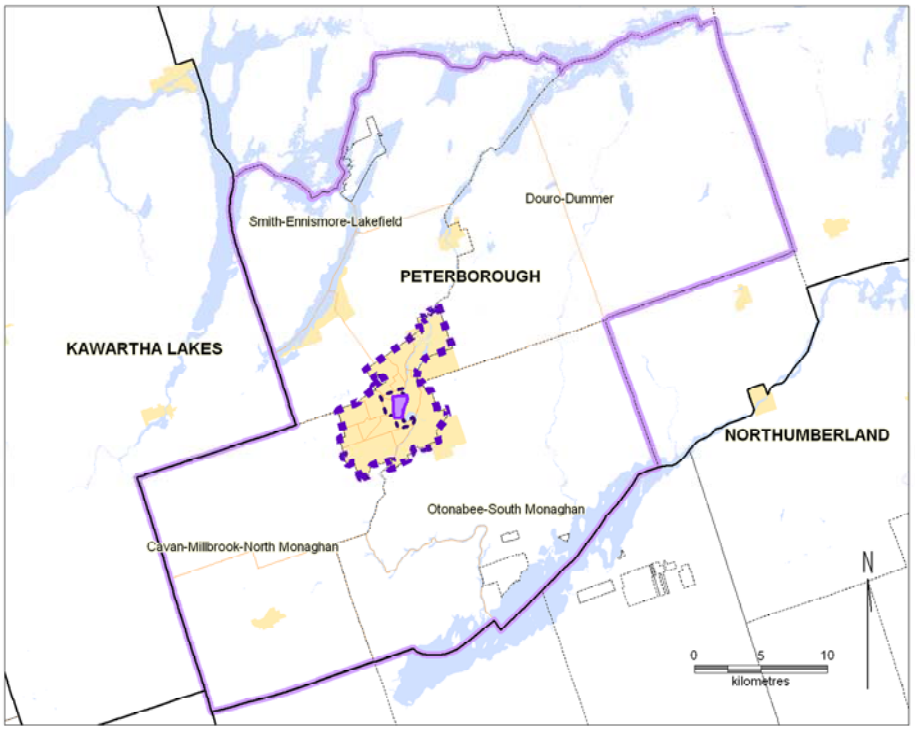


Peterborough



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
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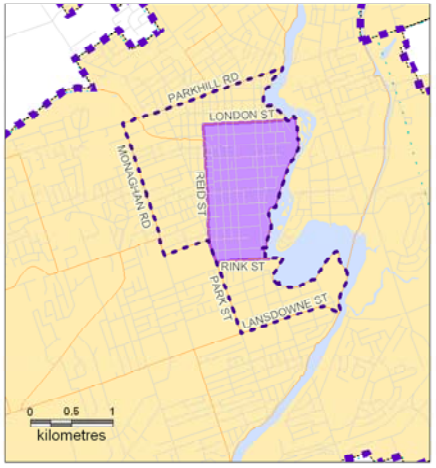
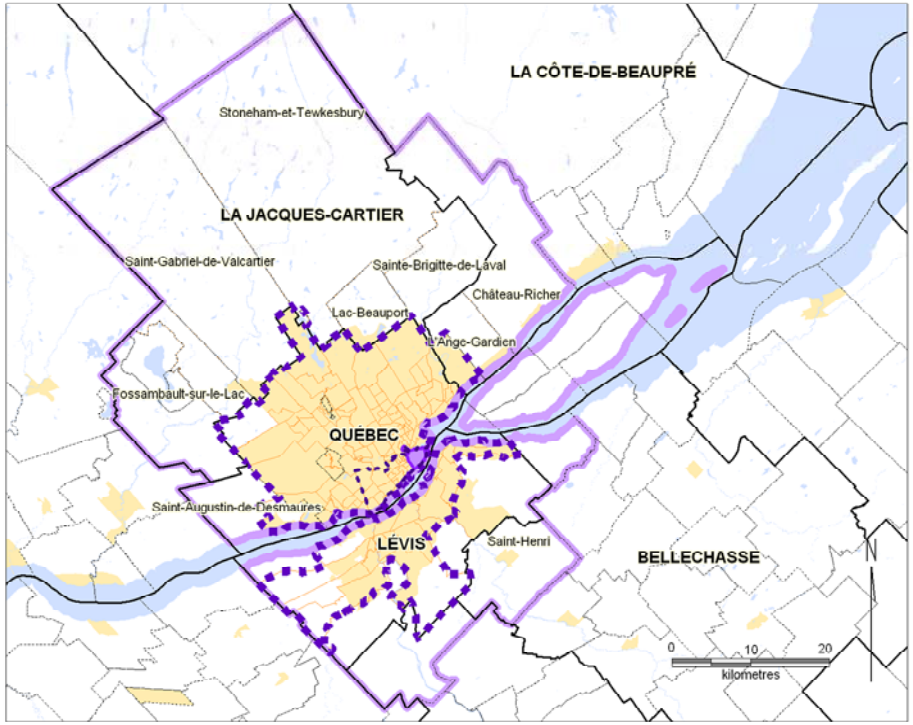
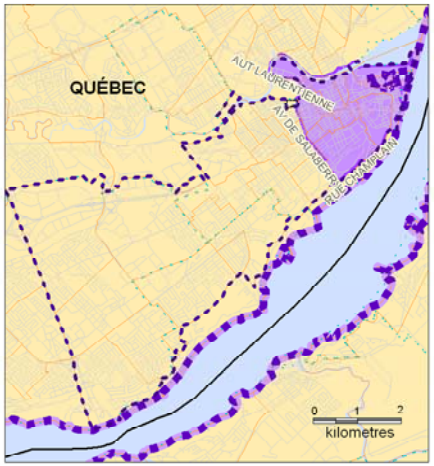


Québec





Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*
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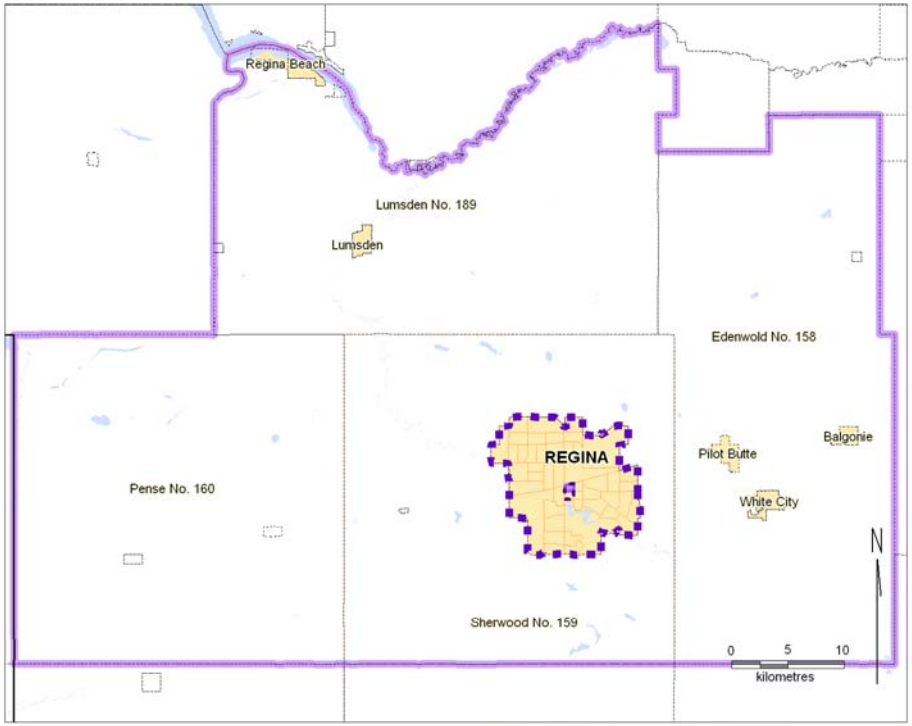
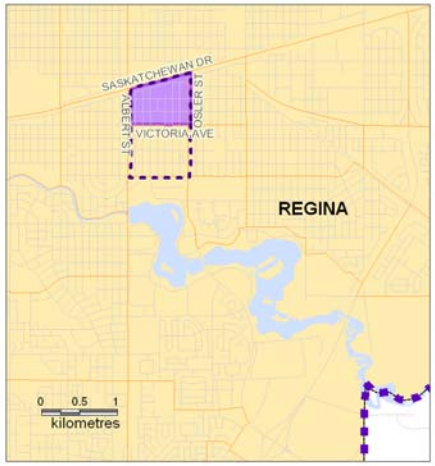
Regina





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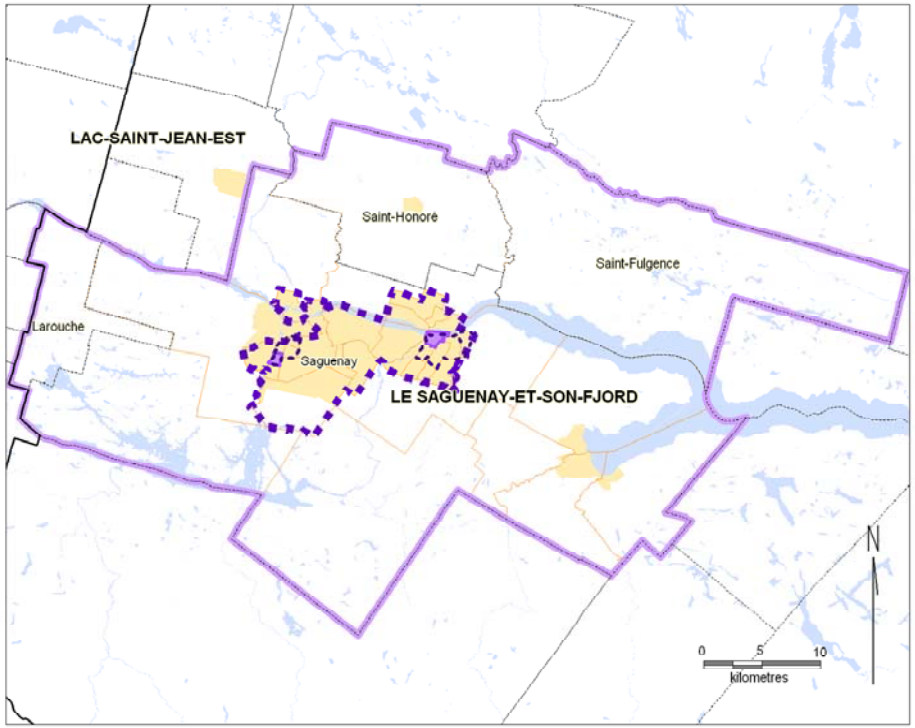
Saguenay



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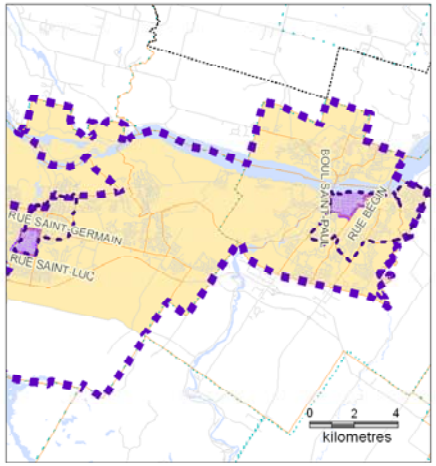
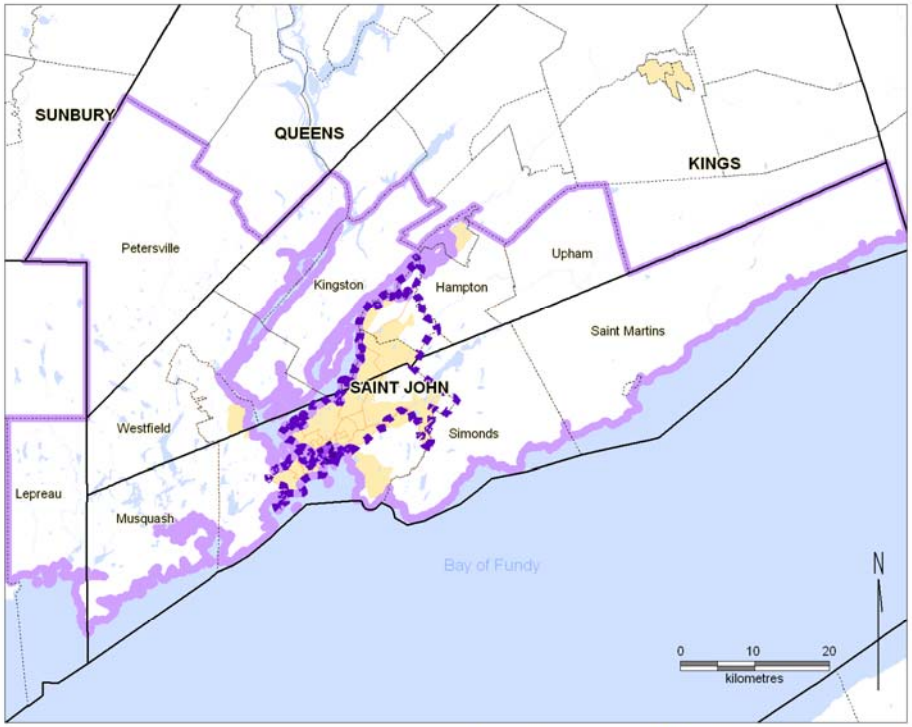


Saint John



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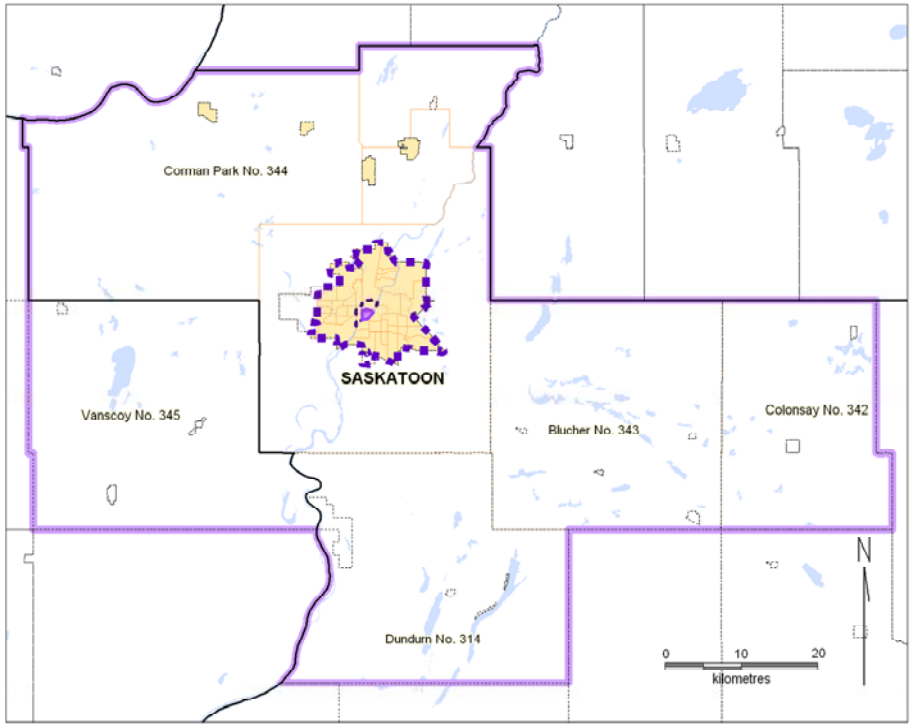
Saskatoon



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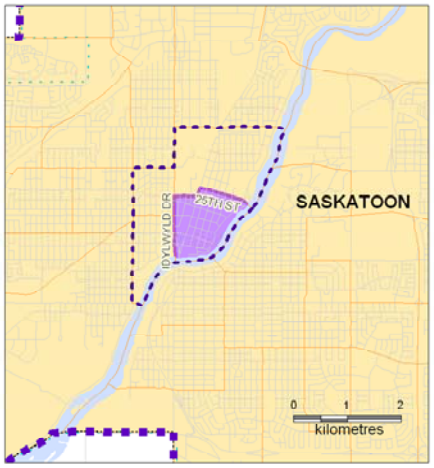
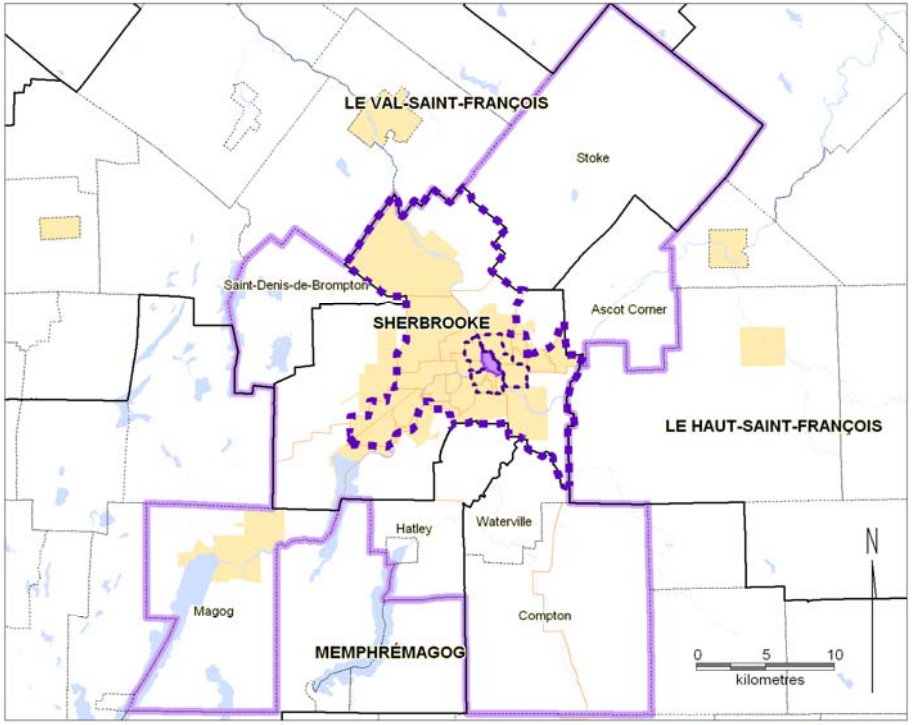


Sherbrooke



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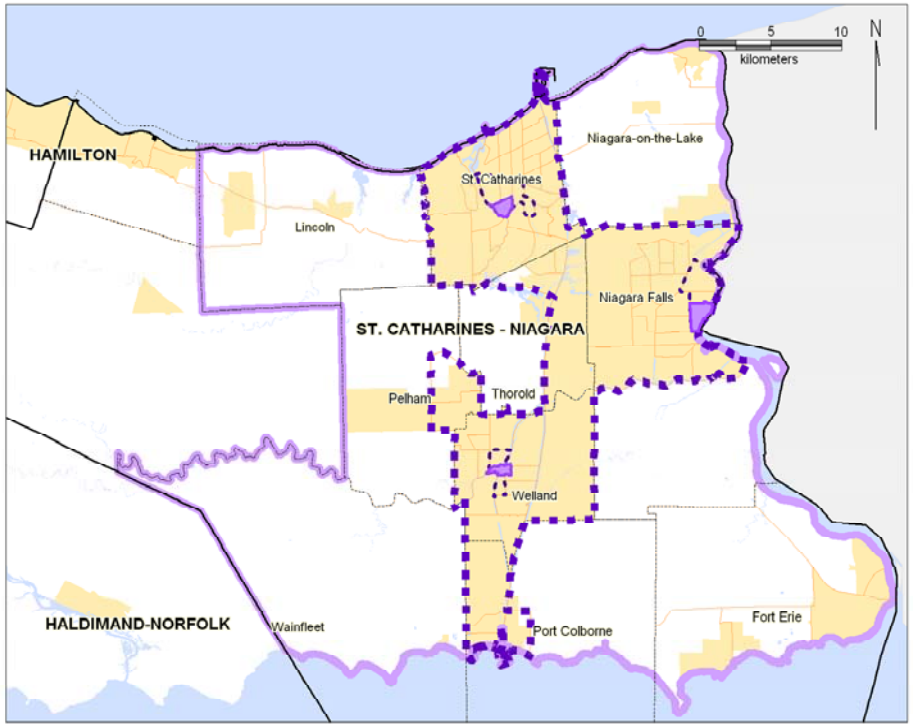
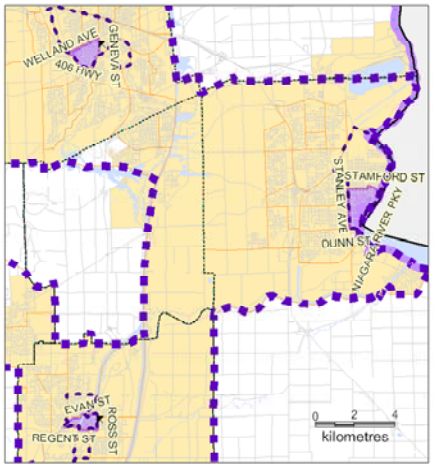
St. Catharines – Niagara





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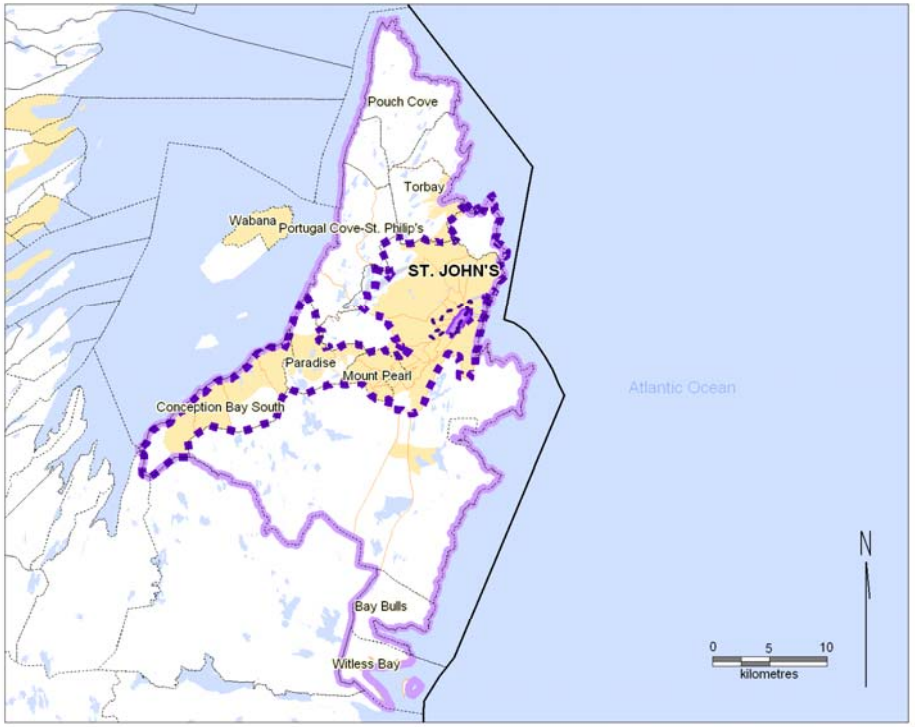
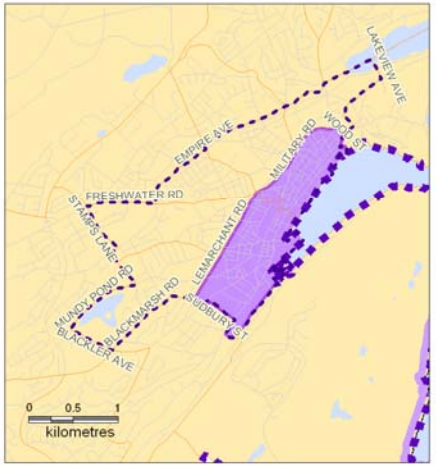
St. John's





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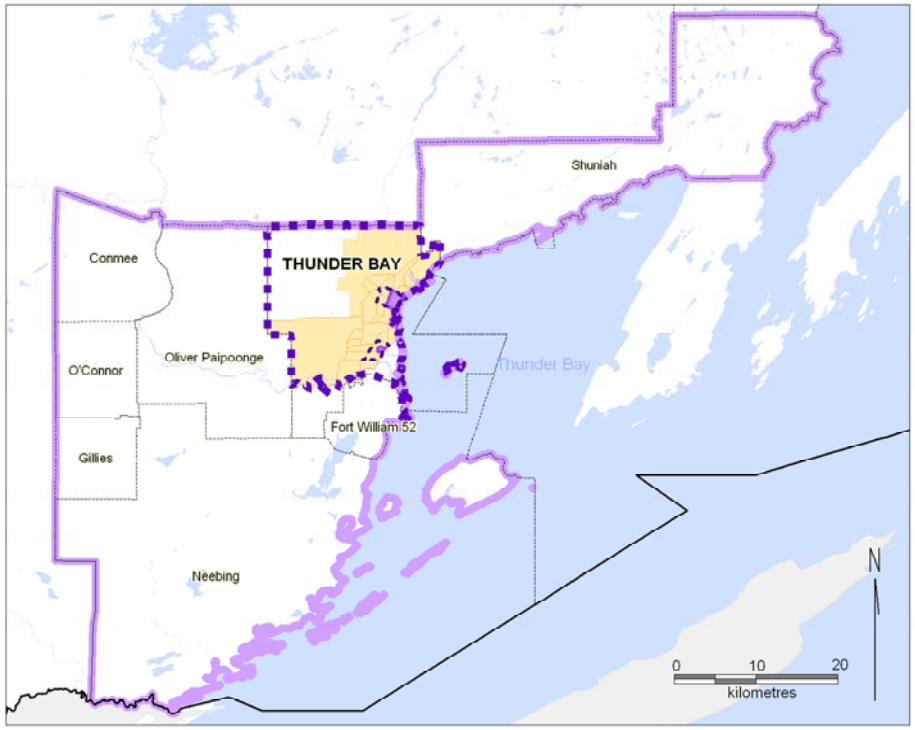
Thunder Bay



Urban Transportation Indicators
Indicateurs de Transport Urbains
Boundaries/ *Limites*

LEGEND/ *LEGENDE*

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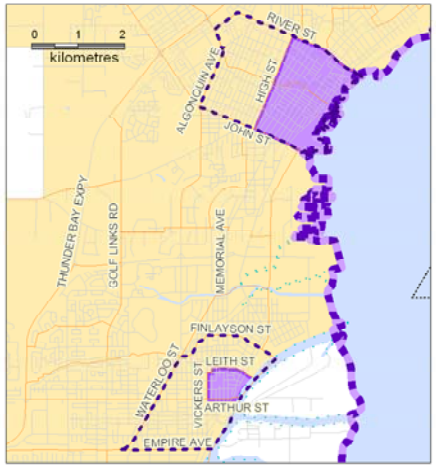
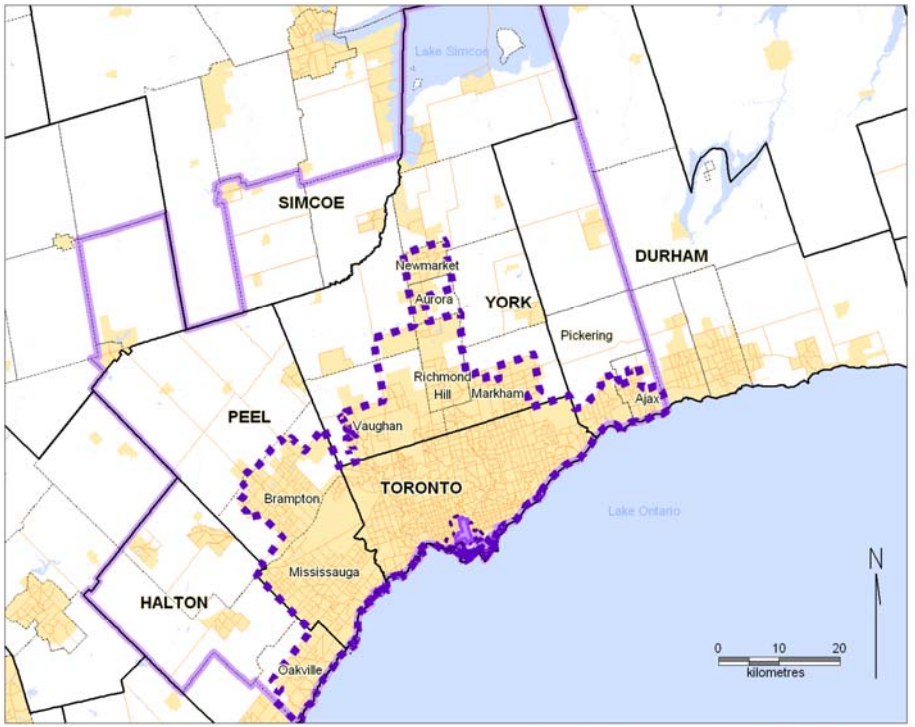


Toronto



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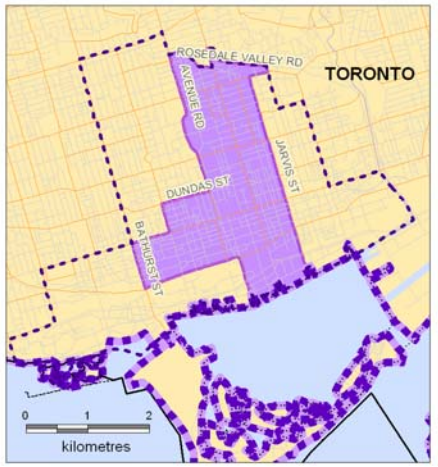
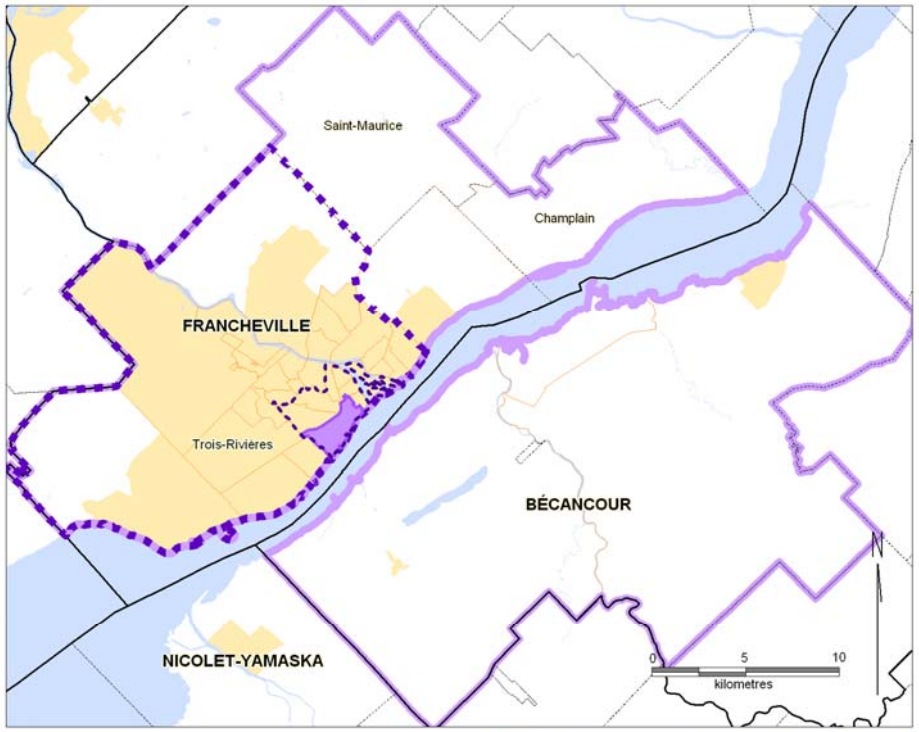


Trois – Rivières



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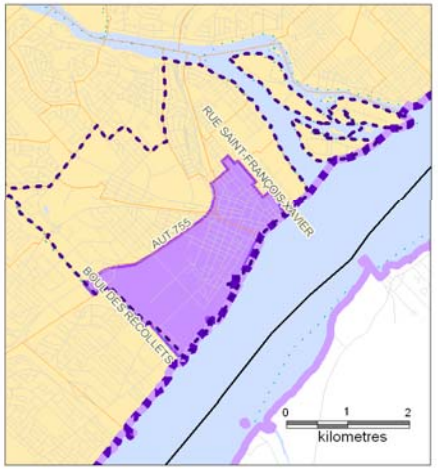
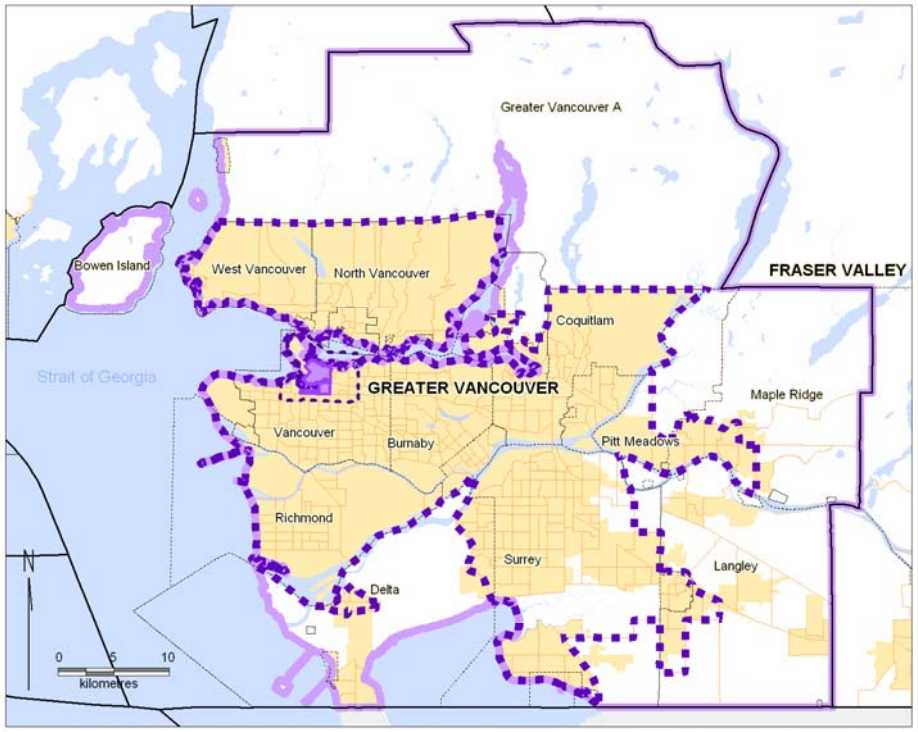


Vancouver



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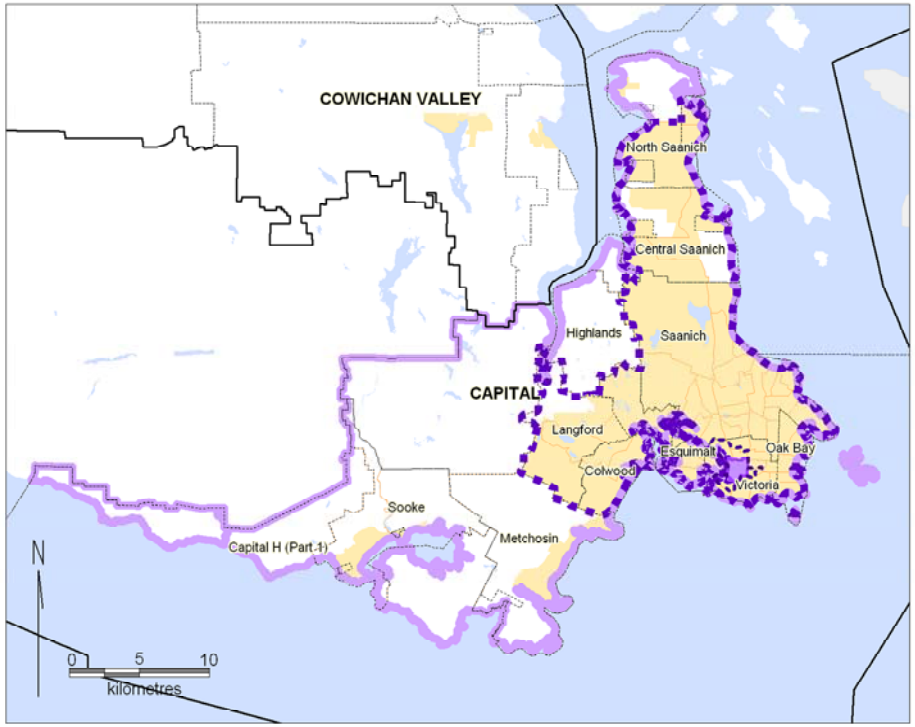
Victoria



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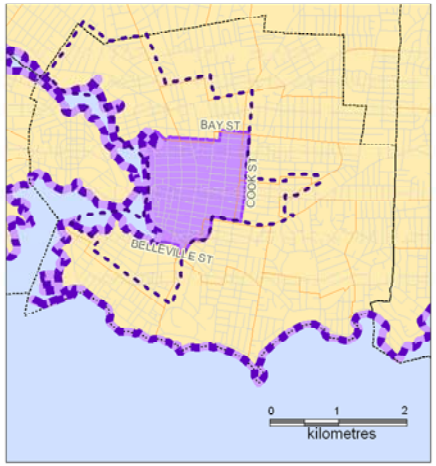
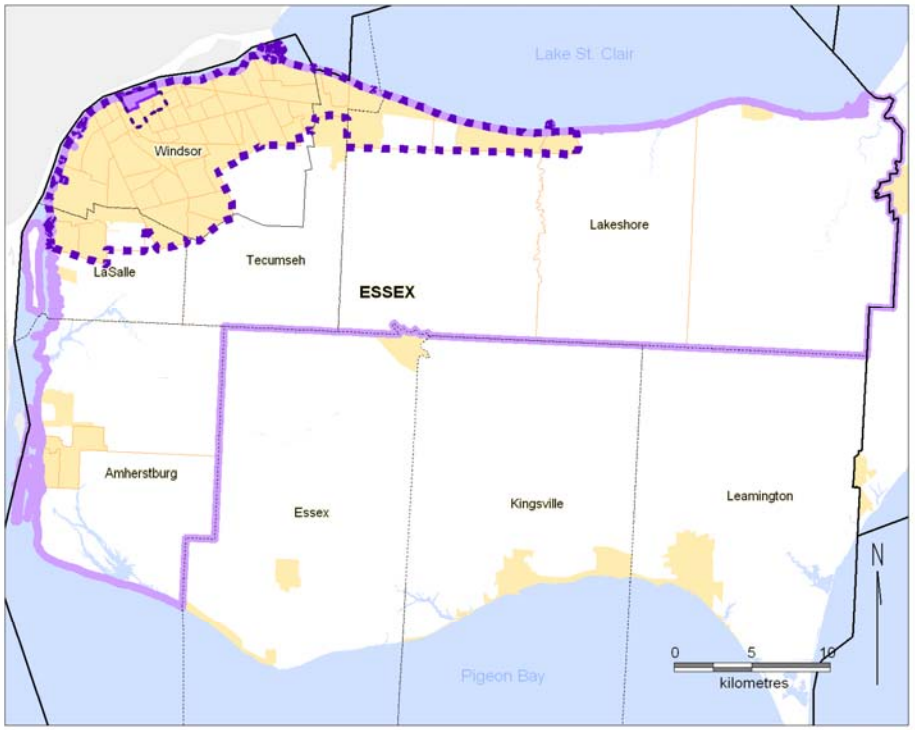


Windsor



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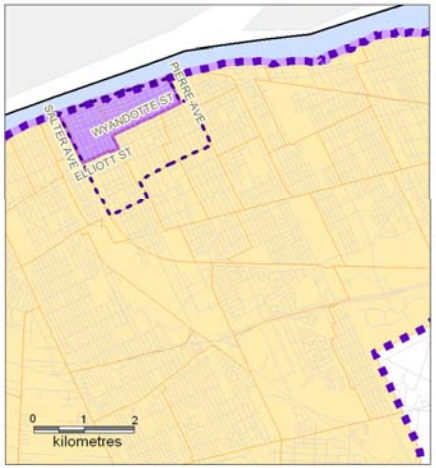
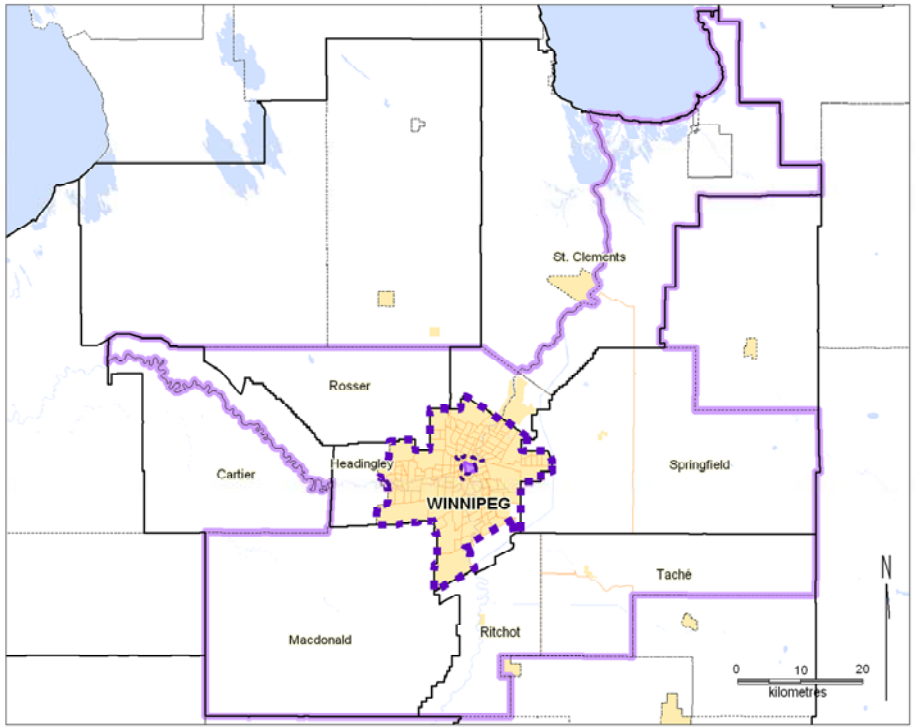


Winnipeg



Urban Transportation Indicators
Indicateurs de Transport Urbains

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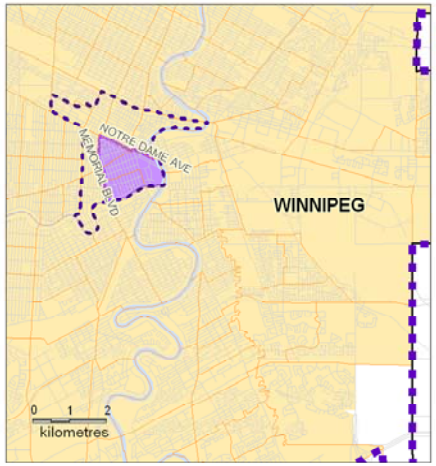

Appendix C

Key Indicators

Urban Transportation Indicators – Fourth Survey

Indicator	Toronto	Montréal	Vancouver	Ottawa-Gatineau	Calgary	Edmonton	Québec	Winnipeg	Hamilton	London	Kitchener
Background											
Population in Region	5,113,149	3,635,571	2,116,581	1,130,761	1,079,310	1,034,945	715,515	694,668	692,911	457,720	451,235
Population in EUA	4,690,196	3,310,511	1,982,005	953,317	991,759	843,784	643,833	631,807	625,966	341,987	421,389
Population in CBD	61,211	31,105	55,970	8,361	15,548	7,624	22,525	12,083	13,928	4,849	9,298
Employment in EUA	2,341,550	1,620,510	891,675	592,000	536,305	425,970	343,185	327,810	260,190	165,780	212,230
Employment in CBD	323,895	237,510	142,710	107,500	126,423	38,695	52,425	42,590	21,670	24,545	19,905
EUA Land Area (km2)	1,756	1,834	1,181	639	744	780	761	432	335	207	314
CBD Land Area (km2)	5.9	4.5	5.5	3.0	3.2	2.1	4.5	2.1	2.0	1.9	3.7
Land Use Characteristics											
Population Density in EUA (pop/km^2)	2671.0	1805.1	1678.2	1491.6	1332.2	1081.8	846.0	1462.5	1868.6	1652.1	1342.0
Urban Denstiy in EUA ([pop+emp]/km^2)	4004.4	2688.7	2433.3	2417.9	2052.6	1627.9	1297.0	2221.3	2645.2	2453.0	2017.9
Employment Density CBD (emp/km^2)	55178.0	53015.6	25947.3	36195.3	39019.4	18252.4	11780.9	20281.0	10622.5	12850.8	5365.2
Population Density in CBD (pop/km^2)	10427.8	6943.1	10176.4	2815.2	4798.8	3596.2	5061.8	5753.8	6827.5	2538.7	2506.2
Employment to Population Ratio - EUA	0.50	0.49	0.45	0.62	0.54	0.50	0.53	0.52	0.42	0.48	0.50
Employment to Population Ratio - CA	2.83	2.00	1.21	2.67	3.61	4.84	1.35	2.57	0.91	1.98	1.31
Employment to Population Ratio - CBD	5.29	7.64	2.55	12.86	8.13	5.08	2.33	3.52	1.56	5.06	2.14
Transportation Supply											
Arterial+Collector Lane-km per 1000 Capita - EUA	-	2.83	2.64	6.83	4.91	4.87	2.20	4.53	5.25	5.35	-
Expwy Lane-km per 1000 Capita - EUA	-	0.90	0.30	0.98	1.34	0.76	1.12	0.22	0.14	0.17	0.66
HOV Lane-km per 1000 Capita - EUA	-	-	-	0.136	0.005	0.014	0.072	0.003	-	-	-
Higher-Order Tranist Route-km per 1000 Capita - EUA	0.016	0.105	0.058	0.060	0.117	0.015	-	0.002	-	-	-
On-Street Bike Route-km per 1000 Capita - EUA	0.021	-	0.091	0.259	0.004	0.007	0.354	0.002	0.256	0.015	0.114
On-Street Bike Route-km per Road Lane-km - EUA	-	-	0.032	0.025	0.021	0.013	0.041	0.000	0.054	0.007	0.013
On-Street Bike Route-km (excl. signed) per Road Lane-km - EUA	-	-	0.030	0.024	0.000	0.001	0.033	0.000	0.025	0.001	0.011
Off-Street Bike Route-km per Land Area - EUA	0.095	-	0.327	0.413	0.853	0.237	-	0.264	0.507	0.169	0.067
Light-Duty Vehicles per Capita - EUA	0.48	0.50	0.56	0.51	0.72	0.63	0.60	0.55	0.59	0.66	0.60
AM Peak Period Transit Seat-km per Capita - EUA	-	-	1.43	2.10	1.41	-	-	1.31	0.28	-	0.65
24-h Transit Seat-km per Capita - EUA	-	52.69	6.70	7.93	7.06	-	-	5.14	-	4.11	2.88
Parking Spaces per CBD Employee	-	-	0.35	0.17	0.07	0.72	-	0.09	0.19	-	0.37
Transportation Demand											
AM Peak Period Mode Shares to CBD:											
Transit Modes	67%	59%	50%	41%	40%	31%	27%	-	12%	-	6%
Auto (Driver+Passenger)	29%	36%	42%	44%	48%	63%	59%	-	75%	-	89%
Non-Motorized	4%	4%	7%	13%	12%	6%	12%	-	12%	-	4%
AM Peak Period Mode Shares to/from/within EUA:											
Transit Modes	21%	28%	13%	21%	17%	17%	19%	-	13%	9%	7%
Auto (Driver+Passenger)	71%	61%	75%	63%	69%	73%	69%	-	78%	78%	84%
Non-Motorized	8%	11%	12%	11%	14%	10%	11%	-	9%	9%	8%
24-h Mode Shares to/from/within EUA:											
Transit Modes	16%	21%	10%	14%	8%	9%	12%	14%	8%	7%	5%
Auto (Driver+Passenger)	77%	66%	76%	71%	77%	79%	74%	78%	86%	83%	89%
Non-Motorized	6%	12%	13%	12%	15%	11%	13%	8%	6%	7%	6%
Auto Occupancies											
AM Peak Period Trips to CBD	1.21	1.20	1.16	1.27	1.33	1.19	1.27	-	1.19	-	1.12
AM Peak Period Trips to/from/within EUA	1.22	1.25	1.27	1.21	1.33	1.34	1.22	-	1.18	1.12	1.19
24-h Trips to/from/within EUA	1.25	1.26	1.28	1.23	1.26	1.34	1.25	1.13	1.25	1.13	1.25
Daily Trips per Capita - EUA	2.17	2.12	2.66	2.80	3.85	3.42	2.79	-	2.36	1.84	2.67
Annual Transit Trips per Capita - EUA	118.04	135.14	83.29	113.66	96.09	71.83	70.83	63.69	38.88	54.71	32.58
Average-Day Veh-km per Capita - EUA	-	15.21	-	-	24.01	16.19	-	13.08	-	-	18.75
Transportation System Performance											
Median Home-Work Trip Dist (km) -CMA	9.4	8.1	7.4	8.1	8.2	7.8	6.9	6.1	8.3	5.6	5.8
Annual Injuries and Fatalities per 1000 Capita - EUA	-	5.6	27.8	5.7	4.6	9.8	5.7	6.0	4.7	-	4.2
Annual Fuel Usage per Capita - EUA (L/Capita)	1,149	936	899	1,142	1,060	1,047	1,019	1,042	1,196	1,343	1,094
Daily Fuel Usage per Person-Trip - EUA (L)	1.45	1.21	0.93	1.12	0.75	0.84	1.00	-	1.39	2.00	1.12
Transportation Costs and Finance											
Total Road Expenditures per Capita	-	$385	-	$347	$698	$508	$330	-	-	-	-
Total Transit Expenditures per Capita	$403	$404	$391	$390	$454	$354	$164	$233	$120	$156	$134
Transit Farebox Revenue/Operating and Maintenance Budget	67%	49%	55%	49%	46%	37%	41%	50%	54%	58%	39%
FTE staff dedicated to bike/pedestrian projects per 1-million capita	3.2	-	1.8	1.3	2.0	3.6	-	-	-	4.4	4.7

Urban Transportation Indicators – Fourth Survey

Indicator	St. Catharines - Niagara	Halifax	Oshawa	Victoria	Windsor	Saskatoon	Regina	Sherbrooke	St. John's	Barrie	Kelowna
Background											
Population in Region	390,317	372,858	330,594	330,088	323,342	233,923	194,971	186,952	181,113	177,061	162,276
Population in EUA	304,085	279,965	287,383	303,488	274,445	202,310	179,246	126,531	153,085	154,715	126,601
Population in CBD	7,040	4,500	8,400	7,001	8,558	2,621	635	4,105	5,644	3,451	5,983
Employment in EUA	130,515	169,910	103,385	152,040	122,520	105,595	94,470	64,540	79,935	58,120	59,280
Employment in CBD	22,470	29,360	12,520	30,040	14,470	15,200	15,760	7,350	9,785	5,855	8,662
EUA Land Area (km2)	358	326	195	284	182	152	119	203	234	190	232
CBD Land Area (km2)	4.2	1.1	2.9	1.9	1.8	1.2	0.5	1.5	1.6	1.5	1.1
Land Use Characteristics											
Population Density in EUA (pop/km^2)	849.4	858.8	1473.8	1068.6	1507.9	1331.0	1506.3	623.3	654.2	814.3	545.7
Urban Denstiy in EUA ([pop+emp]/km^2)	1214.0	1380.0	2003.9	1604.0	2181.1	2025.7	2300.1	941.2	995.8	1120.2	801.2
Employment Density CBD (emp/km^2)	5324.6	25754.4	4362.4	16150.5	7864.1	13103.4	30902.0	5034.2	6003.1	3956.1	7946.8
Population Density in CBD (pop/km^2)	1668.2	3947.4	2926.8	3764.0	4651.1	2259.5	1245.1	2811.6	3462.6	2331.8	5489.0
Employment to Population Ratio - EUA	0.43	0.61	0.36	0.50	0.45	0.52	0.53	0.51	0.52	0.38	0.47
Employment to Population Ratio - CA	1.02	1.37	0.93	1.84	0.92	1.53	5.08	0.63	0.96	0.90	1.44
Employment to Population Ratio - CBD	3.19	6.52	1.49	4.29	1.69	5.80	24.82	1.79	1.73	1.70	1.45
Transportation Supply											
Arterial+Collector Lane-km per 1000 Capita - EUA	-	-	4.59	3.12	2.89	4.08	3.62	5.90	3.10	-	7.18
Expw y Lane-km per 1000 Capita - EUA	-	-	0.38	0.57	0.42	2.37	1.17	0.98	-	-	1.86
HOV Lane-km per 1000 Capita - EUA	-	-	-	-	-	-	-	-	-	-	-
Higher-Order Tranist Route-km per 1000 Capita - EUA	0.168	-	0.028	-	-	-	-	-	-	-	-
On-Street Bike Route-km per 1000 Capita - EUA	0.076	-	-	0.306	0.080	0.168	0.050	0.648	-	-	1.035
On-Street Bike Route-km per Road Lane-km - EUA	0.007	-	-	0.053	0.024	0.013	0.004	0.079	-	-	0.065
On-Street Bike Route-km (excl. signed) per Road Lane-km - EUA	0.007	-	-	0.027	0.010	0.013	0.004	0.047	-	-	0.063
Off-Street Bike Route-km per Land Area - EUA	0.215	-	0.303	0.165	0.379	0.289	0.218	0.172	-	-	0.254
Light-Duty Vehicles per Capita - EUA	0.63	0.49	0.64	0.65	0.56	0.65	0.69	0.49	0.53	0.62	0.85
AM Peak Period Transit Seat-km per Capita - EUA	-	-	3.63	-	-	-	-	-	0.33	-	0.95
24-h Transit Seat-km per Capita - EUA	-	-	16.02	5.44	-	-	-	-	2.56	-	2.94
Parking Spaces per CBD Employee	-	-	0.63	0.11	0.21	0.13	0.09	0.36	0.10	-	0.38
Transportation Demand											
AM Peak Period Mode Shares to CBD:											
Transit Modes	4%	-	5%	25%	-	15%	-	24%	-	11%	-
Auto (Driver+Passenger)	93%	-	87%	58%	-	78%	-	68%	-	83%	-
Non-Motorized	2%	-	8%	16%	-	7%	-	8%	-	7%	-
AM Peak Period Mode Shares to/from/w ithin EUA:											
Transit Modes	10%	-	10%	10%	-	-	-	16%	-	11%	7%
Auto (Driver+Passenger)	84%	-	79%	72%	-	-	-	71%	-	83%	82%
Non-Motorized	6%	-	10%	17%	-	-	-	12%	-	7%	9%
24-h Mode Shares to/from/w ithin EUA:											
Transit Modes	2%	-	6%	7%	-	-	-	9%	-	5%	4%
Auto (Driver+Passenger)	94%	-	87%	78%	-	-	-	79%	-	90%	87%
Non-Motorized	3%	-	6%	14%	-	-	-	12%	-	4%	5%
Auto Occupancies											
AM Peak Period Trips to CBD	1.14	-	1.15	1.23	-	1.00	-	1.26	-	1.19	-
AM Peak Period Trips to/from/w ithin EUA	1.19	-	1.21	1.39	-	-	-	1.21	-	1.19	1.26
24-h Trips to/from/w ithin EUA	1.11	-	1.25	1.32	-	-	-	1.23	-	1.25	1.25
Daily Trips per Capita - EUA	-	-	4.15	3.83	-	-	-	2.70	-	2.79	4.09
Annual Transit Trips per Capita - EUA	21.29	64.77	39.89	75.00	22.39	44.79	36.76	49.59	20.64	20.17	24.63
Average-Day Veh-km per Capita - EUA	-	-	18.34	23.62	13.31	-	-	17.69	-	-	23.08
Transportation System Performance											
Median Home-Work Trip Dist (km) -CMA	5.9	6.5	11	4.6	6.6	5	4.6	5	5.5	9	5.6
Annual Injuries and Fatalities per 1000 Capita - EUA	1.4	-	5.9	-	5.1	9.2	7.7	6.3	5.3	-	21.6
Annual Fuel Usage per Capita - EUA (L/Capita)	1,148	1,234	1,295	702	1,154	1,087	949	1,202	1,001	1,376	1,184
Daily Fuel Usage per Person-Trip - EUA (L)	-	-	0.86	0.50	-	-	-	1.22	-	1.35	0.79
Transportation Costs and Finance											
Total Road Expenditures per Capita	-	-	-	-	-	-	-	$257	-	-	-
Total Transit Expenditures per Capita	$69	$220	$96	$269	$114	$168	$146	$169	$92	$66	$82
Transit Farebox Revenue/Operating and Maintenance Budget	46%	55%	35%	42%	61%	41%	22%	40%	43%	51%	33%
FTE staff dedicated to bike/pedestrian projects per 1-million capita	-	-	-	-	-	4.9	-	0.0	-	-	23.7

Urban Transportation Indicators – Fourth Survey

Indicator	Abbotsford	Greater Sudbury	Kingston	Saguenay	Trois-Rivières	Guelph	Moncton	Brantford	Thunder Bay	Saint John	Peterborough
Background											
Population in Region	159,020	158,258	152,358	151,643	141,529	127,009	126,424	124,607	122,907	122,389	116,570
Population in EUA	127,649	112,029	114,096	101,061	120,034	114,943	97,221	101,369	106,071	88,352	74,898
Population in CBD	4,961	2,417	7,318	6,255	6,026	3,000	6,810	1,356	7,412	1,901	4,715
Employment in EUA	49,330	55,245	65,335	46,260	54,040	66,460	59,685	44,355	51,655	47,375	41,240
Employment in CBD	10,225	5,285	19,540	8,005	11,250	7,500	3,565	4,220	8,515	7,975	9,855
EUA Land Area (km2)	161	267	132	137	249	87	170	88	295	238	58
CBD Land Area (km2)	2.2	1.5	2.6	2.2	3.9	1.2	2.0	0.5	3.2	0.8	1.5
Land Use Characteristics											
Population Density in EUA (pop/km^2)	792.9	419.6	864.4	737.7	482.1	1321.2	571.9	1151.9	359.6	371.2	1291.3
Urban Denstiy in EUA ([pop+emp]/km^2)	1099.2	626.5	1359.3	1075.3	699.1	2085.1	923.0	1656.0	534.7	570.3	2002.4
Employment Density CBD (emp/km^2)	4668.9	3595.2	7632.8	3605.9	2892.0	6355.9	1782.5	8274.5	2703.2	9608.4	6483.6
Population Density in CBD (pop/km^2)	2265.3	1644.2	2858.6	2817.6	1549.1	2542.4	3405.0	2658.8	2353.0	2290.4	3102.0
Employment to Population Ratio - EUA	0.39	0.49	0.57	0.46	0.45	0.58	0.61	0.44	0.49	0.54	0.55
Employment to Population Ratio - CA	0.49	1.01	1.17	0.73	0.96	0.67	1.74	0.86	0.50	1.73	0.87
Employment to Population Ratio - CBD	2.06	2.19	2.67	1.28	1.87	2.50	0.52	3.11	1.15	4.20	2.09
Transportation Supply											
Arterial+Collector Lane-km per 1000 Capita - EUA	3.13	12.26	-	3.46	6.34	3.90	-	-	-	-	-
Expwy Lane-km per 1000 Capita - EUA	0.39	-	-	0.66	1.89	0.52	-	-	-	-	-
HOV Lane-km per 1000 Capita - EUA	-	-	-	-	-	-	-	-	-	-	-
Higher-Order Tranist Route-km per 1000 Capita - EUA	-	-	-	-	-	-	-	-	-	-	-
On-Street Bike Route-km per 1000 Capita - EUA	0.627	0.089	-	1.073	0.741	0.235	0.309	-	-	-	-
On-Street Bike Route-km per Road Lane-km - EUA	0.114	0.003	-	0.057	0.062	0.024	-	0.013	-	-	-
On-Street Bike Route-km (excl. signed) per Road Lane-km - EUA	0.076	0.003	-	0.045	0.051	0.024	-	-	-	-	-
Off-Street Bike Route-km per Land Area - EUA	0.248	0.667	-	-	0.161	0.517	0.471	0.625	-	-	-
Light-Duty Vehicles per Capita - EUA	0.71	0.53	0.57	0.73	0.64	0.62	0.63	0.65	0.76	0.62	0.68
AM Peak Period Transit Seat-km per Capita - EUA	-	-	-	0.76	-	0.64	-	-	-	-	-
24-h Transit Seat-km per Capita - EUA	-	-	-	7.42	-	3.67	-	-	-	-	-
Parking Spaces per CBD Employee	-	0.37	-	-	0.14	0.33	0.35	0.39	-	-	-
Transportation Demand											
AM Peak Period Mode Shares to CBD:											
Transit Modes	-	-	-	-	11%	3%	-	4%	-	-	5%
Auto (Driver+Passenger)	-	-	-	-	83%	88%	-	88%	-	-	86%
Non-Motorized	-	-	-	-	6%	8%	-	7%	-	-	8%
AM Peak Period Mode Shares to/from/within EUA:											
Transit Modes	-	-	-	-	18%	10%	-	8%	-	-	10%
Auto (Driver+Passenger)	-	-	-	-	71%	82%	-	83%	-	-	81%
Non-Motorized	-	-	-	-	11%	9%	-	9%	-	-	9%
24-h Mode Shares to/from/within EUA:											
Transit Modes	1%	7%	-	-	9%	7%	-	4%	-	-	6%
Auto (Driver+Passenger)	87%	87%	-	-	80%	87%	-	90%	-	-	89%
Non-Motorized	9%	-	-	-	11%	6%	-	5%	-	-	5%
Auto Occupancies											
AM Peak Period Trips to CBD	-	-	-	-	1.16	1.10	-	1.17	-	-	1.22
AM Peak Period Trips to/from/within EUA	-	-	-	-	1.18	1.16	-	1.18	-	-	1.17
24-h Trips to/from/within EUA	1.26	1.26	-	-	1.24	1.22	-	1.25	-	-	1.26
Daily Trips per Capita - EUA	-	-	-	-	2.69	3.00	-	2.08	-	-	3.32
Annual Transit Trips per Capita - EUA	15.67	38.53	25.88	49.60	27.03	44.51	16.86	13.26	28.29	27.58	33.55
Average-Day Veh-km per Capita - EUA	-	13.38	-	-	13.47	-	-	-	-	-	-
Transportation System Performance											
Median Home-Work Trip Dist (km) -CMA	7.3	6.9	5.9	5.3	5.1	5	4.9	5.3	4.7	6.9	5.1
Annual Injuries and Fatalities per 1000 Capita - EUA	-	5.4	-	6.4	7.2	3.9	-	3.0	-	-	-
Annual Fuel Usage per Capita - EUA (L/Capita)	1,859	1,510	1,295	1,242	1,129	1,149	1,391	1,174	1,172	1,357	1,538
Daily Fuel Usage per Person-Trip - EUA (L)	-	-	-	-	1.15	1.05	-	1.55	-	-	1.27
Transportation Costs and Finance											
Total Road Expenditures per Capita	-	-	-	$293	$539	-	-	-	-	-	-
Total Transit Expenditures per Capita	$68	$171	$98	-	-	$143	$60	$89	$116	$98	$87
Transit Farebox Revenue/Operating and Maintenance Budget	31%	41%	48%	-	-	43%	41%	31%	34%	51%	49%
FTE staff dedicated to bike/pedestrian projects per 1-million capita	7.8	-	-	-	-	8.7	-	-	-	-	-

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