

URBAN TRANSPORTATION INDICATORS SURVEY

Advancing the State of Information on Canada's Urban Areas

In 1994, the TAC Urban Transportation Council initiated the Urban Transportation Indicators Survey. The survey was designed to provide consistent and comprehensive data on transportation trends in Canada's urban areas. It was also intended to measure progress towards TAC's VISION FOR URBAN TRANSPORTATION – a widely circulated document that calls for significant change from past practices in respect to land use, the role of private automobiles, and transportation funding.

The first Urban Indicators Survey was carried out in 1995 and involved seven urban areas, collecting data for 1991 conditions. In 1999 the survey was expanded to 15 urban areas, collecting data for 1996 conditions. The third survey, which is the subject of this briefing, was carried out in 2003 and collected data for 2001 conditions. All 27 of Canada's Census Metropolitan Areas (CMAs) were targeted in the most recent survey.

All three surveys collected similar information covering issues pertaining to land use and urban structure, transportation supply, transportation demand, transportation costs and financing, and energy use and environmental implications. When combined, the surveys provide a unique picture of transportation trends in Canada's urban areas. Understanding and interpreting these trends is critically important in helping cities establish integrated land use and transportation policies and achieve more sustainable urban transportation. This briefing presents a snap-shot of some of the key trends and results revealed by the latest Urban Indicators Survey.

ROLE OF URBAN AREAS...

Why Understanding Urban Transportation Trends is Important

Although Canada covers a large geographic area, its population is concentrated in a relatively small number of urban areas. Of the 30 million people residing in Canada in 2001, approximately 19.3 million (64%) were living in one of the 27 Census Metropolitan Areas covered by the latest TAC survey. Clearly, understanding what is happening in urban areas goes a long way in understanding what is happening in Canada as a whole.

Most of the population and employment growth activity in Canada is happening in large urban regions. Between 1991 and 2001, population growth in the 27 CMAs was three times that of growth in the rest of Canada.

Transportation Activity

In 2001, people living in Canada's 27 CMAs drove a total distance of 170 billion kilometres, or about 5,600

kilometres per person annually. In one day, people living in Canada's urban areas drive a distance equal to three times the distance from the earth to the sun. This transportation activity has a major impact on energy consumption. With the average urban resident consuming about 1,000 litres of gasoline per year for personal travel, the total amount of gasoline burned in cars in urban areas is almost 18 million litres per year. In addition to having air quality, environmental and climate change implications, the cost of this fuel is a staggering 15 billion dollars.

Fortunately, transit plays a large role in handling many urban trips. Annually, people living in the urban regions surveyed made a total of 1.4 billion trips on transit in 2001. Although this figure has remained relatively constant since 1991, there are signs that transit use is starting to increase in many urban areas.

LAND USE DRIVES TRANSPORTATION...

Urban Development Trends

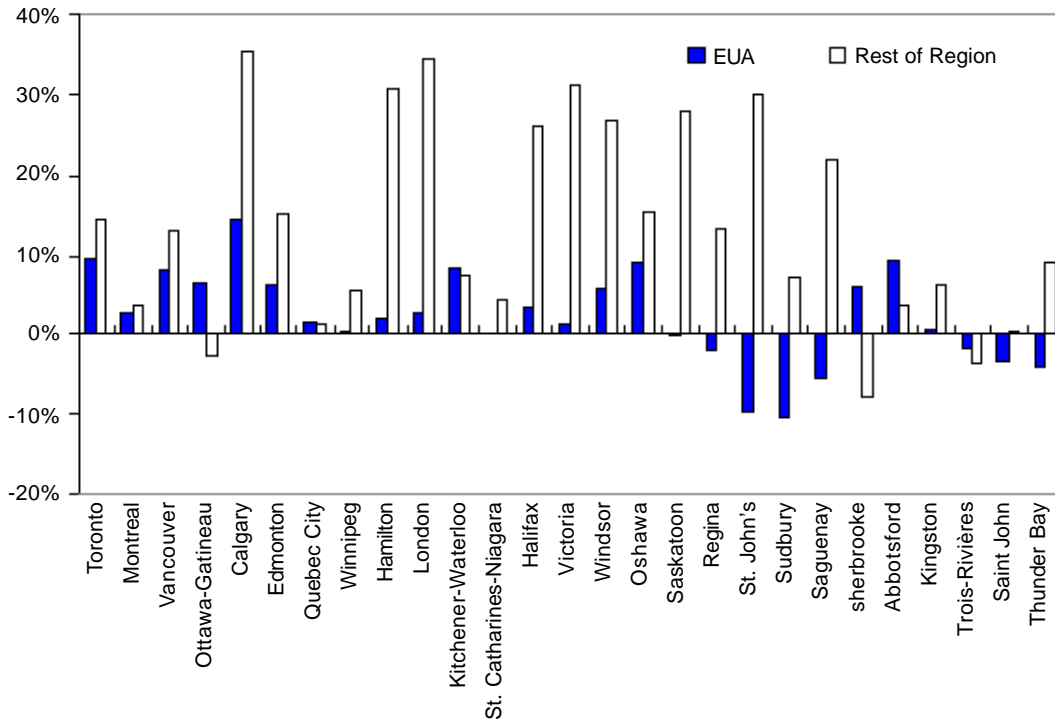
There is a direct relationship between urban structure and transportation, with associated outcomes for the environment, economy and health. For these reasons, the TAC Urban Indicators Survey tracks urban structure trends at the broad level. Using data from Statistics Canada, land use data is assembled for four distinct geographic areas in each urban region: the Region (corresponding to the CMA boundary), the Existing Urbanized Area (EUA), the Central Area (CA) and the Central Business District (CBD). Boundaries of these geographic areas were held constant for the last two surveys to facilitate the measurement of urban structure changes.

The TAC survey confirms what is already known – growth in most cities is occurring most rapidly in the fringe areas of urban regions. The TAC survey measured this by comparing growth rates for the EUA, which generally represents the existing urbanized area and slightly beyond,

to growth rates in the area between the EUA and the urban region boundary (see graph at top right). Although the majority of population and employment growth in absolute terms still occurs within the bounds of the Existing Urbanized Areas, the highest rates of growth are in the outer areas. Generally, people living in these areas own more vehicles and travel longer distances to work and other activities.

Another important trend in urban structure that has implications for transportation performance is the number of jobs located in the Central Business District (CBD). On average, about one-fifth of the total urban region employment is located in the area defined as the CBD, typically a very small area geographically (see graph at bottom right). Because of these large concentrations in CBD jobs, it is possible to serve these trips efficiently using mass transit. Many of Canada’s mid-sized urban areas are currently struggling to keep employment in the CBD.

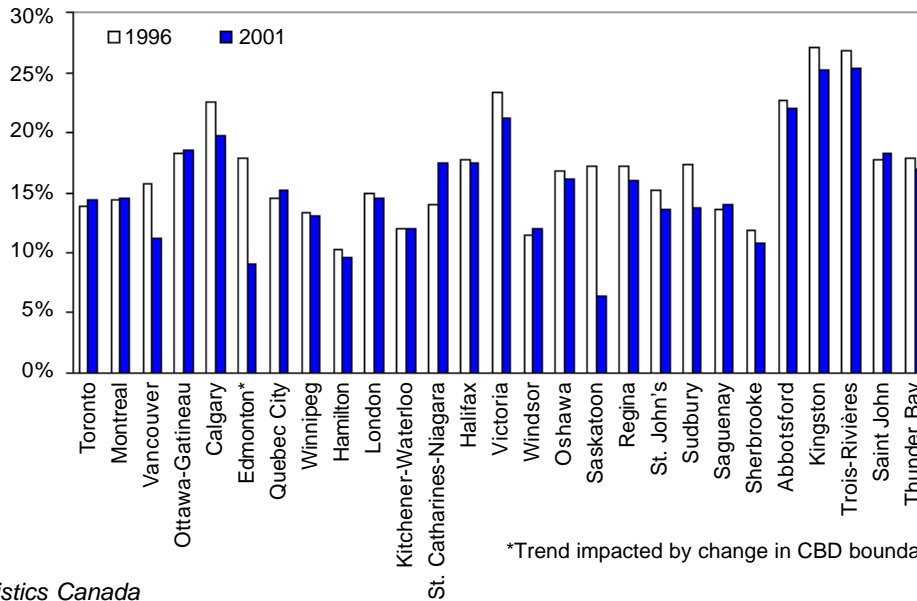
Percent changes in population of Existing Urbanized Area and the rest of the region, 1996-2001



Data Source: Statistics Canada



Proportion of Region Employment in the Central Business District, 1996 and 2001



Data Source: Statistics Canada

PROGRESS ON LAND USE AND TRANSPORTATION INITIATIVES...

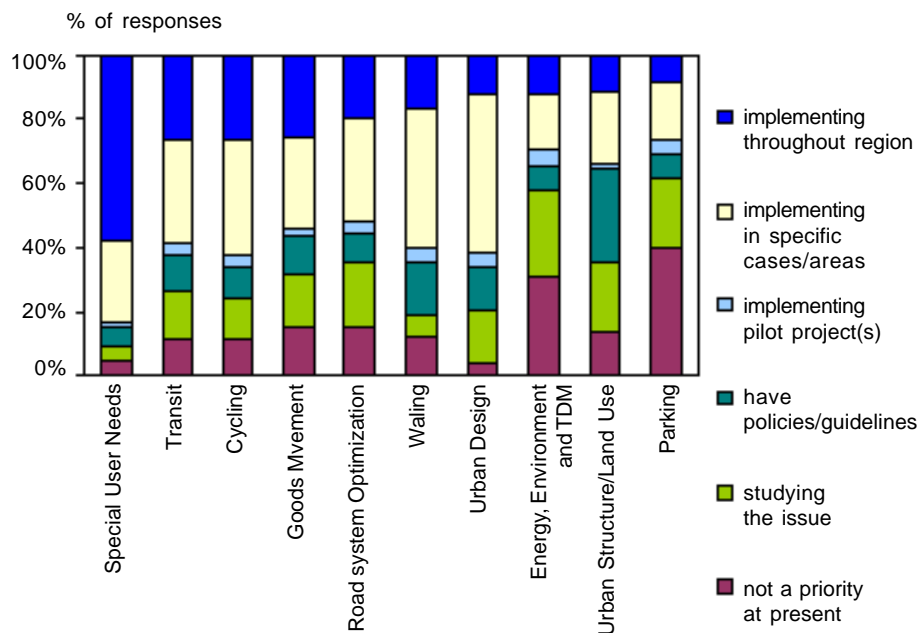
Planning for Change

Most municipalities in Canada understand the need to become more sustainable and have reflected this in their planning activities. The survey asks respondents to rate their progress or 'level of deployment' on 71 types of land use and transportation initiatives covering 10 categories.

The level of deployment is based on a six-point scale ranging from "not a priority" to "implementing throughout municipality."

The figure to the right provides a very high-level summary of the degree of implementation of initiatives in the 10 subject categories. In general progress is being made in

Degree of Implementation of Transportation and Land Use Initiatives in 2001*



* See *Urban Transportation Indicators (Third Survey), Volume 1, 2005* for an explanation of rating system methodology.

all categories, though initiatives pertaining to urban structure/land use and the environment (at the urban area level) have progressed to a lesser degree than other categories. For example, most of the urban areas surveyed indicated that they have not established formal greenhouse gas reduction targets specifically for urban transportation.

An encouraging trend is that, compared to the previous survey five years ago, all urban areas participating in both surveys reported having made progress in most of the categories examined.

KEY TRANSPORTATION TRENDS...

Vehicle Ownership

In 2001, there were almost 9 million light duty vehicles registered in the 27 urban regions covered by this survey. This represents 1.4 vehicles for every household or approximately one vehicle for every two persons. Due to changes in reporting methods since 1996, which saw changes in the classification of light duty vehicles and trucks, it is not possible to establish whether per capita vehicle ownership is increasing or decreasing. However, national sources suggest that the trend has remained relatively constant over the last 10 years.¹

Transit Use

Transit is a very significant mode within large urban areas, accounting for approximately 30% of all rush period trips in larger urban areas, and a much larger percentage for trips to and from the CBD.

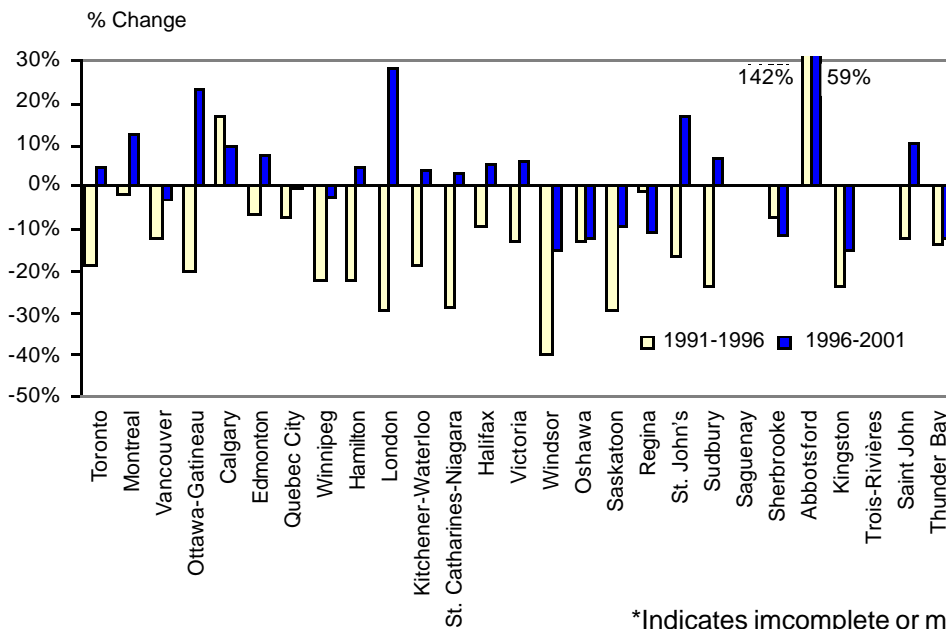
Between 1991 and 1996, most urban areas experienced a decline in absolute transit ridership, with the exception of Calgary and Montréal. This trend was reversed for many urban areas between 1996 and 2001. In fact, several urban areas also saw an increase in ridership per capita, a measure of the attractiveness of transit relative to other modes.

Energy Use

Energy use is one of the most immediate and direct measures of the efficiency of the transportation system, as well as its environmental and economic impact. Total energy use is a function of number of trips made, distance travelled per trip and vehicle fuel efficiency.

The TAC Urban Transportation Indicators survey is one of the only initiatives that tracks energy use in Canada's urban areas. Energy use is estimated from gasoline fuel

Change in Annual Transit Rides per Capita 1991-2001



Data Source: CUTA except for Abbotsford 2002 data for Vancouver and Calgary

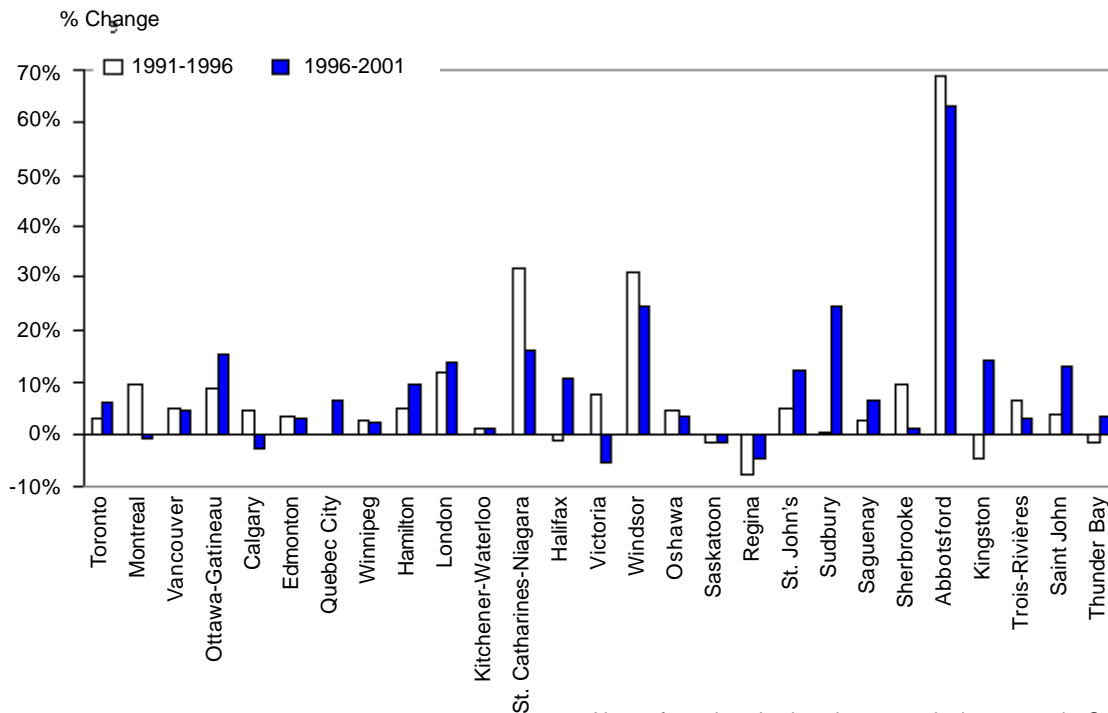


sales data collected by a private research firm and purchased by TAC, and is indicative of energy use from personal vehicles.

Between 1991 and 2001, total gasoline consumption for all 27 urban areas in the survey rose from 14.2 billion litres to 17.7 billion litres, representing a 25% increase. This trend represents an 11% increase in per capita gasoline consumption since 1991, which is a significant concern.

Energy use translates directly into greenhouse gas (GHG) emissions. Given Canada's commitment to reduce GHG emissions by 6% compared to 1990 levels by the 2008-2012 period, the fact that per capita gasoline usage is still increasing in urban areas is an issue of concern. There is still a lot of work to do if Canada wants to reach these targets. Transportation (passenger and freight) accounts for approximately 25% of all GHG emissions in Canada with urban transportation accounting for a large part of this.

Change in Annual Fuel Use per Capita 1991-2001



Note of caution: In the above graph, increases in St. Catharines-Niagara, Windsor and Abbotsford may be influenced by price differentials between fuel in Canada and the US. Fuel purchases in Abbotsford are also affected by the implementation of a municipal fuel tax in the adjacent Greater Vancouver District.

Data Source: Kent Marketing

PAYING FOR TRANSPORTATION...

Transportation Expenditures

Data collected for this survey indicate that on average urban areas spend about \$184 per year per capita on roads and \$275 per year per capita on transit. However, about 60% of transit costs are recovered through passenger fares, so that the net annual costs for transit are about \$165 per capita.

Most urban areas still rely heavily on property taxes and contributions from senior governments to pay for transportation infrastructure. When questioned through the survey, fewer than 10% of the municipalities reported using alternative funding sources such as user fees. This is largely a result of the fact that these funding sources are unavailable to municipalities and would require legislative changes.

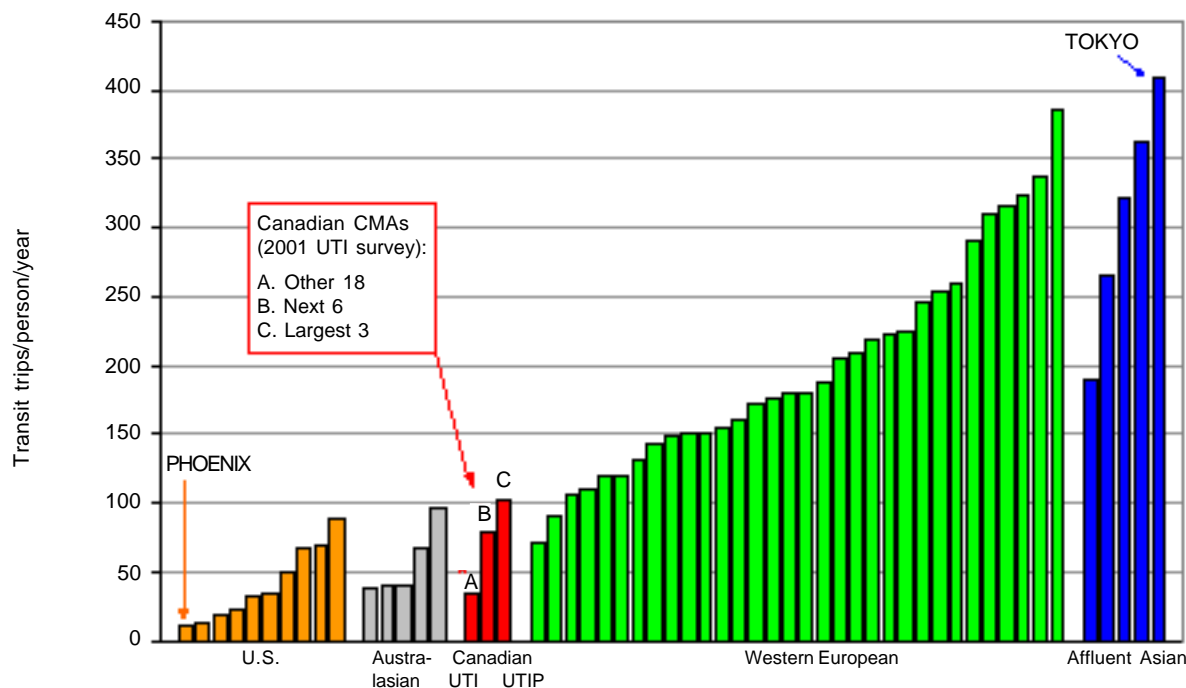
HOW DOES CANADA COMPARE...

International Comparisons

Using data collected from the Millennial Cities Database, a 1995 survey published by the Brussels-based Union Internationale des Transports Publics (UITP)², the third edition of the TAC survey compared Canada to 57 other affluent urban regions.

The figure below shows one such comparison, annual transit trips per capita. For just about every measure of transportation sustainability compared, Canada fairs slightly better than the United States, but generally falls below most Western European cities and affluent Asian cities.

Annual transit trips per capita



MOVING FORWARD...

Conclusion

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

As urban transportation issues grow more prominent in the agendas of policy-makers, data from TAC's recent and future surveys will play increasingly important roles

in identifying areas of emphasis in the assessment of both problems and solutions. Data collected through the surveys and other performance measures can help with the determination of where and how funding for transportation should be allocated.

However, gaps in the availability, geographic coverage and scope of the data, inconsistencies in definitions among the urban areas and constraints in funding new data collection all mean that future or more detailed comparisons will be problematic. In spite of the value of the data already collected, considerably more resources will be required to maintain, improve and enhance data collection in urban areas.

ENDNOTES

- 1 Office of Energy Efficiency, Natural Resources Canada, Data and Analysis Section, Comprehensive Energy Use Database, www.oeenrcan.gc.ca.
- 2 For information about how to acquire and access the UITP survey, see the URL below. <http://www.uitp.com/project/index4.htm>. Accessed December 21, 2003.

Acknowledgements and Disclaimer

The TAC Urban Indicators Survey was conducted under the supervision of the Transportation Planning and Research Standing Committee on behalf of TAC's Urban Transportation Council. The project was guided by a Steering Committee chaired by Don Stephens, formerly of the City of Ottawa and now with McCormick Rankin. Katherine Forster was the Project Manager for TAC. Sponsors of the Third UTI Survey comprised: Alberta Transportation, Greater Vancouver Regional District, Greater Vancouver Transportation Authority, Ministère des Transports du Québec, Ministry of Transportation of Ontario, Natural Resources Canada and Transport Canada.

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While TAC and the authors endeavoured to ensure that all information in this briefing is accurate, they assume no responsibility for errors and omissions.

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Or visit TAC's web site www.tac-atc.ca

To buy the complete 2-volume survey, see the TAC online bookstore or contact TAC.

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