



# HOW TO GROW TRANSIT RIDERSHIP IN CANADA



The success or failure of a transit system is often judged by a single metric: ridership. This is a challenge for transit systems as they are mandated to provide so much more than rides from point A to point B for the public. A system's accessibility, safety, customer service, affordability—not to mention the utility and frequency of the transit network—all take a back seat to ridership in the eyes of the media and governments, who increasingly tie their funding to transit ridership reporting.

But what is this number that transit systems are all judged by? How is it calculated? What do trends in ridership tell us? And, perhaps most importantly, how can we grow ridership in Canada?

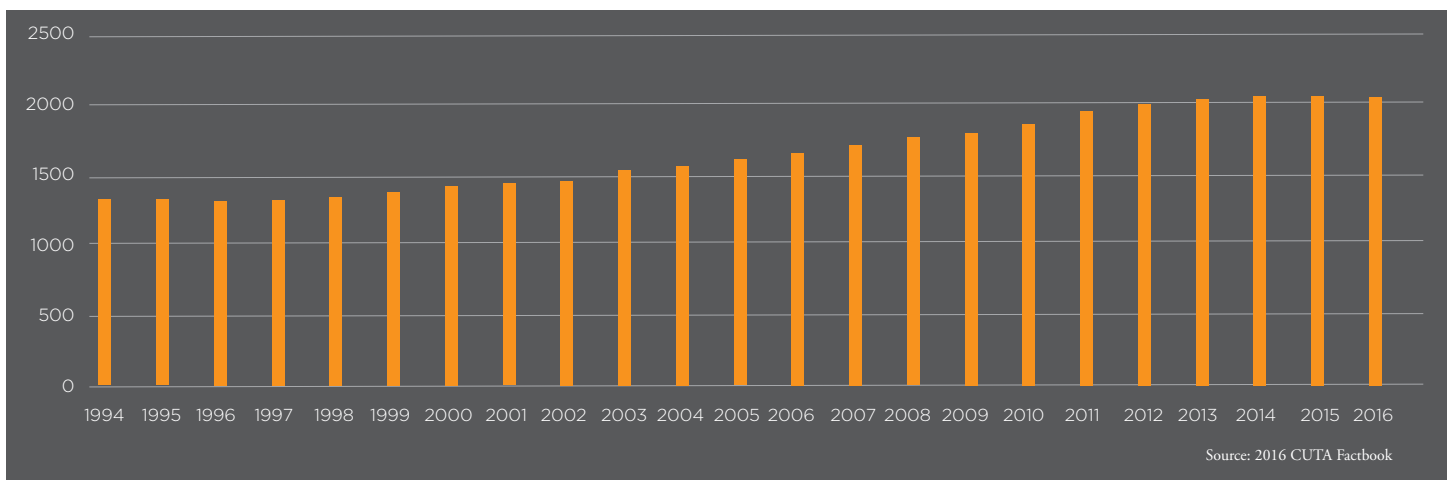
With these goals in mind, the Canadian Urban Transit Association (CUTA) has undergone a study of ridership in Canada. One piece of this puzzle is the Canadian Ridership Trends Research project, initiated by CUTA and conducted by the University of Toronto Transportation Research Institute, to provide an empirical investigation of the factors that affect ridership for transit systems.

The report compiled many interesting findings for transit systems in Canada looking to grow their ridership. Given growing public concern about the negative impacts of automobile use and road congestion on personal mobility, safety, air quality and climate change, these lessons could be key tools for cities looking to grow and prosper sustainably.

## RIDERSHIP TRENDS

As **Figure 1** shows, starting in the mid-1990s annual transit ridership in Canada showed a steady rise that leveled off after 2014. This plateauing of Ridership, which can be seen across North America, has been a difficult trend to study. Some transit systems have seen increased ridership, others have declined, but there was no obvious single trend that determined ridership changes.

**FIGURE 1: CANADA'S TOTAL LINKED RIDERSHIP (MILLIONS)**



### THE RECIPE TO GROW RIDERSHIP IN CANADA

While many factors affect transit ridership in a variety of subtle ways, CUTA's research on transit ridership trends identified a critical factor in ridership growth across Canada: the size of an agency's operating budget. Operating budgets greatly influence the ability of a transit agency to offer more service (revenue vehicle hours), and the amount of service a system provides is the greatest single indicator of ridership.

According to CUTA's research, for every 10% increase for a system in predicted vehicle revenue hours (hours in which a vehicle is moving passengers and collecting fares), a 10% increase in ridership can be expected (holding all other factors constant).<sup>1</sup> This finding is supported by similar studies from around the world.

Vehicle revenue hours can be increased in three ways: increasing the frequency of existing service, expanding service to underserved areas, and extending hours of operation for existing services. These factors make using transit more convenient and reliable for the customer—which in turn leads to higher ridership.

However, expanding service hours is a very costly proposition for transit systems. More vehicle revenue hours increase both labour and fuel costs. They also lead to more repair and rehabilitation work, and often new capital expenditures like the purchasing of new buses or trains and/or upgraded fixed infrastructure to accommodate increased use. For the vast majority of transit systems, these costs will exceed any new revenue derived from the farebox through increased ridership.

If increasing levels of service is such a challenge, what can be done? Well, there is good news for transit systems; a 5.5% increase in vehicle revenue hours can be expected for every 10% increase in a transit system's total operating budget.<sup>2</sup>

This creates a relatively straightforward recipe for ridership growth in Canada: provide transit systems operational funding for increased service and people will use transit more. While transit systems are currently receiving unprecedented amounts of capital investment from federal and provincial governments to build new transit infrastructure,<sup>3</sup> operating funding for expenses like labour, fuel and maintenance are still largely the responsibility of cash-strapped municipalities.

Unfortunately, increasing fares to fund more vehicle revenue hours may prove counter-intuitive for transit systems. The ridership study found that increased personal expenditure on transit in a city decreased ridership.<sup>4</sup>

Additionally, as **Figure 2** shows, while the cost of city bus and subway transportation has increased above the rise in the Consumer Price Index over the least 20 years, the cost of purchasing a personal vehicle has decidedly dropped—increasing the cost of transit will likely only make private vehicle ownership more attractive to consumers.<sup>5</sup>

### CANADIAN RIDERSHIP TRENDS RESEARCH PROJECT

When launching the Canadian ridership trends research project, an extensive dataset was created using data sources with four sets of indicators; the built environment, socioeconomic factors, transit service factors and other external/contextual factors.

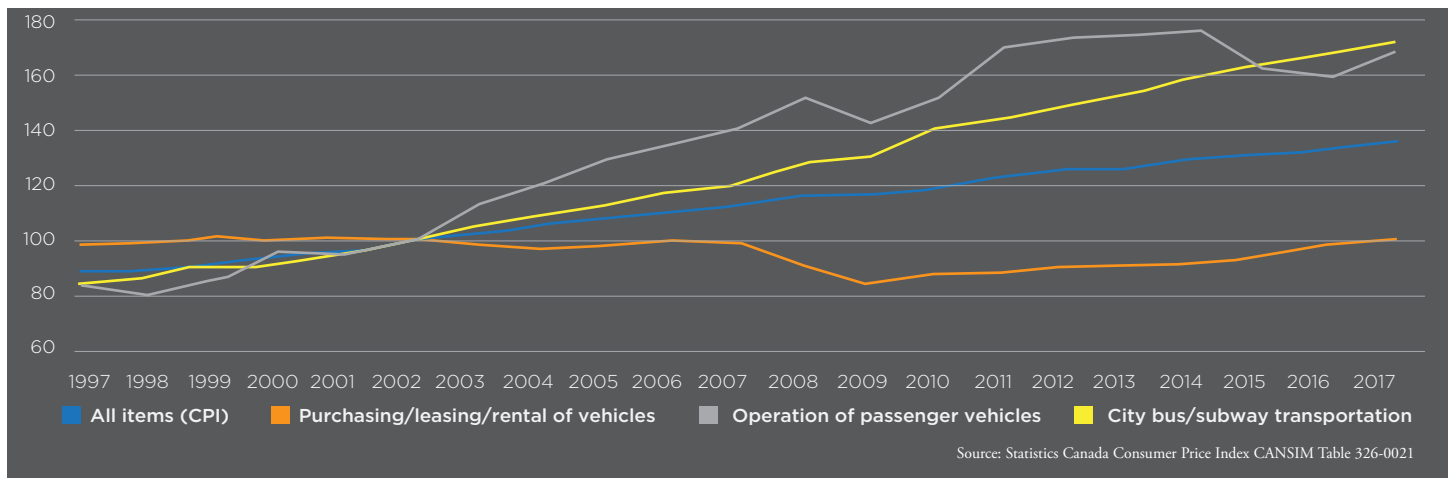
Census data corresponding to census subdivisions was extracted and aggregated at the transit agency level from 1991 to 2016. CUTA also provided data on transit service factors over the same period for 103 transit systems. A survey of transit agencies in Canada was also carried out to better understand the key factors affecting ridership.

In total 79 indicators were prepared for the analysis, including service area population, the price of an adult fare, the number of post-secondary students in a city, the employment rate and the density of housing.

A variety of models were then created to predict the impact on ridership of the indicators.



**FIGURE 2: CONSUMER PRICE INDEX - COSTS OF TRANSPORTATION**



**OTHER CRITICAL FACTORS FOR GROWING RIDERSHIP**

Of course, operating budgets and vehicle revenue hours are not the only factors that affect ridership. Two of the largest variants for ridership outcomes for transit systems were socioeconomic factors and a city’s built environment.

The report broke transit systems into two groups, Group One had a ridership of more than 1.2 million, while Group Two had less than 1.2 million riders. While Vehicle Revenue Hours was the most relevant factor demonstrated for ridership in both groups, built environment factors, like the percentage of row houses and apartments, were larger factors for Group Two, while socio-economic issues like the number of local opportunities and the price of gas were larger factors for Group One.

In both groups, the largest negative factor for ridership was the percentage of single-family dwellings in a service area—this trend was especially strong in Group One, where a 10% increase in single-family dwellings was linked with an 9.6% decrease in ridership.

**HOW RIDERSHIP IS COLLECTED**

CUTA collects ridership data from over 100 conventional transit systems and more than 70 specialized transit systems. CUTA’s comprehensive Industry Data Programme has been operating for over 30 years, gathering over 1,300 data points from each transit system. Taken together, these systems represent over 98% of ridership in Canada. Today, consultants, government agencies and private business across Canada and internationally rely on CUTA data to support their research, projects and operational decisions.

CUTA uses the number of trips in a system to report ridership. A trip is defined as a continuous journey—including transfers—within a single transit system. This differs from U.S. transit systems that use individual boardings to report on ridership.

In order to determine ridership levels, standardized approximations, including passenger counters, rider surveys and pass multipliers, among other tools, are used to calculate the number of trips taken using monthly passes. These methods can vary from system to system.

CUTA collects this data from transit systems and publishes them annually in the CUTA Transit Factbook, which is available to all CUTA members.



Credit: Jennifer Kosmack

## MOVING TOWARDS INTEGRATED URBAN MOBILITY

If ridership is a limited metric for judging the success of a transit system, what should we be using instead? There is a growing consensus that we should find a methodology based on the principals of Integrated Urban Mobility (IUM) of a transit system. CUTA defines IUM as “the ability for people to move easily from place to place according to their own needs.”

Nearly all trips are multi-modal; even those taken with a private car involve some amount of walking. Increasingly, there is a call for a national, comprehensive modal share calculation that could gauge the amount different modes of transportation are used within a city. This would allow cities to group sustainable modes of transportation like walking, cycling and transit together, while also understanding the amount a city relies on private vehicle use. It would be a much richer data source for planners, and municipal officials who make decisions about urban infrastructure.

For the foreseeable future, however, ridership will remain the key indicator of a transit system’s success for both the media and

governments. Understanding the trends in ridership and how different factors influence it is therefore critical to Canadian transit systems.

With a better understanding of how to grow ridership, Canadian cities will be able to more effectively move towards sustainable, integrated urban mobility. This means facilitating a growth in the levels of service a transit system provides by growing operational budgets. This also means creating complementary social and built environment policies that encourage inclusive, transit-oriented development that provide opportunities for all.

### References:

1. Miller, Shalaby, Diab, Kasraian. Canadian Ridership Trends Research Project. Canadian Urban Transit Association, 2018, pp. 87.
2. Miller et al. 2018, pp 87.
3. Ridership-based funding programs include, the Federal Public Transit Infrastructure Fund, the Public Transit Stream of the Investing in Canada Plan and the Ontario Gas Tax Fund.
4. Miller et al. 2018, pp 87.
5. Statistics Canada. Table 18-10-0005-01 Consumer Price Index, annual average, not seasonally adjusted.
6. Canadian Transit Fact Book 2016 Operating Data. Canadian Urban Transit Association, 2017.



Credit: ROAM Transit

The Canadian Urban Transit Association (CUTA) is the voice of Canada’s public transit industry. For additional information including research reports, industry updates, news bulletins and more, please contact us or visit our website.

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