

Moving Towards Sustainability with Public Transit for a Better Future

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ABSTRACT

Over the last two decades, sustainable development has evolved from an academic concept into a prominent international objective. Governments, individuals and businesses are increasingly aware of the global issues driving the pursuit of sustainability—climate change, resource depletion, social inequity—and the effects they have on quality of life in our own communities.

Mobility gives individuals access to important services, and as such is a basic necessity of contemporary urban life. But cities all over the world face unsustainable patterns of mobility provision and consumption, with many suffering from congestion, pollution, community degradation and social dysfunction. Ultimately, sustainability will demand a new balance between collective and personal transportation. This kind of integrated response to major economic, environmental and societal concerns can only be achieved through a transformation of urban areas—one in which transit systems and suppliers will play a key role.

As the clash between human progress and the natural environment intensifies, the importance of sustainable development will only grow. It is clear that Canada's public transit industry will continue to play a key role in the continued health and prosperity of our cities, and indeed of our entire nation.

PAPER

The Canadian Urban Transit Association (CUTA) is the voice for enhancing the public transit industry in Canada. Representing 120 transit systems from coast to coast, its mission is to establish public transit as the primary solution to urban mobility in the achievement of sustainable transportation, and to assist its members in the fulfillment of their mandates.

In 2006, over 1.7 billion trips were made on public transit in Canada on 13,317 buses, 613 light rail vehicles, 1,437 heavy rail vehicles (subway) and 629 commuter rail vehicles. To accomplish this, these transit vehicles operated over 37 million revenue service hours and 870 revenue kilometres.

As communities, regional agencies, provinces and the federal government look towards sustainability, transit systems of all sizes will help in achieving that goal. To attain that objective, transit systems must see planning, investment and accountability to reach the end goal of sustainability.

TRANSIT PLANNING

The success of transit systems in attracting and retaining riders relies on many factors, one of which is planning. Transit services come in many forms, from bus routes to subway lines. Not all modes are suited for all corridors or cities.

Cities and its residents prosper when land-use and transit are taken into consideration when redeveloping existing or new lands. Economic and socio benefits are maximized to benefit residents, but these benefits also extended to business and health.

In Canada, there are multiple examples of land-use and transit planning partnering for success:

- Transit-Orientated Development (TOD)
 - Redevelopment of old Heritage Mall lands, Edmonton, AB
 - Redevelopment of the Oakridge Site (Cambie and 41 Ave), Vancouver, BC
- Rapid Transit Corridors
 - SkyTrain, Vancouver, BC
 - TTC Subway, Toronto, ON
 - Viva, York Region, ON
 - Transitway, Ottawa, ON
 - Métro, Montréal, QC

FUNDING

Canadian Transit Systems infrastructure for the period 2008-2012 were quantified in the fall of 2007 which was estimated to be \$40.1 billion¹, as shown in figure 1.

Of the \$40.1 billion total identified for transit infrastructure, approximately \$11.8 billion, or 29%, is needed to replace or rehabilitate existing infrastructure, while approximately \$28.3 billion is for expansion, to respond to population growth or for ridership increases.

The Infrastructure Needs 2008-2012 report also indicated that half of the \$40.1 billion is fundable under funding opportunities, while the other half is identified as only fundable under new external sources of funding.

The current available funding for transit is limited and only addresses the capital requirements of new projects. Funding to operate and maintain the transit systems remain funded by its passengers and municipalities. In 2006, 60% of operating costs were recovered from the farebox, and in some cases this figure was as high as 90%².

The need for investment in transit is real as currently many transit systems are operating at or beyond their design capacity, and some systems are facing significant latent demand that cannot be satisfied without major investment in service improvement and capacity expansion. Additional pressures are also being put onto transit systems as they are expected to play an increasingly important role in ensuring access and mobility for Canada's urban communities today and into the future.

WHAT IS SUSTAINABILITY?

A quick definition of sustainability would be to create a balance between the fulfillment of human needs and the protection of the natural environment, enabling those needs to be met indefinitely. Figure 2 presents a conceptual picture of the three main dimensions: environmental, economic and social³.

In the case of transportation, the Centre for Sustainable Transportation in Winnipeg defines it as a system that allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations. Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy. Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise⁴.

We can extend the above definition of sustainable transportation to transit as it provides affordable and efficient mobility that contributes economic benefits through congestion management of the movement of goods and people and promotes efficient land use, which also makes it environmentally responsive.

MEASURING TRANSIT SUSTAINABILITY

The Transit industry impacts lives of Canadians each day, whether or not they actually use the services that are available to them. New investments, from all levels of government, in public transit have created a new type of policy environment.

In that past years, the Canadian Transit industry has seen an increase in revenue service and capital projects, from new proposed rapid transit lines to new bus purchases. With these new services coming online, the transit industry proposes to measure the real impact these investments, both operational and capital, are having towards the improvement of environmentally sustainable transportation and communities.

To adequately monitor and assess the progress of public transit's impact toward sustainability of transportation and communities across Canada, will require the development of meaningful indicators and reflect quantifiable measurements toward sustainability of transportation and communities. CUTA is presently undertaking an initiative to accomplish this.

To develop a set of indicators for the Transit Industry, CUTA and its project steering committee has undertaken or is in the process of:

- Research into sustainability indicators;
- Define Sustainability for Transit with respect to Transportation and Communities;
- Criteria for evaluation of sustainability indicators (applicability, meaning, relevance, ease of collection);
- Recommendation and adoption of sustainability indicators in transit;
- Data Collection;
- Process implementation.

The first step into the establishment of new indicators for sustainability for transit in transportation and communities was to research existing indicators and initiatives. The peer review, which is ongoing, has identified sustainability indicators from multiple sources, such as:

- TransLink
- APTA
- UITP
- Transport for London

To begin defining the transit sustainability indicators a definition of *sustainability* had to be adopted for the project. The steering committee retained the definition of sustainable transportation from the Centre for Sustainable Transportation (University of Winnipeg):

A sustainable transportation system is one that:

- *Allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations.*
- *Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy.*
- *Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise.⁴*

The definition for sustainable transportation developed by the Centre for Sustainable Transportation encompasses all three facets of sustainability: social, economics and environment, but also reflects the transportation and community aspects that are directly linked to benefits of transit.

A review of existing national data, collected for internal and external uses, will identify which proposed indicators could be implemented short term and which would have to come under a phased in approach.

The retained definition of sustainability will be used as a guide to identify and retain a first group of indicators. This initial group of indicators will then be evaluated through a screening process. The evaluation of the indicators will examine their applicability, meaning, relevance, ease of collection, and comparability and assess the possible future collection of statistics not currently reported for indicators. The main categories of proposed evaluation criteria are:

- Qualitative
 - Applicability
 - Meaning
 - Relevance
- Quantitative
 - Ease of collection (new vs. current data)
 - Testing of indicators
 - New data, identify requirements for collection
 - Pilot test of the indicators and consultation with transit system members

The outcome of the evaluation of the first group of indicators would lead to the retained indicators. These would then be recommended by the Steering Committee for endorsement and approval at CUTA.

A guide would accompany the sustainability indicators that would include their definition, which would consist of:

- Applicability
- Meaning
- Relevance

To ensure standardization of reporting of data sources for the indicators, a second section to the guide would be developed to help individuals and transit systems submitting the data. This would ensure that all parties involved in the process can easily explain the indicators sources.

The first phase of implementation of the new sustainability indicators would involve educating the transit systems responsible to report their data. This will permit an understanding of how the data is used and what conclusions can be made with the indicators.

The outcome will be a document outlining the new sustainability indicators on a national, provincial, regional, population group and transit system levels. Indicators for which previous year's data is easily accessible will permit to analyze trends. While indicators where historical data is not readily available or require a phased-in approach will only be able to illustrate and analyze trends at a future date.

The result of the project will provide a standardized reporting system for transit systems and communities which will reflect the ability to collect data and the availability of the data. The sustainability indicators, through CUTA, will also permit communities and transit systems to measure their impact, set goals and record and follow their progress.

FIGURES

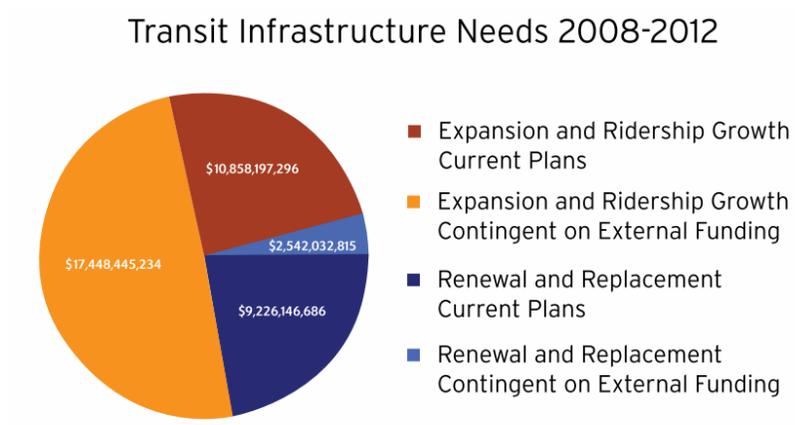


Figure 1. Transit Infrastructure Needs 2008-2012

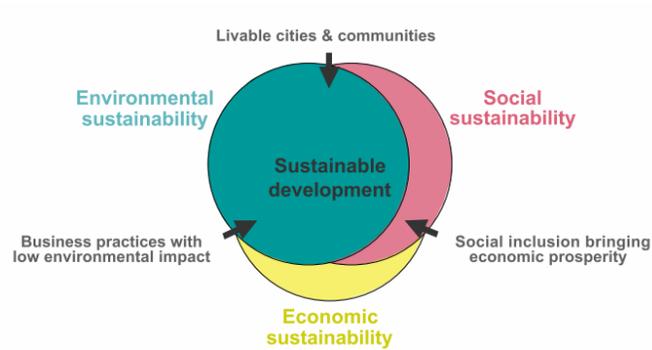


Figure 2. The three main dimensions of sustainable development

REFERENCES

¹ Canadian Urban Transit Association, “Transit Infrastructure Needs for the Period 2008-2012”, Toronto; February 2008

² Canadian Urban Transit Association, “Canadian Transit Fact Book, 2006 Operating Data”, Toronto; October 2007

³ Canadian Urban Transit Association, “Towards Sustainable Development: Building a Better Future with Public Transit – Issue Paper 24”, Toronto; October 2007

⁴ Centre for Sustainable Transportation, Definition of Sustainable Transportation, <http://cst.uwinnipeg.ca/>, Winnipeg, 2008