URBAN MOBILITY TASK FORCE INTERIM REPORT

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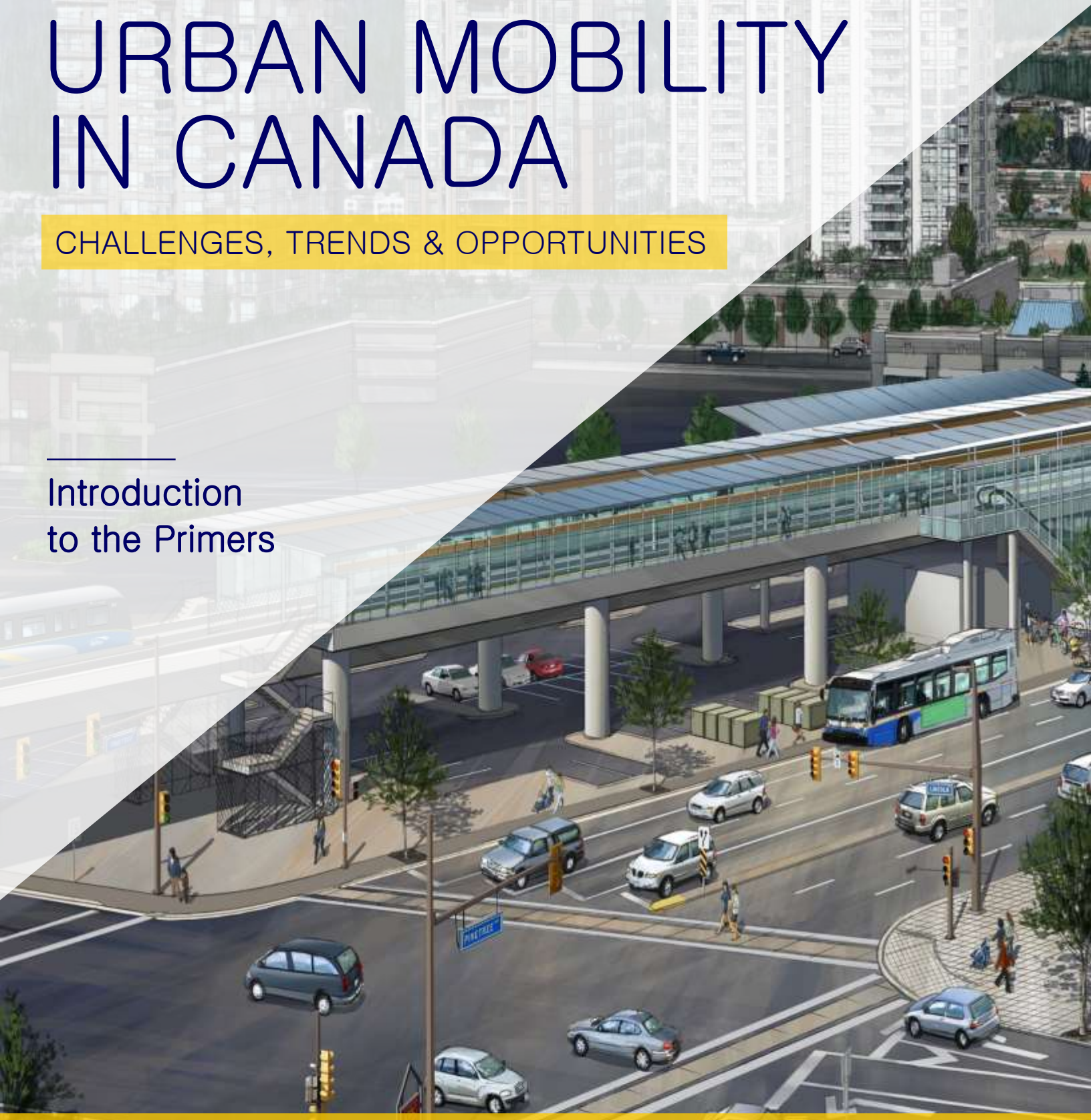
URBAN MOBILITY IN CANADA

CHALLENGES, TRENDS & OPPORTUNITIES



Introduction to the Primers

COUNCIL OF MINISTERS RESPONSIBLE FOR TRANSPORTATION AND HIGHWAY SAFETY

MANDATE & PURPOSE

The **Council of Ministers Responsible for Transportation and Highway Safety** established the federal, provincial and territorial Urban Mobility Task Force at its January 2019 meeting to take a renewed look at the current mobility issues affecting the Canadian urban landscape today. The objectives of the task force are to carry out a review of selected urban mobility issues and consider policy options to improve urban mobility. Generally, urban mobility is understood as the movement of people and freight within an urban region and is supported by transportation systems with particular conditions and accessibility levels.

This Interim Report is the first deliverable of its two-year mandate to produce a first report on the state, challenges and opportunities of urban mobility and a final report focused on policy options and a vision for urban mobility. This Interim Report is divided into four modules, exploring the issues of technology and innovation, financing and funding, governance, and land use. These documents are not policy or position papers and are intended for transportation policy professionals, planners, and decision makers. They set the stage for more complex discussions to take place on the national stage on how urban mobility can work for Canada as a whole.

SETTING THE STAGE: A PROBLEM STATEMENT

Home to more than half of the world's population, urban regions are the engines of economic growth and employment. With an increasing concentration of people and economic activity in urban regions,[i] demand for transporting goods and people is soaring. With increased urban mobility, it has become common for parts of transportation networks to be used above design capacity, often leading to a loss of economic output through congestion in and around urban areas and overcrowding of certain modes. Transportation has substantial impacts on the economy and the environment as well as the liveability and health of Canadians. As such, governments at all levels in Canada are working to address urban mobility issues through various means, such as infrastructure investments, new and adaptive regulations, assessment and deployment of new technologies, transport demand management initiatives, and further integration of transportation modes.

The federal government is a central partner in transportation investment for capital expansion, upgrades, and state of good repair. As such, the federal government, provinces, territories, and municipalities, as well as the industry, continue to work together to build more sustainable, safe and economically vibrant urban communities.

Since Canada's multimodal transportation systems function as an integrated network, performance issues in urban regions have an impact on the rest of the country. Urban regions are multimodal nodes where a

[i] Within these primers, the term "urban region" is generally used to represent Statistics Canada's definition of a census metropolitan area, as many studies on Canada's urban regions rely on this definition: formed by one or more adjacent municipalities centred on a population centre, must have a total population of at least 100,00 of which 50,000 or more live in the core. These primers focus primarily on Canada's three largest census metropolitan areas; Toronto, Vancouver, and Montréal, given their acute urban transportation challenges and the availability of data and information.

significant portion of the movement of people and goods originates, flows through and ends. In fact, the competitiveness of Canada is greatly affected by the performance of the system in urban regions. When the system does not perform well, Canadian products can become more expensive on domestic and international markets, Canadian businesses pay more for inputs, and Canadian consumers face higher prices. Additionally, congestion impacts the service industry and economy more broadly, for example, it can be more difficult to attract talented and skilled labour to highly congested cities, and time spent in traffic costs businesses and individuals more money.[1]

CONTEXT FOR ACTION: A COMPLEX URBAN LANDSCAPE

The Canadian urban landscape is shaped by the decisions of governments, service providers, businesses and Canadians. New and sustaining urban trends present a set of challenges if governments want urban mobility to boost productivity and economic performance, contribute to a cleaner environment, and increase social inclusion and health outcomes for Canadians. The following trends are key drivers of government actions and will be further explored and discussed in the Interim Report's series of primers.

Sustained Growth – Countries around the globe are dealing with sustained urbanization of their population. According to the United Nations, 68 per cent of the world's population will live in cities by 2050.[2] Similarly, Canadians are increasingly concentrated in large urban areas where population growth continues to outpace the rest of the country.[3] Canada's three largest urban regions (Montréal, Toronto and Vancouver) are now home to over one third of Canadians. This urbanization increases demand for the transportation of goods and people in areas where land is already scarce. This also means the weight of urban regions in the economy of Canada will continue to grow, and the competitiveness of Canada will increasingly rely on the efficient, reliable and safe mobility in urban regions.

Congestion – Congestion is one of the main symptoms of the economic success of Canadian cities. However, congestion comes at a cost to the economy. It affects consumers and businesses in the forms of lost time, wasted gas, higher costs of production, and lower productivity. Congestion also increases pollution and greenhouse gas emissions. According to INRIX urban congestion index, the average driver in Toronto, Montréal and Vancouver regions lost 164, 134, and 102 hours respectively in congestion in 2018.[4] Congestion also impacts other forms of travel, for example, freight and passenger rail, having to share and compete for access to rail infrastructure, and conflicts between pedestrians, cyclists, and vehicles. Data on the cost of congestion in Canada is limited and its methodology debated, but according to Transport Canada, congestion costed $3.1-$4.6 billion annually to the Canadian economy at the time the study was conducted, in 2006, with Canada's largest urban regions being disproportionately affected.[5]

Urban sprawl – Canada is the country of the Organisation for Economic Co-operation and Development (OECD) with the lowest urban population density, approximately one third of the OECD average.[6] Sprawl creates a challenge to the deployment of cost-effective mass transit systems and

contributes to the use of single occupancy vehicles, adding to congestion, air pollution, greenhouse gas (GHG) emissions, and eroding natural ecosystems. A lot of commuter congestion in Canadian cities is caused by the dispersion of where people live and the concentration of where they work. Decisions about the built environment of cities have long-lasting effects and are slow to alter or reverse.

Growing infrastructure needs – According to Statistics Canada, in 2016, over one-third (36 per cent) of publicly owned bridge and tunnel assets[7] and nearly one-fifth (18 per cent) of publicly owned public transit infrastructure[8] in Canada was on average in fair, poor or very poor condition. In addition, some of that infrastructure may not be designed to support current capacity, with bottlenecks[9] and public transit overcrowding in Canada's largest urban regions.[10],[11],[12] There is also increasing infrastructure pressure on ports, terminals, rail yards, distribution centres and intermodals hubs, as Canada expands its trade markets. The state and the adequate supply of infrastructure is key to safe and reliable transportation.

Emerging technologies – The pace at which transportation technologies are being developed is accelerating. Technologies and innovation such as automated and connected vehicles, public transit technologies, artificial intelligence, ride sourcing, e-commerce, e-scooters, just to name a few, have the potential to disrupt the transportation sector. New technology developments are also focused on how to move goods in and around cities. The rise of online shopping, for example, has led to complications, including more congestion and curb management. While technology could help mitigate congestion, improve safety, increase efficiency, and provide convenience to users, its role in addressing transportation challenges is still being assessed and its adverse effects identified.

Environmental sustainability – According to Natural Resources Canada, Canada is warming twice as fast as the rest of the world, and it is largely due to GHG emissions caused by human activity.[13] Climate change presents the transportation sector with both opportunities and challenges. On the one hand, transportation is part of the solution given that it is responsible for about a quarter of all GHG emissions across Canada,[14] and up to 40 per cent in some jurisdictions.[15] In fact, there is currently a growing interest in establishing policies that move towards a net-zero carbon economy, which could result in significant impacts on the transportation sector. Reducing the transportation system's overall GHG emissions could help to mitigate climate change. Urban regions are key to addressing GHG emissions, not only because of their demographic weight but also because of their numerous congestion bottlenecks. Congestion is generally associated with higher emissions due to reduced speed of vehicles stuck in rush hour congestion.[16] Urban sprawl also interferes with ecosystems and their environmental processes (e.g., stormwater management, shading and heat moderation), which further degrades the climate resiliency of urban areas. On the other hand, the transportation system will have to adapt to Canada's changing climate conditions, through climate change adaptation measures for transportation infrastructure, to prevent disruption or failure of its system.

Public health – Despite progress made by all governments, the impacts of air pollution on public health remain significant. According to Health Canada, 14,600 premature deaths per year in Canada can be linked to air pollution, with a total economic impact of $114 billion annually.[17] Transportation contributes to air pollution through internal combustion engines from motor vehicles (i.e., cars, buses, etc.) that emit a number of pollutants. These pollutants are linked to worsening asthma symptoms, asthma development in children, lung cancer, reduced lung function and heart

diseases. In congested areas, such as large urban regions, these pollutants are likely to accumulate, which may increase health risks for commuters, both inside and outside vehicles, and for local residents.[18] In addition, increased usage of motor vehicles for everyday transportation by Canadians is linked to a reduction in physical activity.[19] Decisions made regarding the built environment and the allocation of urban space to modes can influence choices toward healthier, active transportation.

Liveability and equity – Transportation, including mass transit, or the lack thereof, plays a role in community liveability. Transportation decisions affect safety, affordability, air pollution, noise and walkability of communities. Transportation barriers, including access to an accessible transportation network, impact access to employment, amenities and services, such as parks, entertainment and cultural facilities. Governments have recognized that there is a strong relationship between land use and transportation systems. Location, layout, design and nature of land-use patterns (e.g., density, compactness, connectivity and diversity) are key factors in shaping transportation usage, and consequently social inclusion.

THE PRIMERS

The Council of Ministers has done extensive work on urban transportation in the past, including exploring issues related to needs and opportunities, transit development, the cost of congestion and corridor management. The task force has considered these when scoping its initial research into four short papers (the "Primers"), each examining one urban mobility issue, and considering the above drivers. These primers are short overviews and are designed to initiate a discussion on urban mobility issues intended for transportation policy professionals, planners and decision makers. The following primers examine the current state of these issues and have identified associated trends, challenges and opportunities.

1. **Innovation & technology** – This primer explores how the rapid pace of technological advancements poses challenges to governments and calls on their capacity to articulate timely transportation objectives and establish regulations that are flexible and long-lasting.
2. **Financing & funding** – This primer highlights how aging infrastructure, growing transportation needs, and fiscal constraints press governments to find sustainable and alternative ways to fund and finance transportation infrastructure and operations.
3. **Governance** – This primer explores how transportation governance can contribute to working across geographical and policy barriers through integration and interoperability of systems.
4. **Land use** – This primer examines how government can integrate transportation and land-use planning to achieve wider policy goals, optimize investments and improve the efficiency of transportation networks.

REFERENCES

[1] Council of Ministers Responsible for Transportation and Highway Safety, Urban Transportation Task Force. “The High Cost of Congestion in Canadian Cities.”, 2012.

[2] United Nations, Department of Economic and Social Affairs. “68% Of the World Population Projected to Live in Urban Areas by 2050, Says UN”, 16 May 2018.

[3] Government of Canada, Statistics Canada. “Canada's Population Estimates: Subprovincial Areas, July 1, 2018.” www150.statcan.gc.ca/n1/daily-quotidien/190328/dq190328b-eng.htm.

[4] Inrix. “INRIX Global Traffic Scorecard.” Inrix, 11 Feb. 2019, inrix.com/scorecard/.

[5] Council of Ministers Responsible for Transportation and Highway Safety, Urban Transportation Task Force. “The High Cost of Congestion in Canadian Cities.”, 2012.

[6] Organisation for Economic Cooperation and Development (OECD). “Rethinking Urban Sprawl Moving Towards Sustainable Cities.”, 2018.

[7] Government of Canada, Statistics Canada. “Inventory Distribution of Publicly Owned Bridge and Tunnel Assets by Physical Condition Rating, Infrastructure Canada.”, 2019. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410016701

[8] Government of Canada, Statistics Canada. “Inventory distribution of publicly owned bridge and tunnel assets by physical condition rating, Infrastructure Canada”, 2019. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410025201

[9] Canadian Automobile Association. “Grinding to a Halt: Evaluating Canada's Worst Bottlenecks.”, 2017.

[10] TransLink, TransLink Media Relations. “The Numbers Are in: Region-Wide Transit Use Hits All-Time High in 2018.”, 2019, www.translink.ca/About-Us/Media/2019/April/The-Numbers-Are-In.aspx.

[11] Chief Operating Officer. “Managing Crowding on Line 1 Yonge-University.” Toronto Transit Commission, 2018.

[12] Barbeau, Bernard. “La STM se donne des moyens de désengorger la ligne orange.” Radio, Radio-Canada, 13 May 2019, ici.radio-canada.ca/nouvelle/1169491/stm-ligne-orange-metro-autobus-mesures-desengorgement.

[13] Government of Canada, Natural Resources Canada. “Canada's Changing Climate Report.”, 2019.

[14] Government of Canada, Environment and Climate Change Canada “ Canadian Environmental Sustainability Indicators: Greenhouse Gas Emissions.”, 2017.

[15] Gouvernement du Québec, Ministère de l’Environnement et de la Lutte contre les Changements climatiques. « Inventaires québécois des émissions de gaz à effet de serre en 2015 et leur évolution depuis 1990. », 2018.

[16] Barth, Matthew, and Kanok Boriboonsomsin. “Traffic Congestion and Greenhouse Gases.” ACCESS Magazine, 26 May 2017, www.accessmagazine.org/fall-2009/traffic-congestion-greenhouse-gases/.

[17] Government of Canada, Health Canada. “Health Effects of Air Pollution.”, 2019, https://www.canada.ca/en/health-canada/services/air-quality/health-effects-indoor-air-pollution.html.

[18] Kumar, Prashant, and Anju Goel. “Concentration Dynamics of Coarse and Fine Particulate Matter at and around Signalised Traffic Intersections.” Environmental Science: Processes & Impacts, The Royal Society of Chemistry, 2016

[19] Government of Canada, Transport Canada. “Active Transportation in Canada – A Resource and Planning Guide.”, 2011.