



# PUTTING WHEELS ON THE BUS

Unlocking the Potential of Public Transit  
to Cut Carbon Emissions in Canada

February 2024



environmental  
defence

Équiterre<sup>o</sup>

## About Environmental Defence

Environmental Defence is a leading Canadian environmental advocacy organization that works with government, industry and individuals to defend clean water, a safe climate and healthy communities.

For over 35 years, Environmental Defence has worked at the municipal, provincial and federal levels of government to safeguard our freshwater, create livable communities, decrease Canadians' exposure to toxic chemicals, end plastic pollution, tackle climate change and build a clean economy.

## About Équiterre

Équiterre seeks to make the necessary collective transitions toward an equitable and environmentally sound future more tangible, accessible, and inspiring. Since 1993, Équiterre has been helping to find solutions, transform social norms, and encourage ambitious public policies through research, support, education, mobilization, and awareness-building initiatives.

This progress is helping to establish new principles for how we feed ourselves, how we get around, and how we produce and consume, that are designed for our communities, respectful of our ecosystems, in line with social justice, and of course, low in carbon.





## **Acknowledgements**

### ***Primary Report Writing and Research:***

- Nate Wallace, Clean Transportation Program Manager, Environmental Defence
- Anne-Catherine Pilon, Analyst, Sustainable Mobility, Équiterre

### ***Primary Report Editing:***

- Allen Braude, Senior Communication Manager, Environmental Defence
- Keith Brooks, Programs Director, Environmental Defence
- Marc-André Viau, Director, Government Relations, Équiterre

### ***Technical Report Writing and Modelling:***

- Brendan McEwen, Managing Consultant, Dunsky Energy + Climate Advisors
- Lindsay Wiginton, Managing Consultant, Dunsky Energy + Climate Advisors
- Stéphanie Breton, Senior Principal Analyst, Dunsky Energy + Climate Advisors
- Léa Simon de Kergunic, Analyst, Dunsky Energy + Climate Advisors
- David Cooper, Principal, Leading Mobility Consulting

### ***Graphic Design:***

- Travis Boyco, Travis Boyco Creative

### ***Translation:***

- Alexandra Marquis, Elisabeth M. Proud et Anne-Catherine Pilon

### ***Special Thanks To Advisory Committee Members:***

- Dr. Eric Miller, Dr. Catherine Morency and Dr. Ilan Elgar

### ***This Work was Made Possible By:***

- Environmental Funders Canada
- McConnell Foundation

# TABLE OF CONTENTS

<b>Executive Summary</b>	<b>6</b>
<hr/>	
<b>Summary Policy Recommendations</b>	<b>11</b>
<hr/>	
<b>Introduction: Where We Need To Be</b>	<b>13</b>
• Passenger Transport Emissions in Canada Remain Stubbornly High	17
• The Determinants of Public Transit Ridership	22
• The Economic Benefits of Public Transit Investment	26
<hr/>	
<b>Where We Are Today</b>	<b>28</b>
• Growing Transportation Unaffordability	28
• How the COVID-19 Pandemic Changed Everything	31
• The Performance of Federal Public Transit Programs	33
<hr/>	
<b>How We Get There: An Opportunity to Course-Correct</b>	<b>40</b>
• Ending Austerity for Public Transit Operations	41
• Transforming Public Transit to Meet the New Normal	43
• How the TTC Averted the Great North American Transit Downward Spiral	47
• Restoring the Link Between Public Transit and Housing	51

<b>Detailed Policy Recommendations</b>	<b>55</b>
• 1: Fund Public Transit Operations to Enable Ridership Growth	55
• 2: Link Housing Outcomes to Public Transit Investments	57
• 3: Advance Equity Goals With Public Transit	58
• 4: Establish Zero Emission Bus and Rolling Stock Procurement Requirements	59
• 5: Set Clear Mode Shift and Vehicle Kilometres Travelled (VKT) Reduction Targets	60
<hr/>	
<b>Conclusion: Building the Country We Deserve</b>	<b>62</b>
<hr/>	
<b>Addendum 1: Cost to Government Estimate</b>	<b>66</b>
<hr/>	
<b>End Notes</b>	<b>69</b>

# EXECUTIVE SUMMARY

To confront the climate crisis, Canada must rapidly reduce greenhouse gas emissions in the transportation sector, which constitute a quarter of Canada's total emissions.

Despite the zero-emissions vehicle (ZEV) adoption targets in the *2030 Emissions Reduction Plan and Action Plan for Clean On-Road Transportation*, the federal government has no targets to increase public and active transportation use.

This is a problem because it indicates that Canada's strategy for reducing transportation emissions lacks a focus on shifting travel demand away from private vehicles, something that is present in national and sub-national climate plans from around the world, including British Columbia, Quebec, California, Scotland, Ireland and New Zealand.

To shape post-pandemic mobility in cities, the International Transport Forum (ITF) has recommended the adoption of the 'decide and provide' framework. This framework understands that it is ultimately policy choices which determine travel demand patterns. How we move can be shaped in a sustainable direction by making different policy choices that emphasize sustainable

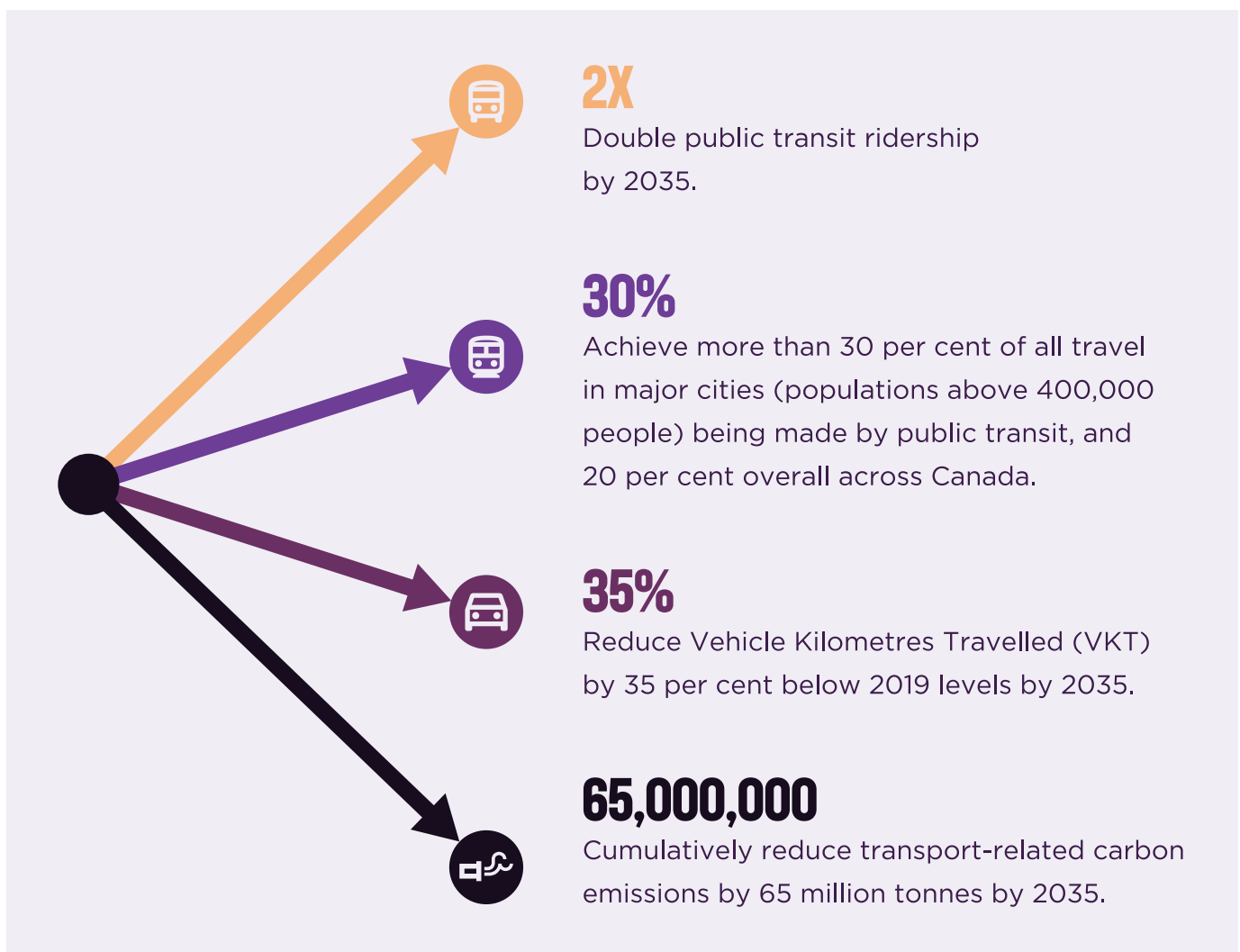
modes like public transit, walking, cycling, and building a compact urban form. But this means creating a vision for the future and acting on it.

Canada is nearly 40 per cent below the Organization for Economic Cooperation and Development (OECD) average for public transit utilization (ridership per capita) in urban areas with transit service. But with the creation of the forthcoming *Permanent Public Transit Fund*, Canada has a historic opportunity to catch up to our global peers on public transit performance.

According to modelling conducted by Dunskey Energy + Climate Advisors, commissioned by Environmental Defence and Équiterre, if the forthcoming *Permanent Public Transit Fund* includes policies such as public transit operating funding, federal strings to encourage housing density near public transit, zero-emission bus procurement requirements and incentives for cities to speed up public transit service with dedicated bus lanes, Canada can:

- Double public transit ridership by 2035.
- Achieve more than 30 per cent of all travel in major cities (populations above 400,000 people) being made by public transit, and 20 per cent overall across Canada.
- Reduce Vehicle Kilometres Travelled (VKT) by 35 per cent below 2019 levels by 2035.
- Cumulatively reduce transport-related carbon emissions by 65 million tonnes by 2035.

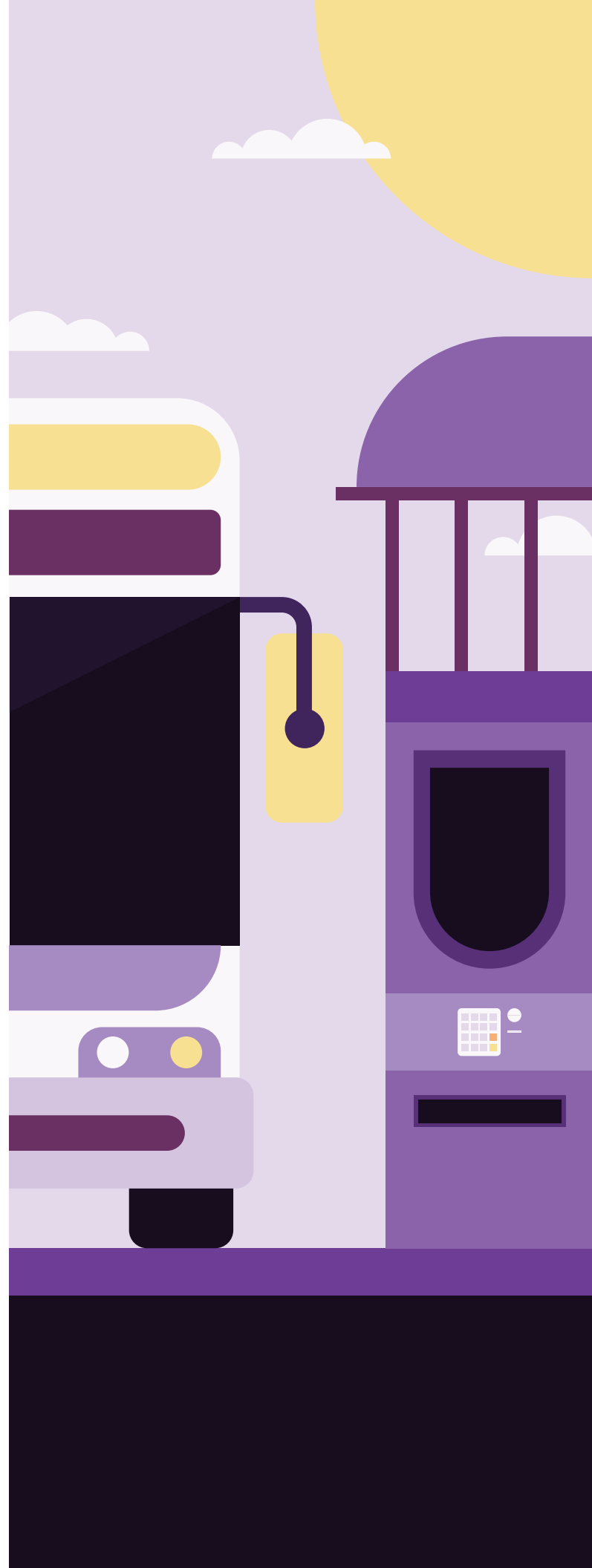
Progress so far on improving public transit service has stalled and is now going backwards. Public transit service levels, measured in vehicle service kilometres per person, is now 7 per cent lower than it was in 2016, the year that the federal government introduced the *Investing in Canada Infrastructure Program (ICIP)*, which included \$23.5 billion in public transit investments. Despite this program, there were fewer buses in service in peak periods across Canada in 2022 than there were in



2013, a year when transit systems served 2.7 million fewer people. Canada's policy of providing only capital funding, but not operating funding, has led to the rise of the phenomenon of 'buses without drivers' with an estimated 1,700 buses across Canada sitting idle (as 'excess spares') that could be in service.

Many public transit systems across Canada continue to struggle with pandemic-related reductions in ridership, and this has created significant financial challenges for municipalities. Canada provided emergency operating funding to transit systems during the pandemic and prompted provinces to share costs to avert dramatic service cuts and prevent a 'downward spiral'. However, this funding was only temporary, and the absence of continued federal leadership on operating funding poses the risk of missing Canada's climate goals and undermining much needed efforts to increase housing supply near frequent public transit.

Federal and provincial governments must create long term, reliable operating funding streams for public transit systems that enable both ridership recovery to pre-pandemic levels and long-term climate-aligned growth beyond it. Having the operating cost burden fall primarily on local





governments and passenger fares has created chronic instability to changes in market forces and political cycles. It reinforces the tendency towards vicious cycles of cutting service, further losses in passenger revenues, and further cuts. Getting off this roller-coaster will require a diverse set of new, stable revenue tools, from a variety of tax sources and fiscal support from all orders of government.

If made available, cities should use this transit operating funding to adapt to post-pandemic travel patterns by improving travel options for non-commute trips, such as shopping, visiting friends, accessing social services or getting groceries. This will help public transit systems achieve greater financial stability by reducing reliance on revenues from one singular trip type: commuting to 9 to 5 jobs, while also benefiting the travel patterns of equity-seeking groups at the same time.

To reach the outcomes of the scenario modelled in this report, total public transit service levels across Canada must increase by 109 per cent by 2035. Assuming the federal government takes a 40 per cent share in the operating funding increase needed to support this service increase, we estimate that this would come at a fiscal cost of \$35.4 billion over the next 12 years (2024-2035) above existing commitments, which averages to approximately \$3 billion per year.

To place this fiscal cost in context, this could be paid for entirely by increasing the general federal tax rate on corporate profits by a single percentage point. It would comprise approximately 0.5 per cent of total projected federal expenditures in 2024.

The modelling conducted by Dunsky Energy + Climate Advisors, available in a separate technical companion report, highlights the strong linkage between housing density, public transit and emissions reductions.

**“GETTING OFF THIS ROLLER-COASTER WILL REQUIRE A DIVERSE SET OF NEW, STABLE REVENUE TOOLS, FROM A VARIETY OF TAX SOURCES AND FISCAL SUPPORT FROM ALL ORDERS OF GOVERNMENT”**

The emissions reductions from changing the built environment of our towns and cities is enabled by robust public transit service and infrastructure and has the greatest impact among all policy measures. As Canada tackles both the housing and climate crises, public policies must be pulling in the same direction: we cannot be building dense housing near transit stations while cutting how frequently the service is running, and we cannot be building public transit infrastructure in a sea of low density single-detached homes.

The federal government should attach strings to public transit investments to drive multiple outcomes and encourage best practices, including delivering housing supply and housing affordability near public transit, encouraging operational efficiency and requiring transit fleet electrification.

All of these policy interventions can be achieved with the program design of the *Permanent Public Transit Fund* and negotiated infrastructure settlements with provinces, territories and cities.

As our country grows, Canada cannot continue with the status quo of furthering car-dependent urban sprawl. Instead of grinding our cities to a halt with gridlock, we can instead choose to grow public transit systems and leverage infrastructure investments to shift the built form of our cities to support higher public transit use, less traffic, housing abundance and zero emissions mobility that is universally accessible to all. As highlighted by the modelling by Dunskey Energy + Climate Advisors, this is not only possible - but within reach.

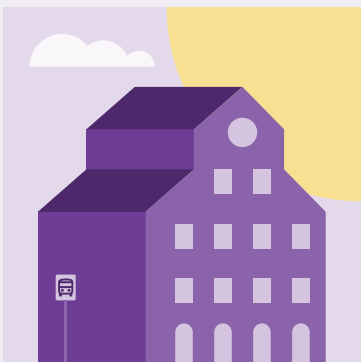


# POLICY RECOMMENDATIONS



## **FUND PUBLIC TRANSIT OPERATIONS TO ENABLE RIDERSHIP GROWTH**

- Make full use of expanded public transit service capacity to actually provide more service, stop cuts and prevent the public transit ‘downward spiral’.
- Transform commuter-centric public transit network designs towards supporting a broader range and variety of trip types with all-day frequent bus service.
- Create operating funding incentives that encourage efficiency and the increased provision of dedicated transit rights-of-way.



## **LINK HOUSING OUTCOMES TO PUBLIC TRANSIT INVESTMENTS**

- Require all public transit funding agreements with major cities to include ‘Supportive Policies Agreements’ with land-use standards such as pre-zoned housing density minimums near public transit and the elimination of minimum parking requirements.
- Supportive Policies Agreements should encourage public transit systems to redevelop transit-owned parking lots into housing and amenities, while supporting transit systems to enable ‘first and last mile’ connections to transit stations by sustainable travel modes.



## **ADVANCE EQUITY GOALS WITH PUBLIC TRANSIT**

- Help public transit systems adapt to post-pandemic travel patterns and better serve the travel patterns of equity-seeking groups by supporting the increase of transit service outside of peak periods.
- Make low-income fare discounts eligible for federal operations funding.
- ‘Supportive Policies Agreements’ should require anti-displacement strategies to ensure that those most likely to take public transit can actually afford to live near it.



## **ESTABLISH ZERO EMISSION BUS AND ROLLING STOCK PROCUREMENT REQUIREMENTS**

- Shift from funding a series of one-off electrification projects and procurements to making zero-emissions public transit a core feature and requirement of ongoing, permanent capital funding.
- Establish phased-in procurement requirements for zero-emission public transit vehicles as a condition for federal funding, similar to Quebec's requirement for only zero-emission buses 2026 onwards.
- Create flexibility based on community size, with an earlier deadline for large cities and later deadlines for small communities, while scaling-up capital funding to compensate for increased procurement costs.



## **SET CLEAR MODE SHIFT AND VEHICLE KILOMETRES TRAVELLED (VKT) REDUCTION TARGETS**

- Set a target to double public transit ridership from 2023 levels by 2035 and a target to reduce vehicle kilometres travelled by 35 per cent by 2035.
- Supportive Policies Agreements with major cities should require municipalities to have Sustainable Urban Mobility Plans (SUMPs), and the federal government should establish minimum mode shift targets expected by community size.
- Accelerate the Permanent Public Transit Fund to begin in 2024 rather than 2026.

# INTRODUCTION: WHERE WE NEED TO BE

To confront the climate crisis, Canada must rapidly reduce emissions in the transportation sector, which constitute a quarter of Canada's total emissions.

This will take the implementation of an ambitious policy package aimed at dramatically expanding public transit service while also bringing more people closer to transit with denser housing development to foster a rapid shift in the number of trips that people make without a private car.

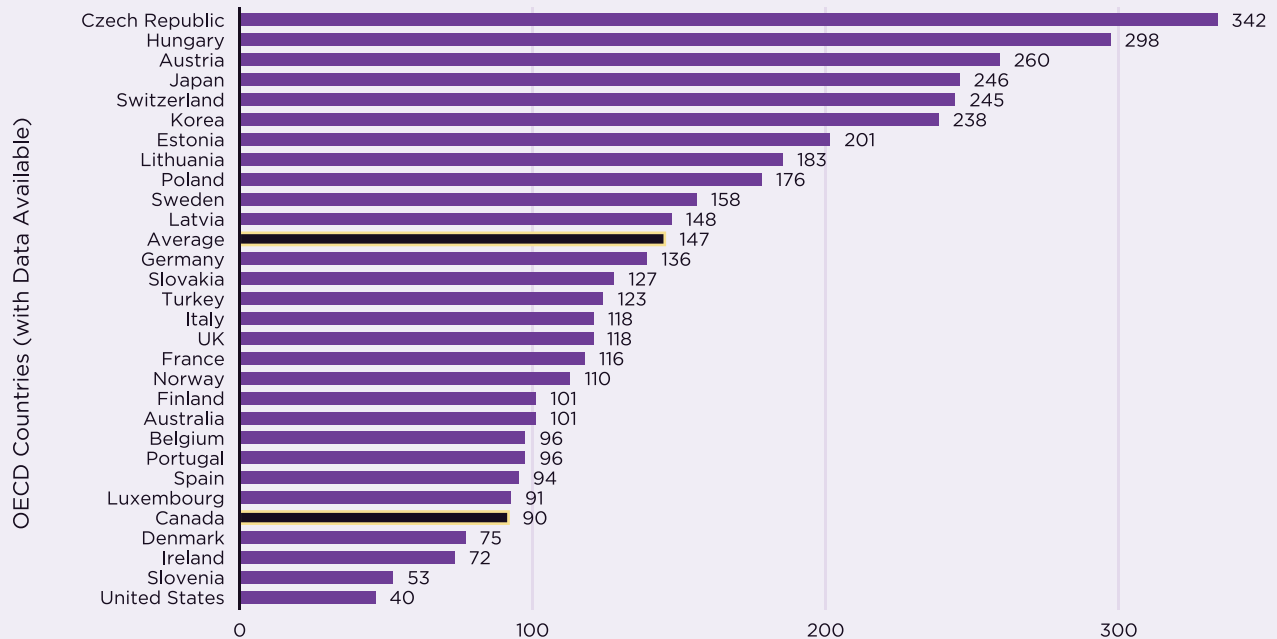
Canada is nearly 40 per cent below the OECD average for transit utilization (ridership per capita) in urban areas with public transit service.<sup>1</sup> But with the creation of the forthcoming *permanent public transit fund*, Canada has a historic opportunity to catch up to our global peers on public transit performance.

Despite including zero-emission vehicle (ZEV) adoption targets in the *2030 Emissions Reduction Plan and Action Plan for Clean On-Road Transportation*, there are no targets for increasing public and

active transportation use or reducing vehicle kilometres travelled. This is a problem because it indicates that Canada's strategy for reducing transportation emissions does not follow the principles of *Avoid-Shift-Improve*, which is a holistic approach that aims to tackle the three drivers of transport greenhouse gas (GHG) emissions: the carbon intensity of energy, the efficient use (or non-use) of that energy, and the travel demand for that energy.

**“CANADA IS NEARLY  
40 PER CENT BELOW  
THE OECD AVERAGE  
FOR TRANSIT  
UTILIZATION”**

## OECD: Public Transit Ridership per Capita (Transit Utilization)



OECD countries missing due to lack of data: Israel, New Zealand, Chile, Iceland, Greece, Colombia, Costa Rica, Mexico, Netherlands

**Note:** Public transit ridership is defined as a single trip from origin to destination (transfers are not counted) and per capita is defined as the population living within the service area covered by public transit authorities, (people living in places without public transit are not counted.)

Canada’s approach currently only addresses *Improve*, rather than all three.

Canada’s strategy for reducing transportation emissions lacks a focus on *Avoid and Shift* strategies to shift travel demand away from private vehicles, something that is present in national and sub-national climate plans from around the world, including British Columbia, Quebec, California, Scotland, Ireland and New Zealand. Many countries lack a focus on public transit in national climate plans, with

one in three overlooking it entirely. Only 20 per cent include public transit as part of their Nationally Determined Contributions, or NDCs, which are countries’ self-defined national climate pledges under the Paris Agreement, detailing what they will do to help meet the global goal to pursue 1.5°C.<sup>2</sup> It is crucial that Canada align itself with leading jurisdictions.

In advance of the forthcoming *Permanent Public Transit Fund*, Environmental Defence and Équiterre commissioned Dunsky Energy

GHG Reduction Strategy	What Does It Mean?	Example Policy Measures
<b>Avoid</b>	<p>Reducing Vehicle Kilometres Travelled (VKT) by making shorter or fewer trips by car.</p> <p>Focuses on improving the efficiency of the transport system as a whole.</p>	<p><b>Land Use:</b> Improving urban planning to enable people to make shorter trips by placing housing in close proximity to jobs, shops and services. Enables reaching destinations by public transit, walking, cycling or using a mobility device and reduces car-dependency.</p>
<b>Shift</b>	<p>Shifting travel to sustainable modes like public transit, walking and cycling.</p> <p>Focuses on eliminating or improving the efficiency of carbon consumption at the trip level.</p>	<p><b>Mode Shift:</b> Increasing public transit service, electrifying public transit service, creating safe cycling infrastructure, pricing parking, reallocating road space to prioritize sustainable modes.</p>
<b>Improve</b>	<p>Increasing the fuel efficiency of gasoline cars, increasing the use of zero-emission vehicles and reducing the carbon intensity of fuels.</p> <p>Focuses on eliminating or improving the efficiency of carbon consumption at the level of vehicle technology.</p>	<p><b>Fuel Efficiency:</b> Regulating automakers with fuel efficiency standards.</p> <p><b>Vehicle Electrification:</b> Requiring automakers to shift towards 100 per cent zero-emission vehicle sales by 2035.</p> <p><b>Cleaner Fuels:</b> Requiring a lower carbon intensity of gasoline by mixing in biofuels and lowering the carbon emissions of the refining process.</p>



## BRITISH COLUMBIA

Reduce vehicle kilometres travelled (VKT) by 25 per cent below 2020 levels by 2030 and increase the mode share of all trips made sustainably by walking, cycling, public transit to 30 per cent by 2030, 40 per cent by 2040 and 50 per cent by 2050.



## QUEBEC

Reduce single occupant vehicle trips by 20 per cent by 2030.



## CALIFORNIA

Reduce light-duty vehicle miles traveled (VMT) per capita by 25 per cent below 1990 levels by 2030 and 30 per cent per capita below 1990 levels by 2045.

+ Climate Advisors to model a national-level study that could set a clear, realistic, time-bound and achievable Canada-wide target to reduce vehicle kilometres travelled and increase public transit use. This was done by modelling a number of policy interventions aimed at reducing carbon emissions including; 1) Significantly increased public transit service, supported by a greater federal and provincial role in operating funding, 2) Additional transit priority corridors, (i.e. increasing the number of bus lanes through funding incentives), 3) Increased housing density near public transit stations by adding pre-zoned land-use standards as a requirement for federal transit funding, 4) Electrifying public transit bus fleets by creating zero-emission bus procurement requirements attached to federal funding.

The study (see technical report) found the modelled policies would result in:

- Doubling public transit ridership by 2035 from 2023 levels.
- Achieving more than 30 per cent of all travel in major cities (populations above 400,000 people) being made by public transit, and 20 per cent overall across Canada.
- Reducing Vehicle Kilometres Travelled (VKT) by 35 per cent below 2019 levels by 2035.
- Cumulatively reducing transport-



related carbon emissions by 65 million tonnes by 2035.

The modelling conducted by Dunskey Energy + Climate Advisors, available in a separate technical companion report, highlights the strong linkage between housing density, public transit and emissions reductions. The emissions reductions from changing the built environment of our towns and cities is enabled by robust transit service and infrastructure and has the greatest impact among all policy measures.

### **Passenger Transport Emissions in Canada Remain Stubbornly High**

Vehicle fuel efficiency standards adopted from the US have so far failed to achieve meaningful emissions reductions from Canadian cars and trucks due to loopholes in their design. There is a 'footprint' standard that enables laxer tailpipe emissions requirements for larger vehicle sizes and a separate, less stringent regulatory category for light trucks based on vehicle weight. These loopholes have allowed automakers to avoid reducing emissions by encouraging a shift in the supply of vehicles away from compact sedan cars towards larger and heavier SUVs and pickup trucks.<sup>3</sup> The International Energy Agency (IEA) estimates that 40 per cent of fuel economy improvements in the United States from 2010 to 2019 have



### **SCOTLAND**

Reduce vehicle kilometres travelled (VKT) by 20 per cent by 2030.



### **IRELAND**

Reduce vehicle kilometres travelled (VKT) by 20 per cent by 2030, increase public transit ridership by 130 per cent by 2030 and increase travel by active modes (walking and cycling) by 50 per cent by 2030.



### **NEW ZEALAND**

Reduce vehicle kilometres travelled (VKT) by 20 per cent by 2035.



been effectively canceled out by increased vehicle size and weight associated with this trend.<sup>4</sup>

The share of SUVs and pickup trucks as a percentage of all new car sales in Canada has steadily climbed from 55 per cent in 2010 to 86 per cent this year.<sup>5</sup> As a result of this, the Canadian passenger vehicle fleet has the worst fuel economy of any major car market in the world.<sup>6</sup> While GHG emissions from passenger cars have declined by 41 per

cent below 2005 levels, GHG emissions from light trucks have gone up 26 per cent above 2005 levels - for an overall reduction of less than 8 per cent below 2005 levels.

The regulatory impact statement of Canada's draft ZEV sales regulation, which aims to gradually phase out the sale of new gasoline cars by 2035 estimates the impact of this policy as driving a GHG emission reduction of 362 million tonnes by 2050. To put that in perspective, this is equivalent to

## A NOTE ON CAPITAL FUNDING

To achieve the outcomes of the scenario modelled in this report, total public transit service levels across Canada<sup>7</sup> must increase by 109 per cent. This will require a significant increase in public transit operating funding, which is broken down in Addendum 1. The study does not include an analysis of capital expenditures required outside of additional zero-emission bus procurement costs, however we do recognize that this service increase can be enabled by capital projects. The study assumes that much of the required service expansion can be delivered with existing capital assets by using excess spare capacity and adding service during off-peak periods when existing capital assets are not being utilized at full capacity. We also assume that the existing \$3 billion per year permanent public transit funding commitment from the federal government (and matched by provinces) is used towards capital expansion necessary to deliver the added operating service hours. Given the high variability of specific capital projects, there is no specific elasticity between capital expenditure and service output that could be used at a national level for this study. Both capital and operating funding is needed to increase service output, and the operating funding cost estimate provided by this study will be required to support a 109 per cent increase in public transit service levels.

## Growth of Light Truck Sales Offsetting Fuel Efficiency GHG Reductions in Canada

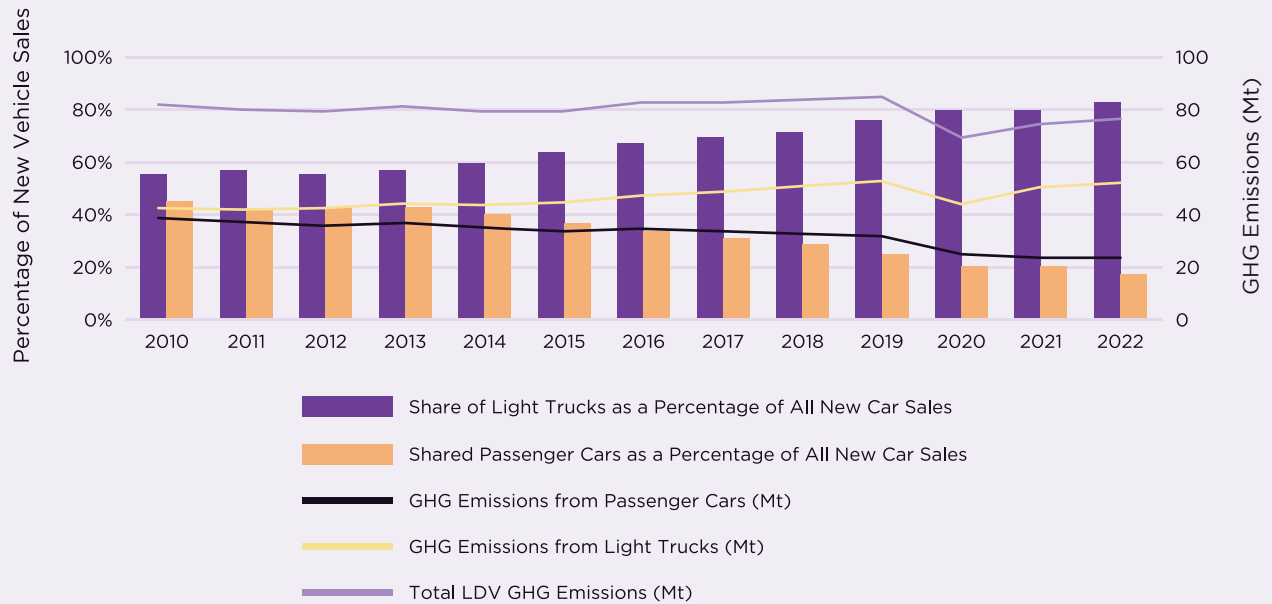


Chart derived from StatCan Table: 20-10-0002-01 and National Inventory Report, GHG Sources and Sinks in Canada and Early Estimate of 2022 emissions from the Canadian Climate Institute

## Federal ZEV Standard - Projected Emissions Reductions Regulatory Impact Statement - Canada Gazette



61,000 Olympic size swimming pools full of gasoline not burned.






Unfortunately, the GHG reduction benefits of this policy are significantly ‘backloaded’ as it only affects new car sales, and does not reduce emissions from gasoline cars already on the road. It is constrained by how fast new vehicles can come to dominate the on-road fleet, which is a slow process. This means that by 2030, it only results in a 4.1 Mt reduction, and by 2035 a 38.1 Mt reduction. Cars bought and driven today are carbon-intensive and will remain on the road for approximately 15 years. This means that there is significant potential for public transit to reduce emissions now from polluting cars already on the road, and from polluting cars that will continue to be sold up to 2035 and still be on the road by 2050.

According to the modelling conducted by Dunskey Energy + Climate Advisors, implementing policy interventions including increasing public transit service, creating dedicated bus lanes in priority corridors, electrifying bus fleets and fostering more compact land use patterns can cumulatively reduce carbon emissions by 65 million tonnes by 2035. This is more than what is projected from Canada’s ZEV sales regulation within the same time frame. This is why it is crucial for Canada to have a holistic *Avoid-Shift-Improve* strategy to reduce transport emissions and adopt targets to increase the use of public and

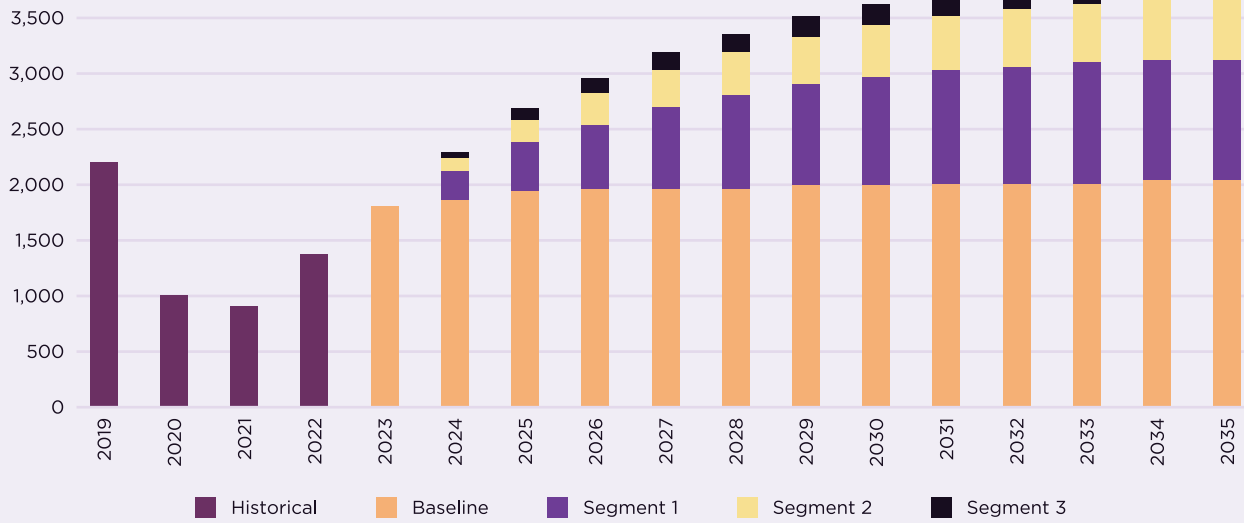
## DID YOU KNOW?

More people traveling by public transit means fewer people traveling by polluting car. At normal ridership levels, the average Canadian public transit vehicle carries more than 40 people, while 85 per cent of all car commutes are done by a single person driving alone.<sup>8</sup>

### GHGS (KG CO<sub>2</sub>E) PER AVERAGE PASSENGER/DRIVER TRIP (METRO VANCOUVER)<sup>9</sup>

-  **0 KG CO<sub>2</sub>E**  
Walk, Cycle or Wheelchair
-  **0.01 KG CO<sub>2</sub>E**  
Electric Rail Transit
-  **0.01 KG CO<sub>2</sub>E**  
Electric Bus
-  **1.01 KG CO<sub>2</sub>E**  
Diesel Hybrid Bus
-  **2.3 KG CO<sub>2</sub>E**  
Gasoline Car

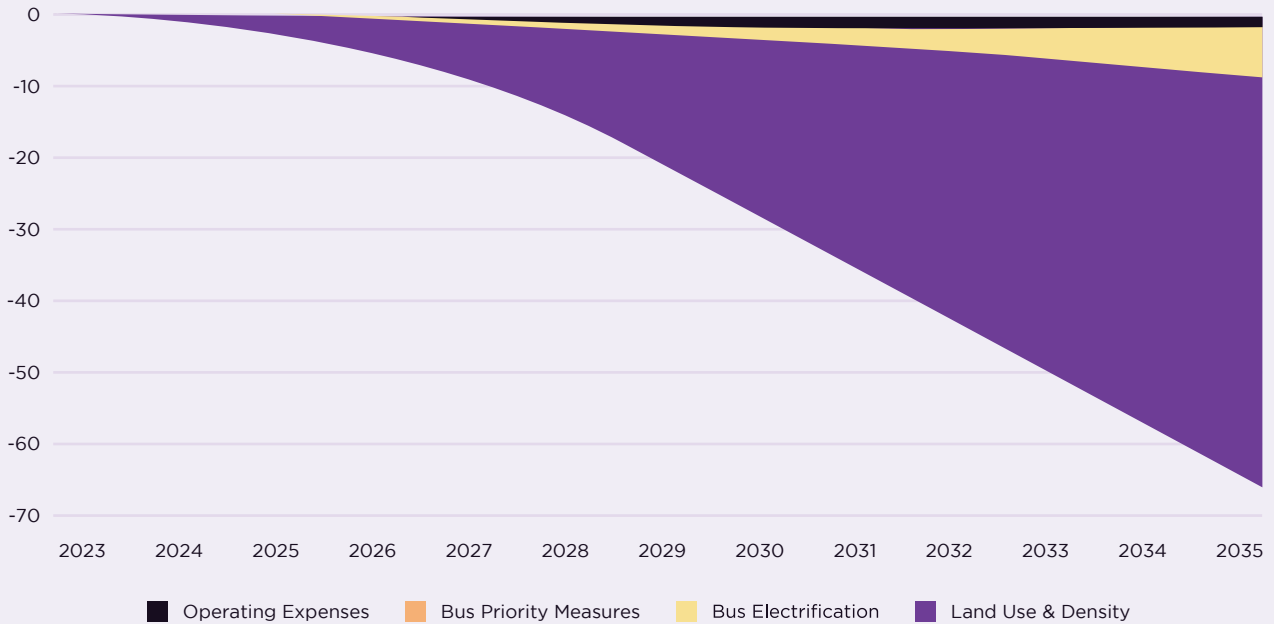
## Ridership Increase by Segment (Million Linked Trips)



**Segment 1:** Cities with Population Above 2 million (Toronto, Montreal, Vancouver)  
**Segment 2:** Cities with Population Between 400,000 and 2 million (Edmonton, Quebec City, Ottawa, Winnipeg, etc)  
**Segment 3:** Cities with Population Below 400,000 with public transit systems (Regina, Victoria, Gatineau, etc)

*Dunsky Energy + Climate Advisors Modelling, 2023*

## Cumulative Passenger GHG Emission Reductions (MtCO<sub>2</sub>e)



*Dunsky Energy + Climate Advisors Modelling, 2023*

active transportation and reduce vehicle kilometres travelled.

### The Determinants of Public Transit Ridership

The primary method of achieving public transit ridership growth is by creating ‘induced demand’. Just as widening roads induces more traffic, making public transit a more attractive choice means more people take it. The most significant driver of public transit demand is service supply, as it is

the primary determinant of overall service quality in terms of frequency, reliability and convenience.<sup>10</sup> It is far more important than any other policy lever available to policymakers. The more frequent and convenient service is, and the faster it runs, the more people will use it.<sup>11,12</sup> The more people who live near abundant public transit with easy and convenient access by walking or cycling, the more people will use it. This makes the primary policy challenge a simple one: *bring high-quality public transit to*

Determinants of Public Transit Ridership <sup>13,14</sup>	
A 10% increase in...	Results in X ridership change
<b>Service Supply Factors</b>	
<i>Transit Service Kilometres</i>	<b>+8.3%</b>
<i>Transit Service Hours</i>	<b>+10%</b>
<b>Population and Density Factors</b>	
<i>Population</i>	<b>+3.4%</b>
<i>Urban Sprawl (Geographic size of urban boundary)</i>	<b>-2.8%</b>
<i>Housing Density (proportion of apartments)</i>	<b>+5%</b>
<i>Housing Density (proportion of row houses)</i>	<b>+2.9%</b>
<i>Housing Density (proportion of single-family homes)</i>	<b>-3.4%</b>
<i>Proportion of Population with no car</i>	<b>+4.5%</b>
<b>Price Factors</b>	
<i>Average Transit Fare</i>	<b>-2.2%</b>
<i>Gasoline Price</i>	<b>1.4%</b>

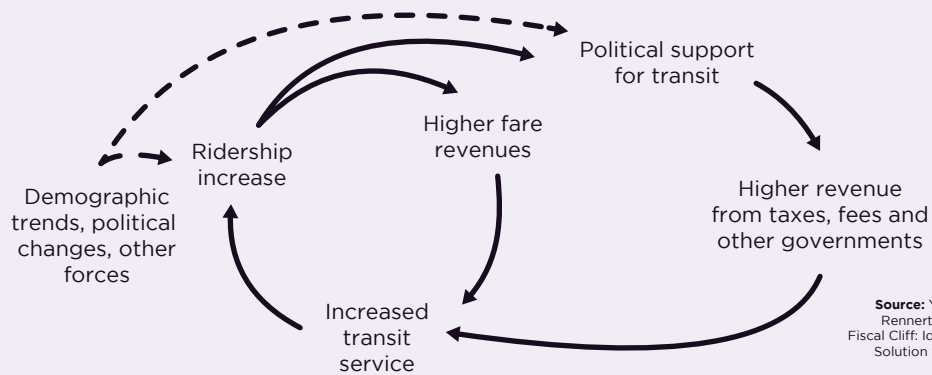
**“THIS MAKES THE PRIMARY POLICY CHALLENGE A SIMPLE ONE: BRING HIGH-QUALITY PUBLIC TRANSIT TO MORE PEOPLE, AND BRING MORE PEOPLE CLOSER TO HIGH-QUALITY PUBLIC TRANSIT.”**

*more people, and bring more people closer to high-quality public transit.*

Taking policy action to increase the service supply of public transit can trigger a self-reinforcing virtuous cycle. This is because public transit service supply has an economy of scale, otherwise known as the ‘Mohring Effect.’<sup>15</sup> This means that increasing the frequency of public transit directly lowers the marginal cost of taking it for passengers because their travel time is decreasing, which spurs further demand, greater passenger revenues and further increases in service. The greatest return to scale happens when increasing the frequency of low-frequency services, in particular for buses and during off-peak hours.

To move towards a climate-safe future, Canada’s policymakers must change how they approach transportation policy.

### The Virtuous Cycle for Transit Agencies



Source: Yonah Freemark, Lindiwe Rennert (2023) Surmounting the Fiscal Cliff: Identifying Stable Funding Solution for Public Transportation Systems. Urban Institute.

For far too long, the transportation planning practice has focused on what the International Transport Forum (ITF) describes as the ‘predict and provide’ framework.<sup>16</sup> This framework is often based on responding to flawed travel demand forecasts that don’t take into account how transportation choices are fundamentally rooted in the built environment of prior infrastructure and land use policy choices. This leads to reinforcing pre-existing path dependencies through the creation of ‘induced demand.’<sup>17</sup> More people are driving because of widened highways and urban sprawl, leading to further investment in maintaining highway and sprawl growth.<sup>18</sup>

In public transit, this approach can be summed up in the often-used phrase “matching service to demand.”<sup>20</sup> To many people, this phrase might seem innocuous, but it has a dark side. It is often deployed to justify public transit service cuts in response to a decline in ridership. From the ‘predict and provide’ perspective, this might seem perfectly rational. That is until it is revealed that cutting service would make the service inconvenient, unreliable and push riders to drive instead. This further reduces revenues of public transit systems and drives further cuts to service. This vicious cycle is known as the ‘downward spiral’.

In contrast, the ITF recommends that countries shift from this thinking and move towards the ‘decide and provide’ framework.

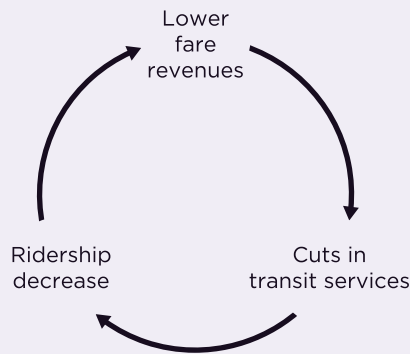
**“EXISTING VEHICLE STOCK, ROAD INFRASTRUCTURE, AND FUEL-SUPPLY INFRASTRUCTURE PRESCRIBE FUTURE USE AND CAN LOCK-IN EMISSION PATHS FOR DECADES WHILE INDUCING SIMILAR INVESTMENT BECAUSE OF ECONOMIES OF SCALE.”<sup>19</sup>**

This framework understands that it is fundamentally our policy choices which determine travel demand patterns.<sup>21</sup>

How we move can be shaped in a sustainable direction by making different policy choices that emphasize sustainable modes like public transit, walking, cycling,



## The Vicious Cycle for Transit Agencies



**Source:** Yonah Freemark, Lindiwe Rennert (2023) Surmounting the Fiscal Cliff: Identifying Stable Funding Solution for Public Transportation Systems, Urban Institute.

“Predict and Provide”	“Decide and Provide”
Reactive	Proactive, Vision-Based
Forecast-led	Target or mission-led
Reinforces path dependency of prior infrastructure policy choices, including inducing greater travel by private car.	Creates pathways for shifts in travel demand towards sustainable modes consistent with climate objectives.
Maximizes speed and convenience of travel by private car at the expense of other travel options.	Provides greater travel options to maximize efficient mobility of people.
Suburban sprawl and car dependency.	Housing proximity to desired destinations and everyday needs.
‘Match service to demand’ for public transit, creating a self-reinforcing downward spiral of ridership and service levels.	Creates a ‘virtuous cycle’ for public transit ridership growth and mode shift.



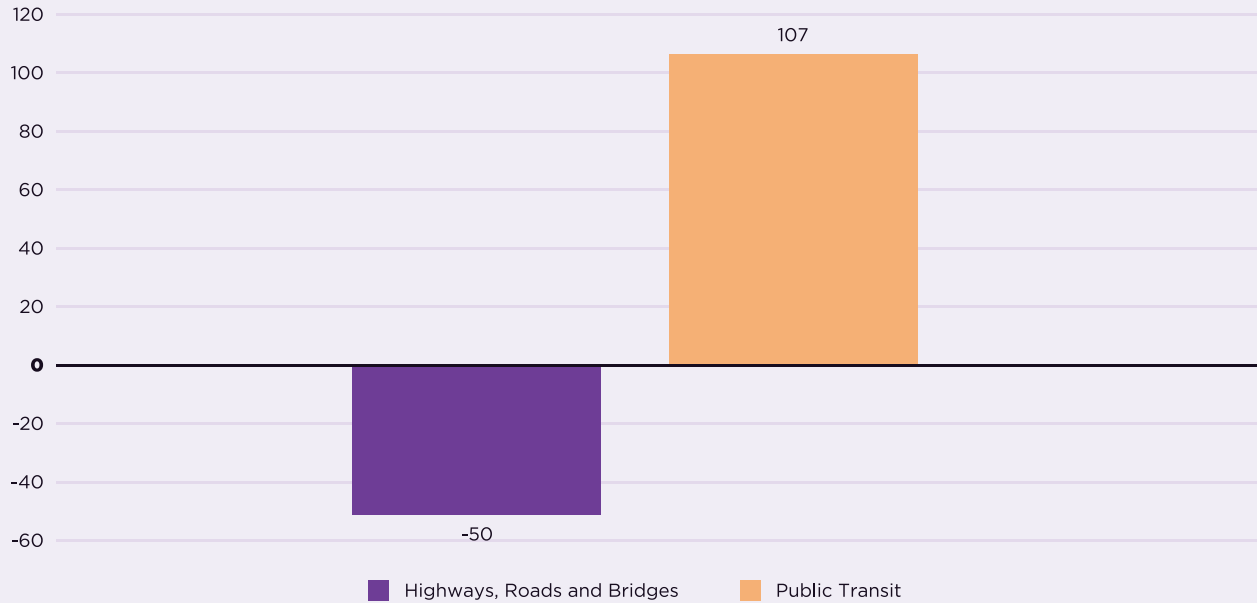
and building a compact urban form. But this means creating a vision for the future and acting on it.

### **The Economic Benefits of Public Transit Investment**

In 2018, the Ontario Ministry of Infrastructure sought to better understand the economic impacts of investing in infrastructure.<sup>22</sup> To do this, it contracted Deloitte and funded an economic study that examined the return on investment for various infrastructure asset classes in Ontario over a very long period of time (1961 to 2011), based on departmental records and data from

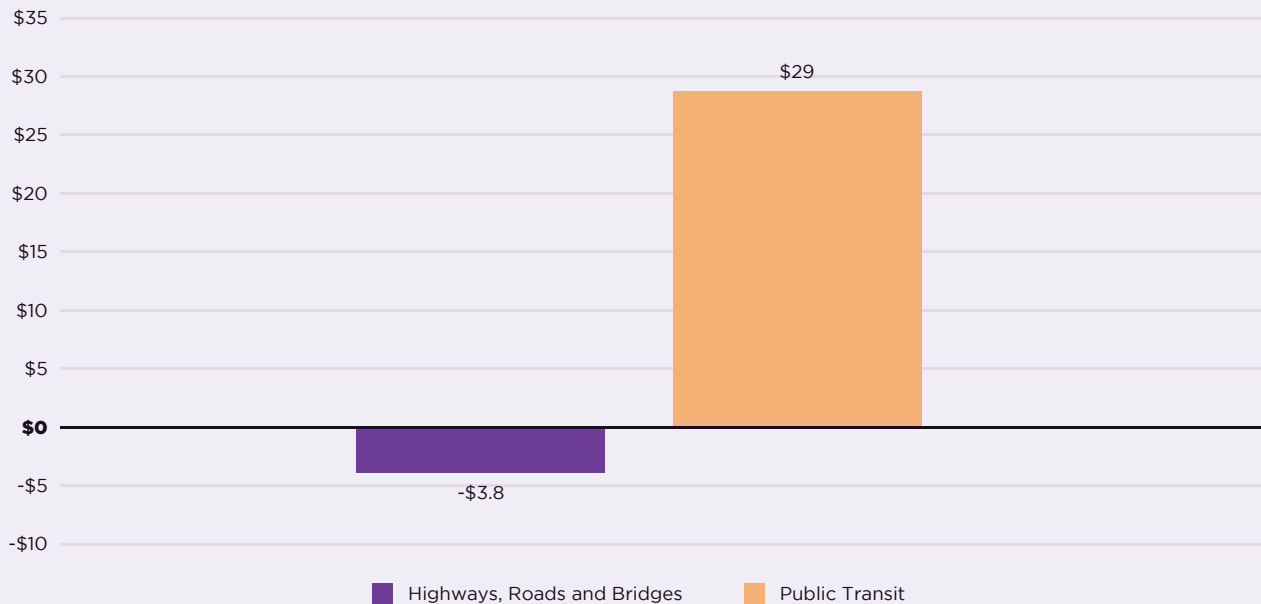
Statistics Canada. The study found that investing in public transit infrastructure had the most significant return on investment of any single infrastructure asset class,<sup>23</sup> and also found that investment in new highways actually shrank the economy by ‘crowding out’ private investment, which meant that it took labour and resources that could have been put to better and more productive use in other parts of the economy. While not covered in the modelling of this report, this highlights the economic benefits of shifting transportation funding priorities.

## Jobs per \$1,000,000 Invested (Over Asset Lifecycle)



Pereira AM, Pereira RM (2018) On the effects of infrastructure investment on economic performance in Ontario. *Journal of Infrastructure, Policy and Development*.

## GDP Growth for Each \$1 Invested (Over Asset Lifecycle)



Pereira AM, Pereira RM (2018) On the effects of infrastructure investment on economic performance in Ontario. *Journal of Infrastructure, Policy and Development*.

# WHERE WE ARE TODAY

## Growing Transportation Unaffordability

Households can make significant savings if they can rely on public transit to get around instead of being forced to rely on a car. Transportation is one of the largest costs for most Canadian families, taking up 18.5 per cent or nearly one fifth of household budgets. The average household spends \$11,250 each year on car ownership.<sup>24</sup>

The costs of car ownership have also dramatically increased. Most low and middle income families purchase their vehicles in the used vehicle market. The median price of a used vehicle has more than doubled (110 per cent increase) between 2019 and 2023, going from just under \$19,000 to just under \$40,000 (CAD).<sup>25</sup> For new vehicles, prices have risen from \$39,000 to \$66,000 over the same time period.

Consumers are increasingly managing this explosive increase with significantly larger auto loan amounts amortized over longer time periods.<sup>26</sup> Compared to pre-pandemic prices in early 2020, the cost of monthly car payments have risen by 20 per cent for new vehicles and 30 per cent for used vehicles.<sup>27</sup> Higher interest rates have made servicing these larger car payments for low and middle income households very difficult. Canadians living in urban and suburban

metropolitan regions face an “affordability paradox” where they must choose between lower-cost housing in suburban outskirts (where a lack of public transit service means costly personal vehicle ownership is a must) or more expensive housing in the urban core (where access to good public transit can potentially make automobile ownership unnecessary).<sup>28</sup>

Rapidly rising housing costs are pushing more and more urban Canadians to live in farther flung suburbs, in a process often described as “drive until you qualify.”<sup>29</sup> This has pushed low-income families into auto-dependent places that have worse public transit service and longer commutes, with low income and racialized Canadians being over-represented in ‘extreme commutes’ that exceed an hour in length for a one-way trip.<sup>30</sup> This has led to greater social isolation and compounded social disadvantages,

such as access to jobs, services and opportunities.<sup>31</sup>

One study which examined this phenomenon in Canada's eight largest cities found that the cities with the fastest rising cost of housing also had the greatest share of people at risk of transport poverty. The study found that 40 per cent of all low-income residents, or nearly one million people, struggled with transportation poverty in car-dependent suburbs.<sup>32</sup>

Transport poverty can be defined as both a lack of transport options (such as accessible public transit) that create social exclusion and the inability to access the options that do exist for reasons such as a lack of income or having a disability.<sup>33</sup> Transport poverty often intersects with traditional forms of marginalization, such as being a member of a racialized community. There is also the phenomenon of 'forced car ownership' where a lack of alternate options forces people to rely on private vehicles for their travel needs and this can also create transport poverty when the cost of vehicle ownership is especially burdensome for those with low incomes.

It is no longer sustainable to force more and more Canadians to live in far flung suburbs, far from jobs, services and amenities where they will be forced to rely on cars to meet their daily needs. The choice of living near work, amenities and in a public

transit-rich, walkable neighborhood should not be only reserved for the wealthy. Canada must address the severe housing and climate crises at once by providing a policy framework to scale up public transit service and support more homes in cities where compact and sustainable urban development can shift travel patterns out of the polluting car and lower the cost of living.

**“THE CHOICE OF LIVING NEAR WORK, AMENITIES AND IN A PUBLIC TRANSIT-RICH, WALKABLE NEIGHBORHOOD SHOULD NOT BE ONLY RESERVED FOR THE WEALTHY.”**

Some might claim that changing Canada's car centric nature is impossible because of our large landmass and low population density. This would be wrong. Despite Canada being a very large country by

landmass, it would be wrong to assume that Canadians are spread out evenly across the country. In fact, Canada is an urban country, with nearly three in four Canadians (73.7 per cent) living in one of Canada's large urban centres, with a population of 100,000 or more people.<sup>34</sup> Canada's population is also growing the fastest in the G7, largely thanks to immigration, which has recently pushed Canada past the 40 million people mark. Pushing this urbanization trend, 9 out of 10 new immigrants are settling in growing urban areas.<sup>35</sup>

However, Canadian cities are struggling to accommodate this growth, amidst a pre-existing lack of supply of housing, an overall growing number of households and a major increase in housing demand associated with the COVID-19 pandemic.<sup>36</sup> The Canadian Mortgage and Housing Corporation (CMHC)

points to an estimated housing shortage of 3.5 million units.<sup>37</sup> As Canada grapples with the housing crisis, many policymakers are beginning to overhaul planning rules in communities across the country.<sup>38</sup> This presents a significant opportunity for shifts in how cities are planned and transportation networks are designed to support a shift to more sustainable transport modes and confront the climate crisis, while also tackling affordability challenges.

As our country grows, Canada cannot continue with the status quo of furthering car-dependent urban sprawl. Instead of grinding our cities to a halt with gridlock, we must instead choose to grow public transit systems and leverage infrastructure investments to shift the built form of our cities to support higher public transit use, less traffic, housing abundance and



zero emissions mobility that is universally accessible to all. As highlighted by the modelling by Dunsky Energy + Climate Advisors, this is not only possible - but within reach.

## **How the COVID-19 Pandemic Changed Everything**

Public transit is at a crucial moment in its history in North America. Before our communities can begin to climb the mountain of progress towards competing with globally leading transit cities, Canadian public transit systems must first survive and recover from the financial crisis created by the pandemic.

Public transit systems in Canada rely on riders paying fares to pay for more than half of their operating budgets. The onset of the pandemic caused public transit ridership to fall off a cliff. At its lowest point, ridership plunged to only 15 per cent of pre-pandemic levels. The Canadian Urban Transit Association estimates that for every 10 per cent loss in public transit ridership, transit systems collectively lost \$470 million in passenger revenues.<sup>39</sup>

The federal government worked with the provinces to deliver emergency operating support to public transit systems through the 2020 Safe Restart Agreement (\$2.4 billion) and it renewed its support (\$750 million) in February 2022. This was a historic intervention given the federal government's

traditional reluctance to deliver operating funding. This support prevented a complete collapse in public transit service levels, which allowed public transit systems to continue providing service to essential workers and rebuild ridership.<sup>40</sup>

This reflected a belief in the 'decide and provide' approach, where if you build it riders will come.<sup>41</sup> It was no coincidence that Canadian jurisdictions which did not cut public transit service saw the fastest ridership recovery. The government of British Columbia, for example, delivered the most operating funding on a per-rider basis in the country to BC public transit systems, and now BC Transit is now one of the first public transit authorities in North America to recover 100 per cent of its ridership.<sup>42</sup> Other cities, like Edmonton, that avoided cutting service and instead focused on boosting frequent bus service have seen the same result.<sup>43</sup>

It is a small miracle that despite total passenger revenues declining by 57 per cent overall in 2020 and 2021, service levels only declined by 9 per cent in both those years. Ridership Canada-wide has today managed to recover to 81 per cent of pre-pandemic levels.<sup>44</sup> However, this recovery has been uneven and in many places, the fight to save public transit from a downward spiral isn't over. In particular in places where service cuts did occur, like Toronto.<sup>45</sup>

This financial support has now been cut off from the federal government. While the federal government continues to announce support for capital projects, such as major light rail and subway builds like the Ontario Line, the lack of support for public transit operations has left some questioning if Ottawa intends to build the shiny new public transit of the future on top of the ‘rotting corpse’ of the transit networks that exist today.<sup>46</sup> Operating support has only been continued by some provinces, most of whom have not fully filled the gap.

The Quebec government for example, has pledged to only partially cover the deficit of Quebec’s 10 largest transit authorities, while pledging to impose austerity to cover the rest - raising the prospect of dramatic service cuts, the cancellation of entire routes and closing subway service at 11pm.<sup>47</sup> The regional Metropolitan Transport Authority (ARTM) is currently papering over their budget deficit by raiding funds intended to maintain the state of good repair of their assets, which is completely unsustainable.<sup>48</sup> This comes after Montreal’s public transit system, the STM, recently cancelled its entire 10-minute or less frequent bus network.<sup>49</sup> What had been 31 routes that boasted the low-wait time guarantee before the pandemic, were slowly whittled down by budget cuts until by February 2023, with no more operating funding support on the horizon, this guarantee was scrapped entirely.

## INFORMATION

# BUDGET CUTS, LIMITED SERVICE

ROUTE 10A & 10B	CANCELLED
ROUTE 56	CANCELLED
ROUTE 702	CANCELLED
ROUTE 310	CANCELLED
ROUTE 22B	CANCELLED
ROUTE 55	CANCELLED
ROUTE 200	CANCELLED



This pressure towards service cuts is only exacerbated by the city of Toronto's fiscal crisis,<sup>50</sup> a significant part of which is driven by losses in public transit fare revenues. Since Premier Harris' government canceled provincial operating subsidies to public transit in Ontario in 1998, the Toronto Transit Commission (TTC) has been far more reliant on fare revenues than any other public transit system in the country.<sup>51</sup> The Ontario government recently struck a 'new deal' with Toronto Mayor Olivia Chow, which provided time-limited operating funding to the TTC, with both levels of Government now calling on the federal government to step up and fund their fair share.<sup>52</sup>

In Metro Vancouver, the regional transport authority TransLink was rescued by a provincial funding package of \$479 million in early 2023, which would prevent service cuts to 2025. British Columbia was the only province to fully cover public transit deficits since the federal government ended its own support program that had previously prompted provincial governments to match funding. TransLink's challenges are different, projecting a cumulative \$4.7 billion deficit by 2033 driven in large part by declines in gasoline tax revenues, as the province in BC has the most aggressive zero-emission vehicle adoption targets in North America.<sup>53</sup> It also has an unfunded, \$21 billion 10-year service expansion plan, that involves doubling regional bus service levels, and nine new Bus Rapid Transit lines.<sup>54</sup> It is

primarily designed to meet aggressive targets to increase public transit use and reduce vehicle kilometres travelled, outlined in the province's CleanBC climate plan.<sup>55</sup>

Many cities across the country are facing similar challenges. But the metropolitan regions of Vancouver, Toronto and Montreal alone represent 70 per cent of all public transit ridership in Canada, making the fate of transit in any one of these cities hugely impactful to overall efforts to reduce carbon emissions from the transportation sector in Canada.

### **The Performance of Federal Public Transit Programs**

Canada's urban public transit funding landscape is a patchwork of programs. For a very long time, the federal government had little role in the development of urban public transit systems, sometimes providing one-off funding for special projects or having very temporary capital funding related to infrastructure stimulus spending during economic downturns. Canada was often derided as being the only G7 country without a national public transit strategy, funding program or policy framework.<sup>56</sup> Only three provinces currently play a significant role in urban public transit: Ontario, Quebec and British Columbia. Programs that support public transit capital or operations in these provinces have had the tendency to wax and wane with political cycles. In most cases, the operating costs of

**“POLICY MAKERS NEED TO RECOGNIZE THAT RAISING FARES AND REDUCING SERVICES WILL HURT THE PROSPECTS OF ATTRACTING USERS BACK TO PUBLIC TRANSPORT, STALL PROGRESS TOWARDS FIGHTING CLIMATE CHANGE, ERODE ACCESSIBILITY, AND THREATEN TO EXACERBATE THE COST-OF-LIVING CRISIS.”<sup>57</sup>**

- International Transport Forum (ITF)

public transport networks still rely mainly on municipal budgets. However, these budgets are tight - municipalities are responsible for 60 per cent of Canada’s infrastructure - and pay 75 per cent of public transit operating costs - but collect only 10 per cent of total tax revenues.

In 2016, the federal government – for the first time – took a long-term fiscal position in supporting the expansion of public transit through sharing 40 per cent of the costs of capital projects with a program named the *Investing in Canada Infrastructure Program*, (ICIP).

With this program, Canada finally started funding public transit capital projects on a long-term consistent basis, allocating public transit capital funding under this program (\$23.5 billion), up to March 2023. Despite core public transit funding expiring in 2023, the federal government plans to launch the next public transit funding program, the Permanent Transit Fund at \$3 billion annually starting in 2026-27, leaving a significant gap between programs.

The most important benchmark for success of this program is to examine the actual improvement in public transit service

	Federal Government	Provincial Government	Municipal Government
<b>Role</b>	<p>The federal government established a long-term role in funding 40 per cent of the costs of public transit capital projects in 2016 with the <i>Investing in Canada Infrastructure Program</i>, which was governed by bilateral agreements with provinces and territories. Conditions are attached to this funding, such as adherence to accessibility standards and community benefits agreements.</p> <p>The federal government also plays a strong role in reducing Canada’s greenhouse gas emissions, and public transit is a part of federal climate plans.</p>	<p>Provinces have the authority to create and regulate local governments, including establishing the planning frameworks and legislation within which municipalities carry out land use planning.</p> <p>Similarly, provinces also create and regulate regional transit authorities that cross municipal boundaries. In metropolitan regions, this includes directly managing regional rail networks such as GO Transit in Ontario and Exo in Quebec.</p>	<p>Most public transit agencies in Canada are directly governed and primarily funded by a local government. Local governments work directly with public transit system managers to establish fare structures and plan the scheduling, coverage and design of local public transit route networks.</p> <p>Before the pandemic, 51 per cent of public transit operating costs were paid by passenger fares. With pandemic-related drops in ridership, this declined substantially and caused a financial crisis for public transit budgets.</p>

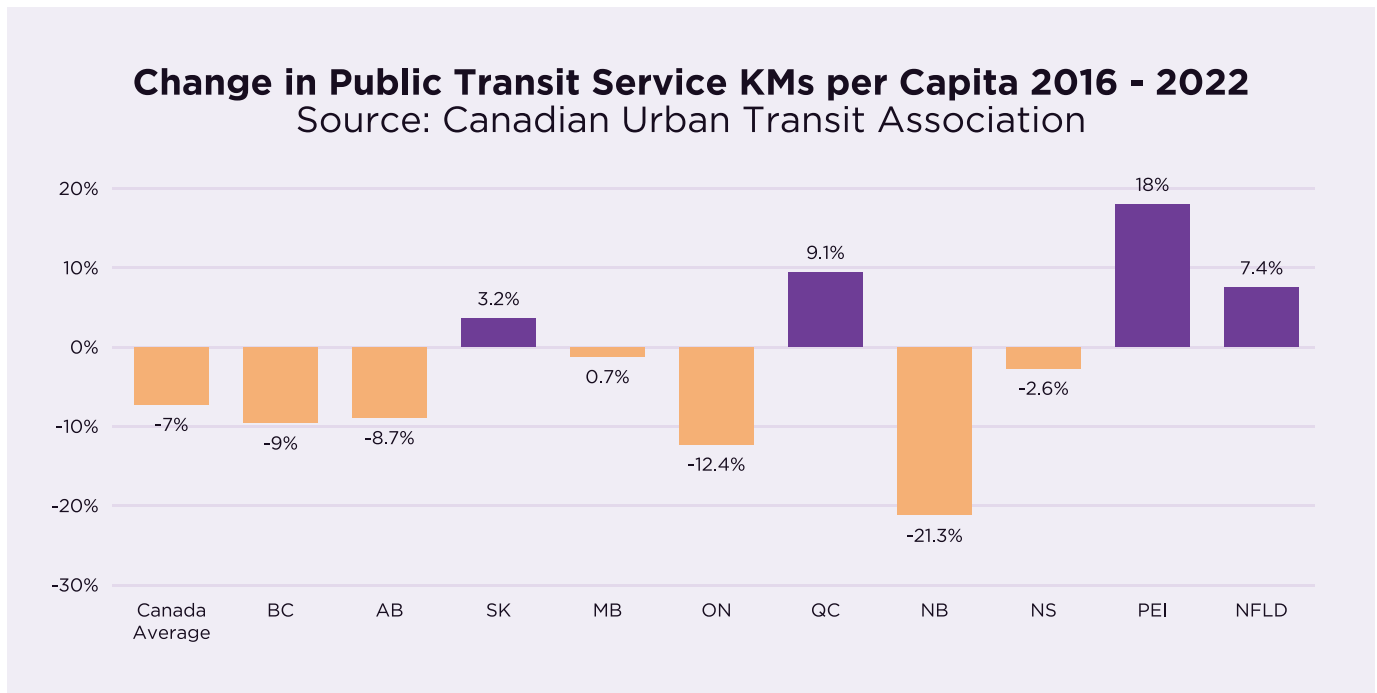
	Federal Government	Provincial Government	Municipal Government
	<p>During the pandemic, the federal government played a significant temporary role in providing emergency operating funding to public transit systems.</p> <p>The federal government manages a \$2.4 billion fiscal transfer to municipalities for infrastructure capital costs, called the <i>Canada Community-Building Fund</i>.</p>	<p>Provinces are also a large contributor to the capital costs of new public transit infrastructure. Bilateral funding agreements with the federal government require provincial cost-shares for public transit capital projects.</p> <p>Some provinces play a role in funding public transit operations but most do not. For example, Quebec dedicates a portion of revenues from their cap-and-trade system for public transit operations, while Ontario provides a 2 cent share of gasoline tax revenues to municipalities with public transit systems.</p>	<p>Municipalities are not allowed to borrow money for their operating budgets and are restricted in what taxes they can levy.</p> <p>Local governments control land-use planning and zoning bylaws within the legislative framework established by provinces.</p>
<b>Share of Total Tax Revenues<sup>58</sup></b>	<b>51.1 per cent</b>	<b>39.1 per cent</b>	<b>9.7 per cent</b>
<b>Share of Transit Costs Paid (Operations)<sup>59</sup></b>	<b>1 per cent</b>	<b>24 per cent</b>	<b>75 per cent</b>

levels as a result of this federal funding. As outlined earlier, this is the primary determinant of public transit ridership growth.

Data from the Canadian Urban Transit Association (CUTA) reveals that overall public transit service levels are worse today than they were when ICIP was introduced in the 2016 budget. In fact, public transit service levels on a per-capita basis have gotten significantly worse in British Columbia, Alberta, Saskatchewan, Ontario and have taken a complete nosedive in New Brunswick. Quebec, PEI and Newfoundland are the only provinces which have seen improvements in public transit service levels

since ICIP was introduced, though the latter two remain far below the national average, in terms of public transit service kilometres per capita.

There are also strong regional inequalities in the level of service provided, in particular in Atlantic Canada. Despite a uniformly rising carbon price across the country, Canadians have vastly different levels of opportunity to actually change their travel behaviour in response to it, based entirely on where they live. For example, the average person living in a municipality in Quebec has 4.4 times the level of public transit service than the average person living in a New Brunswick municipality.<sup>60</sup>



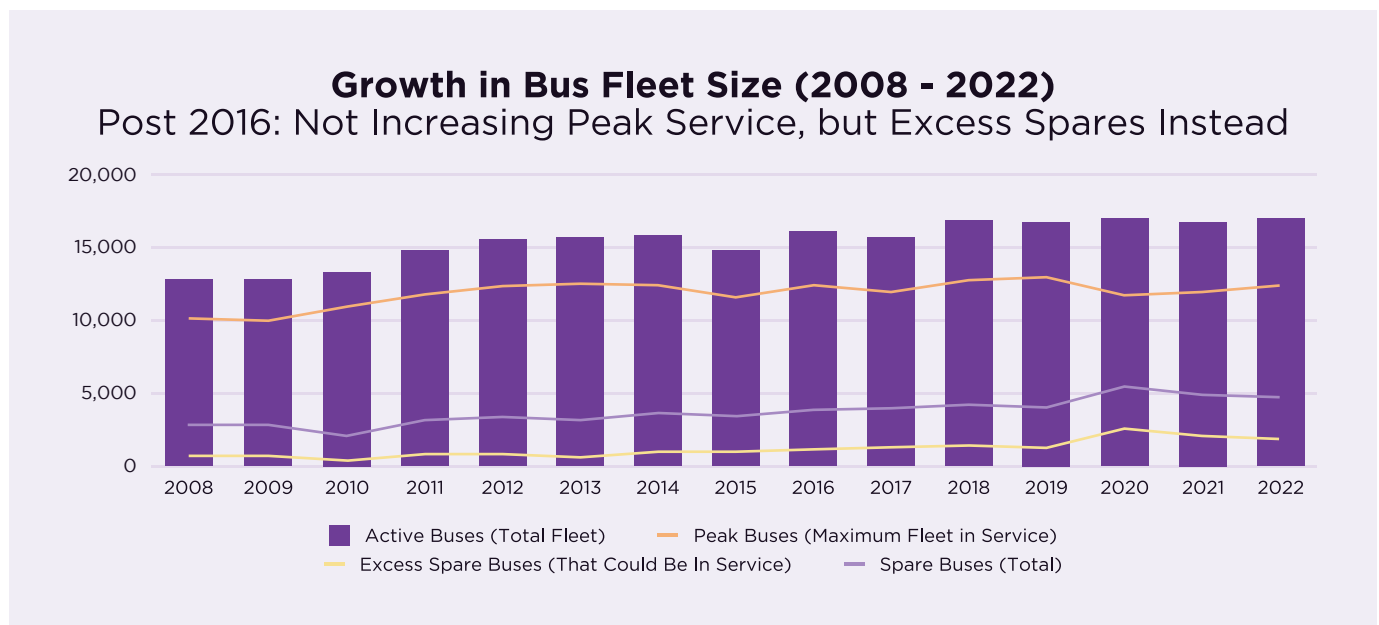
**Note:** Service Kilometres per Capita is the most accurate measure of the overall supply of public transit service provided to people that is comparable between jurisdictions. It is measured by taking Public Transit Service Kilometres and dividing it by a per person basis, counting only the number of people living within public transit service areas. Public Transit Service Kilometres is a measure of the aggregate amount of kilometres travelled by all transit vehicles in service picking up and dropping off passengers.

This drop in public transit service might make someone scratch their head. How is it possible that with \$23.5 billion being allocated to public transit in ICIP, that there has been no improvement in overall public transit service levels? This is because transit systems are not allowed to utilize federal public transit funding to run additional service, but only procure and build capital assets. This means that the federal government only funds increases in *service capacity* (capital funding) rather than actual *service output* (capital funding + operating funding).

Funding capital but not operations creates a bias towards rail projects in major cities, which while sorely needed, take a long time to build, and thus don't show up in these

service level numbers. However, these numbers would be increasing significantly if federal funding worked to help expand bus service, which can be scaled-up quickly.<sup>61</sup> Bus service is much more dependent on operating funding for its service output than rail, as each bus needs a driver, and labour is the primary operating cost of public transit. But because federal funds are not allowed to be used for operations, bus service languishes, and this disproportionately affects regions of the country which rely entirely on bus service (such as the Atlantic provinces, Manitoba and Saskatchewan).

This has also resulted in capital asset underutilization. Overall, bus fleets in municipalities across the country have grown by nearly 1000 buses since ICIP was

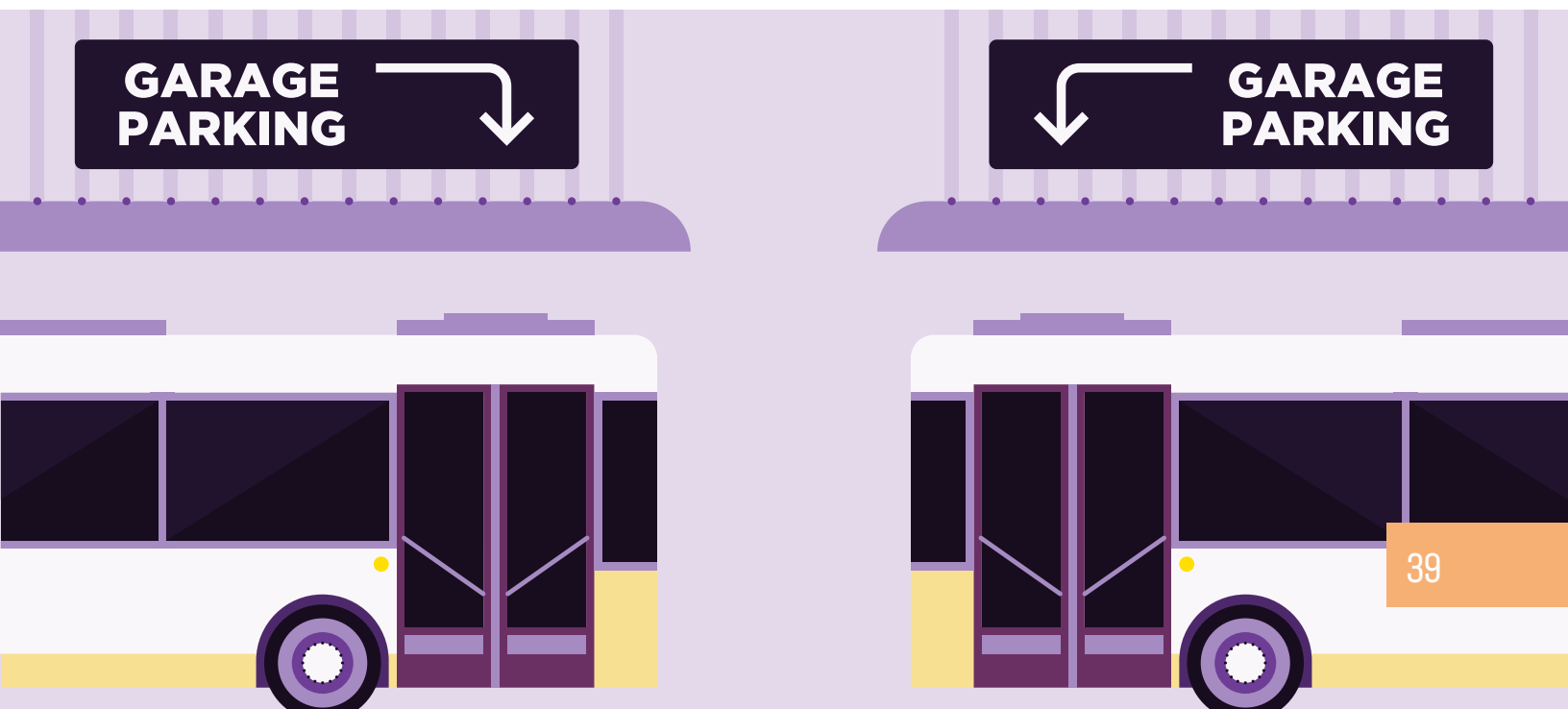


**Note:** Normalized fleet data provided by the Canadian Urban Transit Association. Excess spares calculated by the authors in reference to the number of buses that would be in service if transit systems maintained the industry standard 20% spare ratio, in accordance with Federal Transit Administration (FTA) guidelines.

introduced in 2016. Despite this, only a tenth (approximately 100) of those additional buses are actually in service. There were fewer buses in service in peak periods across Canada in 2022 than there were in 2013, a year when public transit systems served 2.7 million fewer people.<sup>62</sup>

Instead, we see what public transit systems call the 'spare ratio' growing - far above industry standard levels. That means that a growing number of buses are sitting in garages in municipalities across the country rather than being put in service. This phenomenon of funding 'buses without drivers'<sup>63</sup> has led to agencies like the TTC having 172 buses, 44 streetcars and 13 subway trains that could be in service, but are instead sitting idle.<sup>64</sup> This problem began to grow before the pandemic, but has since exploded following the pandemic's impacts on fare revenues and ensuing service cuts having the effect of pushing up unused service capacity.

**“THERE ARE AN ESTIMATED 1700 BUSES GATHERING DUST IN GARAGES ACROSS THE COUNTRY THAT COULD BE IN SERVICE IF MUNICIPALITIES HAD THE MONEY TO HIRE DRIVERS AND RUN THEM.”**



# HOW WE GET THERE: AN OPPORTUNITY TO COURSE CORRECT

In the majority of the 2018 ICIP bilateral agreements with provinces, Canada set a goal of increasing the mode share of public and active transportation by 25 per cent, contributing towards an overall planned reduction of national carbon emissions by 10 megatonnes.

However, there was little follow-through or monitoring of progress on these objectives which were buried deep in technical bilateral agreement documents. Due to significant declines in public transit ridership during the pandemic, Canada now stands with a lower share of travel made by sustainable transport modes (mode share) than when this program began.

The federal government has now completely dropped the mode shift and emissions reductions objectives originally attached to this program from more recent policy statements including the *2030 Emissions Reduction Plan and Canada's Action Plan for Clean On-Road Transportation*.<sup>65</sup>

It is crucial that the next generation federal public transit funding program includes setting clear, realistic, evidence based and time-bound mode shift and VKT reduction targets and implementing the necessary supportive policies to achieve them. This mission-based approach aligns with the ITF's recommended 'decide and provide' framework and is supported by the analysis provided by Dunsky Energy + Climate Advisors which highlights that doubling public transit ridership by 2035, reaching a transit mode share of 30 per cent across major cities and a 35 per cent reduction of vehicle kilometres travelled by 2035 is achievable.

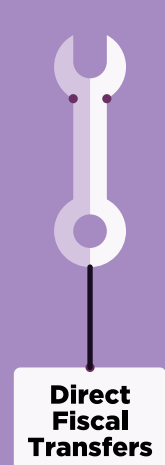
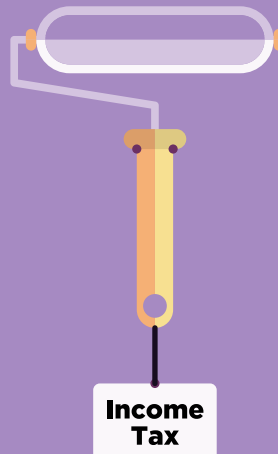


**“DUE TO  
SIGNIFICANT  
DECLINES IN PUBLIC  
TRANSIT RIDERSHIP  
DURING THE  
PANDEMIC, CANADA  
NOW STANDS WITH  
A LOWER SHARE  
OF TRAVEL MADE  
BY SUSTAINABLE  
TRANSPORT  
MODES.”**

**Ending Austerity for Public Transit  
Operations**

Despite being the economic engines of the country, municipalities don't have access to revenue tools that grow with the economy and which are available to other municipalities in different countries, like sales and income taxes. In Canada, these taxes are paid by residents in municipalities and are entirely kept by higher orders of government. Because of this, residents of Canada's major cities pay far more in taxes to the federal government than they receive in services.

For example, one study found that Toronto residents send on average \$2,113 per person more in taxes to the federal government than they receive back in services.<sup>66</sup> This reflects the fact that cities are clusters of taxed economic activity, have younger and higher income populations than rural areas, and Canada has a redistributive tax system for the aged and disadvantaged.



Redistributive fiscal systems are a good thing, and it makes sense that people in cities contribute more. But as public transit is the lifeblood of efficient urban economic growth, it only makes sense for cities to have access to the revenue tools and fiscal transfers necessary to enhance public transit to create more of the wealth which benefits the entire country.

Other countries fund public transit operations either through dedicated revenue sources available to local governments or fiscal transfers providing an equivalent funding mechanism. For example, in Austria the federal government provides operating subsidies to public transit through a direct fiscal transfer to state governments from a share of the gasoline tax. Local governments also have access to revenue sources unavailable to those in Canada, such as in Vienna, which levies a payroll tax on large employers that is dedicated to funding public transit.<sup>67</sup> In France, the national government also funds public transit through a payroll tax on employers as a dedicated public transit funding source. In Italy, the national government funds local public transit operating costs through a national fund distributed to all 20 regions of the country, and those regions are allowed to contribute additional funds themselves.<sup>68</sup>

In Canada, municipalities neither have sufficient fiscal transfers nor the appropriate revenue tools to fund public transit service

adequately. Unfortunately, municipalities largely rely instead on property taxes and fare revenues to (under)fund public transit operating budgets.

In many cases, due to public transit riders lacking meaningful political influence, rather than raising property taxes, municipalities have instead chosen to pass the burden of paying operating costs onto public transit riders themselves with higher fares. This is likely one explanation for why public transit fare inflation consistently outpaces general inflation.

**“OTHER COUNTRIES FUND PUBLIC TRANSIT OPERATIONS EITHER THROUGH DEDICATED REVENUE SOURCES AVAILABLE TO LOCAL GOVERNMENTS OR FISCAL TRANSFERS.”**

Consistent fare increases that outpace inflation work against the goals of policies like the carbon tax that aim to shift travel behaviour through price signals and ultimately undermine ridership growth.

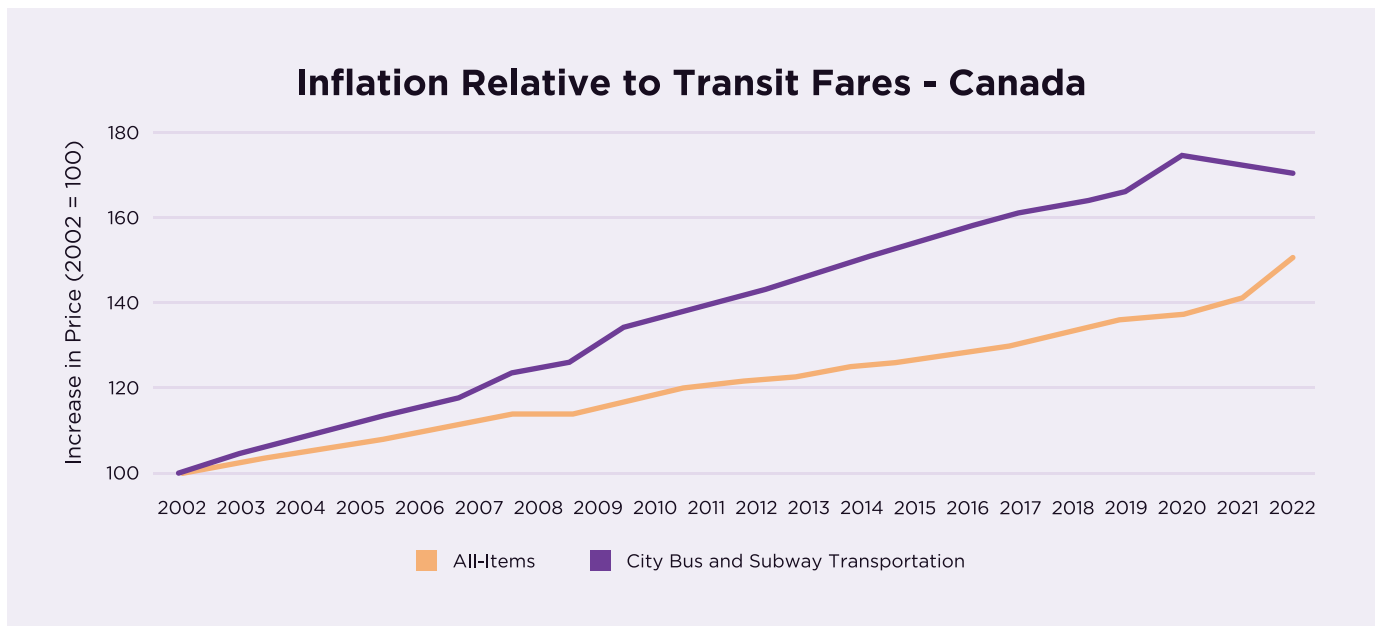
This also has clear regressive impacts on public transit riders, who are disproportionately low-income workers, women, and people from racialized communities. Many can't afford to drive, and 64 per cent have no access to a car. Racialized Canadians account for just over one-quarter (26.5 per cent) of all employed workers, but account for 56.3 per cent of all commuters who get to work by public transit.<sup>69</sup>

Having the burden of paying public transit operating budgets distributed primarily on local governments and passenger fares

creates chronic instability to changes in market forces and political cycles, and ultimately harms the most vulnerable. Disproportionate reliance on passenger fare revenues is a pro-cyclical funding structure that reinforces the tendency towards vicious cycles of cutting service, further losses in passenger revenues, and further cuts. Getting off this roller coaster will require a diverse set of new, stable revenue tools, from a variety of tax sources and fiscal support from all orders of government.<sup>70</sup>

### Transforming Public Transit to Meet the New Normal

Policymakers in North America tend to approach public transit policy with the underlying assumption that its role is simply to fix the variety of market failures caused by an auto-dependent society where privatized mobility dominates.



Statistics Canada. Table 18-10-0005-01. Consumer Price Index, annual average, not seasonally adjusted. 2002=100.

This essentially allows public transit to ‘fill-in-the-gaps’ of an auto-dominant transportation system, by providing a release valve to alleviate parking shortages for commuters going to a central business district (CBD) or as a means of ‘transportation of last resort’ for the poor.

Because of this, public transit has historically served two primary markets in most North American cities. The first are those who do not have access to a car, and the second are those who are traveling to areas where parking is difficult or expensive. The first group are disproportionately low income, racialized, public transit dependent and utilize the bus for all kinds of essential trips. The second group are primarily more middle-income, whiter commuters going to

and from a central business district utilizing rail service that is often designed to serve journeys to work.<sup>71</sup>

This has meant that North American public transit networks are often heavily-oriented towards serving a singular trip-type - the commute to work. This has left public transit systems particularly vulnerable to the rise of work-from-home. As more Canadians continue to work from home or only return to the office 2-3 days per week, ridership patterns are now less commuter-focused than ever before, and rush-hour demand peaks are now flatter.<sup>72</sup>

In this context, the only way for public transit systems to adapt and grow is to shift their network designs towards serving

**“THE QUESTION POLICYMAKERS AND PUBLIC TRANSIT AGENCIES SHOULD BE ASKING IS NOT “WHEN WILL PEOPLE START COMMUTING DOWNTOWN AGAIN?”, BUT RATHER “HOW CAN WE PROVIDE A TRANSIT SERVICE THAT IS RESILIENT TO CHANGING TRAVEL PATTERNS?”<sup>73</sup>**

a greater variety of trip types, which are often made during off-peak hours when the least amount of transit service is currently provided. Just because someone is working from home for most of the week doesn't mean they don't need public transit for other trips like visiting loved ones, going shopping, or accessing social services. From the perspective of many equity-seeking groups, the pandemic proved that public transit was a key enabler of every aspect of daily life, not just a means of serving peak-hour commuting.<sup>74</sup>

For policymakers, this necessarily means pivoting towards a stronger emphasis on improving bus service. Throughout the pandemic, public transit demand remained strong in low-income neighborhoods where manual, service, and other workers who need to physically be at their workplace are more likely to live.<sup>75</sup> Reflecting this, transit ridership has rebounded much faster on bus routes than rail, as bus service is more oriented to serving public transit-dependent riders, service allocation is flexible to changes in travel patterns and it can be done quickly.<sup>76</sup>

A practical example of this forward-looking vision is TransLink's (Metro Vancouver's transit system) latest 10-year plan which envisions doubling overall bus service levels and adding nine new Bus Rapid Transit lines. However, this plan is yet to be fully funded, and TransLink estimates that its 10-year

## DID YOU KNOW?

In the city of Montreal, commuting public transit trips actually comprise less than half of all trips. One study found that the second largest type of trip was 'care travel' – and disproportionately done by women, doing things like running errands to support their household.<sup>77</sup>

### 10-YEAR PLAN



priorities will require a 50 per cent increase in annual operating spending once fully implemented.

Investing in bus service to raise off-peak frequency is the key to attracting non-commute trips, which happen outside traditional rush-hours. An added benefit is that this delivers more equitable service to public transit-dependent riders. For example, women – who constitute the majority of public transit riders – are more likely to use public transit in off-peak hours and are more likely to make most non-work-related, household-sustaining trips.<sup>78</sup> These non-work trips do not follow the radial, peak-hour patterns of the typical commute which public transport systems often currently cater to.<sup>79</sup> A shift in this direction would also massively benefit low income shift workers, who are disproportionately racialized and typically do not commute during peak hours.<sup>80</sup>

Moving towards creating a high-frequency bus network that provides all day ‘everywhere-to-everywhere’ service where passengers can ‘show up and go’ without worrying about the need to check a schedule is not only a much more socially equitable service pattern than the current peak-oriented approach, but also the key to growing ridership.<sup>81</sup> This is because it allows public transit systems to expand outside their traditional market of public transit-dependent riders and parking-constrained

commuters, by making the public transit network suitable for everyone’s mobility needs at all times and compete with the private automobile for market share.<sup>82</sup>

This phenomenon has been described as the ‘network effect’.<sup>83</sup> Put simply, not everyone can live within walking distance of a rapid transit access point like a subway, light rail or bus rapid transit (BRT) station. A strong bus network can dramatically expand the catchment area of these stations by creating a feeder service into the rapid transit network. A grid of frequent bus service enables the whole spectrum of trip types to occur to and from anywhere in the urban area through convenient and reliable transfers.<sup>84</sup> Across North America, public transit systems which serve a greater variety of trip types and have well-integrated bus-rail networks perform far better than the public transit systems that don’t.<sup>85</sup>

As the pandemic has changed travel patterns, sticking with the ‘market failure’ service provision approach of only catering to commuters is simply no longer viable. Public transit systems are now forced to adapt to replace lost commuter riders and ultimately grow their market share by serving a broader range and diversity of trip types. The only way to do this is to move instead towards a ‘market-shaping’ model.<sup>86</sup> Rather than simply existing as a traffic or parking release valve, or a tool for ‘transportation of last resort’ for the poor,

public transit must become a public option for mobility, conveniently available at all times and for all travel needs. By shifting to this model, public transit systems can ‘grow their way out’ of their ridership troubles.

### **How the TTC Averted the Great North American Transit Downward Spiral**

In the early days of the streetcar, there were only a few ways to travel over land: by rail, by foot, or by horse. Before the invention of the assembly line and the affordable Ford model T, cars were considered the playthings of the rich.<sup>87</sup> In those days, streetcar companies faced little competition, but often did not make money on the fares paid by passengers. The real profits were in how their rail networks opened up new land for real estate development in cities – which they actively participated in as investors. Often after building new developments and attracting buyers with good transit service, the streetcar companies let service deteriorate and drew public resentment.<sup>88</sup>

With the rise of mass motorization, this linkage between transit and housing was severed. Suddenly, housing developments could be built far from peoples places of work or other amenities, because people could use their cars to get there and no longer had to rely on the streetcar company. This trend dramatically accelerated following the second world war, as wartime rations on fuel consumption were dropped, production controls were re-oriented away

from the war effort towards domestic car manufacturing, and suburban housing development was significantly subsidized with the creation of new institutions like the Canadian Mortgage and Housing Corporation (CMHC).

Mass motorization and suburban sprawl led to the rise of competing car traffic, and without captive ridership and dedicated lanes, transit speeds slowed to a crawl. In many cases, cities across North America had grown used to streetcar companies paying taxes on their profits, rather than receiving subsidies, making it difficult for a shift in mindset towards seeing transit as a public service. As cars became ever-more subsidized by the buildout of toll-free new roads and highway systems, and with the loss of their monopoly on real estate

**“A DEVELOPED COUNTRY IS NOT A PLACE WHERE THE POOR HAVE CARS. IT IS WHERE THE RICH USE PUBLIC TRANSPORTATION.”<sup>89</sup>**

development patterns, private transit systems reacted to the loss in travel market share with service cuts and fare hikes, and across North America these systems entered a downward spiral.

This notion of a downward spiral is a familiar one from transit history - but as Canada's own history shows, policy choices matter. Despite Canada having a very similar built environment to the United States with plenty of low density suburban sprawl, Canadian public transit dramatically outperforms the United States simply because Canada has higher transit service levels, particularly in Toronto, Montreal and Vancouver where 70 per cent of all ridership is located. This is because Canada responded very differently to the post-war urban transit fiscal crisis.

From 1950 to 1970, as the post-war revolution towards suburbia and private car ownership took hold across North America, per capita ridership of transit systems in the United States plunged by more than two thirds. Over this same period, the TTC was the only transit system in North America that halted this decline and actually increased its ridership.<sup>90</sup> This success comes down to two major differences. The first, is that while many transit systems in US cities remained in private hands over much of this period, and ran themselves like a business - the City of Toronto took over transit administration in 1921, far earlier than most other US cities. This enabled the second, more important difference. As US transit systems were expected to remain profitable, this meant that rather than expanding service into the rapidly growing suburbs,





they responded to their loss in market share with ever-greater service cuts in a self-reinforcing downward spiral.<sup>91</sup>

In Toronto, public pressure to extend public transit service to the new world of strip malls and ‘cul-de-sacs’ following metropolitan amalgamation led the TTC to develop a comprehensive grid of frequent bus routes in the suburbs and accept a public subsidy for doing it. But rather than being a costly drain on the system as expected, this move led to an explosion in ridership that continued for three decades.<sup>92</sup> The TTC now carries 1 in 4 public transit riders in all of Canada.<sup>93</sup>

To this day, Toronto enjoys a far higher level of public transit ridership than equivalent US cities in size, land-use patterns and population density, simply because it runs far more bus service. In 2019, Toronto’s transit system carried more riders than Chicago and Boston’s transit systems combined, while serving a smaller urban population than either city.<sup>94</sup>

We still see this line of demarcation in transit service and utilization in the Greater Toronto Area itself, where as soon as you leave the TTC’s service area, levels of public transit service get cut in half in the surrounding communities, and transit utilization falls

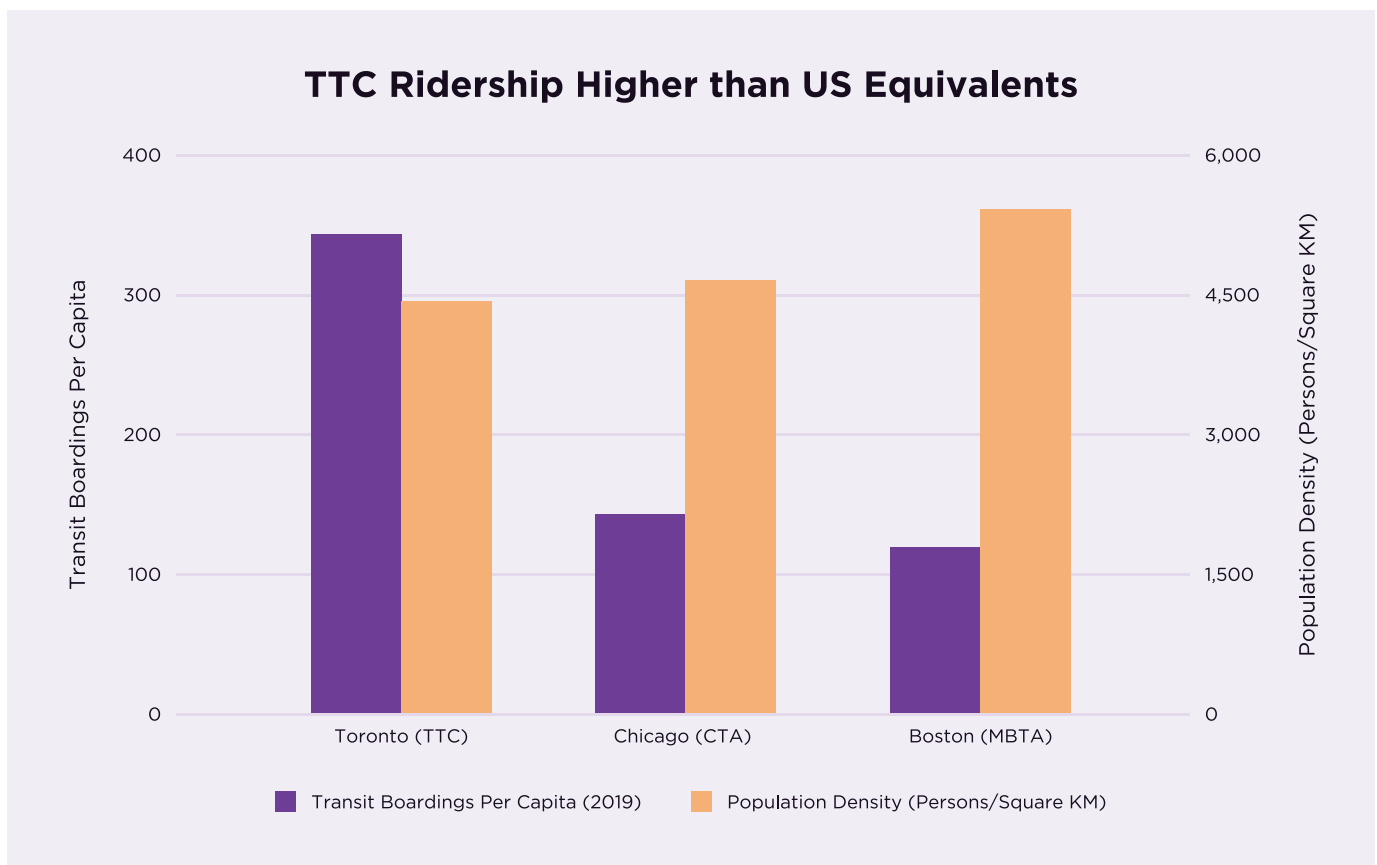
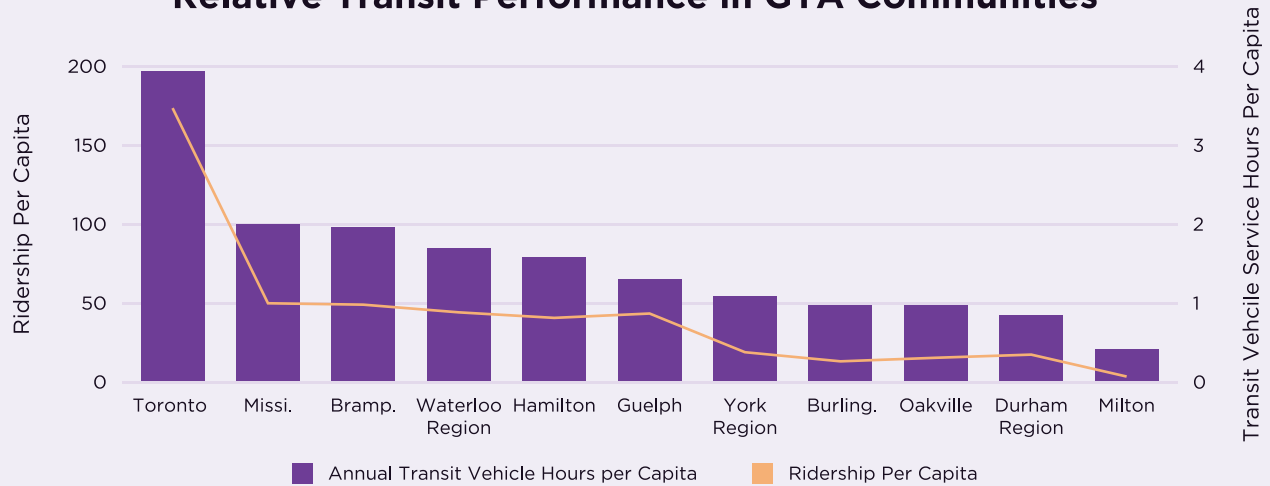


Chart derived by the author from Transit Boarding and Service Population Data from the Canadian Urban Transit Association and Federal Transit Administration National Transit Database, and Population Density Figures from the Canadian 2021 Census and US 2020 Census.

## Relative Transit Performance in GTA Communities



*Toronto Region Board of Trade (2023) Needs improvement: Getting to World-Class Transit. Toronto Region Transit Report Cards. July 2023 <https://bot.com/Resources/Resource-Library/Transit-Report-Cards>*

precipitously with it. This is because public transit service levels have a direct impact on transit accessibility. In Toronto, 96 per cent of the population, and 93 per cent of all jobs are within walking distance of a public transit route running at a frequency of 15 minutes or less, all day. In Brampton, it is only 34 per cent of the population and 34 per cent of jobs.<sup>95</sup>

As historical accounts indicate, the TTC ran this much higher level of service that typically isn't considered viable in suburban areas with great reluctance but under political pressure following metropolitan amalgamation. But this historical accident proved that by providing a service that was competitive with the car, this 'decide and provide' approach lent itself to building

ridership even in unfavourable land-use conditions, and how this can be re-created in other growing communities across Canada.

A perfect example of this is Brampton, which while still behind Toronto for overall public transit accessibility, has built up impressive ridership numbers with nothing but a simple high frequency grid-based bus network.<sup>96</sup> From 2009 to 2019, Brampton's ridership per capita doubled (from 25.4 to 50.4) and has been the fastest public transit system to recover ridership from the pandemic, already recording 30 per cent higher ridership in the summer of 2023 than the summer of 2019.<sup>97</sup>

Many Canadian communities can be

rescued from American levels of public transit utilization by simply running more bus service, and this can help provide the foundation for denser, more transit-supportive land-use patterns.<sup>98</sup> This is important, because for Canada to achieve world-class public transit performance, significant changes in land use patterns to encourage greater density in our cities will be necessary.

### **Restoring the Link Between Public Transit and Housing**

Public transit is fundamentally about connecting people and places. It matters how many people are near public transit service, and it matters whether public transit connects to places people want to go. It may sound obvious, but public transit in North America is often not planned around connecting people and places<sup>99</sup> It is instead often grafted on top of road infrastructure and an urban form that is built for cars, or legacy rail corridors layed out and designed for long-distance shipping. It often gets built without being surrounded by dense housing, shops and urban amenities, and has poor connections for pedestrians and cyclists.<sup>100</sup> It is built next to car-dominated roads, parking lots, and situated far from dense housing and attractive destinations, often because it is cheaper or less contentious to build it there.<sup>101</sup> We continue to build public transit this way, and then wonder why, even years later, many residents continue to drive.

In the worst case scenario, higher order public transit stations are built as park-and-rides.<sup>102</sup> This model is designed to only serve car commuters and attract riders by offering subsidized or free parking cheaper than the driver would get nearer to their place of work. This forecloses the possibility of using land near the public transit station to build dense housing, and highlights the twin policy failure of also relying on the car to provide 'first and last mile' transportation to the station, indicating poor accessibility by walking, cycling or a feeder bus network. This commuter rail type system usually has very bad service outside of rush hour, making the infrastructure difficult to use for all kinds of non-work related trips and encourages driving for those kinds of trips instead.<sup>103</sup>

Metrolinx, which operates GO transit in the Greater Toronto and Hamilton Area (GTHA) boasts that they are the largest provider of free parking in North America, at 73,000 spots, because only 15 per cent of GO transit passengers arrive at stations by methods other than their car.<sup>104</sup> This is a testament to a complete policy failure.

The federal government is not getting the best value for money from their public transit investments, because those investments are often not accompanied by the rapid changes in land use required to make public transit work more efficiently, as dense housing near public transit can



Artistic Representation of Future (2025) Ottawa LRT Jeanne D'Arc Station, situated in a highway median.

significantly improve ridership outcomes. Moreover, the lack of forward-thinking planning can lead to ‘transit-oriented displacement’,<sup>105</sup> where high land acquisition costs near public transit stations encourages housing developers to focus on relatively expensive housing, which means that those who are most dependent on public transit service - those with low incomes, often can’t actually afford to live near it.<sup>106</sup>

In Toronto for example, there is plenty of low density housing near rapid public transit stations where new homes could be built. There are also significant numbers of people living in low density, older dwellings near rapid public transit that are typically lower-

priced and who are important to protect from the erosion of affordability. In tandem with adding market housing supply more broadly near public transit, it is also crucial that specific policy tools be employed to prevent displacement from existing affordable housing stock such as non-market housing investments, rent controls, mandating the provision of replacement units (with a right to return at the same rent), and tenant relocation requirements with financial assistance to find interim accommodations as well as cover moving expenses.

Cities hold the keys to housing development via land-use zoning regulation. However,

# “THE SOLUTION TO THE HOUSING, AFFORDABILITY, AND CLIMATE CRISES IS TO **CONNECT OUR GROWING POPULATION TO AFFORDABLE, EFFICIENT HOMES NEAR HIGH-QUALITY, FREQUENT PUBLIC TRANSIT.**”<sup>107</sup>

- Canadian Urban Transit Association, Housing is On The Line Report

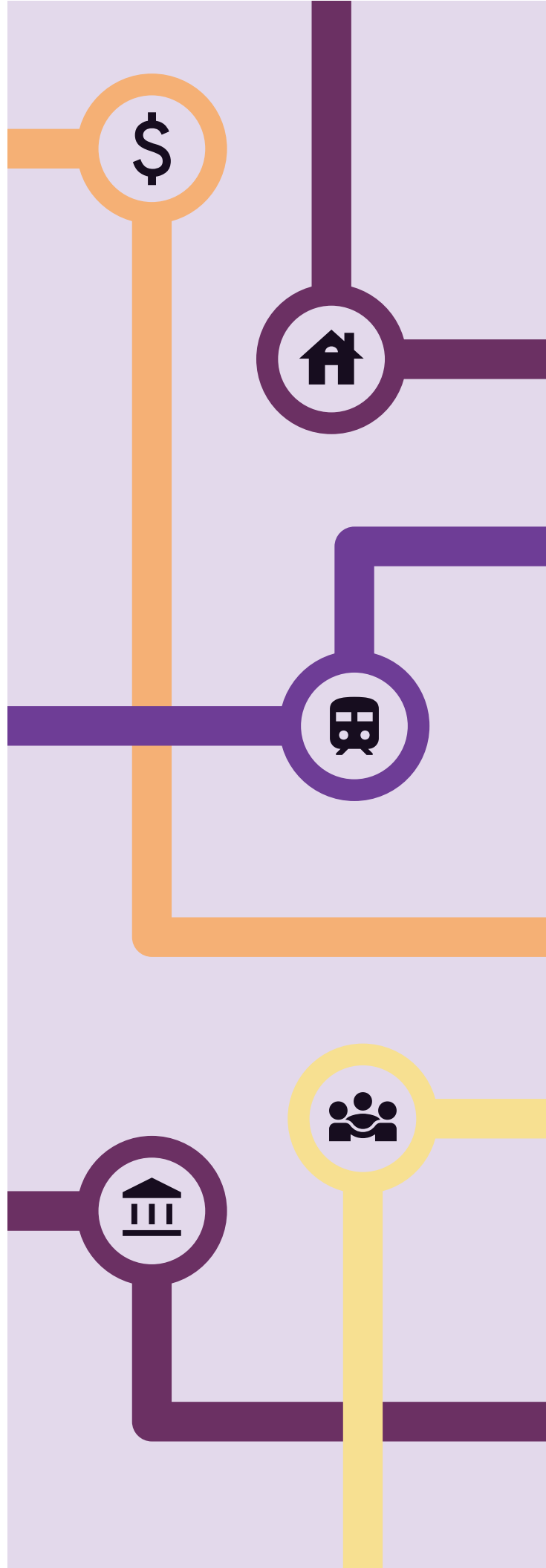
efforts to increase density and housing are often frustrated by local opposition on the grounds that it will bring too much additional traffic or the loss of parking availability. It is inconceivable for many people that new people in a neighborhood can live without owning a car, and some of this belief is rooted in the chronic unreliability of existing public transit services. For cities to overcome this virulent NIMBYism (‘Not In My Backyard’), one of the clear solutions is providing excellent public transportation services in order to cut the link between increased housing in a neighbourhood and increased traffic. But cities do not have the fiscal capacity to finance the construction of major capital projects and lack the revenue tools to support the high public transit service levels needed to drive significant changes

in travel patterns. For decades, successive federal and provincial governments have ‘downloaded’ their responsibilities onto municipalities without giving local governments the fiscal resources to handle them. This has left municipalities to be primarily policy-takers rather than policy-makers in the realm of transport emissions reduction.

In the absence of strong legislative requirements or funding criteria from the federal and provincial levels of government, local policymakers are unlikely to change their approach to transportation and urban planning at the scale and pace required to meet national climate objectives.<sup>108</sup> Literature from the world of transport economics indicates that because local governments only consider the benefits

to their own residents and not spillover externalities that affect other regions (like pollution), they will never set public transit fares and service frequency at optimal levels.<sup>109</sup> Only higher orders of government can internalize the costs of spillover effects like pollution and deliver the subsidies necessary for welfare-maximizing public transit (low fares, high service levels). The solution to this problem is to place conditions on federal public transit infrastructure investment by tying funds to land use standards, paired with an affordable housing investment strategy near public transit, while delivering performance-based operating funding to public transit systems in order to support the growth in service levels to drive needed changes in travel patterns.

Unless public transit service levels are significantly improved, this will make shifts in land use patterns aimed at increasing housing density and housing supply very difficult because these changes necessarily require a reduction in the space devoted to parking.



# DETAILED POLICY RECOMMENDATIONS

## **Recommendation 1: Fund Public Transit Operations to Enable Ridership Growth**

To ensure that transit public investments are delivering real gains in ridership growth and improvements in the cost of living, rather than inflating unutilized service capacity - the forthcoming Permanent Public Transit Fund must fund transit operations and see it as a funding category equally as important as public transit capital.

Assuming the federal government takes a 40 per cent share in the operating funding increase needed to double public transit ridership by 2035, we estimate that this would come at a fiscal cost of \$35.4 billion over the next 12 years (2024-2035) above existing commitments, which averages to approximately \$3 billion per year. This would mean roughly doubling the existing \$3 billion annual commitment to capital funding contained in the permanent public transit fund.

To place this fiscal cost in context, this could be paid for entirely by increasing

the general federal tax rate on corporate profits by a single percentage point.<sup>110</sup> \$3 billion would be approximately 0.5 per cent of total projected federal expenditures in 2024.<sup>111</sup> In the context of other federal spending, it is less than the projected cost of battery plant subsidies to automakers Northvolt, Volkswagen and Stellantis-LGES (\$43.6 billion).<sup>112</sup> It is near the projected cost of building the Trans-Mountain pipeline (\$30.9 billion),<sup>113</sup> transportation project designed to move oil instead of people.

Provinces also have a strong role to play; they must provide cities with new revenue tools (such as access to revenues from income, sales or payroll taxes) to support the operating costs of city services like public transit, expand programs which deliver public transit operating funding or create new ones based on best practices. The remaining cost estimated for increasing transit service for provinces based on shares of national public transit ridership over twelve years (2024-2035) include \$21.9 billion for Ontario (approx. \$1.8 billion per year), \$14.6 billion for Quebec (approx.

\$1.2 billion per year) and \$7.6 billion for British Columbia (approx. \$640 million per year).

A full estimate table of the fiscal cost by province and region divided by share of national ridership is found in Addendum 1.

The objective of this federal program should be to ensure that the capital assets funded by the federal government are being efficiently utilized with high levels of service, reduce significant regional inequities in public transit service supply, deliver the appropriate incentives for public transit systems to adapt to new travel patterns and achieve cost-efficient long term growth at the pace required by a new, national target to double public transit ridership from 2023 levels and reduce vehicle kilometres traveled by 35 per cent by 2035.

This program can achieve this by providing a base funding amount distributed to every community with a public transit system proportionally determined by their share of national ridership. Cost-sharing and funding agreements can be negotiated with federal-provincial-municipal trilateral agreements, similar to those used with the *Investing in Canada Infrastructure Program* and *Canada Community-Building Fund*.

As part of this operating funding stream, the federal government should include an incentive component to encourage transit operational efficiency.<sup>114</sup> For example, this could mean providing an additional \$1 per rider operating subsidy amount (pegged to inflation) for each rider above 2019 levels of public transit ridership, and bonus payments for the number of kilometres of dedicated transit rights-of-way.



This would encourage efficient allocation of service improvements to areas with the most latent demand, incentivize systems to implement ridership enhancing improvements such as bus lanes and establish a strong incentive for using a base funding amount to quickly recover to pre-pandemic ridership levels.

## **Recommendation 2: Link Housing Outcomes to Public Transit Investments**

Higher orders of Government which invest billions of dollars in major public transit capital projects have a right to ask that municipalities fulfill conditions and follow through with supportive policies under their control to ensure a project succeeds and delivers social, economic and environmental value for money.

All major capital projects funded by the major projects stream should be required to include 'supportive policies agreements' that align with federal land-use guidelines. Supportive Policies Agreements (SPA's) are required as part of business cases for every major public transit capital project in British Columbia, and the Surrey-Langley Skytrain and the Broadway Subway projects in Vancouver currently have one. These agreements acknowledge that municipalities have jurisdiction over land use policy, but also indicate that for a public transit project to be successful, it takes supportive policies like increasing housing density, improving bus, pedestrian and cycling connections,

and building 'complete communities' with commercial and public service amenities that support higher density near public transit.

The federal government should set clear standards for what needs to be in these 'Supportive Policies Agreements' to achieve the green light for federal funds. All public transit stations funded by the federal government should have required pre-zoned housing density minimums, and the complete elimination of minimum parking requirements for all housing developments within 800 metres of the public transit station.

Transit systems should also be encouraged to redevelop transit-owned parking lots such as 'park and rides' into housing and amenities. But getting public transit systems out of the parking business will require getting public transit systems into the business of providing 'first-and-last-mile' transportation solutions. This can ensure that people can easily get to and from major public transit stations from bus network transfers, on foot, wheelchair or by bike instead of their car.

SPA's should require that projects are well integrated with the bus network, have safe active transportation connections and are fully accessible. The federal government should also ensure that this requirement is assisted by the federal *Active*

# “BUT GETTING PUBLIC TRANSIT SYSTEMS OUT OF THE PARKING BUSINESS WILL REQUIRE GETTING PUBLIC TRANSIT SYSTEMS INTO THE BUSINESS OF PROVIDING ‘FIRST-AND-LAST-MILE’ TRANSPORTATION SOLUTIONS.”

*Transportation Fund* by better considering how that program can fund projects that better integrate active transportation with public transit networks. This should include funding the full range of costs related to bike-share programs managed by public transit agencies and the installment of secure bike parking facilities at public transit hubs.

## **Recommendation 3: Advance Equity Goals With Public Transit**

If made available, cities should use public transit operating funding to adapt to post-pandemic travel patterns by improving travel options for non-commute trips, such as shopping, visiting friends, accessing social services or getting groceries. This will help transit systems achieve greater financial stability by reducing reliance on revenues from one singular trip type: commuting to 9 to 5 jobs, while also benefiting the travel patterns of equity-seeking groups at the same time. Equity seeking groups tend to make more non-work trips and trips outside rush-hour peak periods when there is currently the least amount of transit service provided.

Existing public transit funding structures have led to transit fare increases consistently outpacing inflation, which works against measures intended to encourage sustainable travel behaviour through price signals, like the tax on carbon. Cities should be allowed to utilize operational funding to reduce the fare cost burden on public transit riders, and in particular, establish discounted fares for those with low incomes. This will help to send the right price signal encouraging public transit use while making transit more socially inclusive.

Federal operations funding can also address significant regional inequities. Manitoba, Saskatchewan and the Atlantic provinces

all have bus-based public transit systems and per-capita transit service levels that are far below the national average. Many towns and cities in these regions have public transit networks characterized by long and meandering routes, extremely infrequent service and short operating hours that might not run past 10pm or at all on Sundays. These regions would disproportionately benefit from operations funding to add more bus service and are currently hurt the most by the federal government's capital bias.

People who are the most likely to use public transit (disproportionately equity seeking groups) must be able to afford to live near it. To prevent 'transit-oriented displacement', SPA's should require municipalities to have rent stabilization and anti-displacement strategies such as mandating the provision of replacement units (with a right to return at the same rent) and tenant relocation requirements with financial assistance to find interim accommodations and cover moving expenses.

One of the primary barriers to building public transit projects near dense areas where it will be most productive are land acquisition costs. This is why land acquisition should be considered eligible for federal capital funding, in particular if that land is used for the development of non-market housing near transit hubs. However,

to prevent this measure from inflating land prices, this should be conditional on a municipal strategy to mitigate land speculation by proactively assembling parcels of land for expropriation before the public transit project is made public.<sup>115</sup> This may require changes in provincial legislation to enable this.

#### **Recommendation 4: Establish Zero Emission Bus and Rolling Stock Procurement Requirements**

Federal capital funding should support the transition to zero-emission public transit vehicles, including buses and rail. The federal government should shift from funding one-off electrification projects and procurements to making zero-emissions public transit a core feature and requirement of ongoing, permanent capital funding. The federal government should establish phased-in procurement requirements for

**“THE FEDERAL GOVERNMENT SHOULD ESTABLISH PHASED-IN PROCUREMENT REQUIREMENTS.”**

zero-emission public transit vehicles as a condition for federal funding, similar to Quebec's requirement for only zero-emission buses 2026 onwards.

This requirement should be flexible and calibrated to the size of the community and public transit system. It is highly important that public transit systems do not receive an 'unfunded mandate', and it is recognized that zero-emissions public transit vehicles cost more than diesel counterparts, and an appropriate scaling up of funding will need to accompany this policy. This is crucial, because service expansion should not be in competition with fleet electrification over limited funds.

Modelling by Dunskey Energy + Climate Advisors estimates that the cumulative additional procurement costs associated with phased-in Zero-Emission Bus procurement requirements by 2035 would be an additional \$4.53 billion over and above existing funding and financing available under the Zero-Emission Transit Fund (ZETF) and the Canada Infrastructure Bank.

This does not include the costs associated with zero-emission bus charging infrastructure or potential garage space expansions to accommodate the charging infrastructure. This was not estimated as it is highly local context dependent for individual transit systems.

### **Recommendation 5: Set Clear Mode Shift and Vehicle Kilometres Travelled (VKT) Reduction Targets**

According to modelling conducted by Dunskey Energy + Climate Advisors, commissioned by Environmental Defence and Équiterre, Canada can achieve a doubling of public transit ridership from 2023 levels through the targeted policy interventions outlined in this report. This doubling includes a 91 per cent increase in ridership induced by policy interventions and includes projected baseline growth from increasing population.

Achieving this would result in more than doubling the percentage of trips taken by transit Canada-wide from 10 per cent in 2019 to 22 per cent in 2035, with this number growing to 47 percent of all trips in the largest cities (Toronto, Montreal, Vancouver) and 20 percent of all trips in mid-sized cities like Winnipeg, Edmonton, Quebec City, and Ottawa. Averaged across these major cities, we see a transit mode share of 33 per cent in 2035. Overall, this also results in a 35 per cent reduction in vehicle kilometres travelled when factoring in benefits from increased housing density.

Based on this, we recommend that the federal government adopt the target of doubling public transit ridership from 2023 levels by 2035 and adopt a target to reduce vehicle kilometres travelled by 35 per cent by 2035 at the national level.

The federal government can accomplish this by making transit funding agreements with large cities conditional on municipalities developing *Sustainable Urban Mobility Plans* (SUMPs). Sustainable Urban Mobility Plans (SUMPs) are the cornerstone of European urban mobility policy.<sup>116</sup> The European Commission strongly recommends that European towns and cities of all sizes embrace the concept of SUMPs, and has EU-funded resources, tools and guides for their development and implementation that Canada should adopt.<sup>117</sup>

The federal government can meet these national targets by any number of combinations of shifts in mode share within cities across the country, depending on how ridership growth is distributed. The federal government should set minimum expected mode shift targets in transit funding agreements with large cities that collectively add up to meeting the Canada-wide target. As highlighted by the mode share distributions in our model, this will likely lean more heavily on large cities. Growing ridership in the largest cities comes at the lowest cost given that large city public transit systems have the lowest marginal operating cost per passenger due to economies of scale and higher population densities.<sup>118</sup>

Canada should also task Statistics Canada with collecting an annual *national household travel survey* to better track mode shares,

## “ACCELERATE THE PERMANENT PUBLIC TRANSIT FUND TO BEGIN IN 2024.”

in particular outside of major cities where there are no local travel surveys that currently exist and the only mode share data that exists is for commuting. National household travel surveys are currently conducted by many of Canada’s peer countries, including the United States, the United Kingdom, New Zealand, France, Germany, Spain, the Netherlands, Belgium, Switzerland, Italy, Denmark, Sweden, Norway, Finland and Israel. City-specific targets should be monitored by more data-rich local household travel surveys and Infrastructure Canada should be willing to fund the creation of local household travel surveys in major cities where they do not already exist.

Given pressing capital expansion needs, we also recommend accelerating the start date of the permanent public transit funding program from 2026 to 2024.

# CONCLUSION: BUILDING THE COUNTRY WE DESERVE

Existing travel patterns are not the result of individual consumer choices operating in a free market. It is not inherent to a country's culture. Rather, it is the outcome of a wide range of mutually-reinforcing public policies.<sup>119</sup>

People naturally gravitate towards what is most convenient to them for meeting their daily needs. Everything from what travel modes the government chooses to subsidize, to land use regulations covering parking and housing density all matter in how people make that final determination in their travel choices.<sup>120,121,122</sup>

These policy choices explain how many of Canada's peer countries have achieved far better transportation outcomes, with far higher shares of travel by walking, cycling or public transit (sustainable mode share) than Canada. Canada can learn from them, and by changing our approach to public transit policy we can achieve better outcomes for our economy, improve social equity and

deliver tangible results for the climate. The Netherlands, lauded for its cycling culture, did not achieve nearly one third of all travel in the country being made by bike because there is 'something in their water.'

It happened because of policy changes as a result of a politically active social movement. Following the second world war, like many Western countries, the Netherlands was rapidly motorizing and greater numbers began adopting the car. From 1950 to 1970, the share of travel by bike dropped from 80 per cent to 20 per cent. Streets were choked with traffic, and that traffic led to unprecedented numbers of pedestrian deaths, including of children. Thus began a movement with a simple slogan: Stop de

Kindermoord (“stop the child murder”).<sup>123</sup> The Dutch Cyclist’s Union was formed, and organized rallies where large numbers of cyclists would take over particularly dangerous streets, or engage in direct action by illegally painting bike lanes under cover of night. Over time, this influenced significant policy changes over the 1980s that led to the Netherlands becoming the cycling nation that we know today - and has cut traffic fatalities by 90 per cent.<sup>124</sup>

Typically, shifting travel behaviour simply comes down to making public transit affordable, reliable and convenient, ensuring it well serves places where people live and destinations people want to go, while making car travel less convenient and more expensive.<sup>125</sup> This has been a successful formula everywhere it has been applied, including in developed, wealthy countries with high per-capita incomes.



Stop de Kindermoord campaigners visit Amsterdam’s House of Representatives in 1972, a year after more than 400 children were killed in traffic accidents.

**Photograph:** Fotocollectie Anefo/Society for the Nationaal Archief

Since 1990, the share of trips made within the city of Paris by car has fallen by 45 per cent, the share of trips by public transit has increased by 30 per cent and the share of trips made by cycling has increased tenfold. At the same time, Paris has seen a significant decline in traffic fatalities – roughly a 40 per cent drop since 2010.<sup>126</sup> This has been made possible by a concerted effort by successive local governments working to expand public transit while reallocating city space away from cars and towards places for people.<sup>127</sup>

The city of Tokyo, Japan has managed to reduce its mode share of car trips down to a stunningly low 12 per cent. Instead, the city's metro system carries 3.9 billion passenger trips every year, the highest in the world.<sup>128</sup> In Japan, highway tolls are the highest in the world (22 USD for every 100 kilometers on average), and in urban areas, residents cannot own a car unless they can obtain a *Shako Shomeisho*,<sup>129</sup> a special certificate proving that they own a dedicated parking space. In Japan, overnight parking on the street has been illegal since 1957.

The city of Madrid, Spain has one of the most extensive public transit rail networks in the world, with 242 stations and 179 miles of track. Between 1995 and 2003, a short 8 year period - there was a massive boom in the pace of subway construction - 90.5 miles of heavy rail infrastructure within the span of two election cycles. For reference,

the current size of the entire Toronto subway network (lines 1-4), built between 1954 and 2002 is only 47.8 miles. Observers have since called this rail transit building program of unprecedented size, scope and speed the 'Madrid Miracle'.<sup>130</sup>

It is possible to shift travel patterns in wealthy developed countries like Canada through policy choices, and it can be done with urgency. Whether we approach it from the angle of the climate crisis, from the angle of the housing crisis, or from the perspective of urban well-being, public transit should no longer have to justify its importance within communities across the country. A major effort is necessary to quickly build-up public transit systems across the country so they can be a real alternative to the car. This must be done quickly, due to the urgency of the climate crisis, but also to ensure the financial sustainability and continued resilience of public transit systems.

This necessarily means adopting a 'decide and provide' approach that both can make a real tangible difference in local communities across the country in the level and quality of service provided, but also enable public transit systems to adapt to new travel patterns while delivering more equitable service for everyone. This is the best path to respond to the slump in ridership following the pandemic and stop service cuts and the ensuing 'downward spiral' in its tracks. As



this report outlines - we cannot make the same mistakes from our own history and the history of our peer countries and let this happen again.

There is no reason why a rich and developed country like Canada cannot provide such fundamental service as fast, affordable, convenient and reliable public transit to its citizens. Canadians deserve no less than what other rich and developed countries have as basic 'table stakes' for participation in society.

Examples from all over the world abound, proving that it is possible to change the face of mobility in our country. It will take significant public investment, but we can also learn from other countries to ensure we can do it cost-effectively and deliver real public value for money.<sup>131</sup> This report aimed to provide governments (federal, provincial and municipal) policy solutions to make these changes. We hope they have the courage to follow them.

**Together, we can build the country we deserve.**

**“IT IS POSSIBLE TO SHIFT TRAVEL PATTERNS IN WEALTHY DEVELOPED COUNTRIES LIKE CANADA THROUGH POLICY CHOICES, AND IT CAN BE DONE WITH URGENCY.”**

**The technical companion report by Dunsky Energy + Climate Advisors and Leading Mobility can be found on Environmental Defence's Website:**

<https://environmentaldefence.ca/report/putting-wheels-on-the-bus-public-transit-policy-to-meet-canada-climate-goals>

# ADDENDUM 1: COST TO GOVERNMENT ESTIMATE

## Modelled Policies, Fiscal Cost to Government Estimate Table

Year	OPEX Net Cost to Government	Bus Electrification (Procurement)	Federal Share (40%)
2024	\$2,424.5 M	\$38.0 M	\$985.0 M
2025	\$3,935.1 M	\$117.0 M	\$1,620.8 M
2026	\$5,279.0 M	\$370.0 M	\$2,259.6 M
2027	\$6,377.0 M	\$468.0 M	\$2,738.0 M
2028	\$7,403.3 M	\$383.0 M	\$3,114.5 M
2029	\$8,065.2 M	\$449.0 M	\$3,405.7 M
2030	\$8,574.5 M	\$515.0 M	\$3,635.8 M
2031	\$8,914.6 M	\$514.0 M	\$3,771.4 M
2032	\$9,193.1 M	\$513.0 M	\$3,882.4 M
2033	\$9,423.6 M	\$513.0 M	\$3,974.6 M
2034	\$9,490.8 M	\$327.0 M	\$3,927.1 M
2035	\$9,461.4 M	\$326.0 M	\$3,915.0 M

Year	British Columbia	Prairies	Ontario	Quebec	Atlantic
2024	\$220.1 M	\$184.8 M	\$630.9 M	\$421.1 M	\$19.2 M
2025	\$362.3 M	\$304.1 M	\$1,038.1 M	\$692.9 M	\$31.6 M
2026	\$505.0 M	\$424.0 M	\$1,447.3 M	\$966.0 M	\$44.1 M
2027	\$611.9 M	\$513.8 M	\$1,753.7 M	\$1,170.5 M	\$53.4 M
2028	\$696.1 M	\$584.4 M	\$1,994.8 M	\$1,331.5 M	\$60.7 M
2029	\$761.2 M	\$639.1 M	\$2,181.3 M	\$1,455.9 M	\$66.4 M
2030	\$812.6 M	\$682.3 M	\$2,328.7 M	\$1,554.3 M	\$70.9 M
2031	\$842.9 M	\$707.7 M	\$2,415.6 M	\$1,612.3 M	\$73.5 M
2032	\$867.7 M	\$728.5 M	\$2,486.7 M	\$1,659.7 M	\$75.7 M
2033	\$888.3 M	\$745.8 M	\$2,545.8 M	\$1,699.2 M	\$77.5 M
2034	\$877.7 M	\$736.9 M	\$2,515.3 M	\$1,678.8 M	\$76.6 M
2035	\$875.0 M	\$734.6 M	\$2,507.5 M	\$1,673.6 M	\$76.3 M

**Costing Note:**

OPEX net cost to Government is calculated by taking the total additional operating expenditures calculated by Dunsky Energy + Climate Advisors, which does not account for additional passenger revenues from ridership growth, and subtracting the passenger revenues expected from the increase in ridership in the model scenario. Expected passenger revenues are based on the average fare revenue for each additional passenger based on their segment,

multiplied by the additional ridership for that segment. Average fares are based on total passenger revenues divided by total ridership, which accounts for discounted fares for seniors, children, low income, etc and represents the typical marginal revenue increase from each additional rider.

The average fare in 2022 was \$2.52 for segment 1, \$2.03 for segment 2, and \$1.61 for segment 3. It is not adjusted annually for inflation.

The cost for bus electrification was calculated by Dunsky Energy + Climate Advisors and the methodology is covered in the technical companion report. It only includes additional procurement costs and does not include the additional costs associated with charging infrastructure or garage expansions or upgrades associated with bus fleet electrification projects.

Federal funding share is calculated by taking 40% of the OPEX cost and bus electrification cost, assuming the federal government would take a 40% share of spending similar to existing commitments on capital funding. The remaining 60% is assigned to provinces, who may or may not require a municipal share. Ideally, municipal cost share requirements should come with new revenue tools to support it, and may vary by province. This remaining 60% is divided by region based on 2019 share of national ridership, as reported to the Canadian Urban Transit Association. These shares are 42.7% in Ontario, 28.5% in Quebec, 14.9% in British Columbia, 12.5% among the Prairie provinces (Alberta, Saskatchewan and Manitoba), and 1.3% among the Atlantic provinces (New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador).

We assume that much of the service expansion can be delivered with existing capital assets by using excess spare capacity and adding service during off-

peak periods when existing capital assets are not being utilized at full capacity. We also assume that the existing \$3 billion per year permanent transit funding commitment from the federal government (and matched by provinces) is used towards capital expansion necessary to deliver the added operating service hours.

Given the high variability of specific capital projects, there is no specific elasticity between capital expenditure and *service output* that could be used at a national level for this study.

# END NOTES

- 1** Compiled using International Association of Public Transport (UITP) and Canadian Urban Transit Association (CUTA) data, using the most recent pre-pandemic reference year (2018 or 2019). Australia number from the Bureau of Infrastructure and Transport Research Economics (BITRE), 2014.
- 2** UITP (2023) Third of countries overlook public transport in climate plans. <https://www.uitp.org/news/third-of-countries-overlook-public-transport-in-climate-plans/>
- 3** Whitefoot, Kate & Skerlos, Steven. (2011). Design incentives to increase vehicle size created from the U.S. footprint-based fuel economy standards. *Energy Policy*, 41, 402-411. 10.1016/j.enpol.2011.10.062.
- 4** IEA (2021) Global Fuel Economy Initiative, p.11. <https://www.iea.org/reports/global-fuel-economy-initiative-2021>
- 5** Statistics Canada, Table: 20-10-0002-01. New motor vehicle sales, by type of vehicle.
- 6** Canada Energy Regulator (2019) Market Snapshot: How does Canada rank in terms of vehicle fuel economy? <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2019/market-snapshot-how-does-canada-rank-in-terms-vehicle-fuel-economy.html>
- 7** Measured as Vehicle Revenue Hours.
- 8** Canadian Urban Transit Association (2019) The GHG Reduction Impact of Public Transit. [https://cutaactu.ca/wp-content/uploads/2021/01/issue\\_paper\\_52\\_-\\_the\\_ghg\\_reduction\\_impact\\_of\\_public\\_transit\\_.pdf](https://cutaactu.ca/wp-content/uploads/2021/01/issue_paper_52_-_the_ghg_reduction_impact_of_public_transit_.pdf)
- 9** TransLink (2023) Climate Action Strategy. p.10 [https://www.translink.ca/-/media/translink/documents/about-translink/corporate-sustainability/translink\\_climate\\_action\\_strategy.pdf](https://www.translink.ca/-/media/translink/documents/about-translink/corporate-sustainability/translink_climate_action_strategy.pdf)
- 10** Redman, L., Friman, M., Gärling, T., & Hartig, T. (2013). Quality attributes of public transport that attract car users: A research review. *Transport Policy*, 25, 119-127. doi:10.1016/j.tranpol.2012.11.005
- 11** Brechan, Inge. (2017) Effect of Price Reduction and Increased Service Frequency on Public Transport Travel. *Journal of Public Transportation*, 20 (1): 139-156. DOI: <https://doi.org/10.5038/2375-0901.20.1.8>
- 12** Erik B. Lunke, N. Fearnley, J. Aarhaug, (2021) Public transport competitiveness vs. the car: Impact of relative journey time and service attributes. *Research in Transportation Economics*, Volume 90. <https://doi.org/10.1016/j.retrec.2021.101098>.
- 13** Boisjoly et al (2018), Invest in the ride: A 14 year longitudinal analysis of the determinants of public transport ridership in 25 North American cities, *Transportation Research Part A: Policy and Practice*, Volume 116, 2018, Pages 434- 445, <https://doi.org/10.1016/j.tra.2018.07.005>.
- 14** Diab et al (2020) The rise and fall of transit ridership across Canada: Understanding the determinants, *Transport Policy*, Volume 96, 2020, Pages 101-112, <https://doi.org/10.1016/j.tranpol.2020.07.002>.
- 15** Hugo Silva, 2019. "The Mohring Effect," *Documentos de Trabajo 529*, Instituto de Economía. Pontificia Universidad Católica de Chile. <https://economia.uc.cl/wp-content/uploads/2022/10/dt-529.pdf>
- 16** International Transport Forum, ITF Transport Outlook 2023. <https://doi.org/10.1787/b6cc9ad5-en>
- 17** Environmental Defence (2023) Induced Demand: How Building Highway 413 is likely to make gridlock worse <https://environmentaldefence.ca/2023/06/16/induced-demand-how-building-highway-413-is-likely-to-make-gridlock-worse/>

- 18** Næss, Petter & Nicolaisen, Morten & Strand, Arvid. (2014). Transport modelling in the context of the 'predict and provide' paradigm. *European Journal of Transport and Infrastructure Research*. 14. 102-121. 10.18757/ejtir.2014.14.2.3020.
- 19** Sims R. et Al, (IPCC). *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Transport Chapter. 8.4 "Infrastructure and Systemic Perspectives."*
- 20** CBC (2023) Advocates, critics take aim at transparency, efficacy of latest round of TTC service cuts. <https://www.cbc.ca/news/canada/toronto/ttc-may-service-cuts-reaction-1.6834826>
- 21** John Pucher (1988) Urban Travel Behavior as the Outcome of Public Policy: The Example of Modal-Split in Western Europe and North America, *Journal of the American Planning Association*, 54:4, 509-520, DOI: 10.1080/01944368808976677
- 22** Economic impact of infrastructure investments across asset categories in Ontario. <https://www.ontario.ca/page/economic-impact-infrastructure-investments-across-asset-categories-ontario>
- 23** Pereira AM, Pereira RM (2018) On the effects of infrastructure investment on economic performance in Ontario. *Journal of Infrastructure, Policy and Development*. DOI: 10.24294/jipd.v2i2.839 <https://scholar.archive.org/work/zfeegqytceixfuovil63spapq/access/wayback/https://systems.enpress-publisher.com/index.php/jipd/article/download/839/802>
- 24** Statistics Canada, Survey of Household Spending, 2019.
- 25** Q2 2019 to Q2 2023, Autotrader.
- 26** Rebekah Young (2023) A Luxury We Cannot Afford to Squander: North America Needs to Back Radically Cheaper Electric Vehicles. Scotiabank. <https://www.scotiabank.com/ca/en/about/economics/economics-publications/post.other-publications.insights-views.electric-vehicle-demand--october-11--2023-.html>
- 27** Erica Alini (2023) Car-shopping this summer? Brace for a double-whammy of high prices and high loan rates. *The Globe and Mail*. <https://www.theglobeandmail.com/investing/personal-finance/household-finances/article-car-shopping-this-summer-brace-for-a-double-whammy-of-high-prices-and/>
- 28** Kramer, A. (2018). The unaffordable city: Housing and transit in North American cities. *Cities*. <https://doi.org/10.1016/j.cities.2018.05.013>
- 29** Moffat, Mike (2021) Baby Needs a New Home: Projecting Ontario's Growing Number of Families and Their Housing Needs. Smart Prosperity Institute. <https://institute.smartprosperity.ca/sites/default/files/Baby-Needs-a-New-Home-Oct-1.pdf>
- 30** Jeff Allen & Steven Farber (2021) Suburbanization of Transport Poverty, *Annals of the American Association of Geographers*, 111:6, 1833-1850, DOI: 10.1080/24694452.2020.1859981
- 31** Jeff Allen, Matthew Palm, Ignacio Tiznado-Aitken, Steven Farber (2022) Inequalities of extreme commuting across Canada, *Travel Behaviour and Society*, <https://doi.org/10.1016/j.tbs.2022.05.005>.
- 32** Jeff Allen, Steven Farber (2019) Sizing up transport poverty: A national scale accounting of low-income households suffering from inaccessibility in Canada, and what to do about it. *Transport Policy*. <https://doi.org/10.1016/j.tranpol.2018.11.018>.
- 33** European Parliament. At a Glance: Understanding Transport Poverty. [https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/738181/EPRS\\_ATA\(2022\)738181\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/738181/EPRS_ATA(2022)738181_EN.pdf)
- 34** StatCan (2022) Canada's large urban centres continue to grow and spread. *The Daily*. <https://www150.statcan.gc.ca/n1/daily-quotidien/220209/dq220209b-eng.htm>
- 35** Ibid.

- 36** Canada-British Columbia Expert Panel on the Future of Housing Supply and Affordability (2021) [https://engage.gov.bc.ca/app/uploads/sites/121/2021/06/Opening-Doors\\_BC-Expert-Panel\\_Final-Report\\_Jun16.pdf](https://engage.gov.bc.ca/app/uploads/sites/121/2021/06/Opening-Doors_BC-Expert-Panel_Final-Report_Jun16.pdf)
- 37** CMHC (2022) Canada's Housing Supply Shortage: Restoring affordability by 2030. <https://www.cmhc-schl.gc.ca/blog/2022/canadas-housing-supply-shortage-restoring-affordability-2030>
- 38** Examples include Canada's Housing Accelerator Fund Program, British Columbia Legislation for broad upzoning and TOD density minimums, and the City of Edmonton's zoning bylaw renewal initiative.
- 39** CUTA (2021) Essential Public Transit: Submission to the National Infrastructure Assessment. <https://cutaactu.ca/wp-content/uploads/2021/06/Essential-public-transit-submission-to-the-National-Infrastructure-Assessment-2021.pdf>
- 40** Wallace (2023) Backgrounder: Stopping the Public Transit Death Spiral. Environmental Defence Canada. <https://environmentaldefence.ca/report/stopping-the-public-transit-death-spiral/>
- 41** Jacob Serebrin (2020) 'Build it and they will come': Canada's public transit looks to rebound from COVID-19. [https://www.thestar.com/news/canada/build-it-and-they-will-come-canada-s-public-transit-looks-to-rebound-from-covid/article\\_841495f7-93b7-54a0-9036-b7f42d5076da.html](https://www.thestar.com/news/canada/build-it-and-they-will-come-canada-s-public-transit-looks-to-rebound-from-covid/article_841495f7-93b7-54a0-9036-b7f42d5076da.html)
- 42** Kenneth Chan (2023) BC Transit ridership returns to 100% of pre-pandemic levels. DH. <https://dailyhive.com/vancouver/bc-transit-ridership-recovery-record>
- 43** Global News (2023) Bus ridership on Edmonton Transit returns to pre-pandemic levels: city. <https://globalnews.ca/news/9477981/bus-ridership-edmonton-transit-rebound/>
- 44** August 2019 compared to August 2023, StatCan Table: 23-10-0251-01
- 45** Wallace, Nate (2023) Service cuts to public transit are just the first step in a death spiral. Globe and Mail. <https://www.theglobeandmail.com/opinion/article-service-cuts-to-public-transit-are-just-the-first-step-in-a-death/>
- 46** John Michael McGrath (2023) "Toronto can't build new transit on the corpse of what it already has." TVO. <https://www.tvo.org/article/toronto-cant-build-new-transit-on-the-corpse-of-what-it-already-has>
- 47** CBC (2023) Montreal public transit services may be drastically cut if Quebec government doesn't cover deficit. <https://www.cbc.ca/news/canada/montreal/montreal-public-transit-cuts-1.7009792>
- 48** Radio Canada (2023) L'ARTM boucle son cadre financier 2024 « de justesse ». <https://ici.radio-canada.ca/nouvelle/2029340/artm-cadre-financier-difficultes-budgetaire>
- 49** Goudreault, Zacharie (2023) La STM ne promet plus un temps d'attente maximal de 10 minutes pour ses bus. Le Devoir. <https://www.ledevoir.com/societe/transports-urbanisme/776949/la-stm-ne-promet-plus-un-temps-d-attente-maximal-de-10-minutes-pour-ses-bus>
- 50** City of Toronto (2023) City of Toronto staff report says Toronto faces an unprecedented financial crisis and the time is now for all orders of government to step up to fulfil their roles. Press Release. <https://www.toronto.ca/news/city-of-toronto-staff-report-says-toronto-faces-an-unprecedented-financial-crisis-and-the-time-is-now-for-all-orders-of-government-to-step-up-to-fulfil-their-roles/>
- 51** Oliver Moore (2023) Without government funding and a reliance on fare revenue, TTC faces a potential 'transit death spiral'. Globe and Mail. <https://www.theglobeandmail.com/canada/article-ttc-costs-subsidies-ridership/>
- 52** Ontario Newsroom (2023) Ontario and Toronto Reach a New Deal. <https://news.ontario.ca/en/release/1003888/ontario-and-toronto-reach-a-new-deal>
- 53** Kenneth Chan (2023) TransLink is facing a \$4.7 billion funding deficit by 2033: forecast. Daily Hive. <https://dailyhive.com/vancouver/translink-revenue-deficit-funding-gap-forecast>

- 54** Kenneth Chan (2023) TransLink's \$20 billion plan to expand Metro Vancouver's public transit over 10 years. Daily Hive. <https://dailyhive.com/vancouver/translink-transport-2050-10-year-priorities-plan-projects-brt>
- 55** CleanBC, Roadmap to 2030. [https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc\\_roadmap\\_2030.pdf](https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf)
- 56** Hjartzson et Al. (2011) Putting Canada On Track: A Blueprint for a National Transit Framework. Mowat Centre. [https://tspace.library.utoronto.ca/bitstream/1807/99130/1/Hjartzson\\_Hinton\\_Szala\\_2011\\_Putting\\_Canada\\_on\\_Track.pdf](https://tspace.library.utoronto.ca/bitstream/1807/99130/1/Hjartzson_Hinton_Szala_2011_Putting_Canada_on_Track.pdf)
- 57** ITF (2023), Shaping Post-Covid Mobility in Cities: Summary and Conclusions, ITF Roundtable Reports, No. 190, OECD Publishing, Paris.
- 58** Hjartzson et Al. (2011) Putting Canada On Track: A Blueprint for a National Transit Framework. Mowat Centre. [https://tspace.library.utoronto.ca/bitstream/1807/99130/1/Hjartzson\\_Hinton\\_Szala\\_2011\\_Putting\\_Canada\\_on\\_Track.pdf](https://tspace.library.utoronto.ca/bitstream/1807/99130/1/Hjartzson_Hinton_Szala_2011_Putting_Canada_on_Track.pdf)
- 59** Based on Canadian Urban Transit Association (CUTA) 2022 Conventional Transit Statistics. Includes debt service contributions. Some operating costs for rehabilitating and repairing capital assets are eligible for federal capital funding. Municipal share includes contributions reported to CUTA as 'Other'. 'Other' includes dedicated regional gasoline tax revenues (ex; Vancouver) and transit revenues re-distributed between municipalities through regional transit authorities such as ARTM and TransLink.
- 60** Canadian Urban Transit Association, 2021 Conventional Transit Statistics.
- 61** NACTO (2023) Move! That! Bus! How to Transform Transit and Fight Climate Change in Two Years. <https://nacto.org/move-that-bus/>
- 62** Canadian Urban Transit Association Conventional Transit Statistics.
- 63** Harvey, Lex (2023) Ottawa gives TTC money for new electric buses but no funding to operate them. Toronto Star. <https://www.thestar.com/news/gta/2023/04/24/ottawa-gives-ttc-money-for-new-electric-buses-but-no-funding-to-operate-them.html>
- 64** Elliott, Matt (2023) "Why hundreds of TTC buses sit idle at rush hour despite millions in government funding." Toronto Star. <https://www.thestar.com/opinion/contributors/2023/04/18/why-hundreds-of-ttc-buses-sit-idle-at-rush-hour-despite-millions-in-government-funding.html>
- 65** Transport Canada (2022) Canada's Action Plan for Clean On-Road Transportation <https://tc.canada.ca/en/road-transportation/publications/canada-s-action-plan-clean-road-transportation>
- 66** Kneebone, Ronald, D. (2007) Following the Money: Federal and Provincial Budget Balances with Canada's Major Cities. C.D. Howe Institute. [https://www.cdhowe.org/sites/default/files/attachments/research\\_papers/mixed/commentary\\_249.pdf](https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/commentary_249.pdf)
- 67** Buehler, Ralph (2016) Regional Coordination in Public Transportation: Lessons from Germany, Austria, and Switzerland. <https://trid.trb.org/view/1424237>
- 68** Avenali, A., Catalano, G., D'Alfonso, T., & Matteucci, G. (2020). The allocation of national public resources in the Italian local public bus transport sector. *Research in Transportation Economics*. doi:10.1016/j.retrec.2020.100822
- 69** Statistics Canada, 2021 Census, Journey to Work Survey
- 70** Yonah Freemark, Lindiwe Rennert (2023) Surmounting the Fiscal Cliff: Identifying Stable Funding Solution for Public Transportation Systems. Urban Institute. <https://www.urban.org/research/publication/surmounting-fiscal-cliff>
- 71** Taylor, Brian & Morris, Eric. (2014). Public transportation objectives and rider demographics: are transit's priorities poor public policy? *Transportation*. <https://link.springer.com/article/10.1007/s11116-014-9547-0>



- 72** Rowlands & Loh (2023) Ensuring the intertwined post-pandemic recoveries of downtowns and transit systems. Brookings. <https://www.brookings.edu/articles/ensuring-the-intertwined-post-pandemic-recoveries-of-downtowns-and-transit-systems/>
- 73** Pinder, Matt (2020) The Park and Ride is Dead. Beyond the Automobile. <https://beyondtheautomobile.com/2020/07/14/the-park-and-ride-is-dead/>
- 74** Palm, M., Dos Santos, H., Abchiche-Lima, L., Hosford, K., Comeau, É., Newbold, K. B., Ross, T., Winters, M., Widener, M. (2022). The Impact of COVID-19 on Transportation Inequities in Canada: A Scoping Review. Mobilizing Justice.
- 75** APTA (2021) On the Horizon: Planning for Post-Pandemic Travel <https://www.apta.com/wp-content/uploads/APTA-OnTheHorizon-Nov2021.pdf>
- 76** ITF (2023), Shaping Post-Covid Mobility in Cities: Summary and Conclusions, ITF Roundtable Reports, No. 190, OECD Publishing, Paris.
- 77** Babbar, P., Peace, J., Cooper, D., Boisjoly, G., & Grisé, E. (2022). Understanding and responding to the transit needs of women in Canada. <https://publications.polymtl.ca/10017/>
- 78** ITF (2023), Shaping Post-Covid Mobility in Cities: Summary and Conclusions, ITF Roundtable Reports, No. 190, OECD Publishing, Paris. P.30.
- 79** Matthew Palm, Jeff Allen, Steven Farber (2023) Shifted out: The well-being and justice implications of evening and night commuting. Transportation Research Part D: Transport and Environment, Volume 122. <https://doi.org/10.1016/j.trd.2023.103875>.
- 80** Toronto Regional Board of Trade (2021) Next Stop: Building Universal Transit Access. <https://bot.com/Resources/Resource-Library/Next-Stop-Building-Universal-Transit-Access>
- 81** Ralph Buehler & John Pucher (2012) Demand for Public Transport in Germany and the USA: An Analysis of Rider Characteristics, Transport Reviews, 32:5, 541-567, DOI: 10.1080/01441647.2012.707695
- 82** Mees, Paul (2009). Transport for suburbia: beyond the automobile age. Earthscan.
- 83** Hugo Badia, Juan Argote-Cabanero, Carlos F. Daganzo (2017) How network structure can boost and shape the demand for bus transit. Transportation Research Part A: Policy and Practice. Volume 103, <https://doi.org/10.1016/j.tra.2017.05.030>.
- 84** Brown, J. R., & Thompson, G. L. (2008). Service Orientation, Bus-Rail Service Integration, and Transit Performance. Transportation Research Record: Journal of the Transportation Research Board, 2042(1), 82-89. doi:10.3141/2042-09
- 85** Mariana Mazzucato & Josh Ryan-Collins (2022) Putting value creation back into “public value”: from market-fixing to market-shaping, Journal of Economic Policy Reform, 25:4, 345-360, <https://doi.org/10.1080/17487870.2022.2053537>
- 86** Ravensbergen, L., Fournier, J., & El-Geneidy, A. (2023). Exploratory Analysis of Mobility of Care in Montreal, Canada. Transportation Research Record, 2677(1), 1499-1509. <https://doi.org/10.1177/03611981221105070>
- 87** Roberts, C, Meadowcroft, J, Layzell, DB. 2020. The Rise of the Automobile: Lessons from Historical Canadian Transportation Transitions. Transition Accelerator Reports Vol. 2, Iss. 4, Pg. 1-35. ISSN 2562-6264. [https://transitionaccelerator.ca/wp-content/uploads/2023/04/TA-Report-2.4\\_Lessons-on-Canadian-Transportation-Transitions.pdf](https://transitionaccelerator.ca/wp-content/uploads/2023/04/TA-Report-2.4_Lessons-on-Canadian-Transportation-Transitions.pdf)
- 88** Bloomberg CityLab (2023) Anatomy of an ‘American Transit Disaster’ <https://www.bloomberg.com/news/features/2023-04-27/chronicling-of-the-collapse-of-public-transit-in-the-us>
- 89** This famous quote has been attributed to both Enrique Penalosa and Gustavo Petro, who both served as

Mayors of the city of Bogota, Columbia.

**90** English, Jonathan (2021) *The Better Way: Transit Service and Demand in Metropolitan Toronto, 1953-1990*. Columbia University. <https://academiccommons.columbia.edu/doi/10.7916/d8-d999-t426>

**91** Bloomberg CityLab (2023) *Anatomy of an ‘American Transit Disaster’* <https://www.bloomberg.com/news/features/2023-04-27/chronicling-of-the-collapse-of-public-transit-in-the-us>

**92** English, Jonathan (2021) *The Better Way: Transit Service and Demand in Metropolitan Toronto, 1953-1990*. Columbia University. <https://academiccommons.columbia.edu/doi/10.7916/d8-d999-t426>

**93** Canadian Urban Transit Association 2019 Conventional Transit Statistics.

**94** Chart derived by the author from Transit Boarding and Service Population Data from the Canadian Urban Transit Association and Federal Transit Administration National Transit Database, and Population Density Figures from the Canadian 2021 Census and US 2020 Census.

**95** TRBOT (2023) *Needs improvement: Getting to World-Class Transit*. Toronto Region Transit Report Cards. July 2023. <https://bot.com/Resources/Resource-Library/Transit-Report-Cards>

**96** Brampton Guardian (2023) *How Brampton’s transit system grew to serve more riders than many major North American cities*. [https://www.bramptonguardian.com/news/how-brampton-s-transit-system-grew-to-serve-more-riders-than-many-major-north-american/article\\_63e97c19-5bca-5ba2-a995-cea6eac2d7da.html](https://www.bramptonguardian.com/news/how-brampton-s-transit-system-grew-to-serve-more-riders-than-many-major-north-american/article_63e97c19-5bca-5ba2-a995-cea6eac2d7da.html)

**97** Brampton Transit Ridership <https://www.brampton.ca/EN/residents/transit/About-Us/Pages/Ridership.aspx>

**98** Su, Qing & DeSalvo, Joseph. (2008). *The Effect of Transportation Subsidies on Urban Sprawl*. *Journal of Regional Science*. 48. 567-594. 10.1111/j.1467-9787.2008.00564.x.

**99** See: Not Just Bikes on Youtube - “America always gets this wrong (when building transit)” <https://youtu.be/MnyeRIMsTgl>

**100** Guerra, E., & Cervero, R. (2012). *Transit and the “D” Word*. *ACCESS Magazine*, 1(40), 2-8. Retrieved from <https://escholarship.org/uc/item/83f6q2nv>

**101** Eno Centre for Transportation (2021) *Saving Time and Making Cents: A Blueprint for Building Transit Better*. P.186. <https://projectdelivery.enotrans.org/wp-content/uploads/2021/07/Saving-Time-and-Making-Cents-A-Blueprint-for-BuildingTransit-Better.pdf>

**102** Pinder, Matt (2020) *The Park and Ride is Dead* <https://beyondtheautomobile.com/2020/07/14/the-park-and-ride-is-dead/>

**103** Aud Tennøy, Jan Usterud Hanssen & Kjersti Visnes Øksenholt (2020) *Developing a tool for assessing park-and-ride facilities in a sustainable mobility perspective*, *Urban, Planning and Transport Research*, 8:1, 1-23, DOI: 10.1080/21650020.2019.1690571

**104** Metrolinx (2022) *Press Release: Free local fares kick off with most local transit agencies*. <https://www.metrolinx.com/en/news/free-local-fares-kick-off-with-most-local-transit-agencies>

**105** Ibid.

**106** Kramer, A. (2018). *The unaffordable city: Housing and transit in North American cities*. *Cities*. <https://doi.org/10.1016/j.cities.2018.05.013>

**107** Canadian Urban Transit Association (2023) *Housing is On the Line*. <https://cutaactu.ca/wp-content/uploads/2023/10/cuta-housingisontheline-en.pdf>

**108** Tremblay-Racicot, Fanny (2023) *The Pivotal Role of Local Governments in the Fight Against Social and*

Environmental Injustices and Climate Change: Laying the Foundations for Sustainable Urban Transportation. Institute for Municipal Finance and Governance, Who Does What Series, The Municipal Role in Transportation. <https://imfg.munkschool.utoronto.ca/report/transportation/>

**109** Daniel Hörcher, Bruno De Borger, Daniel J. Graham (2023) Subsidised transport services in a fiscal federation: Why local governments may be against decentralised service provision, *Economics of Transportation*, Volume 34. <https://doi.org/10.1016/j.ecotra.2023.100312>.

**110** According to the Parliamentary Budget Office's Budget Simulator tool, Ready Reckoner, an increase in the general corporate income tax rate of 1% raises federal government revenues by \$3.2 billion per year. Over 5 years assuming this remains constant, it would raise \$16 billion. <https://www.pbo-dpb.ca/en/research--recherches/tools--outils/ready-reckoner--simulateur-budgetaire/index>

**111** Based on 2024-25 total projected total expenses, 2023 Fall Economic Statement, Table A1.6.

**112** PBO (2023) Costing Support for EV Battery Manufacturing. <https://www.pbo-dpb.ca/en/publications/RP-2324-020-S--costing-support-ev-battery-manufacturing--etablissement-couts-soutien-accorde-fabrication-batteries-ve>

**113** Global News (2023) Exclusive: The feds bought a pipeline for \$5B. How did the cost balloon to over \$30B? <https://globalnews.ca/news/9839473/trans-mountain-pipeline-cost-overrun/>

**114** Funk, C.D., Higgins, M.J. & Newmark, G.L. (2023) Operating subsidies and transit efficiency: applying new metrics to old problems. *Transportation*. <https://doi.org/10.1007/s11116-023-10441-w>

**115** Canadian Urban Transit Association (2023) Housing is On the Line. <https://cutaactu.ca/wp-content/uploads/2023/10/cuta-housingisontheline-en.pdf>

**116** European Commission (2023) Sustainable urban mobility planning and monitoring. [https://transport.ec.europa.eu/transport-themes/urban-transport/sustainable-urban-mobility-planning-and-monitoring\\_en](https://transport.ec.europa.eu/transport-themes/urban-transport/sustainable-urban-mobility-planning-and-monitoring_en)

**117** See; Eltis (2021) Guidelines for developing and implementing a Sustainable Urban Mobility Plan (2nd edition). <https://www.eltis.org/mobility-plans/sump-guidelines>

**118** For example, CUTA (2019) Conventional Transit Statistics indicate that in cities with populations above 2 million people have an operating cost per passenger net of revenues of \$1.73, while this cost in cities between 400,000 and 2 million people is \$2.50 and in cities between 150,000 and 400,000 this cost is \$2.75.

**119** Pucher, J. (1988). Urban Travel Behavior as the Outcome of Public Policy: The Example of Modal-Split in Western Europe and North America. *Journal of the American Planning Association*, 54(4), 509-520. doi:10.1080/01944368808976677

**120** McCahill, C. T., Garrick, N., Atkinson-Palombo, C., & Polinski, A. (2016). Effects of Parking Provision on Automobile Use in Cities: Inferring Causality. *Transportation Research Record*, 2543(1), 159-165. <https://doi.org/10.3141/2543-19>

**121** Erik B. Lunke, N. Fearnley, J. Aarhaug (2021) Public transport competitiveness vs. the car: Impact of relative journey time and service attributes, *Research in Transportation Economics*. <https://doi.org/10.1016/j.retrec.2021.101098>.

**122** Su, Qing & DeSalvo, Joseph. (2008). The Effect of Transportation Subsidies on Urban Sprawl. *Journal of Regional Science*. 48. 567-594. 10.1111/j.1467-9787.2008.00564.x.

**123** Renate van der Zee (2015) How Amsterdam became the bicycle capital of the world. *The Guardian*. <https://www.theguardian.com/cities/2015/may/05/amsterdam-bicycle-capital-world-transport-cycling-kindermoord>

**124** Shi, G., Methoxha, V., Atkinson-Palombo, C., & Garrick, N. (2021). Sustainable Safety in The Netherlands Creating a Road Environment where People on Foot and on Bikes are as Safe as People in Cars. *Transportation Research Record: Journal of the Transportation Research Board*. <https://doi.org/10.1177/03611981211019736>

**125** Ralph Buehler, John Pucher, Regine Gerike & Thomas Götschi (2016): Reducing car dependence in the heart of Europe: lessons from Germany, Austria, and Switzerland, Transport Reviews. <http://dx.doi.org/10.1080/01441647.2016.1177799>

**126** ITF (2021), Reversing Car Dependency: Summary and Conclusions, ITF Roundtable Reports, No. 181, OECD Publishing, Paris.

**127** Laura Bliss (2018) The Automotive Liberation of Paris. Bloomberg. <https://www.bloomberg.com/news/articles/2018-01-19/how-paris-shifted-away-from-the-car>

**128** UITP (2021) World Metro Figures. <https://cms.uitp.org/wp/wp-content/uploads/2022/05/Statistics-Brief-Metro-Figures-2021-web.pdf>

**129** <https://www.driveinjapan.com/parking/>

**130** Eno Centre for Transportation (2021) Saving Time and Making Cents: A Blueprint for Building Transit Better. <https://projectdelivery.enotrans.org/wp-content/uploads/2021/07/Saving-Time-and-Making-Cents-A-Blueprint-for-BuildingTransit-Better.pdf>

**131** Eric Goldwyn, Alon Levy, Elif Ensari and Marco Chitti (2022) Transit Costs Project: Final Report. [https://transitcosts.com/wp-content/uploads/TCP\\_Final\\_Report.pdf](https://transitcosts.com/wp-content/uploads/TCP_Final_Report.pdf)