Stopping the Public Transit Death Spiral

MEDIA BACKGROUNDER
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environmental defence

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Stopping the public transit death spiral: how to fix Canada's broken transit funding model

Executive Summary

This backgrounder gives an overview of how the pandemic has impacted public transit finances and rider travel patterns. It also outlines the successful policy formula that would lead to recovering and growing public transit ridership, restoring financial stability to transit systems while reducing carbon emissions and fostering greater social equity.

The pandemic has broken public transit's funding model. With lower ridership and less farebox revenues, the federal government has had to intervene twice to save public transit from a death spiral of service cuts and fare hikes. However, ridership is still yet to recover, and Canada continues to be faced by the challenges of the climate emergency and the housing affordability crisis. Drawing on academic literature and the historical case study of the TTC, this backgrounder highlights that Canada has experienced the transit death spiral before – but also overcame it. Through policy intervention it can be done again.

We recommend that the federal government shift from a continued series of 'one-time' emergency interventions towards an accelerated long-term solution to resolving public transit finances which recognizes how the pandemic has changed travel patterns and delivers on key priorities like climate and housing affordability. Allowing a transit death spiral to occur is an unacceptable policy alternative that will substantially undermine the value of federal investments in transit capital projects and have the greatest negative impact on the most vulnerable members of our society.

Summary Recommendations

- **The federal government must stop the public transit death spiral in budget 2023** with additional operating funding support and signal that the permanent transit funding program is being accelerated by two fiscal years to permanently resolve public transit operating shortfalls while setting transit systems on a growth path consistent with Canada's climate ambitions.

- **Expand and ensure that this next-generation public transit program funds bus service**, to foster modal shift, create more equitable transit service, reduce regional disparities, and optimize the use of existing transit fleet capacity.

- **Establish a zero-emission bus procurement mandate** as a condition attached to a baseline, core public transit funding stream structured similar to the *Canada Community-Building Fund* (CCBF) and Ontario's *Dedicated Transit Funding Program* with capital and operations funding primarily for bus service, separate from a cost-shared major projects stream that would function much like existing transit capital funding under the *Investing in Canada Infrastructure Program* (ICIP).

- **Require 'Supportive Policies Agreements' with municipalities to be signed as part of business cases for all major capital projects with clearly defined land-use standards** to increase housing supply and public transit ridership through equitable transit-oriented development.

- **The next update to the federal emissions reduction plan should set clear targets** for an increased mode share of sustainable transportation, and work towards tracking this outcome at the national level by establishing a National Household Travel Survey managed by Statistics Canada.

WHY PUBLIC TRANSIT'S FUNDING MODEL IS BROKEN

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 transit ridership, transit systems collectively lose $470 million in passenger revenues. The federal government worked with the provinces to deliver emergency operating support to public transit systems through the Safe Restart Agreement[1] ($2.4 billion) and it renewed its support ($750 million) last February.[2] This support prevented a complete collapse in transit service levels, which allowed public transit systems to continue providing service to essential workers and rebuild ridership. 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.[3] Ridership Canada-wide has today managed to recover to 70 per cent of pre-pandemic levels.[4]

Broken Transit Finances

The pandemic highlighted how over-reliant Canadian transit systems are on fare revenues to fund operations. Before the pandemic, over half (51 per cent) of transit operating budgets were paid for through farebox revenue.[5] With ridership still slow to recover – and the financial assistance from other levels of government drying up – transit systems face the threat of a death spiral. That is a vicious cycle of service cuts and fare hikes that push people away from transit and into their cars, further decreasing revenue, leading to further service cuts. If this is allowed to happen, it will make cities more congested, increase carbon emissions, and have the greatest impact on society's most vulnerable.

[1] Intergovernmental Affairs, 2020 https://www.canada.ca/en/intergovernmental-affairs/services/safe-restart-agreement.html

[2] Department of Finance Canada, 2022 https://www.canada.ca/en/department-finance/news/2022/02/federal-government-announces-an-investment-in-public-transit-systems-across-canada.html

[3] Canadian Urban Transit Association 2020 Conventional Transit Statistics

[4] Statcan Table: 23-10-0251-01

[5] Canadian Urban Transit Association 2019 Conventional Transit Statistics

Who Are Canada's Public Transit Riders?

In 2019, Canadians made an average of over 6 million trips every single day on public transit, to get to work, to school, to get groceries, shop, visit loved ones and to access social services.[6] Canadian transit riders are disproportionately low-income workers, women, and people from racialized communities.[7] Many can't afford to drive, and 64 per cent have no access to a car.[8] 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.[9]

Canada Cannot Afford Another Public Transit Death Spiral

Canadian public transit has experienced a downward spiral before, starting with a recession in Ontario in early 1990s. Ridership on the Toronto Transit Commission (TTC) plummeted, which was exacerbated by the province and the city both reducing operating support, to 'match service to demand.' From 1990 to 1997, Toronto's population grew by 10 per cent, but TTC service levels declined by 11.5 per cent.[10] That represented 230 buses and 60 streetcars taken out of morning rush hour service. Riders abandoned the system. Over this period, fares went up at a rate 50 per cent higher than inflation.[11] By 1996, ridership was about 19 per cent lower than it was in 1990 and did not return to 1990 levels for 17 years—after a concerted ridership growth strategy was implemented that included significant investments into growing service. If the job of saving public transit is abandoned before ridership can recover from the pandemic, this same story will be repeated in cities across Canada.

Public Transit Can't Fall Apart in a Climate Emergency

Canadians with no other transportation options will face longer waits, unreliable service and more crowded commutes. Canadians who can afford it, will be pushed into their cars – and Canada has the most polluting private vehicle fleet of any major car market in the world[12] – with 8 out of every 10 cars sold being a gas guzzling SUV or truck.[13]

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[6] Canadian Urban Transit Association 2020 Conventional Transit Statistics

[7] 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.

[8] Transit App, Rider Happiness Benchmarking Survey, Spring 2022

[9] Statistics Canada, 2021 Census, Journey to Work Survey

[10] Canadian Urban Transit Association (2021) Why public transit needs extended operating support. https://cutaactu.ca/wp-content/uploads/2021/06/Issue-Paper-Why-public-transit-needs-extended-operating-support.pdf

[11] Toronto Transit Commission (2003) Ridership Growth Strategy. https://transittoronto.ca/archives/reports/ridership_growth_strategy.pdf

[12] 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

[13] StatCan Table: 20-10-0001-01

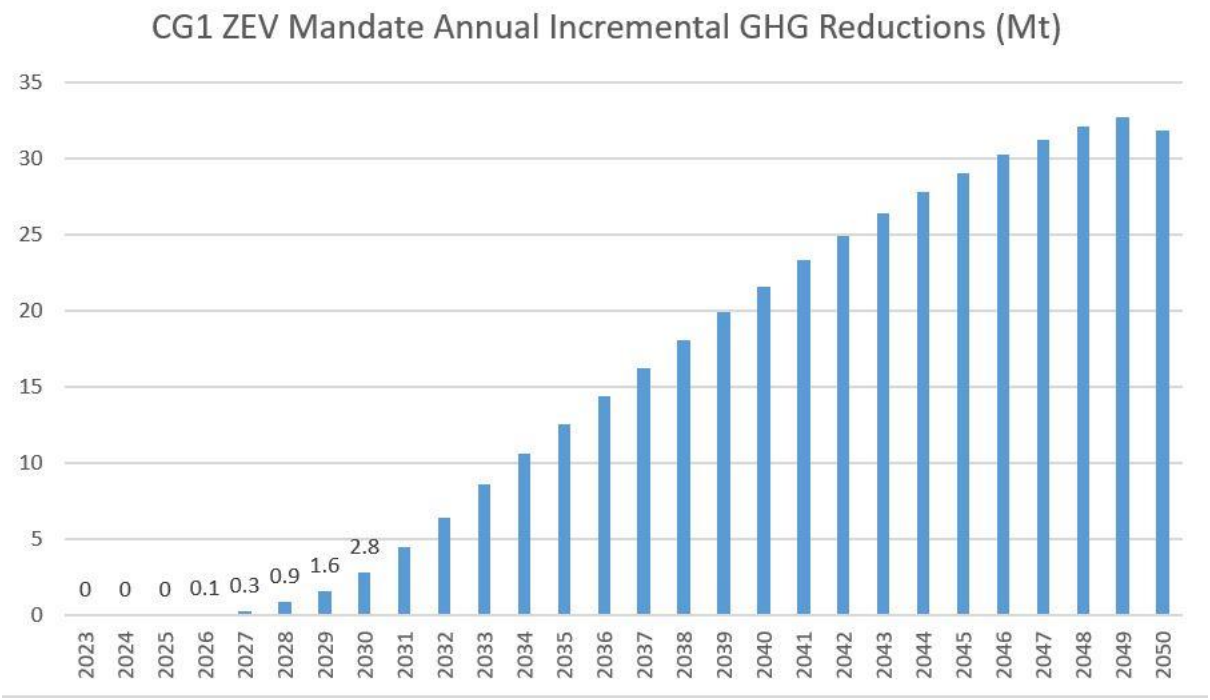
Canada's Car Fleet Is the Most Carbon-Intensive in the World

G7 Country	Average Fuel Economy (L/100km)	Average Passenger Vehicle Fleet Emissions (gCO2/km)
Canada	8.9	206
United States	8.6	198
Italy	5.2	124
France	5.3	126
United Kingdom	5.8	137
Germany	5.9	140
Japan	6.2	144

Source: Canada Energy Regulator (2019) Market Snapshot: How does Canada rank in terms of vehicle fuel economy?

Zero-Emission Vehicles Are Great – But Arrive Late

The switch to zero-emission vehicles won't save us in time – as emissions reductions from Canada's proposed zero-emissions vehicle mandate are 'back loaded' and won't begin to make a significant impact in the near-term. Cars bought and driven today are carbon-intensive and will remain on the road for approximately 15 years.



Source: Regulatory Impact Statement of Draft Regulated Zero Emission Vehicle Sales Targets, Canada Gazette

More people traveling by 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. The TTC's Line 1 alone carries the equivalent number of people as 26 highway lanes of cars. When

someone chooses to take even a diesel bus instead of their car, they can cut their GHG emissions per kilometre by approximately 77 per cent, and even more if that bus is electric.[14] To get Canadians out of their highly polluting cars, the first step is ensuring that public transit systems recover from the pandemic and don't fall into a catastrophic death spiral. The next step is implementing a modest but transformative policy framework that will put public transit on a growth path consistent with Canada's climate ambitions, adapt to post-pandemic travel patterns and foster a greater supply of more affordable housing.

HOW TO GET PUBLIC TRANSIT BACK ON TRACK

The Pandemic Has Changed Travel Patterns

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, 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.[15]

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. However, throughout the pandemic, transit demand remained strong in low-income neighbourhoods where manual, service, and other workers who need to physically be at their workplace are more likely to live.[16] Reflecting this, transit ridership has rebounded much faster on bus routes than rail, as bus service is more oriented to serving transit-dependent riders, and service allocation is flexible to changes in travel patterns.[17]

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. 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. While many commuter trips won't come back to transit as work-from-home becomes entrenched, transit systems should seize the opportunity to shift non-work-related trips out of the car and onto public transit to replace those lost riders and ultimately grow their mode share. As proof of this potential - weekend ridership is recovering much faster than weekday ridership for many transit systems.

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[14] 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

[15] 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 .

[16] APTA (2021) On the Horizon: Planning for Post-Pandemic Travel https://www.apta.com/wp-content/uploads/APTA-On-TheHorizon-Nov2021.pdf

[17] See: Globe Editorial Board (2022) The pandemic hobbled transit. A bet on bus ridership is leading the comeback. https://www.theglobeandmail.com/opinion/editorials/article-the-pandemic-hobbled-transit-a-bet-on-bus-ridership-is-leading-the/

Investing in bus service to raise off-peak frequency is the key to attracting non-commute trips, which happen outside traditional rush-hours. This adaptation to post-pandemic mobility patterns also delivers more equitable service to transit-dependent riders at the same time. For example, women – who constitute the majority of transit riders – are more likely to use public transit in off-peak hours and are more likely to take non-work-related, household-sustaining trips.[18]

'The Better Way': Lessons from Public Transit History[19]

Historic experience has shown that 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 the key to growing ridership. This allows transit systems to expand outside their traditional market of 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.[20]

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. 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.

This enabled the second, more important difference. US transit systems were expected to remain profitable. This meant that as they lost market share to the private automobile it created a vicious spiral of fare hikes, service cuts and closed the door on expanding service into the rapidly growing suburbs. 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.

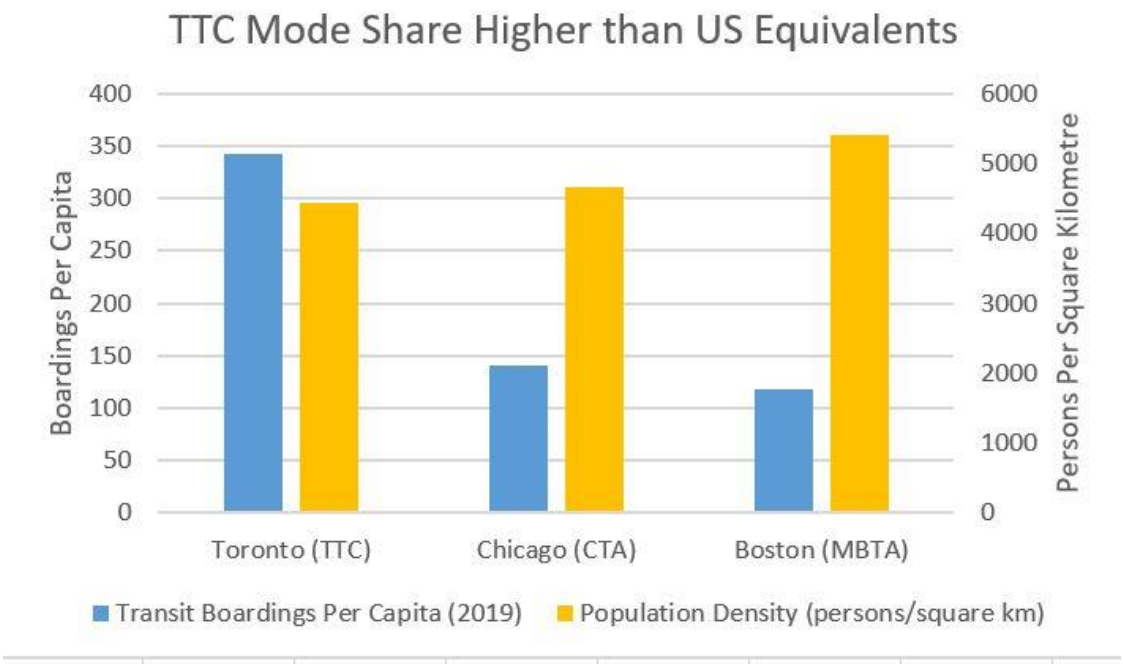
Density isn't Destiny

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. 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.

[18] Cooper et Al. (2022) Understanding and responding to the transit needs of women in Canada. https://publications.polymtl.ca/10017/

[19] 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

[20] 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

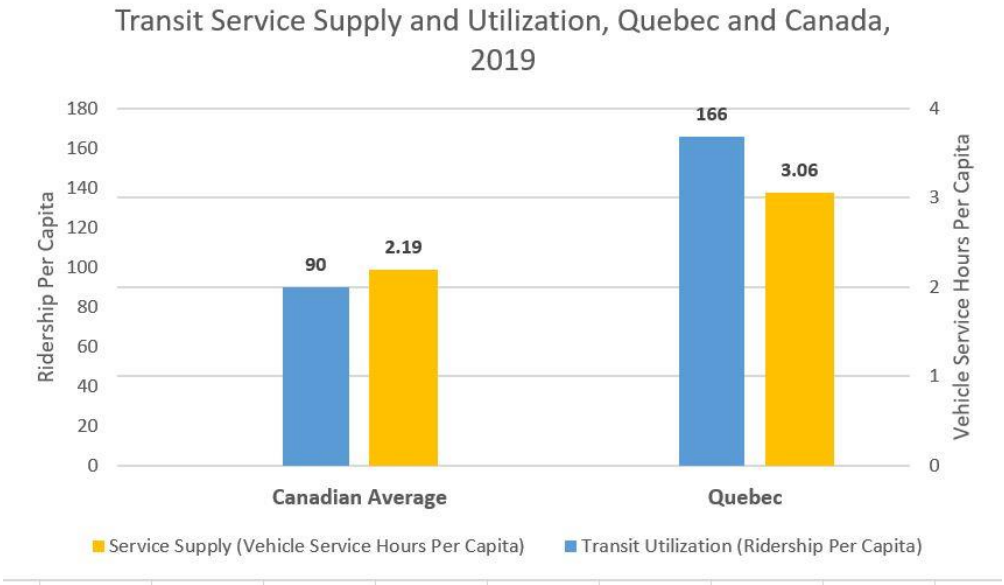


Source: *Chart derived from Transit Boarding and Service Population Data from the Canadian Urban Transit Association and Federal Transit Administration National Transit Database, and Population Density Figures from the Canadian 2021 Census and US 2020 Census.*

Today, this phenomenon has been described as the 'network effect'. Put simply, not everyone can live within walking distance of a rapid transit access point (like a subway, light rail or 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. This creates the necessary conditions for public transit to compete with the car.

Studies of what works to boost ridership come to the same conclusion: the most important factor to public transit's success is service supply, in particular for the bus. This is true even in smaller towns without higher-order transit infrastructure like rail. This model is applied in Switzerland, which has the highest transit per capita transit mode share in Western Europe.[21] Put simply, the more frequent and convenient service is, and the faster it runs, the more people will use it. This also works in reverse—if transit service is cut, it drives riders away. This reflects the phenomenon of 'induced demand'. Just as widening roads induces more traffic – making public transit a more attractive choice makes people use it. This is the case even among Canadian provinces - for example Quebec has 40 per cent higher per capita transit service levels than the Canadian average, and this supports transit utilization (ridership per capita) that is 84 per cent higher than the rest of the country.[22]

[21] Tim Petersen, Watching the Swiss: A network approach to rural and exurban public transport, Transport Policy, Volume 52, 2016, Pages 175-185, https://doi.org/10.1016/j.tranpol.2016.07.012.
[22] Canadian Urban Transit Association Conventional Transit Statistics, 2019



Source: Canadian Urban Transit Association Conventional Transit Statistics, 2019

That doesn't mean that other policy interventions to increase housing density near public transit, reduce fares or raise taxes on gasoline are not important. Tying public transit capital funding to land-use standards is essential to growing ridership and delivering more affordable housing supply.[23] However, policy interventions like this should be seen as complementary to the bedrock of what is necessary to achieve mode shift: service supply.

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

Sources: 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.
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.

[23] Wallace, Nate (2022) Public Transit and the Path to Net Zero: Submission to consultations on permanent public transit funding in Canada. Environmental Defence, Equiterre, David Suzuki Foundation, Ecology Action Centre, Conservation Council of New Brunswick, Canadian Centre for Policy Alternatives. https://environmentaldefence.ca/wp-content/uploads/2022/09/EDC-CCPA-EQT-EAC-CCNB-DSF-Submission-on-Permanent-Transit-Funding.pdf

Have we learned our lesson?

Canada should try to replicate the success of the 'better way' model in cities and towns across the country by funding the expansion of bus service to expand ridership and adapt to post-pandemic travel patterns. Unfortunately, we are seeing many cities in Canada going in the exact opposite direction – one that leads to a death spiral. Montreal's transit system, the STM, just killed its 10-minute or less frequent bus network.[24] What had been 31 routes that boasted the low-wait time guarantee before the pandemic, had recently been reduced to 9 routes by budget cuts. With no more operating funding support on the horizon, this guarantee has now been scrapped entirely.

Other transit systems hope to avert this fate and are leading the march towards 'the better way'**.** In TransLink's (Vancouver's transit system) latest 10-year plan, doubling bus service and making major advances on Bus Rapid Transit (BRT) projects are top priorities. At the same time, it is continuing to move forward with planned major rail projects - as reduced demand related to the post-pandemic period is likely to disappear by the time the construction on these projects is finished. However, this plan is yet to be funded. TransLink estimates that its 10-year priorities will require a 50 per cent increase in annual operating spending once fully implemented. But this revenue can't come through fare increases – which pushes riders away and makes ridership growth more difficult. A more fundamental fix to public transit operating budgets is needed.

Abundance for Capital – Austerity for Operations

Before the Covid-19 pandemic, the federal government was only involved in capital funding, while the role of funding public transit operations has traditionally been left to provinces and municipalities. Currently, only three provinces have mechanisms or funding programs for transit operations: British Columbia, Ontario and Quebec, with some provinces more generous than others. Overall, this has led to vast differences in the level of transit service supplied between provinces and stark regional inequities in access to viable transit service.

In most cases, municipalities are the primary funders of public transit operations, but have limited fiscal tools to bring in additional revenues to expand transit operating budgets. Unlike in other countries, local governments in Canada cannot levy income or sales taxes. Municipalities manage over 60 per cent of Canada's public infrastructure but only collect 10 per cent of tax revenues.[25] They rely almost entirely on politically unpopular property taxes and user fees while also not being allowed to run deficits. This structure aligns political incentives to create a state of permanent austerity for most transit system's operating budgets.

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. In the 2018 bilateral agreements for this program (Investing in Canada Infrastructure Program, hereafter referred to as *ICIP*) Canada set a goal of increasing the mode share of public and active transportation by 25 per cent, contributing towards an overall

[24] 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

[25] FCM (2019) The Case for Growing the Gas Tax Fund https://fcm.ca/en/resources/the-case-growing-the-gas-tax-fund.

reduction of carbon emissions by 10 megatonnes. Allocating transit capital funding under this program ($23.5 billion) to projects will wrap by March 2023. Canada now stands with a far lower mode share for public transit than when this program began, and has not publicly reported whether its national GHG reduction target has been met, or incorporated these targets into its 2030 Emissions Reduction Plan.

Tough Luck for Bus Riders

Rail service is capital-intensive, while bus service is labour-intensive. This makes the primary constraint for supplying more bus service the transit operating budget, and supplying more rail service the capital budget. This means that while the federal government's decision to fund public transit capital has been transformative at ensuring rail projects get off the ground in cities across the country, it has done little to improve bus service.

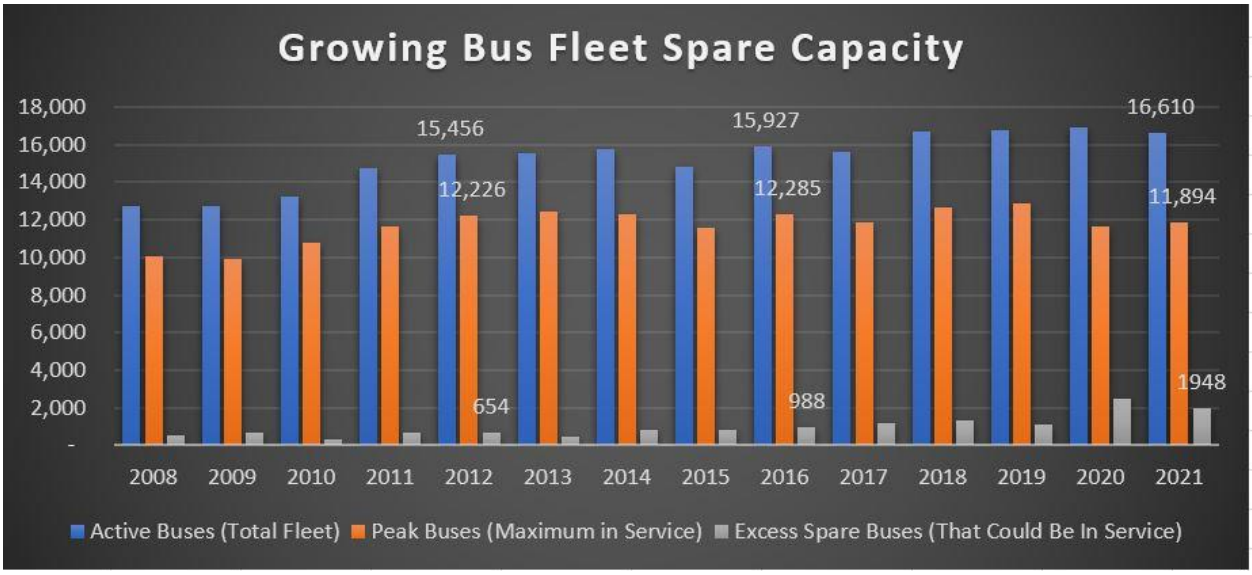
This exacerbates inequalities both in terms of the regions where the bus is the only public transit mode (6 provinces), and in terms of the kind of transit riders that the bus mode disproportionately carries (low income, racialized workers). It is important to note that the bus is the transit mode that the vast majority of Canadian transit riders interact with the most on a daily basis – 67 per cent of all passenger boardings on transit vehicles in Canada occur on a bus.[26]

Despite the overall public transit bus fleet growing by more than 1150 buses since 2012, there are currently fewer buses in service now across Canada than there were in 2012. Overall, bus fleets have grown by 683 buses since ICIP was introduced in 2016, despite this – there are 391 fewer buses in service now than there were when the program started. Instead, we see what 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 highlights the dichotomy between capital and operating funding, where transit systems can obtain federal funds to procure new buses – but are denied the operating dollars needed to hire the drivers to put the buses into service. Instead, brand new buses are being parked. One such instance of this phenomenon occurred in Montreal with 304 hybrid electric buses and caused a minor scandal.[27]

[26] Canadian Urban Transit Association Conventional Transit Statistics, 2021

[27] Montreal Gazette (2020) Montreal's transit agency decides to park 304 new buses it ordered. https://montrealgazette.com/news/local-news/city-transit-agency-decides-to-park-304-new-buses-it-ordered



Source: Normalized fleet data provided by the Canadian Urban Transit Association. Excess spares calculated 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.

Conclusion: Action Is Needed Now

Canadians expect the federal government to deliver action on reducing emissions and tackling the housing affordability crisis now, not years from now. To get Canadians out of their highly polluting cars, the first step is ensuring that transit systems recover from the pandemic and don't fall into a catastrophic death spiral. The next step is implementing a modest but transformative policy framework that will put public transit on a growth path consistent with Canada's climate ambitions, adapt to post-pandemic travel patterns and foster a greater supply of more affordable housing.

For more information on how Environmental Defence, Equiterre, the David Suzuki Foundation, the Canadian Centre for Policy Alternatives, the Conservation Council of New Brunswick and Ecology Action Centre recommend the permanent public transit funding program be designed in detail to deliver on these priorities, including how our federal recommendations interact with funding from other levels of government, please see the link below:

https://environmentaldefence.ca/report/public-transit-path-to-net-zero/