A NEW MODEL FOR FUNDING PUBLIC TRANSIT: EMBRACING THE USER-PAYS PRINCIPLE

BY STEVE LAFLEUR | DECEMBER 2015

FRONTIER CENTRE FOR PUBLIC POLICY

Ideas that change your world | **www.fcpp.org**

Media Inquiries and Information:
Deb Solberg
Tel: (403) 919-9335

Development Inquiries:
Samantha Leclerc
Tel: (403) 400-6862

ISSN # 1491-78 ©2015

Research conducted by the Frontier Centre for Public Policy is conducted under the highest ethical and academic standards. Research subjects are determined through an ongoing needs assessment survey of private and public sector policymakers. Research is conducted independent of Frontier Centre donors and Board of Directors and is subject to double-blind peer review prior to publication.

ABOUT THE FRONTIER CENTRE FOR PUBLIC POLICY

The Frontier Centre for Public Policy is an innovative research and education charity registered in both Canada and the United States.

Founded in 1999 by philanthropic foundations seeking to help voters and policy makers improve their understanding of the economy and public policy, our mission is to develop the ideas that change the world.

Innovative thought, boldly imagined. Rigorously researched by the most credible experts in their field. Strenuously peer reviewed. Clearly and aggressively communicated to voters and policy makers through the press and popular dialogue.

That is how the Frontier Centre for Public Policy achieves its mission.

STEVE LAFLEUR

Steve Lafleur is a senior policy analyst based in Vancouver, British Columbia.

His primary research interests are housing and land use policies, transportation and infrastructure, criminal justice policy, immigration, inter-governmental fiscal relations, and municipal finances.

His work has been featured in most Canadian newspapers including *The* (Toronto) *Star*, *The Globe and Mail,* and the *National Post*. Lafleur is also a contributing editor to NewGeography, where he writes about urban issues in Canada and the United States.

He makes frequent television and radio appearances to comment on policy issues, and his work has been cited by organizations as diverse as the Reason Foundation and the Partnership for a New American Economy.

He holds a BA in Political Science from Laurentian University (2008), and an MA in Political Science from Wilfrid Laurier University (2010).

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Public transportation is an important contributor to urban mobility, particularly in Canada's largest metropolitan areas. Despite the fact that most residents view public transportation as a necessity, there is a tendency to think of it as more of a social welfare program than as a viable option for people who can afford to drive. This is, in part, because of the way that public transit agencies are organized. They are run as money-losing government departments that struggle to meet their bare obligations, let alone attract "choice" riders with better service. This creates a Catch 22: residents who do not use public transportation are often reluctant to fund large capital expansions, and existing riders are often opposed to paying higher fares. This can lead to an under-investment in public transit agencies that perpetuates the stereotype that riding the bus is a last resort for those who cannot afford to drive.

While public transportation has become a major political issue in Canada, pouring more money into public transportation will not necessarily result in substantially better public transportation. This paper will argue that how public transportation agencies collect revenue and the processes by which they decide how to spend their revenue is nearly as important as how much they collect and spend. Rather than simply funneling more money into transit agencies as they stand, governments should convert public transportation agencies into autonomous Crown corporations. This would remove much of the politicization surrounding public transportation decisions, shifting the priority to increasing ridership rather than cutting ribbons.

INTRODUCTION

Public Transit is often thought of as a social welfare program. Because public transportation is typically a money-losing venture, it is easy to assume that it will always be so. And since few Canadians live in neighbourhoods where public transportation is as convenient as driving, it is often seen as transportation for those who cannot afford to drive. To many of the vast majority of Canadians who do not regularly use public transit, it is just another nagging part of their tax bill that they are not too keen on paying.

Public transportation funding faces a Catch-22: Residents who do not use it are often reluctant to fund large capital expansions, and transit activists are typically averse to fare increases. The path of least resistance for local politicians is either to do nothing or to seek funding from another level of government. Consequently, funding for public transportation is erratic and inefficient.

The lack of investment in public transportation means that most people who can afford not to take transit do not take it. Why sit on a dingy bus that smells like diesel fuel when you can get in to your own car and get to your destination faster? This may seem like an exaggeration, but it is how many riders perceive their choice.

To put attitudes toward public transportation in context, consider another good: housing. Suppose that rental housing were treated in the same manner as public transportation. If it were publicly funded with an expectation of losing money, the housing stock would be allowed to decline in quality, and quantity would be expanded grudgingly. Who would want to rent in that scenario, if they could afford otherwise? Renting would be associated with low social status, so people would happily pay a premium to avoid the stigma, if they could afford it. Instead, the market provides a range of rental housing options, many of which are more luxurious than most housing options. There is no reason mass transit cannot provide such differentiated options. No reason, except for the political choice to adopt faulty funding models.

For a variety of reasons, it is likely best if a public entity oversees local public transportation. However, not all publicly provided services are equal. Some operate without any fiscal discipline, simply counting on the treasury to make up any shortfalls. Others face market discipline that is similar to that faced by private companies. The latter are typically public utilities, or Crown corporations in Canadian parlance. While one can argue over which functions are appropriately provided by the public sector, it is not hard to see how an independent Crown corporation with the right mandate can operate more efficiently than most public services do.

This paper explores the current landscape of public transportation funding and suggests a new model that utilizes lessons learned from public transit agencies and public utilities, both in North America and abroad. It argues that aside from grants specifically targeted at low-income riders, public transit services should be self-funding. Counterintuitively, the primary beneficiaries would be transit riders rather than the public treasury. Basing transit decisions on commercial principles would ensure that providing high-quality transit service to the greatest number of riders possible took priority over crude political calculations. It would also more closely align the interests of transit agencies that are looking to increase ridership with developers who want to take advantage of transit-oriented development (TOD) opportunities – something that has a poor track record in recent North American history but works well for transit agencies that operate according to commercial principles.

It is time for big thinking on public transit. There is much discussion about back to the city movements and how Millennials are not interested in auto ownership. While

perhaps exaggerated, this suggests that there is an opportunity to expand transit services. However, this window will close if the reality does not come close to meeting the romanticized vision of urban life. Whether fares with a given transit agency increase marginally will not matter much over the long run; what will matter is how transit agencies are structured. Under the status quo, there is no reason to foresee large service improvements. As long as we hamstring transit agencies, they will struggle to provide service that is at best just good enough for people who are stuck using it. If we treat public transit like a welfare service, it will operate like one. Transit riders deserve better.

SECTION I: CONTEXT

A Brief History of North American Surface Transportation

Because of the historical and ongoing interconnectedness of Canada and the United States, it makes little sense to look at the evolution of Canadian transportation in isolation. Both countries built early transportation networks based partially on wisdom brought over by European settlers. Settlements on each side of the border developed deep and enduring trade ties that have influenced transportation in the region ever since. Such ties developed across the rest of our common borders, eventually creating a deeply integrated transportation network for both freight and passengers. While this does not typically affect urban transportation directly, the technology spillovers in both directions directly influence transportation trends on both sides of the border.

The logical starting point for a history of modern transportation is the Industrial Revolution, which started in the shipyards of the Netherlands and spread to England in the late 17th century. Before that, transportation over large distances was not of great importance to most communities. Villages were based around subsistence farming, and travelling for leisure was impractical. Roads were merely dirt trails that were often non-traversable.

This changed when the British parliament passed the *Turnpike Act* in 1663. The *Act* allowed three counties to collect tolls to maintain the roads. This led to the creation of turnpike trusts. By 1830, roughly 1,000 trusts were responsible for roughly 48,000 km of roads in England and Wales. Since this added costs to consumers who were accustomed to "free" roads, Turnpike trusts were often unpopular. Eventually, local governments took over control of most roads.

This model was introduced to the United States in 1790, when the first turnpike was built in Lancaster, Pennsylvania. Most major U.S. cities were connected by roughly 2,400 miles of road. Some Canadian cities had toll roads in the 19th century, but they were not as extensive as those in the United States were.

As G.P. de T. Glazebrook argued, "[R]oad building was not ignored, but in a land of forests and sparse settlements, it could not be hoped that through roads could be built for some years."[1] In early settlements, residents were to maintain the section of road in front of their land. In contrast with the early U.S. experience, roads were typically built by statutory labour that was considered inefficient.[2] The *Joint Stock Companies Act* of 1849 bolstered toll roads in Upper Canada, though the toll system gradually disappeared, with municipalities often taking over the roads.[3] One might wonder whether the relative dearth of history with toll roads is part of the reason that Canadians have been slower than Americans to adopt road tolls.

Opposition to turnpikes foreshadowed contemporary debates over toll roads. Nevertheless, the fact that so much early infrastructure was funded according to the user-pays principle is telling. This model works for roadways, but does it work for mass transit?

As it happens, historically, private enterprise primarily ran mass transit. Private ferries and coaches preceded industrial transportation. The United States had an extensive private streetcar network before widespread automobile ownership pushed it out. Private companies built and operated streetcars during their heyday[4] as well as New York's first subway lines.[5] Toronto's early rail infrastructure was mostly privately run until 1921,[6] and both the United States' and Canada's national railway systems were built by private companies. One could argue that public ownership of transportation is more of a historical novelty than private ownership is. By the mid-20th century, public ownership of mass transportation became the norm.

The State of Public Transit in Canada

Most Canadian cities have some form of mass transportation. At a minimum, it typically involves a fleet of municipal buses as well as a transportation service for people with disabilities. Since the cost of a bare-bones public transportation system is low and not particularly capital intensive, small cities can finance this service relatively easily. These generally have low farebox recovery ratios, relying on subsidies from municipal governments, and in some cases, on provincial operating subsidies. Such systems typically have few choice riders, since the service they offer is insufficient to attract people who can afford to own a car and drive to work.

All large Canadian cities have extensive public transportation networks. Each has some form of rapid transit – rail or bus based – though many of these systems are nascent.

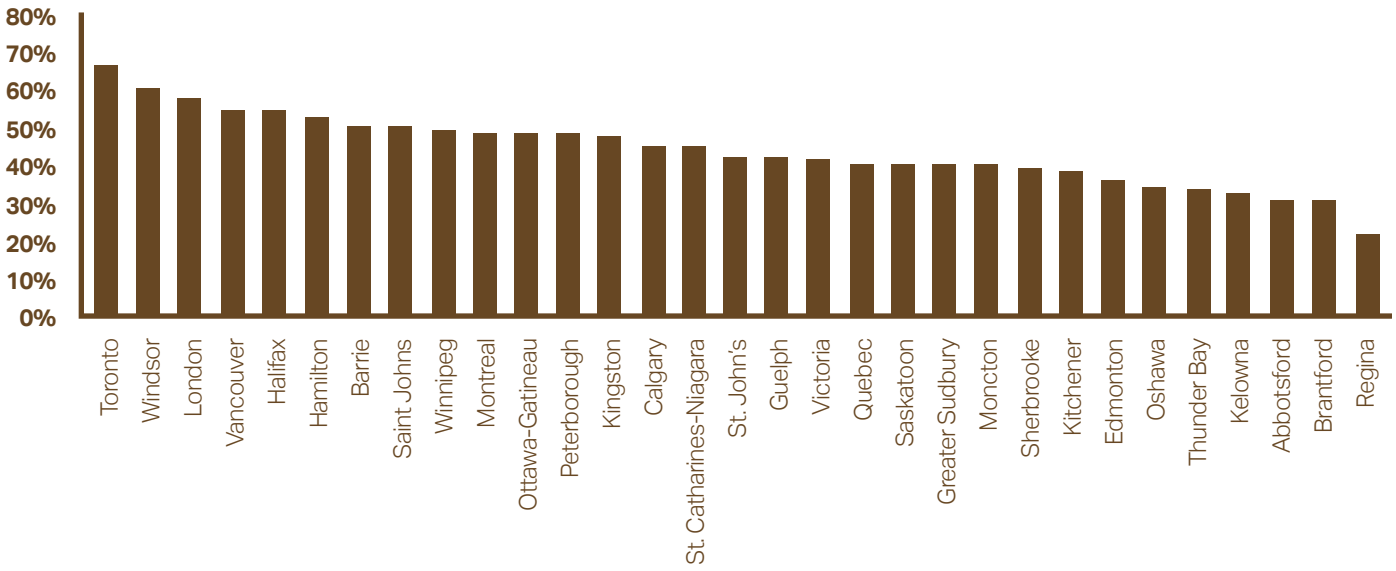
Rapid Transit Modes in Canada's Largest Cities

City	Subway	Light Rail (LRT)	Bus Rapid Transit (BRT)
Toronto	■	■	■
Montreal	■		■
Vancouver	■		■
Ottawa-Gatineau		■	■
Calgary		■	■
Edmonton		■	
Quebec			■
Winnipeg			■
Hamilton		■	

Existing or funded/ongoing projects.

All these systems rely on provincial funding for capital expansions, and some receive provincial operating grants. Most of these cities have fairly high farebox recovery ratios, and they have a large number of choice riders, who can afford to drive, whereas smaller cities with less-extensive transit tend to rely primarily on captive riders, who do not have access to other transportation options.

Transit Farebox Revenue as a Percentage of Operating and Maintenance Budget (2006)[7]



AM Peak Mode Share to Central Business District (2006)[8]

City	Public Transit	Auto (Driver and Passenger)	Non-motorized
Toronto	67	29	4
Montreal	59	36	4
Vancouver	50	42	7
Ottawa-Gatineau	41	44	13
Calgary	40	48	12
Edmonton	31	63	6
Quebec	27	59	12
Victoria	25	58	16
Sherbrooke	24	68	8
Saskatoon	15	78	7
Hamilton	12	75	12
Barrie	11	83	7
Trois-Rivières	11	83	6
Kitchener	6	89	4
Oshawa	5	87	8
Peterborough	5	81	8
St. Catharines-Niagara	4	93	2
Brantford	4	83	7
Guelph	3	88	8

Many Canadian public transit agencies provide sufficient levels of service in the downtown and adjacent areas and public transit is an attractive option for those who can afford to drive. Indeed, in some cases, transit is more convenient than driving.

Public transportation systems in Canada vary greatly in their specific features and governance models. To get a sense of that variety, three very different examples are provided below.

TORONTO

Toronto has the most extensive transit menu of any Canadian city. Two transit agencies serve Toronto: the Toronto Transit Commission (TTC), which is responsible for local public transportation, and the provincially operated GO Transit, which is responsible for regional transportation. The TTC operates buses, subways, streetcars and the Scarborough RT (which is more similar to the Vancouver SkyTrain than it is to a subway). GO Transit runs a fleet of buses and commuter trains that feed passengers into Toronto from the suburbs and nearby municipalities.

VANCOUVER

Vancouver has a different mix of transit options than Toronto has, which includes the SkyTrain (which has a slightly lower capacity than a subway), buses and ferries. Unlike Toronto, which is served by two separate transit agencies, the entire Vancouver metropolitan area is served by TransLink, which runs the above services. Vancouver is a small part of the Greater Vancouver Area (GVA) because it never amalgamated with its neighbouring municipalities. As such, it does not have full control over the transit agency.

The Mayors' Council, which is made up of the 21 mayors in the GVA and the chief of the Tsawwassen First Nation, govern TransLink. Unlike most transit agencies, TransLink has access to broad revenue tools. "Under the *South Coast British Columbia Transportation Authority Act*, TransLink is permitted to raise revenues by means of taxes, including fuel tax, property and replacement tax, hydro levy, and parking rights tax.[9]" Nevertheless, it still receives contributions from the provincial and federal government – $84.6-million in 2013, which included $19.7-million for operating costs.[10]

WINNIPEG

Winnipeg Transit is the City's sole public transit company and runs a network of buses and a fledging bus rapid transit system. The current mayor campaigned on completing all six phases of the Bus Rapid Transit network by 2030, though it is unclear how this will be financed.[11] Despite the dearth of rapid transit, Winnipeggers have the fourth-best access to public transit in Canada and twelfth best in North America.[12] This is due to good coverage and frequent city-wide service.

Why Mass Transportation?

Urban land is often extremely valuable. Consequently, procuring land to build additional roads and lanes is often not the highest and best use of the land. Building structures and other amenities on those parcels of land often yields a hefty property tax return by improving the value of the property, nearby properties or both. This means in many cases that adding lanes may not be the most economically desirable option.

Additionally, technical challenges often impede roadway expansions. Narrow corridors through historic downtowns are often difficult to retrofit for expanded automobile use, and doing so can be undesirable for practical and aesthetic reasons. Many city cores are clustered around bodies of water, and building new bridges in the cores can be impractical from both financial and logistical perspectives. Historic buildings and old patchwork road systems often get in the way of expanding linear roadways. While it is easy to lay down asphalt in greenfield projects, expanding urban roadways can be fraught with difficulties.

There are many tools for combatting the challenges associated with constricted roadways in historic cores. Congestion pricing or other road pricing schemes are often an effective way to ration road use. However, the sheer mass of people in some urban cores simply cannot be transported without mass transportation. Converting all of the mass transit commuters into the core to drivers would turn Toronto's severe traffic congestion into crippling gridlock. While this is hyperbole, it illustrates that some form of mass transit is likely necessary to get all of the commuters to Toronto's urban core to and from work.

While density presents logistical challenges, it also presents solutions. Given a large number of commuters, it is almost certain that a number of them are going in the same direction – at least for a little while. This means they can pool their resources by sharing a mass transit vehicle, which requires less roadway space than private automobiles do.

Even outside of historic cores, there are dense nodes that mass transit can service efficiently. Most large cities have several commuter suburbs from which many residents file into downtown on weekdays. It is often more practical for them to drive to a park-and-ride station (or get dropped off at the station), use mass transit, or walk over, rather than have all of them sit in traffic behind each other and take up more roadway space.

Finally, many people simply cannot or do not wish to drive but need to commute for work. People with physical disabilities often cannot or should not drive a car, and some people simply did not learn to drive and do not wish to. Others just dislike driving and prefer to read a book or use a smartphone rather than fight traffic. Regardless of the reasons, some people will always be in need of transportation, and it is not practical for all of them to use taxis.

*Why **Public** Mass Transportation?*

There are several benefits to having large public transportation projects under public control. The first is that securing rights of way can be extremely difficult, often prohibitive. Sometimes, large infrastructure projects require the use of eminent domain. For instance, when large tracts of land must be purchased and a single hold out property owner could prevent a crucial project from going forward. Though eminent domain has a bad name due to some very well publicized abuses in the United States, it is an important tool wielded by governments to ensure that public works are built.

The second benefit is that transit projects under public control can be integrated with urban planning. Large infrastructure projects need to amalgamate with connecting infrastructure such as water and electricity, and zoning changes are often required to take full advantage of new transportation infrastructure.

The third benefit is that local governments, given the right revenue tools, can use their taxing powers and municipal debt to finance transit projects. Though large private companies do have access to debt instruments and private capital, they do not have taxing power (which is crucial to the model proposed herein).

The fourth reason to retain public control of municipal transit agencies is that a city-wide or region-wide public transportation system would act as a quasi-monopoly. For example, it is unlikely that there would be duplicate rail systems. Additionally, having different transit agencies serving different connecting routes would likely be inefficient, which could lead to consolidation to begin with.

Retaining public control over public transit does not necessarily mean eliminating competition or squeezing out private capital. Cities can still contract out operations and maintenance on a competitive basis, and they can contract with private companies to build mass transit. Nevertheless, having a publicly controlled entity overseeing network-wide plans is likely the optimal arrangement – particularly in large cities.

The Case for Latent Demand

Often when looking at urban transportation issues we assume that the outcomes are all the result of the invisible hand processes that govern commercial transactions. However, governments create the underlying factors that determine transportation patterns through taxation and land-use policies and distort them through other incentives and regulations. Consequently, determining whether various transportation modes are adequately serving a market is difficult.

One of the outcomes of distortionary policies can be pent up or latent demand. Todd Litman of the Victoria Policy Institute illustrates the concept more colourfully:

> *Once upon a time two competing shoe salesmen together visited an isolated community. After investigating the area one sent a telegram back to his office which read,* 'I'm returning tomorrow. Nobody here wears shoes' *while the other sent a telegram which read,* 'Send more product. Everybody here needs shoes!'[13]

A public transit agency not subject to market forces can very easily oversupply or undersupply transit to various neighbourhoods and at various times, seemingly at random. This probably means that with the right policy framework there is room to increase transit ridership in most metropolitan areas. Of course, the fact that people are willing to use a certain level of transit at a certain price does not necessarily mean that expanding transit is efficient. Reducing the price of a service tends to increase demand, but if there is a subsidy required, it could be the case that the service is not viable over the long run. This is an example of why public transit agencies should be subjected to market forces.

Even cities with high levels of transit ridership are likely not meeting their ridership potential, unless we assume that their transit agencies are as efficient as possible. Given that they operate under models that are divorced from ordinary commercial principles, this seems doubtful. Moreover, given the implicit and explicit subsidies many cities create for driving, it appears unlikely that demand for public transit would not be affected by clawing back those subsidies. As an example, public transit ridership increased 18 per cent when London, England, introduced its congestion pricing.[14]

Companies in efficient industries are often able to find ways to expand already high levels of usage or sales. No one is particularly surprised, for instance, when Apple finds a way to gain new customers. At some point, a market becomes saturated, but that occurs when the industry is efficient. There is no reason to think that public transit agencies in North American cities are as efficient as companies like Apple.

SECTION II: THE CHALLENGE

While public transportation is important, it would be hard to argue that it lives up to its potential. Two of the most prominent examples of how our transit systems come up short are in the staggering amounts of money wasted on inefficient projects and in the failure to capitalize on TOD where feasible.

An important challenge that will not be discussed here in detail is subsidies – both explicit and implicit – to other modes of transportation. Flushing subsidies out of the entire transportation system is crucial to moving toward the user-pays principle in public transportation. For instance, failing to charge the full cost of driving can hold back demand for public transportation.

The Perils of Federal and Provincial Transit Funding

Two or more levels of government finance most large public transit expansions. As a result, they are contingent upon the decisions of two different electorates. For instance, a transit project funded by the City of Edmonton and the province of Alberta may require consent from the voters of the City of Edmonton and the entire province of Alberta.

There are four major problems with this scenario. First, voters outside of Edmonton probably have little knowledge of the project in question. After all, they presumably do not spend much time in Edmonton, let alone use its transit system. This makes it very easy to convince voters that poor spending priorities are worthwhile – and many of them will tune out altogether, since they have their own priorities to worry about.

Second, Edmonton voters in this scenario are essentially voting to determine the spending priorities of a different tax base. Since local governments generally drive transit expansions, and there is a tacit understanding that upper levels of government will pay a share, it is not uncommon for local politicians to promise projects during election periods that they have no intention of fully funding. In some instances, they promise projects without intending to use the local tax base at all.

Third, the priorities of more than one level of government need to align for anything to occur. Otherwise, this leads to poor prioritization, and it can lead to systematic overspending or underspending in various ridings. Projects in highly competitive ridings or ridings with very strong local MPs could win funding decisions based on political calculations rather than on financial sustainability. This leaves less money for urgent projects in areas that are less electorally competitive or have MPs who either are in opposition or have little influence in caucus.

Fourth, having multiple levels of government makes it more difficult to hold governments accountable for various projects. It is not uncommon when projects are delayed or over budget for one level of government to blame another level. Funding arrangements can be complex, meaning that only a handful of experts actually understand the terms – the Winnipeg Convention Centre expansion is one such example – and modern governments undertake so many activities simultaneously that it is impossible to track all of their actions. Adding the complexity of opaque responsibility makes it much easier for politicized decision-making and for politicians to shirk responsibility when they make costly mistakes.

CASE STUDY: TORONTO

The TTC's first subway extension since the controversial Sheppard line opened in 2002 is under construction. Before that, the last extension was to the University line in 1978. Since then, the metro area has grown from under three million to roughly six million, and the TTC's annual ridership has increased from 337.6 million[15] to a projected 545 million

in 2015.[16] Concerns over the system's capacity emerged in the 1980s,[17] although, aside from the Sheppard line – which did nothing to address the capacity problems – the only thing Toronto received until very recently was a tunnel for a subway along Eglinton Avenue, which was eventually reburied after a change of government.[18] Two decades later, a $5-billion light rail transit line for Eglinton is set to break ground and is scheduled for completion in 2020.[19]

Even though several major transit projects are underway in Toronto, they are prioritized incorrectly. For instance, the Toronto-York Spadina Subway Extension, which is to run north to the City of Vaughn, will divert some passengers from the Yonge side of the Yonge-University-Spadina line – which the chief executive of the TTC has pointed out is "full"[20] – to the Spadina side, which is itself nearly at capacity. While potentially a marginal improvement, it is hard to make the case that it is the biggest priority. Most observers view some version of the Downtown Relief Line as the top priority, though it has been ever since it was first proposed in 1985.[21] According to a City of Toronto backgrounder from 2014, "Even with planned TTC and GO improvements, the Yonge Subway is forecast to be at, or over, capacity for trips destined to Downtown Toronto by 2031."[22] Something has gone wrong. That something is politics.

The Toronto-York Spadina extension, projected to go $400-million over budget,[23] and the green-lighted Scarborough subway are politically appealing projects that are not necessarily top priorities from an objective policy standpoint. In fact, it is rather difficult to make a case for the Scarborough subway at all.[24] The line would replace the ageing Scarborough RT (which is essentially a lower capacity, above-ground subway) with a higher capacity subway with fewer stops. Most observers point out that ridership levels do not warrant the additional capacity and that a cheaper LRT replacement would serve the area well. Former mayor Rob Ford championed the subway – which happens to run through some of the wards where he commanded the most support – and was able to secure a provincial funding commitment during a competitive by-election in Scarborough.[25] Unsurprisingly, in 2013, all but one Scarborough councillor voted in favour of the Scarborough subway plan.[26] Often infrastructure spending is more about geography than ideology. Current Mayor John Tory claimed that he wanted to avoid re-opening the issue, so decided to go along with the Ford plan. The path of least political resistance is where funding tends to flow.

The federal government championed the Spadina extension. The alignment also happened to cross through several electorally competitive ridings. While one cannot infer that it was primarily a politically motivated decision, it is hard to deny that politics was a factor. Indeed, Conservative ridings received an average of 38 per cent more stimulus funding than other ridings did.[27] That is not to say that the Conservative Party is particularly prone to political favouritism – and it could theoretically be the case that this is a coincidence – but public choice theory predicts that this type of politically motivated infrastructure spending will happen when politicians have discretion: They are shopping for votes.

One might wonder why politicians are not also allocating money to the Downtown Relief Line, given its strategic importance and the fact that it runs through so many electoral districts. Steve Munro, one of the closest observers of transportation politics and policy in Toronto, notes, "Politically what was (and is) happening is the fear that a DRL will soak up so much funding that nothing else will be built, especially in the vote-rich and subway-starved outer 416 and inner 905."[28]

Downtown Toronto ridings are not typically as competitive as ridings in suburban areas. Neither the federal Conservative Party nor the provincial Progressive Conservative Party has won a seat south of St. Clair Avenue since 1999. When only two parties are competing for ridings, they have less incentive to promise much to those ridings. Moreover, there are only seven federal ridings south of St. Clair between Etobicoke and Scarborough. Downtown may be Canada's financial centre, but it simply is not that important politically. The 905, on the other hand, swings both federal and

provincial elections. From a public choice perspective, this is where parties seeking re-election should commit their resources.

In addition to the missed opportunities for improving service, politicization has also led to a stream of cancellation costs. Each time a transit plan is abandoned in favour of a competing vision, the City is on the hook for cancellation fees. For example, the City owes $85-million for cancelling the Scarborough LRT.[29] The decision to build a portion of the Eglinton Crosstown LRT underground rather than entirely at grade as planned cost the City an estimated $65-million.[30] While seemingly trivial in the context of billion dollar infrastructure projects, these costs add up.

The most glaring example of politicized transportation infrastructure funding might be the LRT line between Mississauga and Brampton. The Mayor of Mississauga included the line in her campaign platform, only to announce, "[A]t the very least, it would be significantly delayed" if it is not funded 100 per cent by upper levels of government.[31] The provincial government eventually pledged to cover the entire tab.[32] Hamilton residents, whose proposed LRT line was given an equally high priority by Metrolinx,[33] were understandably upset, until the province announced up to a billion dollars in funding for the project.[34]

While one might argue that it is refreshing to see large transportation projects getting the green light after decades of fits and starts, having project funding decisions made on an ad hoc political basis is problematic. Potentially more-important projects are left out for arbitrary reasons. It also means that some of these projects may not be economically feasible in the long term, since there is no market test to determine viability. Municipalities are on the hook for the long-term operating and maintenance of these projects, so building the wrong projects can hurt both the province and the cities.

It makes little sense for politicians elected to province-wide or nationwide offices to determine which cities require funding for public transportation, let alone by which mode or what alignment. This is a recipe for overinvestment and underinvestment dictated by political considerations rather than actual need.

Why Transit-oriented Development Often Fails

TOD is essentially the theory that if you build it (under the right circumstances), they will come. In contrast with historic transportation planning, which consisted primarily of linking populated areas that required reliable transportation to employment centres, TOD aims to shift people's transportation patterns away from single-occupancy cars to relying primarily on mass transportation. The results are mixed.

One of the problems with TOD has to do with tax policy. Large public transportation projects are expensive, and the costs are typically dispersed well beyond the radius of those who benefit. In particular, those who see property value increases from public transit projects get a free ride, since a larger constituency that does not receive the same benefit finances the property value appreciation. Aside from concerns over fairness, spreading the cost too wide reduces the incentive to build dense housing near transit. For instance, since existing single-dwelling homeowners see a greater property value appreciation relative to the tax increase, it can make sense to stay put. If the property tax rate increased proportionately to the appreciation of the land on which the house stood, it could be prohibitively expensive for a single-dwelling property owner to pay the taxes. However, that tax increase would be relatively minor per unit if a developer tore down the house and built an apartment building. A land value tax (LVT) or a land value capture (LVC), discussed below, could remedy this problem, rendering TOD investments relatively more attractive.

TOD is difficult, but a transit agency with sufficient independence and budgetary constraints would have the right incentives to conservatively forecast the potential for

TOD and only budget for realistic TOD windfalls where they might be possible. If, for instance, such a transit agency considered using tax-increment financing (TIF) to build a rail extension, it would have to be very confident it could pay back the loan based on the incremental property values, since, unlike a municipality, it would not be able to pay for the shortfall out of general government revenue. The agency would have the incentive to do TOD right or not at all.

SECTION III: PREVIOUS RESEARCH

Much has been written on public transportation finance, but few works have systematically analyzed the public transit agencies through the lens of microeconomic theory. Focusing on funding without considering the internal dynamics of the operation in question blinds observers to how the funding sources might influence the decisions made by the agency. After all, incentives matter. Moreover, little systematic thinking about the complications presented by having multiple levels of government involved in funding the same projects has occurred.

Two works discussed below lay some important groundwork for future discussions of transit funding. One presents a framework for thinking more clearly about the microeconomics of local finance and transit funding in particular; the other presents a seven-part formula for creating an ideal public transportation agency.

Strengthening the Wicksellian Connection

Richard Bird and Enid Slack from the Institute on Municipal Finance and Government have stated, "[I]f one aim of policy is to ensure that the public sector operates efficiently, it is important to establish as clear a linkage between expenditure and revenue decisions as possible."[35] They refer to this as the "Wicksellian Connection."[36] They claim, "[T]his approach treats local governments as essentially 'firms' producing and selling services to their customers."[37] They contrast this with the standard approach wherein the "decisions on the two sides of the local budget are usually made independently, often with relatively little local input, while both local expenditures and taxes often being largely determined by central authorities."[38] They lament that "not only are local expenditures little influenced by local revenue policy but that accountability at the local level is often both confused and confusing."[39]

The authors lay out three conditions for a Wicksellian local government:

> *First, local governments should be in control of an appropriate range of expenditure responsibilities – essentially providing local services to local residents and businesses. The obscurities and contradictions about who is to do what need to be cleared away, and the tasks of local governments in serving local residents – as opposed, for example, to their role as agents of higher-level governments in delivering services financed by those governments – made clear to all.*
>
> *Secondly, local governments should be allowed to exercise these responsibilities freely both in the sense that they (potentially) have access to sufficient resources to do so at an acceptable level and that they are not subject to detailed controls over what they do and how they do it, though of course subject to full administrative and political accountability.*
>
> *Thirdly, in true Wicksellian fashion, local governments are concerned only with financing and delivering local services as efficiently and effectively as possible: that is, they are not directly concerned with redistributive policy.[40] [author's emphasis]*

The core of the Wicksellian agenda, as they see it, is

> *when charges and taxes are imposed on beneficiaries, whether as individuals or as members of specific groups (drivers, area residents, etc.), those revenues should be earmarked to those expenditures and those expenditures – abstracting from any externality-financing transfers – should be financed only from those revenues.[41]*

The authors refer to this as the "'matching principle.'"[42]

The authors turn to Metrolinx's Big Move for an example of where local governments skirt Wicksellian principles. They

raised the following concern: "[F]airness in the distribution of the benefits and costs of the investment strategy across population groups and equity across the region with respect to the benefits from transportation infrastructure – are both fuzzy and apparently more politically than economically motivated."

They also note a major external barrier to running public transit on a user-pays basis:

> *[I]t is impossible to pay for the needed infrastructure on a full cost recovery basis because the system as a whole is in competition with the heavily underpriced road system and that, to compound the problem, the road system is itself the critical substantial 'feeder' to the transit system for most of the people in the region. If one does not tackle road pricing properly, it is simply not possible to develop a sustainable public transit system without continuing and significant subsidization from general funds.*[43]

This paper proposes a model for a public transportation agency that will adhere to the Wicksellian model. It works on the assumption that reforms will go hand in hand with putting road funding on a user-pays footing, since as Bird and Slack noted, it is essentially impossible to root out subsidies to one mode while retaining subsidies for its chief competitor. The key to efficient public transit funding is establishing the user-pays principle for all surface transportation.

Since public transit agencies are generally City departments as opposed to Crown corporations, we will consider discretion exercised by local governments on behalf of transit agencies as equivalent to actions taken by the transit agency itself, so long as it does not interfere with Wicksellian principles. The exception here is TransLink, since its governance structure gives it significant autonomy from any single local government as well as from the provincial government.

TransLink, which serves the GVA, was selected since it is the closest to a Wicksellian transit system in Canada. It has considerably more autonomy with respect to capital expenditures and revenue generation than other systems. Nevertheless, it still uses its fare structure for redistributive purposes by holding fares artificially low – particularly for seniors, youth and students. Like all Canadian transit systems, it does partially meet the matching principle for operating expenditures by charging users at the point of consumption, recovering just over half of its operating costs at the farebox. Additionally, capital costs are mainly paid for through local and regional fees rather than province-wide or nationwide residents.

The TTC and GO Transit are included, since they essentially combine to perform the same role as TransLink – regional and local public transportation. Neither has a clear responsibility over capital expenditures, which are extremely volatile and politicized. Neither has revenue-generating autonomy; both use the fare structure for redistributive purposes; and neither exercises the matching principle on the capital side. Both have much higher than usual farebox recovery ratios (in the three-quarter range, depending on the year). Like most public transit agencies, the TTC operates autonomously from the provincial government. GO Transit, on the other hand, receives operating subsidies from the provincial government.

Winnipeg Transit has more autonomy over capital expenses than the TTC or GO does, since the local government tends to drive capital projects (granted, with provincial capital subsidies) but less autonomy on the operating side than the TTC does, since it receives provincial operating subsidies. Other than recovering roughly half of its operating revenue through the farebox, it does not adhere to any other Wicksellian criteria.

How to Make Mass Transit Financially Sustainable Once and for All

In a widely circulated column for *The Atlantic's* CityLab website, Professor David Levinson of the Department of

Civil, Environmental, and Geo-Engineering at the University of Minnesota and director of the Networks, Economics, and Urban Systems (NEXUS) research group, laid out a seven-part plan to create a public transportation system based around the user-pays principle.

The crux of Levinson's plan is turning transit agencies into public utilities (Crown corporations, in Canadian terms) that operate on a cost-recovery basis. His recommendations are as follows:[44]

1. Lower the costs through competitive tendering of routes.
2. Allow the agency to raise funds with the approval of the public utilities commission.
3. Require agencies to use smart fare cards to reduce the administrative cost and boarding times.
4. Money-losing routes should be cancelled or contracted out with a subsidy paid for by the public sector rather than by the public utility.
5. LVC should pay for all capital costs.
6. Allow transit agencies to use private equity and bond markets to raise capital.
7. To avoid federal politicians distorting transportation spending, public transit should be locally funded and managed.

While this program seems radical, little in it is novel. As Levinson mentions, London, England, competitively tenders bus routes.[45] Similarly, Washington State pioneered competitively tendering inter-city buses, a model replicated by several other states.[46] Indeed, the idea of creating a public transit commission that operates on a cost-recovery basis and has the autonomy to raise fares and tender out routes was previously discussed elsewhere.[47] The idea of paying for capital costs through LVC was also discussed extensively elsewhere, including by Levinson himself.[48]

What is truly novel about Levinson's proposal is his emphasis on the public utility – or Crown corporation – model. Public utilities that operate on a cost-recovery basis could short-circuit the vicious cycle of political interference and give transit agencies the autonomy to choose the right revenue tools and make long-term, calculated investments. The cost-recovery mandate would force transit agencies to undertake only those projects that can pay for themselves. While it would be speculative to suggest that this would lead to building more or fewer transit projects – particularly under the even more speculative scenario where roads are operated on a user-pays basis – it seems very likely that it would result in *different projects* being funded in *different time frames*. This could have a significant impact on the financial viability of public transit agencies where wasting hundreds of millions of dollars has sadly become routine.

Levinson's model would create a highly Wicksellian transit agency. While we might consider this a gold standard, an amended version of this model, which might be more politically feasible, should also be considered as a second-best option. This paper argues for such a second-best option, dropping recommendations 1 and 6 and amending recommendation 4.

SECTION IV: SOLUTIONS

The Importance of Prices

Firms, like individuals, respond to incentives. Requiring transit operators to generate revenue through the farebox gives them the motivation to provide the greatest number of rides that is economical. Tying transit agencies' revenue to their ability to attract customers would mean that they would have to find prudent ways to attract new riders. This would encourage them to provide high-quality service, since the marginal consumers they would be trying to attract can afford alternatives to public transportation. These more-demanding customers would help increase the level of service for many or perhaps most other riders, which would be a progressive side effect of a more market-driven approach.

In addition to providing a steady stream of revenue, farebox recovery ensures that people are not receiving unfair subsidies. For instance, there is no reason affluent riders should receive a subsidy for using public transit, particularly when they are often already saving money by doing so. Additionally, it makes little sense to undercharge tourists who use local public transportation or subsidize use by riders who live outside of the jurisdiction that finances the public transit.

Where practical, transit agencies should also rely on variable prices to ensure that people who are taking more-expensive (i.e., longer) trips are paying the full cost, and they should charge more at peak times. Downtown riders should not subsidize the fares of suburban riders, and off-peak riders should pay less in order to encourage discretionary travel outside of peak hours. Potentially, agencies could smooth out peak demand by pushing some commuters to take earlier or later trips.

Charging the full cost of transit operations at the point of consumption would also ensure that residents are not subsidizing non-residents. Since tourists do not pay local taxes, it makes little sense to provide them with a subsidy. Residents of adjacent communities who commute to central cities for work also do not pay local taxes (and often pay much lower taxes in their municipalities). Allowing them to free ride on services in the city core without paying local property taxes leads to perverse outcomes.

In addition to mandating that the operating costs of transit be met through the farebox, it makes sense to allow transit agencies to use the type of flexible pricing mechanisms that private companies often use to attract new customers. Phone companies often offer low introductory rates to entice new customers. Restaurant chains often give away samples in order to convince potential customers that their product is worth paying for. Since large private sector firms employ these strategies, it makes sense that they could work for transit agencies.

CASE STUDY: SOCIAL HOUSING/RENT CONTROL

Social housing and rent control are two very different policy levers that share an important commonality: They artificially constrain the price of housing. This can be a noble objective. After all, everyone deserves a good place to live. However, they are two policy approaches that historically have not met their goals. By concentrating poverty, social housing projects created some of the worst neighbourhoods in North America. Basic maintenance is often deferred, since political considerations are the basis for the funding. As well, low-income people often have a lesser-weighted political voice, since they vote at lower rates than affluent people do, are less likely to contribute to political parties and are often concentrated in electoral districts that are not electorally competitive. Since most voters do not pay attention to the financing details or the social housing projects that are alien to their own worlds, it is very easy to scrimp on funding.

Rent control is an attractive political tool, since it allows governments to implicitly subsidize the price of rent without

using any public funds. However, the record is abysmal. In a well-known survey of economists in the May 1992 edition of the *American Economic Review,* 93 per cent of respondents agreed with the statement "a ceiling on rents reduces the quantity and quality of housing available."[49] Landlords, like public housing agencies, skimp on maintenance and improvements when faced with hard budgetary constraints.

While the connection between public housing and public transit might not be immediately obvious, the same problems manifest themselves in both. The majority of voters in most cities do not use transit. In many cases, there is a stigma against public transit. This means that people pay for ridership through the traditional means – time, money, comfort (or lack thereof, depending on the service) – but also through reduced social status.[50] One potential reason for the stigma is that transit in many areas is very poor, and since it is very poor, only people who have no other options tend to ride it. This management approach – providing the bare minimum service without making the investments necessary to attract new riders – is in stark contrast to most private transportation providers. Like public housing complexes and rent-controlled apartments, cash-starved public transit agencies do not have the tools to attract customers who can afford other options, and they cannot provide good service for those who need it most. This leads to a vicious cycle where people opt out of the neighbourhood – or the transit agency – at the first opportunity.

The Right Way to Subsidize Transit Use

Rather than subsidize public transit systems, governments should subsidize public transit users who are unable to afford full fare. This approach is superior to broad operating subsidies for four reasons.

First, the subsidies actually go to people who require public transit but cannot afford to use it. This is, after all, the primary rationale for subsidizing public transit.

Second, this method requires public transit operators to attract riders in order to generate revenue. Subsidizing operating shortfalls rewards failure. Moreover, it facilitates the politicization of transit decisions, since public transit operators know that when city council makes foolish decisions it will have to increase operating subsidies to compensate.

Third, charging more-affluent riders the full fare ensures that people who do not require financial help are not subsidized. Failing to charge more affluent riders the full fare deprives transit agencies of revenue that they require to provide the service levels choice riders expect. It is hard to compete with private automobiles when a transit agency is providing sub-par service.

Fourth, broad operating subsidies are easy to reduce or remove. When a transit agency is in financial trouble, politicians can simply point to examples of waste as a justification for reducing subsidies. Eliminating low-income passes would be much more difficult to justify.

Most cities already have discounted fares for seniors, students and children. Extending these benefits to low-income residents is a logical next step. However, there is no reason transit agencies should bear the cost. Poverty alleviation is the prerogative of provincial governments, not local governments. Subsidies to low-income people should come directly from the provincial government. One approach would be to allow social services to purchase passes from transit agencies to distribute to riders who qualify for social assistance. In the case of transit systems with automated fare systems, a more high-tech solution might be to allow social services to transfer balances on to the transit cards of low-income riders.

Many transit agencies have reduced-fare programs for low-income riders. Seattle recently introduced such a program. Windsor, Hamilton, Waterloo, Halton Region (Ontario), Kingston, Halifax, Calgary and Edmonton have also used this approach. The TTC and the City of Toronto are exploring the concept.[51]

CASE STUDY: CALGARY'S REDUCED-FARE PROGRAM

In 2011, Calgary spent $3.9-million subsidizing slightly fewer than 78,000 monthly low-income passes. Accounting for 3 per cent of ridership, these passes were discounted 55 per cent. Though there is some bureaucracy involved, the program works. Losing $3.9-million of revenue (a high estimate, given that many of these riders could not have purchased full-fare passes) may seem like a lot, but it is modest compared with discounting the other 97 per cent by even a small amount.[52]

Why Crown Corporations?

Independent Crown corporations, unlike government departments, operate on commercial principles. While they function on a not-for-profit basis, Crown corporations with a cost-recovery mandate are required to operate like a for-profit company, minus the profit. This allows them not only to experiment with different service-delivery and pricing options, but also to undertake long-term investment decisions with minimal political pressure.

Three benefits come from insulation from politics. First, it eliminates the type of back and forth political decision-making that often leads to costly cancellations. Second, it requires Crown corporations to do their due diligence to ensure that their investment plans are financially viable. Third, and most controversially, it allows them to make tough choices. While regulators and politicians have some latitude to prevent Crown corporations from taking certain actions – the recourse includes firing the head of a Crown corporation – these are measures of last resort. Crown corporations are generally set up specifically to provide the rule of experts rather than politicians. We do not elect politicians to run phone companies or railways, and it does not make much more sense for politicians with little to no expertise in public transit to determine the alignment, design or mode of a transit expansion. Taking politicians out of the planning process would lead to fewer arbitrary decisions, less vacillation and decisions that are more practical.

CASE STUDY: CANADA POST

Canada Post may seem a curious example to hold up as a success story. After all, it faces long-term financial challenges, and it recently made some unpopular decisions. However, those unpopular decisions are a feature, not a bug, of Crown corporations. Because they are separated from political considerations and are required to operate on commercial principles, they are able to make controversial decisions such as increasing postal rates and terminating door-to-door service.

Up until 1981, Canada Post was a government department. Facing significant short- and long-term financial pressures, the Government of Canada converted Canada Post into a Crown corporation that year. The department's annual deficit had climbed to $600-million, so the hope was that converting it to a Crown corporation with a cost-recovery mandate would bring financial stability.[53] Indeed, in 1989, Canada Post turned its first profit since 1957 and remained profitable through 2004.[54] While Canada Post still faces long-term pressures spurred by technological change, this is an impressive run.

Converting Canada Post to a Crown corporation allowed for many cost-saving measures that maintained high service levels. Perhaps the most visible is the move away from stand-alone post offices toward kiosks in Shoppers Drug Mart locations. Shedding the overhead cost of stand-alone post offices seems like common sense in hindsight, but it is the type of highly visible cost-cutting measure that organized interests often oppose. Taking these decisions outside of the political realm allows for this kind of hard-nosed calculation.

Converting departments or agencies under political control to Crown corporations can lend itself to better long-term planning. This does not necessitate surrendering all public input – Crown corporations should have a mandate to provide acceptable service levels – but it does distance them from the costly political micromanagement that we routinely see with public transit agencies.

The Key to Financing Public Transit Capital Investments: Land Value Capture

General government revenue typically funds large infrastructure projects – often with money from two or more levels of government. There is no expectation that public transit fares will pay for the associated capital costs. Indeed, few transit agencies approach recovering operating costs through fares, let alone capital costs. This is in large part because local governments have grown to expect upper levels of government to pay for a significant portion of public transportation capital spending and because they do not have access to the same revenue tools as the federal or provincial governments do.

Advocates of expanding the revenue tools available to municipalities often argue for giving them access to income taxes or sales taxes. While that might be an improvement as a trade-off for eliminating capital subsidies to municipalities, they still are not the best tools available.

The best tools for financing transportation costs adhere to the user-pays principle. In other words, those who benefit from transportation spending should pay the cost (with the exception of low-income users who may require targeted subsidies). What is often missed in this debate is that there are three groups of people who benefit from public transportation capital projects: riders, drivers and property owners.

The first is self-explanatory. Riders benefit from access to public transportation; otherwise they would not use it. The benefit to drivers is often overstated, since, in most cases, without other policy changes (such as congestion pricing schemes), public transportation projects have a minimal impact on congestion. The third group, property owners, is generally ignored, but it is the group that benefits most from public transit capital spending.

Public transit projects often boost the value of nearby properties. People are willing to pay to live near enhanced amenities. The trouble is that they tend to pay a miniscule proportion of the capital cost of these projects. Whether or not these property owners actually use public transportation, their house values increase. Since city-wide – or even nationwide – taxpayers fund these projects, they are politically attractive. This is probably a driving factor behind the "subways, subways, subways" mantra of suburban Toronto politicians. After all, even if only a portion of a billion dollar capital project is capitalized into local property values, it can be a major windfall to local voters. This makes strategic investments in swing ridings very attractive to politicians, even if the projects are not financially sustainable.

This problem actually lends itself to an elegant solution: LVC. In broad terms, LVC entails taxing back some of the increased property values that result from infrastructure enhancements. While there can be some challenges with assessment, LVC tools are used around the world, and they can break down the perverse political incentives that lead to bridges to nowhere. Squeezing out projects of marginal value would likely provide as large a boon to transit agencies as the revenue-generating capacity of LVC does. LVC could also act as a disincentive against residents opposing high-density construction that would lead to TOD that is crucial to rendering many transit projects financially sustainable.

Many revenue tools fall under the rubric of LVC. These include TIF, LVT, special assessment districts, development impact fees and selling off development rights to municipally owned land (as well as air rights). These are all methods of taxing back the unearned income that local property owners reap because of public transit improvements (also known as economic rents). If a publicly funded project leads to windfall profits, recycling those profits to pay for the projects is more justifiable than asking people who do not gain anything to finance the project. The notion of infrastructure paying for

itself sounds utopian, but it is neither prohibitively difficult, nor conceptually problematic. After all, property owners invest in improving their property value all the time. The only difference with a public infrastructure project is that they do it collectively. They only pay if the value of their property increases because of the investment, so it is not a risky proposition as long as the project is carefully thought out in advance by a transit agency with a proper incentive structure.

Some might argue that developer impact fees could render LVC redundant. They might further argue that new developments should pay the cost of new infrastructure, since these developments are driving the need for new infrastructure in the first place. There are three problems with this argument. First, it presumes that optimal public transportation infrastructure existed to begin with, and incremental value will only accrue to new units. Second, this actually worsens the existing political incentives, since it is theoretically a mechanism to allow existing property owners to reap the benefits of new infrastructure while passing the costs on to new units. Third, new units are too narrow a tax base to fund major infrastructure projects. While it can make sense to have an additional levy for new units, this should not be viewed as a substitute for broader LVC.

CASE STUDY: CANADIAN AIRPORTS

The only time we tend to hear about airports in the context of public transportation debates is with respect to transit links from airports to city cores. However, many major airports have their own rail and bus systems that link terminals together. For instance, Pearson has its LINK train, which opened in 2006 at a cost of $100-million.[55] It is not something that made much news, possibly because airport infrastructure in Canada is financed through charges levied by the airport authorities themselves.

In some respects, airports act like small Wicksellian municipalities. It might seem odd to spend money installing moving walkways in airports, but airport authorities all over the world determine that it is worth the cost. Moreover, airport authorities internalize the cost of capital expansions. They therefore only undertake capital expenditures that can pay for themselves.

The fact that major Canadian cities have a hard time financing sidewalks that are accessible to people with disabilities in their urban cores while airports can finance moving walkways suggests that we have something to learn from airport infrastructure funding.

The Importance of Borrowing

Currently, transit agencies must rely on financing from provincial, federal and municipal governments to fund large capital projects. This means that capital expenditures are not only contingent on the political whims of up to three governments, but also on their financial constraints. Crown corporations that are empowered to borrow against their assets can skirt these constraints, and this allows them to amortize costs over the life cycle of assets rather than wait for political consensus and economic realities to align.

Another benefit of allowing transit agencies to borrow is that they can build while costs are lowest – which often happens to coincide with recessions. A slack labour market can be a good time to find the labour required to build significant public works. While such machinations are often very political, an independent Crown corporation with budgetary constraints might find spending countercyclically beneficial, which would have the happy coincidence of helping to mitigate unemployment in the construction industry.

While governments are often happy to follow Keynesian advice during recessions – borrow and spend to stimulate the economy – they are generally more reluctant to take John Maynard Keynes' advice during good times – which includes running surpluses. Regardless of the merits of Keynesian countercyclical spending by governments, it seems that Crown corporations faced with real economic constraints could be well placed to "spend against the wind."[56]

Toward a New Model for Transit Agencies

There are three primary issues to consider when designing an ideal transit system. The first is the overarching structure of the organization. Who will make the decisions, for whom, and through what processes? The second is the transit agency's mandate. The third is the delivery and financing of the mandate.

An ideal public transportation agency would be large enough to serve the entirety of a metropolitan area – or at least the areas within that metropolitan area that can justify the demand – but not stretch itself too thin. This can be a subjective line in practice. Integrated service across a metropolitan area can eliminate some of the redundancies from overlapping agencies (such as multiple fare systems) while tightly integrating multi-modal service. One might worry about certain regions being under-represented, leading to decisions that are biased toward other areas. This can be assuaged to an extent by having an equally divided number of local representatives from different regions on the board of directors, though in practice, the proposed model will not be subject to the kind of political whims we see today. The key is having the right mandate in place.

The mandate of an ideal public transit agency should be to fund its operations on a cost-recovery basis and its capital costs through LVC. As Crown corporations, they should be insulated from political considerations. The transit agency should initiate all expenditures, and the agency should comply with private sector accounting principles. As Crown corporations, they would also be subject to oversight by provincial public utilities boards.

A cost-recovery mandate would force them to earn customers by providing high-quality service at a reasonable cost. Counterintuitively, this might mean that in some cities fares would be higher than they are today. However, this is not necessarily a problem. After all, the cost of driving is far higher than the cost of transit use. Choice riders are not likely to be as affected by fares as non-choice riders are. Attracting choice riders requires high-quality, frequent service, which necessitates a high level of funding. Only provincial social service agencies should provide operating subsidies and only for the funding of low-income riders. Subsidizing all fares to ensure that low-income people can afford to ride is a perverse subsidy. Those who can afford to pay should. Ensuring that the subsidy follows the riders would also strengthen the incentive for transit agencies to serve low-income areas that might not have much political power.

Capital costs should rely on LVC principles to eliminate perverse incentives and subsidies. In addition to providing predictable capital funding, it would also thwart most politically salient but financially questionable projects. Crown corporations make mistakes, but a cost-recovery mandate (including recovering the capital costs) would vet out most wasteful or highly speculative projects.

Of Canada's transit agencies, the GVA's TransLink is probably the closest to matching this model, though it is far from ideal. Hong Kong's MTR system is much closer.

CASE STUDY: MTR (HONG KONG)

Hong Kong's MTR was recently called "the world's most envied metro system" by CNN.[57] Many transit analysts have long praised the extensive service and healthy bottom line provided by MTR's unusual business model.

The MTR does not just recover its costs; it also routinely posts profits and pays out dividends. In 2014, MTR turned a 15.8-billion (HK$) profit.[58] Its farebox recovery ratio is 185 per cent despite relatively low fares (roughly $0.50 to $3.00 U.S.).[59] The profitability does not come at the expense of performance. Quite the contrary. An astounding 99.93 per cent of MTR trains run on time.[60] The MTR is so good at what it does that it has contracts to run rail lines in China and London, England, as well as the entire rail systems in Sydney, Australia, and Stockholm.[61]

The MTR is a unique entity. It is not just a public transit agency: It is also a developer. Moreover, it is a private company (albeit, one in which the government retails a 77 per cent ownership stake).[62] The MTR cross-subsidizes the cost of transit service with the profits it makes from its real estate holdings.[63] Since transit service makes its real estate more desirable (and, thus, more expensive), this makes business sense.[64]

Embracing the User-pays Principle for Surface Transportation

One potential barrier to the functioning of the proposed system would be underpricing personal automobile use. Many people are stubbornly willing to pay for road use with their time by sitting in traffic.[65] This congestion creates an externality that some have estimated costs the Greater Toronto and Hamilton Area $6-billion annually, and this figure is climbing.[66] This number might even be an understatement. Benjamin Dachis estimates that the total cost could be $1.5-billion to $6-billion higher when accounting for lost "urban agglomeration" benefits.[67]

Internalizing those costs through means such as congestion zones and road tolls would have the salutary effect of making public transit more competitive vis-à-vis driving. As of 2010, public transit ridership had increased 18 per cent in London, England, since the introduction of its congestion zone in 2003.[68] Similarly, Stockholm saw a 5 per cent increase in ridership since the implementation of its congestion zone in 2006.[69]

While congestion zones are generally considered a big-city solution, Gothenburg, Sweden, a city of roughly half a million residents, has had a successful congestion zone since January 2013, which grossed €72-million in its first year of operation.[70] This coincided with a 24 per cent increase in public transportation ridership.[71] If it works in Gothenburg, it seems plausible that some variety of direct road pricing could work in larger cities such as Winnipeg, Calgary, Edmonton or Ottawa.[72]

The user-pays principle can only work optimally if users of all modes of transportation pay the cost of their commutes. Implicit subsidies for one mode or another simply lead to either over provision or under provision and the use of infrastructure in an arbitrary fashion. Urban mobility is too important to leave up to the whims of politicians.

CONCLUSION

Public transportation is an important tool for urban mobility. While it will never be the right option for every commuter, it is nevertheless crucial to the functioning of Canada's metropolitan areas.

Instead of looking at public transportation as a cost to be minimized, we should instead rethink failing models. Converting public transportation systems into Crown corporations with a cost-recovery mandate can allow transit systems to more closely match supply with demand. By embracing the user-pays principle for all surface transportation, Canadian cities could meaningfully tackle urban congestion, which is a major drag on Canada's economy and is only going to get worse under the current model.

Though the proposed model is very different from the way public transportation is funded, examples from outside of the public transportation world and from economic theory suggest that it is superior to the usual approach. Transportation financing innovations – from the original turnpikes to public-private partnerships and congestion zones – often seem exotic and controversial at first. Thinking of public transit in cold commercial terms might be controversial, but legislators looking to improve the lives of their constituents should see past what is politically expedient in the short term to real long-term solutions. While structural reforms do not furnish the type of photo opportunities that come with large infrastructure projects, creating a sustainable model for public transportation funding will do more to improve the lives of Canadians than any given megaproject will.

ENDNOTES

[1] G.P. de T. Glazebrook, *A History of Transportation in Canada* (Toronto: Ryerson Press, 1938): 65.

[2] Ibid., 113.

[3] Ibid., 123.

[4] Joseph Stromberg, "The real story behind the demise of America's once-mighty streetcars," *Vox*, May 7, 2015, http://www.vox.com/2015/5/7/8562007/streetcar-history-demise.

[5] "New York City Transit – History and Chronology," Metropolitan Transportation Authority, http://web.mta.info/nyct/facts/ffhist.htm.

[6] "A Brief History of Transit in Toronto," Transit Toronto, http://transit.toronto.on.ca/spare/0012.shtml.

[7] Transportation Association of Canada, "Urban Transportation Indicators: Fourth Survey," Appendix C, http://tac-atc.ca/sites/tac-atc.ca/files/site/doc/resources/report-uti-survey4.pdf.

[8] Ibid.

[9] TransLink, "2013 TransLink Annual Report: We Are the Link," http://www.translink.ca/-/media/Documents/about_translink/corporate_overview/corporate_reports/annual_reports/annual_report_2013.pdf.

[10] Ibid.

[11] Shane Gibson, "Update: Brian Bowman promises completion of Rapid Transit corridors by 2030, wifi on buses," *Metro Winnipeg*, September 2, 2014, http://metronews.ca/news/winnipeg/1142326/brian-bowman-promises-completion-of-rapid-transit-corridors-by-2030-wifi-on-buses/.

[12] Matt Lerner, "Best Canadian Cities for Public Transit," *Walk Score Blog*, March 11, 2014, http://blog.walkscore.com/2014/03/best-canadian-cities-for-public-transit/#.VR2qifl4pcQ.

[13] Todd Litman, "Accounting for Latent Travel Demand," *Planetizen*, May 19, 2013, http://www.planetizen.com/node/63198.

[14] San Francisco County Transportation Authority, "Case Studies: Stockholm and London," Mobility, Access and Pricing Study. November 2010, http://www.sfcta.org/sites/default/files/content/Planning/CongestionPricingFeasibilityStudy/PDFs/MAPS_case_studies_111310.pdf.

[15] Richard M. Soberman, "The Track Ahead: Organization of the TTC under the New Amalgamated City of Toronto." Prepared for the Toronto Transit Commission, September 1997, http://www.civ.utoronto.ca/sect/coneng/tamer/Referneces/1278/TTC-%20track_ahead.pdf.

[16] Don Peat, "Why are we paying bus drivers to not drive buses? Here's the TTC's explanation to commissioners," *Toronto Sun*, April 16, 2015, http://blogs.canoe.ca/goodgravy/politics/why-are-we-paying-bus-drivers-to-not-drive-buses-heres-the-ttcs-explanation-to-commissioners/.

[17] Steve Munro, "The Crisis in TTC Service Capacity (Update 3)," *Transit and Politics*, August 8, 2014, http://stevemunro.ca/2014/08/08/the-crisis-in-ttc-service-capacity/.

[18] Tess Kalinowski, "Crosstown LRT: Eglinton's big dig ends 30-year wait for renewal," *The Toronto Star*, April 5, 2013, http://www.thestar.com/news/gta/2013/04/05/crosstown_lrt_eglintons_big_dig_ends_30_year_wait_for_renewal.html.

[19] Canadian Press, "SNC-Lavalin, Aecon consortium awarded $5-billion Eglinton Crosstown project," CBC News, June 9, 2015, http://www.cbc.ca/news/canada/toronto/snc-lavalin-aecon-consortium-awarded-5-billion-eglinton-crosstown-project-1.3106094.

[20] Peter Kuitenbrouwer, "'We're out of station': Yonge Subway line desperately close to bursting," *National Post*, March 23, 2012, http://news.nationalpost.com/toronto/yonge-subway.

[21] James Bow, "Network 2011 – To Think What Could Have Been," *Transit Toronto*, May 9, 2013, http://transit.toronto.on.ca/subway/5111.shtml.

[22] City of Toronto, "Appendix A: Relief Line Project Assessment Terms of Reference," http://www.toronto.ca/legdocs/mmis/2014/pg/bgrd/backgroundfile-69423.pdf.

[23] Betsy Powell and Robert Benzie, "John Tory 'furious' at ballooning costs of Spadina subway extension," *The Toronto Star*, March 6, 2015, http://www.thestar.com/news/queenspark/2015/03/06/kathleen-wynne-chides-ttc-for-cost-overruns-on-spadina-subway-extension.html.

[24] John Lorinc, "Spacing Investigation, Part 3: Ignoring the projected high costs and low ridership," *Spacing Toronto*, May 30, 2014, http://spacing.ca/toronto/2014/05/30/spacing-investigation-part-3/.

[25] Adrian Morrow, Kaleigh Rogers and Elizabeth Church, "Ontario Liberals use Scarborough subway in by-election campaign," *The Globe and Mail*, July 12, 2013, http://www.theglobeandmail.com/news/politics/provincial-toronto-alliance-needed-to-secure-scarborough-subway-funds-says-minister/article13135507/.

[26] Sean Marshall, "Does Scarborough Need a Subway Extension? (No, It Doesn't)," *Urban Toronto*, June 5, 2015, http://urbantoronto.ca/news/2015/06/does-scarborough-need-subway-extension-no-it-doesn%E2%80%99t.

[27] Steven Chase, Erin Anderssen and Bill Curry, "Stimulus program favours Tory ridings," *The Globe and Mail*, August 23, 2012, http://www.theglobeandmail.com/news/politics/stimulus-program-favours-tory-ridings/article4295068/.

[28] Steve Munro, "The Challenge of Improving Subway Service (Updated)," *Transit and Politics*, November 10, 2014, http://stevemunro.ca/2014/11/10/the-challenge-of-improving-subway-service/.

[29] Tess Kalinowski, "Scarborough LRT cancellation costs mount," *The Toronto Star*, November 12, 2013, http://www.thestar.com/news/gta/2013/11/12/scarborough_lrt_cancellation_costs_mount.html.

[30] Ibid.

[31] San Grewal, "Mississauga has no money to pay for planned $1.6-billion LRT," January 14, 2015, http://www.thestar.com/news/gta/2015/01/14/mississauga-has-no-money-to-pay-for-planned-16-billion-lrt.html.

[32] Tess Kalinowski, "Liberals promise $1.6 billion for 'transformational' Hurontario LRT," *The Toronto Star*, April 21, 2015, http://www.thestar.com/news/gta/transportation/2015/04/21/hurontario-lrt-gets-a-boost-from-queens-park.html.

[33] Metrolinx, "Investing in Our Region, Investing in Our Future," Metrolinx Investment Strategy, May 27, 2013, http://www.metrolinx.com/en/regionalplanning/funding/IS_Full_Report_EN.pdf.

[34] Adrian Morrow, "Ontario pledges up to $1-billion for Hamilton LRT, work to start in 2019," *The Globe and Mail*, May 26, 2015, http://www.theglobeandmail.com/news/national/hamiltons-lrt-construction-to-begin-in-2019/article24613385/.

[35] Richard M. Bird and Enid Slack, "Local Taxes and Local Expenditures: Strengthening the Wicksellian Connection," Institute on Municipal Finance and Governance, August 2013, http://english.oim.dk/media/514322/bird_slack__local_taxes_and_local_expenditures__strengthening_the_wicksellian_connection.pdf.

[36] Ibid.

[37] Ibid.

[38] Ibid.

[39] Ibid.

[40] Ibid.

[41] Ibid.

[42] Ibid.

[43] Ibid.

[44] David Levinson, "How to Make Mass Transit Financially Sustainable Once and for All," *The Atlantic* CityLab, June 5, 2014, http://www.citylab.com/commute/2014/06/how-to-make-mass-transit-financially-sustainable-once-and-for-all/372209/.

[45] Ibid.

[46] Steve Lafleur, "Inter-city Busing: A New Regulatory Framework for Canada," Frontier Centre for Public Policy, November 2012, http://archive.fcpp.org/posts/inter-city-busing-a-new-regulatory-framework-for-canada.

[47] Steve Lafleur, "Mass transit: Could raising fares increase ridership?" *NewGeography*, November 24, 2011, http://www.newgeography.com/content/002535-mass-transit-could-raising-fares-increase-ridership.

[48] Michael Iacono, David Levinson, Zhirong (Jerry) Zhao, et al., "Value Capture for Transportation Finance: Technical Research Report," June 2009.

[49] Richard M. Alson, J.R. Kearl and Michael B. Vaughan, "Is There a Consensus among Economists in the 1990's?" *American Economic Review* 82, no. 2 (1992): 203-209.

[50] Frances Woolley, "Riding the Loser Cruiser," *Worthwhile Canadian Initiative*, May 2, 2011, http://worthwhile.typepad.com/worthwhile_canadian_initi/2011/05/riding-the-loser-cruiser.html.

[51] "Does Toronto need a low-income TTC pass?" *Metro News*, October 13, 2015, http://www.metronews.ca/news/toronto/2015/10/13/does-toronto-need-a-low-income-ttc-pass.html; Daniel Dale, "Toronto to study TTC fare discount for low-income riders," *The Toronto Star*, July 8, 2014, http://www.thestar.com/news/gta/2014/07/08/toronto_to_study_ttc_fare_discount_for_lowincome_riders.html.

[52] Steve Lafleur, "The TTC Should Only Help Fund Low-Income Riders," *The Huffington Post*, January 27, 2015, http://www.huffingtonpost.ca/steve-lafleur/ttc-fund_b_6227316.html.

[53] Philippe Le Goff, "Canada Post Corporation as a Provider of Government and Financial Services: The Way of the Future?" Parliament of Canada, July 25, 2005, http://www.parl.gc.ca/content/lop/researchpublications/prb0514-e.htm#BAPrevious.

[54] Ibid.

[55] Tess Kalinowski, "Pearson's cable-propelled transit LINK is TTC rider's dream," *The Toronto Star,* May 21, 2012, http://www.thestar.com/news/city_hall/2012/05/21/pearsons_cablepropelled_transit_link_is_ttc_riders_dream.html.

[56] *Commanding Heights*, "Episode One: The Battle of Ideas," PBS, http://www.pbs.org/wgbh/commandingheights/shared/minitext/tr_show01.html.

[57] Maggie Hiufu Wong, "Hong Kong's MTR: Taking a ride on the world's most envied metro system," CNN, March 31, 2015, http://www.cnn.com/2015/03/29/travel/hong-kong-mtr-success-story/.

[58] MTR Corporation, "Ten-Year Statistics," http://www.mtr.com.hk/en/corporate/images/investor/2014frpt/E119.pdf.

[59] Neil Padukone, "The Unique Genius of Hong Kong's Public Transportation System," *The Atlantic*, September 10, 2013, http://www.theatlantic.com/china/archive/2013/09/the-unique-genius-of-hong-kongs-public-transportation-system/279528/.

[60] Dana Rubinstein, "What an M.T.A. chair learned by going to Hong Kong," *Politico New York*, September 23, 2013, http://www.capitalnewyork.com/article/politics/2013/09/8533989/what-mta-chair-learned-going-hong-kong.

[61] Neil Padukone, "The Unique Genius."

[62] MTR, "Corporate Profile," http://www.mtr.com.hk/en/corporate/overview/profile_index.html.

[63] B.S. Tang, Y.H. Chiang, A.N. Baldwin and C.W. Yeung, "Study of the Integrated Rail-Property Development Model in Hong Kong," Research Centre for Construction and Real Estate Economics, November 2004, http://www.reconnectingamerica.org/assets/Uploads/mtrstudyrpmodel2004.pdf.

[64] Mathieu Verougstraete and Han Zeng, "Public-Private Partnerships Case Study: Land Value Capture Mechanism: The Case of the Hong Kong Mass Transit Railway," United Nations Economic and Social Commission for Asia and the South Pacific, July 2014, http://www.unescap.org/sites/default/files/Case%204-%20Land%20Value%20-%20Hong-Kong%20MTR.pdf.

[65] Andrew Coyne, "Stuck in Traffic," *Maclean's*, January 11, 2011, http://www.macleans.ca/news/canada/stuck-in-traffic/.

[66] "Management Report to Metrolinx," No. ISP 08-015, November 28, 2008, http://www.metrolinx.com/en/docs/pdf/board_agenda/20081128/ISP_08-015_Cost_of_Congestion_Report.pdf.

[67] Benjamin Dachis, "Cars, Congestion and Costs: A New Approach to Evaluating Government Infrastructure Investment," Commentary no. 385, C.D. Howe Institute, https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_385_0.pdf.

[68] San Francisco County Transportation Authority, "Case Studies: Stockholm and London," Mobility, Access and Pricing Study, November 2010, http://www.sfcta.org/sites/default/files/content/Planning/CongestionPricingFeasibilityStudy/PDFs/MAPS_case_studies_111310.pdf.

[69] Ibid.

[70] Eric Jaffe, "Sweden's Lesser-Known Congestion Pricing Problem is Also a Big Success," *The Atlantic* CityLab, April 20, 2015, http://www.citylab.com/commute/2015/04/swedens-other-congestion-pricing-program-is-also-a-big-success/390933/.

[71] Ibid.

[72] Steve Lafleur, "Road tolls could fund improvements," *Winnipeg Free Press*, June 2, 2014, http://www.winnipegfreepress.com/opinion/analysis/road-tolls-could-fund-improvements-261474621.html.

BIBLIOGRAPHY

"A Brief History of Transit in Toronto." Transit Toronto. http://transit.toronto.on.ca/spare/0012.shtml.

Alson, Richard M., J.R. Kearl and Michael B. Vaughan. "Is There a Consensus among Economists in the 1990's?" *American Economic Review 82*, no. 2 (1992): 203-209.

Bird, Richard M. and Enid Slack, "Local Taxes and Local Expenditures: Strengthening the Wicksellian Connection."

Bow, James. "Network 2011 – To Think What Could Have Been." *Transit Toronto*, May 9, 2013. http://transit.toronto.on.ca/subway/5111.shtml.

The Canadian Press. "SNC-Lavalin, Aecon consortium awarded $5-billion Eglinton Crosstown project." CBC News, June 9, 2015. http://www.cbc.ca/news/canada/toronto/snc-lavalin-aecon-consortium-awarded-5-billion-eglinton-crosstown-project-1.3106094.

Chase, Steven, Erin Anderssen and Bill Curry. "Stimulus program favours Tory ridings." *The Globe and Mail*, August 23, 2012. http://www.theglobeandmail.com/news/politics/stimulus-program-favours-tory-ridings/article4295068/.

City of Toronto, "Appendix A: Relief Line Project Assessment Terms of Reference." http://www.toronto.ca/legdocs/mmis/2014/pg/bgrd/backgroundfile-69423.pdf.

Commanding Heights, "Episode One: The Battle of Ideas," PBS, http://www.pbs.org/wgbh/commandingheights/shared/minitext/tr_show01.html.

Coyne, Andrew. "Stuck in Traffic." *Maclean's*, January 11, 2011. http://www.macleans.ca/news/canada/stuck-in-traffic/.

Dachis, Benjamin. "Cars, Congestion and Costs: A New Approach to Evaluating Government Infrastructure Investment." Commentary No. 385. C.D. Howe Institute. https://www.cdhowe.org/pdf/Commentary_385.pdf.

Dale, Daniel. "Toronto to study TTC fare discount for low-income riders," *The Toronto Star*, July 8, 2014. http://www.thestar.com/news/gta/2014/07/08/toronto_to_study_ttc_fare_discount_for_lowincome_riders.html.

Gibson, Shane. "Update: Brian Bowman promises completion of Rapid Transit corridors by 2030, wifi on buses." *Metro Winnipeg*, September 2, 2014. http://metronews.ca/news/winnipeg/1142326/brian-bowman-promises-completion-of-rapid-transit-corridors-by-2030-wifi-on-buses/.

Glazebrook, G.P. de T. *A History of Transportation in Canada*. (Toronto: Ryerson Press, 1938).

Grewal, San. "Mississauga has no money to pay for planned $1.6-billion LRT." *The Toronto Star*, January 14, 2015. http://www.thestar.com/news/gta/2015/01/14/mississauga-has-no-money-to-pay-for-planned-16-billion-lrt.html.

Iacono, Michael, David Levinson, Zhirong (Jerry) Zhao, et al. "Value Capture for Transportation Finance: Technical Research Report," June 2009.

Jaffe, Eric. "Sweden's Lesser-Known Congestion Pricing Problem is Also a Big Success." *The Atlantic* CityLab, April 20, 2015. http://www.citylab.com/commute/2015/04/swedens-other-congestion-pricing-program-is-also-a-big-success/390933/.

Kalinowski, Tess. "Crosstown LRT: Eglinton's big dig ends 30-year wait for renewal." *The Toronto Star,* April 5, 2013. http://www.thestar.com/news/gta/2013/04/05/crosstown_lrt_eglintons_big_dig_ends_30_year_wait_for_renewal.html.

———. "Liberals promise $1.6 billion for 'transformational' Hurontario LRT." *The Toronto Star*, April 21, 2015. http://www.thestar.com/news/gta/transportation/2015/04/21/hurontario-lrt-gets-a-boost-from-queens-park.html.

———. "Pearson's cable-propelled transit LINK is TTC rider's dream." *The Toronto Star*, May 21, 2012. http://www.thestar.com/news/city_hall/2012/05/21/pearsons_cablepropelled_transit_link_is_ttc_riders_dream.html.

———. "Scarborough LRT cancellation costs mount." *The Toronto Star*, November 12, 2013. http://www.thestar.com/news/gta/2013/11/12/scarborough_lrt_cancellation_costs_mount.html.

Kuitenbrouwer, Peter. "'We're Out of Station'": Yonge Subway line desperately close to bursting." *National Post*, March 23, 2012. http://news.nationalpost.com/toronto/yonge-subway.

Lafleur, Steve. "Inter-city Busing: A New Regulatory Framework for Canada." Frontier Centre for Public Policy, December 2012. http://archive.fcpp.org/posts/inter-city-busing-a-new-regulatory-framework-for-canada.

———. "Mass transit: Could raising fares increase ridership?" *NewGeography*, November 24, 2011. http://www.newgeography.com/content/002535-mass-transit-could-raising-fares-increase-ridership.

———. "Road tolls could fund improvements." *Winnipeg Free Press*, June 2, 2014. http://www.winnipegfreepress.com/opinion/analysis/road-tolls-could-fund-improvements-261474621.html.

Le Goff, Philippe. "Canada Post Corporation as a Provider of Government and Financial Services: The Way of the Future?" Parliament of Canada, July 25, 2005. http://www.parl.gc.ca/content/lop/researchpublications/prb0514-e.htm#BAPrevious.

Lerner, Matt. "Best Canadian Cities for Public Transit," *Walk Score Blog*, March 11, 2014. http://blog.walkscore.com/2014/03/best-canadian-cities-for-public-transit/#.VR2qifl4pcQ.

Levinson, David. "How to Make Mass Transit Financially Sustainable Once and for All." *The Atlantic* CityLab, June 5, 2014. http://www.citylab.com/commute/2014/06/how-to-make-mass-transit-financially-sustainable-once-and-for-all/372209/.

Litman, Todd. "Accounting for Latent Travel Demand." *Planetizen*, May 19, 2013. http://www.planetizen.com/node/63198.

Lorinc, John. "Spacing Investigation, Part 3: Ignoring the projected high costs and low ridership." *Spacing Toronto*, May 30, 2014. http://spacing.ca/toronto/2014/05/30/spacing-investigation-part-3/.

"Management Report to Metrolinx." No. ISP 08-015, November 28, 2008. http://www.metrolinx.com/en/docs/pdf/board_agenda/20081128/ISP_08-015_Cost_of_Congestion_Report.pdf.

Marshall, Sean. "Does Scarborough Need a Subway Extension? (No, It Doesn't)." *Urban Toronto*, June 5, 2015. http://urbantoronto.ca/news/2015/06/does-scarborough-need-subway-extension-no-it-doesn%E2%80%99t.

Metrolinx. "Investing in Our Region, Investing in Our Future." Metrolinx Investment Strategy. May 27, 2013. http://www.metrolinx.com/en/regionalplanning/funding/IS_Full_Report_EN.pdf.

Morrow, Adrian. "Ontario pledges up to $1-billion for Hamilton LRT, work to start in 2019." *The Globe and Mail*, May 26, 2015. http://www.theglobeandmail.com/news/national/hamiltons-lrt-construction-to-begin-in-2019/article24613385/.

Morrow, Adrian, Kaleigh Rogers and Elizabeth Church, "Ontario Liberals use Scarborough subway in by-election campaign." *The Globe and Mail*, July 12 2013. http://www.theglobeandmail.com/news/politics/provincial-toronto-alliance-needed-to-secure-scarborough-subway-funds-says-minister/article13135507/.

MTR. "Corporate Profile." http://www.mtr.com.hk/en/corporate/overview/profile_index.html.

———. "Ten-Year Statistics." http://www.mtr.com.hk/en/corporate/images/investor/2014frpt/E119.pdf.

Munro, Steve. "The Challenge of Improving Subway Service (Updated)." *Transit and Politics*, November 10, 2014. http://stevemunro.ca/2014/11/10/the-challenge-of-improving-subway-service/.

———. "The Crisis in TTC Service Capacity (Update 3)." *Transit and Politics*. August 8, 2014. http://stevemunro.ca/2014/08/08/the-crisis-in-ttc-service-capacity/.

"New York City Transit – History and Chronology." Metropolitan Transportation Authority. http://web.mta.info/nyct/facts/ffhist.htm.

Padukone, Neil. "The Unique Genius of Hong Kong's Public Transportation System." *The Atlantic*, September 10, 2013. http://www.theatlantic.com/china/archive/2013/09/the-unique-genius-of-hong-kongs-public-transportation-system/279528/.

Peat, Don. "Why are we paying bus drivers to not drive buses? Here's the TTC's explanation to commissioners." *Toronto Sun*, April 16, 2015. http://blogs.canoe.ca/goodgravy/politics/why-are-we-paying-bus-drivers-to-not-drive-buses-heres-the-ttcs-explanation-to-commissioners/.

Powell, Betsy and Robert Benzie. "John Tory 'furious' at ballooning costs of Spadina subway extension." *The Toronto Star*, March 6, 2015. http://www.thestar.com/news/queenspark/2015/03/06/kathleen-wynne-chides-ttc-for-cost-overruns-on-spadina-subway-extension.html.

Rubinstein, Dana. "What an M.T.A. chair learned by going to Hong Kong." Politico New York, September 23, 2013. http://www.capitalnewyork.com/article/politics/2013/09/8533989/what-mta-chair-learned-going-hong-kong.

San Francisco County Transportation Authority, "Case Studies: Stockholm and London," Mobility, Access and Pricing Study. November 2010. http://www.sfcta.org/sites/default/files/content/Planning/CongestionPricingFeasibilityStudy/PDFs/MAPS_case_studies_111310.pdf.

Soberman, Richard M. "The Track Ahead: Organization of the TTC under the New Amalgamated City of Toronto." September 1997. http://www.civ.utoronto.ca/sect/coneng/tamer/Referneces/1278/TTC-%20track_ahead.pdf.

Stromberg, Joseph. "The real story behind the demise of America's once-mighty streetcars." *Vox*, May 7, 2015. http://www.vox.com/2015/5/7/8562007/streetcar-history-demise.

Tang, B.S., Y.H. Chiang, A.N. Baldwin and C.W. Yeung. "Study of the Integrated Rail-Property Development Model in Hong Kong." Research Centre for Construction and Real Estate Economics, November 2004. http://www.reconnectingamerica.org/assets/Uploads/mtrstudyrpmodel2004.pdf.

TransLink. "2013 TransLink Annual Report: We Are the Link." http://www.translink.ca/-/media/Documents/about_translink/corporate_overview/corporate_reports/annual_reports/annual_report_2013.pdf.

Transportation Association of Canada. "Urban Transportation Indicators: Fourth Survey." May 2010. http://tac-atc.ca/sites/tac-atc.ca/files/site/doc/resources/report-uti-survey4.pdf.

Verougstraete, Mathieu and Han Zeng. "Public-Private Partnerships Case Study: Land Value Capture Mechanism: The Case of the Hong Kong Mass Transit Railway." United Nations Economic and Social Commission for Asia and the Pacific, July 2014. http://www.unescap.org/sites/default/files/Case%204-%20Land%20Value%20-%20Hong-Kong%20MTR.pdf.

Wong, Maggie Hiufu. "Hong Kong's MTR: Taking a ride on the world's most envied metro system." CNN, March 31, 2015. http://www.cnn.com/2015/03/29/travel/hong-kong-mtr-success-story/.

Woolley, Frances. "Riding the Loser Cruiser." *Worthwhile Canadian Initiative*, May 2, 2011. http://worthwhile.typepad.com/worthwhile_canadian_initi/2011/05/riding-the-loser-cruiser.html.