UCLPRESS

London Journal of Canadian Studies

Research article

Public Infrastructure in the Greater Toronto Area: A National Challenge Addressed at the Local Level

Lindsay Allison[1,*]

How to cite: Allison, L. 'Public Infrastructure in the Greater Toronto Area: A National Challenge Addressed at the Local Level'. *London Journal of Canadian Studies*, 2023, 37(1), pp. 35–49 • DOI: https://doi.org/10.14324/111.444.ljcs.2023v37.004.

Published: 30 December 2023

Peer Review:

This article has been peer-reviewed through the journal's standard double-blind peer-review process, where both the reviewers and authors are anonymised during review.

Copyright:

Open Access:

London Journal of Canadian Studies is a peer-reviewed open-access journal.

*Correspondence: s.allison1759@gmail.com
[1]Independent scholar, Canada

Public Infrastructure in the Greater Toronto Area: A National Challenge Addressed at the Local Level

Lindsay Allison

Abstract

This article provides a brief summary of infrastructure in twentieth-century Canada. An analysis is then presented, showing the post-war evolution of municipalities in the Greater Toronto Area, the first and largest municipal unit in Canada. It was municipalities, and not the federal or provincial governments, that came to own and operate nearly half of the total Canadian public stock. The article then discusses the intricate ways in which the funding mechanisms of public infrastructure developed and argues in some instances that funding on the scale of needed infrastructure explains how governments themselves developed. It explores how the current system, albeit intricate, continues to drive local economies in the Greater Toronto Area, now the key engine of Canadian national growth.

Keywords Greater Toronto Area (GTA); public infrastructure; municipalities; federal government; provincial government; Canada; funding; national growth; First World War; Second World War.

Introduction

Who decides, who builds and who pays for Canada's infrastructure has evolved in large part as a consequence of war. War modernised Canada in many ways, its infrastructure benefitting from new ideas, equipment and

inventions related to mass transportation and communication, housing, roads, bridges and airports. Providing public infrastructure in Canada is not a story of linear investment, rather it comes in waves.[1]

The First World War saw the invention of tanks as well as vast improvements in aeroplanes and trucks. By 1926, there were over 750,000 motor cars in Canada. This brought a need for national cooperation on roads, with British Columbia being the last province to drive on the right rather than on the left.

Prior to the First World War, infrastructure expenditure largely reflected the railroads, but by the 1920s and the advent of cheap motor cars, road bridges and road tunnels began to be built on an epic scale. The world's first international vehicular tunnel from Windsor, Ontario, to Detroit, Michigan, was opened. Airports and airmail appeared in the 1920s and 1930s in Canada's largest cities. The Second World War saw new airports in Dorval (Montreal) and Gander in Newfoundland become central to Ferry Command and the US Airforce. Literally thousands of bombers were ferried to Britain from Dorval via Gander. In turn, this led to huge transatlantic air passenger traffic in the post-war years. After the Korean War of the 1950s and as the Iron Curtain formed around Russia, early warning radar stations were established in northern Canada and coastal USA. Today, the rise of an electronic infrastructure reflects the growth of computers and cellphones. The REM (rapid electric trains) in Montreal and the SKY train in Vancouver are new forms of rail transport that are appearing. Metrolinx is a new provincial organisation to coordinate transport in the Toronto and Hamilton areas.

The creation of nations is sometimes framed in terms of heroic struggles, wars, revolutions and political upheaval. Canada's history is different – the nation was literally built by infrastructure.[2] The country's twentieth-century infrastructure reflected changes often brought about by Canada's wartime experiences.

As with most stories of national unification, the Canadian story is complex, sometimes sordid and certainly not linear. Public infrastructure may not be exciting to some, but it is intrinsic to Canada's national story. Canals, railways and highways, many of which were state sponsored, sometimes after the fact, provided the foundations of Canadian national unification. Canada's history is one of people brought together over considerable stretches of varied geography by shared beliefs, shared infrastructure and shared public debt. There was considerable public infrastructure investment following the First World War, but this started to drop off by the late 1920s, possibly due to a number of procurement

scandals at the time. Investment resumed in earnest after the Second World War as a means of securing economic growth. The 30-year period after the Second World War is sometimes described as the golden age of Canadian infrastructure, with its best-known projects completed during this time, including the St Lawrence Seaway, the Trans-Canada Highway and the Trans-Canada pipeline.[3] Overall, post-war Canadian economic growth was robust and infrastructure spending was considerable – public gross investment as a percentage of gross domestic product peaked at approximately 4 per cent in 1975.[4] However, the oil and inflation crises of the late 1970s and early 1980s brought retrenchment and public infrastructure investment experienced a marked decline, remaining comparatively low through to the late 1990s, when it picked up again.

Canadians should be forgiven for the popular belief that the nation was built by the railway. To some extent it was, but the cause and effect is not so straightforward. As Canadian high school students are taught, a driving reason for the creation of Canada was to finance the Transcontinental Railway – in other words, they created a country to build a railway, not the reverse. One can only imagine British or American students learning about their great constitutional moments, the signing of the Magna Carta or the American Declaration of Independence juxtaposed with the Canadian story: Canada's Founding Fathers sipping half-decent wine on a steamship off Charlottetown, Prince Edward Island, haggling over the finance of a rail link from Central Canada to Maritime Canada. Outrage at the overreach of the Crown may have driven English barons in 1215 or the US Continentals in 1776, but Canada's path to nationhood seems to have been driven, at least in part, by a fear of the Grand Trunk Railway, described by its own board just prior to Canadian Confederation, as 'an undertaking which is overwhelmed with debt, wholly destitute of credit and in imminent danger of lapsing into utter insolvency and confusion'.[5]

And yet, that is Canada's history; a remarkable and peaceful nation, unified sea to sea by rail, road and port and by the shared beliefs in the powers of the rule of law, the invisible hand and consolidated joint and several debt. A Canadian folk song hails:

> For they looked in the future and what did they see
> They saw an iron road runnin' from the sea to the sea
> Bringin' the goods to a young growin' land
> All up from the seaboards and into their hands.[6]

The role of the federal government after the First and Second World Wars

One of the major federal infrastructure efforts that came before the Second World War in the 1930s was aimed to arrest the high cost of home ownership in cities such as Toronto, Montreal, Vancouver and their surrounding municipalities, a problem that persists today. The federal government passed legislation to try to reduce house prices but without much appreciable effect.

The more significant federal role in housing came after the Second World War and the effort to house returning veterans and new Canadians. One of the impediments was the size of the Canadian building industry – it was too small to supply houses in the needed numbers. For much of Canada's history, homes were built, literally, by homeowners themselves. Beginning with the quintessential log cabins of old, by the early part of the twentieth century Canadians were still building their own houses, sometimes making use of prefabricated kits. When built by companies, houses were constructed by small corporate outfits, each building just a handful per year. To achieve the scale necessary in the post-war years, the government had to recognise that the building industry needed to increase production considerably by adopting more of a mass-production approach than the small operators of the time could deliver. One of the major impediments was accessing capital, as banks were reluctant to lend money, either to corporations to develop land or through mortgages to homebuyers. The Canadian government understood that if it wanted to encourage individual home ownership, and develop the suburbs, the country needed a vehicle that could finance both the industry and homeowners.

To do this, the federal government created the Canadian Mortgage Housing Commission (CMHC) in 1946 to administer federal legislation and assist Canadian mortgage companies. As James Lorimer argues, the federal government made several important choices. First, the CMHC deliberately allocated investments to support low-density family-owned housing.[7] Second, it decided that the private rather than the public sector would deliver the housing stock. To facilitate this, the federal government created the necessary scale through policies that encouraged corporate concentration among the developers themselves. As Lorimer concludes, the Canadian government deliberately chose a development industry consisting of a few large firms as opposed to an industry of many.[8]

The post-war push to the suburbs from the 1940s onwards and the resulting built form was not solely the purview of municipal and

provincial governments. The federal government also played a role. With the exception of specific initiatives during the Second World War to house munition workers, federal involvement in housing was primarily financial.

Public infrastructure: the municipal challenge

Canadian economic history often focuses on the growing linkages between cities and provinces, but in fact the story of Canadian public infrastructure, at least on a dollar-weighted value, is more a municipal story than it is a provincial or national one. The Canadian theme of creating governments to some extent to fund infrastructure continued through to the latter part of the twentieth century. Canada's first and largest municipal government, the Greater Toronto Area (GTA), is an interesting case study of the role of government and infrastructure in the creation of Canada's most prosperous region.

In Canada, responsibility for providing public infrastructure is divided between three orders of government. Constitutionally, the 1867 British North America (BNA) Act articulates the roles of the federal and provincial governments. With respects to infrastructure, Section 91 of the BNA Act gives the federal government infrastructure responsibility for defence, navigation, the postal service, shipping and ferries. Section 93 apportions provincial infrastructure responsibilities to include education, provincial courts, hospitals and local works.[9] Municipalities are not featured in the BNA; rather, they are creatures of the province, and each province does it differently. In Ontario, the largest province, municipalities are governed under several Acts, the most important being the Ontario Municipal Act, last revised in 2001. Section 11-3 outlines areas of municipal infrastructure jurisdiction to include: highways, transportation systems other than highways, waste management, public utilities, culture, recreation and heritage, and drainage and flood control.[10]

In terms of size, core public infrastructure in Canada was estimated to be worth approximately $382 billion in 2015, nearly 60 per cent of which was owned by municipalities, while the provinces held most of the remainder.[11] Interestingly, as shown in Table 1, the total share of municipal infrastructure has been increasing as a proportion of the national total, from approximately 26 per cent in 1961 to nearly 50 per cent by 2002.

Ontario's Greater Toronto Area provides some interesting insights. According to the 2016 census, the GTA is home to 6.4 million people, or

Table 1. Capital stock of public administrations in Canada, net of linear depreciation. (Source: Harchaoui, Tarkhani and Warren, 'Public infrastructure in Canada', 307)

Years	Total $billion	Federal		Provincial		Local	
		$billion	%	$billion	%	$billion	%
1961	13.6	5.3	39.1	4.8	35.0	3.5	25.9
1973	39.0	10.2	26.1	16.5	42.3	12.3	31.6
1979	83.5	17.7	21.2	37.4	44.8	28.4	33.9
1988	153.1	29.6	19.3	63.7	41.6	59.8	39.1
2000	219.1	38.0	17.3	78.2	35.7	102.9	47.0
2001	–	–	–	–	–	–	–
2002	227.5	40.1	17.6	77.9	34.3	109.5	48.1

about 18 per cent of Canada's population.[12] They live in 29 municipalities (see Figure 1), and in terms of municipal infrastructure responsibilities, who does what is quite varied even within the GTA. The reason for this variability rests in the way municipalities are organised. In total,

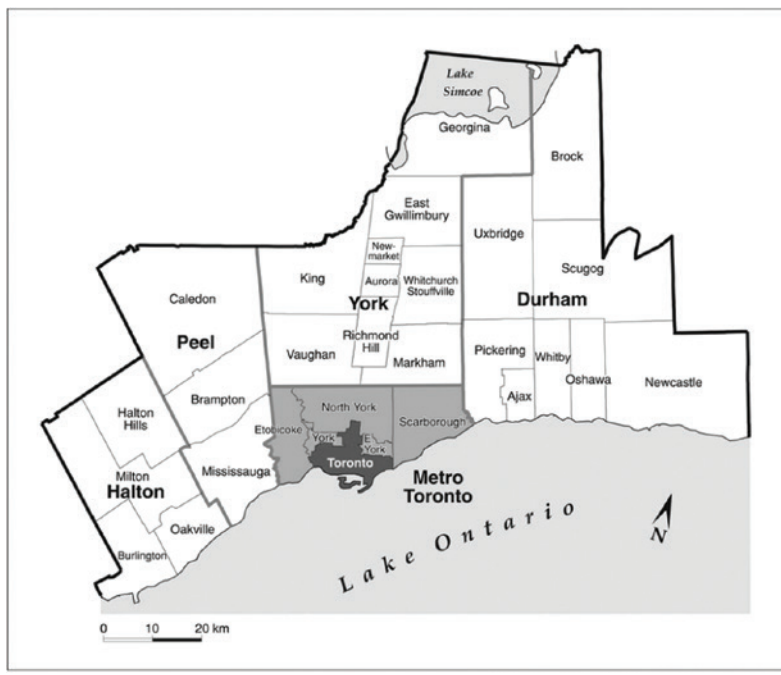

Figure 1. Toronto's four regions (Halton, Peel, York and Durham) and their 29 municipalities. (Source: The Cartography Office, Department of Geography, University of Toronto)

there are 444 municipalities in Ontario that fall into four types: single tiers, regions, counties and districts. In the GTA, there is just a single tier (Toronto) and four regions (Peel, York, Halton and Durham). The single tier simply means one municipal government provides all municipal services while the regions are different. Each region has its own government and responsibilities, but regions are federations of local municipalities, and some responsibilities fall within the remit of the locals, while others fall to the regions. So, for example, Peel Region is a government unto itself, but Peel is responsible for providing certain municipal services, while its three locals (Mississauga, Brampton and Caledon) provide other services. The four GTA regions have between them a total of 24 local municipalities, each with their own administrations. Thus, the GTA has 29 municipalities, including Toronto, the four regions and their 24 locals. Generally, the regions provide the more expensive infrastructure such as arterial roads, water and wastewater.[13] However, two-tiered municipal responsibilities vary. For example, Peel offers region-wide water services but not region-wide transit, whereas York Region provides region-wide transit but splits water provisioning between the upper tier (York) and its nine local municipalities. The regions all have their own police services but in Caledon, a local municipality of Peel, policing is done by the Ontario Provincial Police.

It should be mentioned that transit in the GTA is not exclusively a municipal remit. The Toronto Transit Commission, owned by the City of Toronto, is overwhelmingly the largest transit provider in the GTA, and there is an assortment of public transit bodies in the regions and their local municipalities. But in addition to the Toronto Transit Commission (TTC) and a number of local transit providers, the province of Ontario's crown agency, Metrolinx, provides very sizeable rail and bus services throughout the GTA and is now constructing four new subway lines as well. Metrolinx is also responsible for Presto, which is the payment platform used by transit riders on 11 different transit services in the GTA, Hamilton and Ottawa.

How did this rather intricate system come about? The short answer is that it is not entirely straightforward, but the ability for an order of government to provide infrastructure is certainly part of the explanation. The four regions of the GTA were established in the early 1970s, in part as a means to create governments large enough to both plan and finance major infrastructure investments, particularly in water and wastewater, that would allow for significant population growth but without sacrificing the local municipalities people were familiar with.

At the time of their creation, the regions were comparatively small in terms of population, though sizeable in geography and investments, and had to link services across a wide area. Interjurisdictional negotiations are both required and easier between fewer municipalities. The regions and Toronto negotiate a considerable number of service agreements between themselves. Overall, the experiment has proved remarkably successful. The last 50 years have witnessed exponential growth in the regional population, replete with a tremendous build-out of infrastructure. However, one may ask whether the GTA now needs 29 municipalities. From time to time, the province of Ontario has asked itself the same question, and municipal amalgamations have happened. In fact, what is now the City of Toronto is the result of a lengthy history of annexation and amalgamations, with the last one taking place in 1998. Whether these were worth it remains a hotly contested debate in some areas but after the 1998 amalgamation in Toronto, the province has done little redrawing of municipal boundaries in the GTA, perhaps concluding that the juice isn't worth the squeeze.

At the end of the day, municipalities are spending a great deal of money on infrastructure. In 2018, the last reported year in the Ministry of Municipal Affairs and Housing's Financial Information Return (FIR), Ontario's 444 municipalities invested over $11.6 billion in infrastructure.[14] Hence, municipal spending on infrastructure is roughly the same as the province spends to run all of its post-secondary and training facilities.[15]

Ontario municipalities borrowed nearly $1.5 billion from various sources to fund their investments in 2018. They directly funded over $7.5 billion from internal sources, including reserves, and received approximately $2.6 billion in grants from other levels of government. These grants included approximately $1.9 billion in federal money and approximately $650 million in provincial funding.[16]

Decisions on what to build, where to build it and when to build it are wrapped into a capital planning exercise typically split into two parts: spending to facilitate the growth in population (growth spending); and spending on the existing asset base which includes repair, rehabilitation and replacement (collectively referred to as asset management). By its intrinsic nature, infrastructure spending is lumpy – in other words, cash flows over time look like spikes and troughs, depending on the timing and magnitude of projects. Water and wastewater are examples where scale economies dictate stepwise investment in plant and pipe capacity. In other words, the system is deliberately built with many years of growth to spare. Hence, larger municipalities may make water and wastewater investments upwards of a billion dollars in a space of only a few years to accommodate growth, and then spend very little on it for over a decade.

Population growth, which pays for these investments, is critically important because if the growth rate is overestimated, municipalities will be left with years of expensive overcapacity, while underestimating growth will simply stop building as capacity runs out.

Canada's post-war infrastructure

The post-Second World War infrastructure began reaching the end of its useful life and needed to be replaced by the end of the twentieth century.[17] The post-war need to rebuild on a massive scale echoed throughout the country long after the actual war years. As discussed previously, overall infrastructure spending tapered off in the late 1970s as government budgets were consumed elsewhere. However, by the year of the millennium, Canadian municipal infrastructure investment was quickly re-emerging as a major national challenge. Bridges were literally collapsing in Montreal, and traffic congestion was acknowledged to be a major restraint to Canadian economic growth. Altogether, infrastructure was reaching the end of its post-war life and needed to be replaced.[18] The situation was not unique to municipalities. At the provincial level, many public institutions such as hospitals and schools were in poor condition, while population growth and increasing case complexity in hospitals meant new infrastructure was needed. It was also during this time that many began to recognise that funding the infrastructure challenge was something municipalities could not do on their own.

Part of the fiscal challenge was that those who could decide the built form were not necessarily from the same organisation that could fund it. Early-twentieth-century municipal reformers in large cities such as Montreal and Toronto deliberately tried to shift the population away from the city core and into the newly forming suburbs reached by train and buses. Motivated by the perceived risks of an overcrowded downtown core, reformers sought not to create suburbs haphazardly, but to shape them by a planned build-out of municipalities undertaken through provincial legislation.[19]

To see this, one need only to look at municipal planning in Toronto. Formal municipal planning exercises can be found in nineteenth-century Canada and were typically driven by public health and the discovery that treated water and disposing of sewage could curtail disease. Planning for water and wastewater became public health imperatives, although for a considerable time untreated wastewater was simply dumped into available rivers and streams. The sheer cost of water and wastewater

infrastructure made interjurisdictional political cooperation and, in time, consolidation a means to an end, but this was done by the municipalities rather than the province.

Formal legislative planning requirements began in Toronto in 1907, but its first official Master Plan did not come until 1943. Penned by Tracy D. LeMay, Toronto's first Official Plan was 16 pages long and contained one map.[20] Three years later, in 1946, the Planning Act was passed, allowing Ontario municipalities to publish binding Master plans, something that is now a requirement for most.

The Act also permitted inter-municipal planning boards and, almost immediately after the 1946 Planning Act was passed, the Toronto and York Planning Board was created to address regional issues, with York located north of Toronto. As argued by the Neptis Foundation, the Toronto–York Planning Board itself was largely ineffectual, failing to devise a regional plan, implement any land-use restrictions or carry out an investment in infrastructure.[21] However, it was important as it represented the area's first planning body to look at truly regional issues rather than individual municipal ones. Although it was swiftly eclipsed by the more effective Metropolitan Toronto Planning Board, the Toronto–York Planning Board commissioned a number of key studies, including the 1949 water and sewer study by the engineering firm Gore & Storrie, which provided the foundation for Toronto's waterpipe expansion in the 1950s.[22]

While municipal planning in the GTA went through continuous evolution in the 1950s and 1960s, the provincial government did not enter the regional planning space until the 1970s. Its first foray was the introduction of the Toronto-Centered Region (TCR) concept. In the end, the initiative achieved very little and was quietly shelved.[23] However, it did have one significant result in that the experience left the province with little appetite for any hands-on municipal planning of its own. It would be another 30 years before Ontario re-entered the municipal planning space. Granted, provincial policies continued to have municipal planning ramifications, but it was not until Ontario's Places to Grow Act in 2005 and the Growth Plan for the Greater Golden Horseshoe were passed in the following year that the province returned in a significant way to the municipal planning sphere. These two acts were very significant, in that they articulated how the GTA could develop by creating a protected greenbelt of land around the region and require urban intensification and renewal within existing corridors.

While post-war planning frameworks shifted over time, the exceedingly expensive business of building the suburbs proceeded at a rapid clip. Metro Toronto was responsible for paying for its own water and wastewater infrastructure, something made possible by Toronto's rich

tax base. However, the outlying areas were a different story. John Sewell writes that the province decided in the 1950s that growth would hug Lake Ontario with fingerlike projections up Yonge Street into what are today Vaughan, Markham and Richmond Hill.[24] But it was widely believed that the suburban municipalities lacked the financial ability to fund the needed infrastructure. To help them, the Ontario government made a series of significant water investments in the 1970s and 1980s, setting the trajectory for the subsequent rapid suburban growth. For example, in 1981, the province built a new $35 million water facility in Peel. Despite complaints by Peel that the investment was insufficient, the provincial plant allowed the region to grow without a steep rise in water rates. Ontario's former Premier Bill Davis reflected that, 'The [Peel] deal was heavily subsidized. No question. It was the kind of investment that provided an economic base for the growth that happened.'[25] The provincial water facility was later transferred to the region of Peel free of charge, causing other municipalities, particularly York and Durham, to vociferously demand similar deals. However, seven years earlier, York and Durham had received an equally, if not better, deal when the province agreed to close eight small water plants and replaced them with a $69 million investment in the Duffin Creek plant to bring water from Durham to York.[26]

The pipes that brought water also brought development, a great deal of it. In 1971, Peel Region had a population of approximately 260,000. Ten years later, it had nearly doubled to 500,000, and it continued to grow by roughly 250,000 every decade.[27] The region of York proved just as successful at attracting growth. A May 1972 report on the servicing of York's water for the Ontario government estimated that York's ultimate population, which was approximately 170,000 at the time, would be at full build between 263,000 and 416,000.[28] York's population exceeded these expectations within 20 years and is now over 1.2 million.[29]

Permitting this sort of growth over such a large area meant that suburbs would, in addition to significant water and wastewater investments, also require an extensive transportation network, in particular to carry people to their jobs in downtown Toronto. There were two ways of tackling the transportation challenge, roads and transit. Both forms of investment have seen substantial involvement by municipal and provincial governments, though paying for it was, and still is, an intractable challenge.

Until the post-First World War years, the roll-out of what would today be called public transit, had, in fact, very little about it that was public. Rather, the government relied on transit routes built and paid for by the private sector. This worked, to an extent, in the pre-First World War years, but profitability meant that new transit infrastructure would not be extended until growth had already happened. It readily became

apparent to municipal governments that the private sector was either unwilling or unable to deliver the needed transit.[30]

In the post-First World War years, Toronto's government decided to step in, but the shift to the heavily publicly subsidised system that exists today in the GTA was a stepwise process. In 1921, the newly minted TTC took over from the Toronto Railway Company, which until then had been a very profitable transit corporation. Unlike today, the TTC at the time did not receive any public subsidy, meaning its routes had to be profitable. In fact, the early TTC was so profitable that the Commission was able to fund the first subway line up Yonge Street without aid from any level of government.[31] Although the TTC's footprint expanded quickly, profitability prohibited it from providing city-wide coverage. Invariably this led to increasing political friction as councillors pushed for unprofitable routes into their constituencies. Solomon argues that the politicisation of the TTC started after the Second World War with the creation of the Municipality of Metro Toronto in 1953 and the push to provide a wider transit network.[32] Sewell, a former mayor of Toronto, argued that the real politicisation of the TTC came much later, in the 1970s, when political pressure led the TTC to abandon double fares, a measure that not only ended pricing by distance but also the days when the TTC posted operating surpluses. Thereafter, the TTC came to require both operating and capital subsidies.[33]

But the orchestrated push to the suburbs, and paying for it, was considerably more than just a story of transit or water. Some argue that the key to the Canadian urban form is arterial highways, the car and the office tower.[34] Roads themselves are the purview of municipalities, but highways and arterial roads are key to making the suburbs function. Here, the provincial government played an important role when, in the post-First World War years, it began to subsidise municipal roads, where provincial subsidies to counties and for suburban roads amounted to over 40 per cent of the capital costs, plus a further 20 per cent (approximately) for maintenance.[35]

Another major provincial contribution was the construction of the 400 series highways that crisscross Ontario, with a number in the Greater Toronto Area. These highways are simply too big for any municipality to deliver, maintain or operate. They were built to alleviate congestion but planners failed to realise that the highways themselves would become magnets for growth and development.[36] In Toronto, the capacity of the 401, the main east–west highway through the city, was rapidly overwhelmed by demand. Originally built to handle 48,000 cars per day, the 401 was carrying more than three times the amount in slow-moving traffic within three years of opening.[37]

Conclusion

The role of providing public infrastructure in Canada is intrinsic to the evolving national experience. Achieving a financial scale to fight wars enabled governments to achieve a financial scale to fund massive and needed infrastructure projects. The warfare state evolved into a state capable of modernising infrastructure and remains one of the justifications for the creation of governments in Canada. The mechanisms by which public infrastructure is funded and financed is complicated with each level of government and its agencies, playing important roles that reflect new times. Ultimately, Canada and its public infrastructure is a partnership between all levels of government, and judging by the results, a remarkably successful one. Canada's story of creating a country to build infrastructure may not be as romantic as other national stories. However, as we enter the post-Covid world and look to the challenges that face other nations, one cannot help but think that Canada's founders, sipping half-decent wine on a steamship off Prince Edward Island and haggling about infrastructure, got a few things right.

Note on contributor

Lindsay Allison is a native of Montreal and is currently pursuing his PhD in Canadian history part time at McMaster University in Hamilton, Ontario. His article published in this journal is taken from his developing doctoral thesis. Lindsay gained a BA in Economics at McGill University and an MSc in Economics at St Antony's College, Oxford University. Lindsay also has a Master of Public Administration (MPA) from Queen's University in Kingston. He has worked in infrastructure-related public finance and funding in the Greater Toronto Area for nearly 20 years.

Declarations and conflicts of interest

Research ethics statement

Not applicable to this article.

Consent for publication statement

Not applicable to this article.

Conflicts of interest statement

The author declares no conflict of interest with this work. All efforts to sufficiently anonymise the author during peer review of this article have been made. The author declares no further conflicts with this article.

Notes

1 Roy, *From Roads to Rinks*, 7.
2 Brox, 'Infrastructure investment', 9.
3 Harchaoui, Tarkhani and Warren, 'Public infrastructure in Canada', 304.
4 Brox and Fader, 'Public infrastructure, 144.
5 Bliss, 'Canada was built to last'.
6 Lightfoot, *Canadian Railroad Trilogy*.
7 Lightfoot, *Canadian Railroad Trilogy*.
8 Lorimer, *The Developers*, 252.
9 Bazel and Mintz, 'The free ride is over', 5.
10 Municipal Act, 2001, S.O. 2001, c. 25.
11 House of Commons, Canada, 'Updating infrastructure'.
12 Statistics Canada, *Population and Dwelling*.
13 Ontario Municipalities.
14 Schedule 53.
15 *Maclean's*, 'The 2018 Ontario Budget'.
16 'Schedule 53', Rows 0299, 0498, 0425, 0430, 0440, 0445, 0502. Financial Information Return. Note the difference between Federal, provincial and total grants is 'Grants from other municipalities', which are inter-municipal capital cost-share agreements.
17 Grace, 'Building from the ground up', 399.
18 Grace, 'Building from the ground up', 399.
19 Solomon, *Toronto Sprawls*, 33.
20 Sewell, *Shape of the Suburbs*, 30.
21 White, 'The growth plan'.
22 White, 'The growth plan', 11.
23 White, 'The growth plan', 30.
24 Sewell, *Shape of the Suburbs*, 113.
25 Sewell, *Shape of the Suburbs*, 110.
26 Sewell, *Shape of the Suburbs*, 119.
27 Peel Region, *Population 1971–2006*.
28 Sewell, *Shape of the Suburbs*, 110.
29 York Region Planning.
30 Solomon, *Toronto Sprawls*, 12.
31 Sewell, *Shape of the Suburbs*, 13.
32 Solomon, *Toronto Sprawls*, 13.
33 Sewell, *Shape of the Suburbs*, 82.
34 See, for example, Lorimer, *The Developers*, 78.
35 Sewell, *Shape of the Suburbs*, 14.
36 Sewell, *Shape of the Suburbs*, 59.
37 Solomon, *Toronto Sprawls*, 66.

Bibliography

Bazel, P. and J. Mintz. 'The free ride is over: Why cities, and citizens, must start paying for much needed infrastructure', *University of Calgary School of Public Policy* 7, no. 14 (2014).

Bliss, Michael. 'Canada was built to last, unlike the railway that greased its wheels', *Globe and Mail*, 1 July 2016. Accessed 4 January 2024. https://www.theglobeandmail.com/report-on-business/rob-commentary/canada-was-built-to-last-unlike-the-railway-that-greased-its-wheels/article30713844/.

Brox, James A. 'Infrastructure investment: The foundation of Canadian competitiveness', Institute for Research on Public Policy, *Policy Matters* 9, no. 2 (2008).

Brox, James A. and C. A. Fader. 'Public infrastructure, regional efficiency and factor substitutability in Atlantic Canada manufacturing', *Canadian Journal of Regional Science* 19, no. 2 (1996).

Grace, Joan. 'Building from the ground up: Funding the infrastructure deficit in Manitoba', *Manitoba Law Journal* 37, no. 2 (2014).

Harchaoui, Tarek, Faouzi Tarkhani and Paul Warren, 'Public infrastructure in Canada, 1961–2002', *Canadian Public Policy/Analyse de politiques* 30, no. 3 (2004).

House of Commons, Canada. 'Updating infrastructure in Canada: An examination of needs and investments', June 2015. Accessed 4 January 2024. https://www.ourcommons.ca/Content/Committee/412/TRAN/Reports/RP8042716/tranrp09/tranrp09-e.pdf.

Lightfoot, Gordon. *Canadian Railroad Trilogy*. United Artists, 1967.

Lorimer, James. *The Developers*. Toronto: James Lorimer and Company, 1978.

Maclean's. 'The 2018 Ontario Budget in charts and numbers', 28 March 2018. Accessed 4 January 2024. https://www.macleans.ca/economy/economicanalysis/the-2018-ontario-budget-in-charts-and-numbers/.

Municipal Act, 2001, S.O. 2001, c. 25, *E-laws*. Accessed 4 January 2024. https://www.ontario.ca/laws/statute/01m25#BK16.

Ontario Municipalities. Association of Ontario Municipalities. Accessed 4 January 2024. https://www.amo.on.ca/AMO-Content/Municipal-101/Ontario-Municipalities.aspx.

Peel Region. *Population 1971–2006*. Accessed 4 January 2024. https://www.peelregion.ca/planning/pdc/data/census/population-1971-2006.htm.

Roy, Francine. *From Roads to Rinks: Government spending on infrastructure in Canada*. Ottawa: Statistics Canada, 2008.

Schedule 53 Consolidated Statement of Change in Net Financial Assets (Net Debt) and Tangible Capital Asset Acquisition Financing/Donations – 2018. Ontario Ministry of Municipal Affairs and Housing Financial Information Return. Accessed 4 January 2024. https://efis.fma.csc.gov.on.ca/fir/ViewSchedules09.html.

Sewell, John. *Shape of the Suburbs – Understanding Toronto's sprawl*. Toronto: Toronto University Press, 2009.

Solomon, Lawrence. *Toronto Sprawls*. Toronto: Toronto University Press, 2007.

Statistics Canada. *Population and Dwelling Count Highlight Tables, 2016 Census*. Accessed 4 January 2024. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/pd-pl/Table.cfm?Lang=Eng&T=304&SR=6&S=87&O=A&RPP=5&PR=35&CMA=0&CSD=0.

White, Richard. 'The growth plan for the Greater Golden Horseshoe in historical perspective'. Neptis Paper on Growth in the Toronto Metropolitan Region no. 4, The Neptis Foundation, Toronto, 2007. Accessed 4 January 2024. https://www.neptis.org/sites/default/files/historical_commentary/historicalcomm_web_200711291.pdf.

York Region Planning and Development Services. *York Region 2031 Population and Employment Forecasts*, 12 January 2009. https://archives.york.ca/councilcommitteearchives/pdf/jan%207%20population%20att%201%20revised.pdf.