



# Canada's Moment: The Economic Opportunity of High-Speed Rail



Canada's  
high-speed  
train

September, 2026  
Version 1.1



## CHANGE HISTORY

**Version 1.1** | The report has been updated as of **September 18, 2026** to incorporate an updated Figure 4 in section 1, minor editorial refinements in Section 2 and a brief addition regarding the fare strategy outlined in Section 4.

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**Martin Imbleau**

President and Chief Executive Officer

# Why high-speed rail is essential to Canada's future

Canada's strength has always rested on its ability to connect across a vast landscape: moving goods to market, ideas across borders, and people to opportunity. Every resource shipped, every business built, every student's experience of university in another city started with a journey. In a country defined by distance, the movement of people is what transforms space into shared prosperity.

That capacity to connect is a core mechanism through which a country creates value. It also makes a country resilient. When supply chains are disrupted and trade relationships shift, what carries Canada through is the ability of its people to reach each other. Transportation infrastructure is, in its essence, nation-building: it is the expression of a country's commitment to its own cohesion.

Nowhere is this more critical than in the Toronto–Québec City corridor. Containing the country's greatest density of talent and enterprise, it generates over 40% of Canada's gross domestic product (GDP). Yet the transportation system connecting its main cities was not designed for the economy we have today, let alone the one we are building.

In many countries where conditions are favourable, high-speed rail (HSR) such as Alto has transformed economies and changed how distance is perceived. Alto will effectively turn independent cities into one large functioning economic region. The high-speed rail network is not a standalone investment: it is designed to become the backbone of the Toronto–Québec City corridor, bringing together regional public transportation networks into one cohesive passenger transportation system.

This document outlines the current assessment of Alto's value. The analysis is grounded, the methodologies are transparent, and the proposed benefits hold across a wide range of scenarios. Beyond the economic and financial outcomes, this document also explores what Alto could mean for Canadians in their daily lives. Throughout the document, examples illustrate how improved connectivity can expand access to jobs, education, services and opportunities for families, students, workers, seniors and communities across the corridor.

The evidence shows that Alto delivers significant economic and financial benefits. Alto will deliver direct benefits to Canadians estimated to ~\$49.5 billion and will deliver a step-change in economic performance, raising GDP by \$24.5 billion (approximately 1.1% of GDP).

***With a capital investment between \$60 and 90 billion, Alto will become an enduring national asset designed to serve Canadians for generations.***

In return for that investment, its benefits will be large, measurable, and durable. Canada will retain permanent ownership of the infrastructure while drawing on private-sector expertise to design, build, operate and maintain the network.

Once in operation, Alto will help move millions of passengers along the corridor yearly, supporting revenues that are expected to cover all operating and maintenance costs. This will offset the need for ongoing public subsidies that conventional passenger rail has historically required in the corridor.

Together, with our private partner Cadence, we are building the transportation backbone Canada has long needed, enabling how people move, strengthening nation-building efforts, and creating lasting value for Canadians.

**Martin Imbleau, President and CEO**

Alto

# Executive summary

## CANADA'S LARGEST ECONOMIC REGION IS HELD BACK BY ITS CONNECTIVITY

The Toronto–Québec City corridor is Canada's largest economic region. It is home to 17 million Canadians, 41% of the country's population, and generates over 40% of national GDP. It contains the country's two largest provincial economies, its most important financial and technology clusters, some of its busiest airports, and its most heavily travelled highways. The corridor's fundamentals are strong. The constraint is not a lack of assets, but a lack of connectivity.

The transportation system connecting these cities was built more than 50 years ago, for a smaller population and a different economy. Congestion is now evident across all modes. Highway 401, the primary intercity route, is the busiest highway in North America.

Toronto Pearson is projected to approach its maximum capacity within two decades. Passenger rail operates on freight-owned tracks, where punctuality ranged from 51% to 59% between 2022 and 2024, compared with approximately 90% in Europe. These pressures will intensify: the corridor's population is projected to reach nearly 21 million by 2041, and intercity trips are expected to grow by 28% over the same horizon.

## INCREMENTAL INVESTMENTS CANNOT SOLVE THE PROBLEM

Expanding highways, airports, or conventional rail provides partial and temporary relief, but none of these options reduces the economic distance between cities or structurally integrates the corridor's major markets. The most frequently cited alternative, a dedicated "high-frequency" rail system, would still require largely new, grade-separated, and electrified infrastructure, at a capital cost of \$45 to \$75 billion, close to the \$60 to \$90 billion estimated for high-speed rail. Yet it would generate one fifth of the economic impact: a 0.2% GDP uplift, versus 1.1% for high-speed rail. The relevant question is not which option costs less. It is why Canada would spend nearly as much for a fraction of the benefits.

## HIGH-SPEED RAIL IS A PROVEN SOLUTION

More than 60,000 kilometres of high-speed rail operate today across over 20 countries, many in corridors comparable to Toronto–Québec City in population and distance. The evidence is consistent. In Germany, counties gaining access to high-speed stations recorded GDP gains of approximately 8.5% over six years. In Italy, rail's share of travel between Milan and Rome rose from 36% to 74% between 2008 and 2019. In France, Spain, and Japan, high-speed rail has allowed major cities to function as single, integrated economic systems. Wherever the conditions resemble those of this corridor, high-speed rail has reduced economic distance at scale.

## THE ALTO PROJECT

Alto is a dedicated high-speed passenger rail system connecting Toronto, Peterborough, Ottawa, Montréal, Laval, Trois-Rivières, and Québec City, with a potential additional station in Kingston under study. Designed for operating speeds of 300 km/h or more on approximately 1,000 kilometres of fully electrified and grade-separated infrastructure, the system will be **fast, frequent, reliable and affordable**. It will cut travel times in half, make same-day travel practical across the corridor, and serve as the backbone connecting regional transit networks into one cohesive passenger transportation system.

## BENEFITS ARE LARGE, MEASURABLE, AND DURABLE

Preliminary forecasts indicate that Alto could carry up to 24 million riders per year by 2055, capturing approximately 40% of intercity trips on the longest city pairs, such as Toronto to Montréal. This share is consistent with the experience of established high-speed corridors, and three independent forecasts received from bidders during procurement were broadly aligned with Alto's projections.

The resulting benefits operate at three levels:

**Transforming how Canadians travel:** direct, measurable benefits to travellers and communities estimated at up to \$49.5 billion over the first 60 years of operations. These are driven primarily by travel time savings.

**Transforming how Canadians live and work:** broader economic impacts estimated at \$24.5 billion in additional annual GDP once the system is fully operational, equivalent to approximately 1.1% of national GDP, through productivity gains, expanded labour markets, stronger international tourism, and new housing units enabled by station-area development.

**Transforming the regional economic landscape:** approximately 50,000 jobs during construction and over 5,000 ongoing jobs during operations, supporting employment, business activity, and supply chains in communities across Central Canada.

***Preliminary forecasts indicate that Alto could carry up to 24 million riders per year by 2055, capturing approximately 40% of intercity trips on the longest city pairs.***

## PRELIMINARY INVESTMENT PERSPECTIVE

The capital cost of the complete system was estimated in 2024 at \$60 to \$90 billion. This is a preliminary Class 5 estimate, based on the project concept and a general corridor definition; it will be refined as engineering advances, following international cost estimation standards. The benefits, by contrast, derive from the structure of the corridor and the physics of the network, and are knowable at this stage with reasonable confidence.

The investment must be assessed over the full life of the asset, amortized across generations of use. Alto is a major public investment in a revenue-generating national asset. Once in service, operating revenues are expected to fully cover operating and maintenance costs, transitioning passenger rail from a publicly subsidized service to a commercially viable operation. Canada will retain full ownership of the infrastructure, while the network will be designed, built, financed, operated, and maintained in partnership with the private sector through its partner Cadence.

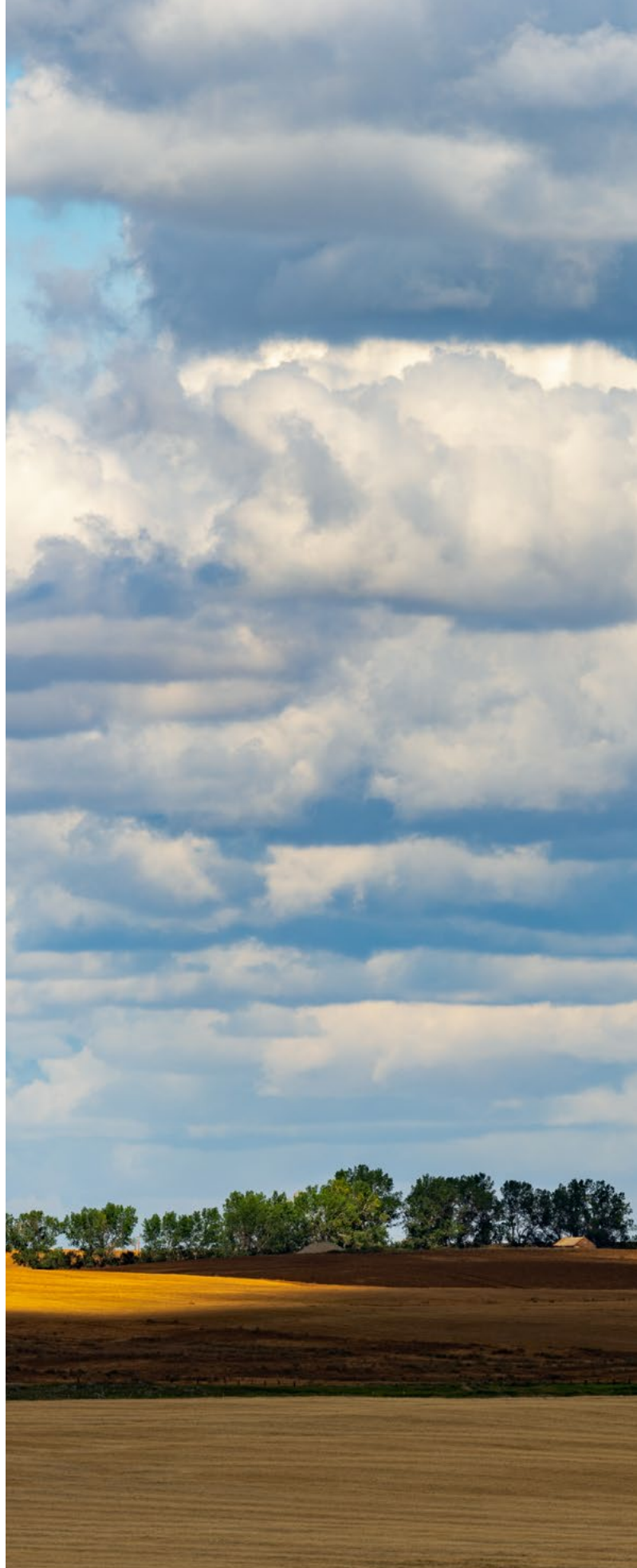
## MOVING FORWARD

Alto publishes this document while the project is still in development with its private partner Cadence. The figures it contains will continue to be refined. Updated versions of this document will be published periodically.

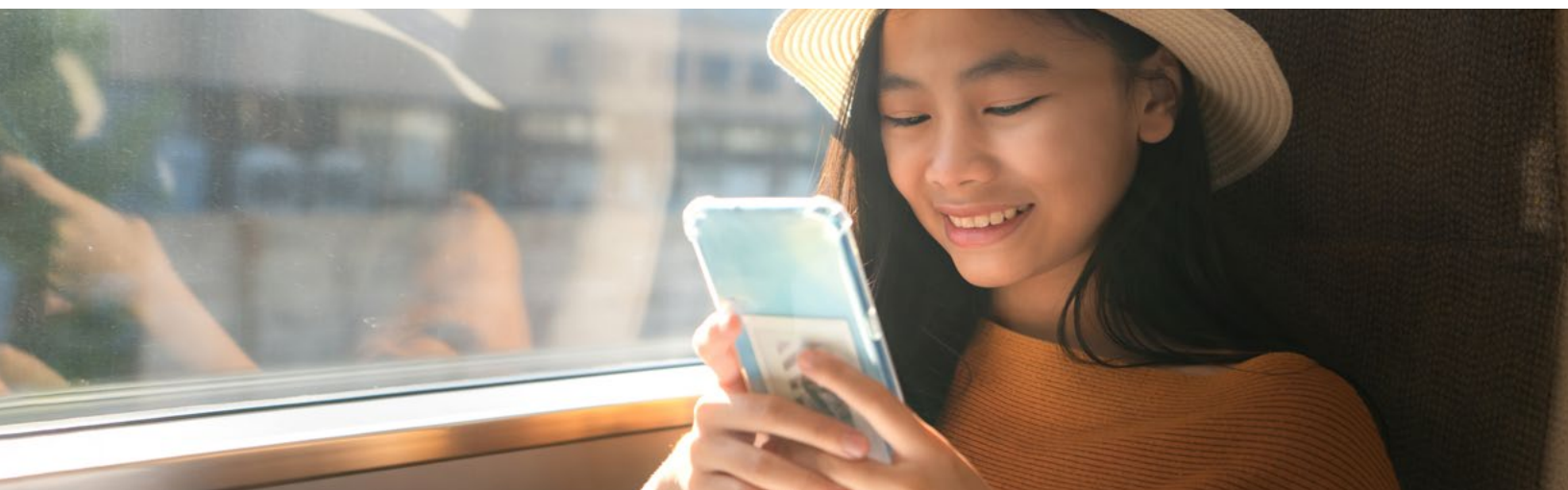
Over the coming year, Alto will advance engineering and environmental studies, refine cost estimates and the delivery approach, further develop the financial framework, and continue consultation with Indigenous communities, provinces, municipalities, and the public. The objective is to deliver a complete, decision-ready business case, positioning the Government for a fully informed future investment decision on value for money, deliverability, and long-term impact.

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# Introduction

In February 2025, the Government of Canada confirmed its commitment to advance high-speed rail (HSR) in the Toronto–Québec City corridor, funding the development phase of the Alto project and selecting Cadence as its private partner. Since then, Alto and Cadence have progressed key elements of the project, including engineering design, environmental studies, and stakeholder engagement. This work is advancing the definition of a transportation system designed to meet the needs of a growing and increasingly integrated corridor.

While the development continues to be refined, the fundamental rationale for high-speed rail does not depend on specific design choices. Across the corridor, the underlying challenge is clear: connectivity has not kept pace with economic and demographic realities. Improving how people move between major centres is no longer optional; it is a fundamental lever to unlock economic potential, expand opportunity, and improve quality of life for millions of Canadians.

This reference document sets out the key strategic and economic rationale for high-speed rail in Canada's most important economic corridor, based on the best available evidence at this stage. It demonstrates why this investment is needed, what outcomes it can deliver, and how it contributes to a more integrated, productive, and resilient economy, transforming how Canadians travel and access opportunities.



## THE DOCUMENT IS STRUCTURED AS FOLLOWS:

**Section 1** outlines the national context and the role of connectivity in unlocking the potential of Canada's largest economic region

**Section 2** examines current transportation constraints and the limitations of incremental approaches

**Section 3** highlights how high-speed rail has the ability to address these structural challenges at scale, drawing on international evidence

**Section 4** presents the Alto proposition and its transformative economic impacts

**Section 5** sets out a preliminary financial perspective



## AN EVOLVING PROJECT, A GROWING EVIDENCE BASE

Alto is a project in development, and the organization is working in collaboration with its private partner Cadence to finalize the project scope, which, in turn, will inform schedule and cost estimates before the start of construction. This document is published at a stage when many features of the project are still under refinement and are subject to further analysis and decisions.

The economic case rests on two distinct types of analysis, which are at different stages of maturity. On the benefit side, the central inputs are the outcomes the project is designed to deliver. These outcomes follow directly from the project's concept—a dedicated high-speed rail network connecting the Toronto–Québec City corridor—and they are grounded in a well-established international evidence base. Because they derive from the physics of the network and the structure of the Toronto–Québec City corridor, they are relatively stable in the project definition phase. Benefits, in other words, are knowable at this stage with a reasonable degree of confidence that is used to inform decision-making.

Unlike benefits, which are largely determined by the project concept and corridor characteristics, the cost estimates are still at an early stage of development because the underlying engineering details have not yet been finalized. Alto's capital cost is currently estimated at a preliminary Class 5 level, based on a project concept, a general corridor definition, and a high-level scope. As engineering advances and alignment choices are finalized, that range will narrow through the standard progression toward more precise estimates.

## Greater precision on cost will come later in the development process because the technical work required to produce it is currently under way.

This report reflects the information, prices, and modelling inputs available in 2024 (the most recent finalized model version), which are expressed in 2024 CAD unless otherwise noted. The results presented are based on three distinct models that measure different outcomes and should not be added together.

1. The cost-benefit analysis estimates welfare impacts relative to a defined baseline and is sensitive to key assumptions.
2. The input-output analysis (based on the 2019 Statistics Canada input-output model) estimates spending-supported activity and does not capture economy-wide constraints.
3. The computable general equilibrium (CGE) estimates long-run, economy-wide structural impacts conditional on the project being completed and fully operational over time.

The economic modelling undertaken as part of the project delivery will be refined as project definition advances and additional data becomes available. An updated version of this document will be published periodically, reflecting these analytical updates.

This iterative approach is a normal and expected feature of project development at this stage.



# Section 1

Canada at a turning point:  
unlocking the potential of  
its largest economic region

# 1.1 Canada was built through transformative infrastructure investment



**Canadian Pacific Railway employees, waiting for the train to take them east, pose near Donald, BC, on the day the Last Spike was driven on the CPR, 7 November 1885.**

Source: Library and Archives Canada

Historically, Canada has built its prosperity by investing in the movement of goods and people. At a few decisive moments, the country faced a barrier that was holding its economy back. Each time, removing that barrier delivered significant and lasting returns. While the barrier's characteristics were different each time, the effect was the same: the economy was being held back. And each time, the solution was the same: build the infrastructure that lets separated markets function as one. These bold investments, undertaken with conviction, were the levers that removed the barriers and opened channels to new levels of national prosperity.

One of the great investments that built this country was a railway. In the decades after Confederation, the Prairies held vast tracts of fertile grain land that sat a thousand kilometres and more from any buyer. A farmer could grow wheat but could not move it to a port, a city, or a market. Only a railway could carry grain across the continent at a cost that made western farming financially viable,

and when the link to the West was completed in the mid-1880s, it did more than open the Prairies.<sup>1</sup> It tied the new farm economy to the cities of central Canada, where the grain was financed, milled and shipped onward, and Montréal and Toronto grew as the hubs of that trade. That spine is still in place. The rail network remains a working artery of the corridor, carrying freight between Toronto, Montréal and the St. Lawrence ports. Canadian railways moved 375 million tonnes of freight in 2023,<sup>2</sup> with Central and Eastern Canada accounting for close to a third of what originates on the network.<sup>3</sup> It should be noted that this achievement came at a real cost to Indigenous peoples, whose traditional territories were taken to make way for the railway's construction, with effects that are still felt today.

The next great investment came when the country had outgrown what the railway alone could carry. The St. Lawrence was the natural route from the interior to the ocean, but rapids and shallows between Montréal and Lake Ontario blocked large ships from sailing it. Completed in 1959, the St. Lawrence Seaway cleared



**Construction of the Sault Ste. Marie Canal, November 1893**

Source: Library and Archives Canada

1 Source: The Canadian Encyclopedia, [Canadian Pacific Railway](#).

2 Source: Statistics Canada, [Railway carloadings, December 2023](#).

3 Source: Statistics Canada, [Rail transportation, 2022](#) (Eastern Canada accounted for 26.9% of commodities originating from a Canadian location).

that barrier, giving ocean vessels access to the industrial and agricultural heart of the continent. It carried the iron ore of Québec and Labrador to the steel mills of the Great Lakes and helped turn Canada into one of the world's major iron ore exporters. Just like the railway, the Seaway enabled the movement of resources, raw materials, food and finished goods.

Finally, the Trans-Canada Highway connected the country by road, easing and accelerating both the movement of goods and people. Since 1962 it has formed the spine of internal trade and travel,<sup>4</sup> and through the corridor it became something more: the everyday route along which people live their lives.

The stretch through Toronto is the busiest highway in North America, carrying between 400,000 and 500,000 vehicles on a typical day.<sup>5</sup>



**The Trans-Canada Highway in Montréal, 1966.**

Source: City of Montreal Archives

## Figure 1 | Timeline of nation-building Canadian infrastructure

**1885**

### RAILWAY

Barrier removed  
Distance

What it unlocked  
Opened the West and tied it to Central Canada

**1959**

### ST LAWRENCE SEAWAY

Barrier removed  
Ocean ships could not navigate

What it unlocked  
Linked the interior to the ocean

**1962**

### TRANS-CANADA HIGHWAY

Barrier removed  
No continuous road

What it unlocked  
Connected the country for people and goods

*At each turning point,  
Canada removed a connectivity  
barrier that was holding  
its economy back.*

<sup>4</sup> Source: Parks Canada: [The Construction of the Trans-Canada Highway](#).

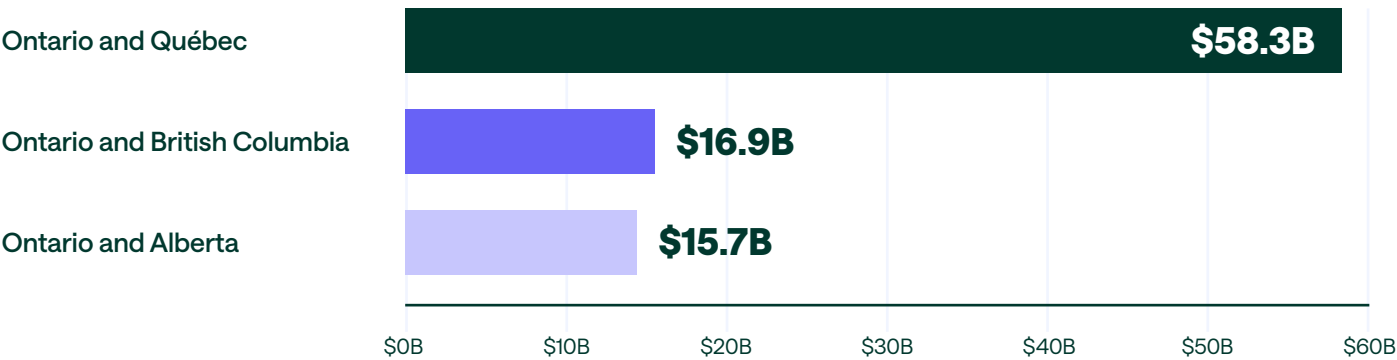
<sup>5</sup> Source: Ontario Ministry of Transportation, Provincial Highways Traffic Volumes (AADT).

The integration these investments made possible now undergirds the everyday economy of Central Canada. Manufactured goods cross the Ontario–Québec border more often than any other interprovincial border in the country, with two-way trade between the two provinces reaching 58.3 billion dollars in 2023. Ontario and Québec are already each other’s largest domestic trading partners.

The corridor is one deeply intertwined economy, held back today by how well its people and goods can move within it.

The Ontario and Québec relationship is nearly four times the next-largest pair. The corridor is already one deeply intertwined economy, with two equal partners trading at scale.

Figure 2 | Two-way interprovincial trade in manufactured goods, three largest pairs (2023)<sup>6</sup>



Every one of these investments unlocked growth that was not possible before it, because every one removed a structural barrier to connectivity and allowed separated markets to operate as a single one.

This is what makes transportation uniquely powerful: it acts on the whole economy at once, connecting

workers to jobs, businesses to markets, and producers to customers at home and abroad.

Canada has reached these turning points before, and it has reached one again. In the past, we recognized the constraint and built through it. It is time to do so again.

Figure 3 | Infrastructure still working today



**RAILWAY TODAY**  
**375M TONNES**  
carried by Canadian  
railways, 2023



**SEAWAY TODAY**  
**~\$50B (USD)**  
of economic activity  
generated and  
more than 300,000 jobs



**HIGHWAY TODAY**  
**400 TO 500K**  
vehicles a day  
through Toronto

6 Source: [Statistics Canada, Origin and destination of manufacturing sales, 2024](#)

# 1.2 Addressing today's challenge: connecting people to opportunities and unlocking economic potential

Today's challenge takes a different form, but is similar in nature: structural constraints still limit how efficiently Canada's economy functions.

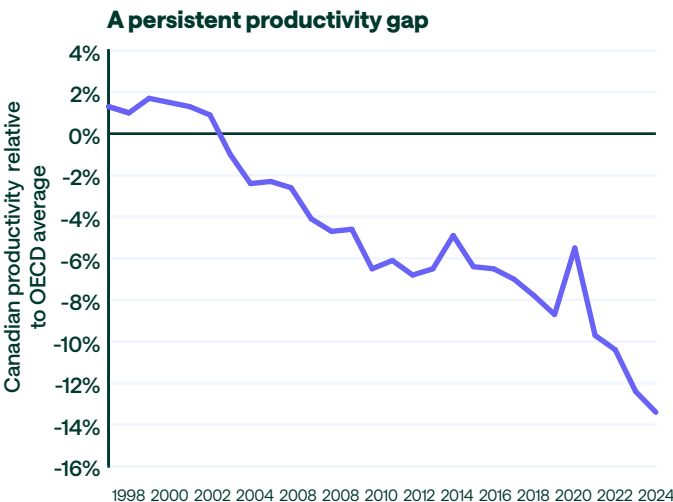
A defining feature of Canada's economic underperformance is weak productivity. In 2024, the Bank of Canada identified low productivity as a central structural challenge,<sup>7</sup> after Canada's relative productivity performance fell from 6<sup>th</sup> among OECD countries in 1970 to 18<sup>th</sup> in 2022.<sup>8</sup>

***“Productivity measures efficiency: how much is produced in a set amount of time. High productivity helps raise our standard of living and keep our economy competitive.”***

Bank of Canada

**In 2024, Canada's real GDP per capita declined by 1.4%, the weakest performance among OECD economies.<sup>9</sup>**

**Figure 4 | Real GDP per hour worked of Canada relative to OECD average - 1997-2024<sup>10</sup>**



Low productivity reduces the pace at which wages can grow, while many of the costs households face continue to increase – an effective decline in living standards. As a result, Canada's economy generates less wealth per person than it otherwise could, limiting opportunities for higher incomes and greater prosperity. Figure 4 shows that Canada's relative productivity has been below OECD average in the last 2 decades, illustrating a persistent productivity gap.

These pressures are acute in the housing market. The price of a new home in Canada has doubled since 2001.<sup>11</sup> Housing has become especially unaffordable in major cities to a level that is effectively pricing many people out of living near the jobs and opportunities they need to access. This mirrors past moments in Canada's history, when economic barriers limited growth and required a structural response. Each time, the path forward was the same: remove the constraint by building the connection that allows the economy to function at scale.

7 Source: [The productivity problem - Bank of Canada](#).  
8 Source: RBC Economics and Thought Leadership. [Canada's Growth Challenge: Why the economy is stuck in neutral](#) (p.2).  
9 Source: [GDP per capita growth \(annual%\) - OECD members](#).  
10 Source: [OECD Data Explorer • Productivity defined as output per worked hour, purchasing power parity \(PPP\) converted](#).  
11 Source: Statistics Canada, [New housing price index, monthly](#).

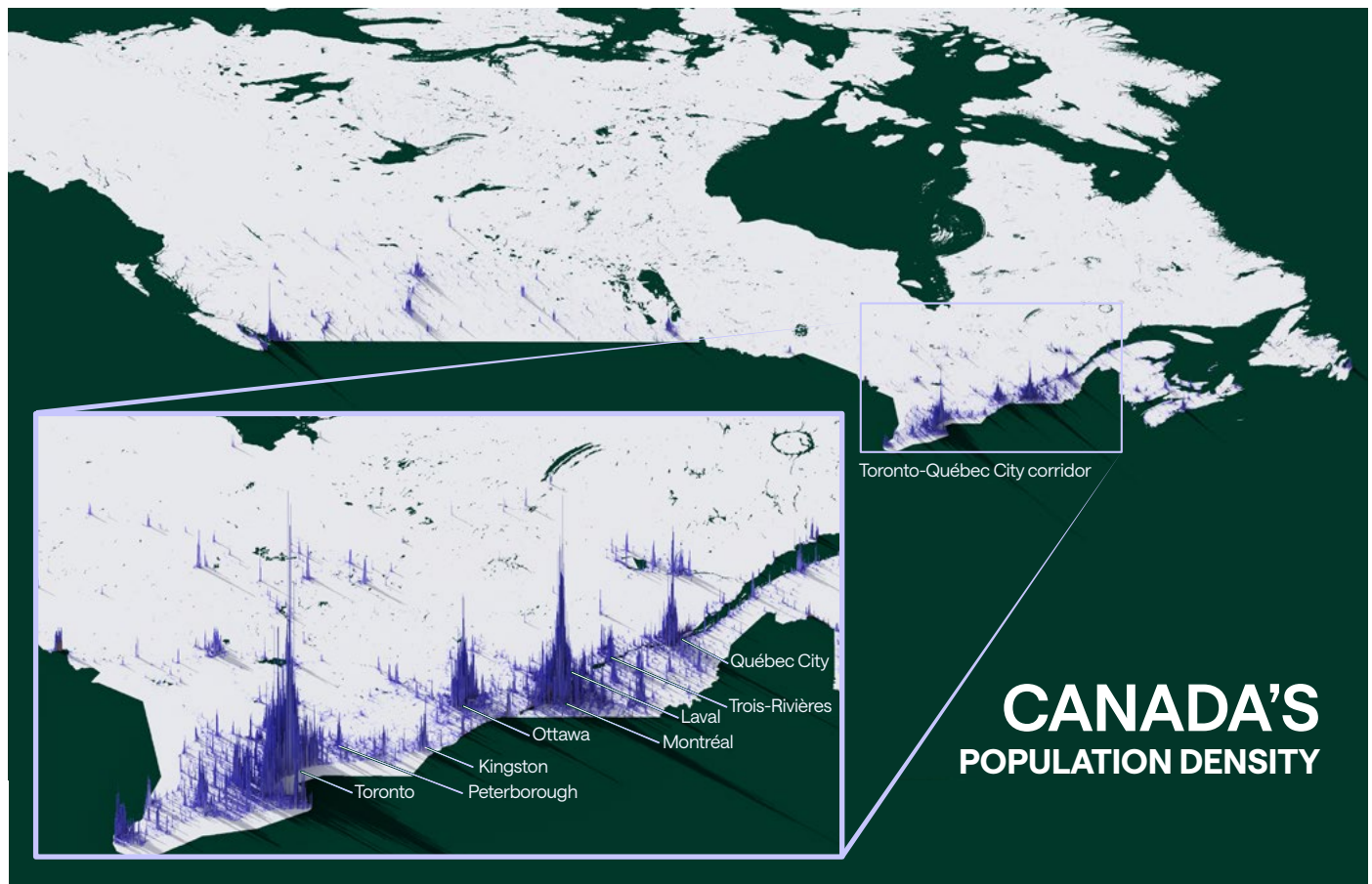
## 1.3 Challenges in Canada's largest economic region

These challenges are most acute where economic activity is more concentrated, and this is evident in the Toronto–Québec City corridor.

The corridor has the most population density in Canada. It is home to 17 million Canadians,<sup>12</sup> representing 41% of the country's population.

*The Toronto–Québec region has the fundamentals of an integrated economy, but not the connectivity to fully function like one.*

**Figure 5 | Population concentration in Canada's primary economic corridor**



<sup>12</sup> Source: Statistics Canada, 2025.

This corridor generates over 40% of Canada's GDP. It is home to the country's two largest provincial economies, its most important financial and technology clusters, some of its busiest airports, and its most heavily travelled highways. What happens in this region shapes Canada's economic performance more than any other single region.

The fundamentals of this region are strong. It benefits from a highly educated workforce, leading research institutions, and globally connected industries. These assets create the conditions for strong productivity growth and sustained economic expansion.

However, the region is not operating at its full potential. In 2025, Québec's real GDP grew by only 0.6%, the lowest of any province, while Ontario also lagged the national average of 1.6%, growing at 1.3%.<sup>13</sup> The country's most densely populated and economically important region is not driving growth as it could.

And the fragmentation of the travel is not helping. The region would have the scale and concentration needed to function as a highly integrated economic region, yet distances between cities continue to act as barriers. Travel across the corridor is often too slow, too unreliable, or too costly to support frequent interaction. As a result, cities that could operate as a single economic system instead function as partially disconnected markets. These constraints are compounded by rising costs of living. Many workers cannot afford to live near the jobs and opportunities they need to access, while businesses struggle to draw from the full available talent pool. The constraint is not the lack of assets, it's the lack of connectivity.

Figure 6 | Corridor key figures



**POPULATION**  
**~17 MILLION**  
**people**

**41%** of Canada's  
population (2025)



**ECONOMY**  
**~\$1.2 TRILLION**

Over **40%** of Canada's  
GDP (2023)



**EDUCATION**  
**700,000**  
**students**

**30** colleges  
and universities

<sup>13</sup> Statistics Canada: [Gross domestic product \(GDP\) at basic prices, by industry, provinces and territories, growth rates](#).

# What changes for Canadians

Nina lives in Peterborough and is a semi-retired nurse with decades of experience in clinical practice. She has recently been invited to teach and help train the next generation of nurses in Toronto, an opportunity she would have declined in the past due to the burden and unpredictability of commuting. With Alto, that constraint is reduced. Reliable, high-speed connections and a range of service frequency options give Nina the flexibility to travel into the city twice a week without significant disruption to her routine. She is able to stay engaged in a profession she cares about, supplement her income, and pass on her expertise, while students benefit from her experience.



Sophie is a student studying in Trois-Rivières, while her family lives in Montréal. She would like to visit them more often, but current travel options are either time-consuming, expensive, or not flexible enough to fit her academic schedule. Planning trips requires compromises, and as a result, she visits less frequently than she would like. By offering fast, affordable, and frequent connections, Alto makes spontaneous or short visits more feasible, helping Sophie maintain stronger ties with her family without compromising her academic schedule.



## Section 2

Fragmented connectivity  
is weakening the  
Toronto–Québec City corridor



**The transportation system serving Central Canada was not designed for the level of demand it faces today. The core infrastructure of highways, airports, and rail was built more than 50 years ago with a smaller population in mind. The corridor is experiencing growing demand and rising congestion across all modes, without significant modernization of Central Canada's infrastructure. Highways are at capacity at certain pinch points, airports have limited capacity to expand, and passenger rail is required to give way to freight traffic. The result is a reinforcing cycle in which rising demand leads to greater congestion, which in turn reduces the system's ability to move people and goods efficiently.**

## 2.1 There is strong and growing demand for intercity travel

The Toronto–Québec corridor already supports a high volume of intercity travel. Intercity travel demand is driven by the movement of workers, students, businesses, visitors, and families between major urban centres. This suggests that Central Canada functions as an interconnected corridor, where strong transportation links are essential to supporting labour mobility, business activity, institutional collaboration, tourism and access to services. With the corridor coming under increasing strain, the importance of those links will only grow.

Population growth, urbanization, and economic activity are expected to further intensify these pressures over time. Between 2001 and 2021, the corridor population grew by 34%. Looking ahead, that population is projected to reach nearly 21 million by 2041, an approximate 28% increase. Assuming travel patterns remain broadly consistent, this population increase is expected to drive a comparable increase in intercity travel demand.

As more people travel between major urban centres for work, business, education, services, tourism, and personal connections, demand will place even greater pressure on an already strained transportation system. Without modern and sustainable improvements to the transport network, congestion and delays are likely to increase, further entrenching productivity losses across the corridor.

**Table 1 | Population growth forecasts for urban centres in the Toronto–Québec City corridor<sup>14</sup>**

| Region                                       | POPULATION         |                                |                            | % GROWTH   |                 |
|----------------------------------------------|--------------------|--------------------------------|----------------------------|------------|-----------------|
|                                              | 2001 <sup>15</sup> | 2021 <sup>16</sup>             | 2041 (proj.) <sup>17</sup> | 2001-21    | 2022-41 (proj.) |
| Greater Golden Horseshoe (GGH)               | 6,581,000          | 9,000,000                      | 12,700,000                 | 37%        | 41%             |
| Communities between GGH and Ottawa           | 303,000            | 404,000                        | 480,000                    | 33%        | 19%             |
| Ottawa Metropolitan Area                     | 1,063,000          | 1,541,000                      | 2,000,000                  | 45%        | 30%             |
| Montréal Metropolitan Area                   | 3,426,000          | 4,331,000                      | 4,500,000                  | 26%        | 4%              |
| Communities between Montréal and Québec City | 173,000            | 216,000                        | 300,000                    | 25%        | 39%             |
| Québec City Metropolitan Area                | 682,000            | 845,000                        | 1,000,000                  | 24%        | 18%             |
| <b>Total – Toronto–Québec City corridor</b>  | <b>12,228,000</b>  | <b>16,337,000<sup>18</sup></b> | <b>20,980,000</b>          | <b>34%</b> | <b>28%</b>      |

<sup>14</sup> Forecast values in the table may differ from the most recent projections published by various institutes due to differences in data reference periods and geographic definitions. Future analysis and population forecasts will be updated using results from the 2026 Statistics Canada Census once they become available.

<sup>15</sup> Source: [Population and Dwelling Counts, for Census Metropolitan Areas and Census Agglomerations, 2001 and 1996 Censuses - 100% Data](#).

<sup>16</sup> Source: [Population and Dwelling Counts: Canada, provinces and territories, census metropolitan areas and census agglomerations](#).

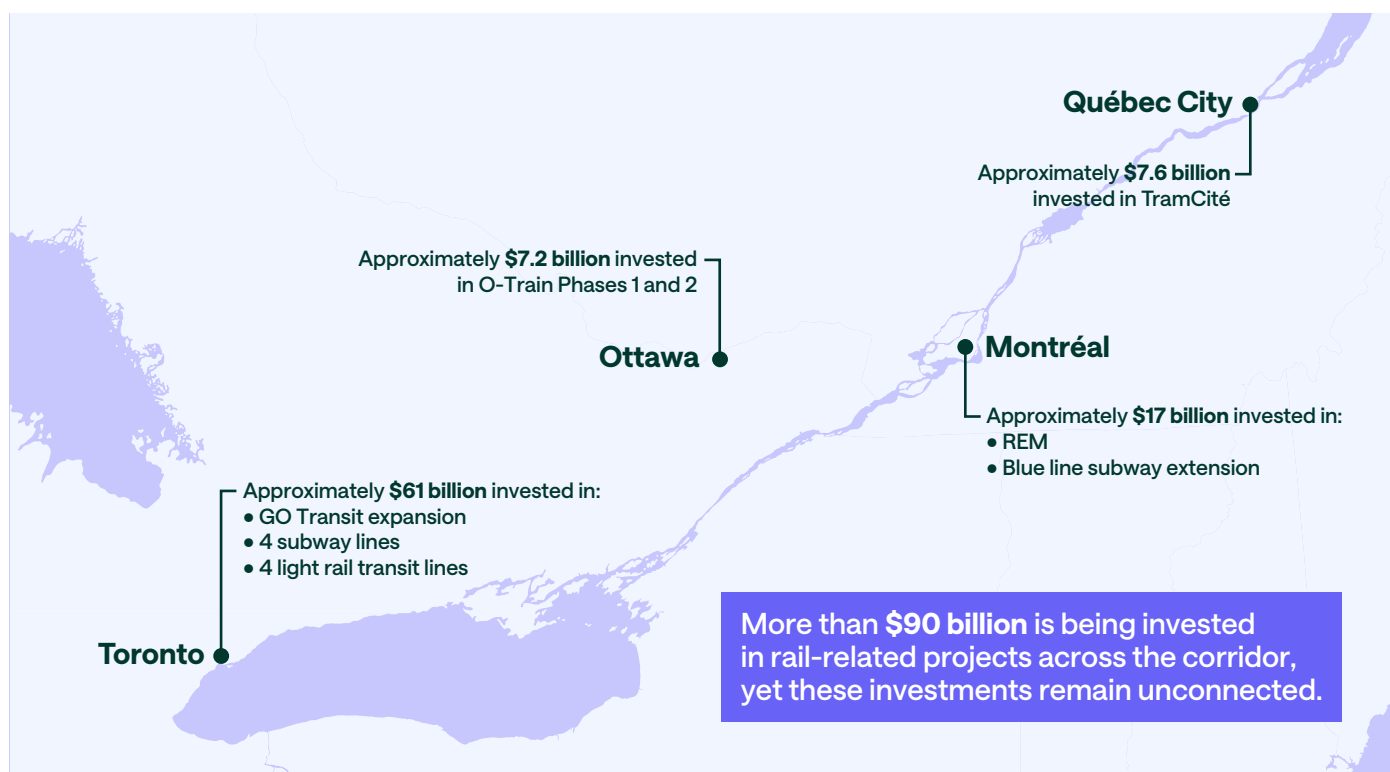
<sup>17</sup> Source: [Population projections – Administrative regions and census metropolitan areas \(CMAs\), Built Boundary for the Growth Plan for the Greater Golden Horseshoe, 2006 - Open Government Portal](#).

<sup>18</sup> This represents the population of the corridor in 2021. It differs from the 17 million population cited in Section 1.3 which reflects the 2025 number.

Meeting future mobility needs will require a transportation system that better connects the corridor's major urban regions. Approximately \$90 billion is in the process of being invested in regional rapid transit across Toronto,<sup>19</sup> Ottawa,<sup>20</sup> Montréal,<sup>21</sup> and Québec City<sup>22</sup> over a multi-decade period. While these investments will

deliver important local benefits, their broader economic impact may remain limited if they continue to function as separate regional systems. An efficient intercity backbone would help connect these networks, improve mobility between major urban centres, and support a more integrated and productive corridor economy.

**Figure 7 | Ongoing rail investment program in the Toronto–Québec City corridor**



19 Ontario is investing 61.6 billion over 10 years for public transit, including GO Expansion, four new subways and four light rail transit lines. [Source: 2022 Ontario Budget | Chapter 1C.](#)

20 Sources for O-Train Phases 1 and 2 costs [Long Range Financial Plan Transit Update](#) and [Office of the Auditor General: Audit of Light Rail Transit Planning and Change Management - Final Report, Tabled at Audit Committee - June 22, 2017.](#)

21 Source for REM and STM investments: [Rapport du Vérificateur général du Québec 2024-2025, novembre 2024, chapitre 5](#) and [Budget de dépenses 2026-2027 - Plan québécois des infrastructures 2026-2036.](#)

22 Source: [TramCité: CDPQ Infra presents the progress made, the next steps and the team responsible for the project.](#)

## 2.2 The current transportation infrastructure is at capacity

The corridor's major intercity transportation networks are already operating under pressure, and that pressure is increasing. As Canada seeks to double exports to international non-U.S. markets,<sup>23</sup> freight and trucking volumes along key east-west corridors could grow

further, adding strain to highway and freight train networks and the broader supply chain. This reinforces the need for more efficient intercity transportation capacity that can improve passenger mobility and strengthen long-term economic growth in Canada.

## 2.3 Mode-by-mode diagnosis



### AUTO

Automobile travel accounts for 97% of trips in the Toronto–Québec City corridor.

As a result, the current highway network is over capacity at critical junctions. This is particularly evident for travel between Toronto, Ottawa and Montréal, where intercity movement relies on a limited set of highways, including Highway 401 and Highway 417. Because travel is so concentrated on these main routes, disruptions on any of them (e.g. collisions, weather events, or other emergencies) can drastically hinder movement between cities.

These structural limitations are reflected in daily travel conditions. Toronto drivers lose roughly 59 hours per year sitting in traffic,<sup>24</sup> while Montréal drivers lose approximately 63 hours per year.<sup>25</sup> These lost hours represent time that could otherwise be spent working, travelling more efficiently, or participating in economic activity. Further illustrating the scale of the problem, the MTO's iCorridor Highway Traffic Analysis between June 2020 and June 2025 recorded over 5,000 hours of delay on Highway 401, with an average network speed of just 47.8 km/h across 292 kilometres of highway. Highway 401 East and West, the primary routes for intercity travel, ranked among the worst-performing routes in terms of delay.<sup>26</sup>

***Toronto drivers lose roughly 59 hours per year sitting in traffic, while Montréal drivers lose approximately 63 hours per year***

Beyond individual travel time losses, congestion is increasingly shaping economic and social outcomes. Among Toronto residents, 81% agree congestion is having a serious impact on business activity, 75% say it negatively affects work-life balance, and 53% are considering relocating due to traffic.<sup>27</sup> These impacts lead to broader productivity losses across the Toronto–Québec City corridor. Even in uncongested conditions, long intercity distances impose a time cost on car travel, limiting productive interaction between cities. Congestion compounds this challenge by increasing end-to-end travel times, raising transportation costs, and reducing reliability, making car travel both slower and less predictable for the movement of people and goods.

23 Source: [Prime Minister Carney advances new trade, economic, and security partnerships with ASEAN nations | Prime Minister of Canada](#).

24 Source: [Toronto ON's Scorecard Report](#).

25 Source: [Montréal QC's Scorecard Report](#).

26 Source: [Highway Traffic Analysis | MTO iCorridor](#).

27 Source: [Breaking Gridlock: Finishing the Job through Provincial Action](#).



## AIR

Air travel across the Toronto–Québec City corridor is also facing growing capacity pressures, particularly at major urban airports. Montréal–Trudeau International Airport is expected to see passenger volumes rise to approximately 25 million by 2028 and between 30 and 35 million by 2035, requiring significant investment to maintain operational efficiency.<sup>28</sup>

In Ontario, demand pressures are equally pronounced. Passenger volumes at Toronto Pearson International Airport are projected to reach 65 million by the early 2030s, an increase of nearly 40%<sup>29</sup> from today, pushing the airport toward its current capacity and requiring infrastructure investment. As airport capacity becomes increasingly constrained, without investment, this growth will place additional pressure on the aviation system, leading to declining reliability and more frequent delays.

Air travel offers limited door-to-door travel time advantages on trips in the 300 km to 800 km range; once station accessibility, check-in, security and boarding times are accounted for.<sup>30</sup> Although flight times may be relatively short, the time required to travel to and from the airport, clear security, board, and disembark can add significant time to the overall journey. As a result, short-haul flights within the corridor may be less efficient for productive business travel while also using scarce airport capacity

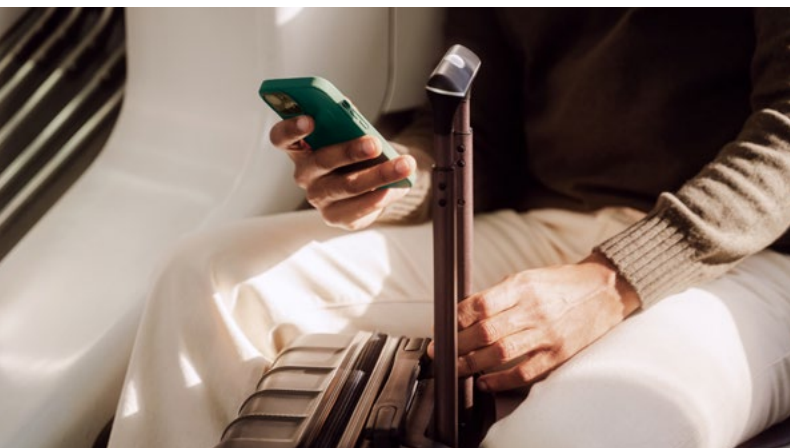
that could otherwise support longer-distance and international connections. Airports in the Toronto–Québec City corridor play an important role in international and long-distance mobility, but they are not the most efficient instrument for managing high volumes of short-haul domestic trips within the corridor.



## PASSENGER RAIL

Passenger rail travel also faces performance challenges, and these are structural rather than operational in nature. In Canada, intercity passenger rail primarily runs on tracks owned by freight railways, where freight trains are given operational priority. This shared use model limits the reliability and performance of passenger service with limited frequency, slower speeds, and low reliability. These outcomes are attributable to the structural limitations of a shared-use rail network, where passenger trains must operate alongside increasing freight volumes. From the report by the Office of the Auditor General of Canada, passenger rail punctuality in Canada from 2022 to 2024 ranged from 51%–59%<sup>31</sup> compared to approximately 90% in Europe.

The existing performance limitations have important implications for future corridor growth. For passenger rail to meet future corridor demand, a fundamental change would be required in how intercity rail infrastructure is owned, operated, and prioritized. Simply giving intercity passenger rail priority on shared freight infrastructure would not resolve these constraints and would likely come at the expense of freight rail operations. This could delay



**Passenger rail punctuality in Canada from 2022 to 2024 ranged from 51%–59% compared to approximately 90% in Europe.**

28 Source : [Future Projects | Aéroports de Montréal](#).

29 Source : [Our plans | Pearson Airport](#)

30 Source : [Fast Rail in the Era of Modal Shift: Global High-Speed Networks and Their Environmental and Socio-Economic Impacts](#).

31 Source : [Report of the Auditor General of Canada to the Board of Directors of VIA Rail Canada Inc.](#)

the movement of goods, reduce supply chain reliability, and create significant economic damage to Canada. The existing system is therefore not a viable baseline from which to scale up service. If passenger trains continue to operate on freight-owned infrastructure, service reliability will remain constrained and journey times will remain longer on key routes, making rail less competitive with other modes.



## GROWING PASSENGER AND FREIGHT CAPACITY CONSTRAINTS

Congestion and capacity constraints are increasing across the corridor, affecting the movement of both passengers and goods. This is visible in everyday travel conditions: highways are increasingly crowded with passenger vehicles and trucks, while passenger rail services face delays when they must give operational priority to freight traffic.

Trucking reinforces the strategic importance of road capacity in the corridor. Transport Canada identifies the Québec City to Windsor corridor as Canada's busiest trucking corridor.<sup>32</sup> In Eastern Ontario alone, Highway 401 handles approximately 11,000 trucks daily, carrying goods valued at up to \$434 million.<sup>33</sup> As congestion worsens, delays affect not only passenger travel but also freight reliability, supply chain efficiency, and the movement of goods across the broader Toronto–Québec City corridor.

Preserving the performance of freight rail is also essential given its critical role in the economy. Alto's internal analysis indicates that in the Toronto to Montréal corridor alone,

***Transport Canada identifies the Québec City to Windsor corridor as Canada's busiest trucking corridor.***



freight rail carries goods worth \$80 billion and connects products from Western Canada to eastern markets, facilitating two-way flows of goods. Efficient freight is particularly important for agriculture, helping farmers receive critical inputs such as fertilizer, seed and equipment, while enabling agricultural products to reach processors, domestic markets and international customers. The broader result is that delays, unreliability, and uncertainty impose real costs on travellers, businesses, and supply chains.

The current intercity transportation system is not well positioned to absorb expected future growth efficiently or to provide the speed, reliability, and predictability required at scale. Today's infrastructure was not designed for the economy Canada is expected to become. Any decline in performance would compound existing challenges by increasing costs and supply chain disruptions in the short term and reducing competitiveness and trade over the long term. This underscores the importance of preserving rail rights-of-way and investing in sufficient capacity to support future growth across both freight and passenger systems.

<sup>32</sup> Source: [Modal Overviews](#).

<sup>33</sup> Source: [2026 Ontario Budget | Chapter 1B | Building](#).

## 2.4 Investments in existing transportation modes cannot solve the issue



Incremental investments across existing modes may provide partial and temporary relief, but they do not address the corridor's underlying structural challenge. While these options may improve parts of the existing system, they do not meaningfully reduce economic distance or structurally integrate major urban markets.

### **HIGHWAY EXPANSION: TEMPORARY RELIEF WITHOUT LONG-TERM IMPROVEMENT**

Highway expansion can provide short-term relief by adding capacity and easing congestion in the near term. However, highways are not the most efficient way to move large volumes of people between major origin-destination markets. Each additional traveller requires additional road space, which limits the ability of highway expansion to accommodate growing passenger demand at scale. As population and economic activity in the corridor continue to grow, expanded highways would quickly face the same pressures that exist today.

As a result, highway expansion does not deliver sustained improvements in travel times or reliability for intercity travel. Door-to-door journey times remain long and highly variable due to recurring congestion, incidents, and weather-related disruptions, and long-run reliability deteriorates as traffic volumes increase. Even with the highway expansion, travel between cities may still be too slow, congested, unreliable, or car-dependent to meaningfully improve economic integration between them.

Despite these limitations, public investment in highway expansion across the Toronto–Québec City corridor remains substantial. Ontario's current ten-year highway capital plan commits approximately \$28–31 billion<sup>34</sup> to provincial roads, while Québec's Plan Québécois des infrastructures allocates a further \$27–35 billion<sup>35</sup> to its

<sup>34</sup> Source: [Financial Accountability Office of Ontario](#).

<sup>35</sup> Source: [https://www.tresor.gouv.qc.ca/fileadmin/PDF/budget\\_depenses/20-21/7-Plan\\_quebecois\\_des\\_infrastructures.pdf](https://www.tresor.gouv.qc.ca/fileadmin/PDF/budget_depenses/20-21/7-Plan_quebecois_des_infrastructures.pdf).

road network over the same horizon. Combined, the two provinces are directing upwards of \$55–65 billion in highway and road infrastructure spending across the corridor over the next decade, before federal cost-sharing contributions are added.

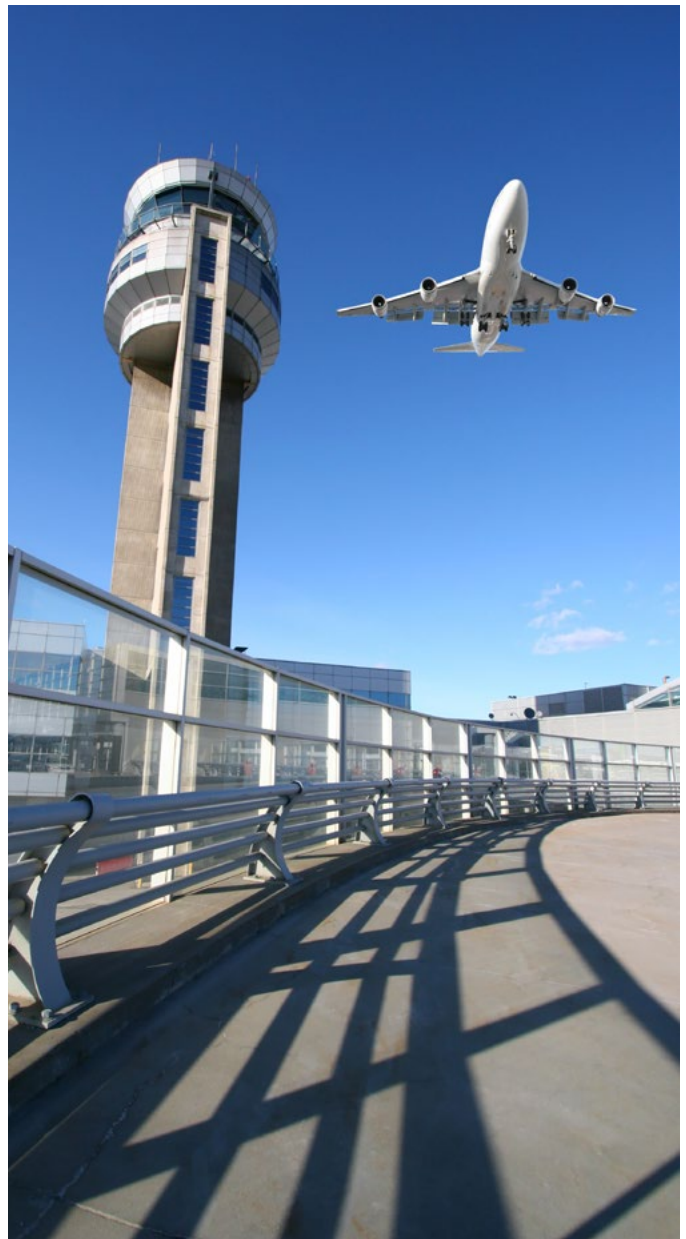
This level of sustained investment is directed toward a mode that, by its own dynamics, cannot resolve the corridor's long-term mobility challenge. It is a stop-gap measure that will require correction in the future, and for the same reasons.

## **AIRPORT EXPANSION: PRIMARILY SERVING LONG-DISTANCE TRAVEL**

Airport expansion follows a similar pattern. Investments in runways, terminals, or airside capacity can improve operational resilience and reduce delays, potentially supporting modest reliability gains over time. These improvements do not address the structural limitations of air travel for medium-distance intercity trips in the corridor, which range from 300 to 800 km.

Air travel can be highly convenient in specific cases, particularly where airports are centrally located. However, convenience often comes with higher costs and limited scalability, making it less accessible as a mass mobility solution for many travellers. Urban airports illustrate this trade-off, as they can offer strong convenience for certain trips, but the physical limits of airports constrain their ability to move large numbers of people across the corridor. Air travel as a result is not well suited to serving high-volume, medium-distance origin-destination markets at scale.

**These improvements do not address the structural limitations of air travel for medium-distance intercity trips in the corridor, which range from 300 to 800 km.**



Door-to-door travel times by air remain dominated by access to airports, security screening, boarding processes, potential delays, baggage claim, and onward travel at the destination. Even with expanded infrastructure, these elements prevent meaningful reductions in end-to-end journey times. Air travel also remains among the most emissions-intensive options per passenger-kilometre and places continued pressure on constrained urban airport sites. As demand grows, airport expansion risks perpetuating a high-cost, high-emission system without delivering transformative improvements in how people move between corridor cities.

## 2.5 Incremental rail upgrades are structurally constrained

Conventional rail improvements offer a lower upfront capital cost, but they can only deliver marginal gains in speed and frequency. Much of the existing passenger rail network operates on freight-owned tracks, where service remains constrained by freight dispatching priorities, speed restrictions, limited track capacity, and growing freight volumes. The listed conditions also create trade-offs for freight rail as adjustments associated with upgrading the existing network could disrupt freight movements during the period, negatively affecting the economy. These operating and physical constraints limit the extent to which incremental upgrades can improve travel times, reliability, or service levels. As a result, conventional rail improvements would not provide the necessary change in intercity connectivity needed to structurally integrate the corridor's major markets.

More importantly, operating at higher speeds would require safety and technical standards beyond what the existing infrastructure was designed to support and beyond what incremental upgrades could reasonably accommodate. These requirements cannot be delivered at scale on existing rail alignments without extensive reconstruction, significant property acquisition, and prolonged service disruption. As a result, upgrading existing rail infrastructure does not provide a viable pathway to the level of speed, reliability, and capacity required to address the corridor's long-term transportation needs.

## 2.6 Dedicated “high-frequency” rail: the high-cost, low-benefit option

Although “high-frequency” rail (HFR) is often presented as the lower-cost alternative, that framing is misleading. A faster and more reliable HFR system could not operate effectively on the existing CN and CPKC freight network, because freight and passenger rail have fundamentally different operating requirements. Freight rail is optimized for the safe and efficient movement of heavy goods, while intercity passenger rail requires higher speeds, reliable schedules, and consistent priority. HFR would still require largely new, dedicated infrastructure, including new or substantially realigned corridors, full grade separation to eliminate level crossings, and full electrification.

The existing network cannot support consistent speeds above 177 km/h because of geometric constraints, mixed freight and passenger operations, and the continued presence of at-grade crossings. Safety is also a decisive factor. Higher-speed rail operating at grade would create

**Even a modest speed-oriented HFR option cannot be delivered through incremental upgrades to the current network.**

safety concerns where trains intersect with roads, vehicles, and pedestrians. Even a modest speed-oriented HFR option cannot be delivered through incremental upgrades to the current network.

In effect, no comparable country has recently built the type of HFR option that has been considered for Canada, which would deliver a largely new, dedicated, electrified, and grade-separated intercity corridor without achieving high-speed rail travel-time performance.

These infrastructure requirements push HFR capital costs close to those of high-speed rail, while delivering far weaker outcomes. Available analysis indicates that a dedicated HFR option would cost approximately \$45 billion to \$75 billion, compared with \$60 billion to \$90 billion for high-speed rail. In other words, HFR would still require a near high-speed rail level of investment, but without the travel time reductions needed to fundamentally change travel behaviour.

High-speed rail results in significantly shorter journey times, which enable long-distance mode shift, labour market integration, and productivity gains at scale. High-speed rail is projected to generate an annual

contribution to Canada’s GDP five times larger than that of HFR (1.1% GDP uplift versus 0.2%), primarily because its shorter travel times and higher speeds enable labour market integration, productivity gains, and long-distance mode shift at scale. These differences in outcomes dominate the marginal difference in upfront cost.

The central issue is therefore not whether HFR is cheaper and more affordable, but rather whether Canada should spend billions of dollars on an option that approaches the cost of high-speed rail while delivering only a fraction of the benefits. On that basis, high-speed rail represents the stronger investment for travellers, the corridor, and the Canadian economy.

**Table 2 | Cost and benefit comparison of “high-frequency” and high-speed rail options**

|                                            | “HIGH-FREQUENCY” RAIL | HIGH-SPEED RAIL | Δ%           |
|--------------------------------------------|-----------------------|-----------------|--------------|
| Top Speed                                  | 200km/hr              | 320 km/hr       | +60%         |
| Capital cost (billions, \$2024)            | 45-75                 | 60-90           | +20%         |
| Direct welfare benefits (billions, \$2024) | 33.6                  | 49.5            | +47%         |
| Construction jobs supported                | 44,000                | 50,000          | +14%         |
| GDP uplift (billions, \$2019)              | <b>4.9</b>            | <b>24.5</b>     | <b>+400%</b> |

## 2.7 Incremental options fall short

Each option currently proposed offers some form of partial relief, but none provides the structural change required to meet the corridor’s long-term needs. Highway, airport, and incremental rail investments can improve existing systems, but they do not meaningfully reduce economic distance or integrate the corridor’s major labour, business, education, and visitor markets.

Addressing the corridor’s long-term mobility challenge requires more than incremental investment.

# What changes for Canadians

For Bill and Joëlle, a retired couple from Québec City, attending Montréal's Jazz Festival should be part of the enjoyment, not a source of stress. Yet the idea of driving in heavy traffic, navigating busy streets, and searching for parking during a major event makes the trip feel burdensome, pushing them to reconsider traveling, especially as alternatives often involve added complexity or lack comfort. A direct city-centre-to-city-centre journey removes these constraints, offering a simple and comfortable way to travel. By reducing uncertainty and eliminating the need to drive, Alto allows them to arrive relaxed and fully enjoy the festival.



Vera and Leon are travelling to Toronto with their twin sons for a two-day wedding. This requires careful planning. As a family of four, they need space, simplicity, and reliability, but driving exposes them to traffic congestion, weather disruptions, and the risk of delays at a critical moment. Alternative options often lack flexibility and make travelling with children and luggage more complex. Alto changes the equation entirely: instead of building their trip around constraints, they can rely on a smooth, end-to-end journey designed for predictability and comfort. With direct connections, ample space for luggage, and a setup that works for families, travel becomes straightforward, allowing them to arrive on time without the usual stress and uncertainty.



## Section 3

High-speed rail effectively reduces economic distance at scale

# 3.1 High-speed rail is a proven economic enabler

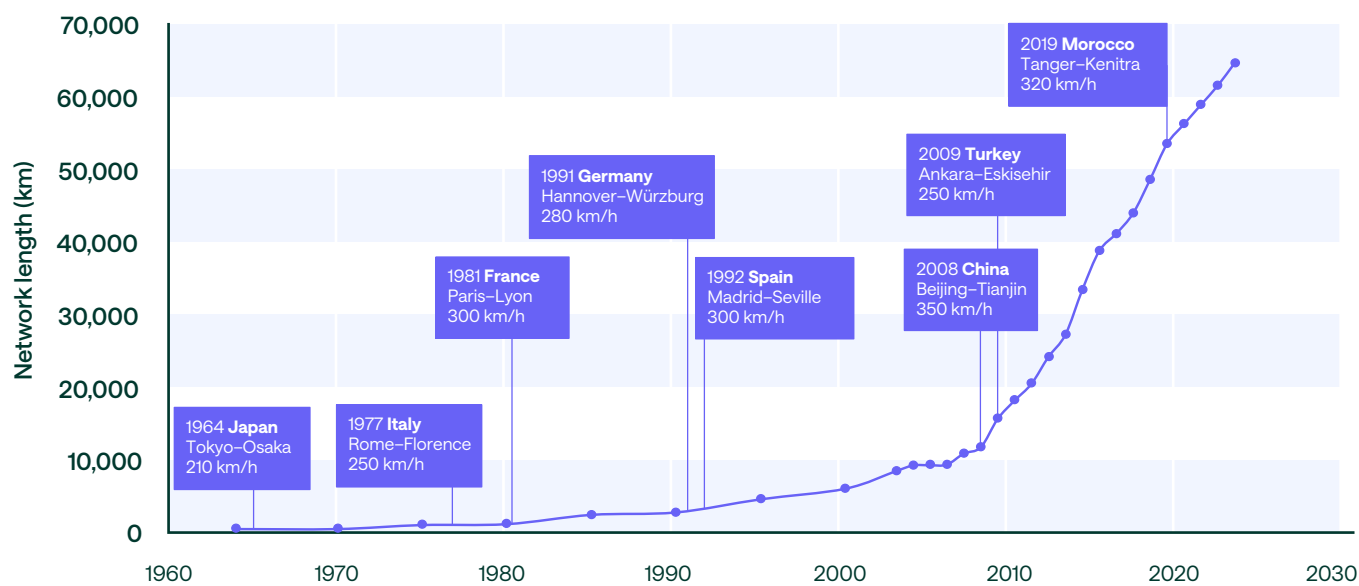
High-speed rail is a proven and powerful economic enabler that materially reduces the effective distance between cities, transforming how people, labour, and markets connect. It supports more integrated regional economies and more efficient patterns of economic growth.

This transformative impact has driven widespread global adoption of high-speed rail technology and systems.

Since the 1960s, high-speed rail has evolved significantly, with successive deployments across Asia and Europe steadily increasing speed, capacity, and reliability.

Today, the global network spans more than 60,000 km, reflecting decades of sustained investment that has solidified high-speed rail as a central pillar of modern, high-performance transportation systems (Figure 8).

Figure 8 | High-speed rail global network development – 1964 to 2023<sup>36</sup>



Despite competition from other modes and new technologies, high-speed rail has continued to expand globally over the past decades. Why? Because high-speed rail uniquely delivers:

**Step-change reductions in intercity travel time**, consistently outperforming car and bus travel through higher speeds, and often outperforming air travel due to easier and more efficient station access, reduced wait times, and stations located closer to city centres.

**High frequency and reliability**, made possible by shorter journey times that allow for more trips within a given period, enabling departures aligned with demand and supporting consistent, predictable travel.

**Dedicated infrastructure**, avoiding the structural limitations of mixed-use systems. Dedicated infrastructure removes conflicts with freight traffic and allows service levels to be aligned with passenger demand rather than the constraints of shared tracks.

36 Source UIC 2024 Atlas

**Scalable capacity**, aligned with long-term growth in travel demand. A high-speed rail network’s capacity can be increased by running more frequent services, rather than building entirely new infrastructure. It is the only option capable of accommodating sustained demand growth while materially improving speed, reliability, productivity, and environmental performance at the same time.

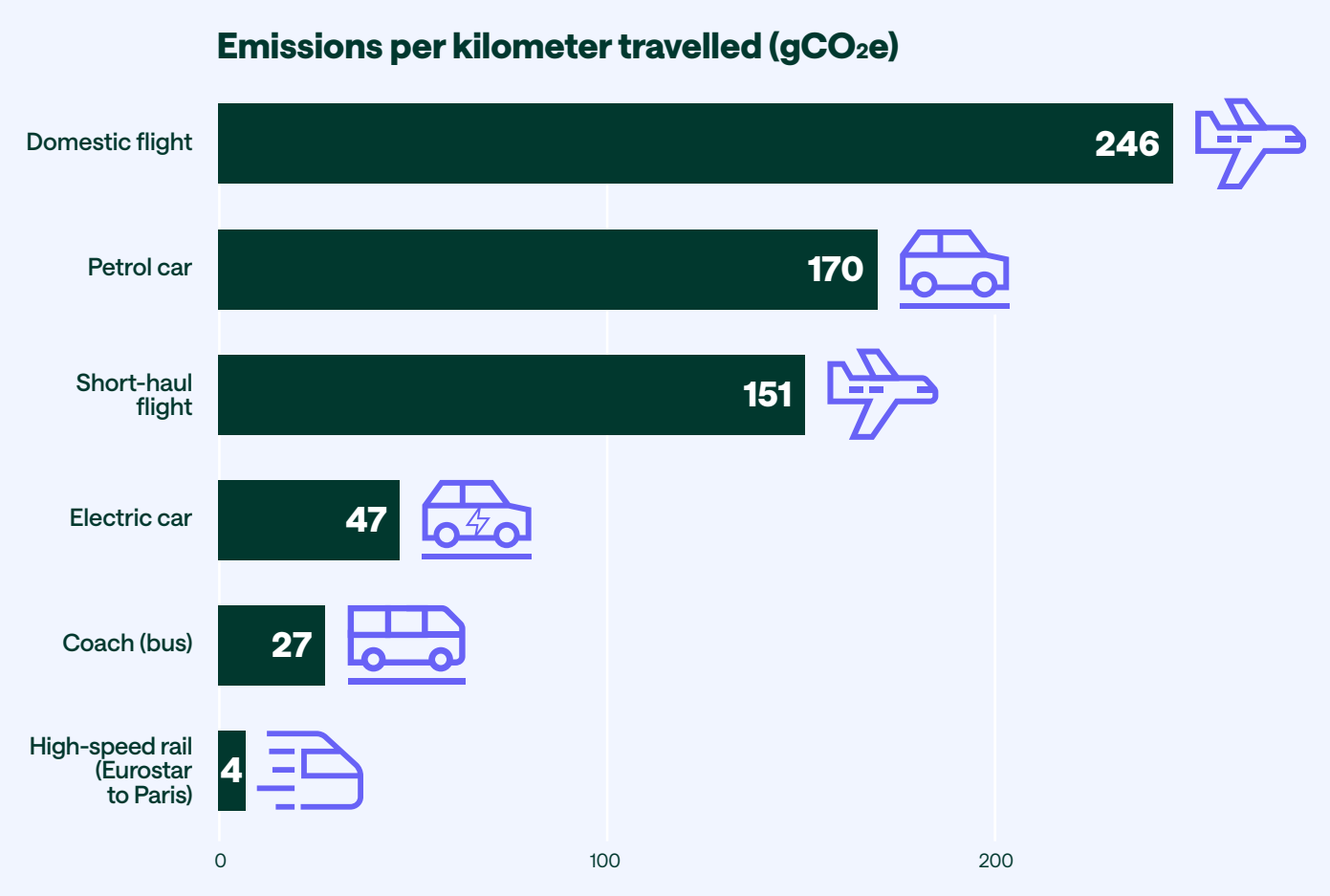
**A low-carbon emitting transportation option**, shifting travel toward electrified rail and away from more emissions-intensive modes while supporting a more sustainable pattern of growth across the corridor.

**High-speed rail and GHG emissions**

High-speed rail is one of the lowest-carbon intercity transport options in operations, particularly in electrified systems with a low-emissions power mix. While emissions vary depending on technology and system design, evidence consistently shows

that electrified rail produces significantly lower emissions per passenger kilometre than road and air transport. Figure 9 illustrates this advantage, comparing emissions across transportation modes in the UK and illustrating the strong environmental performance of high-speed rail.

**Figure 9 | Carbon footprint of transportation options in operations per passenger kilometre (UK)<sup>37</sup>**



37 Our World in Data: [Which form of transport has the smallest carbon footprint?](#)

These performance advantages translate directly into improved economic outcomes by reducing barriers to movement between cities. It enables:

**Integrated labour markets**, by shrinking travel times and improving reliability so that a wider range of jobs and workers fall within practical reach. This helps cities function less as separate labour markets and more as connected ones, improving job-worker matching and supporting a more efficient use of skills across the corridor.

**Greater access to housing across regions**, by making it more realistic for households to live farther from the most constrained urban cores while remaining connected to major employment centres. This can widen residential choice, reduce pressure on the tightest markets, and help unlock housing opportunities in better-connected surrounding communities.

**Stronger business productivity through expanded markets**, as faster and more reliable connections reduce coordination costs and improve access between companies, workers, suppliers, and customers. These accessibility gains support deeper labour pools, stronger business-to-business interaction, greater knowledge exchange, and the agglomeration effects that help raise efficiency, innovation, and output.

**Increased economic resilience and flexibility**, by giving the corridor a stronger transportation backbone and reducing reliance on any single mode as demand continues to grow. In a region already facing capacity and performance constraints, this adds flexibility, diversifies mobility options, and supports more dependable movement between major cities over time.

Taken together, these effects can and have redefined how regions function economically. Some examples are presented in the next section.

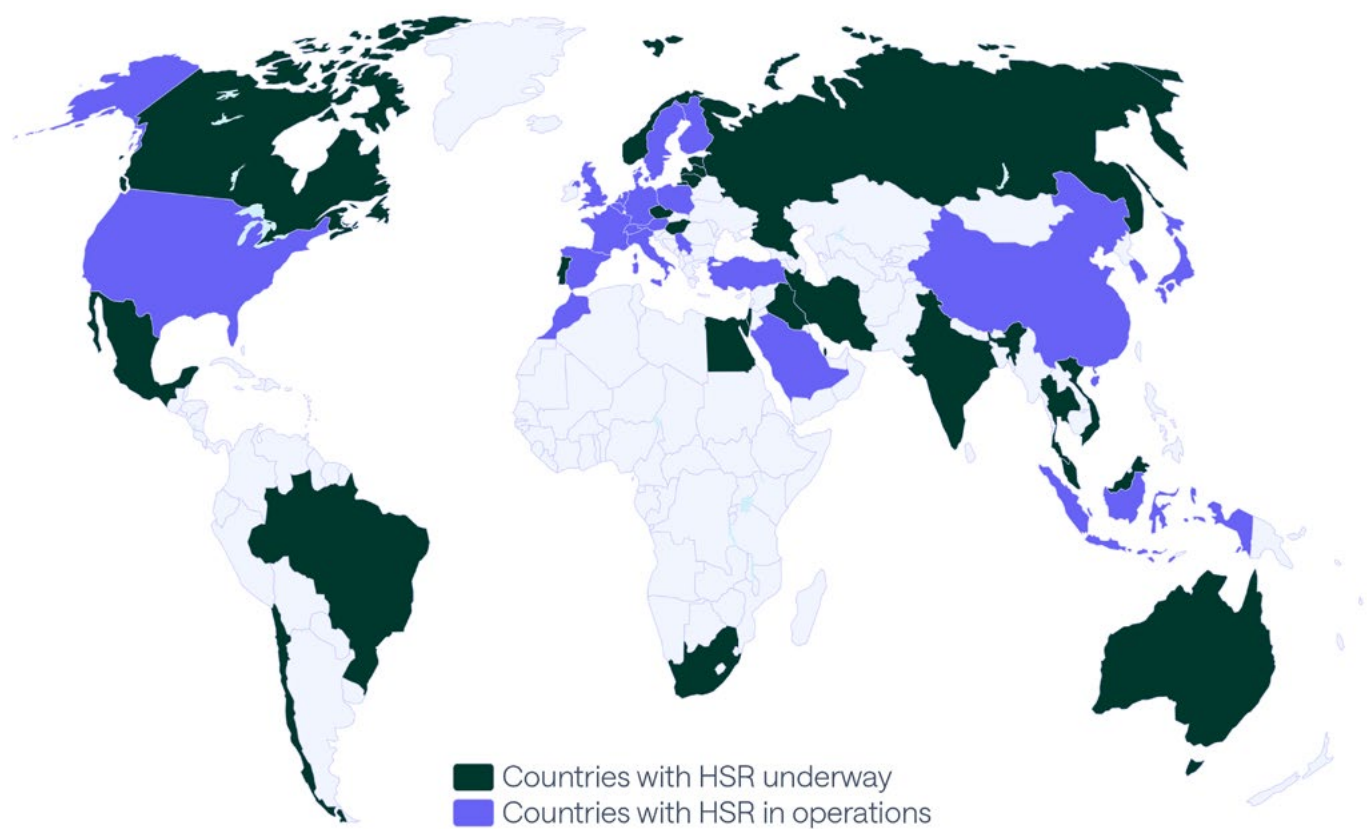
# 3.2 International evidence: high-speed rail has transformed other countries

Today, more than 20 countries have developed high-speed rail networks. It has been implemented, or is being actively developed, in contexts with underlying characteristics similar to those of the Toronto–Québec City corridor: where strong demand exists between major urban centres, where existing transport systems are at capacity and therefore constrained, and where economic integration is a policy objective.

Below are some examples of where and how high-speed rail networks have had a positive impact in regions around the world that are comparable to the Alto corridor.

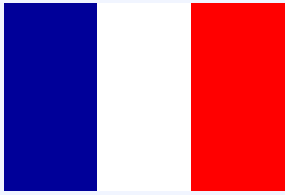
**Around the world, high-speed rail delivers value because it solves specific transportation problems in a way that other modes cannot, and tangible socio-economic benefits stem from the solution.**

Figure 10 | Map of countries with high-speed rail in operation or under development<sup>38</sup>



<sup>38</sup> Source: UIC 2024 Atlas.

## FRANCE: PARIS-LYON



### Context:

Connected cities: Paris–Lyon

Line length: 450 km

Combined population: ~12 million

Opening year: 1981

**Impact of HSR:** High-speed rail has reshaped France's national geography by enabling Paris and major regional cities to function as a single, highly integrated economic system. Following the introduction of high-speed rail, companies and organizations adjusted quickly to the new level of accessibility.

- By 2011, more than 40% of regional offices were connected to their headquarters in Paris via high-speed rail, enabling faster coordination and prompting many businesses to reorganize operations within one year of a line opening.
- These changes were accompanied by a sharp increase in business travel, which rose by 52% for Paris-based companies and by 144% for those in the Lyon metropolitan area.

These effects illustrate how improved intercity connectivity can expand the functional labour market and enable cities to operate as part of a single, integrated economic system.<sup>39</sup>

**Relevance for Canada:** This corridor closely mirrors the distance and populations of the Toronto–Montréal segment and shows how businesses respond to improved connectivity of this scale.



<sup>39</sup> Source: [The local economic impacts of high-speed railways: theories and facts](#).

## GERMANY: COLOGNE–FRANKFURT



### Context:

Connected cities: Cologne–Frankfurt

Line length: 180 km

Combined population: ~5.7 million

Opening year: 2002

**Impact of HSR:** High-speed rail has strengthened Germany's polycentric economic geography by improving connections between major economic centres and allowing multiple cities to function as part of an interconnected network. The dedicated Cologne–Frankfurt high-speed line connected the Rhine-Ruhr megaregion with the Frankfurt Rhine-Main financial hub, significantly reducing travel times between the two regions.

- Post-opening analysis found that German counties gaining access to HSR stations experienced a GDP increase of approximately 8.5% over six years, reflecting improved access to jobs, services, and larger labour markets once communities were brought within commuting distance of major economic centres.<sup>40</sup>
- The broader transportation system also benefited. Air travel between Frankfurt and Cologne declined sharply after the introduction of HSR, and the route was fully discontinued by 2007.<sup>41</sup> At the same time, Frankfurt Airport experienced a shift in traffic, with domestic volumes decreasing and international traffic increasing, suggesting that HSR can free up airport capacity for higher-value long-haul flights.<sup>42</sup>

These effects show how high-speed rail can reduce economic distance, strengthen regional labour market integration, support productivity gains, and shift short-haul trips away from air travel.

**Relevance for Canada:** The Cologne–Frankfurt example is relevant to Alto because it demonstrates how improved connectivity between major economic centres can support stronger corridor integration and generate measurable economic benefits for communities that gain station access. It also shows how HSR can complement the broader transportation system by shifting short-haul trips from air to rail, freeing capacity at major airports and supporting a more efficient intercity travel network.

<sup>40</sup> Source: [From periphery to core: measuring agglomeration effects using high-speed rail | Journal of Economic Geography | Oxford Academic](#).

<sup>41</sup> Source: [Lufthansa Express Rail in Germany: A critical evaluation of benefits and limitations of the intermodal network based on journey time and fares - ScienceDirect](#).

<sup>42</sup> Source: [Quantifying the substitutability and complementarity between high-speed rail and air transport - ScienceDirect](#).

## ITALY: TURIN–MILAN–ROME–NAPLES



### Context:

Connected cities: Turin, Milan, Bologna, Florence, Rome, and Naples

Line length: 938 km

Combined population: ~12 million

Opening year: 2005

**Impact of HSR:** High-speed rail has significantly increased intercity travel and economic interaction in Italy by integrating previously separate regional markets into a more connected corridor economy. The high-speed corridor linking Turin, Milan, Bologna, Florence, Rome, and Naples improved connections between major metropolitan areas and intermediate cities, supporting stronger travel demand and greater modal shift from air to rail.

- Between 2008 and 2019, rail's share of travel between Milan and Rome increased from 36% to 74%, while air travel fell from 49% to 17%, even as total travel demand grew by roughly 30%.<sup>43</sup>
- Evidence also points to productivity gains in intermediate cities. Following the opening of the Reggio Emilia high-speed station, regional productivity is estimated to have increased by approximately 5%.<sup>44</sup>

These effects show how high-speed rail can integrate major urban markets, increase overall travel demand, shift short-haul trips from air to rail, and generate productivity benefits for intermediate cities connected to the network.

**Relevance for Canada:** The Italian example is relevant to Alto because the Turin–Milan–Rome–Naples corridor has city spacing and population characteristics similar to the Toronto–Québec City corridor. It demonstrates how high-speed rail can connect major metropolitan areas and intermediate cities into a single corridor economy, while supporting modal shift, higher ridership, and broader productivity gains across the network.

<sup>43</sup> Source: [External Costs](#).

<sup>44</sup> Source: [High-Speed Railways and Firms Total Factor Productivity: Evidence from a Quasi-Natural Experiment](#).

## SPAIN: MADRID–BARCELONA



### Context:

Connected cities: Madrid and Barcelona

Line length: 620 km

Combined population: ~13 million

Opening year: 2008

**Impact of HSR:** With over 3,000 km of high-speed rail, Spain boasts the largest HSR network in Europe. The investment has been associated with measurable increases in economic output, labour productivity, and the number of companies in cities and regions served by the network.

Evidence from the Madrid–Barcelona corridor, one of the country’s most important economic axes, shows how these effects materialize in practice. Following the rollout of high-speed rail, cities served by the line experienced measurable gains in economic performance, with local GDP increasing by approximately 2.4%, the number of businesses rising by 3.3%, and worker productivity improving by 1.1%. These effects reflect the impact of faster and more reliable connections, which expand the effective scale at which firms and workers can interact across regions.

**Relevance for Canada:** The Madrid–Barcelona example shows that high-speed rail can generate economic benefits in corridors with similar population levels and distances as the Toronto–Québec City corridor.

## JAPAN: TOKYO–OSAKA



### Context:

Connected cities: Tokyo to Osaka

Line length: 515 km

Combined population: ~55 million

Opening year: 1964

**Impact of HSR:** The Shinkansen, the world’s longest-running high-speed rail network with over 60 years of operation, has contributed to sustained productivity gains and deep economic integration. Evidence from Japan shows that regions served by high-speed rail tend to exhibit higher productivity levels than those that are not, reflecting the role of improved connectivity in shaping economic performance.

These effects extend across the country’s high-speed rail network rather than concentrating in a single set of cities. High-speed rail strengthened connections between regions, allowing economic activity to expand and integrate across the system. In doing so, it supported a more connected and productive national economy, where businesses and workers now operate at a larger scale while remaining anchored in their local communities.

**Relevance for Canada:** the Shinkansen example is illustrative of how ambitious infrastructure can structurally alleviate economic barriers.

# 3.3 Relevance for the Toronto–Québec City corridor

The Toronto–Québec City corridor shares key structural features with these examples, including a comparable population within comparable corridor distances, as shown in Table 3.

The countries in which HSR has been built differ widely in economic structure, institutional framework, geography, and climate. This breadth of adoption reflects a common conclusion: countries pursuing economic integration have integrated high-speed rail as a solution to core transportation challenges across a wide range of contexts.

No matter the specific characteristics of a region, fast, frequent, and reliable connections reduce the economic distance between cities. High-speed rail acts as the missing link between cities that are already economically interdependent but insufficiently connected. High-speed rail has the potential to transform the Toronto–Québec City corridor into a true economic megaregion, as it has done elsewhere.

Table 3 | Alto corridor in an international context: population and distance comparison

| COUNTRY                                  | CITIES                                                          | POPULATION <sup>45</sup> | DISTANCE (KM)     |
|------------------------------------------|-----------------------------------------------------------------|--------------------------|-------------------|
| Canada<br>(Toronto–Québec City corridor) | Toronto–Peterborough–Ottawa–Montréal–Trois-Rivières–Québec City | 15,086,049               | ~1,000            |
| Spain                                    | Madrid–Zaragoza–Lleida–Tarragona–Barcelona–Girona–Figueres      | 13,308,415               | 804 <sup>46</sup> |
| Italy                                    | Turin–Milan–Bologna–Florence–Rome–Naples–Salerno                | 16,219,393               | 756 <sup>47</sup> |
| France                                   | Paris–Lyon–Valence–Avignon–Marseille                            | 17,890,712               | 742 <sup>48</sup> |

45 Population by functional urban area. Source: [OECD Data Explorer • Population by age and sex - Cities and FUAs](#). Population on Alto's corridor differs slightly from this presented in Table 1 as this table uses standardized Functional Urban Areas used by OECD.

46 Source: [Adif](#).

47 Source: [Trainline](#).

48 Source: [SNCF Connect](#).

# What changes for Canadians and visitors

Aline, Marie, and Julien are visiting Montréal from France to spend time with a close friend. While their priority is to make the most of their time together, they also long wanted to visit Toronto. Alto allows them to do both. They travel to Toronto and return the next morning, fitting the trip smoothly into their visit. This way, they can share time with their friend while also experiencing something they have been looking forward to, without disrupting the rhythm of their stay.



Mélissa, a small business owner based in Québec City, travels regularly to Montréal for work. By taking high-speed rail instead of driving, she gains two to three hours on what used to be a full-day trip. That extra time allows her to schedule an additional meeting with a prospective client, something that would not have been feasible before. On the train, she is also able to stay connected with her team, contributing to a critical deliverable during a busy period rather than losing those hours behind the wheel. Time that was once spent travelling becomes time that can be used productively.



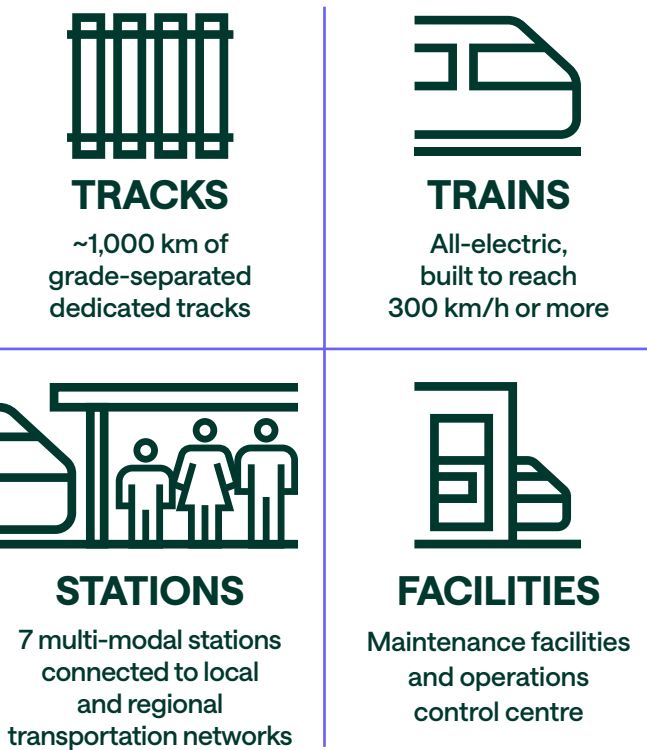
## Section 4

The Alto proposition: delivering a transformational change in economic integration

# 4.1 Alto's proposition

The Alto project is a dedicated high-speed passenger rail service connecting Toronto, Peterborough, Ottawa, Montréal, Laval, Trois-Rivières and Québec City. A potential additional station in Kingston is currently under study, following a request from the Minister of Transport on June 22, 2026.<sup>49</sup> The system is designed for operating speeds of 300 km/h or more on approximately 1,000 km of fully electrified and grade-separated infrastructure and providing high-capacity intercity passenger rail services across the corridor. Frequent departures are expected between key city pairs, with indicative frequencies of at least hourly or half-hourly service, depending on the route and final service design.

Delivering this service requires new infrastructure, including:



By constructing new, dedicated infrastructure, Alto will deliver a consistent level of service defined by three core characteristics:

**Fast**, as the infrastructure will be designed to international high-speed rail standards that meet rigorous safety and design requirements (such as track curvature) for operations.

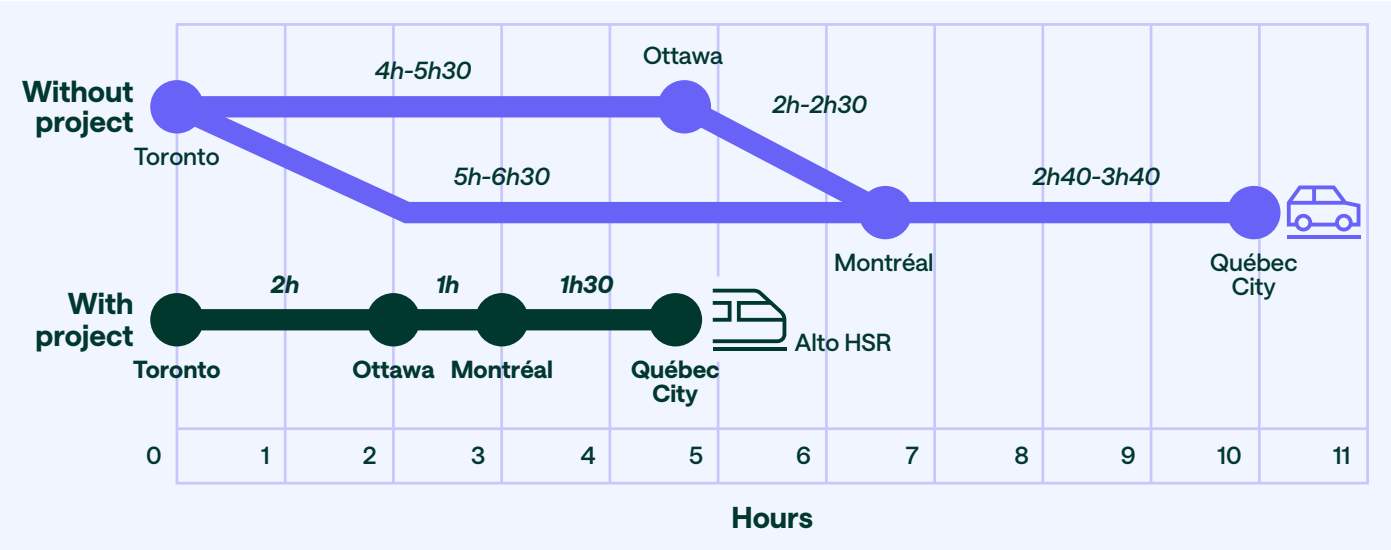
**Frequent**, as a dedicated corridor eliminates competition with freight traffic, allowing passenger services to run at intervals properly aligned with demand.

**Reliable**, as the system will be designed for Canadian conditions and will minimize interfaces with other networks, supporting strong on-time performance and reducing service disruptions.

These characteristics position the service as a competitive alternative to existing intercity modes (including car, bus, existing rail and air travel). By cutting travel times in half, the service will make same-day return travel a practical option across the high-speed rail network, regardless of the origin and destination station.

<sup>49</sup> The Kingston assessment work will be completed in the coming months and reflected in future documentation; it is not included in this document.

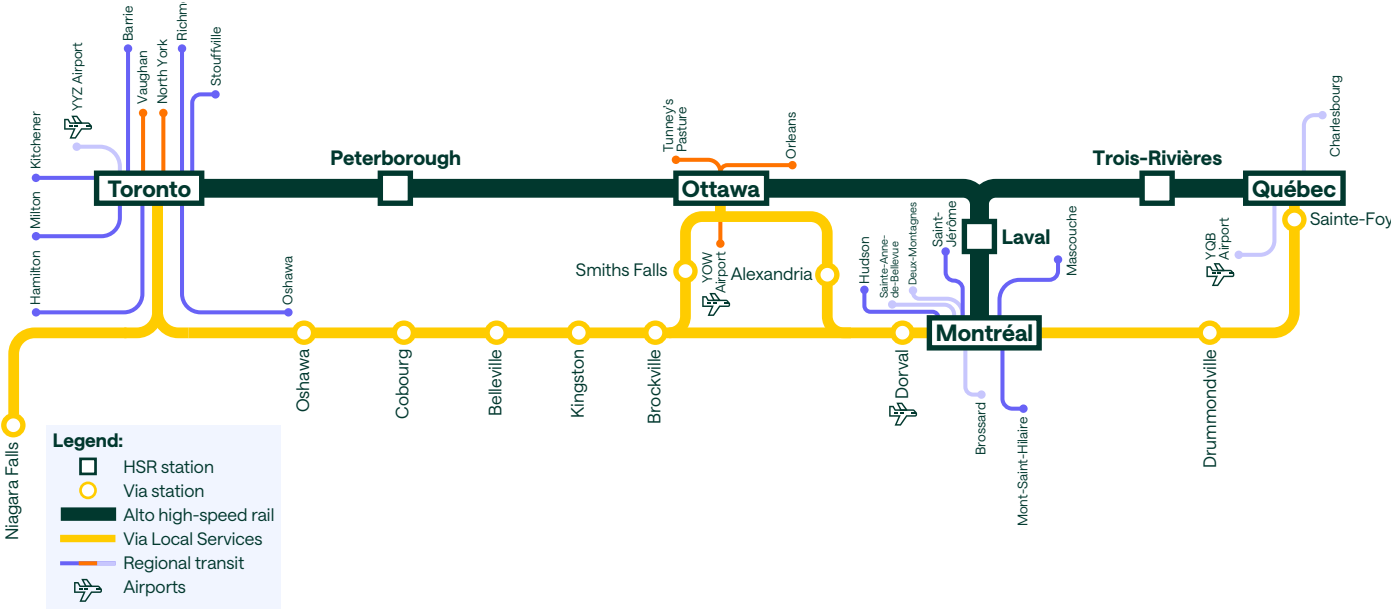
Figure 11 | Reducing travel times significantly shortens perceived distances across the corridor



In order to maximize mobility outcomes, the Alto network will integrate with other local, regional, and intercity transportation networks at designated stations, in coordination with municipal and regional authorities. The high-speed network will function as the backbone of mobility across the corridor: a central, high-speed

link that connects major urban centres and interfaces with existing transport systems at key nodes. This approach enables a seamless door-to-door customer experience by improving access to stations and easing connections, resulting in a smooth journey from origin to destination.

Figure 12 | Integration of high-speed rail with regional and local transportation networks



In this way, Alto is expected to complement and reinforce the broader transportation ecosystem, strengthening

connectivity across the various regions of the corridor rather than operating as a standalone system.

## A sustainable offer

Alto is committed to sustainable development in the context of building one of the largest infrastructure projects in Canada's history. Alto is presently developing its sustainability strategy in alignment with Canada's Federal Sustainable Development Strategy as well as the United Nations Sustainable Development Goals, to which it is expected to contribute across nine objectives outlined below.

Alto will also align with stringent requirements under the following frameworks:

- the Institute for Sustainable Infrastructure's Envision for linear infrastructure;
- the U.S. Green Building Council's LEED for buildings;
- the Building Owners and Managers Association's BOMA BEST for buildings.

At all stages of the project, Alto will set both qualitative and quantitative targets and monitor progress on sustainability and resilience indicators that address areas of human wellbeing, mobility, community development, collaboration, planning, economy, materials, energy, water, siting, conservation, ecology, emissions, and resilience.

**Figure 13 | United Nations Sustainable Development Goals relevant for Alto**



# 4.2 Alto successfully unlocks intercity demand potential by meeting modern travel needs

## 4.2.1 ALTO SERVICES DESIGNED TO ANSWER TRAVELLERS’ NEEDS

In the Toronto–Québec City corridor, current intercity travel patterns are largely shaped by long travel times between major cities, variability in service reliability and limited multi-modal integration. As a result, travel is often dominated by private vehicle use or air travel when longer distances are being covered.

Alto's service offering has been designed around the needs of travellers in the Toronto to Québec City corridor. Rather than providing a one-size-fits-all service, demand within the corridor can be grouped into several broad traveller segments, each with distinct needs and travel patterns. These insights will inform Alto's service proposition, ensuring the service is designed to attract a wide range of travellers.

| TRAVELLER SEGMENT              | WHAT THEY VALUE                                                            | WHAT WILL ALTO DELIVER                                                                                                             |
|--------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Business                       | Speed, flexibility, productive time, comfort, reliability                  | Fast, frequent services supporting same-day return trips, downtown access, connectivity and calm spaces to focus and be productive |
| Commuting                      | Affordability, frequency, reliability, multi-modal integration             | High-frequency and reliable service integrated with regional and local networks                                                    |
| Families and groups            | Affordability, simplicity, privacy, luggage space, personalized experience | Family seating and adapted luggage policy, adapted fare policy and direct access to city centres                                   |
| Leisure/event                  | Simplicity, affordability, downtown access, personalized experience        | Competitive pricing, direct access to city centres and enjoyable stress-free journey compared to long drive or air travel          |
| Seniors                        | Affordability, accessibility, comfort, simplicity and peace of mind        | Competitive fares, comfortable seating, and personalized service adapted to individual needs                                       |
| Students and young adults      | Affordability, flexibility                                                 | Competitive fares and mobile-first ticketing                                                                                       |
| Travellers with special needs  | Accessibility, affordability, dignity                                      | Universal accessible design across trains and stations<br>Intermodal connections<br>Affordable pricing for low-income travellers   |
| Visiting friends and relatives | Simplicity, affordability, flexibility                                     | More frequent and affordable services enabling more regular trips                                                                  |

#### **4.2.2 A FARE STRATEGY DESIGNED TO MAKE INTERCITY RAIL AN AFFORDABLE OPTION WHILE MAXIMIZING RIDERSHIP ON EACH TRAIN**

Fare products will be designed to support these different traveller needs. Whether travellers value flexibility, productivity, comfort or peace of mind, they will find the fare product that reflects their preferences. A core public policy objective for Alto is also to improve the affordability of intercity travel in the corridor. The fare strategy will be designed to offer affordable entry-level fares to maximize seat occupancy on each train while ensuring financial viability. The fare grid will establish a range of fares that vary by origin-destination pair, type of fare product (e.g. service class) and eligible discounts. This will make high-speed rail a practical option for everyday travel between communities across the corridor.

To meet the needs of different travellers, Alto is expected to offer a range of fare products, from affordable entry-level options to more premium products.

The entry-level fare is expected to include essential services most travellers need, with no hidden fees. While the final fare offering is still being developed, the entry fare is expected to include one piece of luggage, comfortable seating, wifi, and a reasonable level of ticket flexibility for changes or cancellations. Travellers will also be able to personalize their journey by choosing optional services, such as seat selection, additional baggage or enhanced ticket flexibility. Premium fare products offered as part of different ticket classes will provide a range of additional services and features for those who value them, while also helping support the long-term financial sustainability of the service operations.

Like most airlines and high-speed rail operators around the world, Alto plans to use revenue management to match fares with demand and available seats. Prices will vary within the range established by the fare grid. The objective is to maximize seat occupancy and ridership on each train to operate trains as full as possible.



This means fares may vary depending on factors such as when customers book, the popularity of a particular departure, and how many seats remain available. Travellers who are flexible with their travel time or book early will generally have access to lower fares, while

departures that are in higher demand may have higher prices. This approach encourages demand to be spread across more trains, helping make better use of available capacity and maximizing ridership potential, while supporting affordable fares for travellers.

**Figure 14 | A fare strategy that meets the needs of different types of travellers**



### PRICE-SENSITIVE TRAVELLERS

Low fare to stimulate modal shift from car and bus and generate new trip



### VALUE-FOR-MONEY TRAVELLERS

Give the customer the ability to build their own level of services through options



### TIME-SENSITIVE TRAVELLERS

Offer adapted to last minute peak travellers and those who value premium services and increased flexibility

Even with affordable entry-level fares, travel may remain out of reach for some people. Alto therefore expects to offer targeted discounts to support travellers who need them most. While the specific groups and discount levels are still being assessed, experience from other high-speed rail systems and Canadian transit services suggests these typically include children, students, seniors, and low-income households.

## 4.2.3 A RESULTING HIGH DEMAND FOR ALTO'S SERVICES

Preliminary ridership forecasts and scenario analysis, developed in 2024 before the development phase, suggest that services could carry **up to 24 million riders per year by 2055**, and up to 43 million by 2084.

These numbers were derived from developing a range of downside and upside scenarios to understand how demand could vary under different assumptions by testing uncertainty in key ridership drivers, including:

- the size of the car and air markets,
- long-term socio-economic demand growth by modal markets,
- post-pandemic rail recovery,
- various service designs impacting rail journey times and reliability,
- ramp-up period,
- competitive conditions, and
- new trips enabled by improved accessibility and better rail service (known as induced demand).

This work produced a range of plausible long-term ridership outcomes, illustrated in the Figure 15.

During the procurement process for selecting its private partner, Alto also received three independent ridership forecasts from bidders. Each was based on its own service design, commercial offer to customers, and infrastructure concept. These forecasts were broadly consistent with Alto's analysis, providing additional confidence in the projected level of ridership.

Project ridership estimates will continue to be refined and updated throughout the development phase as key project assumptions evolve, including socio-economic forecasts, alignment design, station locations, service frequencies, fare and product offerings, operating plans, and market conditions.

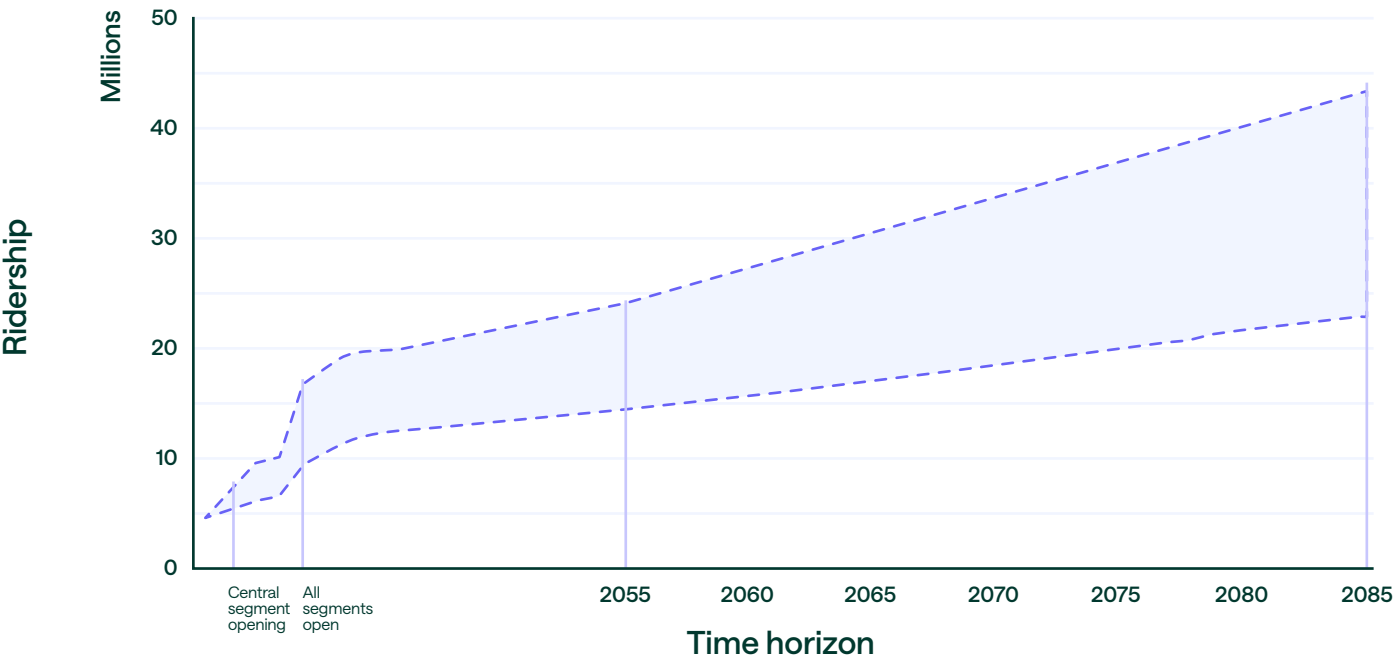
### Rail ridership in context

While VIA Rail carried a total of 4.4 million passengers in 2025,<sup>50</sup> rail used to play a much larger role in Canada's transportation system. In the 1980s, VIA Rail carried more than 8 million passengers annually,<sup>51</sup> which is almost twice today's ridership at the national level.

Rail services in Ontario and Québec were always the core demand markets. At the time, the combined population of both provinces was approximately 40% smaller than it is today and less than half of its projected 2050 level.<sup>52</sup>

With dedicated passenger infrastructure and a significantly improved level of service, rail would be well positioned to play a much larger role in meeting the corridor's growing mobility needs.

Figure 15 | Alto preliminary ridership scenarios



50 Source: VIA Rail 2025 Annual Report.

51 Source: VIA Rail annual reports. The 1981 Annual Report states 8,009 million riders.

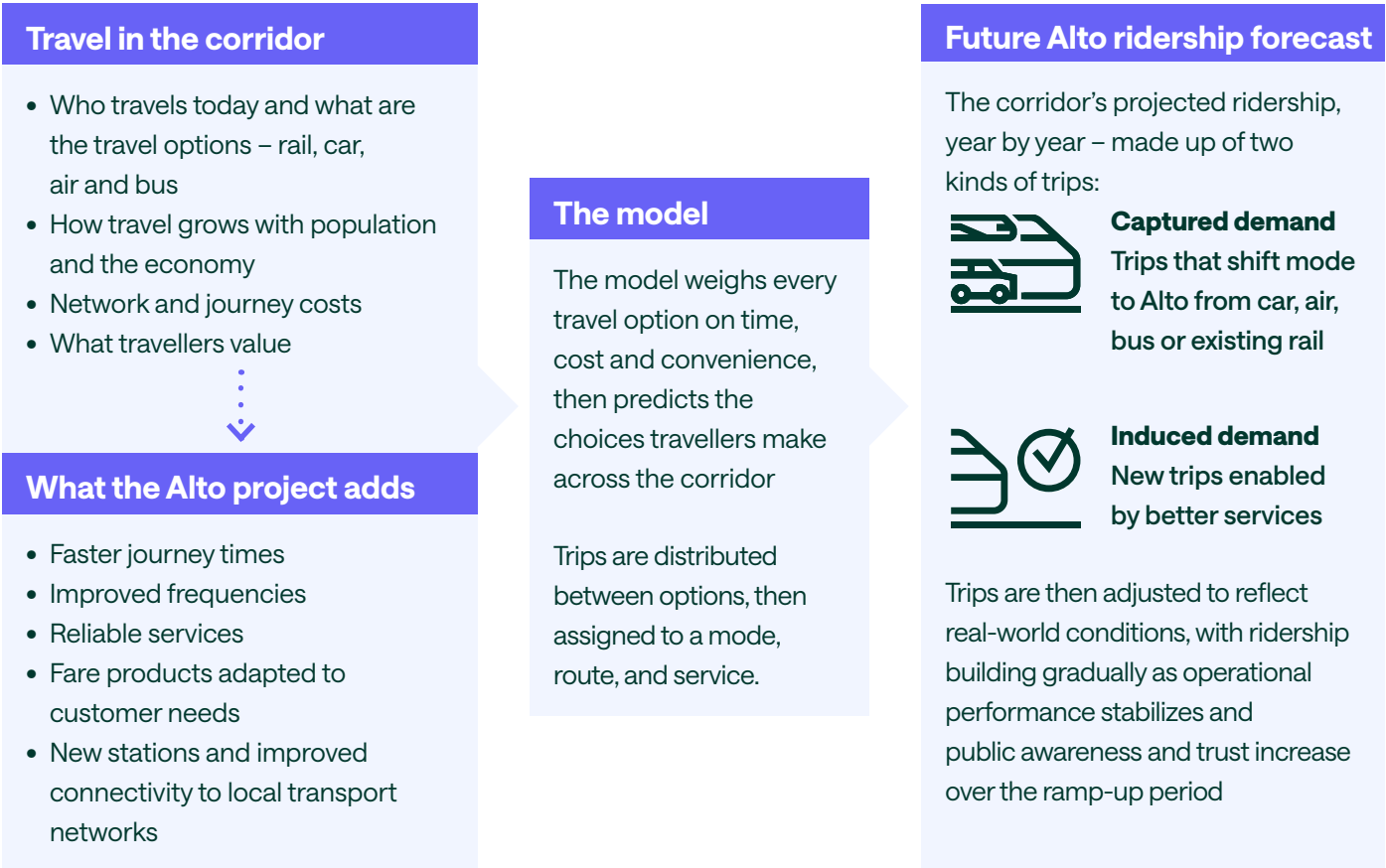
52 Source: Statistics Canada.

4.2.4 RIDERSHIP  
PROJECTIONS FRAMEWORK

Alto uses a multimodal travel demand model, consistent with international practice, to develop its ridership forecasts. This approach reflects established methods

used for major transportation projects and considers current intercity demand and travel behaviour by all modes, long-term demographic and economic trends, expected mode shift from car, air and bus travel to high-speed rail, and new trips generated by improved service.

Figure 16 | Ridership framework illustration



The forecasting model relies on a range of inputs derived from multiple data sources. The key inputs and their sources are summarized in Table 4.

**Table 4 | Inputs and sources for the forecasting model**

| MAIN INPUTS                         | SOURCE AND RATIONALE                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Auto market</b>                  | Car origin-destination information and volumes of trips within the study area from location-based services; Google car travel times (real-time highway drive times) providing an indication of congestion and delays; Ministry of Transportation Ontario (MTO) and Ministère des Transports et de la Mobilité durable (MTMD) du Québec traffic count data, including Annual Average Daily Traffic (AADT) counts at several points along key highways. |
| <b>Rail market</b>                  | VIA Rail's annual ridership and revenue data disaggregated by day of the week, month, station-to-station movements, and ticket type; passenger segmentation and rail station catchment.                                                                                                                                                                                                                                                               |
| <b>Air market</b>                   | Aviation data for scheduled flights between study area airports, in terms of frequencies and seat numbers from Official Airline Guide; Statistics Canada data on domestic air passengers at key airports along the corridor.                                                                                                                                                                                                                          |
| <b>Intercity bus market</b>         | Information collected from publicly available schedules and services published by intercity bus operators.                                                                                                                                                                                                                                                                                                                                            |
| <b>Behavioural data</b>             | Behavioural research results, including parameters such as willingness to pay for changes to rail services, propensity to change modes, and insights on different travel market segments.                                                                                                                                                                                                                                                             |
| <b>Population</b>                   | Statistics Canada for historical data and population forecasts.                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Gross domestic product (GDP)</b> | Historical GDP for Québec and Ontario from Statistics Canada; GDP forecasts sourced from the Conference Board of Canada.                                                                                                                                                                                                                                                                                                                              |
| <b>Transit networks</b>             | Current and planned future service levels for supporting access to stations in Toronto, Ottawa, Montréal, and Québec City.                                                                                                                                                                                                                                                                                                                            |
| <b>Market growth elasticities</b>   | Statistical analysis of historical travel trends and their relationship with macroeconomic indicators such as GDP.                                                                                                                                                                                                                                                                                                                                    |
| <b>Fares/travel costs</b>           | Existing fare grid and average rail fare between station pairs; public sources providing current travel costs across all other modes (air, bus, car).                                                                                                                                                                                                                                                                                                 |
| <b>Induced demand</b>               | International benchmarks and guidance, including reference from the United States Department of Transportation Office of the Inspector General.                                                                                                                                                                                                                                                                                                       |

Alto is actively collecting new data by entering third party engagements to refine its understanding of the corridor travel.

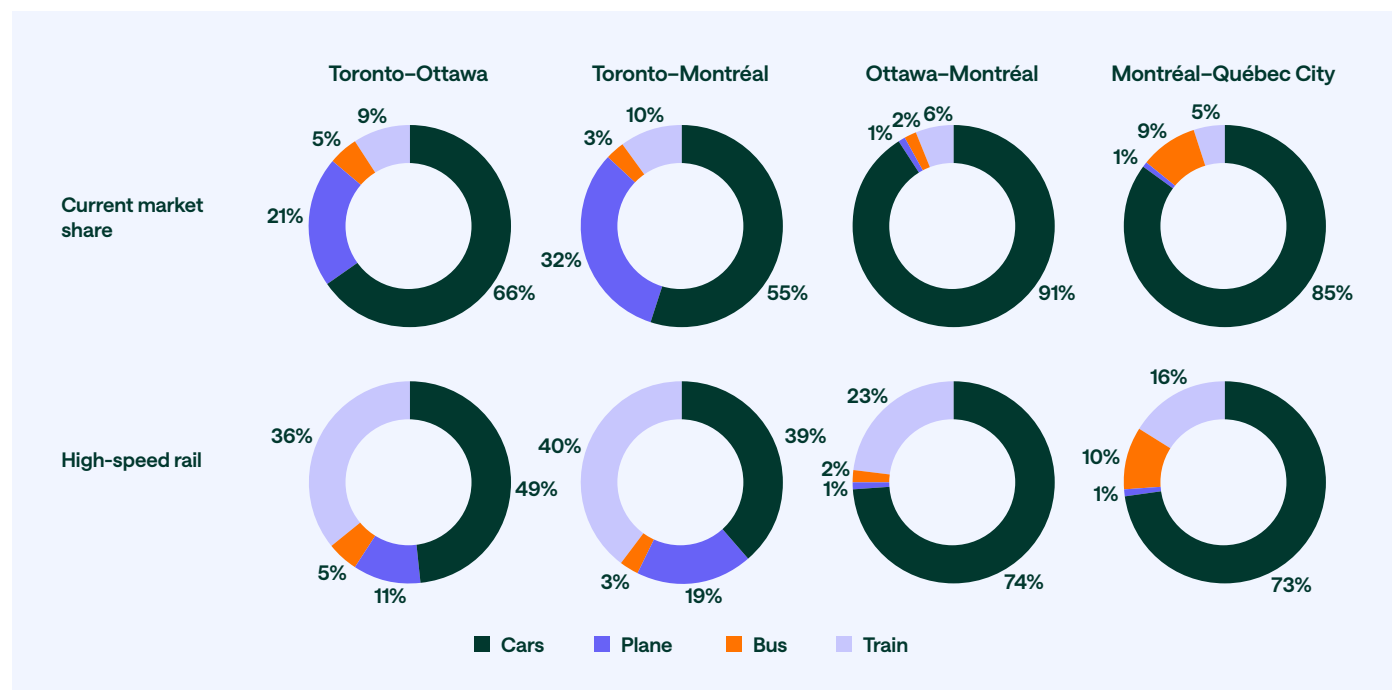
For more information on how intercity ridership forecasts are developed consult [Appendix B](#).

## 4.2.5 CRITICAL ASSESSMENT OF THE PRESENTED FORECASTS

When compared with the total travel market across the Toronto–Québec City corridor, these forecast results

correspond to a market share broadly consistent with those observed in established international high-speed rail corridors, providing confidence in the reasonableness of the preliminary projections.

**Figure 17 | Market share with and without high-speed rail for key city pairs**



For the long-distance markets (Toronto–Montréal and Toronto–Ottawa), high-speed rail is estimated to capture around 40% of total intercity trips. This range is broadly consistent with international experience in corridors where high-speed rail provides competitive journey times and reliable service. In several mature high-speed rail markets, such as Madrid–Barcelona, Paris–Lyon, and Tokyo–Osaka, rail has achieved market share, typically ranging from about 35% to 65% once services are well established. Alto's ridership forecasts assume competitive fares and frequent service, the same conditions that produced the mode shifts observed internationally.

For the shorter-distance markets (Ottawa–Montréal and Montréal–Québec City), market shares of 25% to 35% align with international examples, which typically achieve such shares on high-speed rail, depending on travel times, service frequency, and station accessibility. These international comparisons show that competitive passenger costs and travel times are central to supporting ridership when held against car and air travel.

The ridership analysis provides the foundation for estimating Alto's direct economic benefits. By forecasting how travellers shift from cars and planes to high-speed rail based on industry-standard methodologies, the model quantifies the predicted changes in travel behaviour across the Toronto–Québec City corridor. These modal shifts translate directly into measurable impacts for Canadians presented in the next section.

## Is Alto expected to attract tourists in the corridor?

Among the many who will benefit from Alto are tourists, both from Canada and abroad, reflecting the evolving needs and expectations of leisure travel in the corridor. An independent study conducted by CPCS on behalf of Alto shows that stronger connectivity between major Canadian cities will increase the corridor's attractiveness to international and local visitors, generating an estimated \$1 billion per year in tourism impacts.

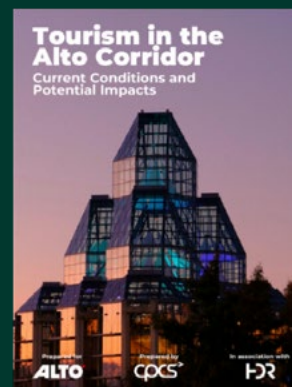
Today, tourism-related travel within the corridor remains overwhelmingly car-dependent, with up to 85% to 98% of domestic trips made by personal vehicle, despite the corridor already attracting more than 20% of Canada's domestic visitors and over 40% of international tourists. High-speed rail introduces a fast, reliable and seamless alternative that can capture a meaningful share of this existing demand, while also enabling new travel behaviours. International visitors may add destinations that are not currently on their itinerary, and corridor residents may be more likely to take short leisure trips, such as weekend visits to family, as the burden of travel is reduced.

Alto has the potential to increase both same-day and overnight travel across the corridor. However, the scale and distribution of these impacts depend on the degree of coordination across destinations. The study identifies three key levers in this regard: the development of multi-destination offers, coordinated tourism promotion, and strong last-mile connections to stations. It evaluates three scenarios reflecting different levels of coordination, from limited to highly coordinated approaches. In all cases, the impact on tourism activity is positive, but stronger coordination is required to translate improved accessibility into sustained increases in visitor flows, trip frequency, and rail usage.

In the central scenario, which reflects a plausible level of coordination across the corridor, these effects translate into measurable increases in visitor flows. Québec City stands out, with an estimated increase of 6% in overnight visitors, 8% in same-day visitors, and a 4% increase in average length of stay. Ottawa–Gatineau

is also expected to experience notable growth, with increases of 5% in overnight visitors and 7% in day visitors. These gains are driven in part by improved accessibility from major population centres such as Toronto and Montréal. Intermediate cities such as Trois-Rivières and Peterborough are projected to see increases of around 3% in both overnight and same-day visitors.

Economically, these changes translate into significant additional tourism spending.



***In the central scenario, increased visitor volumes and evolving travel patterns generate up to \$900 million annually in additional tourism spending across the corridor.***

Importantly, these gains are not limited to the largest urban centres. Improved accessibility, combined with coordinated tourism strategies, supports a broader distribution of demand across the network, allowing intermediate destinations to capture a greater share of tourism activity.

These impact estimates are based on an independent methodology and are not directly linked to ridership projections. These estimates are derived using a different methodological approach than the CGE model discussed in Section 4 and Appendix A and should not be interpreted as additive to those results.

Read the full study [here](#).

## 4.3 Alto has a transformational economic impact across the corridor

As Alto offers Canadians a service designed around speed, frequency, reliability, and affordability, it will reshape their travel behaviour, attracting strong demand. The economic impact of the project flows directly from this shift. When millions of trips move away from slower, less efficient modes toward high-speed rail, the effects extend well beyond the transportation system itself.

Alto's impacts are the result of a set of interlocking transformations operating at different scales. At the most immediate level, Alto will transform how Canadians travel by reducing journey times, improving reliability, and lowering the cost and friction of moving between cities. These improvements translate into direct, tangible benefits for travellers and communities across the corridor. At the national scale, this upgrade in transportation infrastructure will be transformational for the Canadian economy, as similar investments have been in the past. It will raise productivity, strengthen labour markets, and enable economic activity to function at a more integrated, national scale by reshaping how Canadians access opportunity and how the country's largest cities interact. At the regional scale, the project will transform local economies by supporting economic activity through its construction and operation. It will create jobs and career opportunities across the corridor, generate income for communities, and establish a foundation for long-term economic diversification as new industries, skills, and supply chains take shape.

### 4.3.1 TRANSFORMING HOW CANADIANS TRAVEL

Alto represents a step-change in how Canadians move across the corridor by reducing travel times, improving reliability, and easing pressure on the broader transportation system.

***These changes translate into direct and measurable benefits for travellers and communities, estimated at up to **\$49.5 billion** over the first 60 years of operations (the appraisal period).***

This impact is driven by a range of effects. Those related to travellers and the broader transportation network are outlined below.

**Travel time savings.** The primary effect comes from the millions of travellers who shift to high-speed rail. By 2055, up to 24 million annual trips are expected to take place on the Alto network. These travellers benefit directly from faster and more efficient journeys, generating substantial travel time savings. Across the appraisal period, Alto is expected to save travellers up to 9.3 billion hours, which, when monetized, are worth up to **\$38.4 billion**.

### How are Alto's transformational impacts on travel measured?

These impacts are measured using standard cost-benefit analysis, in which they are considered direct effects to travellers. For more information, see [Appendix A.1](#).

**Decongestion.** Alto benefits all people traveling in the corridor, not just those travelling on the network. As a significant share of trips shifts away from the highway network, fewer vehicles remain on the road, easing overall congestion. This modal shift frees up capacity on existing infrastructure, making road travel more reliable and predictable for those who continue to drive. The reduction in traffic improves conditions for these users, resulting in shorter travel times, improved flow, and fewer delays. These benefits for remaining road users are valued at **\$570 million**.

**Lower vehicle costs.** Lower traffic volumes also translate into lower costs for households. With fewer kilometres driven, the total cost of vehicle use, including maintenance and wear, declines. Alto is estimated to reduce vehicle travel by up to 90.1 billion vehicle kilometres, generating automobile cost savings of approximately **\$1.9 billion**.

**Increased safety.** Finally, the shift away from road travel improves safety outcomes across the corridor. With fewer vehicles on the highway, the overall risk of collisions declines, resulting in fewer accidents, and subsequently 26,000 avoided injuries, and 400 avoided fatalities. These safety gains are valued at approximately **\$610 million**.

**Economic residual value.**<sup>53</sup> Alto's infrastructure is a long-lived asset that will continue to generate economic benefits described above beyond the 60-year appraisal period. As the network continues to support travel demand over time, a portion of these benefits extends beyond the horizon of the analysis. This additional value, referred to as economic residual value, is estimated at up to **\$840 million** and reflects the ongoing contribution of the infrastructure to economic activity. It captures enduring societal benefits and should be distinguished from financial residual value associated with asset resale or accounting treatment.

<sup>53</sup> Economic residual value refers to the remaining value of an asset at the end of the appraisal period, reflecting its continued useful life beyond the analysis horizon and ensuring long-lived infrastructure benefits are captured in the overall assessment. These are different to financial residual values, which relate to potential future sale prices.

## The shift in how Canadians travel has meaningful environmental benefits

### Greenhouse gas emissions reductions.

Greenhouse gas reductions arise from shifting travellers away from automobiles and air travel toward electrified rail, which produces significantly lower emissions per passenger-kilometre. Alto is estimated to reduce emissions in operations by up to 39.1 million tonnes, valued at up to **\$7.2 billion**.

### Air pollutant emissions reductions.

In addition to greenhouse gas reductions, less vehicle travel reduces emissions of air pollutants that affect local air quality and public health, including fine particulate matter, sulphur oxides, nitrogen oxides, hydrocarbons, and carbon monoxide. As vehicle kilometres travelled decline, exposure to these pollutants decreases, generating measurable health and air quality benefits, valued at up to **\$27 million**.

**Climate resilience.** As climate patterns become more volatile and weather-related disruptions more frequent, access to reliable transportation becomes increasingly critical. Electrified rail provides a more stable and resilient mode of travel, less exposed to the disruptions and variability that affect road and air networks. By offering a dependable alternative, Alto helps ensure that essential trips can continue to take place even under more unpredictable conditions.

### 4.3.2 TRANSFORMING HOW CANADIANS LIVE AND WORK

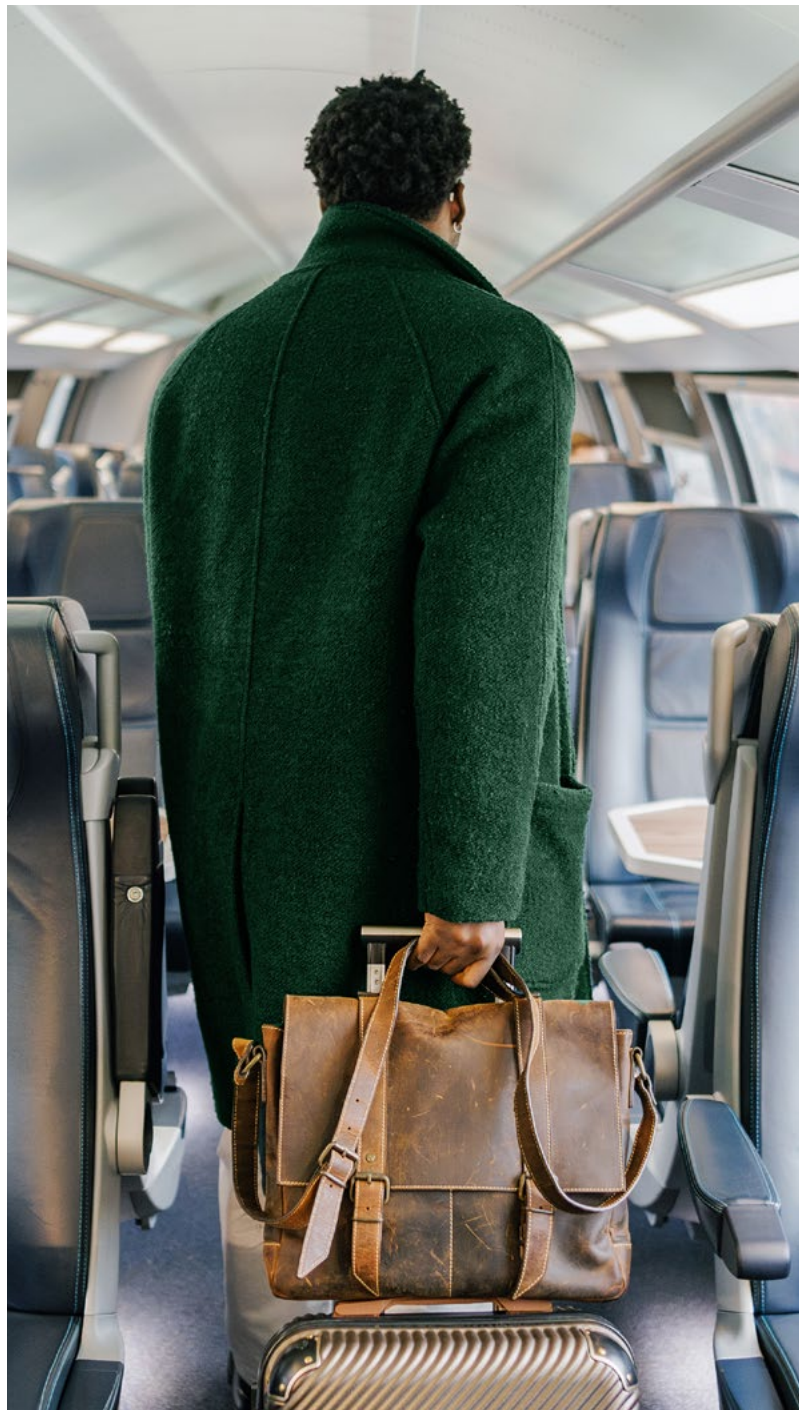
Alto will do more than change how people travel. It will transform how they work and access opportunities. By connecting Canadian workers more easily to jobs, and Canadian businesses more directly to customers, suppliers, and talent, Alto will turn the corridor into an integrated megaregion, where people, businesses, and communities operate as part of a single connected economy.

***Alto is expected to increase Canada's GDP by **\$24.5 billion** once the system is fully operational, an impact that will have a sustained effect, equivalent to an uplift of about **1.1% of the country's GDP.*****

**Labour market improvements.** Faster travel improves how workers and jobs are matched across the corridor. As travel times fall and journeys become more reliable, a wider range of jobs becomes feasible for more people, allowing workers to access opportunities that better align with their skills while employers draw from a broader and more diverse talent pool. This improved job-skill matching contributes to overall productivity by reducing inefficiencies in how labour is allocated across the economy. Beyond these effects, faster and more reliable connections also expand the labour market itself. More people are able to participate in the workforce, and more workers are able to work additional hours or access employment opportunities that were previously out of reach. In simple terms, the labour market becomes larger and more active. These additional labour market effects, captured separately from productivity gains, are estimated at approximately **\$2.7 billion per year.**

### How were Alto's impacts on national economy measured?

Labour market, productivity, and tourism impacts were measured using a computable general equilibrium (CGE) model, which simulates the Canadian economy's response to major changes. For more information, see [Appendix A.2](#).



## The connectivity-productivity effect

These impacts are further amplified through a “connectivity-productivity multiplier.” As businesses and workers adjust their location decisions in response to improved access, economic activity becomes more concentrated in connected regions, increasing

economic density and strengthening interactions between firms and workers. This reinforces productivity gains in the areas and sectors most affected by improved connectivity, amplifying connectivity benefits and unlocking growth.

**Figure 18 | How connectivity supports productivity growth**



**Productivity gains.** High-speed rail drives productivity gains by reducing generalized travel costs, which strengthens agglomeration economies: faster and more reliable connections allow businesses and individuals to interact more frequently, exchange goods more efficiently, and share knowledge more easily. Over time, these effects support innovation and raise productivity across a wide range of sectors. Alto's productivity impact is estimated at approximately **\$21 billion per year**.

In a context where Canada has struggled with persistently weak productivity growth, these improvements are not marginal. They address a core constraint on economic performance by allowing businesses to operate more efficiently across distance.

**Tourism impacts.** Stronger connectivity between major Canadian cities will also increase the attractiveness of the corridor to international visitors, generating tourism-related impacts estimated at **\$0.8 billion per year**.<sup>54</sup> Destinations that once required long,

fragmented journeys become part of a seamless travel experience, making it easier for tourists to explore multiple cities in a single trip. Faster and more reliable connections encourage visitors to stay longer, visit more places, and engage more deeply with the region. Additional visitors and longer stays drive spending across accommodation, food services, transportation, and cultural experiences, injecting foreign demand directly into the Canadian economy.

In addition to the effects that directly impact the economy, Alto will also support the development of more connected and livable communities.

**Housing.** By enabling transit-oriented development around stations, the project will help bring housing, jobs, and services closer together. These higher-density, mixed-use communities will increase the supply of housing, particularly in well-connected areas, while reducing pressure on already constrained urban cores. This will contribute to addressing Canada's housing

<sup>54</sup> The results differ from the independent tourism impact study presented in 4.3.1 that uses a different methodology. Both numbers are not additive but they both reach similar order of magnitude.

affordability challenges and support more sustainable patterns of growth. Analysis indicates that station-area development enabled by Alto could support up to **63,000 new housing units**.<sup>55</sup>

**Fiscal revenue.** More people working means more income tax collected. More business activity means higher corporate tax revenues. And as households and firms spend more across the economy, governments also collect more through sales and other consumption-based taxes. In practical terms, stronger economic performance generates an estimated **\$6.4 billion** in additional government revenues per year. This increased fiscal capacity is reflected in higher revenues for federal,

provincial, and municipal governments, which can be reinvested in better public services, modern infrastructure, and stronger systems, supporting healthcare, education, transportation, and the foundations that sustain long-term economic prosperity for Canadians.

By expanding access to employment, boosting productivity, enabling new housing opportunities, and driving tourism demand, Alto sets in motion a broad and lasting expansion of economic activity across the corridor. These effects will translate into higher wages, improved standards of living, and stronger communities, contributing to a more integrated, resilient, and forward-looking economy.



<sup>55</sup> Alto does not act as a housing developer and does not control land-use decisions, which remain the responsibility of provinces and municipalities. Rather, Alto's role is to enable these outcomes by designing stations and adjacent lands to support transit-oriented development, coordinating with public and private partners, and ensuring that housing opportunities are integrated with project delivery without adding cost, risk, or delay to the project.

### 4.3.3 TRANSFORMING THE REGIONAL ECONOMIC LANDSCAPE

Through construction and operation, the project will reshape key markets, including housing, construction, and labour, shifting investment patterns, supporting employment, and opening new pathways for growth in communities along the Toronto–Québec City corridor.

**Construction jobs.** In aggregate, these regional effects include supporting approximately **50,000 full-time equivalent jobs** during the project's construction phase, \$86 billion in value added to Canada's GDP, and \$23 billion in tax revenues across orders of government.

**Operations jobs.** Over time, operations and maintenance roles provide more stable, long-term employment. This combination of short-term and long-term employment will contribute to greater economic stability in communities along the corridor. Alto will require ongoing operations and maintenance staff across a range of delivery areas, at all skill levels. An initial bottom-up assessment of operational worker requirements suggests that Alto will support **over 5,000 ongoing full-time jobs during its operational period.**

**Canadian businesses.** Alto's construction, operation, and long-term maintenance will directly support employment across the corridor at every stage of the project lifecycle. During construction, major works will require a large workforce across engineering, project delivery, and related trades, while ongoing operations will sustain stable, long-term roles across a range of functions and skill levels. Together, these direct employment impacts will provide both immediate job creation and durable career opportunities across communities in Ontario and Québec.

### How were Alto's transformational impacts on the regional economic landscape measured?

These impacts are measured using input-output analysis, capturing the direct, indirect and induced effects of project spending. For more information, see [Appendix A.2](#).

Beyond these direct effects, the scale of the project will generate substantial activity across regional and interprovincial supply chains. Businesses in construction, manufacturing, professional services, and logistics will be engaged in delivering the infrastructure and supporting its long-term operation. This indirect demand will support employment and investment well beyond the project footprint, strengthening industrial capacity and reinforcing economic linkages across the corridor and across Canada.

These effects are further extended through induced impacts. As workers employed directly and indirectly by the project earn income, their spending supports additional economic activity in local communities, sustaining jobs in retail, services, and other sectors. This circulation of income helps anchor economic activity locally, contributing to more stable and dynamic community economies over time.

### An opportunity for a high-value industrial base in Canada

Alto will rely on Canadian materials by prioritizing the use of steel, aluminum, and wood, while utilizing domestic expertise, and production capacity to reinforce national supply chains and aligning with the federal Buy Canadian policy in its focus on Canadian materials, content, and suppliers.

Alto is a strategic opportunity for Canada to develop a high value industry, with specialized capabilities that can be exported.

Altogether, Alto will do more than support jobs: it will reshape regional economic activity. By generating employment, supporting business growth, and reinforcing supply chains, the high-speed rail network will help build local economic capacity, broaden opportunities across communities, and lay the groundwork for more diverse and resilient regional economies across the corridor.

#### 4.3.4 SETTING THE FOUNDATIONS OF A MORE RESILIENT ECONOMY

There are several additional positive spillover impacts associated with high-speed rail that extend beyond direct economic and mobility benefits. Together, these effects strengthen environmental performance, improve system resilience, and reinforce the strategic value of national infrastructure.

##### **Reduced dependence on the highway system.**

By shifting a significant share of intercity travel to rail, Alto reduces reliance on highway infrastructure as the primary mode of movement across the corridor, improving system balance and reducing pressure on constrained road networks.

**Ownership of strategic infrastructure.** Alto represents a long-lived national asset under Canadian ownership, contributing to long-term economic sovereignty while generating lasting public value through both economic returns and transportation capacity.

**Enhanced freight and logistics resilience.** Dedicated high-speed rail infrastructure reduces the need for mixed use of existing rail lines between passenger and freight services, allowing each system to operate more efficiently and reliably. This improves overall network performance while helping avoid future costs associated with capacity bottlenecks and infrastructure constraints. Furthermore, by reducing congestion on road networks, Alto improves reliability for freight movement, strengthening supply chains and supporting more efficient movement of goods across the corridor.

**Reduced need for alternative infrastructure investments.** By absorbing future demand and growth, Alto helps limit the need for costly expansion of highways and airports, reducing long-term infrastructure spending pressures while delivering greater overall system efficiency. This has a direct long term beneficial effect in reducing or delaying the need for investment in other transport infrastructure.

### Alto's economic impact to Indigenous communities

Alto engages and consults with Indigenous communities along the corridor in the development of Canada's high-speed rail network, with an approach grounded in reconciliation, the recognition of rights, and the goal of co-development.

Alto is committed to creating pathways for meaningful socio-economic benefits by working with communities to advance employment, training, procurement, and business opportunities, alongside investments in community capacity. This includes supporting workforce development,

Indigenous-owned businesses, and community-led priorities, with a focus on reducing barriers to participation and ensuring benefits reflect community needs and interests.

The project also seeks to offer Indigenous financial participation over the long term. This work is supported through partnership approaches, collaboration frameworks, and structured engagement that ensures that Indigenous communities continue to help shape the project and participate in the economic opportunities it generates.

### 4.3.5 BENEFITS SUMMARY

The above section describes how Alto drives a shift in travel behaviour that generates economic impacts across multiple levels, from direct benefits to travellers to broader national, regional, and system-wide effects. It sets out how these impacts translate into measurable outcomes across transportation, productivity, employment, and resilience.

This section summarizes Alto's benefits and their monetized value. Refer to [Appendix A.2](#) for details on how these benefits were calculated.

Table 5 presents a summary of the monetized results associated with the transportation impacts as described in [subsection 4.3.1](#).

**Table 5 | Monetized values: transforming how Canadians travel**

| BENEFIT                                                                             |                                    | BENEFICIAL EFFECT                                           | MONETIZED VALUE ESTIMATES<br>(upper estimate, \$2024 CAD) |
|-------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
|    | Travel time savings                | Up to 9.3 billion hours saved                               | \$38.4 billion                                            |
|    | Automobile cost savings            | Up to 90.1 billion vehicle kilometres avoided <sup>56</sup> | \$1.9 billion                                             |
|  | Road safety                        | Up to 400 fatalities and 26,000 injuries avoided            | \$610 million                                             |
|  | Decongestion benefits              | Derived from vehicle kilometres travelled reduction         | \$570 million                                             |
|  | Greenhouse gas emissions reduction | Up to 39.1 million tonnes avoided                           | \$7.2 billion                                             |
|  | Air pollutant benefits             | Derived from vehicle kilometres travelled reduction         | \$27 million                                              |
|  | Economic residual value            | Benefits accruing beyond a 60-year appraisal horizon        | \$840 million                                             |
| Total                                                                               |                                    |                                                             | \$49.5 billion                                            |

<sup>56</sup> Vehicle kilometres travelled (VKT) measures the total distance travelled by all vehicles within the transportation network and serves as a key indicator of traffic levels, congestion, and associated externalities such as emissions and road safety risks.

Table 6 presents a summary of the annual economic impacts related to productivity, labour markets, and tourism as described in [subsection 4.3.2](#).

**Table 6 | Monetized values: transforming how Canadians live and work**

| BENEFIT CATEGORY      | BENEFICIAL EFFECT                                                                          | ANNUAL MONETIZED VALUE ESTIMATE (\$2019)        |
|-----------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------|
| Productivity          | Reduced travel costs strengthen agglomeration, coordination, and market access             | \$21 billion                                    |
| Labour supply         | Improved accessibility increases participation, hours worked, and job-worker matching      | \$2.7 billion                                   |
| International tourism | Better connectivity attracts additional international visitors and encourages longer stays | \$0.8 billion                                   |
| Total                 |                                                                                            | <b>\$24.5 billion</b><br>(1.1% of Canada's GDP) |

Table 7 presents a summary of the regional economic impacts supported by project spending as described in [subsection 4.3.3](#).

**Table 7 | Transforming the regional economic landscape**

| BENEFIT CATEGORY                           | BENEFICIAL EFFECT                                                                         | VALUE ESTIMATES<br>(upper estimate, \$2024 CAD) |
|--------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------|
| Jobs during construction period (10-years) | Employment supported by project spending across direct, supply chain, and induced effects | 50,000                                          |
| Jobs during operations (ongoing)           | Ongoing employment supported by project operations and maintenance activities             | 5,000                                           |
| Value added to GDP                         | Income produced due to project spending and its impact on all components of GDP           | \$86 billion                                    |
| Tax revenue                                | Fiscal revenue generated from economic activity supported by project spending             | \$23 billion                                    |

Alto will deliver large and sustained economic benefits across the corridor. By materially reducing travel times, improving reliability, and enabling better connections between people, jobs, and markets, Alto addresses core constraints that are currently limiting Canada's most important economic region. The result will be a more integrated, productive, and resilient economy, where cities function together rather than apart, and where growth is supported across regions.

***Alto builds on Canada's tradition of investing in transformative transportation infrastructure, reinforcing the role of connectivity in supporting a stronger, more integrated, and more prosperous economy.***

### **Why this document does not present a benefit-cost ratio**

A benefit-cost ratio (BCR) compares monetized benefits to project costs. Producing a meaningful ratio requires a cost estimate of sufficient maturity. Alto's capital cost is currently a preliminary Class 5 estimate, and dividing preliminary benefit estimates by a preliminary cost range would produce a figure that is not decision-grade.

A full BCR, together with the complete value-for-money assessment, will be developed as cost estimates mature through the development phase and will be presented in the business case supporting the Government's investment decision.

**Readers should also note that direct welfare benefits measured in a cost-benefit analysis are one input to that assessment. Consistent with federal and international appraisal practice, the investment decision will also weigh wider economic impacts, financial returns, and strategic outcomes that a single ratio alone does not capture.**

# What changes for Canadians

Aiyana, who uses a mobility device, would like to travel from Trois-Rivières to Québec City to visit family. However, existing travel options can be difficult to navigate as they often involve barriers such as stairs, long or complex transfers, inconsistent accessibility, and added stress when planning the journey. This can make travel feel uncertain, physically demanding, and sometimes discouraging. With Alto, Aiyana can board step-free in Trois-Rivières, travel directly and affordably to Québec City, and arrive without having to deal with stairs or long transfers. The experience is seamless, accessible, and predictable, allowing her to travel independently and comfortably.



Stella lives in Toronto and regularly visits her grandmother in Trois-Rivières. These trips are not discretionary, but the cost and effort of travel have often limited how frequently she can make them. Thanks to Alto, the journey becomes simpler, faster, and more predictable. Competitive fares, including last-minute options, mean that train travel represents a manageable share of her trip budget and can even encourage additional visits. With minimal planning required, Stella can decide to travel on short notice, fitting trips around her schedule. Over time, the reduced travel burden helps her stay more connected with her family.



## Section 5

A preliminary financial perspective

## 5.1 Capital requirements

The capital cost to build out the complete high-speed system has been estimated in 2024 to be within a range of \$60-\$90 billion. This estimate is based on the project concept, general corridor, and a high-level scope rather than detailed engineering or a defined alignment and will evolve as development progresses. Over the course of the development phase, project definition will mature to allow the refinement of Class 5 estimates to Class 2 estimates, following best practices in accordance with the Association for the Advancement of Cost Engineering International (AACE) cost classification framework.

As project definition progresses, cost estimates will be refined in line with industry standard guidance. This progression will enable a defined reference estimate with clearer quantities, risks, and contingencies ahead of a final investment decision.

International cost comparisons reflect significant variations in urban density, tunnelling requirements, land acquisition costs, labour markets, regulatory regimes, and scope definitions. According to a 2026 study<sup>57</sup> by the International Union of Railways (UIC), high-speed rail infrastructure has an average construction cost of

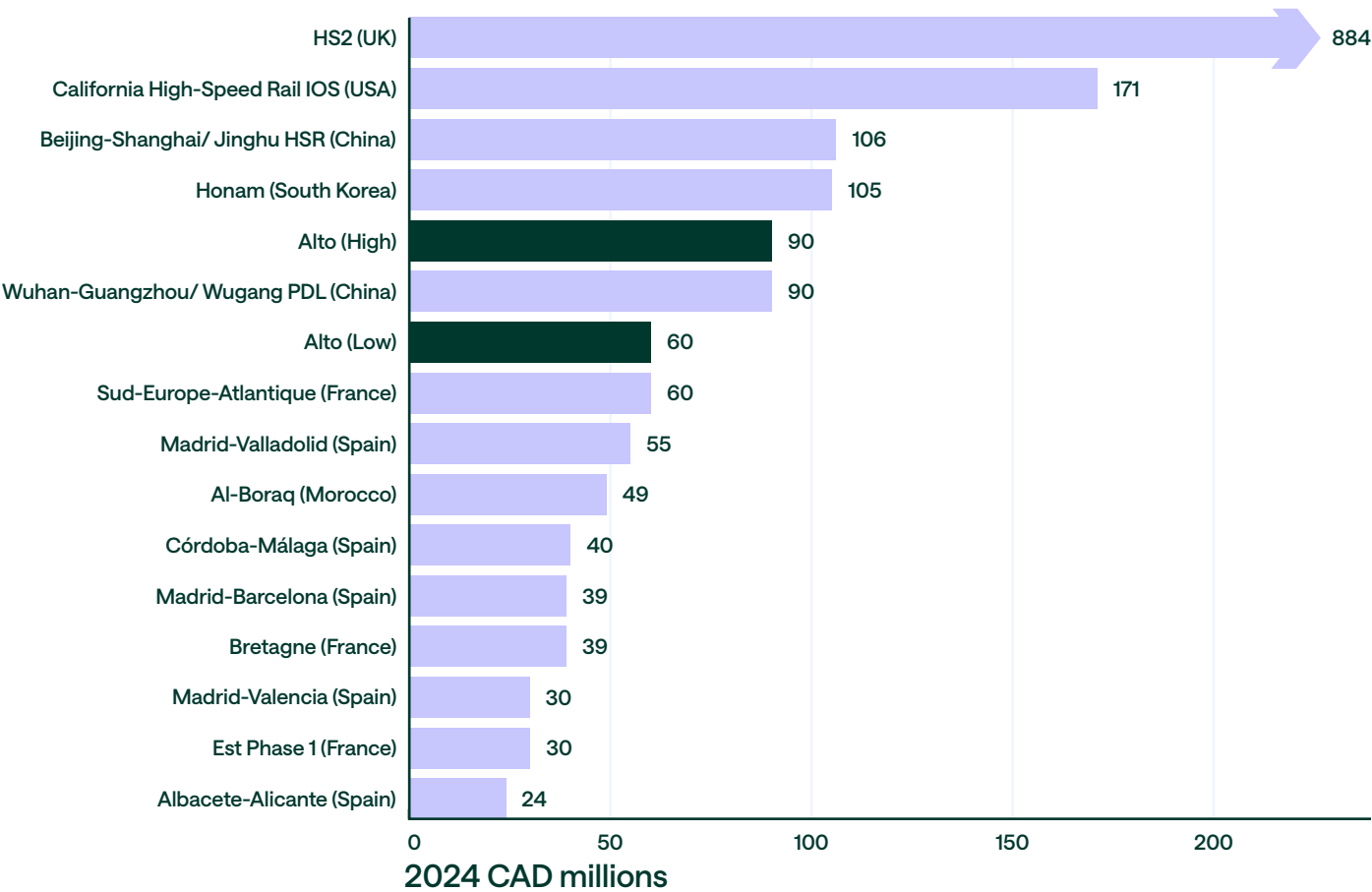
***Alto's projected cost per kilometre is consistent with international benchmark and remains within the range observed for comparable high-speed rail projects worldwide.***

approximately €45.5 million (EUR, 2022) per kilometre globally, equivalent to approximately \$77 million (2024 CAD). While this average provides a reference point, the study notes that costs vary significantly by project and by country.

Alto's projected cost per kilometre is broadly consistent with this international benchmark and remains within the range observed for comparable high-speed rail projects worldwide. Figure 19 provides that comparison. Alto's cost per kilometre is computed using a 1,000-km network length.

<sup>57</sup> Source: [Study: High-speed rail lines cost an average of EUR 45.5 million per kilometre](#). The average cost of 45.5 million, 2022EUR has been converted to 2024 Canadian dollars using European Central Bank CPI numbers and [Bank of Canada 2024 exchange rate](#).

**Figure 19 | Comparative capital cost of recent international high-speed rail projects (\$2024 CAD million per route-km)<sup>58</sup>**



## 5.2 A credible investment case for Canada

Alto will become an essential component of the national passenger transportation infrastructure. It represents a major public investment in a revenue-generating asset, one that delivers both significant economic impact and sustained financial returns. While the capital cost is substantial, it must be assessed in the context of the long-term value it creates.

Unlike most transportation projects (such as highways, transit or bridges), the project is expected to operate on a self-sustaining basis. Once in service, operating revenues are expected to fully cover operating and maintenance costs. This also distinguishes Alto from other socially beneficial infrastructure assets

(e.g., schools and hospitals), which deliver essential public value but through ongoing subsidization. While both types of investments are necessary, they should not be assessed on the same financial basis.

***Passenger rail would transition from a publicly subsidized service to a commercially viable operation, generating revenues for Canada as owner of the infrastructure.***

58 Source: [High Speed Rail – Transit Costs Project](#). Projects were selected based on a maximum operating speed of 320 km/h or higher, a route length of more than 150 km, and completion after 2006. Costs include civil infrastructure, systems, stations, project management and overheads, but not rolling stock or financing charges. The 2023 cost-per-kilometre values were inflated to 2024 U.S. dollars using the U.S. Bureau of Labor Statistics Consumer Price Index. The inflated values were then converted to Canadian dollars using the Bank of Canada’s 2024 annual average USD/CAD exchange rate of 1.37.

# Can high-speed rail operations be profitable?

As with most major infrastructure projects, revenues do not cover all costs, when considering the initial capital investment, operations and maintenance, and lifecycle costs.

However, international experience shows that high-speed rail services can generate enough revenue to cover their day-to-day operating costs and produce an operating income surplus. In other words, operations themselves can be profitable.

This is reflected in the fact that several high-speed rail systems are operated by private or publicly listed companies, demonstrating that a commercial, performance-driven approach is achievable.

While detailed financial data is often commercially confidential, available public information shows that some operators generate a meaningful operating surplus.\*

The examples below illustrate indicative operating surplus. These figures are subject to year-to-year fluctuations and should be interpreted as snapshots rather than long-term averages.

## Illustration of operating surplus, expressed as a share of revenues

| Eurostar <sup>59</sup> | Italo <sup>60</sup> | Japan Central HSR <sup>61</sup> (2025) |
|------------------------|---------------------|----------------------------------------|
| (2025)                 | (2020)              |                                        |
| ~17%                   | ~27%                | ~50%                                   |

\* Operating performance is approximated here using EBITDA, which measures Earnings Before Interest, Taxes, Depreciation and Amortization. Using these standardized metrics allows for consistent comparison across operators.

The Alto high-speed rail network will therefore deliver a combination of long-term economic benefits and direct, measurable financial returns:

- significant macroeconomic benefits to the Canadian economy, driven by faster, more reliable connections between major cities (estimated at ~1.1% GDP uplift; [see Section 4](#));
- sustained long-term revenues generated from passenger demand over the 40-year operating period;
- the ability to amortize capital costs over several decades, smoothing out the annual fiscal impact on Canada; and
- residual asset value at the end of the operating period, reflecting a fully functioning, well-maintained asset that remains under government stewardship.

This investment is deliberately structured to minimize long-term costs to taxpayers.

# Canada will retain full ownership of this nationally significant asset, with no transfer of ownership to the private sector.

The railway will be designed, built, financed, operated, and maintained in partnership with the private sector, drawing on private expertise, capital, discipline, and innovation. Canada will invest in building and owning the physical network, while leveraging that asset to enable commercially self-sustaining operations. Canada invests up front so the high-speed rail network can stand on its own—operationally, financially, and institutionally—for generations.

Taken together, the project combines strong economic impact, sustained revenue generation, and a delivery model designed to optimize outcomes, supporting a credible investment case for Canada.

59 Source: [Eurostar Media Centre](#).  
60 Source: [Bilancio d'esercizio](#).  
61 Source: Central Japan Railway Company Integrated Report 2025.



# Conclusion

# Conclusion | Moving forward

Canada is at a decision point. The Toronto–Québec City corridor is the country's largest economic region but continues to face structural constraints in connectivity that limit mobility, productivity, and long-term growth. Without a structural intervention, existing infrastructure will not be sufficient to accommodate projected demand, nor will it unlock the full economic potential of the corridor.

High-speed rail represents a nation-building investment. Consistent with past transformative infrastructure, the Alto project offers a unique opportunity to reduce economic distance, strengthen productivity, and support long-term economic growth, while advancing key federal priorities related to affordability, decarbonization, and regional development.

The analysis demonstrates that high-speed rail is a proven solution capable of delivering a step-change in connectivity and generating significant long-term benefits across the corridor, including improved mobility, expanded labour markets, and sustained GDP growth.

***The evidence currently supports confidence that Alto's benefits are significant and durable, and that they hold across a wide range of plausible scenarios.***

Beyond its direct impacts, the project will establish critical Canadian expertise and capabilities in planning, delivering, building and operating high-speed rail in Canada. This foundation can support the acceleration of future projects across Canada and contribute to the development of a broader North American high-speed rail network.

The next phase of the project will focus on strengthening delivery readiness and reducing uncertainty.

Over the coming year, Alto will:

- advance engineering and technical studies to increase design maturity and cost certainty
- refine the delivery and procurement approach, including market engagement and contracting strategy
- develop a detailed phasing and implementation plan
- strengthen risk assessment and mitigation strategies
- further develop the financial framework, including operating considerations and funding approaches
- establish a clear benefits realization and performance framework

Consultation will remain central to the project's evolution. Ongoing engagement with Indigenous communities, provinces, municipalities, stakeholders, and the public will continue to inform the refinement of the corridor and ensure that the project reflects local realities while delivering national benefits, building on the findings of the [What We Heard Reports](#).

The objective of this next phase is to position the Government for a future investment decision.

By advancing these elements, Alto will deliver a more complete and decision-ready business case, enabling a fully informed assessment of value for money, deliverability, and long-term impact.



# Appendices

# Appendix A: How do we measure the value Alto brings to the Canadian economy?

Alto's economic value is assessed using a set of complementary analytical frameworks designed to capture different types of impacts arising from the project. These frameworks distinguish between direct effects observed within the transportation system and indirect effects that emerge as improved connectivity influences economic outcomes over time.

This section breaks down Alto's benefits across these different categories of effects and provides descriptions of the methodologies used to estimate them.

## A.1 Direct effects

Direct effects capture changes within the transport market itself. These include benefits experienced by travellers, such as travel time savings and reduced vehicle operating costs, as well as impacts on related markets affected by transportation. The latter, which are considered “non-traveller direct benefits,” encompass a range of broader outcomes, including reductions in emissions, improvements in air quality, lower congestion, and enhanced safety. Direct effects represent welfare improvements, reflecting improvements in the efficiency with which time, resources, and costs are allocated across the transportation system and the associated gains to users and to society as a whole. Direct effects are measured using established cost-benefit analysis methodologies. [Table A1](#) summarizes Alto's direct benefits.



Table A1 | Summary of direct effects over a 60–year operating period, 2024 CAD prices and values

| DIRECT EFFECTS                      |                                       | BENEFIT                                                     | MONETIZED VALUE ESTIMATES<br>(upper estimate, \$2024 CAD) |
|-------------------------------------|---------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
| Direct effects<br>to travellers     | Travel time savings                   | Up to 9.3 billion hours saved                               | \$38.4 billion                                            |
|                                     | Automobile cost savings               | Up to 90.1 billion vehicle kilometres avoided <sup>62</sup> | \$1.9 billion                                             |
|                                     | Road safety                           | Up to 400 fatalities and 26,000 injuries avoided            | \$610 million                                             |
|                                     | Decongestion benefits                 | Derived from vehicle kilometres travelled reduction         | \$570 million                                             |
| Direct effects<br>to non-travellers | Greenhouse gas emissions reduction    | Up to 39.1 million tonnes avoided                           | \$7.2 billion                                             |
|                                     | Air pollutant benefits                | Derived from vehicle kilometres travelled reduction         | \$27 million                                              |
|                                     | Economic residual value <sup>63</sup> | Benefits accruing beyond a 60–year appraisal horizon        | \$840 million                                             |
| Total                               |                                       |                                                             | \$49.5 billion                                            |

Note: The values given in the table above are discounted NPV figures.

DIRECT EFFECTS: TRAVELLER EFFECTS



Travel time savings

Across the 60–year appraisal period, Alto is expected to save travellers up to 9.3 billion hours. These savings accrue to both existing travellers and new users who will shift to rail as service quality improves. When monetized at \$22.32 per hour (an amount derived from Metrolinx and Ministère des Transports du Québec guidance) these time savings amount to up to \$38.4 billion, making them the largest single source of economic value in the cost-benefit analysis. Underlying ridership and revenue modelling distinguish between trip purposes (business and non-business travel). To accommodate for differences in user behaviour, time-saving benefits were calculated on aggregate outputs using a single value of time. This approach is

consistent with Metrolinx methodology, which applies a standardized parameter across all trips rather than disaggregating by trip purpose.



Automobile cost savings

Many of the costs associated with owning and operating a vehicle (including insurance, licensing, and financing) are not fully reflected in individual travel decisions. By reducing reliance on automobiles, Alto reduces these operating costs.

Over the 60–year appraisal period, the project is estimated to reduce vehicle travel by up to 90.1 billion vehicle kilometres, generating automobile cost savings valued at up to \$1.9 billion as a direct benefit to households.

62 Vehicle kilometres travelled (VKT) measures the total distance travelled by all vehicles within the transportation network and serves as a key indicator of traffic levels, congestion, and associated externalities such as emissions and road safety risks.

63 Economic residual value refers to the remaining value of an asset at the end of the appraisal period, reflecting its continued useful life beyond the analysis horizon and ensuring long-lived infrastructure benefits are captured in the overall assessment. These are different than financial residual values, which relate to potential future sale prices.



### Decongestion benefits

Decongestion benefits reflect the future reduction in travel delays experienced by remaining road users, as some travellers will shift from automobiles to rail. Having fewer vehicles on the road, particularly during peak periods, will improve traffic flow and reduce time lost to congestion. These decongestion benefits are valued at up to \$570 million.



### Road safety

Road safety benefits reflect reduced collision risk due to lower traffic volumes from the modal shift to rail. Fewer cars on highways will translate into fewer accidents, injuries, and fatalities. The project is estimated to avoid up to 400 fatalities and 26,000 injuries over the appraisal period, valued at up to \$610 million. Accident rate reductions are capped after 20 years to avoid overstating long-run gains.

## DIRECT EFFECTS: NON-TRAVELLER EFFECTS



### Greenhouse gas emissions reduction

Greenhouse gas benefits arise from shifting travellers away from automobiles and air travel toward electrified rail, which will produce significantly lower emissions per passenger-kilometre, particularly when powered by low-carbon electricity. Alto is estimated to reduce emissions by up to 39.1 million tonnes, valued at up to \$7.2 billion. These reductions contribute to lower overall emissions across the corridor, with benefits extending to all of its residents more broadly through improved environmental outcomes. Automobile emission rates are assumed to decline over time to reflect increasing penetration of zero-emission vehicles through 2050, which conservatively constrains long-run emissions benefits relative to a static emissions assumption.

## Methodology: cost-benefit analysis

Alto's monetized direct impacts are discounted at 3.5% over a 60-year operation period, presented in 2024 dollars, and measured incrementally against a no-investment baseline, following industry best practices.<sup>64</sup>

Travel time savings are estimated for both new and existing users and include in-vehicle time, access and egress time, and waiting time. A logsum approach was used to reflect differences in how travellers experience and value time savings across modes and trip types. Monetization is based on a value of time of \$22.32 per hour, derived from Metrolinx and Ministère des Transports du Québec<sup>65</sup> guidance. The analysis assumes zero real growth in the value of time over the appraisal period.

Greenhouse gas emission reductions were calculated using mode-specific emission factors and monetized using the Government of Canada's social cost of carbon. Automobile emission rates are assumed to decline over time to reflect increasing penetration of zero-emission vehicles through 2050.

Automobile cost savings, improved road safety, and reduced congestion are all driven by reductions in the number of vehicle kilometres travelled, which are estimated at 90.1 billion over the appraisal period. Road safety benefits reflect reduced collision risk due to lower traffic volumes, with accident rate reductions capped after 20 years. Decongestion benefits are modelled separately for peak and off-peak periods and for urban and intercity contexts.

<sup>64</sup> Source: [Metrolinx Business Case Manual Volume 2: Guidance](#).

<sup>65</sup> Source: [Guide de l'analyse avantages-coûts des projets en transport routier - Partie 2 - Paramètres \(valeurs de 2019\)](#).



### Air pollutant benefits

In addition to lower greenhouse gas emissions, reductions in vehicle travel will also lead to lower emissions of air pollutants that affect local air quality and public health, including fine particulate matter, sulphur oxides, nitrogen oxides, hydrocarbons, and carbon monoxide. As vehicle kilometres travelled decline, exposure to these pollutants decreases, particularly in urban areas and along major corridors. These improvements in air quality benefit residents of communities along the corridor through reduced exposure, with associated health and environmental gains valued at up to \$27 million.



### Residual value

Alto's infrastructure is a long-lived asset that continues to sustain benefits beyond the 60-year appraisal period, as the infrastructure continues to support growing travel demand and deliver economic value well into the future. This means that a notable share of Alto's benefits materialize beyond the appraisal period. These benefits, referred to as the project's economic residual value, are estimated at up to \$840 million. This residual value reflects ongoing economic benefits to society and should not be confused with a financial residual value associated with asset resale or balance-sheet treatment.



# A.2 Indirect effects

Indirect effects capture how enhanced connectivity alters economic conditions beyond the transport market. These impacts materialize over time as lower travel costs and improved access change how people and firms interact, influencing productivity, labour market participation, and patterns of economic activity. They include structural effects such as stronger agglomeration, expanded labour markets, and increased international tourism. In this sense, they represent the easing of the previously outlined constraints that are slowing down Central Canada’s economy. By improving connectivity, these constraints are reduced, allowing economic activity to occur more efficiently and at a larger scale than is currently possible. Indirect effects also include regional economic impacts associated with the construction and

operation of the project, including the economic activity generated through project spending and its effects across supply chains and local economies.

These indirect effects are assessed using a range of economic indicators, reflecting different dimensions of economic performance. Among these, gross domestic product (GDP) captures the overall increase in economic output resulting from improved efficiency and increased economic interaction across the corridor. In this context, GDP reflects the value of additional goods and services produced as businesses, workers, and markets adjust to improved connectivity, and should be understood as a measure of structural change in economic activity rather than a direct measure of individual welfare.

## INDIRECT EFFECTS: PERMANENT ECONOMIC IMPACTS AT A NATIONAL LEVEL

Table A2 | Alto’s permanent impact on the Canadian economy

| BENEFIT CATEGORY      | BENEFICIAL EFFECT                                                                           | ALTO’S MONETIZED ESTIMATES (\$2019)                    |
|-----------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Productivity          | Reduced travel costs strengthen agglomeration, coordination, and market access.             | \$21 billion                                           |
| Labour supply         | Improved accessibility increases participation, hours worked, and job-worker matching.      | \$2.7 billion                                          |
| International tourism | Better connectivity attracts additional international visitors and encourages longer stays. | \$0.8 billion                                          |
| Total                 |                                                                                             | <b>\$24.5 billion</b><br><b>(1.1% of Canada’s GDP)</b> |

Note: The results above represent a central estimate. Results are sensitive to assumed productivity (agglomeration/coordination) effects, labour market responsiveness, and realized service levels (travel times, etc.) that determine outcomes. The values presented are the central case outcomes from a range of sensitivity tests undertaken. All figures are based on the reference year 2019.

### Unlocking productivity

Alto increases productivity by reducing generalized travel costs and improving connectivity between firms, workers, and markets. These changes facilitate more frequent interactions, improve job matching, and support

knowledge exchange across connected urban areas. As coordination improves and economic activity becomes more integrated, businesses are able to produce more output with the same inputs. Alto’s productivity impacts correspond to a permanent GDP uplift of **\$21.0 billion**.

# How improvements in intercity travel will translate into productivity gains

Reducing travel times between cities affects economic productivity through multiple channels. Two mechanisms are central to Alto's economic appraisal:

- Direct travel time savings for business travellers
- Agglomeration effects arising from improved connectivity between economic centres

Both mechanisms are enabled by faster travel, but they capture different economic effects and are quantified using different analytical tools.

Travel time savings are a microeconomic welfare measure estimated within a cost-benefit analysis and reflect changes occurring in the transport market (which can be considered the primary market in the economic appraisal of a transport infrastructure project). By contrast, the \$21 billion figure is a macroeconomic outcome derived from a computable general equilibrium model and reflects economy-wide productivity gains that arise outside the transport market. These gains materialize in a wide range of secondary markets, in which poor connectivity was causing inefficiencies. Productivity gains occur in these secondary markets, as better connectivity increases

effective density and improves market integration, reducing market inefficiencies. This process is commonly referred to as agglomeration.

When large productivity figures are described informally as being “due to shorter travel times,” they should not be assumed to solely occur in the transport market. Under that interpretation, the implied arithmetic is implausible: the GDP effect would need to be explained by extraordinarily large time savings per trip, very high implicit values of time, or an assumption that nearly all travel is undertaken for business purposes.

The scale of the agglomeration effect reflects the size and importance of the Toronto–Québec City corridor and the fact that improved connectivity addresses a binding constraint on economic coordination and labour market integration across Canada's economic core.

While travel time savings can reasonably be described as productivity gains at the level of individual travellers or businesses, they are not the same as agglomeration-driven productivity gains measured at the level of the economy as a whole.

Table A3 | Distinguishing travel time savings from agglomeration benefits

| CATEGORY                     | WHAT IT MEANS                                                                                              | PRODUCTIVITY IMPACT                                                                                             | METHODOLOGY                                                                                     | ESTIMATED MAGNITUDE                                        |
|------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Business travel time savings | Business travellers spend less time in transit and waiting, freeing up time for work                       | Reduces friction for business activity and improves individual time allocation (travel market impact)           | Travel time savings from demand modelling x value of time, discounted over the appraisal period | Included within up to \$38.4B in total travel time savings |
| Agglomeration effects        | Cities function as a more integrated economic region due to reduced travel times and improved connectivity | Supports knowledge spillovers, better job-matching, and more efficiency in secondary markets across the economy | Productivity parameter applied in a computable general equilibrium (CGE) model                  | Baseline \$21B per year productivity uplift                |

### Expanding the labour market

Alto increases effective labour supply by improving access to employment opportunities and reducing the time cost associated with commuting. This allows a larger set of jobs to become feasible within a given travel time and enables increases in labour market participation and hours worked. These changes support higher levels of employment and income across the Canadian economy. Alto's labour supply impacts correspond to a permanent GDP uplift of **\$2.7 billion**.

### Driving international demand for Canadian destinations

Alto increases international tourism activity by improving accessibility across major destinations in the corridor. Faster and more reliable connections make multi-destination travel easier and can support longer stays by international visitors. This results in increased spending on goods and services such as accommodation, food services, transportation, and recreation, contributing to higher economic activity. Alto's tourism impacts correspond to a permanent GDP uplift of approximately \$0.8 billion.

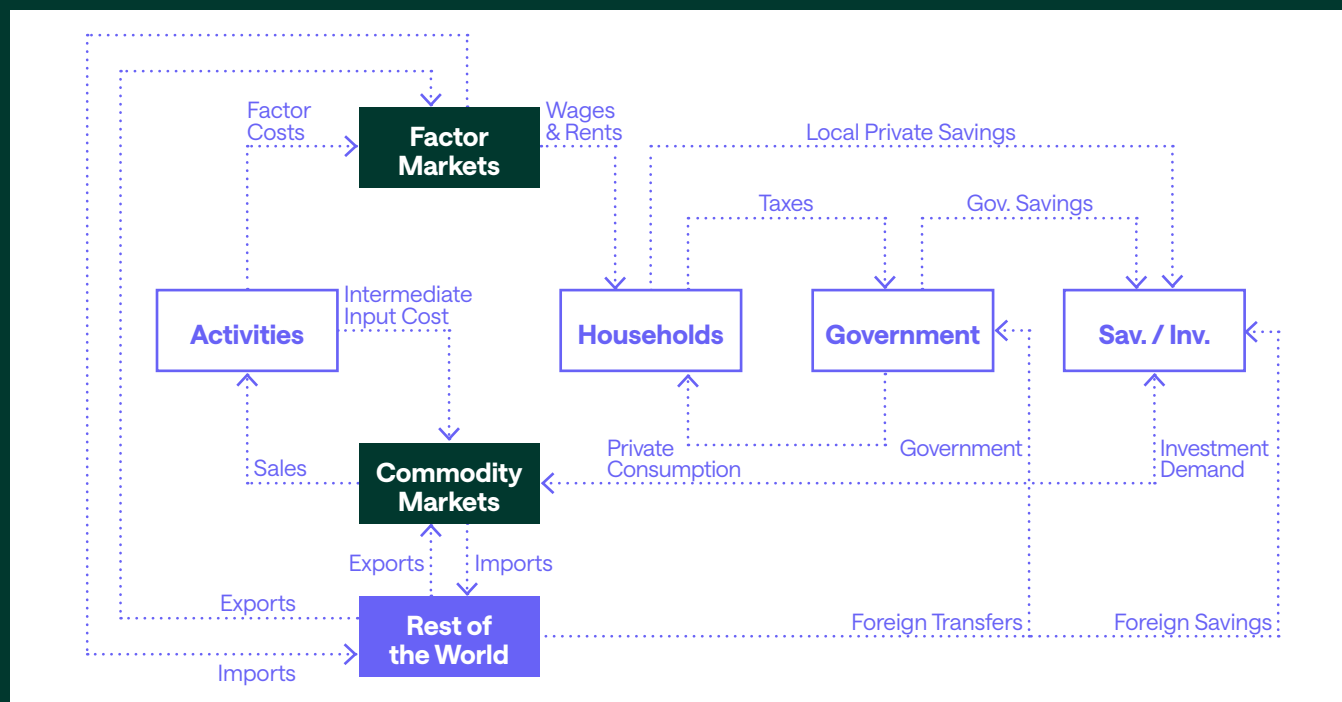
## Methodology: permanent economic impacts at a national level<sup>66</sup>

The structural impacts described above are estimated using a computable general equilibrium (CGE) model of the Canadian economy. CGE models capture how households, businesses, governments, and international trade adjust simultaneously in response to structural shocks, ensuring that changes in output, prices, wages, and demand are internally consistent across all markets.

The model used for Alto incorporates productivity, labour supply, and tourism shocks calibrated from the international high-speed rail literature and Canadian economic data. Results are expressed as annual differences relative to a baseline economy once the system is fully operational and has adjusted to its new equilibrium.

<sup>66</sup> A detailed report outlining the computable general equilibrium (CGE) modelling framework, including underlying assumptions, calibration, and sensitivity testing, is available in a separate methodological report published on Alto's Research page.

**Figure 20 | Flow structure in a CGE model**



To ensure robustness, the modelling does not rely on a single specification or set of assumptions. Nearly 100 simulations are conducted, varying both model closures and labour market regimes. Different closures are used to test alternative assumptions about which macroeconomic variables adjust endogenously, including government balances, price levels, exchange rates, and external accounts. In parallel, two labour

market regimes are modelled: one reflecting a relatively tight labour market with limited short-run responsiveness, and another reflecting a more fluid labour market in which participation and hours worked respond more strongly to wage signals. Results are reported as central tendencies across these simulations.

### Household income

Through the previously described channels, Alto increases household disposable income across the economy. Higher productivity, expanded labour supply, and increased tourism activity lead to higher employment, higher wages, and increased returns to capital. At the same time, improved efficiency can reduce the cost of some goods and services, increasing real purchasing power. In the baseline scenario, Alto increases household disposable income by approximately \$11.2 billion per year. In proportional terms, it corresponds to an increase of approximately 0.7% in household disposable income, or about \$745 per household per year.

### Tax revenue

Alto also increases government revenues at all levels of government – federal, provincial, and municipal – by expanding the tax bases associated with labour income, consumption, and corporate profits. As economic activity rises, higher employment, increased consumption, and higher business income generate additional fiscal revenues under existing tax structures. In the baseline scenario, Alto increases government revenues by approximately \$6.4 billion per year. These increases reflect broader economic expansion, as higher output and income translate into higher tax receipts across the economy.

## INDIRECT EFFECTS: ECONOMIC IMPACTS IN THE REGION

### Enabling housing growth along the corridor

Alto will enable transit-oriented development (TOD) around stations. TOD is associated with higher-density, mixed-use development patterns that can increase housing supply within proximity of transit nodes and redistribute growth away from more constrained urban cores. Analysis of station-area development potential along the Toronto–Québec City corridor indicates that development within defined station catchment areas could support approximately 63,000 additional housing units, depending on underlying assumptions and local conditions.

The estimate of potential housing development is derived from an assessment conducted on behalf of Alto. The analysis evaluates development opportunities within a defined radius around selected station sites, with radii varying by local density (typically between 500 m and 1,000 m). Within each area, existing land use, demographic trends, market conditions, and city planning frameworks were assessed to determine feasible housing density and unit counts. Unit estimates are based on identifying parcels with redevelopment potential, applying density assumptions aligned with surrounding conditions, and accounting for development constraints and timelines.

### During construction

Through its construction and operation, Alto will generate economic activity in markets such as construction, housing, and labour, influencing investment patterns and supporting economic activity across the Toronto–Québec City corridor. Project spending is primarily concentrated in Ontario and Québec and extends through regional and interprovincial supply chains across Canada. This spending supports activity in sectors such as construction, engineering, manufacturing, and professional services, and contributes to operations and maintenance activities over time. The resulting economic activity is distributed across regions through these supply chain linkages and labour markets.

During the construction phase, project activity supports employment across a range of occupations, including construction trades, manufacturing, engineering, and project delivery. In total, Alto is expected to support over **50,000 jobs during the construction period.**

The associated economic activity contributes to overall output and income. Project spending supports approximately \$86 billion in value added to GDP, reflecting compensation to labour and returns to capital generated through construction, operations, and related supply chain activity. In parallel, this activity increases fiscal revenues, contributing approximately \$23 billion in tax revenues across levels of government. These fiscal effects arise from increased employment, consumption, and business activity associated with the project.

## Methodology: input-output analysis

The economic impacts of Alto's project spending are estimated using input-output analysis, which is well suited to assessing how large infrastructure expenditures translate into economic activity across regional and provincial economies. This approach captures the one-time effects of spending associated with the construction of the project.

The analysis applied the 2019 Statistics Canada input-output model. The framework estimates how project spending propagates through the economy based on existing inter-industry relationships. It captures:

- Direct effects, generated by businesses and workers directly involved in delivering and operating the project;
- Indirect effects, arising from purchases along supply chains; and
- Induced effects, generated as workers spend their earnings within local and regional economies.

Results are derived from a static representation of the economy, reflecting a snapshot of inter-industry relationships rather than dynamic adjustments over time. The approach is limited by the fact that it does not account for potential constraints in the economy, such as labour shortages or capacity limits.

Results from the input-output analysis represent spending-supported economic activity rather than net economic gains. They do not capture changes in social welfare, productivity, or consumer surplus, and are therefore not included in the benefit-cost ratio. They do, however, demonstrate how capital spending can have a beneficial effect at the regional level, in line with government policy objectives.

The \$86 billion value-added estimate reflects spending impacts derived from current assumptions about the project's capital and forecasted operational expenditures and will be updated as project definition and expenditure estimates are refined.

## Ongoing employment opportunities

Over time, operations and maintenance roles provide more stable, long-term employment. Alto will require staff across a range of delivery areas and skill levels, including operations control, train operations, infrastructure maintenance, inspection, repair, system management, customer service, and administrative functions throughout the high-speed rail network's lifecycle. These roles span technical, skilled, and professional occupations, including engineering, mechanical and electrical maintenance, operations management, and support services.

An initial bottom-up assessment indicates that Alto supports over 5,000 ongoing full-time jobs during its operational period. Employment is not concentrated solely in major urban centres but extends to communities along the corridor, reflecting the need to operate and maintain infrastructure, rolling stock, and facilities across multiple locations.

Table A4 | Indirect effects: economic impacts in the region

| BENEFIT CATEGORY                           | BENEFICIAL EFFECT                                                                         | VALUE ESTIMATES<br>(upper estimate, \$2024 CAD) |
|--------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------|
| Jobs during construction period (10-years) | Employment supported by project spending across direct, supply chain, and induced effects | 50,000                                          |
| Jobs during operations (ongoing)           | Ongoing employment supported by project operations and maintenance activities             | 5,000                                           |
| Value added to GDP                         | Income produced due to project spending and its impact on all components of GDP           | \$86 billion                                    |
| Tax revenue                                | Fiscal revenue generated from economic activity supported by project spending             | \$23 billion                                    |

# Appendix B: How are Alto intercity rail ridership forecasts developed?

## Approach overview

To forecast future rail ridership, Alto follows an evidence-based approach throughout the project development that combines observed travel patterns, traveller behaviour, and assumptions about the future transport network and growth. Established methodologies commonly applied to passenger rail projects are used. Rather than relying on simple trend extrapolation, the approach uses analytical models that estimate how people are likely to make travel decisions under different socio-economic conditions, service offerings and competition from other modes.

Because the future cannot be predicted with certainty, Alto evaluates a range of possible ridership outcomes through scenarios and sensitivity testing. Ridership forecasts are refined and updated throughout Project development as new information becomes available and design evolves. This approach helps ensure that planning decisions are based on robust, credible and up-to-date evidence while recognizing the uncertainties inherent in any forecasting.

## A proven ridership forecasting process

The following paragraphs describe at a high-level the steps involved in the development and update of Alto ridership estimates.

### Step 1. Estimate the total travel market

The process begins by estimating how many trips people make between cities today by all available transport modes, including car, air, bus and existing VIA Rail services. It also assesses the time, cost and level of service offered by each mode.

This analysis draws on a wide range of data sources, including census data, household travel surveys, airport statistics, mobile location data, transportation statistics, population forecasts, economic projections, and assumptions about how travel costs and transport networks may evolve over time. Together, these inputs provide a comprehensive picture of current travel patterns and how demand is expected to change as Canada's population, economy and transport system evolve.

## Step 2. Understand traveller behaviour

Travellers do not automatically choose the fastest or cheapest option. Different people value different aspects of a journey.

Behavioural models are developed to understand how travellers choose between transport options. These models quantify how decisions are influenced by factors such as door-to-door travel time, travel cost, service frequency, reliability, access to stations, comfort, trip purpose and traveller characteristics. For new rail services, market research and stated-preference surveys complement observed travel behaviour to understand how people may respond to services that do not yet exist.

## Step 3. Forecast rail demand

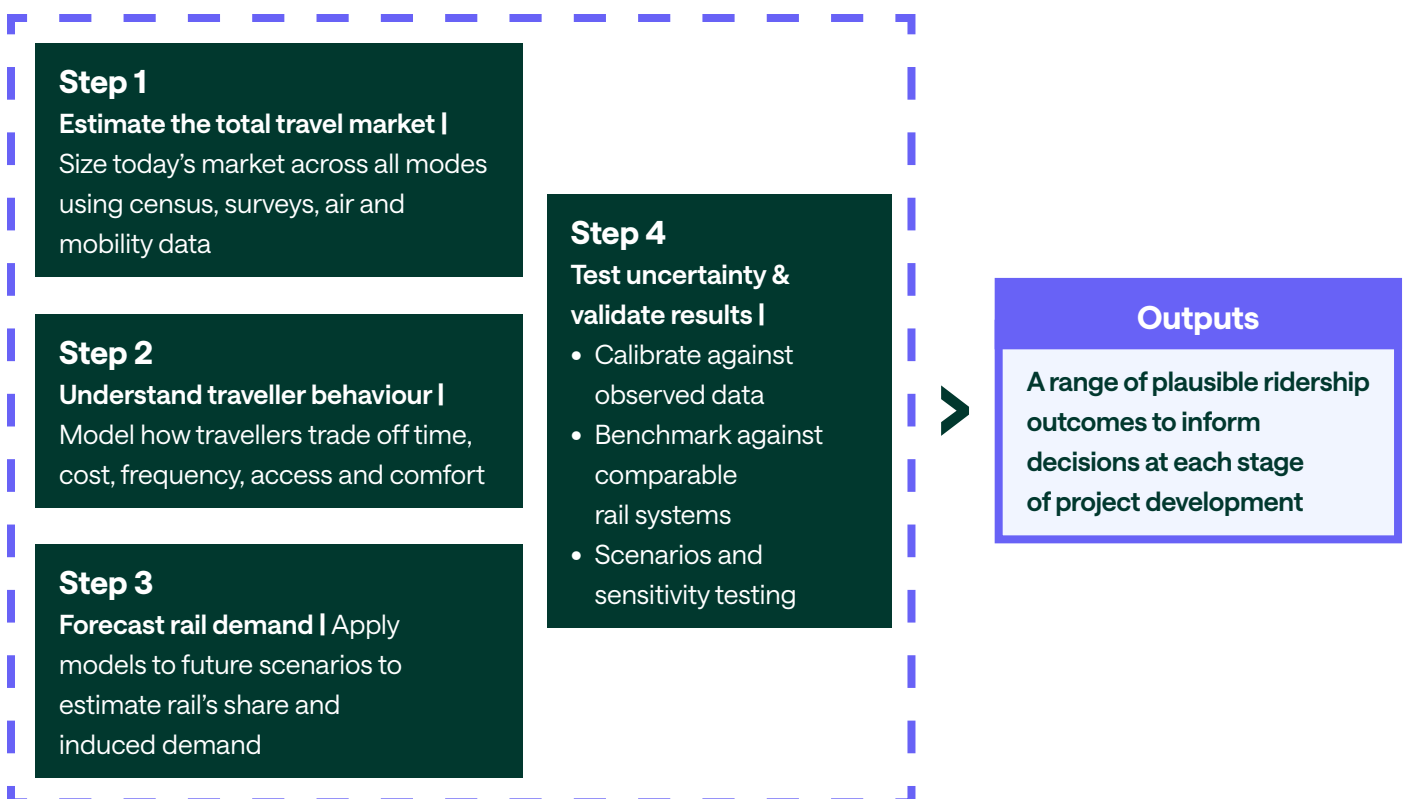
The behavioural models are applied to future scenarios reflecting expected population growth, future economic conditions and the proposed improved rail service assumptions (journey time, station locations, cost, frequency of services, connections, on-board experience, etc.) compared to alternative modes

of transport (air, car and bus). The models estimate how many travellers are likely to choose rail instead of other modes, while also accounting for new trips enabled by improved accessibility and better rail service (referred to as induced demand in the forecasting world). This demand is then matched against the planned service offering to ensure sufficient capacity is provided to accommodate expected passenger demand.

## Step 4. Test uncertainty and validate results

Forecast estimates are calibrated against observed travel data and validated using comparable rail systems and independent evidence. Because long-term forecasts are inherently uncertain, multiple scenarios and sensitivity tests are undertaken to assess how changes in economic conditions, population growth, service design and offering or customer behaviour could affect future demand. This provides decision-makers with a range of plausible outcomes rather than relying on a single forecast to advance design and the decision-making process at different stages of Project development

## An iterative, evidence-based forecasting process



## An evidence-based and iterative forecasting process supporting decision-making

No forecast can predict the future with certainty. Instead, a robust forecasting process provides estimates of future ridership based on the best available evidence and Project assumptions at the time, while explicitly recognizing and testing the uncertainty surrounding key assumptions.

### **Alto is committed to maintaining an evidence-based forecasting process throughout Project development.**

Ridership forecasts are refined as new information becomes available and as the Project design evolves, including updates to station locations, infrastructure, service plans, fares and product offering, market conditions, and long-term socio-economic outlooks. At each stage, a range of scenarios and sensitivity tests is used to evaluate potential risks and opportunities, ensuring that planning decisions are informed by robust, credible, up-to-date evidence.

This iterative approach provides decision-makers with a clear understanding of both the expected ridership and the range of plausible outcomes as the project progresses.

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