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Submission on High-Speed Rail to the Senate Standing Committee on Transport and Communications

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Dear Senators

I want to thank the Senate Standing Committee on Transport and Communications for the opportunity to provide testimony on the proposed high-speed rail line between Toronto and Quebec City in December.

This follow-up note makes three recommendations regarding the planning and delivery of the project:

1) produce a business case to test the merits of the high-speed rail project given the high cost, and use the results to decide on final approval for construction.

2) streamline land acquisition if the project is approved to proceed.

3) if the business case supports proceeding, set an ambitious timeline and build quickly by implementing a suite of measures to accelerate construction.

1. Urgent Need for a Business Case Before Final Approval

Before proceeding with construction of the Toronto-Quebec City high-speed rail line, a thorough business case should be produced to ensure that the benefits of the project outweigh the costs. **It is the global best practice in mega-project planning that such reports are produced before the final approval is granted, rather than after the fact.** This is not merely a waste of time or a further impediment to progress.

Given the high cost of the project and the many other nation building priorities that Canada has, it is imperative that an analysis is done to ensure that high-speed rail is the best use of scarce public resources. **This study can be done in parallel with the project planning currently ongoing to ensure that it does not delay the project, should the study show that it warrants proceeding.**

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To date, Alto's most recent explanatory document, *Fast Forward: Shaping Canada's Future with a High-Speed Rail Network* from March, 2025 reads more like a marketing pitch than a serious analysis of the project's benefits and costs.[1] This should be cause for concern. As Bent Flyvbjerg, the leading mega-project scholar has found in extensive research, mega-projects are highly prone to optimism biases, which result in the Iron Law of Megaprojects: 'Over budget, over time, under benefits, over and over again.'[2]

A key approach to testing the assumptions of a proposed mega-project is to compare them with a 'reference class' of similar projects. As shown below, some of the key assumptions about the Alto project seem to come with unanswered questions, or are at risk of being overly optimistic. If they are ultimately inaccurate, it would have dramatic consequences on the most expensive Canadian mega-project in generations.

Route:

There are at least two major issues related to the route, which will impact on the costs and merits of the new high-speed rail line. Alto is currently finalizing these details, which should be publicly reported and factored into the business case.

- Alto's current high-speed rail reference route bypasses cities like Bellville, Kingston and Brockville that currently have frequent (if slow and unreliable) train service along the existing Via corridor. Clarity is needed on how these communities will receive (improved) quality transportation services if not by high-speed rail. Any continued conventional rail service on the existing line is likely to need even more significant subsidies per trip than today given the decline in overall ridership when the high-speed rail line opens. What is the plan to fund and deliver inter-city transportation services to these communities.
- The station locations and approach to running the trains into the major cities (ie. sharing busy regional rail tracks, new tunnels, etc) is critical to determining the cost, train schedule frequency, and viability of the project.

Cost: Alto has roughly estimated that the cost of building the entire 1,000 kilometer high-speed rail line from Toronto to Quebec City is $60-$90 billion, or $60-$90 million per kilometer. Globally, there are a wide range of costs per kilometer of building high-speed rail.

- Recent projects in Spain, Italy, and China have typically cost between $45 million and $137 million per kilometer, with an average roughly in line with the Alto estimate. Recent Japanese conventional high-speed rail projects are estimated to cost more, between $100 million and $150 million per kilometer due to extensive tunneling. Conversely, projects under construction in California and Britain, two Anglo jurisdictions

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with similar project delivery and legal traditions to Canada, are experiencing major delivery challenges with costs now approaching or exceeding $250 million per kilometer or more. [3]

- Bent Flyvbjerg finds that rail projects globally experience an average cost overrun of 39%, among the highest of any type of transportation mega-project.[4]

Given the significant financial risks at hand, details are needed about how the Cadence consortium (which includes CDPQ Infra that has a strong recent record of delivering light rail at a low cost per kilometer in Montreal) will deliver the high-speed rail project closer to the continental European and Chinese average cost per kilometer as opposed to the far higher costs of our British and American counterparts.

Ridership: Alto is projecting that ridership on the new high-speed rail line will be 24 million in the 2050s and 43 million in the 2080s, a dramatic increase from the 3 million passenger trips in 2024. These figures are important because they form the basis for determining how much fare revenue will be generated to cover expenses, and also spinoff benefits in terms of congestion relief, greenhouse gas reductions, and societal transformation.

As compared to ridership on peer international high-speed rail systems currently in operation and independent estimates of the proposed Canadian system ridership, the Alto figures appear highly ambitious.

- In 2025, Amtrack's Acela high-speed rail service in the Washington-New York-Boston mega-region corridor (population 50 million) carries 3.1 million trips per year.[5]
- In 2024, the Madrid-Barcelona HSR carried 14.6 million passengers per year; Spain's entire 4,000 kilometer high-speed rail network (4 times longer than the proposed Toronto-Quebec City corridor) carried nearly 40 million passengers.[6]
- In 2024, the London to Paris Eurostar high-speed rail service had ridership of 19.5 million trips per year, after being in operation for 22 years.[7]
- The Transportation Research at McGill Lab estimated that high-speed rail ridership in the Toronto-Quebec City corridor would reach 10.3 million trips per year by 2050, less than half the ridership projected by Alto.[8]
- Bent Flyvbjerg and colleagues find that rail ridership forecasts are on average 39% overestimated from actual ridership when the systems open.[9]

Alto needs to provide a clear explanation of how their proposed system will have higher ridership than other high-speed rail corridors with larger populations and more favourable conditions for rail usage.

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Fares: To date, while Alto is promoting high-speed rail as a service for frequent commuting and travel, it has not released any information on the proposed fare structure for the new train. In any public service, there will be a fine balance between keeping fares affordable to enable access and attempting to generate revenues to cover expenses and limit subsidies. While high-speed rail is often priced lower than air travel, it is typically above the cost of a conventional rail ticket and intercity bus. In this scenario, price would be a significant barrier to frequent usage for many travellers (current Via commuters are already voicing concerns about rising ticket prices)[10]. A clear statement on the fare prices and structure is important for Canadians to better understand how financially accessible they may find the new high speed train service based on price.

Land Value Capture

Public investments like high-speed rail make land around the stations more valuable. Land value capture is a way of charging fees and taxes to recoup some of the land value increase to finance the project. While land value capture has been used in Canada and internationally and should be encouraged as a matter of complementary public policy, caution is needed when projecting how much of the $60-$90 billion cost is likely to be recouped through this mechanism. **A 2023 study conducted by the Infrastructure Institute concluded that land value capture on rail projects typically generates tens of millions to hundreds of millions of dollars, with only those catalyzing huge amounts of high-density development in high value locations generating over a billion dollars.**[11] The revenue generating potential of land value capture on the high-speed rail line is likely limited by the few stations that Alto is proposing.

Comparisons with G7 Countries

With respect to high-speed rail, comparisons with Canada's G7 peers need to be made with caution. While all have high-speed rail and the Toronto-Quebec City corridor shares some similarities with other countries, our peers also generally have more built out urban transit systems, tolls on their intercity highways which increase the train's competitiveness, and they receive more tourists to boost rail ridership. A thorough comparative analysis will provide supporting evidence on the likelihood of success for the proposed line, and the accompanying policies that could be implemented to increase the chances of success should it be built.

Despite my reservations about the merits of the high-speed rail project as a national priority, if it is ultimately approved, funded and proceeds, there are measures that can be taken to increase the likelihood of success.

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2. Land Acquisition

Land acquisition has been an area where major rail projects have been bogged down and costs have risen, including in the California and British High-speed rail projects.[12] **Bill C-15 provides ALTO with important tools as a backstop to enable timely and efficient land acquisition. But it does not require their pre-emptive or aggressive usage, and they should only be used as a last resort to deliver the project.**

The enhanced land acquisition powers in Bill C-15 create an even more significant duty for early, ongoing meaningful consultation with Indigenous rights holders, as well as private landowners, and stakeholder along the route, to ensure that all parties are informed, and that land acquisition is carried out fairly.

- Alto's land acquisition policy should be to intentionally pay a fair price not the lowest price for land, and the original landowners should be given first right of refusal to repurchase any expropriated land not used for the project.

3. Fast and Effective Construction

Alto should set an ambitious goal of building the project quickly, fairly, and safely compared with similar systems globally, and then work backwards to develop a strategy to achieve this goal. It is noteworthy that other countries construct major projects far quicker than in Canada, and that major projects in Canada now take longer to build than decades previously. Yet the benefits of faster construction are significant, including lower risk of cost overruns and a greater chance to maintain public support for a generational build. Strategies to achieve this goal include:

- **Effective Project Leadership**: Major projects are temporary organizations that operate at the scale of a Fortune 500 company. Beyond the technical science and systems of project management, they require project leadership that creates a culture of trust, collaboration, organizational focus, accountability, and strong relationships with stakeholders. Elevating the leadership capabilities of the public and private sector leaders of the high-speed rail project through training opportunities is a strategy to improve delivery outcomes.[13]

- **Fast-Tracked Permitting**: Streamlined permitting and environmental review following a 'one window approach' that coordinates and simplifies federal, provincial and municipal approvals can minimize a significant risk that delays major projects.

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- **Balancing Harm Mitigation, Time and Cost:** While there is a strong and understandable impulse to mitigate the environmental and socially harmful impacts of high-speed rail, common mitigation efforts like adding long sections of tunnel to avoid neighbour complaints can add significant project cost and construction time (the current British high speed rail project has notoriously added a $185 million specialized 'bat tunnel' to protect a rare local species). Project planners will need to balance the impacted party and political benefits of harm mitigation with time and cost pressures.[14]

- **Workforce mobilization**: high-speed rail project will require thousands of workers, many of them operating in rural areas along the route, in a construction sector facing a wave of retirements and labour shortages over the coming decade. A plan is needed to effectively staff the project with the necessary skilled labour.

- **Learning effects**: there is evidence that the speed and effectiveness of mega-project construction improves as experience is gained delivering a certain type of asset over time.[15] Alto and Cadence should create education sessions and peer reviews with global rail experts to identify strategies to accelerate construction. Internal learning management processes can also be created to apply effective lessons learned early in the project to later stages.

- **Modular and off-site construction**: project planners should explore opportunities to use modular components and prefabrication to increase construction speed, reduce cost, and improve quality.[16] Part of such an approach can entail employing specialized equipment that can increase speed and automate some repetitive processes.

- **Buy Canadian and new supply chains**: the project must carefully balance a desire to use high-speed rail construction to create local jobs and boost domestic manufacturing with an imperative to avoid placing inexperienced local supply chains in charge of mission critical functions that put the project schedule in jeopardy, as occurred with the Ottawa LRT project according to the Commission of Inquiry.[17]

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[1] Fast Forward: Shaping Canada's Future with a High-Speed Rail Network, Alto, p.18. https://www.altotrain.ca/sites/default/files/2025-05/alto-explanatory-document.pdf

[2] Flyvbjerg, Bent, Introduction: The Iron Law of Megaproject Management (2017). Bent Flyvbjerg (Ed), The Oxford Handbook of Megaproject Management, Oxford University Press, Chapter 1, pp. 1-18.

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[3] See Transit Cost Project: High-speed rail. New York University. https://transitcosts.com/high-speed-rail/; California - https://www.hoover.org/research/little-engine-couldnt-californias-high-speed-rail-costs-rise-200-million-mile

[4] Flyvbjerg, B. and Gardner, D. (2023). *How Big Things Get Done*. New York: Currency. P. 192.

[5] See: https://media.amtrak.com/wp-content/uploads/2025/11/FY25-Year-End-Ridership-Fact-Sheet.pdf

[6] See: https://railmarket.com/news/business/37300-spain-high-speed-rail-reaches-40-million-passengers-in-2024-freight-continues-to-decline

[7] See: https://mediacentre.eurostar.com/mc_view?article_Id=ka4Rz00000CMy3WIAT

[8] See: Zhang., B., Negm, H., & El-Geneidy, A. (2025). High-Speed Rail in Canada: Insights from a corridorwide survey and a financial analysis. Transportation Research at McGill, McGill University, Canada. https://tram.mcgill.ca/Research/Surveys/HSR_REPORT_2025.pdf

[9] Flyvbjerg, B., Bruzelius, N. and Rothengatter, W. (2003). *Megaprojects and Risk*. Cambridge: Cambridge University Press.

[10] See: https://www.cbc.ca/news/canada/via-rail-expensive-9.6941115

[11] Siemiatycki, M., Fagan, D. and Arku, R.N. (2023). Land Value Capture Study Paying for Transit-Oriented Communities. See: https://cdn.cib-bic.ca/files/documents/Corporate/Land-Value-Capture-Study-April-2023.pdf

[12] See: Graham, B. (2025). Billions Spent, Miles to Go: The Story of California's Failure to Build High-Speed Rail. *Gist. https://grist.org/transportation/billions-spent-miles-to-go-the-story-of-californias-failure-to-build-high-speed-rail/*

[13] Future of Infrastructure Group. *Policy Brief: Canadian Major Project Leadership Academy*. https://infrastructurelab.com/wp-content/uploads/2024/11/FIGMajorProjectLeadershipBrief.pdf

[14] Altshuler, A. and Luberoff, D. (2003). The Changing Politics of Urban Mega-Projects. *Land Lines*. October. https://www.lincolninst.edu/publications/articles/changing-politics-urban-mega-projects/

[15] Sovacool, B. K., & Ryu, H. (2025). Beyond economies of scale: Learning from construction cost overrun risks and time delays in global energy infrastructure projects. *Energy Research & Social Science*, *123*, Article 104057.

[16] Flyvbjerg, B. and Gardner, D. (2023). *How Big Things Get Done*. New York: Currency.

[17] See: Ottawa LRT Commission Inquiry Report, P. 3 and 126. https://s3.documentcloud.org/documents/23322302/report-of-the-ottawa-light-rail-transit-public-inquiry.pdf