



What We Heard Report

Getting Back on Track

A workshop co-hosted by
CSA Group and TRACCS

How policy solutions and standards
can improve Canada's ability to
deliver transit and passenger rail
infrastructure projects

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Table of Contents

About CSA Group	3
About TRACCS	3
The Challenge	4
A Very Brief History of Railways in Canada	5
How Standards Can Help	6
The Lowdown on High Costs	6
Openness, Accountability and Informed Procurement	8
Lessons from the REM	9
Safety is Not an Option	10
Research Commissioned by CSA Group	11
Learning from History and Beyond the Echo Chamber	13
Next Steps	15
Further Reading and Useful Links	16
Six Key Takeaways	18
Speakers and Moderators	19



About CSA Group

The mission of CSA Group's Standards Organization is to enhance the lives of Canadians through the advancement of standards in the public and private sectors. We are a leader in standards research, development, education, and advocacy. The technical and management standards developed with our 11,000+ volunteer members help improve safety, health, the environment, and economic efficiency in Canada and beyond. Visit www.csagroup.org to find out more about CSA Group.



About TRACCS

TRACCS is a Canadian non-profit passenger rail association for contractors, operators, and maintainers, coming together to serve the needs of its members and the industry by improving safety and qualifications; promoting proper training; engaging agencies, owners, stakeholders, and government; and sharing best practices, efficiencies, and lessons learned for building, operating, and maintaining passenger rail in Canada. Visit www.traccs.ca to learn more about TRACCS's mission and the work done to achieve it.



The Challenge

After many years of underinvestment in transit and passenger rail infrastructure, Canada is undergoing an overdue and unprecedented expansion. However, its ability to deliver top-quality projects at globally competitive costs—and within reasonable time frames—must improve significantly if it is to sustain this newfound momentum and nurture the public confidence and political will needed to continually fund critical rail systems.

The country's infrastructure deficit, which has developed over many years, has left it with levels of congestion in metro areas that imperil Canada's economic competitiveness and the quality of Canadians' daily lives. Decades of inactivity and underinvestment have also stripped Canada of the institutional memory, professional expertise, and skilled labour force needed to catch up as fast as it would like.

In response, CSA Group and TRACCS brought more than 120 Canadian and international experts to Montreal for a day of presentations and discussions to help kick-start the development of clear, consistent, and comprehensive standards for the design, procurement, construction, maintenance, and safety of rail projects.



By 1885, tracks stitched together the vast new country from Atlantic to Pacific.

A Very Brief History of Railways in Canada

Much has been made about the role railways and the promise of a transcontinental route played in forging Confederation. By 1885, tracks stitched together the vast new country from the Atlantic to the Pacific. An intricate web of rails followed, enabling an abundance of raw materials and mined, agricultural, and manufactured products to move across the continent and to ports for export.

But the rails also moved people, lots of them. Trains were Canada's primary means of intercity travel well into the 20th century, while streetcars and radial lines moved large numbers of Canadians within and around our cities and regions—often profitably. Like much of North America, by the 1950s Canada became reliant on the private vehicles that increasingly clogged public streets. And while investing heavily in wide roads, Canada neglected many rail corridors, ripped out track, and let passenger services decline. Although Canada's biggest cities successfully built a few rapid-transit lines and new commuter-rail agencies eased some of the pressure to expand metro-area highways, many decision makers in the late 20th century became convinced that there was little future for intercity passenger services. It also became a struggle to muster the political will necessary to merely maintain public transit.

It is now clear that Canada has re-awakened to the need for a lot of new rail infrastructure. More than \$100 billion is slated to be invested in urban and regional projects in the next decade, and there is serious talk once more of high-speed and/or high-frequency rail in key intercity corridors.

How Standards Can Help

The conference's two introductory speakers made strong cases for standards as the logical starting point for tackling complicated subject matter in a manageable way and for ensuring continual learning in what is necessarily an iterative process.

TRACCS chairman and co-founder Mark Salsberg made the point that all levels of government and their agencies will be better positioned to address transportation needs efficiently if Canada has a healthy domestic rail industry, "one in which all stakeholders from engineers, contractors, supply chains, operators, and maintainers have a clear sense of the roles they can and need to play. Time and time again, we're seeing the same issues appear over and over. We want to bring clear standards forward to mitigate that risk and avoid some of the pitfalls of delayed projects, or not even being able to afford projects."

Ana-Maria Tomlinson, director of strategic and cross-sector programs for CSA Group, made the point that robust standards "inspire trust," and that a lot of trust will be required for the amount of rail infrastructure Canada needs. While "passenger rail standards are our newest [standard development] sector," Tomlinson noted that CSA Group's first standard, more than 100 years ago, was for steel railway bridges.

"Standards provide minimum requirements to address the use, safety, performance, and design of products, processes, and services," Tomlinson said, adding that "they're trusted documents because they're developed by technical experts who work through a consensus-based and collaborative process. We at CSA don't develop the standards ourselves, but we are experts in facilitating the standards development process."

Tomlinson also stressed that CSA standards are "living documents," meaning they must be reviewed at least every five years.

Both Salsberg and Tomlinson made the points that, because costs are escalating so fast and projects are being delivered so slowly, Canada is building far less transit and passenger rail infrastructure than it could or should. The current standards in use are a 'mishmash' of foreign standards not designed for Canada and Canadian standards that are not designed for transit.

DID YOU KNOW

Canada is the only G7 nation without high-speed rail. Twenty-nine countries have operating high-speed intercity rail and eight others have lines under construction.



The Lowdown on High Costs

There is intense and long-standing competition for taxpayers' money at all levels of government. The transit and passenger rail sector will have to prove it can learn from past mistakes and can maximize the public's economic returns from allotted revenues if Canada is to catch up and keep up with the growth in both population and demand for mobility.

"Unfortunately, on that score," as Jonathan English of NYU's Marron Institute of Urban Management put it in his presentation, "generally speaking, we're not doing well."

Referring to recent studies (see the Further Reading and Useful Links section at the end of this report), English pointed out that there has been "explosive growth" in costs over and above consumer price inflation in the past two decades. It was a political scandal when a Toronto subway extension opened in 2017, two years late and 50 per cent over budget. But it was delivered for about \$380 million per km, which in hindsight now seems reasonable when considering that budgets for Toronto's Ontario Line and Montreal's Blue Line extension (both under construction) have gone well past \$1 billion per km.

It wasn't always this way. For 30 years, starting in the 1950s, Toronto and Montreal were seen as leaders internationally for their ability to deliver good subways quickly at low prices. Now those costs compare starkly



with European and Asian cities that can deliver fully underground rapid-transit lines for \$300 million per km or less. “Even a simple road-median tram like the Finch West LRT in Toronto is costing as much as many full subways in Europe and Asia,” English said.

Stations are the largest drivers of ‘hard costs’ (construction, signalling, and rolling stock). To that point, English noted that current international benchmarks call for shorter, more frequent trains that allow for smaller stations. But even then, stations become much more expensive the deeper they are, and Canadian politicians, fearing backlash over construction-related disruptions at the surface, increasingly demand that subways and light rail transit (LRT) be tunnelled deep, even when it’s usually unnecessary in low-density suburbs.

But ‘hard costs’ are only part of the problem. ‘Soft costs’ (contingency budgets, consultants, and staff producing studies) have ballooned. A recent University of Toronto report shows soft costs now account for more than 55 per cent of the projected budget for four Metrolinx-led subways under construction in Toronto. Soft costs are driven in part by a combination of indecisiveness and unclear project goals and requirements, as well as slow permitting processes. All of these factors can be addressed in part with clear and comprehensive standards.

“We have office buildings full of agency staff and outside consultants while many more people work on-site, and the longer projects take, the longer we have to pay them all,” English said. “Also, when so much political emphasis is placed on not going over budget, the incentive is to budget for every possible contingency. Once an amount is budgeted, there’s a good chance it’ll be spent.”

English ended his presentation on a hopeful note, reminding the audience that we can learn valuable lessons from three 21st century successes stories:

1. Vancouver’s Canada Line is a rare public-private partnership (P3) transit project that really worked, largely because the private partner was free to innovate to meet its fixed budget and firm deadline (it had to be ready for the 2010 Winter Olympic Games). While the project was criticized for disruptions to local businesses during construction and for not delivering enough extra capacity for better-than-expected ridership growth, the relatively low cost—if it can be replicated—would allow another such line to be built, offering the bonus of increased network coverage. Canada Line took less than four years to build; Metrolinx’s largely comparable Eglinton Crosstown project in Toronto is in Year 14 and has yet to open.
2. The original Ottawa O-Train—eight km with five stations and trains every 15 minutes—was delivered for a total of \$21 million (less than \$3 million per km). While that was back in 2001, the Bank of Canada inflation calculator tells us that’s still just \$35 million in 2025, or a fraction of the cost of a single GO Transit station in a farm field. Ottawa did it by making use of an existing corridor, off-the-shelf trains from Europe, and bus shelters for stations. Even at 10 times that cost, a similar approach on lightly used corridors in metro areas from Halifax to Vancouver Island could deliver excellent value that, once again, could convince the public and elected representatives that investments in transit and passenger rail can pay off in a very big way.
3. Just five years after construction began, the Réseau express métropolitain (REM) in Montreal opened its first section in July 2023, with five stations connecting Gare Centrale with Brossard on the South Shore, for \$119 million per km. Three more REM branches are slated to open in October 2025, with an extension to Trudeau International Airport in 2027. Built out, the REM will have 26 stations spread over 67 km. It’s an automated light-metro system that has had strong political support from the start. It’s largely elevated and makes use of an existing tunnel.



Openness, Accountability, and Informed Procurement

Among Oscar Wilde's most famous aphorisms is a definition of the cynic as "a man who knows the price of everything and the value of nothing." And while maximizing the value of returns on rail infrastructure investments obviously matters much more than merely getting the lowest price, knowing how much things actually should cost is a key starting point for evaluating trade-offs, ensuring accountability, and rebuilding public trust.

Marco Chitti of NYU's Marron Institute of Urban Management has lived in Montreal for more than a decade, but he's originally from Italy, and he has written extensively about how that country was able to get costs under control over the past 30 years. Italy is now a world leader in delivering top-quality transit and passenger rail infrastructure, and it does it for about 40 per cent less than the global average. (See Further Reading and Useful Links.)

In discussions after the CSA-TRACCS conference, Chitti said the unit-cost lists are a way for the public to signal to bidders that public agencies know the fair price for the works or services they are purchasing. "This is especially important in a context where, de facto, there is no market because there is very little competition for these kinds of complex and large public works."

A co-author of the recent University of Toronto report "Understanding the Drivers of Transit Construction Costs in Canada," Chitti has expressed concerns

about the lack of transparency surrounding budgets and contracts in Canada, as well as the unwillingness of public agencies to provide even the most basic general breakdowns of heavily bundled design-build-finance-operate-maintain projects.

"It's important that these reference unit prices are detailed, public, and regularly updated by a public entity on a regional or maybe provincial level, not individually for each agency. Collective knowledge helps discipline the market and avoid abuses of one actor's dominant position in a market or, worse, privileged access to information."

Crucially, Italy opted for a three-pronged approach to cleaning up procurement processes in the wake of soaring costs and corruption scandals in the 1980s:

- 1 creating a new anti-corruption authority;
- 2 adopting detailed, publicly available unit-price lists that enable decision makers to engage in well-informed comparison shopping; and
- 3 overhauling bidding processes to incorporate technical scores when assessing a bid rather than focusing solely on costs.



Lessons from the REM

For all the plaudits REM has received for adding substantially to Montreal's rapid-transit system quickly and affordably, the design process could have been much faster and smoother had there been existing standards, readily accessible building codes, templates for the stations, and a roadmap for finding all the appropriate regulators.

CDPQ Infra's REM project team had to do a lot of legwork just to get started on leading the creation of an automated light metro that is unique in Canada, not to mention unlike the existing rail networks in Montreal.

"We quickly learned that metro stations are excluded from our building codes," Maxime Trépanier, Assistant Operations Director – Operational Interfaces at CDPQ Infra's REM project said. "So, if you don't have a code, what are you using to design an underground, above ground, or elevated station on the REM project?"

The REM stations would also be the first on a major North American transit line to incorporate 'platform edge' doors. These doors are living up to expectations because they allow for climate-controlled stations and significantly improved service reliability by making unauthorized or accidental access to the track areas much more difficult.

Aside from covering off all the fire, safety, and technical concerns, the stations had to be designed to connect as efficiently as possible with their surrounding areas and the commuters arriving on foot, bicycle, bus, or car (parking was needed). "Universal accessibility" has

been an essential focus. There are many standards around "universal accessibility," however there is no specific requirements for the rail industry. To design properly, we needed to do a mix and match of five or six standards together.

"Before we could write any specs, we had to step back and ask ourselves, who do we have to ask for rules to follow? We had to identify and find the right authorities. You can't do any improvisation once you hand off a project to a subcontractor. He doesn't want to turn around and come back and then see inconsistencies."

The people and companies involved will gain a lot of expertise from all of that work and be able to apply it readily to future local projects, but it would be waste to have to go through all of that again to take on another project in another province.

"It's really important as a country, if you are in the West, you are in the middle, you are here in Quebec, or in the Maritimes, you need something clear."

Maxime Trépanier's comments fit well with calls from others at the conference for a national and easily accessible database for sharing knowledge. He suggested that Canada may have missed an opportunity in not having established an educational program—a school of railway engineering, railway certification, or railway optional courses—well before the country committed \$100 billion to railway projects, but that it would be worthwhile to get on with it now.

Compromising Safety is Not an Option

All agreed that any discussion of railways and standards must make safety a primary focus. Tony Kearns, who has spent more than 30 years in top roles in the U.K. rail industry, reminded the audience that as much as Canada needs to improve its track record on infrastructure delivery and maintenance, serious and constantly reviewed safety standards in all phases are essential.

Referring to a public inquiry into the 1999 Ladbroke Grove rail crash in west London, which killed 31 people and injured hundreds more, Kearns said the British learned their existing systems were completely inadequate for preventing such tragedies. “We thought we were quite well developed in terms of standards and application for tracks, signalling, safety, and operational issues. Instead, we lacked an effective safety culture. We learned we needed change—big change.”

In simple terms, the crash occurred when a passenger train passed a red signal and collided head-on with another high-speed passenger train. Investigations revealed that the signal involved (SN109) had a history of poor visibility and had been the subject of multiple warnings.

Lord Cullen’s report (see Further Reading and Useful Links) found many safety procedures were poorly enforced or inconsistently applied. There was a great deal of criticism of the railway companies’ slow responses to identified safety concerns and the lack of urgency in implementing the necessary safety improvements.

Fatal transit and passenger rail crashes in Canada are far rarer than they were a century ago, with most in recent decades related to level-crossing incidents. But signalling-system deficiencies and deferred maintenance were deemed largely responsible for Toronto’s 1995 subway crash that killed three.

In conversation after official presentations at the Montreal conference, it came up that while Toronto’s feat of building the University and Bloor-Danforth subways on budget and on time (75 months from November 1959 to February 1966) was enviable, nine construction workers died in the process. Inquests found corner cutting by contractors was largely to blame.

“Multiple factors remain unaligned, forcing the rail industry to rely on international standards, best practices, and competency training to fill the gaps. A fragmented approach creates safety risks, inefficiencies, project overruns, excessive claims, and outrageously high costs”

– Paul Murphy



While emphasizing that he would never play down the importance of safety, Marco Chitti of NYU’s Marron Institute of Urban Management raised concerns in a panel discussion that we may sometimes overreact and rigidly apply onerous safety rules that seriously increase subway station costs without scientific evidence that they will bring significant increases in safety. “Transit and rail are already incredibly safe,” Chitti said he thinks North American rail culture is sometimes too conservative when it comes to fire safety codes.

These types of debates will certainly be part of expert committee discussions in the standards development process and living document reviews.

Research Commissioned by CSA Group

Transit and passenger rail constitute a relatively new area for CSA Group, “but we are getting up to speed with an intensive research-based approach,” Catherine Tays, the group’s strategic initiatives manager for the emerging program, told the conference.

Through a research project started in 2024 and informed by input from subject matter experts ranging from global management and engineering consultancies, infrastructure project contractors, project owners and operators, and more, CSA Group has been identifying problems and areas where improvements can be made with the help of standards development.

“We know that, as costs rise, we end up building a lot less infrastructure than we could or should,” Tays added.

In the course of its inquiry, CSA Group was told Canada is lacking in several key areas, including homegrown design and project-delivery expertise, a skilled and mobile labour force, and, in general, the holistic approaches that allow for overall project management and coordination. These are complicated projects with many interacting elements, and it is necessary to break down the current modus operandi of distinct disciplinary silos to manage them efficiently.

Terms such as over-design, over-specification, ambiguity in project requirements, discreet scopes, scope creep, conflicting codes, and gaps in training and certification are being used to describe the current Canadian transit and passenger rail infrastructure environment.

We know that delays and costs snowball when problems that should have been caught early in the design stages don’t become apparent until project delivery is under way. Too often, full consideration for operations and maintenance needs aren’t beginning early enough in the process.

There was even a case in which permanent building standards were being demanded for the temporary structures needed during construction.

Until there is improvement in those areas, Canada won’t be seen as a competitive country for potential bidders. There’s no need to reinvent the wheel; lots of countries are doing these things well. Canada might learn valuable lessons by studying how it did things decades ago when many considered Canada to be among the world leaders. To actually get back on track and address the country’s infrastructure deficits, Canada will need to find international best practices and the expertise most relevant to the Canadian context.



DID YOU KNOW

The per-km price of Toronto-area subways stayed flat throughout the second half of the 20th century after inflation was accounted for. But costs have since soared, with some under-construction projects slated to cost at least 10 times the 20th-century average in real inflation-adjusted dollars.



Let's Not Get Too Cute

Panelist Ian Hodkinson, Business Development Director at Alstom responsible for turnkey transit systems in North America, is onside with the need to develop standards for transit and passenger rail in Canada, but he also warned of potential pitfalls.

"We need clarity, but at the same time, I'd offer a word of caution from an industrial perspective. Creating new standards or a new standard framework could actually work orthogonally to the objectives we're trying to achieve. The last thing we want to do in creating standards is necessitate bespoke solutions to comply with them."

He added, in a point made several ways by various speakers, that Canada should aim to use off-the-shelf technologies and standard designs whenever possible. We need to be mindful of not boxing the industry into positions where we can't reap the benefits of simplicity and where we have to develop new technologies when proven ones will do.

Hodkinson sees net benefits of developing Canadian standards if we're very careful to nail down the specifics of where different regimes intersect.

Tim Scribner of Gannett Fleming made a pitch for addressing complexity by adopting a discipline known as 'systems engineering.'

"Railways are no longer a series of buildings connected by two ribbons of steel," Scribner said. "These days, every train is exceptionally complex, with so many components that have to come together to work as a whole. It's the same thing with our stations and systems."

Oversimplified for this report, it can be said that 'systems engineering' would ensure project proponents and senior managers never lose sight of a railway project as 'a cohesive whole' and that a clear framework and checklist be followed right from business case development through procurement, design, delivery, commissioning, and—when the line is up and running and hopefully delivering benefits as intended or promised—learning from what went right or wrong.



Hodkinson identified three spheres of passenger rail standards in Canada:

- 1 Intercity and suburban services that currently have to interact with freight rail need to comply with regulations set down by the American Railway Engineering and Maintenance-of-Way Association (AREMA).
- 2 For new transit projects that operate as closed systems, we largely follow standards derived by the European Committee for Electrotechnical Standardization (CENELEC).
- 3 There are legacy systems, such as the Toronto subway, Montreal's Métro, and Vancouver's SkyTrain, that have been around longer than the comprehensive current CENELEC regulations and developed a bespoke normative framework as a consequence. These systems need to consider their legacy standards framework while adapting to new and emerging standards, which represents a unique set of constraints for each operator.



Learning from History and Beyond the Echo Chamber

Canada's inability to deliver good, on-time rail infrastructure projects for globally competitive prices and in reasonable time frames is a relatively new development.

"We have this long successful history of railway building in Canada," Tim Scribner of Gannett Fleming said. "Why can't we do it now?"

Scribner emphasized his point by holding up a copy of Pierre Berton's *The Last Spike* and reminding the conference that, nearly a century and a half ago, 3,000 miles (4,800-plus km) of the Canadian Pacific Railway—through mountains and forbidding Canadian Shield lands—was built in four years (and, yes, he did acknowledge that a major part of that feat was accomplished through the exploitation of Indigenous and immigrant labour).

Meanwhile, in current-day Toronto, the 19-km Eglinton Crosstown LRT (nearly half of which is a surface tram on a road median) is in Year 14 with no opening date set.

During the 1950s and 1960s, when tunnel-boring machines hadn't been invented and engineers still worked with slide rules, Toronto and Montreal proved they could quickly build excellent subways, inexpensively, on budget, and with very little funding from Ottawa or their provincial governments (although workers were killed in subway construction accidents in both cities).

Despite materials shortages caused by the Korean War, Canada's first subway, the 7.4-km, 12-station Yonge line in Toronto, was completed in just 4.5 years, which is, coincidentally, the same amount of time a stretch of Queen Street is slated to be closed for construction of just one (very deep) station on the current Ontario Line project. While Toronto completed the University and Bloor-Danforth subways in 1966 (16 km and 25 stations in 6.25 years), Montreal was finishing up a three-line metro system (22 km with 26 elegant stations) in five years—just in time for the opening of Expo 67.

It may also be worth noting that standards created in the 1930s by the Presidents' Conference Committee (PCC) for a then cutting-edge streetcar design, led to the mass production of vehicles used widely on North American transit systems, and later on other continents, for much of the rest of the 20th century. The PCC streetcars were cheap to build and maintain with simple interchangeable parts.

We're often told that all subway projects go over budget, but five of Toronto's first seven were delivered on or below budget at an average cost of less than \$110 million per km (in 2025 dollars). Montreal had similar successes and, even as late as 2007, it opened the Orange Line extension for about \$210 million per km (in 2025 dollars). Both cities now have projects in their early stages that have soared past \$1 billion per km.

Several theories were presented regarding the cost escalation, including how the rise of ‘soft costs’ coincided with the increased use of outside consultants after public agencies lost much of the in-house expertise they had accrued in previous decades. On hard costs, default reliance on boring machines has led to much deeper tunnels and stations. As the Marron Institute of Urban Management researchers have pointed out, deeper and bigger stations are the biggest drivers of hard costs. Tunnelling under lower-density areas is something Toronto didn’t do when it was good at subway building and it’s not something done much beyond the cores of Asian cities, which have been able to continually expand their systems. It’s also worth noting that in the U.K., 55 per cent of the London Underground is above ground.

Among the Marron Institute of Urban Management Cost Project findings that may surprise many transit and passenger rail industry professionals is that problems tend to be most acute in predominantly English-speaking countries. Nobody suggested Canada switch its official languages from English and French to Mandarin and Spanish, but there was agreement in some of the informal discussion sessions later in the day that getting out of ‘the Anglosphere echo chamber’ will be crucial to developing the best possible standards. If we want to stop repeating the same mistakes, we need to seek out proven expertise in places such as southern Europe, Turkey, India, and South Korea—places that might not be the first ones to come to mind for Canadians.

The conference was held amid a rise in ‘Buy Canadian’ sentiment driven by tariff threats from the White House. During informal conversations later in the day there were questions about whether Canadian content rules should have a place in procurement standards. Some participants in that conversation also raised concerns about how and to what degree land-use opportunities can and should be considered in standards for subway stations and ‘transit-oriented’ development. Should standardized underground station designs include foundations that allow for future developments to be built as cost-efficiently as possible? There was mention that Hong Kong’s profitable Rail + Property business model began with the realization that maintenance

“Several theories were presented regarding the cost escalation, including how the rise of ‘soft costs’ coincided with the increased use of outside consultants after public agencies lost much of the in-house expertise they had accrued in previous decades.”

and storage facilities (MSFs) can be below-grade components of massive pre-assembled development sites (as a bonus, it was mentioned that covered MSFs can keep track switches free of snow and ice in winter).

In a different group, there was talk about whether North American commuter rail rolling stock is held to ‘unnecessarily high crashworthiness standards’ with the assumption that all passenger services share tracks with freight, a situation that isn’t as common as it was a few decades ago. The concern was that European standards allow for rolling stock that is cheaper to purchase and operationally more efficient. That prompted a comment about whether crash-wall standards could also be eased on commuter rail routes that don’t share tracks with freight trains. There was also a question about whether the development potential of publicly owned commuter rail parking lots is harmed by rules that force train operators to ring bells loudly when arriving and exiting stations. In addition, could the bell noise be mitigated enough for developers and residents if there was a requirement for standardized train shed roofs over commuter rail stations?

The late-day discussion topics were undoubtedly far more wide-ranging than what we have here. That’s encouraging because starting and nurturing these conversations and broadening professional networks is essential to the standards development process.



Next Steps

If we're really to get back on track—and stay there—the Canadian transit and passenger rail industry has to do better. As a start, we have to ensure the public is satisfied it is getting good value or better for the \$100 billion committed to projects for the next decade. The rail experts who were in the room in Montreal clearly know the industry will have to earn the next round of investments.

"Whether it's high-speed rail or high-frequency rail, we have this massive project we've been talking about for 40 years, and it's on the table again," TRACCS chairman Mark Salsberg said as the conference's official presentations came to an end. "We have to get it right. We can't afford a boondoggle, and the same goes for every subway, regional rail project, and LRT."

To persuade taxpayers and the private sector to keep investing in transit and passenger rail, we will need a sharp focus on helping politicians choose options and designs wisely, estimate costs accurately, meet budgets and deadlines, and deliver on all promised benefits, including reliability and safety. No costly lobbying or public-relations campaign can make that point more effectively.

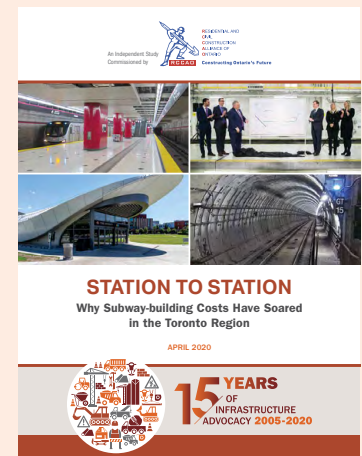
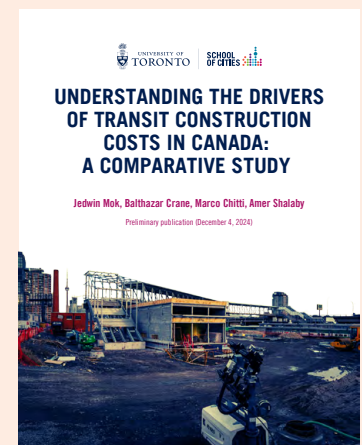
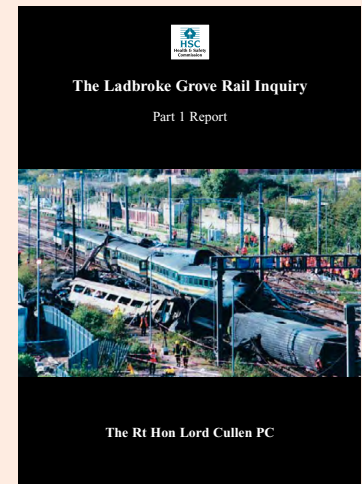
There was apparent consensus that the TRACCS-CSA standards initiative is a great starting point for this mission. To keep the process rolling volunteers were asked to sign up for necessary standards development committee work.

That last point is crucial because, as CSA Group's Ana-Maria Tomlinson pointed out, "standards are written by subject matter experts from across the industry, public sector and academia working together through a transparent, collaborative, and consensus-based process."

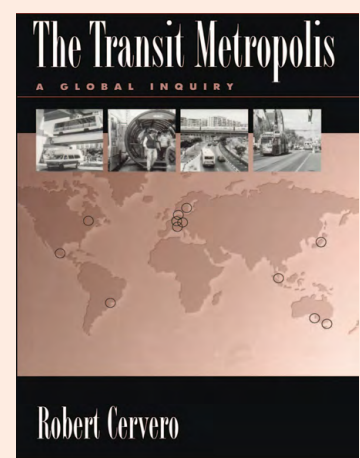
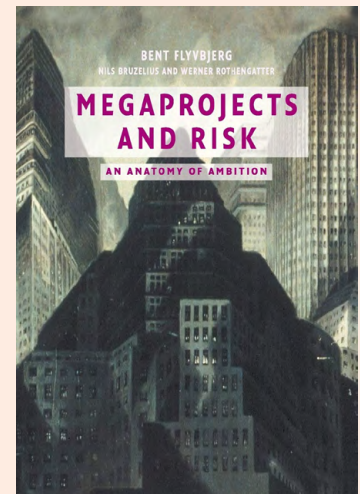
Not only will the development of standards be good for the rail industry itself, but standards also have a lot to contribute to Canada's productivity, global competitiveness, and quality of life.

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Six Key Takeaways

1

Quality transit and passenger rail have a crucial and increasing role to play in Canada's long-term competitiveness and quality of life.

2

The transit and passenger rail industry must improve its processes to rebuild trust with Canadians, and help ensure the successful completion of transit projects over the next decade (which are being supported by \$100 billion worth of federal and provincial government investments).

3

Canada, once a leader in transit and passenger rail, has become a high-cost country where unnecessary hurdles often impede the delivery of the most-needed projects.

4

An initiative to create clear, consistent, and comprehensive standards for the design, procurement, construction, maintenance, and safety of transit and passenger rail is the logical starting point.

5

The research needed to inform standards creation should diligently and broadly seek international best practices well beyond the English-speaking world, although it should also look to Canada's past successes to see what lessons might be applied to the future.

6

Openness, accountability, and reliance on accurate data are not only essential factors in maintaining successful democracies, but they have been key strategies for regaining public confidence in countries where there were issues around costs and corruption.



Speakers and Moderators

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- **Jonathan English, PhD:** Fellow of the Marron Institute of Urban Management at NYU
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- **Tony Kearns, CDir FloD:** Managing Director, K2C Rail, Fellow of the Institute of Directors and Council Member
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- **Mark Salsberg, MBA, BEng.:** TRACCS Chairman and Co-principal, WGD Consulting
- **Ignacio Sanz, PMP, MBA, M Eng:** Global Director, Hatch
- **Tim Scribner, PEng, PMP:** Systems Engineering Manager, Gannett Fleming
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