What We Heard:

Planning for Canada's first National Infrastructure Assessment

Canadian Infrastructure Council

Conseil canadien des infrastructures

Aussi disponible en français sous le titre : Ce que nous avons entendu: planification de la première évaluation nationale des infrastructures du Canada

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Chair Reflections

As Canada continues to grow, the need for sustainable infrastructure planning and delivery, rooted in data and evidence, is critical to support economic growth while ensuring we are building climate resilient communities that support a high quality of life for Canadians, for today and into the future.

Through broad engagement with experts and interest holders across sectors and across the country to develop Canada's first National Infrastructure Assessment, we consistently heard that infrastructure planning and delivery in Canada has become incredibly, unnecessarily, complex, and is failing to respond to the needs of Canadians. We are not building the infrastructure we need, where we need it, and at a pace that responds to this moment and prepares us for the future. The landscape involves multiple orders of government, sometimes working at cross-purposes, contributing to a complex regulatory environment and unfeasible approval timelines, overly restrictive and uncoordinated planning, fees, and funding, that together fail to incentivize good development. At the same time, significant gaps in data availability and access make it difficult to plan effectively and to prioritize investments. As an example, Canada ranks among the lowest Organisation for Economic Co-operation and Development (OECD) member countries in terms of the time required to obtain a general construction permit, and has fallen from fourth to 23rd in the World Bank's ease-of-doing business rankings over the past decade[1]. These challenges contribute to infrastructure projects that frequently exceed both their schedules and budgets, and fall short of addressing the social, economic and environmental challenges and opportunities facing our communities.

It's not just about moving faster but also demanding better outcomes; infrastructure that can solve for multiple problems at the same time. So, how do we build the infrastructure that we need, better, faster and more sustainably? How do we unlock the enormous economic potential of this country, seed public sector and private sector innovation in infrastructure, and deliver better outcomes for communities?

Making good infrastructure decisions means understanding the changing climate, social and population challenges and trends, market opportunities and failures, and laying out a course that enables an infrastructure environment that is strategic, predictable and investment-ready to build the Canada that's possible. This means streamlining planning and approvals with coordination across all orders of government. It means permission for local leadership to make decisions that respond to the needs and aspirations of their communities, rooted in data and evidence and with access to skills and capacity. It means unlocking private innovation and investment focused on outcomes to be achieved, solving for climate, health and the economy at the same time. We have an urgent problem to solve across asset classes, market and non-market, and we need to organize ourselves to get the infrastructure we need built; efficiently and sustainably for the long-term, enabling better quality of life for all, today and tomorrow.

Jen Angel
Chair Canadian Infrastructure Council

Peter Weltman
Vice-Chair Canadian Infrastructure Council

1 World Bank. (Oct. 24, 2019). Doing Business 2020. https://archive.doingbusiness.org/en/reports/global-reports/doing-business-2020

Introduction

The Canadian Infrastructure Council (the Council) is an arm's length, expert advisory body appointed by the Minister of Housing and Infrastructure to assemble and undertake research and provide evidence-based advice in an open and transparent manner.

The Council has been tasked to deliver Canada's first National Infrastructure Assessment (NIA) focused on core infrastructure needed to support more housing over the long term, specifically water and wastewater, solid waste management, public transit and active transportation and address the impacts of population growth and climate change on these systems.

Building on the robust public engagement held in 2021, through which more than 300 organizations and individuals were consulted to inform work on the NIA, the Council gathered perspectives from designers, builders, developers, insurers, investors, academia, local, provincial and territorial governments, Indigenous leaders and organizations, climate experts, community organizations and the broader public between January and April 2025.

The Council held an open Call for Input and met with partners and stakeholders seeking input on three core questions:

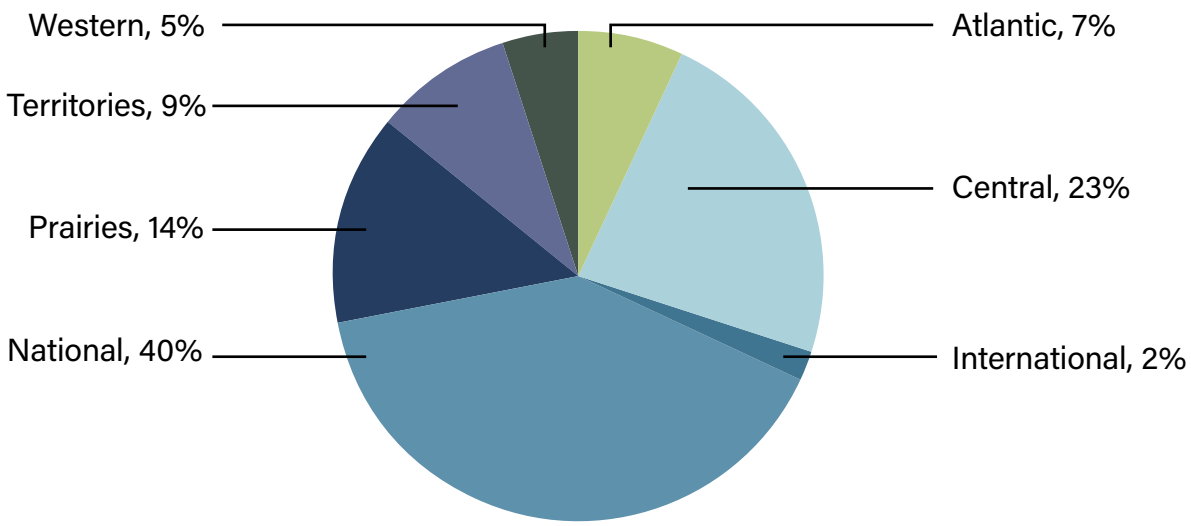
1. What are some of the challenges related to infrastructure that would benefit from more thoughtful infrastructure planning, coordination and delivery in Canada?
2. What do you believe are the underlying causes of those challenges, and are there any corresponding opportunities or best practices that we can follow to address them?
3. Do any of these solutions readily exist or are being implemented in certain communities in Canada or abroad?

The following summarizes the main themes that the Council heard through this engagement process.

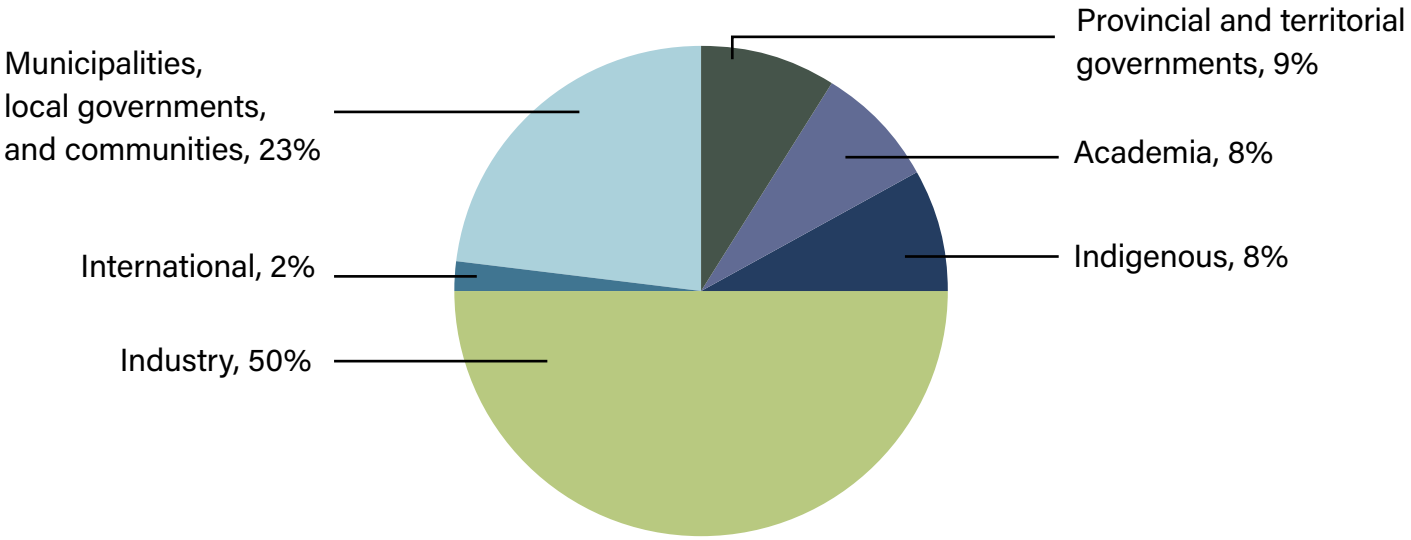
Listening Across Canada

Between January and April, 2025, the Council held 13 bilateral meetings, eight roundtables, and five focused discussions with more than 150 experts, partners, and organizations representing thousands of stakeholders across the country. In addition, 46 written submissions were received through a public Call for Input that was held from March 11 to April 14, 2025.

Organizations Reached by Region



Organizations Reached by Type



Participants offered a detailed assessment of how infrastructure is planned and delivered in Canada today. While experiences vary by geography and context, below are some common themes that emerged pointing to underlying systemic issues as well as practical solutions.

Cross-Cutting Themes

Complex Planning and Funding Landscape and Lack of Cohesion

One of the most widely cited concerns was that Canada's infrastructure planning environment is characterized by overlapping responsibilities, limited policy alignment across orders of government, lengthy and disjointed decision-making processes, and risk intolerance. Federal, provincial, territorial, municipal and local governments often operate within separate timelines, mandates and funding requirements. This lack of cohesion often leads to misaligned priorities and missed opportunities, such as when communities prioritize and plan for one project but available funding is allocated to a lower-priority project, or when approval delays push northern construction past the last Arctic sea lift. This makes it difficult to align infrastructure investments with long-term priorities such as housing, climate resilience, and healthy communities in a context of aging infrastructure and population growth.

Funding programs were described as an extension of this fragmentation. Participants noted that many communities struggle to access infrastructure funding due to short timelines, narrow eligibility criteria and application processes that require technical capacity they may lack. In addition, funding cycles are frequently misaligned with infrastructure planning and procurement timelines and between orders of government, resulting in delayed or incomplete projects.

Participants also pointed to a broader fiscal imbalance, particularly the financial levers available at municipal or regional levels. While municipalities and local governments are responsible for building and maintaining roughly 60% of Canada's core public infrastructure, they have access to a limited share of public revenue. In many jurisdictions, this constrains their ability to plan proactively, absorb financial risks and incur debt to finance long-term infrastructure investments. As a result, many communities rely on property taxes and development charges, which can make the business case for constructing new housing difficult and, in some cases, unfeasible.

These issues are compounded in Northern and Indigenous communities, which face higher transportation and construction costs, seasonal constraints and the need for culturally and environmentally appropriate solutions that may not fit standard project approaches and funding criteria.

Potential solutions identified by participants:

- Predictable, multi-year funding models.
- Flexibility in program design to accommodate varying regional and local priorities and capacities.
- Funding objectives aligned with long-term policy goals (e.g., housing density, resilience, emissions reduction and community well-being), following early consultation with key partners.
- Co-funding arrangements and shared infrastructure expertise and services to fill gaps, reduce duplication and improve efficiency.

- Funding conditionality accompanied by flexible parameters that allow local governments to determine how best to achieve desired outcomes.
- Municipal finance reform to address constraints around financing infrastructure at the municipal level (e.g., operating budgets to reduce reliance on development charges, property taxes) so the burden is not disproportionately carried by new residents.

Full Infrastructure Lifecycle Perspective and Climate Resilience Gaps

There was widespread agreement that Canada's current infrastructure systems are not ready to withstand increasing climate-related risks. Aging systems are strained and increasingly vulnerable to flooding, fires, sea-level rise, and extreme heat. At the same time, new infrastructure is often built, or even rebuilt, without sufficient consideration for long-term risks, including climate resilience.

Major barriers to incorporating climate resilience included the lack of up-to-date climate hazard data, and inconsistent consideration of climate change in planning frameworks, funding parameters, or design standards. In some jurisdictions, infrastructure plans do not include climate vulnerability assessments or forward-looking projections. Even where data does exist, it is not always accessible to local governments, engineers, and builders. Smaller communities and Indigenous organizations noted particular challenges in integrating climate considerations due to gaps in technical capacity, tools, and localized data.

In relation to climate hazard data, several participants emphasized the value of climate mapping and geospatial tools that combine infrastructure data with climate projections to support local decision-making. Where they may exist, available tools and resources sometimes remain underutilized due to limited awareness, training, or integration into standard infrastructure planning processes.

Participants also pointed to procurement and financing models that disincentivize climate resilience. These models tend to favour lowest-cost bids, short-term returns, and traditional construction approaches. As a result, it becomes more difficult to incorporate climate-resilient designs, low-carbon materials or nature-based solutions, and to unlock ingenuity and innovation to develop sustainable solutions. To support better outcomes, participants emphasized the importance of engaging suppliers early in the process to help shape key design decisions and allow for more innovative, climate-resilient solutions before cost assumptions are locked in. Participants also noted that many climate adaptation investments generate benefits are long-term or are shared across jurisdictions, which makes it difficult to justify their inclusion under existing funding formulas that are short-term and generally not shared across jurisdictions.

Integrating low-cost, durable features into public spaces, like tree canopies or stormwater absorbent ground (i.e., sponge cities) were raised by participants as elements that are often overlooked in early infrastructure planning. This can lead to missed opportunities to improve local air quality, reduce flooding impacts and mitigate urban heat island effects, while also supporting community health and social well-being. These features can be more difficult and costly to add later as they can require relocating utilities or redesigning surrounding infrastructure.

Potential solutions identified by participants:

- Integrate forward-looking climate risk and relevant social data into infrastructure planning, design standards and funding parameters.
- Full infrastructure lifecycle costing and climate finance tools, like green and climate bonds.
- Progressive procurement models and incentives that reward innovation, risk-sharing and sustainability.
- Promote natural infrastructure, modular construction, and energy-efficient approaches, including early planning and prioritizing vibrant public spaces, as part of housing development.

Planning and Data Gaps

Across all engagement formats, participants consistently highlighted the need to improve the quality, consistency, and use of data to support more strategic and transparent decisions. Effective infrastructure delivery requires robust planning tools and datasets.

Asset management plans (AMPs) were widely acknowledged as a core tool for improving long-term infrastructure planning and performance. While many municipalities and local governments have begun adopting AMPs, capacity and uptake remains uneven.

Some participants suggested that robust AMPs could be integrated into funding application processes, allowing municipalities and local governments to access longer term funding versus incremental project by project funding. That said, participants noted that AMPs may not be used as active planning tools even where they exist due to competing short-term, urgent infrastructure needs.

Additional barriers to AMPs cited include limited technical expertise, staff turnover, and constrained budgets to support planning functions. These challenges appeared to be amplified in smaller communities, where some indicated that informal records and spreadsheets are used to manage infrastructure assets.

Integrating forward-looking climate and population projections into infrastructure planning processes were also stressed as key gaps. Participants noted infrastructure plans risk being misaligned with future growth without these key inputs, exposing communities to both service gaps and climate vulnerabilities.

Potential solutions identified by participants:

- Standardize asset management plan templates, toolkits, and training supports, with flexibility to reflect the capacity and context of smaller communities.
- Invest in baseline asset inventories and geospatial mapping for communities that lack foundational information.
- Make available climate risk and population projections and data, and integrate into infrastructure planning processes.
- Recognize, enable or support Indigenous and locally-led approaches to asset management, including ways of working, decision-making and knowledge systems.

Unique Circumstances in Northern, Indigenous, Rural and Remote Communities

Northern and Indigenous communities face unique and often compounding barriers in infrastructure planning, financing, and delivery. These range from high construction costs and short building seasons to distinct local capacities and aging infrastructure systems. These constraints are shaped by geographic isolation, historical underinvestment, and a lack of tailored policy frameworks that reflect on-the-ground realities.

Participants emphasized that funding program structures often fail to reflect the true costs, conditions, and timelines required to deliver infrastructure in northern or remote communities. Factors such as reliance on sea lifts, ice roads and diesel power, combined with rising material and labour costs, create a delivery context that differs significantly from southern urban centres. Yet most funding programs apply uniform eligibility and reporting requirements that many northern and Indigenous communities cannot meet without additional support.

These themes were echoed by participants from small and rural communities more broadly, who described similar limitations in administrative and labour capacity, technical expertise, and access to timely data. While the context varies, many face persistent challenges in maintaining aging infrastructure, planning for long-term growth, and accessing funding programs that are often population-based and do not account for extensive land and infrastructure needs.

Potential solutions identified by participants:

- Predictable funding frameworks that reflect regional cost differences, seasonal delivery challenges, and more flexible implementation timelines.
- Greater flexibility in funding applications to support community-led planning and prioritization.
- Access to tools, guidance, and pooled technical resources through regional hubs, shared infrastructure services, or inter-community collaboration.

Barriers to More Innovative Infrastructure Approaches

Participants noted that Canada's infrastructure financing and funding programs tend to favour established design standards, delivery models and risk-averse practices. This dynamic can stifle innovation in areas such as modular construction, low-carbon materials, new technologies, nature-based solutions, and new financing models.

Procurement practices, risk allocation, and regulatory capacity were a particular focus for this topic. Many participants indicated that current models favour the lowest-cost bidder, discourage early collaboration, and under-reward outcomes related to sustainability, quality, or long-term performance. Builders and developers noted that projects involving modular construction, low-carbon materials, or digital monitoring systems often struggle to gain regulatory approval or attract financing as they are perceived as high-risk or non-standard. Similarly, climate and nvestment experts indicated that infrastructure aligned with climate goals, such as natural infrastructure, can fail to attract investment as the benefits are long-term, dispersed, or difficult to quantify within current funding and evaluation frameworks.

Labour and skills shortages were also cited as constraints to innovation. Participants noted that there is a growing gap between more complex modern infrastructure systems, and nature-based solutions, and the availability of training and professional development in areas such as digital asset management, sustainability design, and integrated project delivery. Some also pointed to shortages in specialized roles, such as design engineers, which are critical to advancing modernized infrastructure projects. Such gaps may be further affected through declining university enrolment in engineering schools and broader workforce dynamics, such as attracting and retaining skilled professionals, in light of current immigration patterns.

Participants also highlighted the potential of public spaces as an innovative way to solve multiple priorities at once. Public spaces can enhance livability, climate resilience, social connection, and community well-being, as well as support local business, attract talent, and build social license for new housing and infrastructure development. While often underprioritized, the multi-solving power of public spaces was noted by participants as a practical, innovative approach to enabling infrastructure planning and delivery, and a key part of housing-enabling infrastructure.

Potential solutions identified by participants:

- Broader use of pilots and demonstration projects to de-risk innovative and non-traditional approaches and test new delivery models, technologies, etc.
- Procurement models that enable collaboration, flexibility, and outcome-based evaluation (e.g., alliance contracting, integrated project delivery).
- Investment in workforce development programs aligned with modern infrastructure practices (e.g., digital tools, low-carbon design, factory-based construction).

Conclusion

The Council's engagement process revealed infrastructure systems facing substantial pressure from aging assets, shifting economic conditions and regional disparities, climate risks, as well as a limited focus on how infrastructure planning and delivery can solve for multiple priorities at the same time and incentivize innovation. But it also revealed a strong willingness to build a more responsive, resilient and integrated housing-enabling infrastructure system in Canada, focused on outcomes that help communities thrive now and into the future.

Participants emphasized the need to strengthen foundational elements: better data, clearer outcomes-based goals, more integrated planning and greater capacity at the local level. They also called for enabling conditions, such as modernized procurement, innovation-ready funding, and more inclusive and collaborative decision-making frameworks, which allow for new approaches to take root and scale.

The Council would like to thank all participants and contributors for their insights and candour. This input will help inform a national infrastructure assessment report rooted in the realities of those who plan, deliver, and rely on these systems every day.