



Infrastructure Investment as a Stimulus

Recommendations

Short-Term: Limit Damage to the Sector and Protect Jobs

1. Quickly Resolving COVID-19 Related Delays and Costs
2. Advancing Project Pipelines to be Shovel-Ready
3. Focus on Delivering Designs
4. Advancing Government Approvals
5. Maintaining Cash Flow through the Infrastructure Supply Chain
6. Retaining and Supporting Skilled Workers

Medium to Long-Term: Create Jobs, Improve Efficiency, and Transform Economy

1. Develop shared vision to promote collaboration and innovation
2. Select projects that provide the best impact
3. Publishing a multi-year project pipeline across all sectors and levels of government
4. Set aside budget for predevelopment funding to improve impact of investment
5. Streamline project approvals to reduce timelines and increase certainty
6. Improving procurement processes
7. Reducing, managing and allocating risk better
8. Promoting digitization and smart construction
9. Developing core and specialist skills

The **Future of Infrastructure Group** brings together leading infrastructure companies in Canada to provide a positive, collaborative, and coherent voice for the sector across Canada. Our goal is to work together with governments identify and help solve common challenges and raise overall standards. Below we have provided recommendations on steps that could be taken to ensure that investment in infrastructure delivers the greatest impact in helping to generate jobs, boost the economy, develop resilience, and position Canada for the future.

Medium to Long-Term Recommendations:

1. **Collaborative Vision** - An increasing number of countries are recognizing that there needs to be a reset to encourage greater collaboration, increased productivity, and greater benefits for end users. This vision should be developed in conjunction with leading infrastructure owners and industry players to provides a single set of commitments and collective responsibilities. This helps set the tone for the entire sector and can shift ingrained culture in the public and private sector that can resist change.
 - a. [New Zealand Construction Accord](#) – Government and industry signed an accord to work together towards a safer, more productive, innovative industry. It provides a platform to improve performance with government commitments on procurement, and project pipelines. More leadership and alignment from industry, and shared goals on workforce development, risk management, and health and safety.
 - b. [New South Wales 10 Point Commitment](#) – The NSW Government Construction Leadership Group was made up of all the key agencies engaged in the delivery of infrastructure released the Ten Point Commitment to the Construction Sector Action Plan. It focuses on the need to work together with the private sector to drive quality, innovation, and cost effectiveness.
2. **Project Selection** – Initially the emphasis in project selection should be to ensure money flows quickly from the government to projects that get people working quickly. It is important that the process is transparent to demonstrate why decisions are being made and the expected benefits, and efficient to get money out of the door quickly to create jobs.
 - a. **Short term job creation:** In the short-term investment should be targeted at work that can be done remotely. Lessons from the 2008 found that maintenance and repair, or improving configurations to remove bottlenecks, increase efficiency or improve safety is the most effective way to get people to work and have an immediate impact. Early works for major projects such as utility relocations or site preparation can be expedited to reduce project risk. Additional resources can be directed at major projects in the procurement process to ensure timelines are maintained. Funding should also be directed at assets with unusually low usership such as transit lines, highways, schools, or airports. It is also important to note that due to current conditions many such assets have reduced demand allowing for significant repair or upgrade work to be done.
 - b. **Building Resilience:** The experience of the pandemic has demonstrated the need to build more resilient infrastructure and systems to deliver infrastructure. COVID-19 is the most extreme example of an event that has caused disruption, but in recent years fires, floods and storms, as well as intentional acts such as cyber attacks have caused widespread disruptions and together cost billions of dollars. All levels of government should assess their

resilience using tools such as the [City Resilience Framework](#) and invest in key areas.

- c. **Driving Economic Impact:** Benefits from these infrastructure investments should be clearly laid out up front. Infrastructure investment should be tackling issues that align with government goals and drive further economic activity to create jobs. Investment that can unlock private sector investment such as flood mitigation, environmental remediation, broadband network investments, or transit expansions to open-up potential development sites for commercial or residential properties. Issues such as housing affordability will remain issues in the long-term and could hold back the economic development of Canada's major employment centres. Investments in infrastructure should align with broader economic, environmental and social plans as they have done in places such as [South Korea](#) and [California](#).
 - d. **Short-Term Value and Long-Term Savings:** A final priority should be towards policies and investments that can deliver long-term operational savings, increased resiliency, and/or increase the efficiency of the infrastructure sector. This will allow infrastructure investments to go further and help reduce operational deficits as governments look to balance budgets. Around 80 percent of the cost of infrastructure spent on operations and maintenance investment up front can deliver major savings. Energy retrofits and greening initiatives also have the benefit of cutting operational costs. Research in the UK has shown that [better hospital design](#) can speed up recovery times by 27 percent and improve learning in schools by 10 percent.
 - e. **Regional Coordination:** To drive regional approaches that can deliver greater value, [California](#) also assesses opportunities for investment coordination across infrastructure assets as part of its project assessment. This encourages different agencies to work together so a long-term care residence could be co-located with a library, or affordable housing could be built over a new transit station for example. This does not have to delay projects and can provide an incentive for organizations to work together who usually do not.
3. **Project Pipeline** – Transparent, multiyear capital plans and project pipelines, developed through robust processes are extremely valuable to the private sector and provide confidence in a market. Jurisdictions with strong existing plans and pipelines are in a strong position to accelerate work. The [UK](#) and [Australia](#) publish a comprehensive infrastructure project pipelines, updated annually, that list out projects planned over the next 10 years and 15 years respectively.

These pipelines include all projects over a certain size across different sectors and delivery models. This helps ensure consistency in the project pipeline over a multiyear period, permits industry to better respond, and promote dialogue on best approaches. Infrastructure Ontario and the Ministry of Transportation previously provided reliable 5-year outlooks that many have emulated around the world. They have become more important now than ever as many governments are looking to do this, and infrastructure companies and investors will look at the longer-term opportunity and

certainty.

This helps to maintain a long-term, consistent spend across different types of infrastructure. It provides visibility to the infrastructure supply chain to scale up production of materials, invest in people and equipment, and helps avoid periods of feast and famine. It provides a platform for public sector agencies and/or the private sector to collaborate on projects that [could or should be co-located](#), for example transit and housing. It provides an opportunity to drive ongoing dialogue to explore the best solutions to deliver the outcomes desired by government. This would ultimately reduce costs as the market can adapt and scale up over time. Prices typically rise when there are too many projects being released all at once.

4. **Predevelopment Funding** – More complex projects need more time to be spent on planning, design, engineering, and stakeholder engagement to ensure investments have the biggest impact. Research by McKinsey has shown that upfront preparation can generate [savings of up to 25% on new projects](#). Most importantly good design can reduce operating costs over the lifetime of assets which will become increasingly important as government face financial constraints. Projects that have been developed further upfront tend to have more success during construction with less overruns and on-time delivery.

Federal and provincial governments should carve out a predevelopment fund to provide technical capacity to help projects become shovel-ready, ensure broader funding is more impactful, and can be in a position to attract private finance. This funding could cover pre-construction work that can be done remotely to ensure there is a pipeline of high-quality projects, some of which could attract private investment. An example is below:

- a. [Better Utilizing Investments to Leverage Development](#) (BUILD): A competitive predevelopment grant program administered by the US Department of Transportation. It funds transportation projects with the potential for significant local or regional impact to explore how to deliver projects faster and save costs and provides an opportunity to be more innovative and draw in private financing. This program is regularly oversubscribed in the US and has helped to deliver successful projects. Originally the Transportation Investment Generating Economic Recovery (TIGER) program under the Obama administration in response to the last recession.
5. **Streamlining Approvals** – Federal and provincial governments have already committed substantial funding in Canada. According to the OECD, Canada ranks 22 out of 33 in dealing with construction permits. Efficient and predictable permitting and approvals can deliver major economic benefits, and maintain high levels of public safety, environmental protection and public engagement.

Provincial governments primarily develop regulations impacting the construction sector, and municipal governments build further requirements and implement them at the local level. The federal government can play a role as a funder in promoting best practices, and/or by working in

partnership with other levels of government to fast-track approvals on a time limited or location specific basis.

- a. **Project Funding Evaluation Criteria** - Funding should be used as a carrot to encourage reform among provinces and municipalities to ensure their processes are efficient. Having evaluation criteria that assess funding requests against service standards, transparency, quality of protection, and consistent approval times for construction permits would help ensure funding delivers value at a project level and a longer-term impact at a systems level. Longer-term other factors such as availability of data on utility locations, existence of asset management plans and long-term capital plans could be considered as scoring elements.
 - b. **Strategic Development Zones** – For mega-projects, particularly around transit, different levels of government could designate surrounding areas as strategic development zones which provide streamlined approval processes and encourage development. A model to emulate could be [Ireland's Strategic Development Zones](#) which designates areas of land as being of economic or social importance. SDZ's are designated through an initial request from local government.
 - c. **Temporary Fast-Tracking** – To ensure projects designated as shovel-ready can move quickly, [New Zealand](#) is amending legislation to fast track consent to 25 days, or 50 days for large scale infrastructure. The legislation will apply to walking and cycling, transit, road, housing and environmental infrastructure. It is designed as a short-term intervention and will be repealed in two years.
6. **Procurement Tools** - Some major procurements can take up to three years which means that losing bidders can have dedicated valuable talent without any return and taking up time of high calibre team members. Smaller projects still require significant time to bid and award work. There are several approaches that can help ensure both the public and private sector can focus on building instead of bidding.

There is also growing international shifts towards more enterprise or program-based approaches that move away from transactional relationships that focus on low cost. More progressive procurement models are also being leveraged to help a shift towards more collaboration and deliver better outcomes for end users. Better value can come from an open book approach that provides transparency on costs incurred and profits made.

- a. **Continuous Improvement** – Owners and procurement agencies should use this point in time as an opportunity to examine procurement processes for large and small projects to ensure that processes are efficient, and resilient, with a shift towards electronic procurement. Procurement professionals within government should be incentivized and encouraged to make procurement processes simple and effective, and agencies should hold regular review to refine processes to reduce administration and duplication, without compromising the quality of the process.

- b. **Accelerated Procurement** - It is worth considering which projects may be good options for accelerated procurement to allow both design and ultimately construction to progress faster, as well as providing an opportunity to draw in private finance in some cases. There are elements of the following models which can drive more efficient and effective procurement, as well as delivering better overall project outcomes. Each can be developed to ensure schedule and budget certainty, as well as whole life and integrated solutions, while attracting private financing and transferring risk including over the operations and maintenance lifecycle.
- i. [Progressive Design Build](#) : enables the design-build team to become involved at an earlier stage of project development. Government and the designer/contractor collaborate with government to refine the design and once the design is between 50-75 percent complete the builder issues a Guaranteed Maximum Price. This also allows for a more robust design development, taking into account constructability, owner needs and third-party requirements.
 - ii. [Progressive Public Private Partnerships](#): as an extension to the Progressive Design Build process, financing and maintenance partners can also be brought in earlier to work alongside government to drive towards a fully financed and maintained solution with a long term performance horizon. Introducing the facility maintenance, and private financing partners enables the project to capitalize on public private partnership's track record of delivering projects on time and on budget and keeping them well maintained.
 - iii. [Integrated Project Delivery, Co-Developer Model or Alliance Contracting](#): these forms of collaborative contracting promote openness, flexibility, and build trust, and encourage the government and private sector to cooperate to find solutions. A project at Bruce Power used a Pre-Construction Services Agreement and Early Works Agreement to accelerate construction while maintaining most of the risk transfer of a public-private partnership. This has been used with success in Canada in smaller projects.
- c. **Prequalification** – prequalification or implementing vendor of record programs reduce time required around procurement and gives certainty to construction companies that they will have a portion of work to complete and spreads stimulus spending. The City of Vancouver uses this approach, as does New York's Metropolitan Transportation Agency (MTA).
- d. **Bundling or Program Approach** – For smaller similar projects bundling can deliver greater value as it reduces procurement time, and finds savings through standard designs and components, and efficient approvals and permitting. A program or bundled approach can be built around similar types of asset or geographically.

Recent examples include the [Pennsylvania Rapid Bridge Replacement](#) project which is in the

final stages of replacing 558 structurally deficient bridges. The Stage 1 [Ontario Provincial Police](#) detachment modernization provided estimated value for money of over \$50 million. The initial Alberta Schools ASAP program delivered 13-20 percent value for money and more recently the Joint Use Saskatchewan Schools program delivered 13.5 percent value for money. [Network Rail](#) and [Gloucester](#) in the UK have utilized the program and regional approach respectively.

7. **Project Risk** – Prior to the pandemic, there were issues that needed to be resolved around project risk management and allocation, particularly for major transit projects. There are a number of ongoing third-party risk factors that are deterring companies from bidding for major projects, particularly in transit. These include: planning and permitting; utilities; access rights; pre-existing site conditions; vehicles and systems integration; and dispute resolution. Some governments including [Ontario](#), have moved some way to addressing these issues, but they should remain a focus to help reduce risks and costs for projects. The public and private sector should work collaboratively to address these issues through planning, procurement and delivery stages. This will also help attract private finance.
8. **Digitization and Smart Construction** – The pandemic has demonstrated that processes and systems are more vulnerable if they cannot be delivered digitally. In the short-term a shift to digital would allow work to be done remotely, including government approvals. In the longer-term use of digital tools and offsite construction in infrastructure can significantly reduce costs, reduce environmental impact, and deliver better outcomes. The government can drive adoption of these technologies that can benefit the wider economy in different ways through funding and training, and as a customer and regulator.

Leveraging [digital tools](#) can deliver a 10-30 percent reduction in hours spent on planning and design, reduce construction costs by 5-10 percent, and 10-20 percent reduction in operating costs.

Examples of where digitization could have an impact are listed below:

- a. **Coordinated Design and Delivery** – Building Information Modeling (BIM) provides digital models of buildings to help architects, engineers and contractors work together collaboratively. As the biggest customer in the construction sector, the [UK Government](#) requires contractors to be Building Information Modelling (BIM) compliant to a certain level on all central government funded construction projects. Singapore has developed a national Construction Productivity Roadmap that set national targets for BIM adoption and requires architects and engineers to submit plans electronically and provides training. This also becomes an asset management tool allowing for reduced longer term operations of assets.
- b. **Quality Information** – Uncertainty around locations of underground utilities adds substantial risk to transit projects. In the UK accidental strikes on cables cost £1.2 billion each year. The UK plans to develop a [national map of utilities](#) building on pilot projects. York Region, Ontario and Kamloops in British Columbia have also developed utility maps.

- c. **E-Permitting** – Many cities still rely on paper processes and in person visits for construction permits. [Finland](#) has built a system where 95% of all construction licences are issued online. In 2018 [Windsor](#), Ontario became the first city in Canada to go digital with its building permitting system. Canada should emulate this approach, making changes to processes in the short term that can enable this transition. The City of Markham study found an electronic permitting system would achieve net savings of \$1.3 million over 6 years. Inspections can also be undertaken using [new technology](#) to accurately capture progress and submit to municipalities.
9. **Skills Development** – Across Canada there are different skills challenges. In Ontario, Quebec and British Columbia there are labour and skills shortages, in Alberta there are skilled workers who can be retrained to work on infrastructure projects. For some projects, notably commuter rail and digital infrastructure, Canada could benefit from a skills development strategy. The UK for example set up academies for [high speed rail](#), and [tunneling](#) to meet national skills shortage, the government also a program for [major project leadership](#).

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