

THE PROFESSION'S POSITION

- Sound and reliable core public and private infrastructure ensures public safety, continuing services, and supports economic prosperity.
- Owners from all levels of government must ensure that predictable funding is available for designing and constructing safe and resilient core public infrastructure with an assured level of proper maintenance over the full life cycle of these assets.
- Engineers have the technical expertise as well as the project management and cost management skills to deliver safe and sustainable infrastructure that serves the public interest.
- Continuing improvements to infrastructure design codes and standards should include the development of maintenance standards to ensure the safety and integrity of infrastructure designs.

The issue

Well-designed, properly built, continually maintained, and efficient infrastructure is critical to public safety, quality of life, and a competitive economy.

Much of Canada's core public and private infrastructure needs significant investment now and in the future to ensure its sustainability for its complete life and service cycle, which can range from 25 to 100 years. According to the Federation of Canadian Municipalities' 2016 Canadian Infrastructure Report Card,¹ one third of Canada's municipal infrastructure is in fair, poor, or very poor condition, increasing the risk of service disruption. This can impede competitiveness, economic development, and business investment, and can decrease the quality of life of Canadians.

Building new infrastructure or rehabilitating existing infrastructure without considering extreme weather events has the potential to cause service disruptions and failures in the future, thus negatively impacting public safety, increasing business and social disruptions, and increasing costs to government, public, and business sectors.

The requirements for core public infrastructure are massive and require proper planning and oversight to ensure taxpayer value for the dollars spent. New programs for infrastructure must reflect an open, transparent, and competitive

bidding process coupled with a fair, impartial evaluation process that is accountable. Infrastructure investments should be procured in stages over a number of years to provide predictable and sustainable funding levels and take advantage of learnings from previous stages as well as technical and cost innovations.

Recommendations to the federal government

Engineers Canada welcomes the increased investments in public infrastructure that the federal government has made since 2007. In the 2016 budget, the federal government announced the largest new infrastructure investment in Canadian history. This includes an investment to almost \$125 billion over the next decade, reaching an additional \$9.5 billion by year ten.

This consists of providing new, dedicated funding to provinces, territories, and municipalities for:

- public transit infrastructure
- social infrastructure, including affordable housing and seniors facilities, early learning and child care, and cultural and recreational infrastructure
- greener infrastructure, including local and wastewater facilities, climate resilient infrastructure, and clean energy

While these types of infrastructure will contribute substantially towards improving our economy and improving Canadians' quality of life, programs to distribute funding should be based on merit.

Tools such as PIEVC need to be a condition for funding approvals, accepting environmental impact assessments, and approving designs for infrastructure projects involving rehabilitation, re-purposing, maintaining, and decommissioning existing infrastructure. This will ensure public safety and health, decrease the direct and indirect cost of extreme weather events on infrastructure, and strengthen individual and business productivity to the benefit of all Canadians.

Evaluation criteria for selection should be clear, transparent, and consistent. In addition, the federal government should provide flexibility in the timing of expenditures to enable proper procurement and responsible project management to ensure funds are spent wisely and effectively.

The federal government must work with other levels of government and stakeholders to ensure that Canadians have safe and reliable core public infrastructure that provides the basic services of water, sanitation, power, communications, and transportation.

How Engineers Canada will contribute:

Engineers Canada will continue to collaborate with practitioners, government officials and decision-makers in order to educate them on the value and benefit of long-term sustained investments in climate-resilient core public infrastructure and funding for proper infrastructure maintenance to ensure safe and reliable service and protection of public health, safety, and the environment.

Engineers Canada will secure engineering experts as needed to help policy and decision-makers to propose, develop and implement appropriate policies, procedures, and processes for long-term solutions to improve public safety, reliability, and value of public infrastructure. This includes supporting governments in their ongoing development and updating of infrastructure codes, standards, and other instruments. This would include new infrastructure maintenance standards.

Engineers Canada will inform and educate Canada's engineers on the impacts and risks of extreme weather and our changing climate on infrastructure design, operations, and maintenance through the application of the Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol and practice guidance.

Engineers Canada will develop a cohort of engineers certified as Infrastructure Resilience Professionals to ensure that climate resilience principles have been incorporated into design and maintenance practices.

Engineers Canada will collaborate with other infrastructure stakeholders in order to provide consistent messaging on the need for, and benefits of, safe and sustainable public infrastructure.

¹Federation of Canadian Municipalities (2016). "Canadian Infrastructure Report Card: Informing the Future." Retrieved August 16th, 2017, from: http://www.canadainfrastructure.ca/downloads/Canadian_Infrastructure_Report_2016.pdf.