



# Engineers Canada's Testimony to the House of Commons Standing Committee on Transport, Infrastructure and Communities

Transportation Modernization Act  
Bill C-49: *An Act to amend the Canada  
Transportation Act and other Acts respecting  
transportation and to make related and  
consequential amendments to other Acts*

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## Testimony

### **Individual: Jeanette Southwood, Vice President, Strategy and Partnerships, P.Eng., FEC, FCAE, IntPE, LLD (hon)**

Thank you for the opportunity to appear here today, Madame Chair. I am very pleased to discuss Engineers Canada's stance on Bill C-49: the Transportation Modernization Act.

In my previous role as Principal at a global engineering consulting firm, I was the first Global Sustainable Cities Leader and the first Canadian Urban Development & Infrastructure Leader, where my team and I focused on areas that included: supply chain, business continuity, and climate adaptation; urban intensification and restoration; and the strategic integration of cutting-edge global innovation and knowledge into solutions for private and public clients. Our portfolio included rail.. I am currently the Vice President of Strategy and Partnerships at Engineers Canada.

Engineers Canada is the national organization that represents the 12 provincial and territorial associations that regulate the practice of engineering in Canada and license the country's more than 290,000 professional engineers. Together, we work to advance the profession in the public interest.

With the entire Transportation Modernization Act open for public review and consultation, Engineers Canada's testimony today pertains directly to Section 11 of the Railway Safety Act, specifically in relation to the design, build, and maintenance stages of railway work in Canada. And we have three recommendations in particular that I'd like to touch on in my remarks today.

- first, that "engineering principles," in Section 11 of the Railway Safety Act be further defined;
- second, that professional engineers be involved in the entire life cycle of railways infrastructure; and
- third, that climate vulnerability assessments be carried out on Canada's rail infrastructure and that Canada's rail infrastructure be adapted to a changing climate.

First – regarding engineering principles: In Canada, engineering is regulated under provincial and territorial law by the twelve engineering regulators. The regulators are entrusted to hold engineers accountable for practising in a professional, ethical, and competent manner and in compliance with the applicable provincial or territorial engineering act, Code of Ethics, or legal framework in place. Technical and professional standards of conduct are set, revised, maintained, and enforced by the regulators for all professional engineers in their jurisdiction. By virtue of being a regulated profession, professional engineers are required to work with the public interest in mind and uphold public safety.

For this reason, Engineers Canada strongly supports and encourages the direct involvement of professional engineers in the design, construction, maintenance, evaluation, use, and alteration of all engineering work related to railways in Canada, not only to increase transparency and public confidence towards a safe and well-regulated rail system, but to uphold public safety and accountability on all railway work. It is vital that the federal government incorporate professional engineers through the entire life cycle of a rail project—not just in the final approval of rail work. Engineers Canada encourages the federal government to put measures in place to ensure that this is the case.

It is equally important that it be professional engineers who take on the responsibility of overseeing and maintaining the standards and regulations set out by the federal government. Currently, the Railway

Safety Act outlines that companies are obligated to report on the qualifications and licenses of safety personnel; however, ambiguity and the possibility of misinterpretation are evident in Section 11 of the Railway Safety Act, specifically in regard to the definition of engineering roles and engineering principles.

The Act states that “all work relating to railway works—including, but not limited to, design, construction, evaluation, maintenance and alteration—must be done in accordance with sound engineering principles.” The ambiguity around the term “engineering principles” creates space for misinterpretation and a potential situation where public safety is compromised. The Act should specify that where engineering principles are to be applied, they must be applied by a professional engineer. Federal public servants who are tasked with overseeing the engineering work referred to in Section 11 must also be professional engineers. Communities are better protected by the consistent application of safety and siting procedures where professional engineers are involved in decisions.

Second - Regarding the life cycle of railways infrastructure: Involving professional engineers in the life cycle of rail projects will not only ensure that they are carried out with public safety top of mind, but engineers are also well-equipped to design, build, and manage resilient rail infrastructure.

Canada’s railway infrastructure is an integral enabler of Canada’s growing economy, providing services to more than 10,000 commercial and industrial customers each year, moving about four million carloads of freight across the country and into the US, and getting approximately 70 million people in Montreal, the GTA, and Vancouver to work each year. This vast, integrated network needs to operate with efficiency and public safety in mind, both of which require a high level of reliable service.

And finally, regarding climate vulnerability: Resilient infrastructure is the driving force behind productive societies, stable industries, and increased public confidence in civil infrastructure. However, Canada’s Infrastructure Report Card noted that much of Canada’s current infrastructure is vulnerable to the effects of extreme weather, which is becoming increasingly frequent and severe. Vulnerable rail infrastructure presents a risk, not only to public safety, but also to the productivity of Canadian individuals and businesses and of the country’s economy. Without the consistent application of climate vulnerability assessments to inform rail design, public confidence and trust in rail infrastructure will be fragile.

For example, floods and historic record water flows severely damaged Churchill Manitoba’s Hudson Bay Railway tracks on May 23, 2017. This major flood severely damaged five bridges, washed away 19 sections of trackbed, and required that 30 bridges and 600 culverts be checked for structural integrity. This specific rail line transports food, supplies, and people to the remote community of Churchill, Manitoba; a community frequently visited by tourists during the summer months. With severe damage to the Hudson Bay Railway, service disruptions have now caused goods, services, and people to arrive by air transportation—an expensive mode of transportation to the northern community. The catastrophic damage to the rail line will take months to repair, causing major service disruptions to both individual and business productivity as well as decreased public confidence in rail infrastructure.

Climate vulnerability assessments provide early awareness to planners regarding the potential impacts that extreme weather events could have on both public and private infrastructure in communities across Canada. Professional engineers in Canada are leaders in adaptation and are ready to work collaboratively with the federal government to provide unbiased and transparent advice to safeguard rail infrastructure from the devastating effects of climate changes.

Engineers Canada, in conjunction with Natural Resources Canada, has developed a climate risk assessment tool that greatly enhances the resilience of infrastructure, increases public confidence in rail infrastructure, and decreases the severity of climate impacts on individual and business productivity. The Public Infrastructure Engineering Vulnerability Committee Protocol, also known as PIEVC, gives engineers, geoscientists, as well as infrastructure owners and managers, a tool to design and construct rail infrastructure that will withstand today's rapidly changing climate. The Protocol has been applied to a wide range of infrastructure systems more than 40 times in Canada and three times internationally.

Engineers Canada strongly encourages the federal government to invest in early assessment and prevention tools, such as the PIEVC Protocol, to be a condition for: funding approvals; accepting environmental impact assessments; and approving designs for rail infrastructure projects that involve rehabilitation, re-purposing, maintaining and decommissioning existing rail infrastructure. This investment will contribute to maintaining levels of service, safeguarding the environment, strengthening individual and business productivity, and upholding public safety.

Madame Chair, thank you for allowing Engineers Canada to present to the committee today on this important issue. We hope that the committee will recognize the intergral role that professional engineers play in Canada's transportation infrastructure and that our profession is ready and willing to ensure that Canada's railway system is resilient, safe and continues to be an enabler of Canada's economy.