

# Engineers Canada's Submission 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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## Overview

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The House of Commons Standing Committee on Transport, Infrastructure and Communities is seeking the views of Canadians on the scope of the modernization and improvement of Bill C-49 – Transportation Modernization Act, An Act to amend the Canada Transportation Act and other Acts respecting transportation and to make related and consequential amendments to other Acts.

Bill C-49 – Transportation Modernization Act focuses on the economic operations of railways as well as other changes. These include:

- establishing new air passenger rights;
- liberalizing international ownership restrictions for Canadian air carriers to provide travellers with more choice through increased competition;
- improving access, transparency, efficiency, and sustainable long-term investment in the freight rail sector; and
- increasing the safety of transportation in Canada by requiring railways to install voice and video recorders in locomotives.

As part of the Transportation Modernization Act, the Standing Committee has opened up the entirety of the Railway Safety Act for review. As such, Engineers Canada’s recommendations related specifically to Section 11 of the Railway Safety Act as it pertains to the design and build of railways in Canada.

Engineers drive much of Canada’s economy. Natural resources, manufacturing, transportation infrastructure, technology, and other sectors rely on the capability of engineers. As one of the top five exporters of engineering services in the world, the expertise of Canada’s engineers contributes to both the Canadian and international economies.

In this document, Engineers Canada expresses its views on key parts of Bill C-49, specifically in relation to Canada’s Railway Safety Act, that could be clarified and updated in order to protect public safety, the economy, and the natural environment. Specifically, this submission includes recommendations to the federal government surrounding the involvement of professional engineers during the design, maintenance, rehabilitation, and decommissioning of rail infrastructure, as well as the importance of applying climate resilience assessments to new and existing rail infrastructure.

## Recommendations to the Federal Government

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Rail safety in Canada is critical, not only to ensure public confidence in a safe and well-regulated rail system, but also from a public safety standpoint. Current legislation embodies the involvement of professional engineers in the design, construction, use, evaluation, and alteration of all engineering work relating to railway works, specifically in Canada’s [Railway Safety Act](#).<sup>1</sup> Such work includes utility crossings (e.g. power lines and pipelines, road approaches to rail lines) which are the responsibility of

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<sup>1</sup> Government of Canada. (2017). “Railway Safety Act (R.S.C., 1985, c. 32 (4<sup>th</sup> Supp.)).” Retrieved July 12<sup>th</sup>, 2017, from: <http://laws-lois.justice.gc.ca/eng/acts/R-4.2/page-3.html>.

the road authority, and railway infrastructure, such as tracks, signals, and bridges. Given that professional engineers have a duty to protect the natural environment, the economy, and the public interest, it is therefore imperative that the federal government continue to consult and collaborate with the engineering profession on decisions surrounding railway design, construction, use, evaluation and alteration, but also on decisions surrounding maintenance, rehabilitation, and decommissioning of railway work. Our profession offers objective, evidence-based, unbiased and well-founded advice on technical feasibility, cost-effectiveness and safety perspectives of proposed regulatory policies and support programs that enable the intended outcomes of the Act and its regulations.

### **Recommendation #1: Define engineering principles in Section 11 of Railway Safety Act**

Where engineering work is being performed, it is in the public interest that a professional engineer is involved. Legislation that speaks to engineering work, regardless of whether it is federal or provincial statute, should require the involvement of a professional engineer. Incorporating professional engineers' accountability into federal and provincial railway legislation and regulation weaves the engineering regulatory process into the fabric of government and keeps Canadians safe while keeping their work publicly accountable.

Professional engineers must take on the responsibility of overseeing and maintaining the standards and regulations set by the government. Currently, the Railway Safety Act delineates that companies are obligated to report on the qualifications and licenses of safety personnel; however, consistent standards for engineering roles are not in place. Section 11. (1) of the Railway Safety Act, states that "sound engineering principles" must be used. These must be better defined to ensure that professional engineers are involved. Engineers Canada is prepared to work with the standing committee on Transport, Infrastructure and Communities to ensure that a clearer definition of the term "engineering principles" is set in place so that there is no ambiguity or misrepresentation.

### **Recommendation #2: Involve professional engineers in the entire life cycle of railway infrastructure**

Public safety is threatened when professional engineers are not included in the entire life cycle of Canadian railway infrastructure. Communities across Canada are better protected by the consistent application of safety and siting procedures where professional engineers are involved in all of the decisions.

Section 11. (2) of the Railway Safety Act states that "[a]ll engineering work relating to railway works must be approved by a professional engineer."<sup>2</sup> The federal government should have measures in place that ensure that professional engineers are involved throughout the entire life cycle of Canadian railway infrastructure, not just the final approval of a rail project. It is equally important that federal public servants who are tasked with overseeing the engineering work, referred to in Section 11, are qualified, professional engineers. Oversight, design approvals, and project management for engineering work falls within the scope of engineering.

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<sup>2</sup> Government of Canada. (2017). "Railway Safety Act (R.S.C., 1985, c. 32 (4<sup>th</sup> Supp.))." Retrieved July 12<sup>th</sup>, 2017, from: <http://laws-lois.justice.gc.ca/eng/acts/R-4.2/page-3.html>.

### Recommendation #3: Adapt rail infrastructure to Canada's changing climate

Canada's railway infrastructure provides services to more than 10,000 commercial and industrial customers each year, making railway infrastructure and transportation an integral enabler of Canada's economy<sup>3</sup>. Approximately "4 M carloads of freight are moved by 2,700 locomotives and 33,200 dedicated railroaders across 43,000 kilometers of track that spans nine provinces, one territory and several points throughout the continental United States (U.S.)."<sup>4</sup> This complicated network needs to operate with efficiency and public safety in mind, requiring a high level of reliable service.

The productivity of individuals and businesses in Canada rely on rail infrastructure. Each year, approximately 70 million people in Montreal, the Greater Toronto area and Vancouver commute to their place of work by rail transportation. An additional 5 million people travel on VIA rail every year for both personal and business purposes.<sup>5</sup> The federal government needs to consider and address the impacts of Canada's changing climate on long-term maintenance, operations, and expected service life of railway infrastructure.

Resilient infrastructure is the driving force behind productive societies, stable sectors, and increased public confidence in civil infrastructure. However, Canada's Infrastructure Report Card delineates that much of Canada's current infrastructure is vulnerable to the effects of extreme weather, which is becoming increasingly frequent and severe.<sup>6</sup> Vulnerable rail infrastructure presents a risk, not only to public safety, but also to the productivity of Canadian individuals and businesses. Without the consistent application of climate vulnerability assessments to inform rail design, public confidence and trust towards rail infrastructure remains fragile. For example, damaging floods and historic record water flows had severely damaged Churchill Manitoba's Hudson Bay Railway rail tracks on May 23, 2017. This event severely damaged five bridges, washed away 19 sections of track bed, and caused 30 bridges and 600 culverts to be checked for structural integrity. This specific rail line transports food, supplies and people to the remote community of Churchill, Manitoba; a community that is also 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.

The integration of climate change vulnerability and risk assessments, using tools such as Engineers Canada's Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol, would greatly inform actions that enhance the resilience of rail infrastructure, increase public confidence, and support individual and business productivity.

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<sup>3</sup> Railway Association of Canada (2016). "How railways can be part of Canada's climate change solution." Retrieved July 17<sup>th</sup>, 2017 from: [https://senCanada.ca/content/sen/committee/421/ENEV/Briefs/2016-10-25RailwayAssociationofCanada\\_Brief\\_e.pdf](https://senCanada.ca/content/sen/committee/421/ENEV/Briefs/2016-10-25RailwayAssociationofCanada_Brief_e.pdf).

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Canadian Infrastructure Report Card (2016). "Canadian Infrastructure Report Card: Informing the Future." Retrieved August 28<sup>th</sup>, 2017, from: <http://www.canadainfrastructure.ca/en/>.

The main goal of the PIEVC Protocol is to ensure that professional engineers as well as infrastructure owners and managers, always consider climate change as an integral part of planning, constructing, maintaining, and rehabilitating all types of infrastructure, including railways. The Protocol has been applied to over 40 infrastructure projects across Canada and internationally, and examines risks to Canada's infrastructure arising from extreme weather and future climate from an engineering and level of service point of view. Professional engineers in Canada are leaders in climate adaptation and infrastructure resilience. Our profession is ready to work collaboratively with the federal government to provide unbiased advice regarding climate change and its impacts on railway infrastructure.

We believe the federal government must invest in climate resilience tools and methods such as the PIEVC Protocol to assess railway infrastructure for its vulnerability to climate change and document risks of damage and failure. Defining climate risks and vulnerabilities should be a condition for infrastructure funding approvals, as part of acceptance of environmental impact assessments, and approving designs for rail projects involving new rail infrastructure as well as rehabilitation, re-purposing, maintaining, and decommissioning of existing rail infrastructure. This will contribute to public safety, maintaining levels of service, safeguarding the environment, and thereby strengthening individual and business productivity for the benefit of all Canadians.

## Who we are:

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

## Acknowledgement

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The following individuals were consulted in the drafting of this submission;

- Joey Taylor, Practice Lead, Public Affairs
- Emily Rowan, Practice Lead, Government Relations
- David Lapp, Practice Lead, Globalization and Sustainable Development