



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada

REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION R18-01

Crossing safety for persons using assistive devices

Background

On 27 July 2016, at approximately 0143 Atlantic Daylight Time, while travelling westward on the Springhill Subdivision, Canadian National Railway Company freight train Q-12111-26 struck a pedestrian in a wheelchair at the Robinson Street public crossing (Mile 124.43) in Moncton, New Brunswick. The crossing was equipped with flashing lights, bell, and gates. The pedestrian was fatally injured.

The Board concluded its investigation and released report R16M0026 on 15 February 2018.

TSB Recommendation R18-01 (February 2018)

The issue of pedestrian safety at railway grade crossings is not new, nor is it unique to Canada. It has been the subject of multiple research projects and studies over the past decades, both nationally and internationally.

There are thousands of railway grade crossings in Canada that are regularly used by pedestrians. When a train strikes a person, the likelihood of serious injury or death is high. Although the number of accidents where pedestrians in wheelchairs have been struck by a train at grade crossings is low, the number of persons in Canada using assistive devices is on the rise. According to Statistics Canada, in 2012, upwards of 2 million Canadian adults were identified as having a mobility disability, with approximately 300 000 using a wheelchair.

Transport Canada's (TC) *Grade Crossings Regulations* (GCR) and associated Grade Crossings Standards (GCS), implemented in 2014, make it mandatory to reduce tolerances for flangeway gap width and depth, as well as for surface wear limits associated with a crossing designated for persons using assistive devices. The GCS also require that the sidewalk crossing surface extend at least 0.5 m past the sidewalk edge. Beyond these requirements, which focus primarily on crossing surface conditions, there are few regulatory provisions that address safety at railway grade crossings for persons using assistive devices.

There are other engineering improvements that can be implemented to further enhance safety at designated crossings. Many of these improvements have been identified by TC as well as by other jurisdictions, such as the United Kingdom and Australia.

In TC's Pedestrian Safety at Grade Crossing Guide, various measures to improve pedestrian safety at grade crossings are presented. These include provisions to

- clearly mark where pedestrians are to cross, by delineating the travelled surfaces within 8 m of the nearest rail with a solid white line on both edges of the travelled surface;
- improve the pattern or texture of the walking surface;
- consider contrasting materials to clearly mark crosswalk areas, while enhancing the continuity of walking routes for pedestrians; and
- provide a smooth and continuous crossing surface across the track(s).

Although this guide is in draft form and has not been updated since 2007, many of the measures it contains remain relevant. However, the guide is not referenced in regulations and, consequently, its provisions are not mandatory and not enforceable.

In the United Kingdom, the research completed by the Rail Safety and Standards Board includes, in addition to measures similar to those identified in TC's guide, the following proposals:

- using flangeway gap fillers to minimize the likelihood of wheels becoming stuck next to rails;
- making the sidewalk perpendicular at the level crossing so that pedestrians who use wheelchairs will cross at a 90-degree angle;
- implementing a "clear zone" to ensure that obstructions are removed from the approaching sidewalks, and on the approach; and
- illuminating unlit level crossings where practicable.

In Australia, the federal *Disability Discrimination Act* and associated standard AS 1742-7 relating to railway crossings contain specific provisions for persons with disabilities, including requirements to provide more visual and audible cues at active crossings to better serve people with hearing and visual disabilities, and to minimize flangeway gaps.

As designated crossings are identified and upgraded to TC's new GCR and associated GCS, there is an opportunity to make additional safety improvements at these locations. While many safety measures have been identified in TC's draft guide, their application is largely voluntary and therefore may not be systematically considered and implemented. Unless upgrades to the designated crossings go beyond surface condition improvements as prescribed by the GCR and associated GCS, persons using assistive devices will continue to be exposed to elevated risk at railway grade crossings. Therefore, the Board recommends that

the Department of Transport work with stakeholders to identify engineering options for the improvement of crossings designated for persons using assistive devices, conduct an assessment of their effectiveness, and update its regulatory provisions as appropriate.

TSB Recommendation R18-01

Transport Canada's response to Recommendation R18-01 (May 2018)

Transport Canada agrees in principle with the recommendation. The department will review available literature and studies describing engineering options, in addition to those already contained in the *Grade Crossings Regulations*, to improve the safety of crossings designated for persons using assistive devices. The department will also consult with stakeholders, such as railways and road authorities, to further identify and assess engineering options.

Finally, before recommending changes to the current regulatory requirements, thorough study, analysis and possibly field trials of the proposed measures, along with a comprehensive cost-benefit analysis (as required by the Cabinet Directive on Regulatory Management), would be undertaken.

TSB assessment of Transport Canada's response to Recommendation R18-01 (June 2018)

TC agrees in principle with the recommendation. In addition to the engineering options already identified in the *Grade Crossings Regulations*, TC will review the relevant literature and studies relating to engineering options for improving safety at crossings designated for persons using assistive devices. TC will consult with stakeholders, including railways and road authorities, to further identify and assess the engineering options.

Before initiating changes to the current regulatory provisions, TC will undertake a thorough analysis that may include conducting field trials of the proposed measures.

The Board is encouraged that TC has taken a leadership role in the identification and assessment of engineering options that will help improve crossing safety for persons using assistive devices. However, given that grade crossings must be upgraded by 2021 in accordance with the GCR, the Board urges TC to expedite these activities to take advantage of the ongoing work to upgrade grade crossings. The Board assesses the response to the recommendation as having **Satisfactory Intent**.

Transport Canada's response to Recommendation R18-01 (February 2019)

The Department is committed to working with stakeholders to make Canada's railway system, including grade crossings, safer for Canadians. As such, Transport Canada agrees with the Transportation Safety Board that the identification and assessment of engineering options that will help improve safety for persons using assistive devices should be expedited so that the results can be communicated to railways and road authorities as quickly as possible.

The department has reviewed available literature and studies describing engineering options, in addition to those already contained in the *Grade Crossings Regulations*, to improve the safety of crossings designated for persons using assistive devices. The findings from this work will be included in the updated copy of the [Grade Crossing - Handbook](#). The Handbook is a publicly accessible repository of engineering best practices that aims to facilitate the adoption of specific safety-related features by grade crossings stakeholders, such as railway companies, road authorities, and private owners. This update to the handbook is expected to be published by June 2019.

Transport Canada continues to take meaningful action to improve crossing safety. While the *Grade Crossings Regulations* will not take full effect until the end of 2021 due to a phased implementation approach, Transport Canada has taken steps to improve collaboration between railway companies and road authorities and accelerate compliance:

- Transport Canada sent letters to 1,656 road authorities to advise them of the requirement to share information and to encourage them to provide tools to support this requirement;
- Minister Garneau sent letters to municipalities and provinces to convey the importance of sharing information on grade crossings to ensure compliance with the Regulations; and

- Transport Canada established a working group with railway companies, the Railway Association of Canada, and the Federation of Canadian Municipalities which further focus efforts on sharing information and managing safety at grade crossings.

Through Transport Canada's Railway Safety Oversight Program, Railway Safety Inspectors are promoting accelerated compliance to the Regulations, identifying safety-related areas that would benefit from improvements above the minimum regulatory requirements, and promoting the use of engineering options for pedestrian safety, including persons using assistive devices. These features include:

- reducing flangeway gaps;
- making the sidewalk perpendicular at the level crossing so that pedestrians will cross at a 90-degree angle;
- implementing a "clear zone" to remove obstructions from the crossing approach sidewalk; and
- providing dedicated lighting at grade crossings with sidewalks.

Transport Canada also continues to promote funding for grade crossings improvements through the Rail Safety Improvement Program (RSIP). The Program supports infrastructure-related improvements such as closures and upgrades of grade crossings as well as the use of innovative technologies, research, and studies to improve safety. On August 1, 2018, 105 new projects and initiatives amounting to \$20 million in RSIP funding were announced.

Finally, before recommending changes to the current regulatory requirements, thorough study, analysis and possibly field trials of the proposed measures, along with a comprehensive cost-benefit analysis (as required by the Cabinet Directive on Regulatory Management), would be undertaken.

Transport Canada continues to administer its Risk-Based Oversight Program and monitor for safe and compliant railway operations. TC has conducted over an average of 1500 crossing inspections per year and have taken enforcement action as necessary, such as issuing Notices, Notices and Orders, Letters of Warning, and serving Notices of Violations, including monetary penalties to railway companies for not complying to applicable rules and regulation. Notices of Violation are publically on TC's website.

Railway Association of Canada's response to Recommendation R18-01 (February 2019)

While RAC agrees in principle with the TSB recommendation, RAC concurs with TC that a more thorough study and analysis is required.

TSB reassessment of the responses to Recommendation R18-01 (March 2019)

In 2018, Transport Canada (TC) reviewed available literature and studies describing engineering options, in addition to those already contained in the *Grade Crossings Regulations*, to improve the safety of crossings designated for persons using assistive devices. TC will include the findings from this work in the next update of the *Grade Crossing – Handbook* which is expected to be published by June 2019. This handbook is a publically accessible repository of engineering best practices to help facilitate the adoption of safety-related features by grade crossings stakeholders, including railway companies, road authorities, and private owners.

As the *Grade Crossings Regulations* will not take full effect until the end of 2021, TC has taken steps to improve collaboration between railway companies and road authorities and to accelerate compliance, including the following actions:

- TC sent letters to 1,656 road authorities to advise them of the requirement to share information and to encourage them to provide tools to support this requirement.
- The Minister of Transport sent letters to municipalities and provinces to convey the importance of sharing information on grade crossings to ensure compliance with the regulations.
- To help focus efforts on sharing information and managing safety at grade crossings, TC established a working group with railway companies, the RAC, and the Federation of Canadian Municipalities.

Through its Railway Safety Oversight Program, TC conducts an average of over 1500 crossing inspections per year. As part of these inspections, Railway Safety Inspectors are promoting accelerated compliance with the *Grade Crossings Regulations*. The inspectors are also identifying safety-related areas at crossings that would benefit from improvements above the minimum regulatory requirements, and promoting the use of engineering options at crossings for pedestrian safety, including persons using assistive devices. Some of the engineering options being promoted include:

- reducing flangeway gaps;
- making the sidewalk perpendicular at the level crossing so that pedestrians will cross at a 90-degree angle;
- implementing a “clear zone” to remove obstructions from the crossing approach sidewalk; and
- providing dedicated lighting at grade crossings with sidewalks.

The Board appreciates that TC has taken a leadership role in the identification and assessment of engineering options that will help improve crossing safety for persons using assistive devices. The Board assesses the response to Recommendation R18-01 as having **Satisfactory Intent**.

Transport Canada's response to Recommendation R18-01 (December 2019)

Transport Canada has completed the work on this recommendation. The department has reviewed available literature and studies describing engineering options, in addition to those already contained in the *Grade Crossings Regulations*, to improve the safety of crossings designated for persons using assistive devices. The findings from this work were provided to the Railway Association of Canada, the Transportation Safety Board, and organizations representing road authorities. In 2019, the findings of Transport Canada's work were also incorporated as Annex M of the Grade Crossings - Handbook published on the department's website at <https://www.tc.gc.ca/eng/railsafety/grade-crossings-handbook.html>.

Railway Association of Canada's response to Recommendation R18-01 (December 2019)

In the summer of 2019, Transport Canada issued a draft engineering design guidance for vulnerable road users at road crossings. The RAC and industry provided comments and suggestions to TC and will continue to work and collaborate with TC on finalizing the design guidance document as there were several areas that require further research, clarifications and assessment.

TSB reassessment of the responses to Recommendation R18-01 (March 2020)

In 2019, Transport Canada (TC) published an update to its *Grade Crossings – Handbook*. This handbook is a publicly accessible repository of engineering best practices to help facilitate the adoption of safety-related features by grade crossings stakeholders, including railway companies, road authorities, and private owners.

As part of this update, the findings of TC's work relating to engineering design guidance for vulnerable road users (VRUs) at grade crossings were incorporated into the handbook. The handbook now provides specific guidance to assess the level of activity of VRUs at grade crossings and to reduce risk in order to improve crossing safety for VRUs.

The Board considers the responses to the recommendation to be **Fully Satisfactory**.

Next TSB action

This deficiency file is **Closed**.