



Transport Accident
Investigation
Commission

Watchlist

Safety for pedestrians and vehicles using level crossings

What is the problem?

Safety for pedestrians and vehicles using railway level crossings is being compromised because of ambiguities in the responsibilities between the road and rail authorities; and because the implications for the road-rail interface are sometimes not recognised when changes are made to vehicle technology or rail infrastructure. Even when accidents cause limited train damage or minor injuries, such events can be traumatic for all involved.

What is the solution?

The regulator, business operators, and road control authorities need to work closely to ensure the interface between rail and surrounding infrastructure provides the appropriate level of protection for pedestrians, road vehicles, trains, and those on board.

Commission investigations have highlighted safety improvements that could have been, or should be, made for road vehicles or pedestrians using level crossings. Recent inquiries have found ambiguities in who is responsible for the safety of pedestrians crossing rail lines, a particular concern in metropolitan areas with growing patronage, and growing frequency of trains. Other inquiries have shown that changes to rules and standards for road vehicles such as permissible lengths and clearances are incompatible with the conditions at some level crossings such as sight lines and road camber. The potential remains for serious accidents to continue to occur as a result of these problems identified through our inquiries.

Background

When pedestrians or vehicles use level crossings, the potential exists for serious accidents to occur. Safety measures depend on infrastructure, technology, systems, and users working together. A change in one of these factors must take account of its effect on the others if safety is not to be compromised.

Safe pedestrian rail crossings

In early 2015, the Commission opened an inquiry into a pedestrian fatality at Morningside, a metropolitan railway station in Auckland.¹ The investigation highlighted how changes to the rail infrastructure can inadvertently compromise safety. For example, at Morningside, the design of the existing pedestrian 'maze' at the station was constructed to force pedestrians to face in the direction of approaching trains before they turn and cross the tracks. But with increasing rail traffic at Morningside, signalling changes were made to allow trains to run in both directions along the tracks. The change meant trains could approach from behind pedestrians, so defeating the maze design.

The Commission found the process for assessing risk at pedestrian crossings is not keeping pace with the infrastructure changes and increasing patronage on metropolitan passenger trains.



These issues need the regulator, business operators, and road control authorities to work together and for their responsibilities to be clear. Pedestrians and road users also need to take responsibility for avoiding distractions, or failing to see, hear or respond to warning signals or trains. The needs of disabled users should always be considered.

Since the accident at Morningside Station, Auckland Transport, Waka Kotahi and KiwiRail have worked together to improve pedestrian safety on level crossing across the Auckland metropolitan area.

Safe vehicle crossings

The Commission has investigated several accidents where road-legal vehicles have become stuck on rail level crossings, or have been too long to clear a rail level crossing and then stop, as required, at an adjacent road intersection. There is no routine procedure for measuring the profile or vertical alignment of the road at rail level crossings. There could be other level crossings in New Zealand on which low-slung, but nevertheless road-legal vehicles, could become stuck.

A total of 362 level crossings have short stacking distances with associated risk to long road vehicles.² At level crossings with a short stacking distance, a long vehicle, even though it complies with road regulations, is unable to clear the level crossing when stopping at an adjacent road intersection. Similarly, the profile (the rate of change in gradient) of level crossings may not be compatible with vehicles that have low, albeit legal, ground clearance. A train colliding with a heavy vehicle is a serious safety issue.

In 2016, the Commission closed an inquiry into a train and truck collision at a level crossing near Rangiriri in 2014.³ Because of the permitted train speed and available sight lines at the crossing, it was possible that a truck would be unable to safely cross after stopping and confirming it was clear.



We recommended that Waka Kotahi NZ Transport Agency work with KiwiRail and all road controlling authorities to ensure assessments of rail level crossings include a measure of the road profile and compatibility with the allowable dimensions for long and low road vehicles. The recommendation was implemented. We have made similar recommendations in earlier reports.⁴ An urgent recommendation made in relation to a crossing (at Beach Road in Paekakariki) has also been implemented.³

In February 2019, we published a report into a collision between a heavy motor vehicle and a freight train at Lambert Rd level crossing near Kawerau in October 2017.⁵ We again found that the legislation needs to be clearer on the allocation of responsibility between licensed rail access providers and road controlling authorities for ensuring the safety of rail users and road users at public road level crossings. The Commission made recommendations to Waka Kotahi NZ Transport Agency, KiwiRail, and Local Government New Zealand to address matters related to sighting distances and control of vegetation around public road level crossings.

The Commission acknowledges the progress that Waka Kotahi NZ Transport Agency and KiwiRail have made towards implementing the recommendations. This includes the introduction of a Level Crossing Safety Impact Assessment Guide, which helps determine whether level crossings need to be upgraded and the appropriate treatment required. We also acknowledge the work being done by Waka Kotahi NZ Transport Agency, KiwiRail, TrackSAFE NZ and other agencies throughout the country to raise awareness of safe behaviour around the rail network and deliver rail safety campaigns. KiwiRail has further advised us of activities within the industry to improve safety at level crossings, increase pedestrian protection, and the trialling of a short stacking warning system.⁶ We are aware that, with nearly 1,400 public road level crossings across the country,⁷ full implementation entails considerable resource, and would require a long-term programme of work.

KiwiRail advises it is working with stakeholders on level crossing improvements, upgrades, and closures throughout the country. We consider the predicted increase in road traffic and the expansion of the rail network in metropolitan areas requires a proportionate effort on the part of the responsible authorities to manage the safety risks.

The Commission is pleased to note that the New Zealand Rail Plan, which was published in May 2021, lists level crossing safety improvements as a key priority for investment over the next decade. Changes to the Land Transport Management Act 2003, effective from July 2020, provide a new funding framework for KiwiRail, the Rail Network Investment Programme (RNIP).⁸ We welcome the long-term certainty this gives to KiwiRail for funding of network maintenance. It allows KiwiRail to plan for level crossing upgrades, and to work with Waka

Kotahi and councils to agree the costs of upgrades and programme those costs into future programmes and council annual plans.

We welcome the efforts that rail industry participants have made in reducing the risk of accidents for users of level crossings; and acknowledge that the Government's new planning and funding measures for rail are a positive step for improving safety at level crossings. We will continue to monitor progress.

References

- ¹ Transport Accident Investigation Commission *Report RO-2015-101: Pedestrian fatality, Morningside Drive level crossing, West Auckland, 29 January 2015*
<http://www.taic.org.nz/inquiry/ro-2015-101>
Urgent safety recommendations 010/15, 012/15, 013/15
Safety recommendation 018/16
- ² Supplied by KiwiRail, 29 March 2021
- ³ Transport Accident Investigation Commission *Report RO-2014-101: Collision between heavy road vehicle and the Northern Explorer passenger train, Te Onetea Road level crossing, Rangiriri, 27 February 2014*
<http://www.taic.org.nz/inquiry/ro-2014-101>
Safety recommendation 013/16
- ⁴ Transport Accident Investigation Commission *Report RO-2011-104: Freight Train 261 collision with bus, Beach Road level crossing, Paekakariki, 31 October 2011*
<http://www.taic.org.nz/inquiry/ro-2011-104>
Urgent safety recommendation 030/11
Safety recommendation 031/11
- Transport Accident Investigation Commission *Report RO-2002-113 Passenger express Train 700 TranzCoastal and petrol tanker, near collision, Vickerman Street level crossing, near Blenheim, 24 April 2002*
<http://www.taic.org.nz/inquiry/ro-2002-113>
Safety recommendation 036/02
- Transport Accident Investigation Commission *Report RO-1996-106 Train 903, collision with motor vehicle, Templeton, Canterbury, 17 May 1996*
<http://www.taic.org.nz/inquiry/ro-1996-106>
Safety recommendation 064/96
- ⁵ Transport Accident Investigation Commission *Report RO-2017-105: Collision between freight Train 353 and heavy motor vehicle, Lambert Road level crossing, near Kawerau, 6 October 2017*
<https://taic.org.nz/inquiry/ro-2017-105>
Safety recommendations 031/18, 032/18, 033/18, 034/18
- ⁶ Correspondence dated 20 August 2019.
- ⁷ Supplied by KiwiRail, July 2018
- ⁸ Information on the New Zealand Rail Plan and the Rail Network Investment Programme can be found on the Ministry of Transport's website:
[The New Zealand Rail Plan | Ministry of Transport](#)

Version history

First published October 2016

Consulted with: Ministry of Transport, New Zealand Transport Agency, KiwiRail, Transdev, Auckland Transport, Greater Wellington Regional Council.

Updated: August 2017

Updated content: release of the report into the pedestrian fatality at Morningside Station (inquiry 15-101).

Consulted with: Ministry of Transport, New Zealand Transport Agency, KiwiRail, Transdev, Auckland Transport, Greater Wellington Regional Council.

Updated: September 2018

Updated content: number of level crossings that have short stacking distances. The numbers given are as supplied by KiwiRail in August 2018. KiwiRail has redefined the criteria for those level crossings that now come within the classification of 'high-risk stacking distance'. The new definition has resulted in an increased number of level crossings falling into this category.

Consulted with: Ministry of Transport, New Zealand Transport Agency, KiwiRail, Transdev, Auckland Transport, Greater Wellington Regional Council.

Updated: August 2019

Updated content: new inquiry RO-2017-105; amended number of level crossings that have short stacking distances (using more accurate assessment); references added to the Road Safety Strategy and the 2018 Government Policy Statement on Land Transport.

Consulted with: Ministry of Transport, New Zealand Transport Agency, KiwiRail, Transdev, Auckland Transport, Greater Wellington Regional Council.

Updated: October 2020

Updated content: release of the Road Safety Strategy noted.

Consulted with: Ministry of Transport, Waka Kotahi New Zealand Transport Agency, KiwiRail, Transdev, Auckland Transport, Greater Wellington Regional Council.

Updated: October 2021

Updated content: publication of New Zealand Rail Plan noted.

Consulted with: Ministry of Transport, Waka Kotahi New Zealand Transport Agency, KiwiRail, Transdev, Auckland Transport, Greater Wellington Regional Council.

Te Kōmihana Tirotiro Aituā Waka

Transport Accident Investigation Commission

www.taic.org.nz

The Transport Accident Investigation Commission is an independent Crown entity established to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future.