

# SIGNAL

A YEAR IN RAIL SAFETY  
2019/20

## FEATURING

New approach  
from Waka Kotahi  
to continuous  
improvement in  
2019/20

Heritage and  
tourist rail sector  
weathers the  
COVID-19 storm

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# Foreword



## KIA ORA TATOU,

Welcome to the first *Signal - a year in rail safety* - a snapshot of the last year in rail safety regulation.

This new publication will shine a light on progress, lessons and success from around the rail industry and from Waka Kotahi NZ Transport Agency in our role as the rail safety regulator.

The past year has been a year like few others, as New Zealand has stood up against the challenges presented by the Covid-19 pandemic. While New Zealand has confronted the virus better than most, this has had a wide range of impacts across the transport sector, and rail was no different.

It's affected the way many rail workers have gone about their daily roles, had a dramatic effect on metropolitan passenger transport and the industrial sector, and caused wild fluctuations and changes to operations and passenger numbers for many of our tourist and heritage operators.

Through that, the Safer Rail team at Waka Kotahi has adapted - not only in the face of Covid-19, but as we have strived for continuous improvement, which is the theme for this year's publication.

One of the key anchors of the way Safer Rail and the wider Regulatory Services team at Waka Kotahi works is our new regulatory strategy **Tū ake, tū māia**. The purpose of our strategy is to ensure the transport system is safe, effective, efficient and functions well for everyone in New Zealand.

**...we have strived for continuous improvement, which is the theme for this year's publication.**

## Our strategy outlines three key principles of good regulatory practice:

- We're risk-based and focused on harm prevention
- We're responsive and forward-thinking
- We're evidence-based and intelligence-led

As rail safety regulators, the Safer Rail team is calling on those three principles every day when making decisions and interacting with licence holders and you will see more of this new way of regulating in 2021. We also draw on the strategy's te ao Māori principles by operating with **whakapono** (integrity), **manaakitanga** (caring for people), **whanaungatanga** (relationships) and **kotahitanga** (unity) in our interactions with our licence holders.

I'm pleased to see some of the organisations from across our industry sharing their stories in this publication to provide the perspective of those organisations that we regulate, as well as our own perspective on continuous improvement in the 2019/20 year. One of the five key capability shifts in *Tū ake, tū māia* is leading regulation through trusted and valued relationships. Our strong commitment to strengthening relationships and working with our partners will help achieve a safe and efficient land transport system.

Please enjoy reading *Signal - a year in rail safety*. We would welcome your feedback on what you would like to see in this publication and you can do that by contacting us on [railregulator@nzta.govt.nz](mailto:railregulator@nzta.govt.nz).

Ngā mihi nui,

## Ray McMillan

Senior Manager, Safer Rail  
Te Rōpu Waeture/Regulatory Services  
Waka Kotahi NZ Transport Agency

# 82 RAIL LICENCE HOLDERS

4



National rail & metropolitan

19



Industrial shunting

4



Infrastructure servicing

2

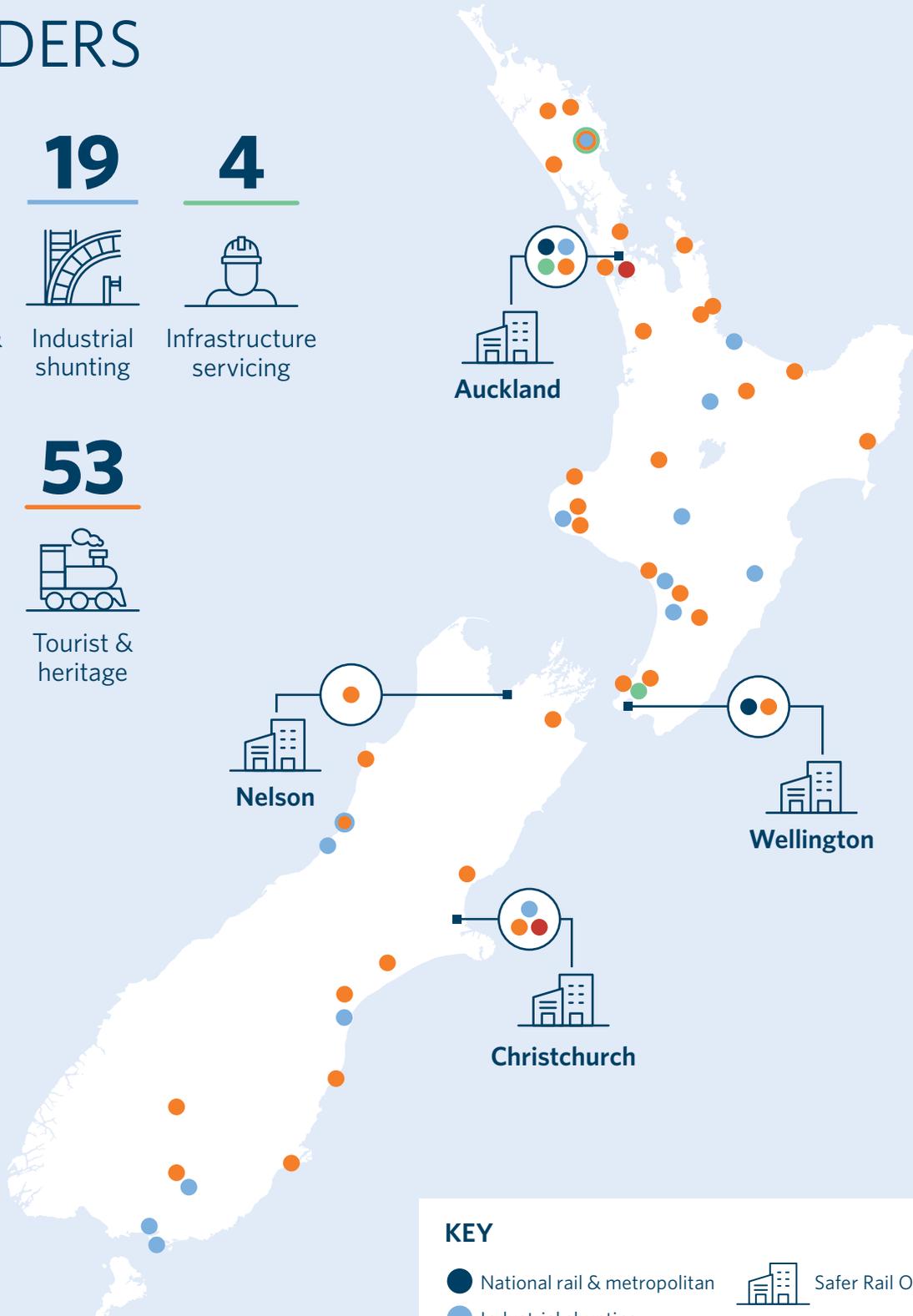


Heritage vehicle provider

53



Tourist & heritage



### KEY

- National rail & metropolitan
- Industrial shunting
- Infrastructure servicing
- Heritage vehicle provider
- Tourist & heritage



Safer Rail Office

## SECTORS



### NATIONAL RAIL & METROPOLITAN

Operators, maintainers and access providers of freight and metropolitan services on the National Rail System



### INDUSTRIAL SHUNTING

Organisations that carry out shunting activities to load and unload goods on industrial sites connected to the National Rail System



### INFRASTRUCTURE SERVICING

Organisations that use private railways to service other infrastructure (eg electricity networks)



### HERITAGE VEHICLE PROVIDER

Providers of rail vehicles for tourist and heritage operators



### TOURIST & HERITAGE

Organisations that provide tourist or heritage rail experiences, operating on private networks or the National Rail System

## RAIL WORKFORCE

Licence holders only



**4,933**

National rail & metropolitan



**465**

Industrial shunting



**94**

Infrastructure servicing



**11**

Heritage vehicle provider



**1,676**

Tourist & heritage

# RAIL SAFETY AT A GLANCE

## RAIL SAFETY REGULATOR ACTIVITY



### EDUCATION



### ENGAGEMENT

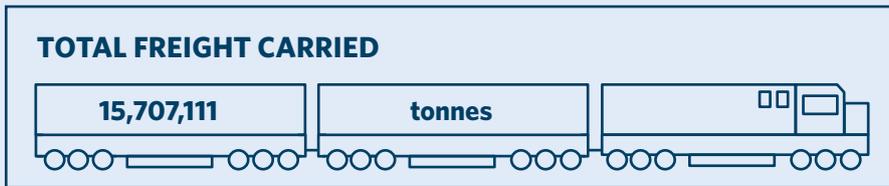
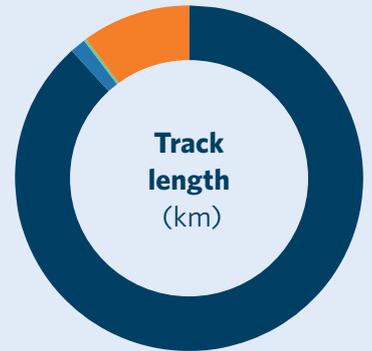


### ENFORCEMENT

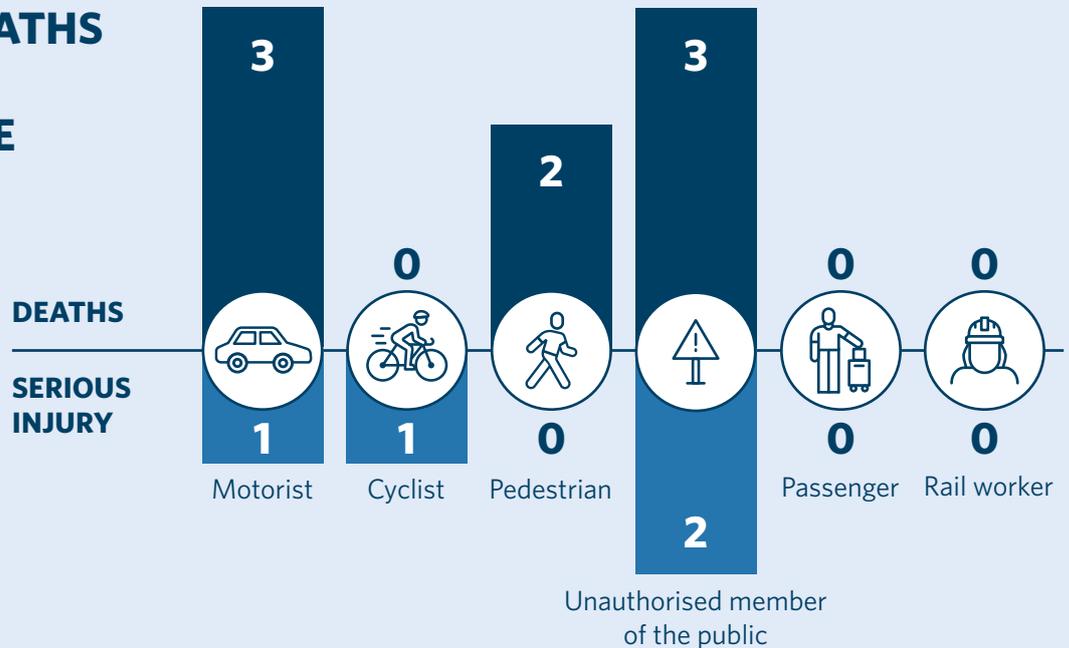


## RAIL ACTIVITY

TYPE	TRACK DISTANCE	TRACK KM TRAVELLED
<span style="color: #003366;">●</span> National rail and metropolitan	<b>4,570</b>	<b>16,863,221</b>
<span style="color: #006699;">●</span> Industrial shunting	<b>75</b>	<b>63,357</b>
<span style="color: #99CC99;">●</span> Infrastructure servicing	<b>14</b>	<b>1,428</b>
<span style="color: #FF9933;">●</span> Tourist & heritage	<b>520</b>	<b>478,941</b>



## ACCIDENTAL DEATHS AND SERIOUS INJURIES ON THE RAIL SYSTEM

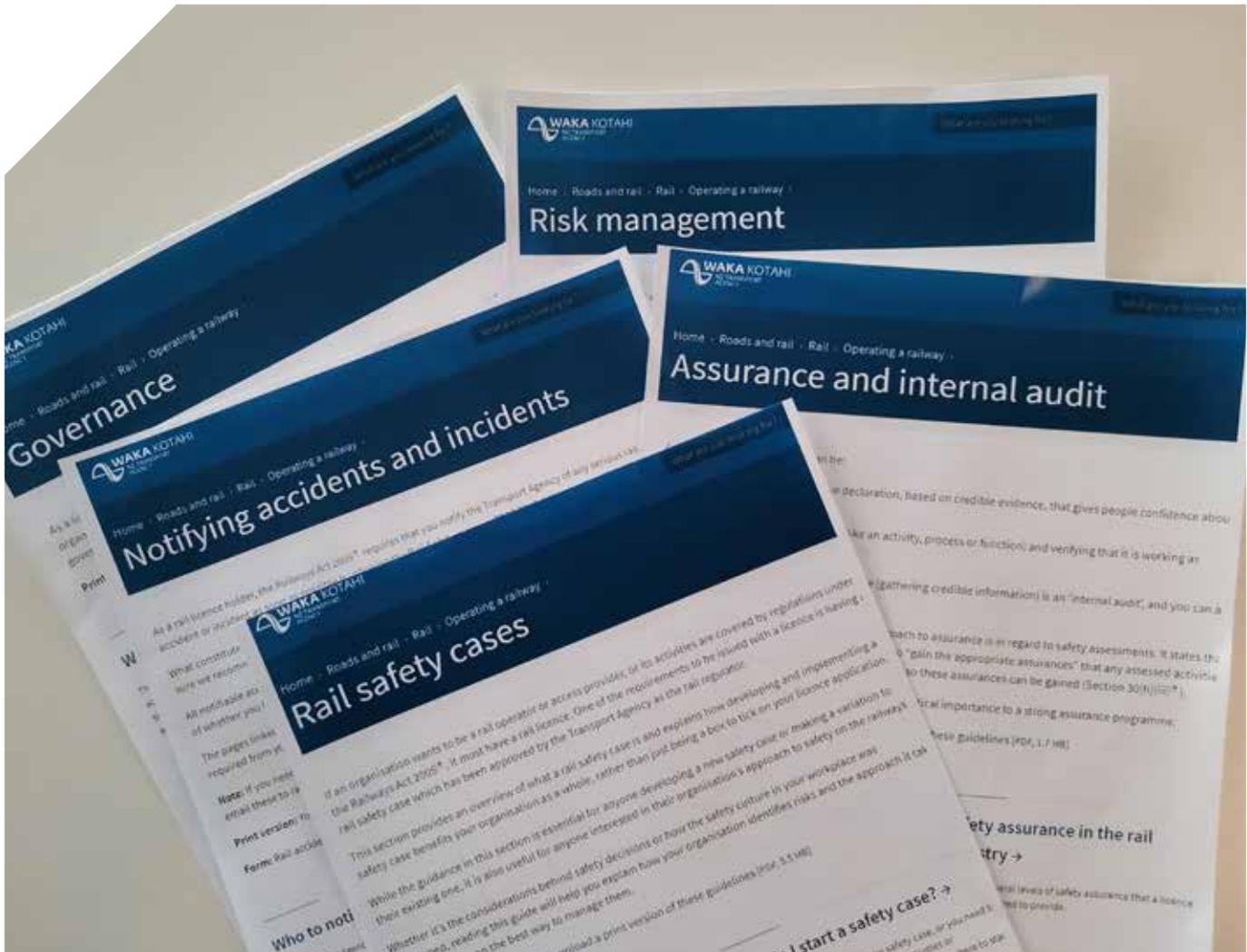


# New approach to continuous improvement in 2019/20

Just as part of our job as the rail safety regulator includes assisting our participants to identify safety improvements, the Safer Rail Team also carries out improvements on our own work which flows through to how we work with licence holders.

The initiatives our team delivered in 2019/20 include helping to facilitate the National Rail Industry Advisory Forum (NRIAF). This forum has brought some distinctly separate areas of the rail industry together in one collaborative forum. We have also refreshed the guidance published on our website that supports operators to refresh their safety cases and improve their own risk management and internal auditing.

In 2019/20, we also started developing a new approach to continuous improvement. That work has refreshed the way we are delivering our Continuous Improvement Programme in two transformational ways. First, we are adopting a portfolio style of management. This will provide a single source of continuous improvement tasks that covers the short, medium and long term. This will strengthen monitoring the projects, and successfully delivering and embedding the changes required. Secondly, it will help with effective governance and transparency of the projects by clearly documenting requirements, scope and resource, improving oversight of the work as a whole. This allows us to deploy our resources more flexibly as our core regulatory work surges and reduces. This is part of our journey towards becoming a more risk focused and insights-driven rail regulator that is more responsive to industry needs. ☺





Waka Kotahi Senior Rail Safety Officer Mark Fearn (right) with Tim Kerwin, General Manager, Glenbrook Vintage Railway, during the organisation's 2020 Ordinary Safety Assessment.

# Clearer structure to rail safety fees and charges

**This year, the Safer Rail Team took a key step on our path to becoming a more visible, proactive and capable rail safety regulator.**

Insufficient funding has meant we've previously been unable to justify investment in our ability to provide a robust regulatory presence. New Zealand's increasing focus on rail – whether it be freight, passenger or tourism – is driving greater expectations of the network from the Government and the public. We know that no-one wants to pay more, but our funding regime had been frozen since 2008 and was restricting our ability to keep up with the expansion of the industry.

Building new funding principles, seeking non-rail funding sources, consulting with the industry and developing new fee structures has been a massive undertaking for our small team. However, it is just the start of the process of becoming a more professional regulator that understands where it adds value to the industry and knows the costs on the industry of its activities.

For example, in the past Safer Rail Team members could spend many hours on the licence application process for a new rail entrant who may end up dropping out. This effort was necessary to protect the safety reputation of the industry, but the \$117 fee for the new licence was falling well short of covering our costs.

Instead the cost of the work involved was inevitably borne by existing licence holders. Under the new fees and charges regime we can ensure those applicants pay their costs, regardless of whether they are successful or not. This new regime better distributes the costs throughout the rail sector among those who create them.

The new fees and charges allow us to develop the capability and capacity needed to carry out our core safety assurance role while also contributing to continuous improvement in the rail industry – whether it be supporting the National Rail Industry Advisory Forum to improve rail standards, communicating key safety lessons from investigations, or providing advice on future rail developments.

We're looking forward to demonstrating the value of the funding we receive on the strength of our interactions with the industry.

You can find more about the fees and charges in the Rail Safety section of [www.nzta.govt.nz](http://www.nzta.govt.nz). 

**The new fees and charges allow us to develop the capability and capacity needed to carry out our core safety assurance role...**



# NRIAF developing through industry collaboration

**The National Rail Industry Advisory Forum (NRIAF) has gone from strength to strength over the past two years after starting from an initial meeting of interested parties in December 2018.**

The purpose of the NRIAF is to create a collaborative and connected forum for the main players in the New Zealand rail industry alongside industry regulators, and the Ministry of Transport, to identify, discuss, resolve and implement solutions to rail industry wide matters.

We have collaboratively worked with industry partners and stakeholders through the NRIAF forum in 2019/20 to establish prioritised workstreams and start the process of developing mitigation/control options for these.

In early April, we held an interim NRIAF meeting to discuss the development of a prioritisation tool that will lead to continuous improvement within the industry. From this, two workshops were arranged to review and trial the tool for the workstreams developed by four working groups established in NRIAF.

These working groups cover Regulatory Systems, Interface & Interoperability, Risk & Safety Systems and People & Qualifications and are comprised of members from all different sectors of the rail industry who have subject matter expertise in these areas.

This tool was presented to the NRIAF core group prior to a workshop arranged to discuss any issues, changes/ amendments that may need to be made.

The second workshop was a trial run, where workstreams were fed into the prioritisation tool, as well as discussing and recording the risk/priority ranking outputs from the tool.

At the end of April, the quarterly NRIAF meeting took place, where the prioritisation of workstreams was discussed and agreed. At this point the NRIAF discussed next steps, which was to agree how to move forward and establish how options would be developed.

A Multiple Criteria Analysis (MCA) tool was suggested, which would generate multiple options from 'do nothing' to 'most ambitious' for each workstream.

From May 2020 onwards, each working group has worked to trial the MCA tool.

The results so far have received a positive response from NRIAF, with some minor amendments to the tool suggested. It has been accepted as a robust and consistent way of generating the optimum option(s) for each workstream and for providing evidence and justification around the decision-making process.

Through the prioritisation and MCA tool processes adopted by NRIAF, this clearly demonstrates we are ahead of the game in respect to applying our new regulatory strategy *Tū ake, tū māia*, especially in the principles grounded in *te ao Māori* around *kotahitanga* (unity) and *whanaungatanga* (relationships).

As a regulator in collaboration with industry stakeholders, we are proud of what we have achieved and we are motivated to push on to deliver a safer railway system for all New Zealanders. ☺

# Near Miss Memorials campaign reaches far and wide

CONTRIBUTED BY TRACKSAFE

Charitable trust TrackSAFE NZ plays an active role in efforts to prevent harm on the New Zealand rail network. The Trust operates on the model that working together positively and collaboratively is the best approach to reducing incidents and improving safety outcomes.

TrackSAFE Manager Megan Drayton says the Trust's strategy is to ensure pedestrians, cyclists and motorists are aware of the risks presented by level crossings and know how to behave safely.

"While collisions with trains are less frequent than vehicle-vehicle crashes, the effects are likely to be far more serious," Megan says.

**"Due to the sheer physics involved, a motorist is 13 times more likely to be killed in a collision with a train."**

TrackSAFE's most successful activity for 2019/20 was the "Near Miss Memorials" campaign, developed jointly with KiwiRail and supported by sponsor organisations Waka Kotahi, Transdev Auckland and Transdev Wellington.

"We put up half crosses at railway crossings around New Zealand where near misses had occurred, with a QR code linking to footage of an actual incident. The symbol of the half cross represented just how close it could have been to a fatality."

Data revealed that locomotive engineers experienced a near collision with a pedestrian or vehicle every day, despite active protection such as barrier arms and/or lights and bells) at many of these crossings.

Launched by the Minister of Transport, Hon Phil Twyford, the campaign achieved a large reach and was well received.

"The social media video alone was viewed more than 2.5 million times, which was fantastic," Megan says.

Qualitative research after the campaign found that 73 per cent of people were aware of the risks when crossing railway tracks and 47 per cent strongly agreed that the campaign would make them rethink their behaviour around crossings in the future.

"We were really pleased with those numbers, but there's always room to improve. We need to keep raising awareness and educating people about safe behaviour, because one collision is one too many." ☺

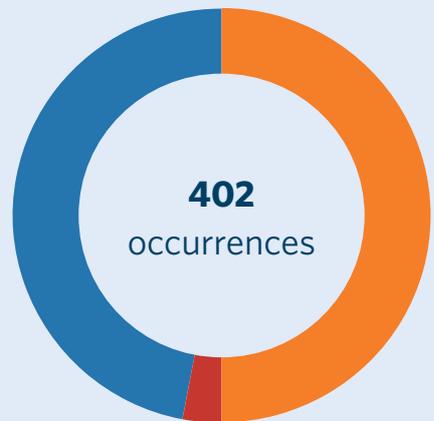
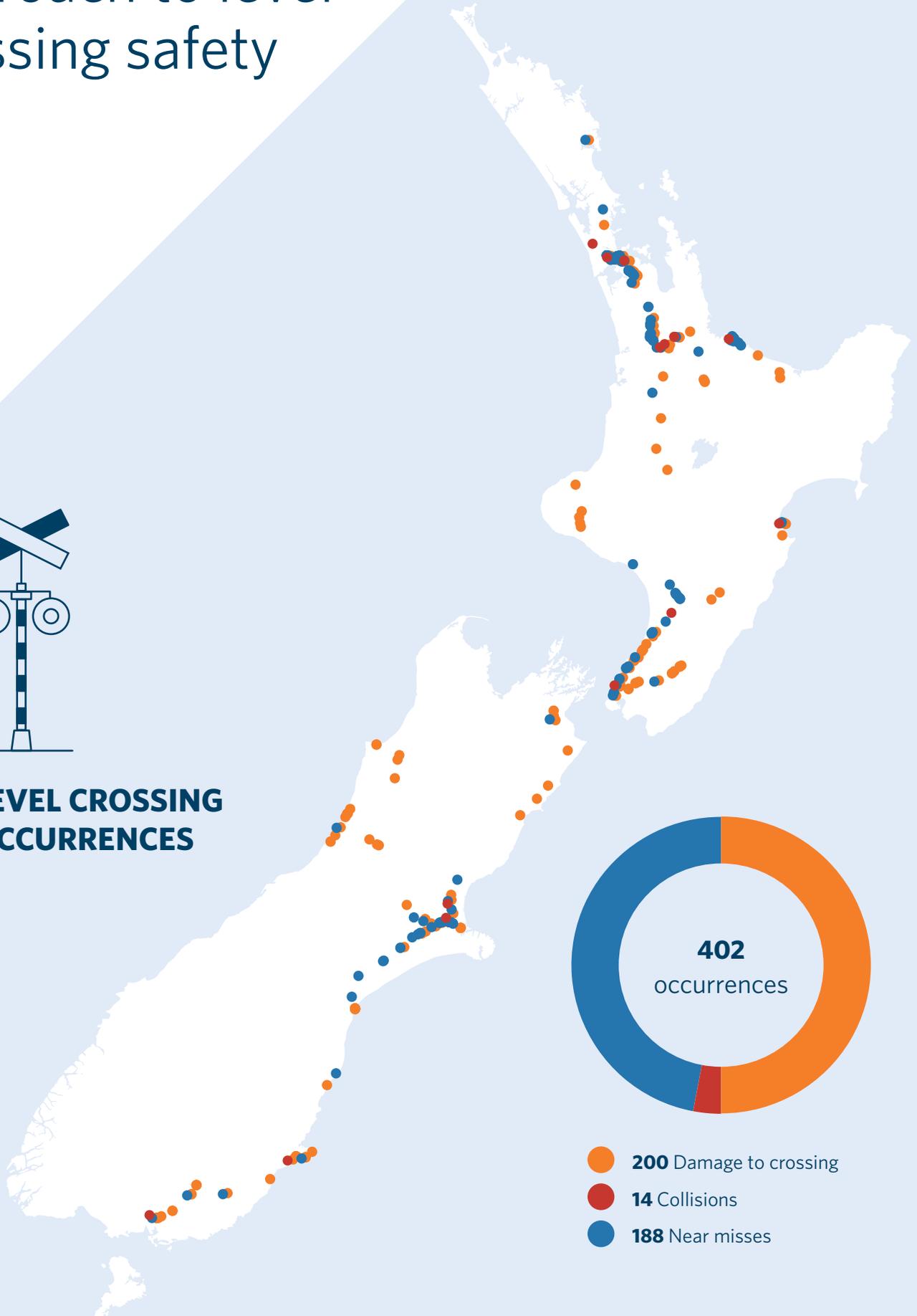


From left (Angus Gabara (former Trustee), Megan Drayton (Manager), David Gordon (Chairman), Peter Lensink (Trustee) at the Near Misses Memorial campaign launch at Parliament. Photo: TrackSAFE.

# A partnership approach to level crossing safety



## LEVEL CROSSING OCCURRENCES



- **200** Damage to crossing
- **14** Collisions
- **188** Near misses

## Level crossings present a unique safety risk in the land transport system where the worlds of road vehicles and trains meet.

Since 2013, 110 people have been killed in collisions with trains, with 43 of those at level crossings. This figure is made up of a mix of heavy vehicle, car and pedestrian accidents, and of people accessing the network without authorisation ('trespassing'). In 2019/20, 17 pedestrians and motorists were killed in accidents. Seven of these were at level crossings - four pedestrians and three motorists.

Safety remains a key strategic priority in the draft Government Policy Statement on Land Transport (GPS) 2021, building on the priorities set in GPS 2018. Keeping safety as a strategic priority reflects the Government's continued determination to improve the safety of the land transport system and to address the increasing number of deaths and serious injuries that occur on the transport network. In particular, improvements to level crossings will be a key priority for investment over the next decade.

As part of the Safe Network Programme started in 2018/19, Waka Kotahi has partnered with KiwiRail to improve safety of drivers and pedestrians by adding additional controls to prevent deaths and serious injuries at railway level crossings. We're delivering a \$26 million programme of level crossing safety upgrades on or near State Highways across the 2018-2021 National Land Transport Programme (NTLP) period.

Proposed safety improvements will vary according to the risks identified at each location and could include barrier arms, improved warning signs and road markings, installation of new track, or flashing lights and bells to warn people a train is approaching.

**We're delivering a \$26 million programme of level crossing safety upgrades on or near State Highways across the 2018-2021 NTLP period.**

Upgrades have now been completed at 17 locations. Safety improvements started in 2019/20 on the final 20 level crossings to be improved as part of the 2018-2021 Safe Network Programme. There are eight in the Waikato, three in the Bay of Plenty, two in the Central and Lower South Island and seven in the South Island.

Looking ahead, initial assessments are underway on approximately 80 level crossings across New Zealand's state highway network to be considered under Phase 2 of the level crossing upgrade programme (2021-2024 NLTP).

These changes will help make level crossings safer and ensure New Zealanders - whether travelling on the road or by rail - can get to their destination safely. ☺



## TOURIST & HERITAGE ACTIVITY



### TYPE

TYPE	TRACK DISTANCE	TRACK KM TRAVELLED
NRS Heritage	72.2	49,199
Non-NRS <5000pax	42.1	2,223
Non-NRS ≥5000pax	77.6	43,507
Tram	16.9	67,823
Cable Car	0.7	15,780
Rail Cart/Bike	310.4	300,410

### TOTAL PASSENGERS CARRIED DURING THE YEAR

NRS Heritage	51,107
Non-NRS <5000pax	13,782
Non-NRS ≥5000pax	216,675
Tram	270,345
Cable Car	862,487
Rail Cart/Bike	27,065

## SUB-SECTORS

### NRS heritage

Organisations that provide tourist or heritage train experiences on the National Rail System as well their own rail network

### Non-NRS train < 5000pax

Organisations that provide tourist or heritage train experiences off the National Rail System and carried fewer than 5000 passengers in 2019/20

### Non-NRS train ≥ 5000pax

Organisations that provide tourist or heritage train experiences off the National Rail System and carried 5000 or more passengers in 2019/20

### Tram

Organisations operating tram services

### Cable car and funicular railway

Organisations operating funicular railways such as cable cars

### Rail cart/bike

Organisations operating self-drive rail carts and rail bikes

### Vehicle provider

Providers of rail vehicles for tourist and heritage operators

# Heritage and tourist rail sector weathers the COVID-19 storm

CONTRIBUTED BY FEDERATION OF RAIL ORGANISATIONS OF NEW ZEALAND (FRONZ)

The Federation of Rail Organisations of New Zealand (FRONZ) represents the Heritage and Tourist Rail Industry in New Zealand, with around 70 members representing organisations that run heritage trains on mainlines as well as their own lines, as well as those who own and maintain heritage rail buildings and rolling stock and maintain many historical aspects of railways.

## Our challenge

Our challenge in 2019/20 has been to assist members in coping with the COVID-19 pandemic. As our members' operations shut down, their income ceased, but as the Alert Levels were reviewed to allow more and more activity and the situation improved, we were able to assist members with returning to an appropriate form of operation in a safe managed way. The FRONZ Executive team initially began the lockdown period with weekly "Zoom" meetings to handle issues as they arose.

## How we responded

We offered advice to our members on how to interpret the necessary safety requirements. Firstly, we shared information for our workers to return to their operations to maintain their equipment using appropriate safety measures, and as allowed, how they could re-open to the public, ensuring a return to some level of operation and income.

"The COVID-19 experience - so far - has shown the FRONZ Executive how we can use this opportunity to offer timely advice to our membership on a national basis, when we have a situation where rail operators are faced with rapid changes in circumstances," FRONZ president Grant Craig said.

"We also reacted quickly to the often-rapid changes to Alert Levels in different geographical areas and passed on appropriate information. We received feedback from individual operators on how they managed issues like facemasks and were able to share this with others so the industry could work consistently where appropriate."

## Operating again

Many of our rail heritage operators in smaller provincial towns and cities have managed to return to operating and have reported exceptionally good numbers of visitors, as people recognise how valuable the contribution of the various heritage rail operations is to their communities. One group in a South Island town reported a daily patronage of 822 against 331 last year. The Christchurch Tramway reports significant numbers of visitors from Auckland on particular days of the week.

Throughout the on-going COVID-19 experience we are all learning. This pandemic has taught us new ways to cope with national issues and be better prepared for future national incidents. Timely and reliable communication is the key to this and will keep playing the most important role in our assistance to our membership in the future. ⊕



Bush Tramway Club diesel locomotive and carriages at the Club's December open day.  
Photo: Chris Mann, Bush Tramway Club.

# FRONZ members enlightened on risk management

In March, the Waka Kotahi Safer Rail Team - led by Peace Katumbu and Ian Cotton - held a risk management workshop for Tourist and Heritage rail operators running on the National Rail System (NRS). This event was organised by the Federation of Rail Organisations of New Zealand (FRONZ) with the purpose of helping their members to build and improve their operational risk management capability.

Improving licence holders' capability in managing their risks will support the Waka Kotahi Safer Rail Team's Continuous Improvement initiative of developing a Rail Regulatory Risk Framework to identify key risk areas in the New Zealand rail sector. This will assist Waka Kotahi as the rail regulator with moving from being compliance-based towards being risk-based. Workshops like this help licence holders to better understand the risks associated with their operations and how to manage those risks, leading to a safer operation.

This was an excellent opportunity to proactively share what risk management means for their operations. There was plenty of enthusiasm for further workshops from the organisations' employees and volunteers. Feedback from participants described this as a valuable exercise and "showed participants that risk assessments are an important part of an overall risk management system" and

**"workshops like these are excellent tools for developing competency within the heritage rail sector".**

A survey conducted after the workshop showed 92 percent of respondents believe our licence holders could benefit from similar sessions in the future, and 83 percent would like to see workshops held in regional centres. Inclusion of non-NRS operators like Industrial, Tramway and other Tourist and Heritage operators was also suggested. ☺



Photo courtesy of Cameron Persson, Feilding and District Steam Rail Society.



Parts of the Wellington metropolitan network have suffered from “low wheel adhesion”. Photo: Transdev.

# Sandite applicators as a solution for low adhesion in Wellington

**CONTRIBUTED BY TRANSDEV NEW ZEALAND**

Many rail commuters may think “falling leaves” or “wet rails” are simply an excuse for train disruptions; however, we know the resulting slippery tracks are a real and significant problem that exists within the rail industry.

The problem of “low wheel adhesion” on the Wellington rail network, often caused by wet weather or sudden changes in weather conditions, severely jeopardises train acceleration and braking. Trains can end up sliding a significant way along the tracks which is a clear danger to staff, passengers and pedestrians. It also results in stops being missed and has a significant impact on punctuality.

**Trains can end up sliding a significant way along the tracks which is a clear danger to staff, passengers and pedestrians.**

Low adhesion caused two train collisions with stop-blocks in 2013 and 2014, and as a result of the subsequent investigation by the Transport Accident Investigation Commission published in 2016, a low adhesion working group was formed. The working group, led by Transdev Wellington (TDW), was a joint effort between Greater Wellington Regional Council, TDW and KiwiRail. In 2019, they found that most incidents occur on our lines during the month of May, when seasonal weather changes are in full effect.

A railhead treatment such as Sandite, a sand and metal composite which is sticky when applied but sets hard, is already used extensively around Britain as a solution for low adhesion. In 2019, TDW made the decision to invest in Wellington’s rail infrastructure by purchasing five of these applicators, in addition to two that were already installed. These have now been installed at the highest ‘low adhesion’ risk location around the network.

There was some delay in the machines arriving in Wellington due to the COVID-19 climate that has engulfed much of 2020, however, Transdev is excited to see and share the results in 2021. ☺



Photo: Fonterra.

# New programme on track for Fonterra

## CONTRIBUTED BY FONTERRA

Fonterra is a household name in New Zealand with a reputation for producing the highest quality food products. Less well-known is that Fonterra is a Waka Kotahi-licensed rail operator.

Moving product by rail is an integral part of Fonterra's operations and is crucial to our global supply chain. Product is transported, by rail, between various Fonterra manufacturing and distributions sites and is also transported to port for the export market.

Our Railway Safety Case permits shunting operations to be undertaken at 12 Fonterra Distribution Centres across NZ. Qualified Fonterra staff undertake shunting movements at four of these sites with KiwiRail undertaking the shunting movements at the remaining sites. Fonterra also owns and operates one shunt locomotive at our Kauri site in Northland.

"The environment, quality and safety are the highest priority to Fonterra, and this applies to not only the manufacture and distribution of food products but also to our rail operations," Chuck Norris, General Manager of Global Critical Risks & Process Safety, says.

"Fonterra senior management is committed to driving down the risks associated with rail operations."

Fonterra recently engaged an external safety consultant to review rail safety across the business. A recommendation from that review was to undertake a programme of risk assessments at all rail sites.

A programme of Rail Safety Assessment workshops has now begun and involves Fonterra front-line workers, supervisors, management as well as our key partner, KiwiRail.

While this programme represents a great opportunity for the Critical Risk team to connect with front-line staff, involved in rail operations, there have been several challenges. Fonterra does not have a singular rail operational model across all rail sites. As a result, there is no consistent set of hazards for each location. The geographical spread of sites across New Zealand coupled with challenges around managing COVID-19 risks has added complexity to planning of the workshops while attempting to ensure the programme is still complete in a timely manner.

The programme is still in its early stages and at this point there have been no significant uncontrolled hazards identified however several opportunities for improvements have already been identified. Early feedback from staff who have attended the workshops has been positive however an important part of maintaining these good levels of engagement is to make every effort to implement these opportunities.

The outcome of the full risk assessment programme will provide a risk baseline for Fonterra's rail operations and ensure that adequate controls and verification are in place in order to continue to drive risks down. ☺

# KiwiRail gains control of uncontrolled movements

CONTRIBUTED BY KIWIRAIL

Safety is at the heart of KiwiRail's operations, and when trends emerge that show a potential issue, action is taken to make things right. That's precisely what happened in the area of uncontrolled rail vehicle movements.

The uncontrolled movement of any rail vehicle presents a high risk to KiwiRail staff and customers. And over the past ten years, KiwiRail has seen a number of these events involving wagons within rail yards.

So, starting in July 2019, KiwiRail carried out a number of activities across several areas of the business to address this issue. This included significant engagement with front-line employees – the people who are most impacted by this risk.

## Actions taken included:

- Undertaking an engineering assessment on wagon handbrake application;
- Reviewing and strengthening wagon securing procedures and rules;
- Emphasis on handbrake application and use of securing chocks;
- Video messages from KiwiRail's CEO and COO to all staff;
- A focus and drive on 'bad ordering' wagons with suboptimal handbrakes;
- Re-design and trialing of new ergonomically-enhanced handbrakes with rollout programme;
- Enterprise-wide coordinated 'Safety Stop' sessions with all affected employees;
- Ergonomic assessment of handbrake application utilising external subject matter expertise;
- Developing enhanced staff briefing on safe handbrake application;
- Targeted handbrake audits across the business;
- Roll out of wagon securing 'Control Verification' checks across the business.



Rail vehicle stabilised to KiwiRail's new chocking code.  
Photo: KiwiRail.

KiwiRail Group General Manager Zero Harm Alastair Cumming is pleased with the way teams united to improve safety.

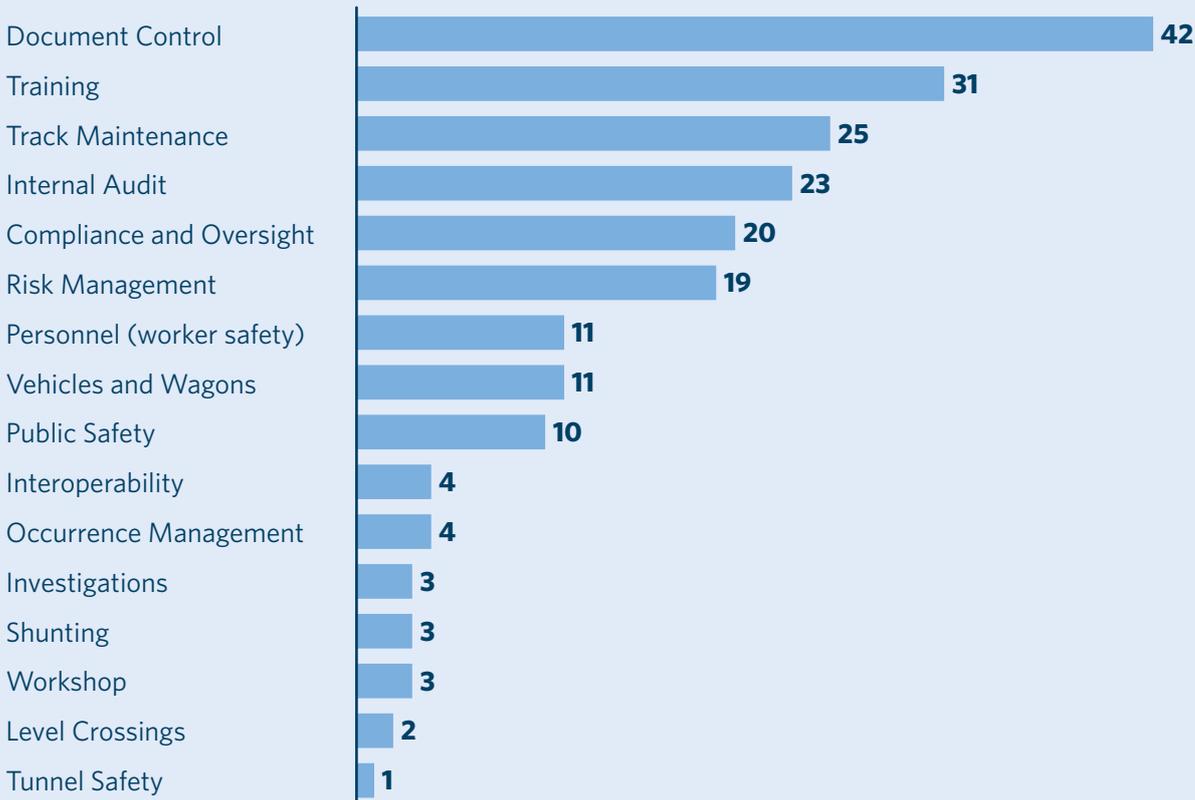
**“The collaboration and commitment from our people to drive safety improvements was outstanding. The workstreams resulted in tangible health and safety outcomes both in terms of reducing uncontrolled movements, and greater understanding and management of the ergonomic health impacts.”**

KiwiRail has experienced no further uncontrolled movements of wagons since the enterprise-wide safety stops took place in August 2019 and continues to drive improvements and monitor safe practices. ☺

# Themes in Ordinary Safety Assessment findings

## ORDINARY SAFETY ASSESSMENTS

FINDINGS IN EACH CATEGORY



As part of our regulatory function, the Waka Kotahi Safer Rail Team undertakes Ordinary Safety Assessments (OSAs) of all licensed rail participants. The frequency of those assessments and the areas assessed are determined from a risk profile on each operator. During the 2019-20 period, Waka Kotahi undertook 49 ordinary safety assessments, and the results are represented in this graph.

When we identify issues with an aspect of a licence holder's operations, we require them to resolve the issues raised, and also provide guidance for them to assist in their own journey of continuous improvement and we also make sure all issues are resolved. We are continually striving to build and update our guidance and resources for industry at our webpage [www.nzta.govt.nz/roads-and-rail/rail/](http://www.nzta.govt.nz/roads-and-rail/rail/).

We encourage licence holders to engage with these valuable materials. ⊕

# Remote assessments enter the Safer Rail Team toolbox

The nationwide lockdown due to the Covid-19 pandemic presented massive challenges across New Zealand and the regulation of the rail sector was not immune to these.

But this simply meant a new approach for the Waka Kotahi Safer Rail Team, with the development of a remote assessment tool for undertaking Ordinary Safety Assessments (OSAs). These assessments enable the Safer Rail Team to gain assurance that licence holders are meeting their obligations under the Railways Act.

And what better way to test out the new assessment model than with our largest rail participant KiwiRail?

With understanding and co-operation from KiwiRail, their 2020 Ordinary Safety Assessment was successfully conducted remotely using technology considering the limitations for everyone during the Alert Levels 4 & 3 restrictions in April and May.

The remote assessments were also delivered with our heritage and industrial rail participants during the lockdown periods. These assessments embraced technology by using secure cloud storage for rail participants to submit documentation and evidence, followed up by an interview with the assessors using video conferencing platforms and tools.

While this is new territory for both safety assessors and those being assessed, it has been pleasing to see how rail participants have embraced this alternate approach so positively. This has enabled Waka Kotahi to continue its regulatory mandate and drive successful outcomes.

There are limitations that comes with remote assessments but given the Covid-19 restrictions, remote assessments provide an alternative and innovative way to meet both the licence holder and the regulator's needs. ☎



Photo courtesy of Cameron Persson,  
Feilding and District Steam Rail Society.



A section of the City Rail Link tunnel under Albert Street in downtown Auckland. Photo: City Rail Link.

# Systems engineering approach to City Rail Link

CONTRIBUTED BY CITY RAIL LINK LTD

City Rail Link (CRL) is the largest current transport infrastructure project in New Zealand. Once complete, it will at least double the current rail network capacity in Auckland. The project includes the creation of 3.45km twin-tunnels below the city centre, connecting a new and improved Mt Eden station with Britomart Transport Centre, transforming Britomart into a two-way through station. The project is due to be completed in 2024.

In traditional project delivery, the client provides a design to the contractor to evolve and build. Instead of a traditional approach, City Rail Link Ltd (CRL Ltd) has chosen to implement a 'systems engineering' approach based on requirements. Documented requirements are provided to the contractor and form the basis of the product to be designed.

Complex projects perform significantly better when the systems engineering capability is higher. In particular, requirements development and management have a 'very strong positive' effect on the performance outcome<sup>1</sup>. The approach has already shown many benefits for the CRL works, including:

- *Improved scope management:* Contractor level requirements always need to be able to be traced back to the high-level requirements during every phase of the project. It easily becomes clear when requirements are added and don't trace back to high-level requirements (scope creep). Additionally, changes to requirements can only be made through a defined process where cost, programme and quality impact are all assessed;

- *Improved operational certainty:* The validation of requirements in every phase of the design, build and testing provide early detection of critical requirements that might not be met;
- *Improved safety management:* Similar to scope management, safety requirements are always traced between contractor and client requirements. This creates visibility of high-level safety requirements that are not being met and allows CRL Ltd to clearly understand possible shortcomings early.

The systems engineering approach that CRL Ltd has chosen follows the European standard EN-50126 'Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS)', which is considered international best practice for rail projects.

"The CRL project has many stakeholders and requirements from multiple engineering disciplines so requirements management and traceability of their achievement as the project progresses is essential for managing delivery risk while providing assurance that the delivered CRL will achieve the operational requirements," General Manager of Assurance and Integration for City Rail Link Limited, Russell McMullan said.

"Systems Engineering is still in its infancy in New Zealand infrastructure projects and to see it embraced on the CRL project really shows the value this process brings." 

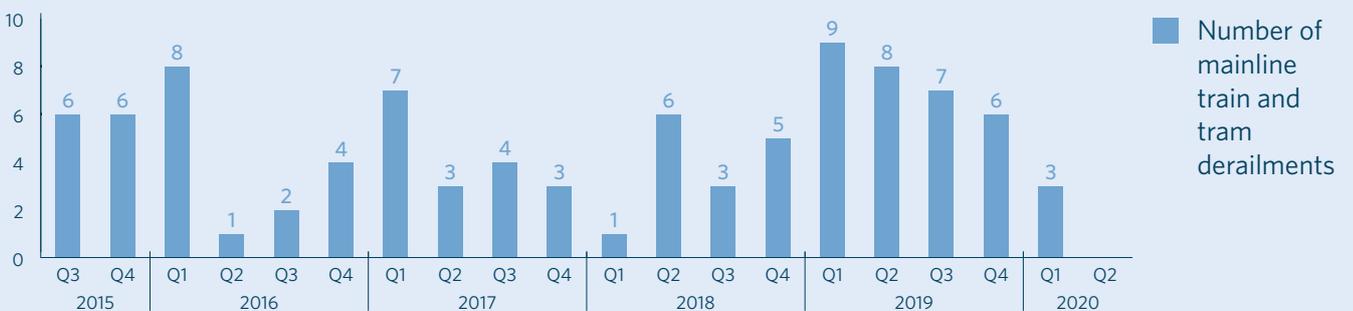
1 [https://resources.sei.cmu.edu/asset\\_files/specialreport/2012\\_003\\_001\\_34067.pdf](https://resources.sei.cmu.edu/asset_files/specialreport/2012_003_001_34067.pdf)

# Five-year safety trends at a glance

## SIGNAL PASSED AT DANGER (SPAD A1)



## DERAILMENTS



## MOTOR VEHICLE COLLISIONS



## RUNAWAY VEHICLES



Source: <https://www.nzta.govt.nz/resources/rail-safety-statistics/>. Data correct at time of publication.

