

2018 –  
2019

# Rail Safety Report



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# The Regulator's Message



**IN ALL OF LIFE'S PURSUITS, BE THEY PROFESSIONAL OR PERSONAL, THOSE THAT STAND STILL INVARIABLY SEE THE MOST IMPORTANT OPPORTUNITIES PASS THEM BY.**

For individuals and organisations alike knowing when to be proactive, reactive, adaptable and flexible are skills that often underpin a successful approach.

And they are of course particularly relevant to something as important as keeping people safe.

The Office of the National Rail Safety Regulator's (ONRSR) Rail Safety Report 2018-2019 is a demonstration of our own desire to be nimble in conducting the business of safety regulation. As a national regulator it is important that we are not only in tune with rail transport operators and the safety landscape we oversee, but also ready to share the data and intelligence we gather to influence timely and positive change within it. So this year we bring you the most comprehensive and consistent view of the industry's safety performance yet, as for the first time this report is informed by consistent rail safety data sets that present the national picture of occurrences and trends in all states and territories for the five year period 2014-2015 to 2018-2019.

While once again this detailed statistical overview of rail safety across Australia forms the centrepiece of the report, an equally important feature is the detail of what we are doing with what we are seeing, both in the field and by the numbers. To that end we are using the release of this year's report to publicly launch our updated suite of ONRSR national priorities.

The identification of new priorities - contractor management and control assurance, comes after an extensive process of regulatory interactions and analysis. It is also an important step in making sure we deliver on our core function of continuing to work with all stakeholders to improve rail safety nationally. Together with a renewed focus on continuing priority areas - level crossings and track worker safety, the new focus points reflect our determination to proactively work with industry to address emerging issues and reduce the likelihood of these translating into accidents on the rail network.

Unfortunately accidents still happen and while the safety performance of the Australian rail industry was again strong through 2018-2019, the following report still documents a range of occurrences that provide invaluable opportunities for all operators to contemplate their specific circumstances and make their own positive changes as they set about learning lessons and perfecting practices.

I trust that whatever the scope and nature of your operation, or whatever stake you have in the safety of railways in Australia, that this report is an important safety tool that gives you reason for reflection, practical safety intelligence and a better understanding of how, why and where ONRSR devotes its resources.

I hope that you also take from it the opportunity to improve your own commitment to best practice and play your part in ensuring our sector never stands still on safety.

Sue McCarrey

**Chief Executive / National Rail Safety Regulator**

**... this year we bring you the most comprehensive and consistent view of the industry's safety performance yet**



# Introduction



# About the Office of the National Rail Safety Regulator

## Our Vision

Safe railways for Australia

## Our Values

Integrity, Respect, Independence, Diligence and Excellence

## Objectives

Under Rail Safety National Law (RSNL)<sup>1</sup>, ONRSR's objectives are to:

- > facilitate the safe operations of rail transport in Australia;
- > exhibit independence, rigour and excellence in carrying out its regulatory functions; and
- > promote safety and safety improvement as a fundamental objective in the delivery of rail transport in Australia.

## Functions

As defined in ONRSR's Statement of Intent<sup>2</sup>, ONRSR's key functions are to:

- > improve rail safety for the Australian community;
- > decrease the regulatory burden on the rail industry;
- > provide seamless national safety regulation; and
- > enforce regulatory compliance.

## Role

ONRSR performs its functions under a co-regulatory framework in which responsibility for regulation and safety is shared between industry, governments and ONRSR. The principle of shared responsibility is underpinned by specific duties defined under the RSNL. In particular, section 52 states a rail transport operator must ensure, so far as is reasonably practicable (SFAIRP), the safety of its railway operations. This duty is consistent with the principles of safety risk management generally where those responsible for safety risks must ensure all reasonably practicable measures are in place to protect people from the harm that may arise.

## Regulatory Approach

ONRSR is a risk-based regulator overseeing the application of a systematic decision-making framework, which prioritises regulatory activities and informs decision outcomes, based on an assessment of risks to rail safety. It involves:

- > developing an understanding of the risks to the safety of railway operations in Australia;
- > determining which of these risks ONRSR is able to influence through its regulatory activities; and
- > designing and prioritising regulatory activities and outcomes in a way that best maintains and improves rail safety.

Applying a risk-based approach to regulation has parallels to the RSNL's requirement for rail transport operators to apply a risk-based approach to safety management. It also enables ONRSR to focus resources on the basis of risk and to improve the effectiveness of regulatory interactions.

The ONRSR Way<sup>3</sup> provides further details on the key principles by which ONRSR regulates. This is supported by policies, procedures and guidelines to assist accredited parties to fulfil their obligations.

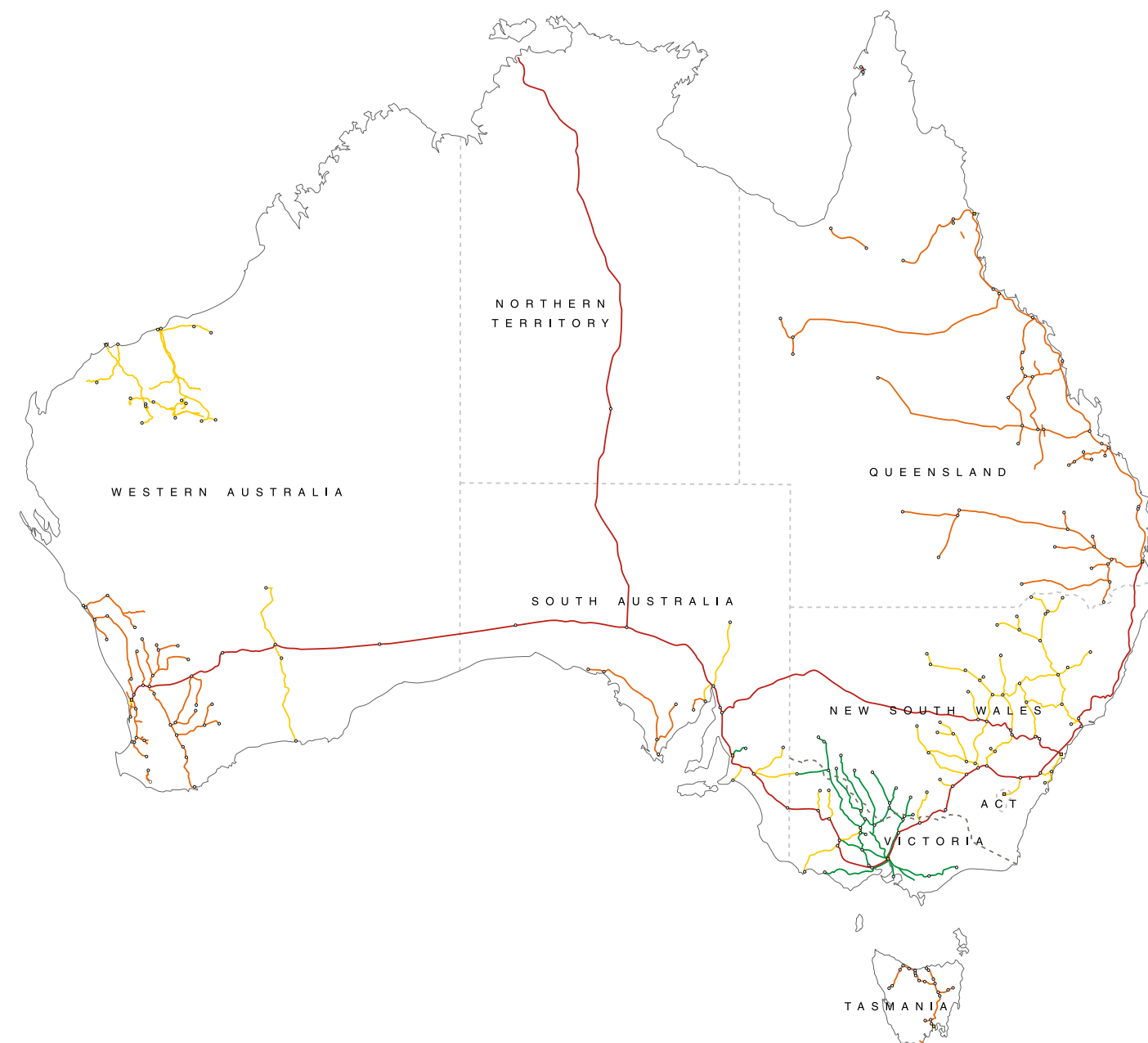
<sup>1</sup> RSNL refers to the Rail Safety National Law (South Australia) Act 2012 and Rail Safety National Law (WA) Act 2015

<sup>2</sup> Office of the National Rail Safety Regulator, Statement of Intent 2019 to 2022, ONRSR, Adelaide, 2019

<sup>3</sup> Office of the National Rail Safety Regulator, The ONRSR Way, Edition 1, ONRSR, Adelaide, 2018



## RAILWAY NETWORKS OPERATING ACROSS AUSTRALIA.



Kilometres  
100 0 100 200 300 400  
Scale 1:~5,000,000

- Standard gauge (1435mm), interstate network
- Narrow gauge (1067mm)
- Standard gauge (1435mm)
- Broad gauge (1600mm)

Sourced from the Australasian Railway Association

... priority areas that have been the focus of regulatory attention throughout 2019, together with new priority areas for the coming year.

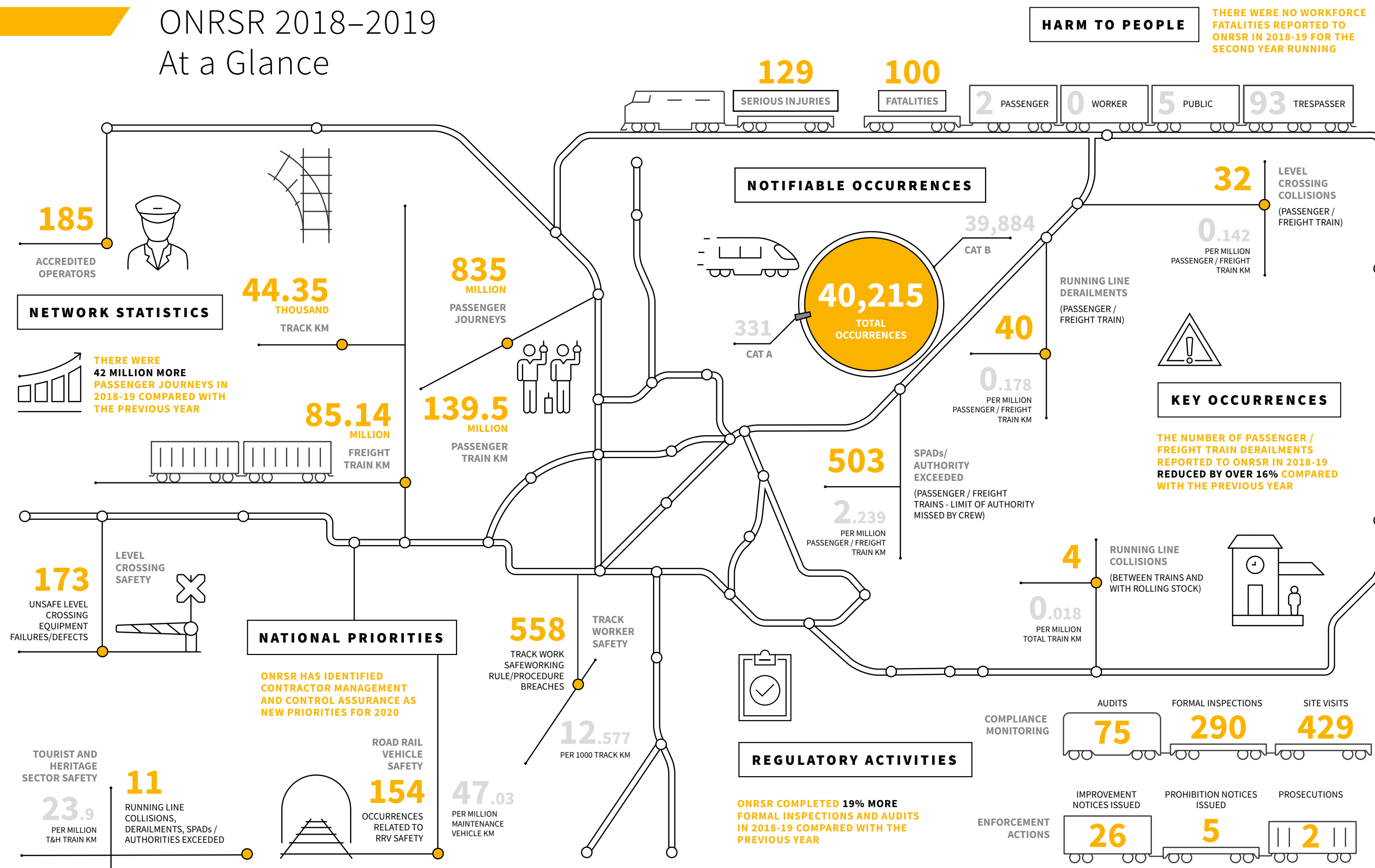
## About This Report

ONRSR's Rail Safety Report provides a summary of rail safety performance in the 2018–2019 financial year. This performance is described in terms of safety statistics based on rail safety occurrences notified to ONRSR, and intelligence gathered through regulatory activities. The report also discusses the priority areas that have been the focus of regulatory attention throughout 2019, together with new priority areas for the coming year.

This report is designed to consider rail safety from a national perspective rather than to single out individual operators or specific incidents. It is an ongoing function of ONRSR to work with individual rail transport operators on issues that pertain specifically to them. ONRSR does, however, highlight specific examples of incidents where they demonstrate issues considered relevant to the wider industry.

# ONRSR 2018-2019

## At a Glance





# Rail Safety Statistical Summary





A LARGE PART OF ONRSR’S REGULATORY INTELLIGENCE IS GAINED FROM THE THOUSANDS OF RAIL SAFETY OCCURRENCES REPORTED EACH YEAR.

Some of these events lead to an immediate response by ONRSR while others are categorised and analysed over time to build a picture of safety performance in the rail industry. This performance provides insight into which safety areas require focus by ONRSR and which sectors and individual operators should be the subject of this focus.

Notifiable occurrences are an important input to ONRSR’s risk-based regulatory approach. The type of events, their frequency and their actual or potential consequences, assist ONRSR in understanding the rail safety risks that exist in the industry. Some events result in more significant consequences or have the potential for greater risk and these events are the focus for presentation of occurrence statistics in this report.

The statistics presented in the following sections focus primarily on the events of the 2018–2019 financial year. The report continues with several charts that have been published in previous years which show the last five years’ performance in terms of incident counts and four years’ performance for rates<sup>4</sup>. Incident rates provide a more accurate picture of national safety performance than counts alone, by accounting for variations in the scale of railway operations over time.

ONRSR has once again conducted benchmarking against international performance and highlighted selected events it has judged as the more serious of the year.

For the first time, this year’s Rail Safety Report includes historical statistics for incidents in Queensland and Western Australia that pre-date ONRSR’s regulatory oversight of operations in these states. This expands the coverage of this report to five years of incident data for all states and territories, presenting the most comprehensive picture of rail safety performance in Australia by ONRSR to date.

» Railway-Related Fatality

There were 100 fatalities in the 2018–2019 financial year on railways regulated under the RSNL. These consisted of:

- > a passenger falling between a train and the station platform as the train approached;
- > a passenger falling when disembarking a train using a wheelchair ramp;
- > two incidents involving a member of the public being struck by a train at a pedestrian level crossing;
- > three fatalities (members of the public) due to level crossing collisions between a train and a road vehicle;
- > 13 incidents involving railway trespass; and
- > 80 incidents involving suspected suicide.

<sup>4</sup> Incident rates are not reported for the 2014-2015 financial year due to the unavailability of nationally consistent activity data for this period.

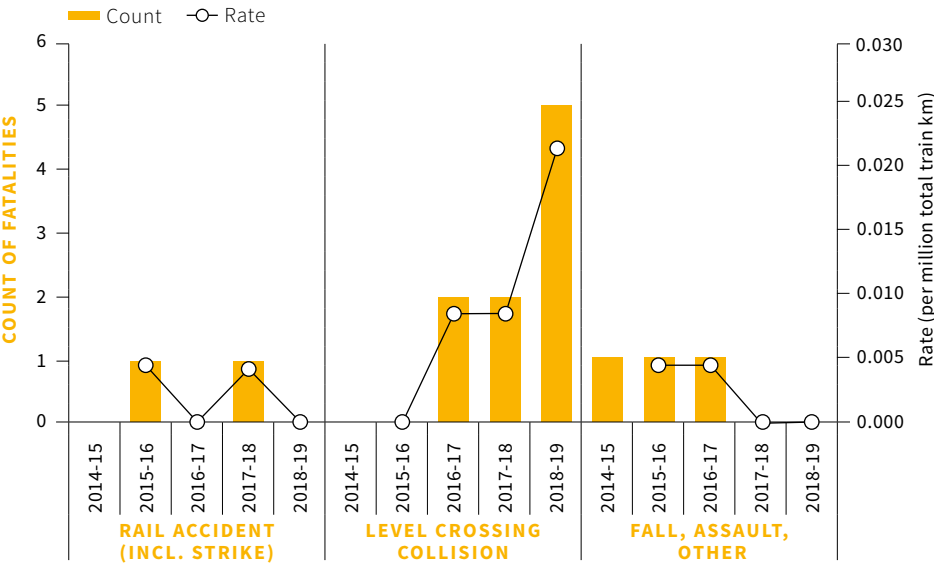
FIGURE 1:  
RAILWAY-RELATED FATALITIES,  
JULY 2014 TO JUNE 2019

Rates are available from 2015-16 only. Non-passenger fatalities at level crossings are classified as Public if neither trespass nor suicide is suspected. Level crossing collision excludes suspected suicide at level crossings, which are coded as Trespass: Rail accident (incl. strike).

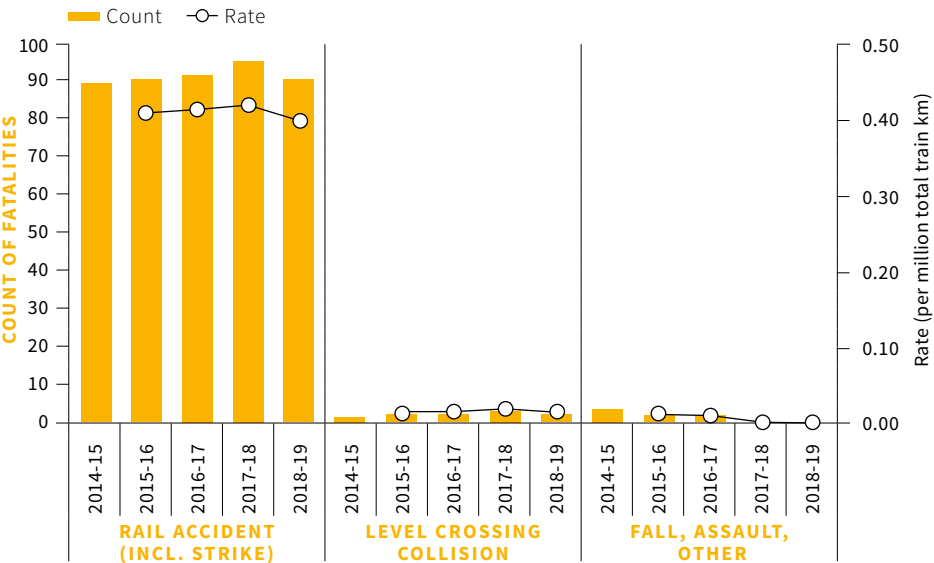


A total of five fatalities (members of the public) at level crossings across Australia in the 2018–2019 financial year is an important reminder of the need for pedestrians and road vehicle drivers to be vigilant when using level crossings. Level crossing safety will continue to be a national priority for ONRSR in 2020. To find out the steps that ONRSR is taking to help drive safety improvements in this area refer to page 28.

PUBLIC



TRESPASSER



A comparison of the rate of fatality between ONRSR-regulated railways and selected overseas railways is summarised in Table 1. The ONRSR-based data in this table is a subset of the fatalities summarised in Figure 2 to align with the overseas data definitions. For example, local data excludes suspected suicide as these are also excluded from overseas data.

TABLE 1:

RAILWAY FATALITIES – AUSTRALIA, GREAT BRITAIN AND UNITED STATES

Fatalities involving passengers, workers, public and trespass (excluding suspected suicide).

		2015-16	2016-17	2017-18	2018-19	4 YEAR
AUSTRALIA	Fatalities	17	18	17	20	72
	Train Km (million)	221.2	224.4	227.3	227.9	900.9
	Rate	0.077	0.080	0.075	0.088	0.080
GREAT BRITAIN	Fatalities <sup>1</sup>	46	39	49	40	174
	Train Km (million) <sup>2</sup>	556.7	554.9	553.1	562.9	2,228
	Rate	0.083	0.070	0.089	0.071	0.078
UNITED STATES	Fatalities <sup>3</sup>	770	761	801	944	3,276
	Train Km (million) <sup>3</sup>	1,133.9	1,135.2	1,132.1	1,129.5	4,531
	Rate	0.679	0.670	0.708	0.836	0.723

Sources:  
1 Office of Rail and Road, Data Portal, Tables 5.1 and 5.22, Mainline fatalities only  
2 Office of Rail and Road, Data Portal, Tables 12.13 and 13.25, Mainline freight and passenger train km  
3 Federal Railroad Administration Office of Safety Analysis: online database query (accessed 17 October 2019) <http://safetydata.fra.dot.gov>.

The comparison is most valid for the Great Britain (GB) statistics because information on individual GB incidents is available to confirm consistency of scope with local data. GB is also a suitable benchmark to compare with ONRSR data because of its comparatively high rail safety performance. The United States (US) data is less reliable because of uncertainties in data collection methods.

The fatality rate for ONRSR’s area of operation over the four-year period (0.080 fatalities per million train km) is marginally higher than that of GB (0.078) and well below that of the US (0.723). A review of the US figures by individual incident type suggests the rate reflects a significantly higher proportion of trespass and level crossing-related fatalities in the US compared to the figures within ONRSR’s area of operation.

TABLE 2:

RAILWAY-RELATED FATALITIES, EXCLUDING TRESPASS OR SUSPECTED SUICIDE, JULY 2018 TO JUNE 2019

Railway operations regulated under the RSNL. Excludes fatality associated with trespass or suspected suicide.

DATE	DESCRIPTION	LOCATION
24/08/2018	A passenger in a wheelchair sustained fatal injuries following a fall while disembarking from a passenger train using a wheelchair ramp.	Buranda, Qld.
5/10/2018	A passenger was fatally injured after falling between a passenger train and station platform as the train approached the station.	Sydenham, NSW
14/12/2018	The driver of a road vehicle was fatally injured following a collision with a freight train at a level crossing protected by stop signs. A passenger in the road vehicle sustained serious injuries.	Euabalong West, NSW
19/03/2019	A member of the public in a mobility scooter sustained fatal injuries after falling from their vehicle and being struck by a train while crossing a pedestrian crossing protected by gates and an audible alarm.	Moe, Vic.
28/03/2019	The occupant of a motor vehicle was fatally injured following a collision with a freight train at a level crossing protected by stop signs.	Grafton, NSW
15/04/2019	A member of the public was fatally injured after being struck by a train while crossing a pedestrian crossing protected by give way signs.	Hampton, Vic.
26/05/2019	The occupant of a motor vehicle was fatally injured following a collision with a freight train at a level crossing protected by stop signs.	Bellata, NSW



➤ Railway-Related Serious Injury

FIGURE 2:  
RAILWAY-RELATED SERIOUS INJURIES,  
JULY 2016 TO JUNE 2019

Non-passenger serious injuries at level crossings are classified as Public if neither trespass nor attempted suicide is suspected. Level crossing collision excludes attempted suicide at level crossings, which are classified as Trespass: Rail accident (incl. strike). Historically comparable serious injury data is only available from 1 July 2016 due to a change in the way serious injuries were classified in June 2016.

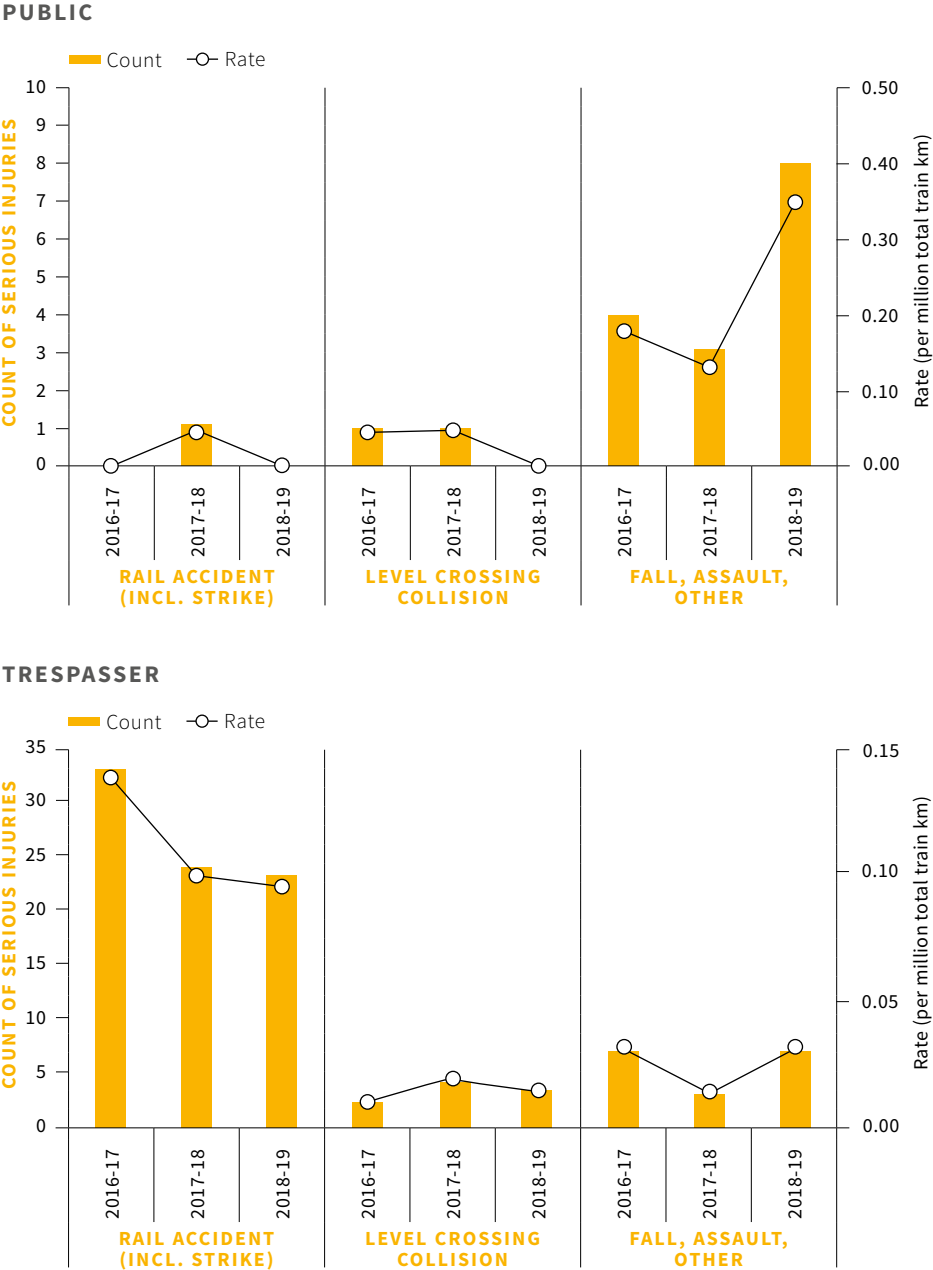
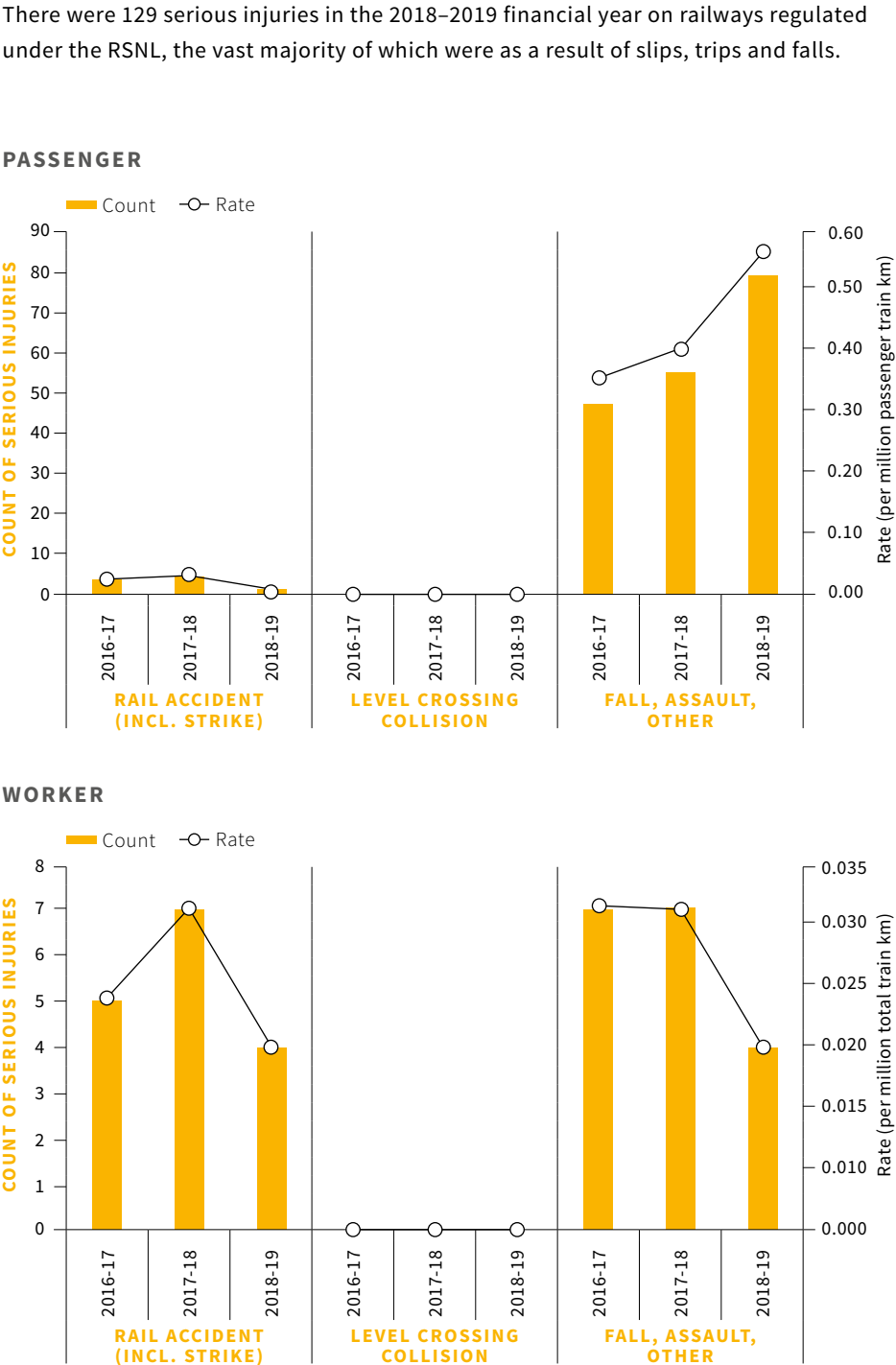


TABLE 3:  
SELECTED RAILWAY-RELATED SERIOUS  
INJURIES INVOLVING PASSENGERS,  
WORKERS AND MEMBERS OF THE  
PUBLIC, JULY 2018 TO JUNE 2019

Railway operations regulated under  
the RSNL.

DATE	DESCRIPTION	LOCATION
10/07/2018	A contractor working inside the rail corridor sustained a crush injury to their finger while using machinery.	Eden Hills, SA
15/07/2018	A passenger was seriously injured after falling from a train while disembarking at a station.	Blacktown, NSW
20/07/2018	A contractor sustained a serious hand injury while using cutting equipment.	Penrith, NSW
23/07/2018	A person was seriously injured after falling off a station platform onto the track.	Oats Street, WA
1/08/2018	A person was seriously injured after falling down stairs inside a train while it was stopped at a station.	Gymea, NSW
26/10/2018	While boarding a train a passenger fell between the train and station platform resulting in serious leg injuries.	Circular Quay, NSW
14/12/2018	A passenger of a road vehicle was seriously injured following a collision with a freight train at a level crossing protected by stop signs. The driver of the road vehicle was fatally injured.	Euabalong West, NSW

TABLE 3:

(Continued)

DATE	DESCRIPTION	LOCATION
25/02/2019	During a shunting movement, an empty passenger train collided with rail baulks resulting in a derailment. The driver sustained serious injuries and was taken to hospital.	Newport, Vic.
28/02/2019	A rail safety worker was seriously injured after falling from rolling stock.	Gembrook, Vic.
20/04/2019	A passenger was seriously injured after falling while attempting to board a train that was departing the station.	Heatherdale, Vic.
5/05/2019	A contractor sustained a serious hand injury while using cutting equipment.	Flashbutt Welding Yard, WA
17/05/2019	A person sustained serious injuries after colliding with the side of a train as it approached a station.	Trinder Park Station, Qld.
18/05/2019	A person in a mobility device was seriously injured after falling off the edge of a station platform.	Armadale Station, WA

➤ Passenger Train Derailment

Passenger train derailment risk is characterised by rare events that have the potential to result in catastrophic outcomes, owing to the potentially large numbers of passengers exposed to harm.

There were four running line passenger train derailments in the 2018–2019 financial year on railways regulated under the RSNL, none of which involved commercial heavy rail passenger trains.

FIGURE 3:

PASSENGER TRAIN RUNNING LINE DERAILMENTS, JULY 2014 TO JUNE 2019

Rates available from 2015-16 only. Derailment rates are expressed using the respective train km for each sector. Includes derailments of passenger trains on non-running lines affecting the safety of running lines.

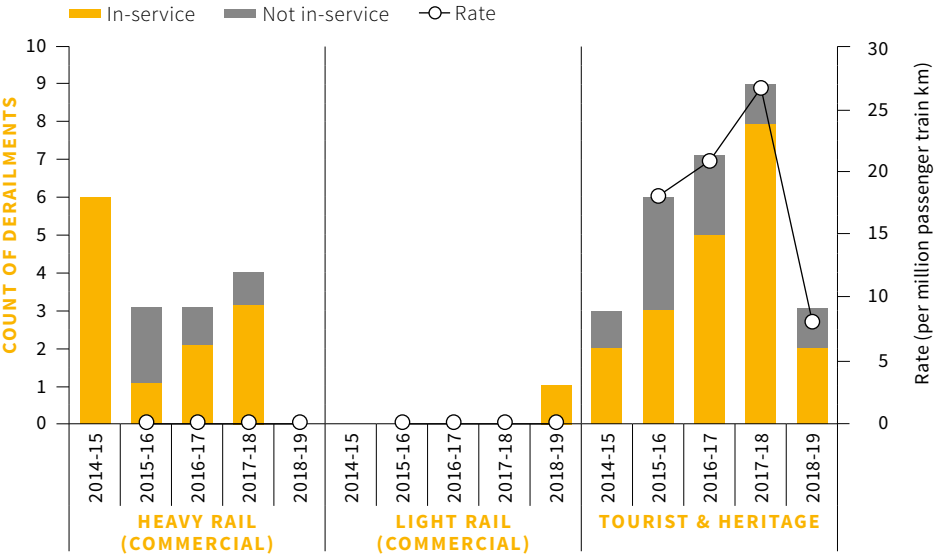


TABLE 4:

PASSENGER TRAIN RUNNING LINE DERAILMENTS, JULY 2014 TO JUNE 2019

Railway operations regulated under the RSNL. Includes derailments of passenger trains on non-running lines affecting the safety of running lines.

DATE	DESCRIPTION	LOCATION
29/09/2018	The carriages and locomotive of a passenger tourist and heritage train derailed. There were no reports of injuries.	Ida Bay, Tas.
21/12/2018	A passenger tram derailed while traversing a set of points. There were no reports of injuries.	Helensvale, Qld.
8/01/2019	One carriage of a tourist and heritage passenger train derailed. There were no reports of injuries.	Moonta, SA
11/04/2019	The lead bogie of a locomotive on a tourist and heritage passenger train derailed while traversing a set of points during a stabling movement. The train was not in-service and there were no reports of injuries.	Etheridge Railway Line, Qld.

TABLE 5:

PASSENGER TRAIN RUNNING LINE DERAILMENTS - AUSTRALIA, GREAT BRITAIN AND UNITED STATES

Heavy rail in-service passenger trains only, excluding tourist and heritage operations on isolated lines. Includes derailments on non-running lines affecting the safety of running lines.

A comparison of the rate of mainline passenger train derailments between ONRSR regulated railways and the mainline railways of GB and the US is summarised in Table 5. The ONRSR data in this table are a subset of the derailments summarised in Figure 3 to more closely align with overseas data definitions. They include derailments involving all in-service heavy rail passenger trains excluding those involving tourist and heritage passenger trains on isolated lines.

		2015-16	2016-17	2017-18	2018-19	4 YEAR
AUSTRALIA	Derailments	1	2	3	0	6
	Train Km (millions)	126.4	127.9	132.0	135.1	521.6
	Rate	0.008	0.016	0.023	0.000	0.012
GREAT BRITAIN	Derailments <sup>1</sup>	3	2	2	1	8
	Train Km (millions) <sup>2</sup>	521.8	520.9	520.2	529.3	2,092.2
	Rate	0.006	0.004	0.004	0.002	0.004
UNITED STATES	Derailments <sup>3</sup>	6	3	7	2	18
	Train Km (millions) <sup>3</sup>	174.9	179.9	182.8	183.7	721.2
	Rate	0.034	0.017	0.038	0.011	0.025

Sources:  
1 Office of Rail and Road, Data Portal, Table 5.26, Mainline derailments  
2 Office of Rail and Road, Data Portal, Table 12.13, Mainline passenger train km  
3 Federal Railroad Administration Office of Safety Analysis: online database query (accessed 17 October 2019) <http://safetydata.fra.dot.gov>

➤ Freight Train Derailment

Freight train derailment risk is generally observed to have a higher frequency of occurrence but a lower consequence of event when compared to passenger train derailment. However, derailments of freight trains still expose train crews, recovery teams and, depending on the location of the derailment, members of the public to potential harm.

There were 36 running line derailments involving freight trains in the 2018–2019 financial year. No injuries or fatalities were reported for any of these incidents. The number of derailments in 2018-2019 was the lowest of the five-year period which is an encouraging finding. However, further monitoring will be required to determine if this signals an improving trend in safety performance or simply reflects a chance event given the variable nature of the incident counts over time.

FIGURE 4:

FREIGHT TRAIN RUNNING LINE DERAILMENTS, JULY 2014 TO JUNE 2019

Rates are available from 2015-16 onwards. Includes derailments of freight trains on non-running lines affecting the safety of running lines. Excludes uncoupled rolling stock derailments such as those involving only light locomotives and wagons.

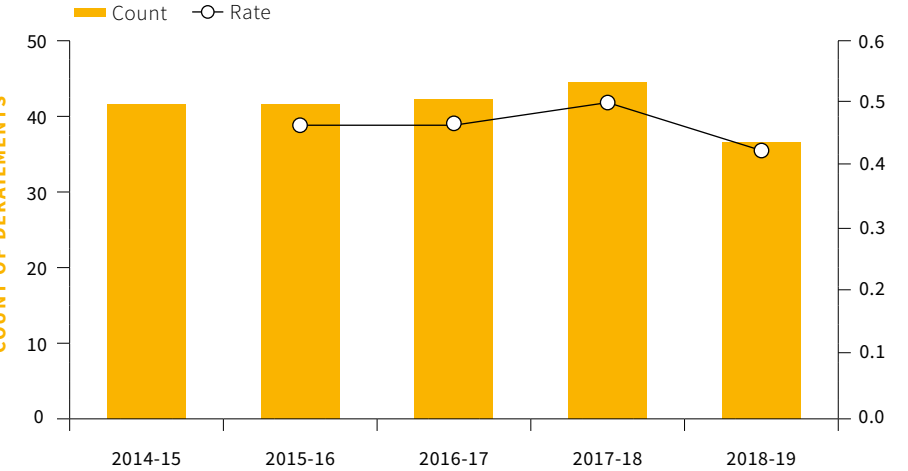




TABLE 6:  
SELECTED FREIGHT TRAIN RUNNING  
LINE DERAILMENTS, JULY 2018 TO  
JUNE 2019

Railway operations regulated under  
the RSNL.

DATE	DESCRIPTION	LOCATION
7/07/2018	Two locomotives and a wagon of a freight train derailed while traversing a set of points resulting in track damage. The drivers were reported to be shaken but not injured.	Oakey, Qld.
19/08/2018	Two locomotives and three wagons of a freight train derailed while traversing a set of points. There were no reports of injuries. There was significant damage to track and rolling stock.	Coonana, WA
21/09/2018	During loading a freight train ran away continuing through the mainline where it was routed into a siding to derail and stop. Two members of the public received minor injuries as a result of being struck by debris when the train derailed.	Devonport, Tas.
26/09/2018	A bogie on the wagon of a freight train derailed and was ejected onto the adjacent track into the path of an oncoming freight train which subsequently collided with the bogie. There were no reports of any injuries. Both trains sustained substantial damage.	Antienne, NSW
6/10/2018	Seven wagons of a freight train derailed resulting in track damage. There were no reports of injuries.	Dakenba, Qld.
5/11/2018	While a driver was inspecting a stopped freight train for a fault it ran away and travelled approximately 91km before it was routed at high speed through a turnout to derail and stop. The derailment resulted in significant damage to infrastructure and rolling stock. There were no reported injuries.	Newman, WA
6/01/2019	A wheel on the wagon of a freight train was found to have fractured resulting in a derailment. There were no reports of any injuries.	Nullarbor, SA
21/01/2019	One wagon of a freight train derailed resulting in substantial track damage and some damage to rolling stock. There were no reports of injuries.	Creighton, Vic.
25/01/2019	Six wagons of a freight train derailed resulting in damage to approximately 1km of track. There were no reports of injuries.	Katherine, NT
6/02/2019	The last six wagons of a freight train derailed while a train traversed a section of track under a temporary speed restriction. There were no reports of any injuries.	Baerami, NSW
16/02/2019	Twelve wagons of a freight train derailed. All dangerous goods on board were declared safe. There were no reports of injuries.	Kultanaby, SA
31/03/2019	Five wagons of a freight train derailed resulting in major damage to adjacent infrastructure.	Goulburn, NSW
7/06/2019	Bogies on two wagons of a freight train derailed resulting in track damage and some damage to station infrastructure. There were no reports of any injuries.	Junee, NSW

TABLE 7:  
FREIGHT TRAIN RUNNING LINE  
DERAILMENTS - AUSTRALIA, GREAT  
BRITAIN AND UNITED STATES

Includes derailments of freight trains on  
non-running lines affecting the safety of  
running lines. Excludes uncoupled rolling  
stock derailments such as those involving  
only light locomotives and wagons.

		2015-16	2016-17	2017-18	2018-19	4 YEAR
AUSTRALIA	Derailments	41	42	44	36	163
	Train Km (millions)	88.22	89.62	87.99	85.14	351.0
	Rate	0.465	0.469	0.500	0.423	0.464
GREAT BRITAIN	Derailments <sup>1</sup>	10	3	2	8	23
	Train Km (millions) <sup>2</sup>	34.88	33.98	32.88	33.6	135.4
	Rate	0.287	0.088	0.061	0.238	0.170
UNITED STATES	Derailments <sup>3</sup>	249	280	279	301	1,109
	Train Km (millions) <sup>3</sup>	811.7	813.5	808.3	806.8	3240.3
	Rate	0.307	0.344	0.345	0.373	0.342

Sources:  
1 Rail Safety and Standards Board, Annual Safety Performance Report 2018/19, RSSB, UK, 2019, Mainline derailments  
2 Office of Rail and Road, Data Portal, Table 13.25, Mainline freight train km  
3 Federal Railroad Administration Office of Safety Analysis: online database query (accessed 17 October 2019)  
<http://safetydata.fra.dot.gov>

## » Collision Between Trains and with Rolling Stock

FIGURE 5:  
RUNNING LINE COLLISIONS BETWEEN  
TRAINS AND WITH ROLLING STOCK,  
JULY 2014 TO JUNE 2019

Rates are available from 2015-16 onwards.  
Includes collisions on non-running lines  
affecting the safety of running lines. Excludes  
trains striking or being struck by out of gauge  
equipment on trains on adjacent lines. Rates  
are expressed using total km for the sectors  
represented in each reporting category.

Collisions between trains and with rolling stock have the potential to be catastrophic rail safety events. The likelihood and consequences of collisions vary according to factors such as the systems used to manage train movement (for example, signal-based, train order working), the types of trains involved and the speed the trains were travelling at the time of the collision. A major determinant of risk is the involvement of a passenger train because of the potential exposure of large numbers of passengers to harm.

There were four running line collisions involving rolling stock in the 2018–2019 financial year on railways regulated under the RSNL. No injuries or fatalities were reported for any of these incidents.

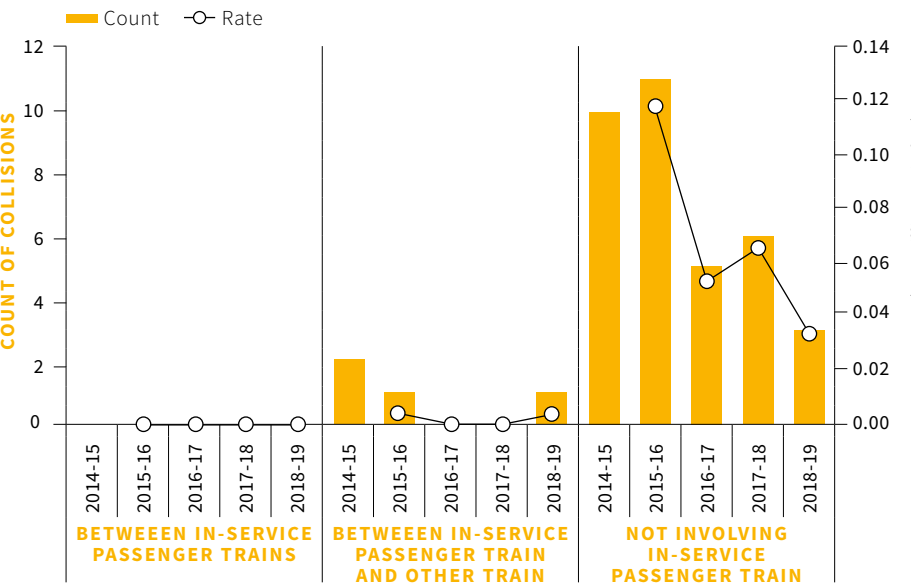


TABLE 8:  
RUNNING LINE COLLISIONS BETWEEN  
TRAINS AND WITH ROLLING STOCK,  
JULY 2018 TO JUNE 2019

Railway operations regulated under the  
RSNL. Includes collisions on non-running  
lines affecting the safety of running lines.  
Excludes trains striking or being struck  
by out of gauge equipment on trains on  
adjacent lines.

DATE	DESCRIPTION	LOCATION
26/09/2018	A bogie on the wagon of a freight train derailed and was ejected onto the adjacent track into the path of an oncoming freight train which subsequently collided with the bogie. There were no reports of any injuries. Both trains sustained substantial damage.	Antienne, NSW
29/09/2018	A support road rail vehicle collided with a stationary tourist and heritage passenger train at low speed. There were no reports of injuries.	Monkland, Qld.
14/11/2018	While shunting wagons in a loop a wagon ran away a short distance, running through a set of points and colliding with a stationary locomotive. There were no reports of injuries.	Leightonfield, NSW
20/03/2019	A reported brake failure led to a collision between a freight train and a stationary rake of 26 wagons at a speed of approximately 20 km/h. The collision resulted in the derailment of two wagons and the lead axle of the locomotive.	Watheroo, WA

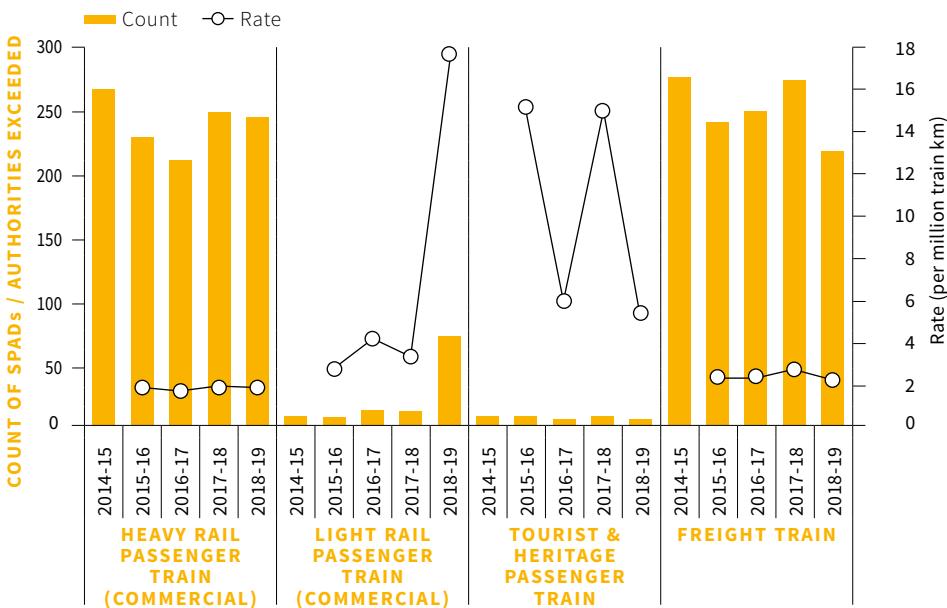
➤ Signal Passed at Danger / Authority Exceeded

Instances of trains exceeding the limit of their authorised movement are considered important precursors to collisions and derailments. On signalled systems these occurrences are notified as a signal passed at danger without authority (SPAD).

The 2018–2019 increase in light rail authority exceedances depicted in Figure 6 is largely explained by the testing and commissioning of new light rail networks, the expansion of existing networks, and the introduction of new reporting requirements, which came into effect on 1 July 2018.

**FIGURE 6:**  
**SIGNALS PASSED AT DANGER / AUTHORITIES EXCEEDED – ALL TRAIN TYPES, JULY 2014 TO JUNE 2019**

Data shown is for occurrences classified as sub-category SPAD A1: Limit of authority missed by train crew, LRTAE A2: Light rail / tram signal passed without authority, and LRTAE A4: Limit of authority missed by light rail / tram crew. Rates are available from 2015-16 and are expressed using train km for the sectors represented in each reporting category.



➤ Other Noteworthy Occurrences

**TABLE 9:**  
**OTHER NOTEWORTHY OCCURRENCES, JULY 2018 TO JUNE 2019**

Railway operations regulated under the RSNL.

DATE	DESCRIPTION	LOCATION
11/07/2018	A wrong side failure involving a signalling system was reported.	Saraji, Qld.
19/07/2018	While a worker was cleaning underneath a train in a wash facility the train was moved a short distance. There were no reports of injuries.	South Dynon, Vic.
18/08/2018	An open door on a freight wagon collided with overhead electrical infrastructure resulting in dewirement.	Cooroy, Qld.
13/09/2018	Two workers were reportedly observed riding on a component of a ballast train while travelling at high speed. The movement was stopped.	Mambray Creek, SA
22/09/2018	A passenger train passed through a level crossing protected by lights and boom gates which failed to operate.	Colac, Vic.
23/09/2018	A signalling irregularity was identified after a signal indication for a route did not match the position of a set of points.	Eagle Junction, Qld.
15/10/2018	Several wrong side failures involving trainstops were identified and rectified.	South Yarra, Vic.
19/10/2018	A wrong side failure involving a signalling system and train identification was reported.	Cannington, WA
30/10/2018	A worker was between rolling stock when a driver commenced a shunting movement without signals or communication from the worker.	Newport, Vic.
9/11/2018	A three-car set of a six-car passenger train parted while in service and the emergency brake did not activate as designed. There were no reports of injuries.	Croydon, Vic.
23/11/2018	A side panel on a wagon of a freight train became out of gauge and collided with the side of a passenger train. There were no reports of injuries but minor damage to the passenger train.	Maitland, NSW
3/01/2019	A wrong side failure involving a signalling system that resulted in train control being unable to call signals was reported.	Tom Price, WA

**TABLE 9:**  
(CONTINUED)

DATE	DESCRIPTION	LOCATION
8/01/2019	A passenger train passed through a level crossing without the active level crossing protection activating. There were reports of road vehicles in the vicinity of the crossing.	North Geelong, Vic.
10/02/2019	One of the locomotives of a freight train stalled while travelling through a tunnel resulting in the train heading backwards by approximately 500 metres before coming to a stop.	Ardglen, NSW
1/03/2019	A freight train passed a series of signals at danger by approximately 1km. The train was stopped approximately 3km away from an opposing freight train.	Wagga Wagga, NSW
25/03/2019	A passenger train passed a signal at danger which was displaying a red aspect to allow another passenger train to pass through a station on a parallel line.	Brisbane, Qld.
5/05/2019	A wrong side failure of level crossing boom gates was reported during the passage of a tourist and heritage passenger train. There was no road traffic reported in the vicinity at the time.	Selby, Vic.
28/05/2019	A track maintenance worker discovered a section of track that had reportedly been intentionally altered to make it unsafe. Police commenced an investigation and the track was repaired.	Orange, NSW
10/06/2019	A passenger train passed a signal at danger by approximately 300 metres and proceeded into a siding.	Gunnedah, NSW
23/06/2019	While a worker was inspecting rolling stock couplers at a maintenance depot a driver commenced a movement resulting in a near miss.	Perth, WA

➤ Incident Response

ONRSR is structured and geographically located to ensure it can respond efficiently to rail safety incidents across Australia such as those summarised in this report. It has a variety of different regulatory tools at its disposal that are used to respond to incidents in the most appropriate manner.

Individual incidents are generally managed at a local level by ONRSR rail safety officers. Officers ensure they obtain and analyse all information available regarding the circumstances of an incident - including the review of the rail transport operator’s response. This information may be gathered using statutory notices compelling rail transport operators to provide information related to the incident. This is done to examine if the rail transport operator has demonstrated an understanding of the factors that led to the incident and that actions have been taken to give confidence that a similar incident is unlikely to occur again. If the information obtained and analysed raises concerns the issue may be escalated to a formal investigation into a potential breach of the RSNL.

ONRSR continuously monitors the data collected in relation to rail safety incidents and if concerning trends are identified there are a range of different responses. These include education and targeted regulatory activities to assist rail transport operators to improve safety performance and comply with the legislation.

Education is a valuable instrument to raise industry awareness of information regarding safety issues that exist or are emerging within the rail industry.

Regulatory activities such as audits, inspections and site visits are used to directly monitor specific safety issues or scrutinise how individual operators are addressing highlighted concerns.



# National Priorities





## A NATIONAL PRIORITY FOR ONRSR IS DEFINED AS A RAIL SAFETY AREA OF REGULATORY FOCUS THAT APPLIES TO MULTIPLE JURISDICTIONS AND OPERATORS AND WARRANTS A SUSTAINED PERIOD OF REGULATORY ATTENTION.

ONRSR targets its priority areas using tailored regulatory solutions, typically through operator-centric national compliance projects or industry-wide, education-focused safety improvement projects.

This section of the report introduces ONRSR's updated set of national priorities for 2020 and provides analysis of the most recent set encompassing: track worker safety, level crossing safety, tourist and heritage sector safety management capability and road rail vehicle safety.

There are more than 23,000 level crossings<sup>5</sup> in Australia many of which involve interactions between rail operations, road traffic, cyclists and pedestrians every minute of every day. At all of these level crossings there exists a level of risk to safety – indeed, other than suicide and trespass, accidents at level crossings are the primary cause of railway related fatalities among the general public.

All rail safety stakeholders, including the general public, have a role to play in improving safety at level crossings and ONRSR continues to advocate for co-operation between all parties that will ultimately help reduce the rate of fatalities and serious injuries associated with collisions. ONRSR also continues to be fully supportive of the work being done by government and industry to remove level crossings and to commit to a policy of no new level crossings unless totally unavoidable.

Furthermore, in 2018–2019 the RSNL provisions that require rail transport operators and road managers to enter into interface agreements to manage the safety risks at crossings were strengthened. From 1 July 2019 a penalty was introduced for public road managers who breach their interface management requirements - to align with the already existing penalty for rail infrastructure managers who breach their requirements. Currently 58% of the required interface agreements across Australia are in place and ONRSR is continuing to work with both rail infrastructure managers and road managers to ensure the remainder are progressed as soon as possible.

ONRSR also continued to enhance the quality and analysis of level crossing-related occurrence data reports it provides to state-based level crossing committees to optimise their decision-making capability. At the same time ONRSR is working closely with these bodies, the TrackSAFE Foundation and the National Heavy Vehicle Regulator in a bid to address the specific issues and risks presented by interactions between trains and heavy road vehicles.

The ONRSR safety improvement project, designed to further support industry and government to promote improvements in national level crossing safety and to make more data available to stakeholders, is being developed for delivery in 2020.

## Level Crossing Safety

### Level crossing equipment failures and defects

ONRSR was notified of 173 unsafe level crossing equipment failures and defects during 2018–2019. ONRSR's risk-based analysis of these occurrences is presented in Figure 9 in accordance with the following criteria:

**High risk** – An equipment failure or defect resulting in:

- > complete failure of active warning devices;
- > late activation of warning devices; or
- > premature deactivation of warning devices.

**Medium risk** – An equipment failure or defect resulting in:

- > failure of road boom(s) to fully lower but other active warning devices operational; or
- > failure of pedestrian gate(s) to close or boom(s) to lower.

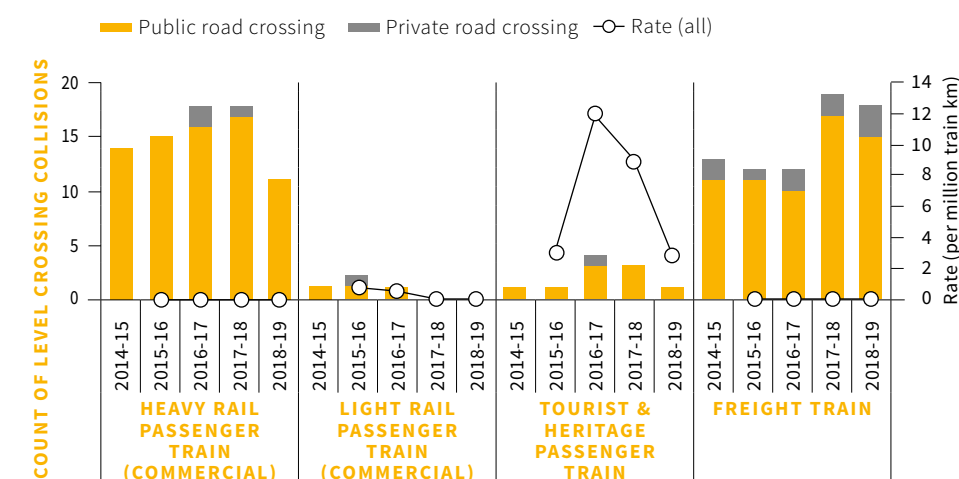
**Low risk** – An equipment failure or defect resulting in:

- > partial failure of flashing lights (individual lamp failures);
- > failure of audible warning devices (bells, sirens);
- > damaged / missing passive warning devices (e.g. signs);
- > defective locking mechanism on emergency escape gates; or
- > failure of pedestrian don't walk warning light(s).

FIGURE 7:

### LEVEL CROSSING COLLISIONS BETWEEN TRAIN AND ROAD VEHICLE, JULY 2014 TO JUNE 2019

Rates are available from 2015-16 onwards and are expressed using train km for the sectors represented in each reporting category. Private or public road crossing access is determined using ALCAM data where available. Where this is not available a determination has been made based on the information provided by the notifying operator.

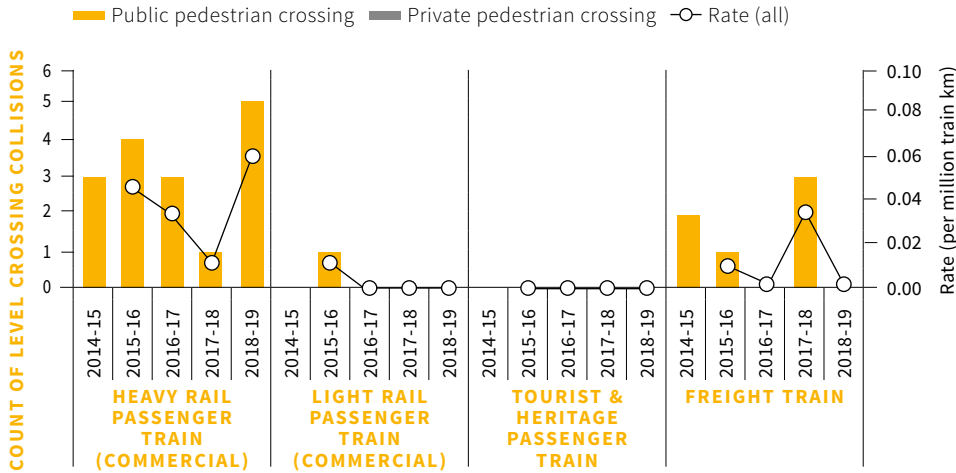


<sup>5</sup> Rail Industry Safety and Standards Board, Level Crossing Stocktake, RISSB, Canberra, May 2009



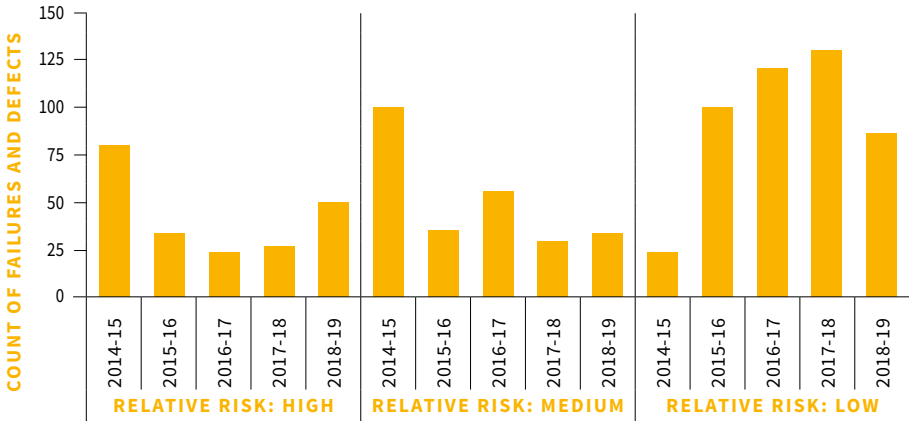
**FIGURE 8:**  
**LEVEL CROSSING COLLISIONS BETWEEN TRAIN AND PERSON, JULY 2014 TO JUNE 2019**

Rates are available from 2015-16 onwards and are expressed using train km for the sectors represented in each reporting category. Private or public crossing access is determined using ALCAM data where available. Where this is not available a determination has been made based on the information provided by the operator.



**FIGURE 9:**  
**UNSAFE LEVEL CROSSING EQUIPMENT FAILURES AND DEFECTS, JULY 2014 TO JUNE 2019**

Data shown is for occurrences classified as sub-category Level Crossing Equipment Failure/Defect and includes only those failures and defects that resulted in the level crossing failing in such a way that it does not provide the intended level of protection to users of the crossing.



**TABLE 10:**  
**SELECTED LEVEL CROSSING COLLISIONS, JULY 2018 TO JUNE 2019**

Railway operations regulated under the RSNL.

DATE	DESCRIPTION	LOCATION
5/10/2018	A road vehicle collided with a passenger train at a level crossing protected by lights. The two occupants of the road vehicle were airlifted to hospital with serious injuries.	Bairnsdale, Vic.
14/12/2018	The driver of a road vehicle was fatally injured following a collision with a freight train at a level crossing protected by stop signs. A passenger in the road vehicle sustained serious injuries.	Euabalong West, NSW
23/12/2018	A passenger train collided with an emergency services vehicle at a level crossing protected by lights and boom gates. There were no reports of injuries.	Prahran, Vic.
3/01/2019	A road vehicle collided with a freight train at a level crossing protected by give way signs. There were no reports of injuries. The road vehicle was severely damaged.	Southbrook, Qld.
7/01/2019	A road vehicle collided with a freight train passing through a level crossing protected by give way signs. The driver of the road vehicle was taken to hospital for treatment of a minor injury.	Between Wagin and Newdegate, WA.
13/02/2019	A road vehicle collided with a freight train at a level crossing protected by lights. The driver of the road vehicle was treated for minor injuries.	Crystal Brook, SA
4/03/2019	A road vehicle collided with a freight train passing through a level crossing protected by lights. There were no reports of injuries.	Kwinana, WA
19/03/2019	A member of the public in a mobility scooter sustained fatal injuries after falling from their vehicle and being struck by a train while crossing a pedestrian crossing protected by gates and an audible alarm.	Moe, Vic.

**TABLE 10:**  
**(CONTINUED)**

DATE	DESCRIPTION	LOCATION
27/03/2019	A tourist and heritage train collided with a road vehicle at a level crossing protected by lights. The driver of the road vehicle was treated by emergency services for serious injuries. There were no other reports of injuries.	Cairns North, Qld.
28/03/2019	The occupant of a motor vehicle was fatally injured following a collision with a freight train at a level crossing protected by stop signs.	Grafton, NSW
20/05/2019	A road vehicle collided with a freight train at a level crossing protected by flashing lights. There were no reports of injuries. The road vehicle was severely damaged.	Spreyton, Tas.
22/05/2019	A truck collided with a freight train at a level crossing protected by lights. The driver of the truck received minor injuries.	Warwick, Qld.
26/05/2019	The occupant of a motor vehicle was fatally injured following a collision with a freight train at a level crossing protected by stop signs.	Bellata, NSW
20/06/2019	A passenger train collided with a person at a pedestrian crossing with passive protection.	Black Forest, SA

## Track Worker Safety

ONRSR’s aim has been to heighten the awareness of track worker safety to both industry and workers alike by increasing its presence in the field, challenging operators to demonstrate their commitment through training, monitoring, review and enforcement activities, and by running a theatre-based safety improvement program for frontline workers.

Following its adoption as a national priority, and an initial focus on worker competency and safety critical communications, ONRSR shifted the scope of its work relating to track worker safety. Over the last 2 years an emphasis has been placed on the collection of better incident data from operators, exploring innovative options for promoting and improving track worker safety, and on the performance of specific compliance activities such as:

- > confirming the validity of the information provided at the time of occurrences;
- > conducting both planned and unplanned visits to active work sites to review protection arrangements and worker competencies; and
- > conducting planned visits to retrospectively review protection arrangements taken out for unplanned and/or emergency work.

In addition to the compliance activities, ONRSR has delivered a safety improvement program to over 250 frontline staff and supervisors in eight different locations across Australia. This program involved a series of interactive, theatre-based workshops in which professional actors explored a rail industry-specific scenario and the impacts on a track worker when something goes terribly wrong. Key take outs from the workshops were critical safety messages, tools to assist in having difficult conversations and personal commitments to change for the better.

Throughout 2018–2019 ONRSR issued two Prohibition Notices, two Improvement Notices and 10 Non-Conformance Reports (NCRs) while a further 19 Observations were made in relation to track worker safety activities.

The seriousness with which ONRSR takes the issue of track worker safety was evidenced with the successful prosecution in 2019 of a rail transport operator for breaches of the RSNL that had resulted in the death of a track worker in New South Wales.

It is clear that sustained vigilance is required by ONRSR and operators and in recognition of this the issue of track worker safety will continue to remain a national priority for ONRSR throughout 2020. ONRSR’s national work program will feature a renewed emphasis on a track worker safety inspection regime that includes planned and unplanned inspections, coordinated and concentrated ‘special event’ activities and audits.

In the data realm ONRSR is now seeking further information from operators in the event of a rule or procedure breach during track work using additional reporting fields as part of normal occurrence reporting protocols via the ONRSR Portal. These improvements to the collection and collation of data will enable ONRSR to better understand the nature of breaches, the protection methods in place, identify trends and optimise the effectiveness of future regulatory activities.

ONRSR is also exploring further the measures available to reduce risks to track workers by discussing with operators what new technologies, such as engineering solutions, are being considered and if human factors and the effect they have on compliance at work sites is being studied.

The rate of occurrences remains a significant concern and along with all operators ONRSR must continue to do everything in its power to protect the lives of track workers.

### Track worker fatality - Sydney Trains prosecution

**Under RSNL ONRSR has a range of compliance and enforcement tools at its disposal, ranging from education and advice through to the revocation and suspension of accreditation.**

Among these tools is the ability to prosecute rail transport operators for breaches of the RSNL. ONRSR does not take lightly the decision to use this power but doesn’t hesitate to do so if such action is the correct regulatory response and has the ability to deliver the best possible rail safety outcome.

In 2019 ONRSR brought two charges against Sydney Trains in relation to an incident that resulted in the death of a rail safety worker at Clyde, NSW in June 2016.

On 2 September 2019, Sydney Trains pleaded guilty to the two charges (a Works Charge and a Preparation Charge) relating to a failure to comply with safety duty pursuant to section 59 of the RSNL.

In relation to the Works Charge, Sydney Trains was fined \$500,000, with the penalty reduced by 25% in recognition of the guilty plea. In relation to the Preparation Charge, Sydney Trains was fined \$200,000, with the penalty also reduced by 25%. The total fine payable was \$525,000 with 50% payable to ONRSR (in accordance with section 260A of the RSNL) to be used for safety improvement projects to benefit the rail industry and enhance rail safety generally. The other 50% goes to consolidated revenue of the jurisdiction in which the matter was heard - in this case New South Wales.

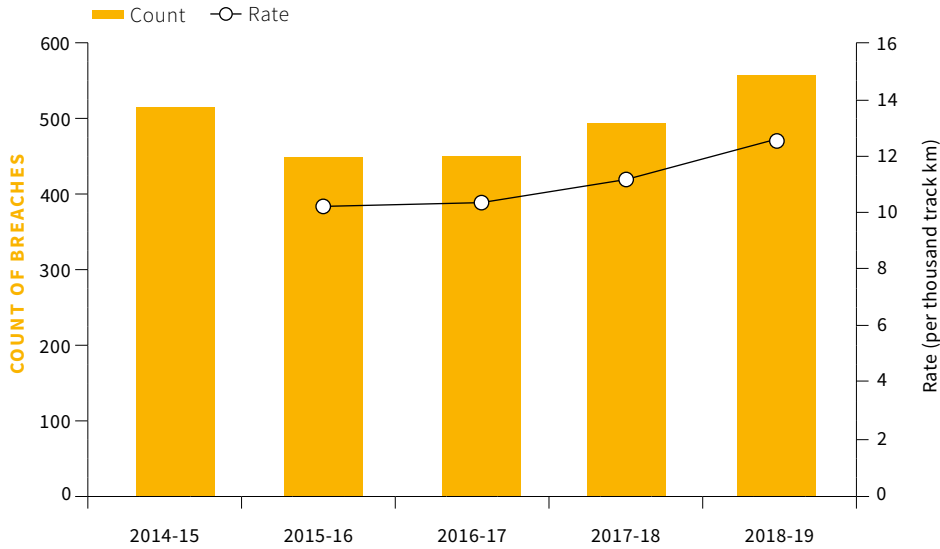
In summing up His Honour, Judge Russell SC said of the penalty, “Rail operators must take the obligations imposed by the Law very seriously. The community is entitled to expect that rail operators will comply with safety requirements. The offender is still a major rail transport operator. Its operations involve the continuing engagement of thousands of workers, in an environment which is extremely dangerous unless safety is paramount”.

The Court also noted that “It is hoped that the significant improvements in rail safety made by Sydney Trains as a result of this incident will mean that no family is ever put through that trauma again.”



**FIGURE 10:**  
**TRACK WORK SAFEWORKING RULE AND PROCEDURE BREACHES, JULY 2014 TO JUNE 2019**

Rates are available from 2015-16 onwards.



**TABLE 11:**  
**SELECTED TRACK WORK SAFEWORKING RULE AND PROCEDURE BREACHES, JULY 2018 TO JUNE 2019**

Railway operations regulated under the RSNL.

DATE	DESCRIPTION	LOCATION
3/07/2018	The driver of a train reported a near miss with workers conducting a track inspection while using Lookout Working.	Illawarra, NSW
6/08/2018	A protection officer reported a group of contractors working at an adjacent worksite within the danger zone without any form of protection. The worksite paperwork stated the site was outside of the danger zone.	Belmore, NSW
25/08/2018	The driver of a freight train reported a near miss with a group of six workers on track reportedly without any form of protection.	Jindalee, NSW
2/09/2018	A train was allowed to enter the limits of a worksite being protected by a Track Work Authority before all workers were in a safe place. There were no reports of injuries.	Blackheath, NSW
8/09/2018	The drivers of two trains reported a near miss with a worker on live track inside a tunnel.	Green Square, NSW
13/09/2018	Two workers were reportedly observed riding on a component of a ballast train while travelling at high speed. The movement was stopped.	Mambray Creek, SA
3/10/2018	A series of safeworking breaches enabled track machines to enter a worksite without the knowledge of the work permit owner. The worksite did not have adequate protection.	Newport, Vic.
15/11/2018	A protection officer gave an all clear white flag signal to an approaching train while a worker was still on track.	Hallett Cove, SA
4/12/2018	Workers on track using Lookout Protection did not spot an oncoming road rail inspection vehicle which managed to stop just prior to the worksite.	Northam, WA
6/12/2018	A tram entered a worksite where a Track Occupancy Authority and electrical isolation were in place. There were no stop boards in place.	Adelaide, SA
13/01/2019	A loaded freight train was authorised to enter a section of track that was occupied by a road rail vehicle undertaking work.	Bow, WA
19/02/2019	A Track Occupancy Authority had been suspended however a worker was on track working on a set of points.	Westwood, Qld.
7/03/2019	Two work groups working inside the limits of a Track Occupancy Authority suspended the authority to allow the passage of a train. However, only one work group was clear of the track. The second work group was able to clear before the train arrived.	Pomona, Qld.
12/06/2019	A train on approach to a bridge reported a near miss with a worker on an elevated work platform in the danger zone.	Blackwater, Qld.

## » Tourist and Heritage Sector, Safety Management Capability

Every year tens of thousands of people place their trust in the safe operation of over 70 tourist and heritage railways. Within this sector of the industry there is a significant diversity of operations overseen by a largely volunteer-based workforce with varying degrees of expertise and experience in the railway environment. ONRSR is acutely aware of the challenges facing tourist and heritage operators and of the increased risk associated with carrying such a volume of passengers and throughout 2018–2019 has taken significant steps in the roll out of a dedicated safety improvement program.

The first element of the Tourist and Heritage Sector – Safety Management Capability Program was a series of workshops ONRSR held across Australia. The workshops were designed to help all rail safety workers in the tourist and heritage industry maximise their focus on key issues such as risk management and safety culture. In support of the workshops ONRSR’s Chief Executive and Australia’s National Rail Safety Regulator, Sue McCarrey also held discussions with representatives of boards and/or senior management who are responsible for safety governance and leadership within the tourist and heritage operation.

Collectively these sessions were an invaluable opportunity to share insights, ideas, questions and answers and saw both ONRSR and industry representatives gain from the experience and strengthen the relationship between all parties in the process.

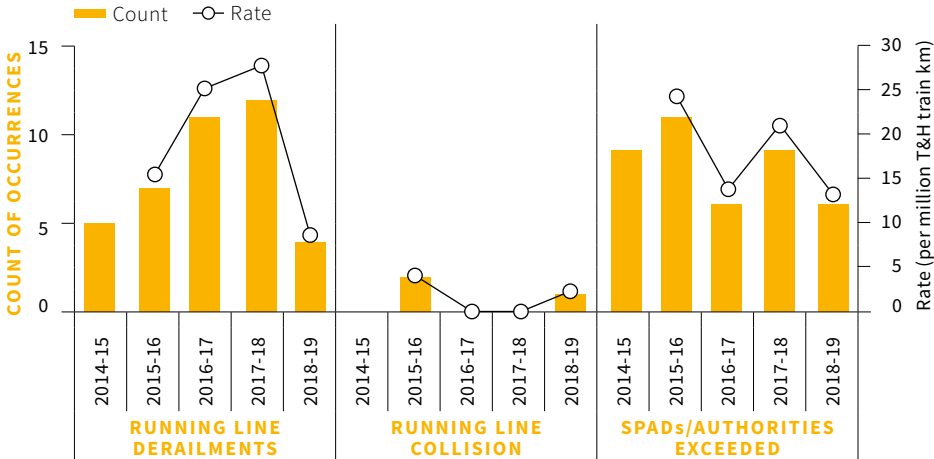
Complementing this personal interaction was the production of ONRSR’s first education and training video, Tourist and Heritage Railways – Know the Risks. Filmed with the help of a range of tourist and heritage operators from around the nation, the production is aimed at senior management and/or board members of tourist and heritage operators. It is designed to help these responsible stakeholders to learn and pass on, to all who work in this sector, the fundamentals of safe operations by honing the message that the safety of operators’ people, customers, infrastructure and the community is a continuous journey. ONRSR has worked with the Association of Tourist and Heritage Rail Australia (ATHRA) to distribute this new resource across the sector.

These initiatives come in addition to an increasing focus on the provision of safety education, advice and support by ONRSR’s rail safety officers in the field through whom ONRSR will continue to encourage tourist and heritage operators to tailor risk management controls and safety management systems to the scope and nature of their operation.

In the future ONRSR will continue to work with ATHRA to produce specific material to assist the sector including an induction program for new volunteers, modules to assist in the development and management of their safety management system and other guidelines specifically focused on the requirements of the tourist and heritage operators.

**FIGURE 11:**  
**OCCURRENCES INVOLVING TOURIST AND HERITAGE OPERATORS, JULY 2014 TO JUNE 2019**

Rates are available from 2015-16 onwards. SPAD / Authority Exceeded occurrences are those classified as sub-category SPAD A1: Limit of Authority (LOA) Missed by Train Crew, LRTAE A2: Light Rail/Tram Signal Passed Without Authority and LRTAE A4: Limit of Authority Missed by Light Rail/Tram Crew classifications only.



**TABLE 12:**  
**SELECTED OCCURRENCES INVOLVING TOURIST AND HERITAGE OPERATORS, JULY 2018 TO JUNE 2019**

Railway operations regulated under the RSNL.

DATE	DESCRIPTION	LOCATION
29/09/2018	A support road rail vehicle collided with a stationary tourist and heritage passenger train at low speed. There were no reports of injuries.	Monkland, Qld.
29/09/2018	The carriages and locomotive of a passenger tourist and heritage train derailed. There were no reports of injuries.	Ida Bay, Tas.
6/10/2018	During the operation of a tourist and heritage train a coupler opened resulting in the parting of the train. There were no reports of injuries.	Gembrook, Vic.
8/01/2019	One carriage of a tourist and heritage passenger train derailed. There were no reports of injuries.	Moonta, SA
15/01/2019	A road rail support vehicle passed a signal at danger and proceeded through a level crossing before the boom gates had fully lowered.	Belgrave, Vic.
7/02/2019	A tourist and heritage train reported a near miss with a passenger bus and trailer at a level crossing protected by lights. There was also reports of a traffic controller in place at the location with a stop sign for road traffic.	Menzies Creek, Vic.
28/02/2019	A rail safety worker was seriously injured after falling from rolling stock.	Gembrook, Vic.
1/03/2019	The operator of a road rail vehicle reported a near miss with two passenger buses at a level crossing protected by lights.	Menzies Creek, Vic.
27/03/2019	A tourist and heritage train collided with a road vehicle at a level crossing protected by lights. The driver of the road vehicle was treated by emergency services for injuries. There were no other reports of injuries.	Cairns North, Qld.
31/03/2019	A tourist and heritage train reported a near miss with a passenger bus at a level crossing protected by lights.	Menzies Creek, Vic.
11/04/2019	The lead bogie of a locomotive derailed while traversing a set of points during a stabling movement. There were no reports of injuries.	Etheridge Railway Line, Qld.
5/05/2019	A wrong side failure of level crossing boom gates was reported during the passage of a passenger tourist and heritage train. There was no road traffic reported in the vicinity at the time.	Selby, Vic.
20/06/2019	A carriage of a tourist and heritage train uncoupled from the locomotive on approach to a station. There were no reports of any injuries.	Gembrook, Vic.

## » Road Rail Vehicle Safety

The desire to improve the rail industry's safety performance in relation to the use of Road Rail Vehicles (RRVs) has been a goal for ONRSR since its inception in 2013, at a time when several serious RRV incidents occurred - some with fatal consequences. A little more than five years on it is pleasing to note the significant progress made by ONRSR in pursuit of that ambition through a combination of safety campaigns, the development of education and guidance resources and, more recently, targeted regulatory activities. In addition to the specific removal from the network of friction drive RRVs without independent braking controls, operators generally have taken steps to do away with obsolete equipment. Importantly it can also be noted that these same operators are investing in improved equipment and generally now have sound approval processes and high quality supporting procedures in place.

Latterly, ONRSR has shifted the focus of its RRV priority program to address growing concerns that the maintenance regimes associated with vehicles owned by contractors were substandard when compared to those owned by rail infrastructure managers (RIM) themselves. This phase of the project focused on each RIM's processes of planning, risk assessment and auditing to ensure they maintained effective management and control of RRV operations on their networks and that RRVs with access to their networks were certified in accordance with relevant standards.

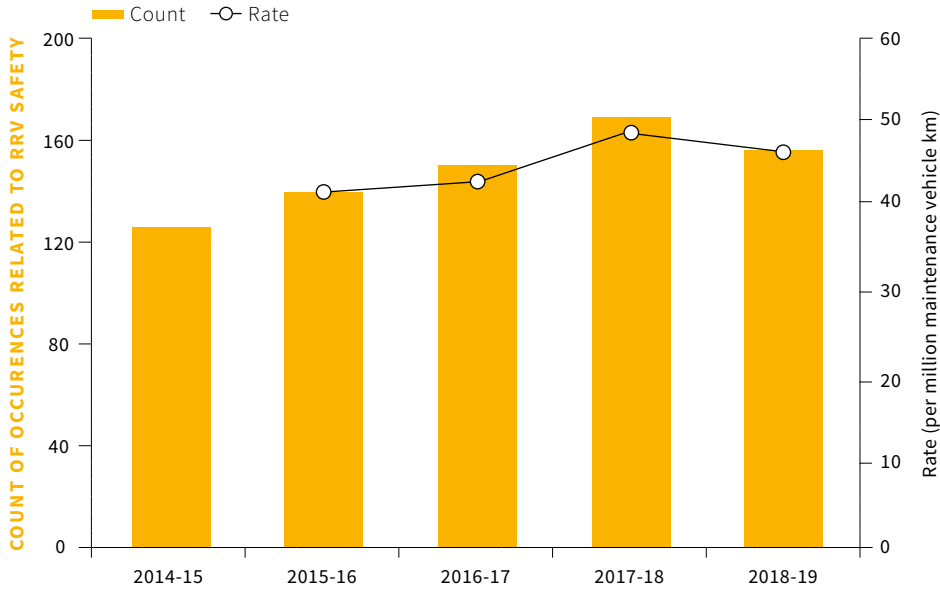
Similarly positive results have flowed from this work, which saw some of the largest RIMs in the country audited. Many indicated their appreciation of the project by engaging actively with ONRSR to share initiatives already being undertaken to improve the effective management of RRV operations on their networks. A total of 20 NCRs were issued and 55 Observations were made during the process with all having now been responded to with an appropriate corrective action plan.

While ONRSR will continue to monitor RRV-related occurrences to identify any adverse trends, following these positive developments it has been decided that the ongoing regulatory approach to the operational management of RRVs will be incorporated into the existing ONRSR work program and become a business as usual activity. ONRSR encourages all operators and contractors that use RRVs to remain vigilant in overseeing the safe and responsible use of this equipment at all times.



**FIGURE 12:**  
**OCCURRENCES RELATED TO ROAD RAIL VEHICLE SAFETY, JULY 2014 TO JUNE 2019**

Rates are available from 2015-16 onwards. Occurrences involving operators that do not currently report maintenance vehicle km are excluded from the rate calculation.



**FIGURE 13:**  
**SELECTED OCCURRENCES RELATED TO ROAD RAIL VEHICLE SAFETY, JULY 2018 TO JUNE 2019**

Railway operations regulated under the RSNL.

DATE	DESCRIPTION	LOCATION
3/07/2018	A road rail vehicle derailed on the running line. There were no reports of injuries.	Between Kalgoorlie and Leonora, WA
14/07/2018	A support road rail vehicle operating in a worksite inside a tunnel lost traction and collided with another road rail vehicle. A worker sustained a minor leg injury while moving to a place of safety.	Sydney, NSW
20/11/2018	An operator of a road rail vehicle passed a signal at danger and exceeded a limit of authority by approximately 1km.	Wirraminna, SA
15/01/2019	A road rail support vehicle passed a signal at danger and proceeded through a level crossing before the boom gates had fully lowered.	Belgrave, Vic.
1/03/2019	The operator of a road rail vehicle reported a near miss with two passenger buses at a level crossing protected by lights.	Menzies Creek, Vic.
9/03/2019	A road rail vehicle derailed on the running line while travelling at approximately 35km/h. There were no reports of injuries or damage to track and some damage to the vehicle.	Between Berrybank and Tooli, Vic.
1/04/2019	Two road rail vehicles were travelling in convoy. The front vehicle stopped however the trailing vehicle was not able to stop prior to colliding with the rear of the vehicle in front. There were no reports of injuries. There were reports of some damage to the vehicles.	Between Northgate and Berrimah, NT
17/04/2019	Two road rail vehicles were travelling in convoy when the trailing vehicle collided with the rear of the front vehicle. There were no reports of injuries but some damage to the vehicles.	Warnambool, Vic.
25/06/2019	A road rail vehicle was on approach to a level crossing protected by stop signs when a road vehicle failed to stop resulting in a collision. There were no reports of injuries.	Dingee, Vic.

» **National Priorities for 2020**

ONRSR applies a structured, evidence-based risk assessment process to review and set its national priorities at least every two years. The two-year review cycle is driven by the need to allow sufficient time for regulatory treatment projects to be scoped and implemented and for the desired improvements to be realised across affected parts of industry. Industry safety performance is monitored on a continuous basis however, and any substantial changes in the safety risk profile of the Australian railway network, particularly in relation to the priority areas, may trigger an earlier review.

Towards the end of 2019 ONRSR completed the most recent review of its national priorities. This resulted in the identification of two new priorities - contractor management and control assurance which together with track worker safety and level crossing safety will be a focus of regulatory activities for ONRSR throughout 2020.

**Contractor Management**

Operators are directly accountable and responsible for safety within the scope of their operations. Following the principle that safety cannot be contracted out, this accountability and responsibility for safety remains with the operator even when they employ a person or organisation, through contracts, to carry out rail safety work.

Those who carry out rail safety work for an accredited operator (e.g. design, commission, manufacture, supply, install, maintain or build anything used in connection with rail infrastructure or rolling stock) also have obligations – known as general duties – to ensure what they do is safe. This includes workers contracted under labour hire arrangements who undertake rail safety work.

Regulatory activities conducted by ONRSR have identified a number of concerns in relation to contractor management, including:

- > contractors being unaware of their duties and safety requirements under RSNL;
- > accountable operators failing to gain assurances that contracted work has been adequately performed;
- > ambiguity over who has effective management and control when several contracted parties are involved; and
- > concerns that a small, but not insignificant, proportion of labour hire workers are failing to meet the competency requirements for rail safety worker roles - particularly in relation to track work.

## Control Assurance

Under RSNL operators are required to specify the control measures they use to manage the safety risks associated with their rail operations and to have control assurance procedures in place for monitoring, reviewing and revising the adequacy of those controls.

Control assurance is a critical component of the risk management element of an operator's SMS. When done well it provides risk owners, duty holders and (when required) ONRSR, with assurance that all reasonably practicable safety control measures are in place and working effectively to manage operational safety risks.

Regulatory activities conducted by ONRSR have identified inconsistent or inadequate control assurance practices by operators across all sectors of the rail industry. Weaknesses identified include a lack of robust, rail safety-focussed internal audit programs within operator organisations and a lack of risk-based monitoring of safety controls implemented by rail safety workers (e.g. worksite protection planning and right of way procedures).



## How did ONRSR identify its national priorities for 2020?

The process began with a review of multiple sources of rail safety data and intelligence including:

- > ATSB investigation reports;
- > REPCON reports;
- > operator notifiable occurrence reports;
- > operator safety performance reports;
- > operator investigation reports;
- > the findings of ONRSR's regulatory interactions with operators; and
- > the findings from ONRSR's stakeholders forums and consultation groups.

The purpose of the review was to identify common themes, trends, systemic issues and areas of concern for consideration as an ONRSR national priority.

Using multi-criteria decision analysis, a risk score was calculated for each of the potential priority areas identified during the review. The analysis involved an assessment of the areas against a series of risk factors, including:

- > rail industry exposure – the number of operators and/or industry sectors exposed to safety risks relating to the priority area;
- > regulatory response – the amount of reactive regulatory effort expended on issues relating to the priority area over the past two years;
- > degree of influence – the level of control that operators have over risks relating to the priority area;
- > worst credible harm – the most severe level of harm to people that could reasonably be expected in an accident relating to the topic;
- > industry concern – the rail industry's level of concern in relation the priority area over the past two years; and
- > safety management performance - industry's performance at controlling risks related to the topic so far as is reasonably practicable.

The potential priority areas were then reviewed in order of risk score to identify the areas that most warranted a nationally coordinated and sustained period of regulatory focus and the appropriate regulatory response to deliver safety benefits for the community.



# Data-driven Intelligence





## THE STATISTICS AND SUMMARIES PRESENTED IN THE PREVIOUS CHAPTERS PROVIDE A SNAPSHOT OF THE RAIL INDUSTRY'S SAFETY PERFORMANCE OVER THE 2018-2019 FINANCIAL YEAR.

This information is important for monitoring and reporting safety performance across the rail industry, acting as a key source of regulatory intelligence used to direct ONRSR's resources and attention. This chapter continues the series of articles presented in previous issues of the Rail Safety Report, providing an update on ONRSR's progress to further enhance the data-driven element of its risk-based approach to regulation.

Together with the observations, knowledge and experience of regulatory staff, rail safety data is a critical input into ONRSR's decision-making. As ONRSR continues to strengthen the way it manages and utilises rail safety data, greater attention is being paid to the information requirements of regulatory decision makers and how this information can be provided more effectively. ONRSR has also been examining the role it plays in making data available to its regulated parties (rail transport operators) and other key stakeholders to better support rail safety investment decision-making across the industry.

Over the past 12 months ONRSR's focus in this space has been on:

- > establishing the ONRSR Portal as a key mechanism for data exchange between ONRSR and operators;
- > continuing to improve and expand its delivery of data to external stakeholders; and
- > refining its future data needs - particularly in support of the National Rail Safety Data Strategy.

The ONRSR Portal is well established as the preferred mechanism for secure, online reporting of notifiable occurrences, monthly activity data and the submission of notifications of change. It is now available to all accredited rail transport operators with work underway to examine how it can be expanded to include registered rail operators.

During 2019 additional functionality was introduced to the ONRSR Portal to accommodate new data reporting requirements for track work rule / procedure breach occurrences and the introduction of prescribed incident reporting under the RSNL from 1 July 2019 (excluding WA and NSW).

The recent success of the ONRSR Portal positions it as the key information exchange tool to support plans for improved reporting and data accessibility for industry. ONRSR will continue to incrementally introduce a wider range of data and information interactions into the ONRSR Portal with the next major enhancement providing rail transport operators with access to the regulatory information held by ONRSR on them (e.g. Notices of Accreditation or reports of regulatory activities).

## » Enhancing Data Exchange

## » Making Rail Safety Data More Accessible

ONRSR acknowledges that improving external stakeholder access to the rail safety data it holds is critical to facilitating a common understanding of both rail safety performance across industry and the safety areas that require improvement. This is reinforced by the results of ONRSR's recent stakeholder survey which identified a growing demand for rail safety data from a wide range of external parties. Furthermore, the rate at which ONRSR receives and responds to external requests for rail safety data and analysis continues to increase. Between January and October 2019 ONRSR responded to 26 external requests compared with only 15 over the same period in 2018<sup>6</sup>.

In response to stakeholder feedback ONRSR has increased the level of safety data it periodically makes available to external parties. Over the past 12 months this has included improvements to the national rail safety data it publishes online at [www.onrsr.com.au](http://www.onrsr.com.au) and to the data it routinely provides to national and state-based level crossing committees, TrackSAFE and the Rail Industry Safety Standards Board (RISSB). ONRSR has also recently begun to make benchmarking analysis reports available to select operators, providing a comparison of an operator's safety performance against an anonymised group of similar operators.

In the future ONRSR will be examining ways of exploiting the cloud-based information management and technology platform behind the ONRSR Portal to introduce secure, self-service access to rail safety data for relevant external parties. The aim of this is to ensure that decision makers have access to the national safety data they need, when they need it, overcoming the constraints and limitations associated with current data reporting.

## » National Rail Safety Data Strategy

Implementation of the strategy, being jointly led by ONRSR and the Australasian Railway Association (ARA), has continued to be a focus for ONRSR during 2019.

The overarching vision of the data strategy is to have high quality national rail safety data readily available and accessible to stakeholders when making decisions relating to rail safety. It will achieve this by delivering on three key themes: better focussed national data; better quality data; and better consistency and comparability.

With ONRSR now a truly national rail safety regulator, there is an opportunity for a critical review of current legacy reporting requirements and data needs for all stakeholders, ensuring that the right data is available to the right organisation within the right timeframe. The changes under consideration as part of this review aim to:

- > reduce the number of notifiable categories for occurrence reporting, providing a greater emphasis on those categories that are of most relevance to rail safety;
- > collect more accurate data on future notifiable occurrences;
- > distinguish between reporting requirements for occurrences that may trigger an immediate regulatory response and those that will not require an immediate response but are of value to ONRSR and industry for monitoring and analysing safety performance over time; and
- > generate a national occurrence dataset that is easier for industry to report against and more suitable for analysis - replacing free-text data fields with codified data where practicable.

<sup>6</sup> External data and analysis request numbers exclude Freedom of Information applications.



# Appendix: Scope and Methods





## > Reporting Period

**The scope and methods used for the presentation of data in this report are described below.**

Where available statistical trends of incident numbers are presented over a five-year period. Statistical trends of incident rates are presented over a maximum four-year period, 1 July 2015 to 30 June 2019 due to the unavailability of nationally consistent activity data for 2014-2015. The incident descriptions summarised in this report apply to the period 1 July 2018 to 30 June 2019.

## > Geographic Coverage

Descriptions and statistics in this report cover all railway operations in Australia except for some operations in Victoria. As of 30 June 2019 all tramways operating in Victoria, including the metropolitan tram operator in Melbourne and several tourist and heritage railways, were regulated under Victorian local law and were therefore not subject to the RSNL.

## > Data Sources

The information presented in this report is principally based on notifiable occurrences — the initial written advice of a rail safety incident that a rail transport operator submits to ONRSR in accordance with section 121 of the RSNL. Extracts of the notifiable occurrence data presented can be downloaded from the National Safety Data area of ONRSR's website.

Activity data (for example, train kilometres travelled) is based on monthly returns supplied by rail transport operators in accordance with section 120(3) of the RSNL. The specific information to be provided is defined in clause 56 of the National Regulations.

Activity data for rail operations in Western Australia (WA) is unavailable prior to 2 November 2015. To enable more consistent and relevant reporting of occurrence rates a pro rata calculation of activity data is used for rail operations in WA for the 2015–2016 financial year.

Data collected by previous state regulators prior to ONRSR and used in this report were collected under different legislative regimes. A review of this data was undertaken to ensure comparability with ONRSR collected data. This applies to the data outlined below:

- > WA – notifiable occurrence data from 1 July 2014 to 1 November 2015 was collected by the WA Department of Transport, Office of Rail Safety.
- > Qld. – notifiable occurrence and activity data from 1 July 2015 to 30 June 2017 was collected by the Qld. Department of Transport and Main Roads.

Level crossing access types are sourced from the Australian Level Crossing Assessment Model (ALCAM)<sup>7</sup>.

## > Definitions

Statistics are predominantly based on the incident definitions of the national occurrence classification guideline which is date dependent. For the majority of data (1 July 2013 to 7 June 2017 inclusive) incident definitions are based on those in the Occurrence Classification Guideline (OC-G1), 2013<sup>8</sup>. For data collected since 8 June 2017, and for all SPAD/Authority Exceeded data, incident definitions are based on the Reporting Requirements for Notifiable Occurrences<sup>9</sup>.

Some of the statistics presented are based on definitions specific to this report to support a more meaningful risk-based analysis of critical events. In such cases these definitions are presented in the body of the report.

## > Disclaimer

ONRSR advises the following:

### **Internal consistency**

Statistics for a given incident category may differ between sections of this report because definitions and top-event conventions vary according to need. For example, international benchmarking statistics have different definitions to ONRSR and hence the scope of ONRSR incidents used in these comparisons have been aligned to the benchmarking definitions.

### **Data comparability**

Issues of consistency are relevant both within the report and between this report and other information products.

The statistics in this report may differ to other sources that utilise the same data and coding specifications. This will be due in part to the data collection and preparation methods used to generate the tables and charts in this report which included identification and correction of errors in historical data.

### **Past and future releases**

The statistics presented in this report are subject to review and amendment as more information becomes available through investigation or inquiry or as ONRSR refines its systems for data capture, validation and reporting. This may result in variation between historical and future reports.

<sup>7</sup> ALCAM Level Crossing Management System (LXM)

<sup>8</sup> Office of the National Rail Safety Regulator, Classifying Notifiable Occurrences. Occurrence Classification Guideline (OC-G1), Version 1.1, ONRSR, Adelaide, March 2013.

<sup>9</sup> Office of the National Rail Safety Regulator, Reporting Requirements for Notifiable Occurrences, Version 3, ONRSR, Adelaide, 2019.



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