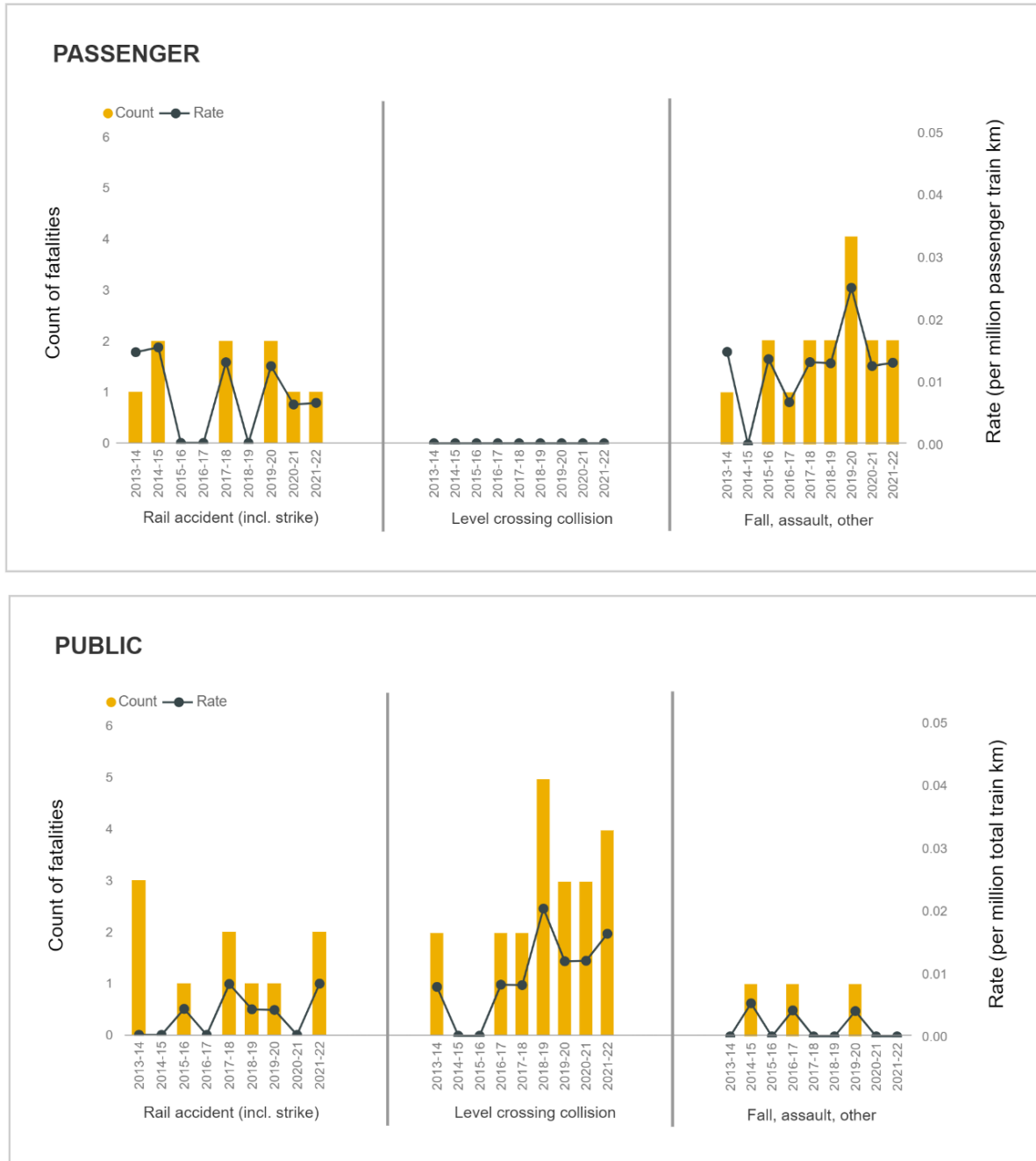
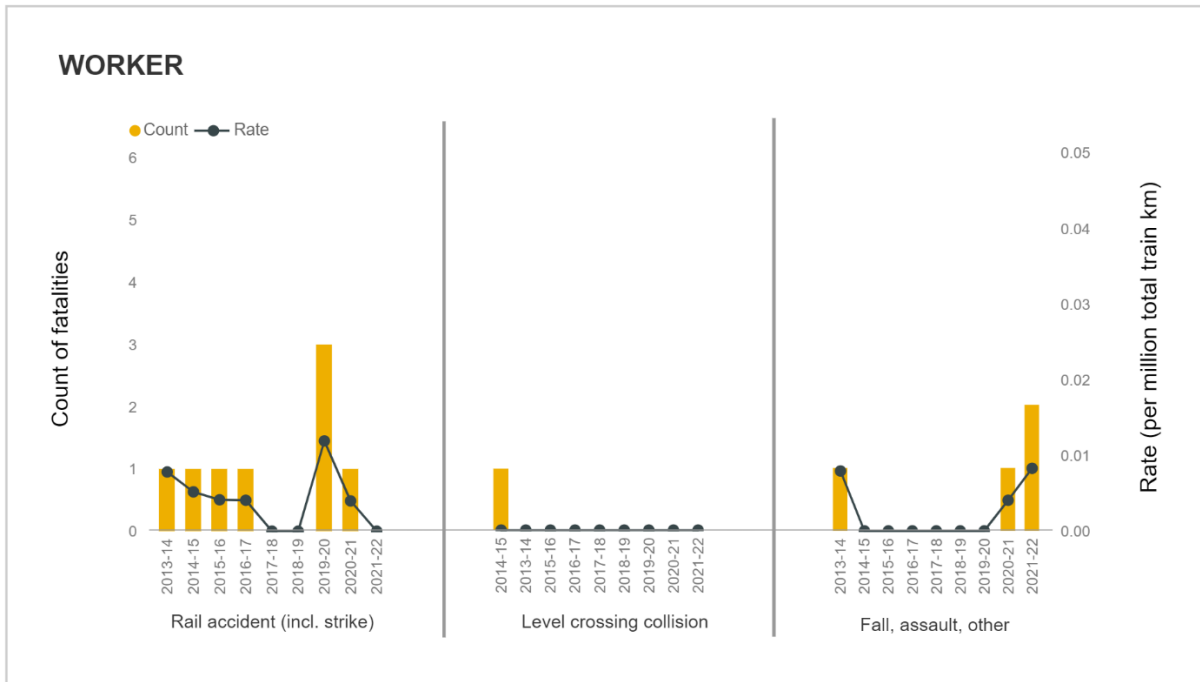


Rail Safety Statistical Summary 2013-2022

Figure 1: Railway-related fatalities, July 2013 to June 2022

Non-passenger fatalities at level crossings are classified as members of the Public if neither trespass nor suicide is suspected. Suspected suicides at level crossings are coded as Trespasser. Passenger refers to passenger on a train.



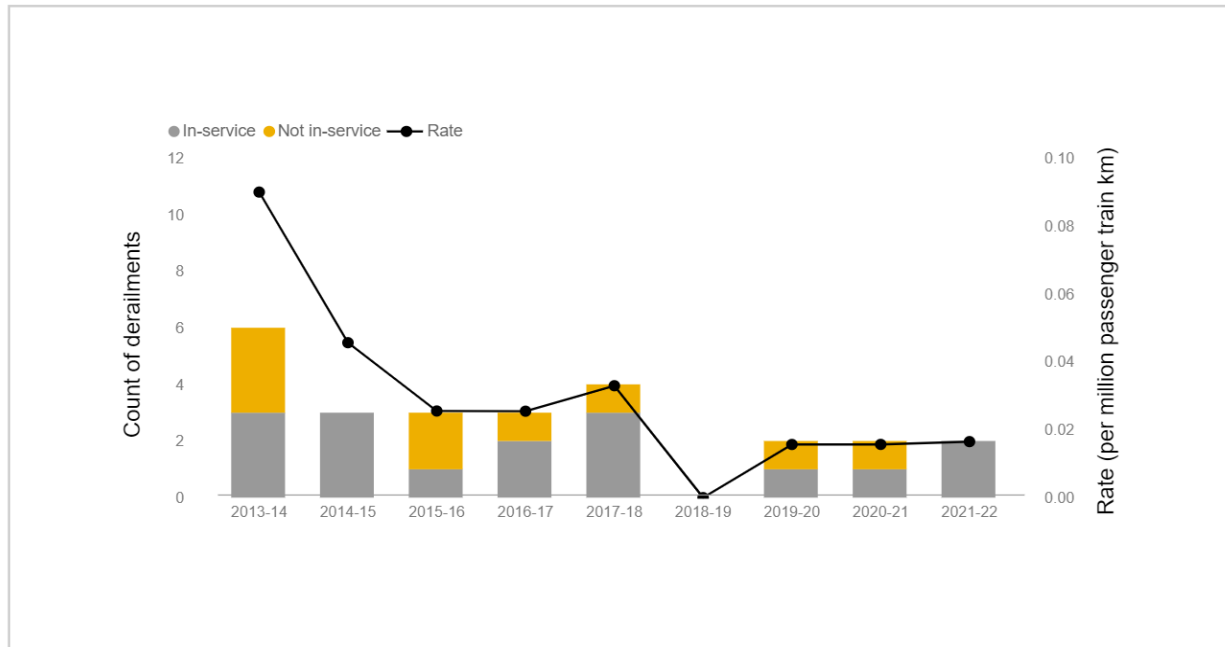


Notes:

- (1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.
- (2) The 3 fatalities in 2019-2020 relate to the Jumperkine and Wallan rail accidents – all four rail operators involved have been prosecuted because of these incidents.

Figure 2: Passenger train running line derailments, July 2013 to June 2022

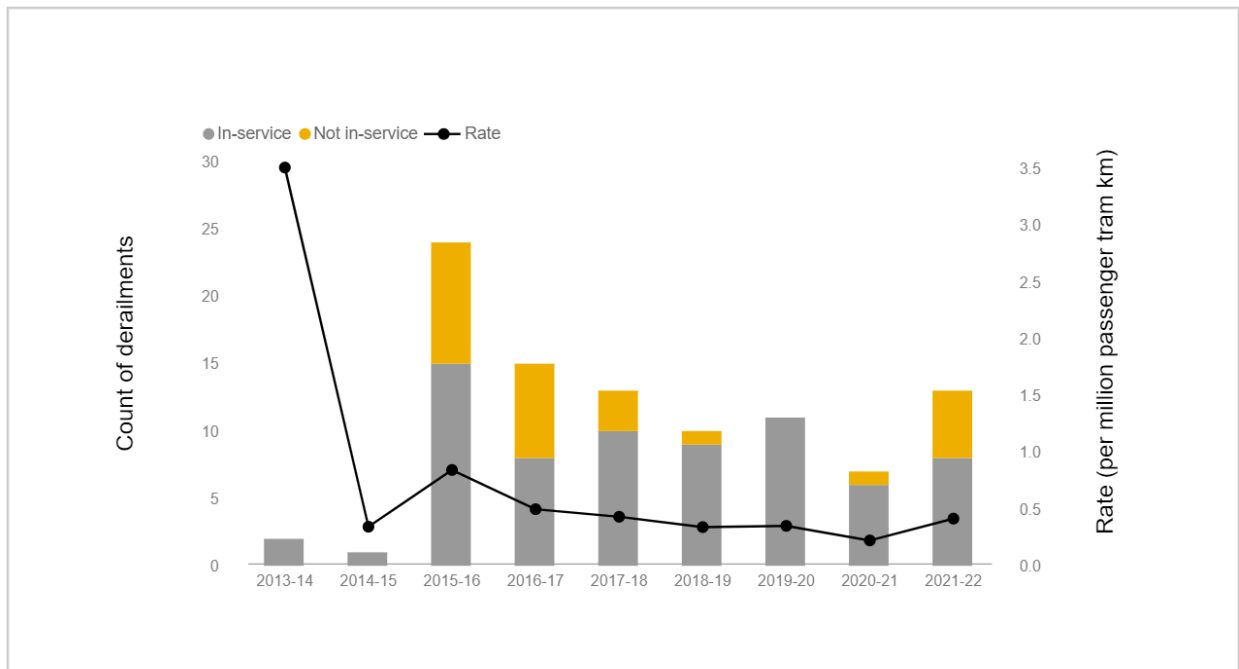
Derailment rates are expressed using the respective train km for each sector. Includes derailments of passenger trains, including tourist and heritage, on non-running lines affecting the safety of running lines.



Notes:

- (1) Rate and count data : Vic. excluded prior to 2015-16, and WA excluded prior to December 2015, due to incompatible data.

Figure 3: Tram running line derailments (commercial), July 2013 to June 2022

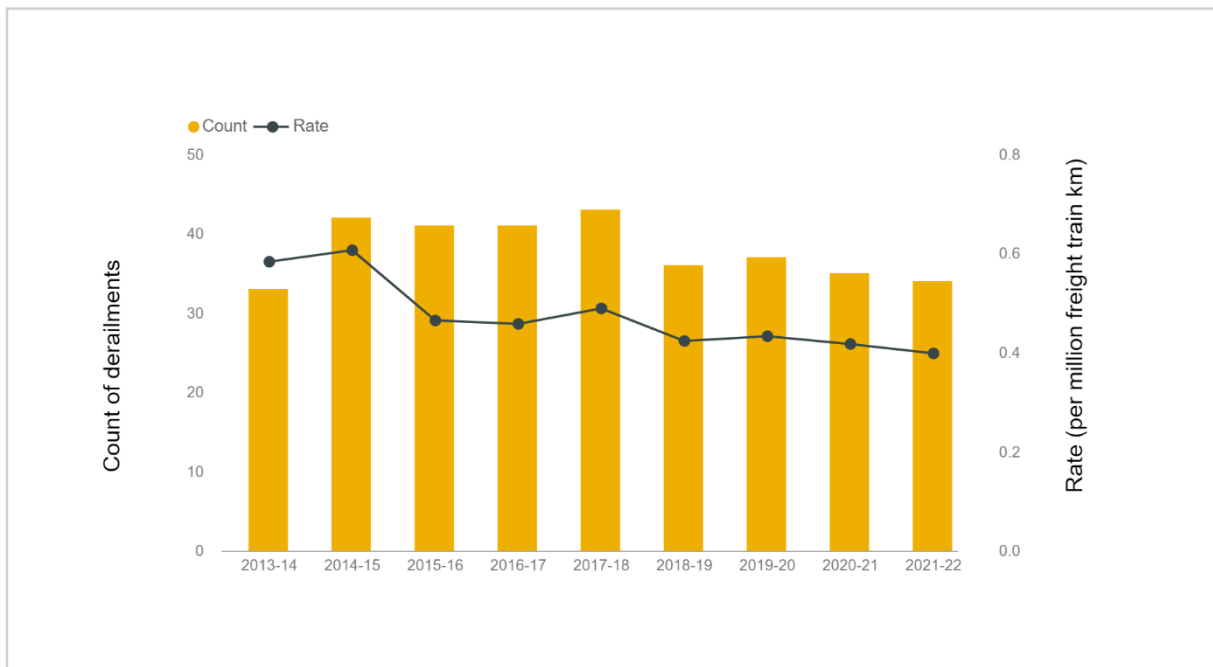


Notes:

(1) Count and Rate calculation: Vic. excluded prior to 2015-16 due to incompatible data.

Figure 4: Freight train running line derailments, July 2013 to June 2022

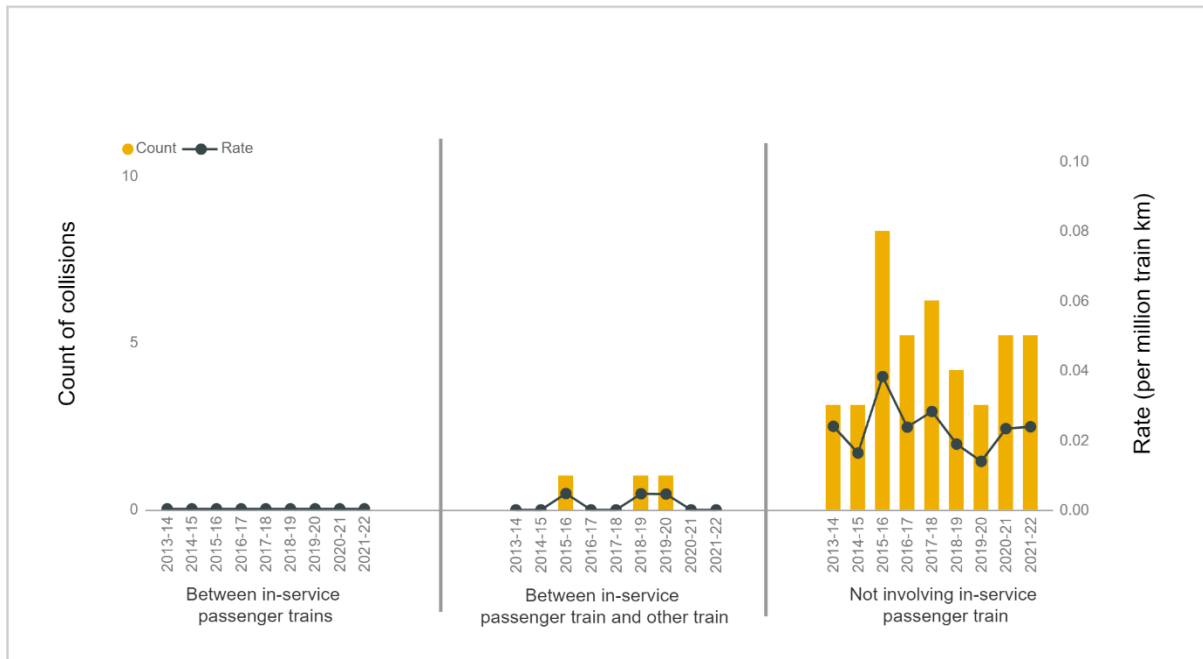
Includes derailments of freight trains on non-running lines affecting the safety of running lines. Excludes uncoupled rolling stock derailments such as those involving only light locomotives and wagons.



Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

Figure 5: Running line collisions between trains and with rolling stock, July 2013 to June 2022
 Includes collisions on non-running lines affecting the safety of running lines. Excludes commercial light rail operations. 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.

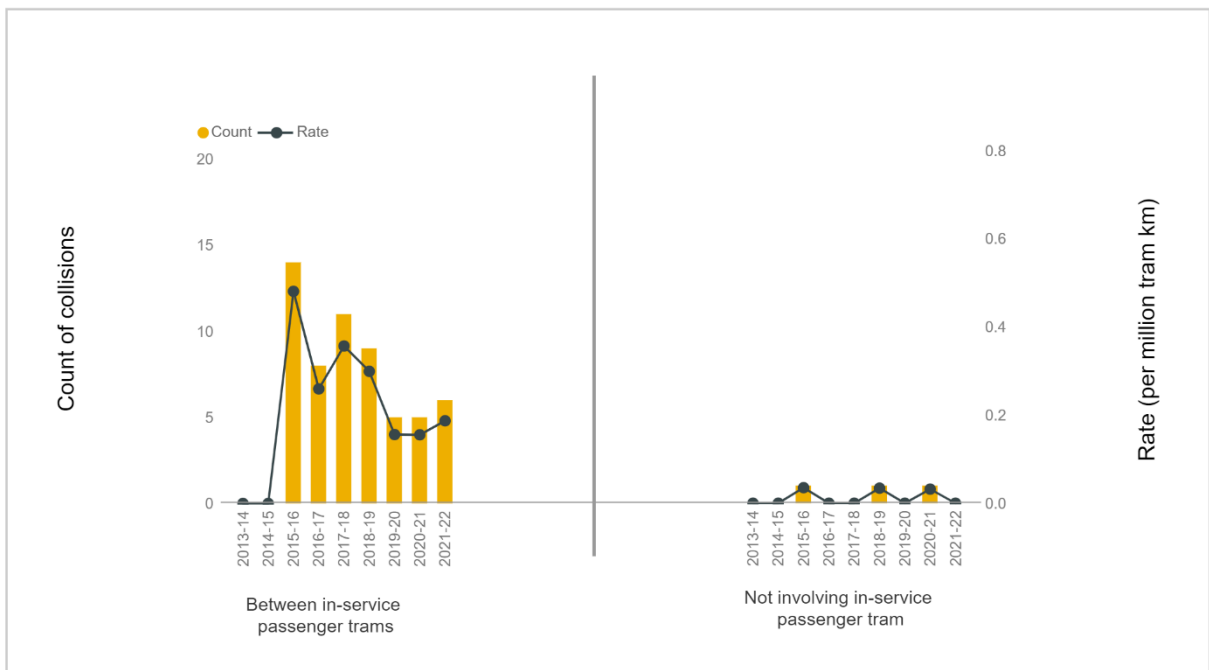


Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

Figure 6: Running line collisions between trams, July 2013 to June 2022

Includes collisions on non-running lines affecting the safety of running lines. Excludes trams striking or being struck by out of gauge equipment on trams on adjacent lines.



Notes:

(1) Count and Rate calculation: Vic excluded prior to 2015-16 due to incompatible data.

Figure 7: Running line collisions between tram and road vehicle or person, July 2013 to June 2022

Excludes collisions at level crossings.

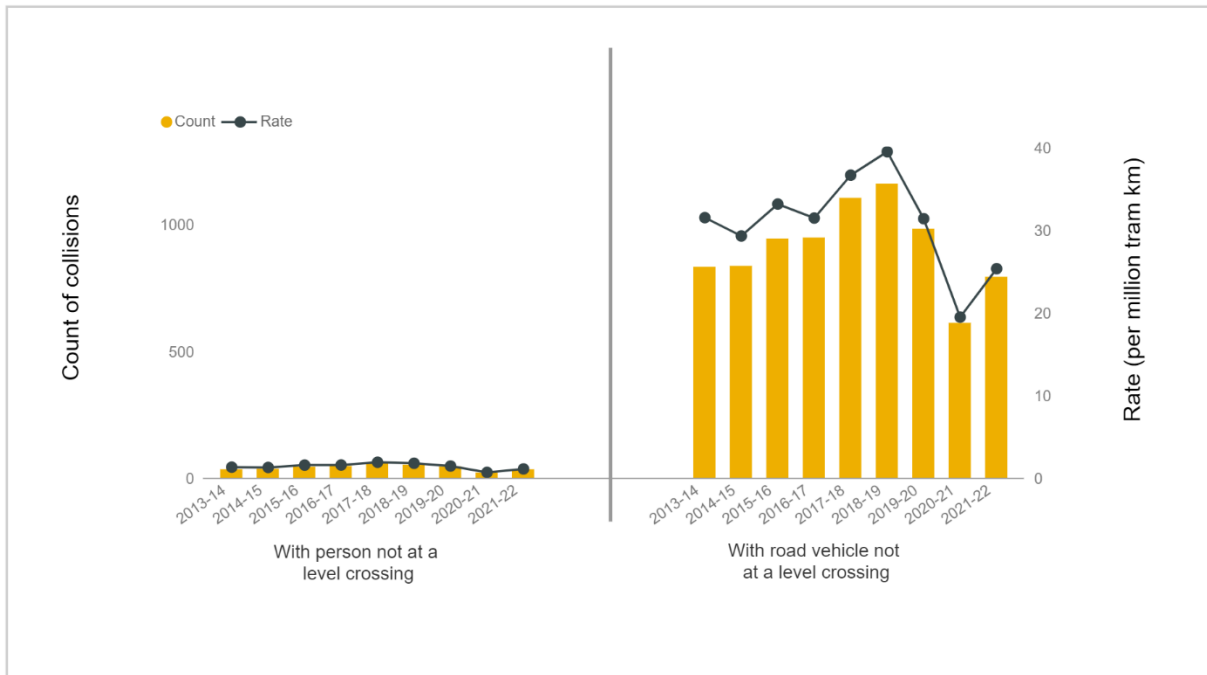
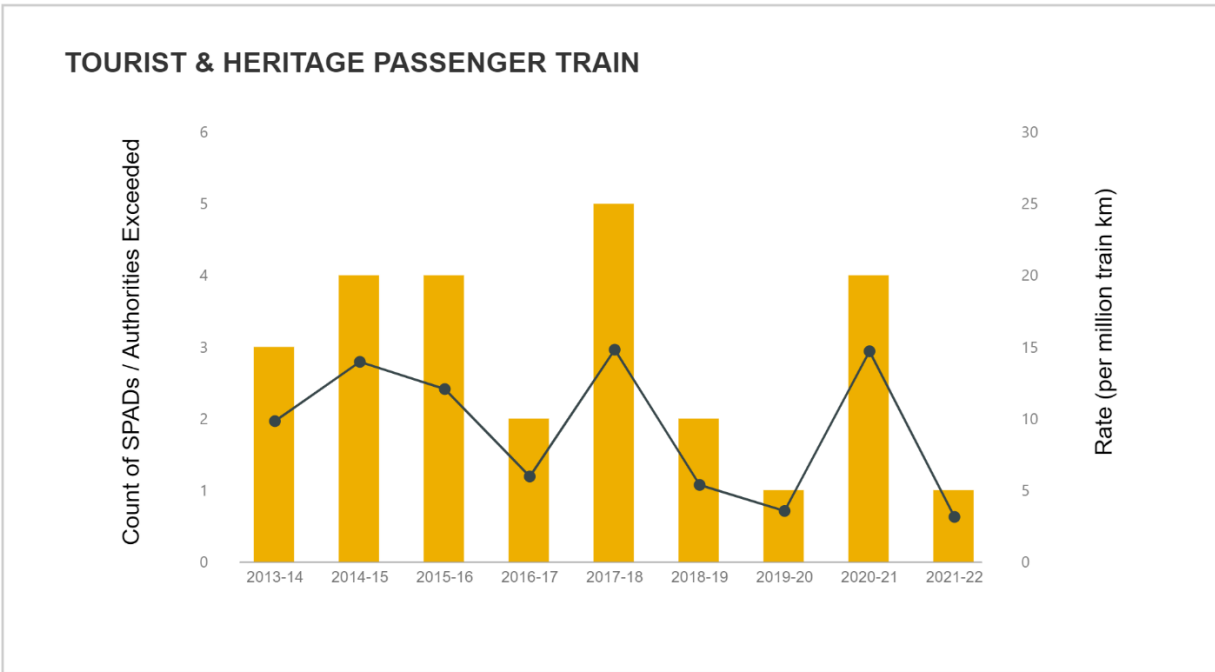


Figure 8: Signals passed at danger / Authority exceeded, July 2013 to June 2022

Data shown is for occurrences classified as Limit of authority missed by train crew, Light rail / tram signal passed without authority, and Limit of authority missed by light rail / tram crew, as defined in the Reporting Requirements for Notifiable Occurrences¹. Rates are expressed using train km for the sectors represented in each reporting category.



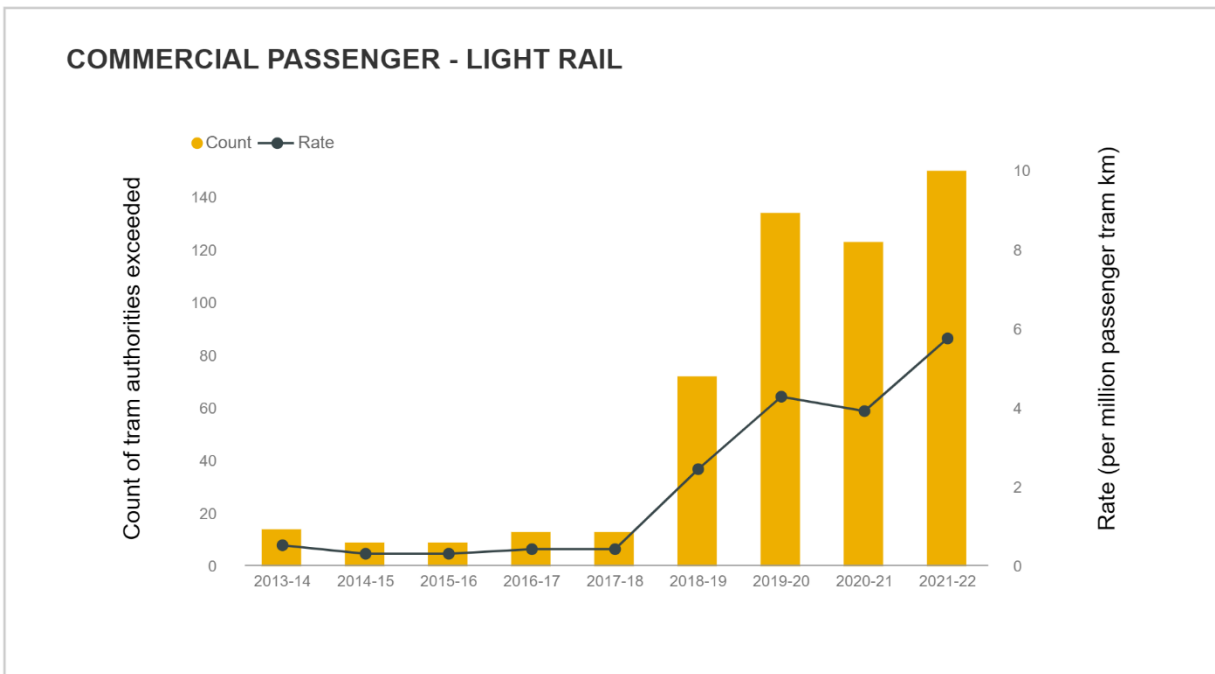
¹ Office of the National Rail Safety Regulator, Reporting Requirements for Notifiable Occurrences, Version 3, ONRSR, Adelaide, 2020.



Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

(2) The introduction of modern technology such as Automatic Train Protection (ATP) or European Train Control Systems (ETCS), particularly on high volume passenger systems are reducing the risk in relation to SPADS.



The increase in light rail authority exceedances since 2018–2019, depicted in Figure 8, is, in part 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.

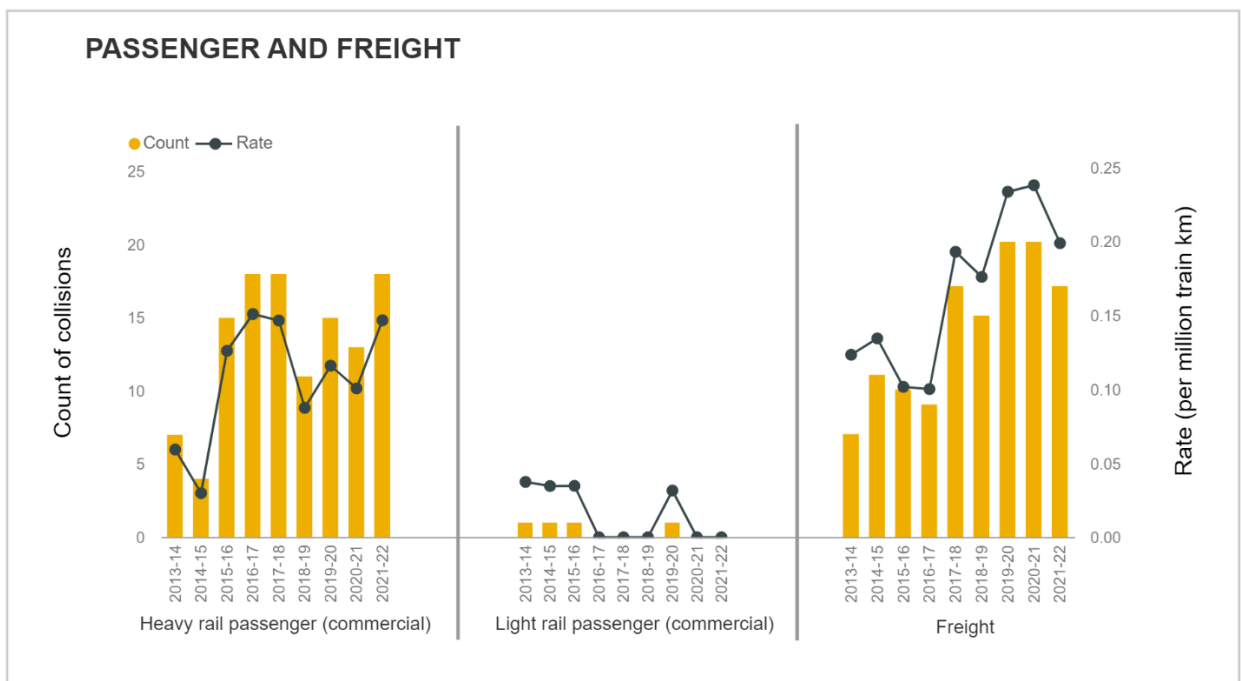
During testing and commissioning of new light rail networks, the system can be extremely sensitive

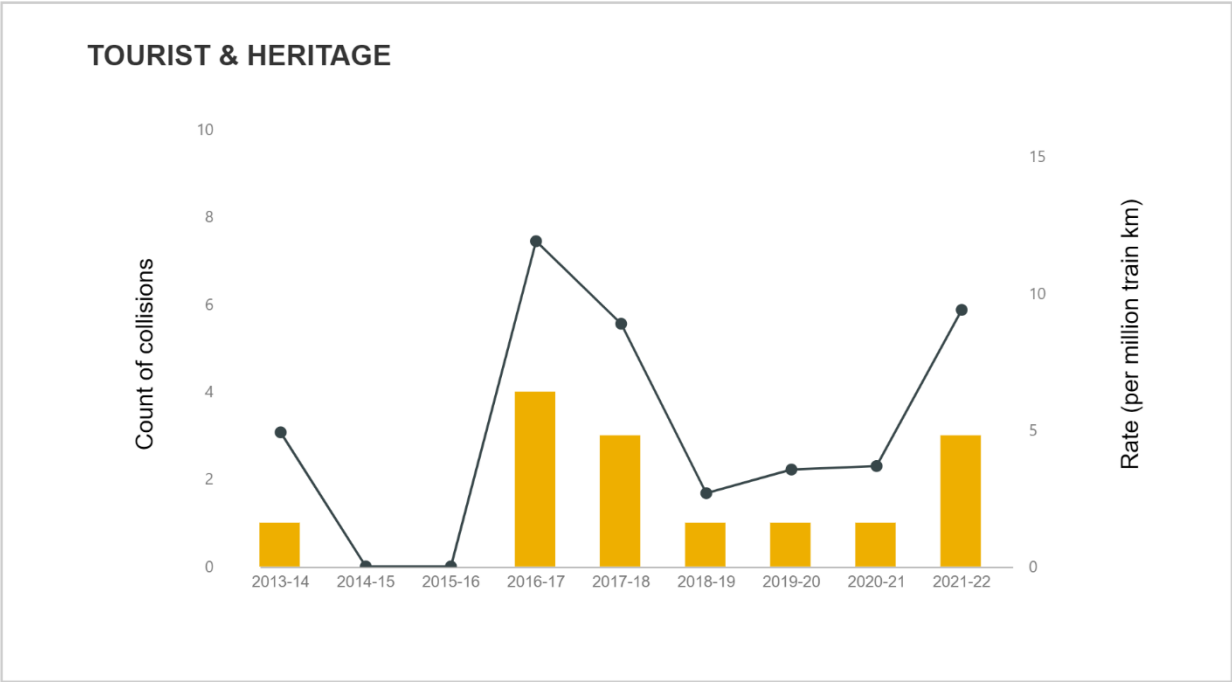
and will pick up even a few centimetres of overrun. Therefore, most of those occurrences are minor exceedances that are very low risk in nature due to the very short overrun distances (e.g. without intersection incursion or risk of collision with road vehicles, pedestrians or other trams ahead) at low speed. With the introduction of the new national data requirements under the National Data Strategy implemented 1 July 2022 these types of events are no longer reportable.

Analysis of the underlying data identified an anomaly with the number of LRTAEs (light rail / tram authority exceeded) reported prior to FY2020-21. Namely, one of Australia’s largest light rail operators did not report any LRTAEs until FY2020-21 (about 36) and 2021-22 (approximately 120) as they did not realise they were reportable at that stage. There may have been a level of under-reporting of LRTAEs generally, which has also significantly contributed to this trend over the 9-year period.

Figure 9: Level crossing collisions between train and road vehicle, July 2013 to June 2022

Rates are expressed using train km for the sectors represented in each reporting category. Includes collisions reported at both public and private access road crossings.



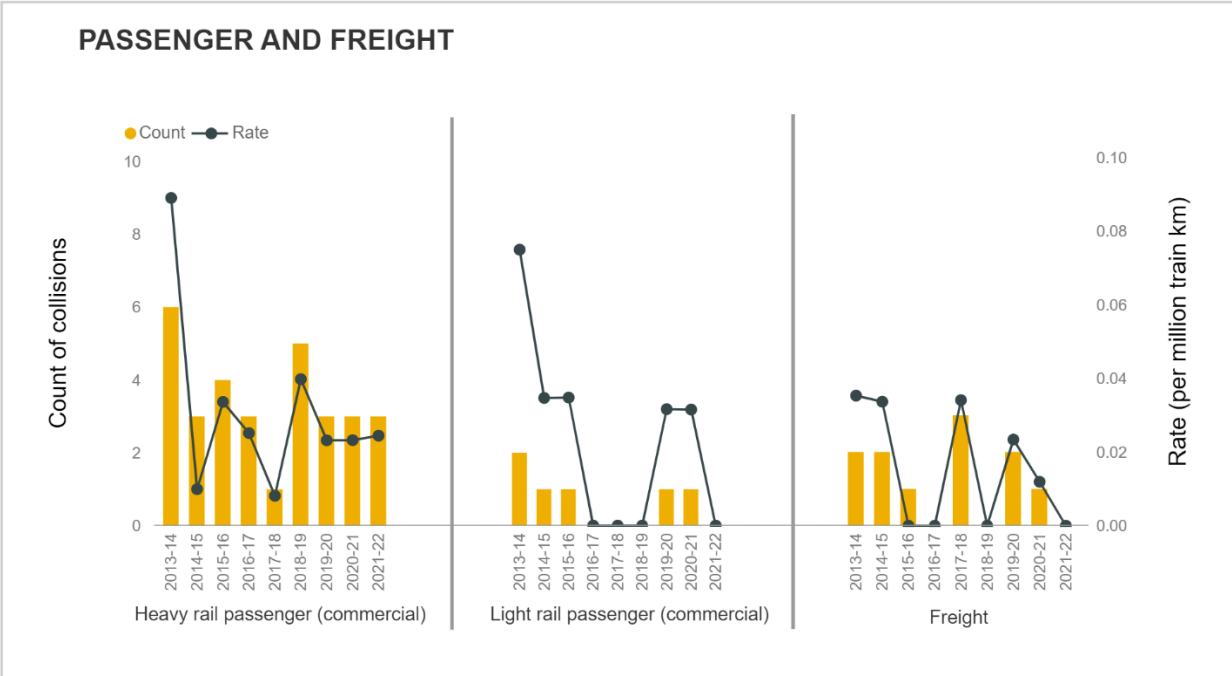


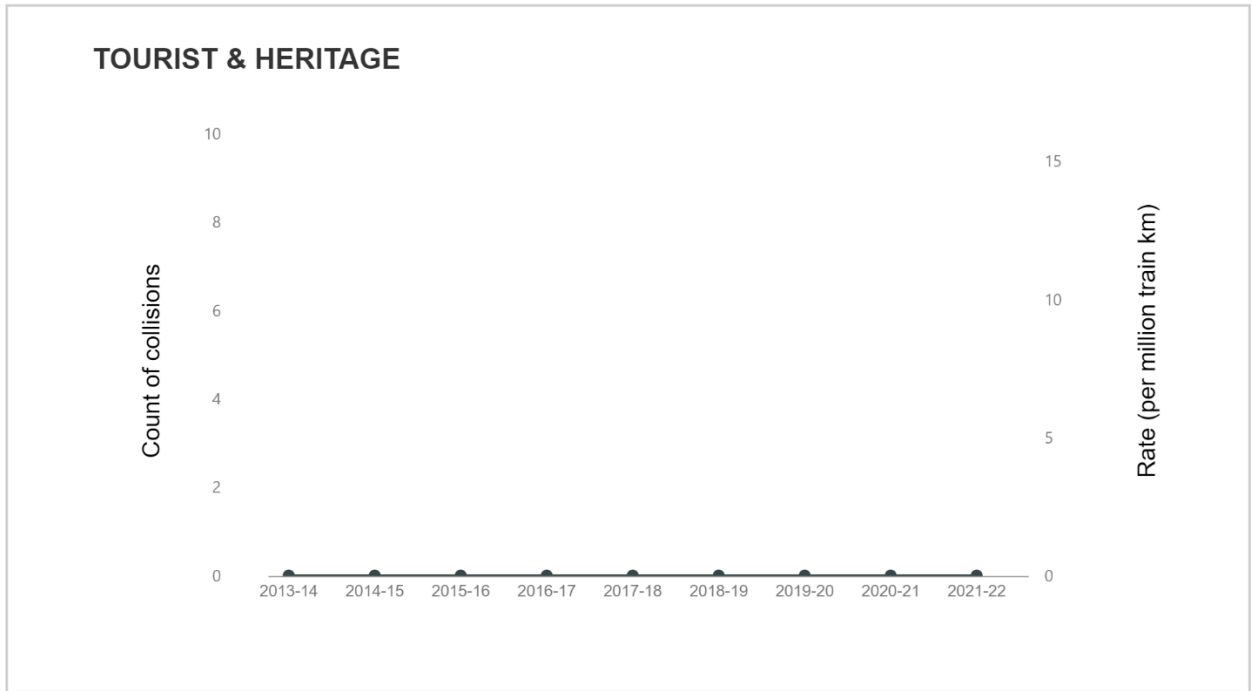
Notes:

- (1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.
- (2) Trend data very hard to determine with tourist and heritage due to the general low number of occurrences.

Figure 10: Level crossing collisions between train and person, July 2013 to June 2022

Rates are expressed using train km for the sectors represented in each reporting category. Includes collisions reported at both public and private access crossings.



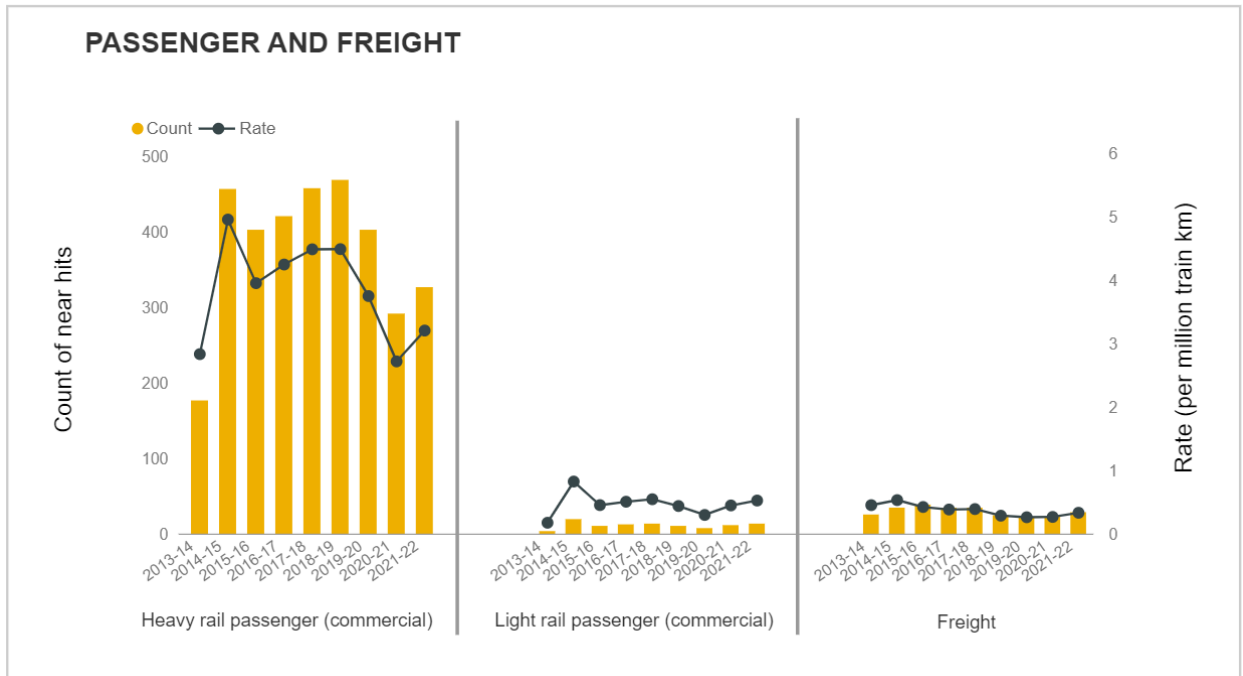


Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

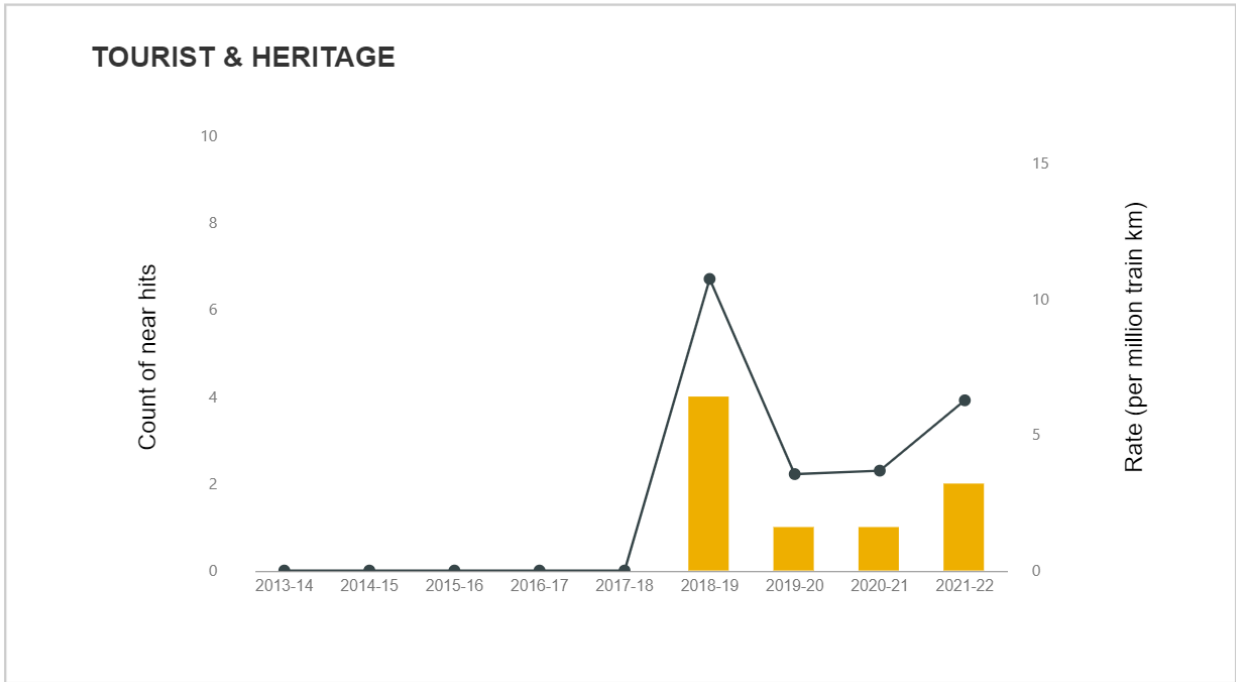
Figure 11: Level crossing near hits between train and road vehicle, July 2013 to June 2022

Rates are expressed using train km for the sectors represented in each reporting category. Includes collisions reported at both public and private access road crossings.



Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

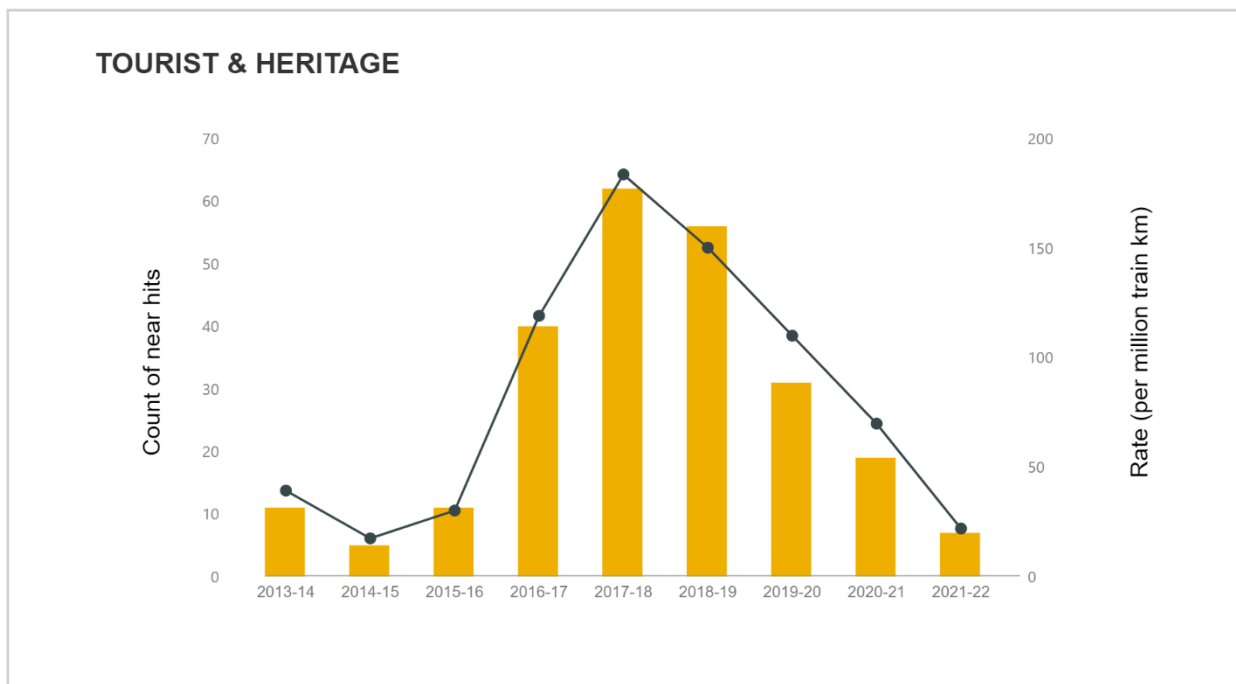
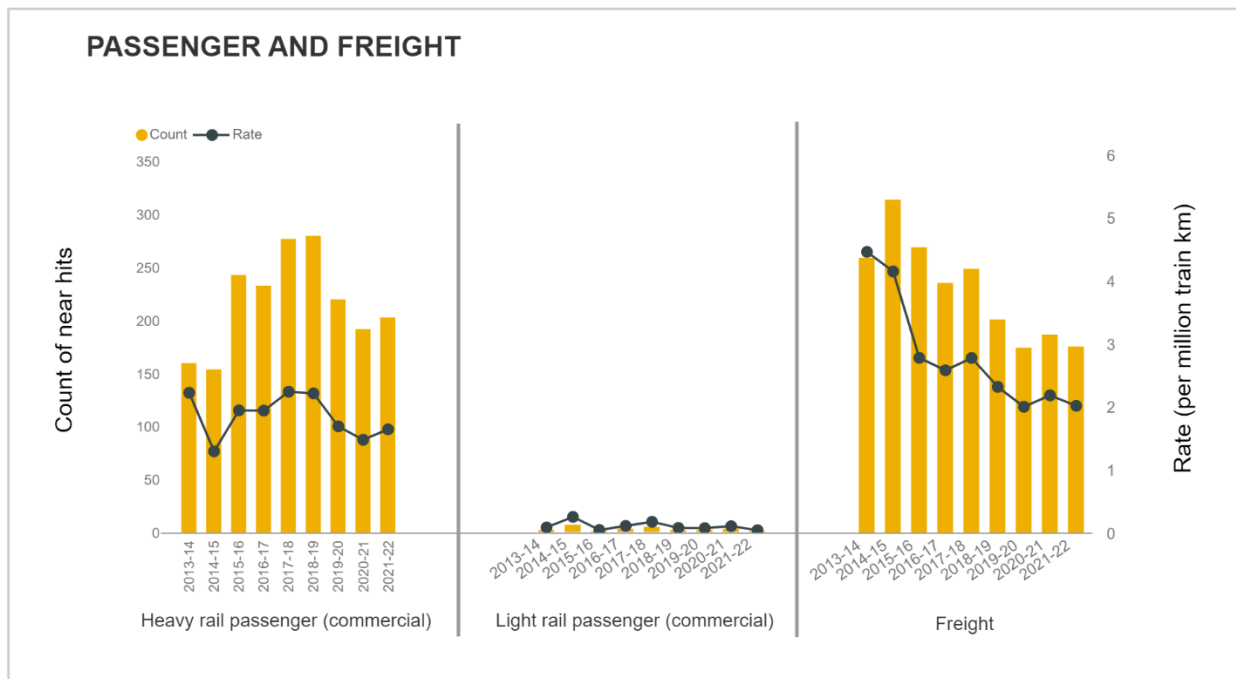


Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

Figure 12: Level crossing near hits between train and person, July 2013 to June 2022

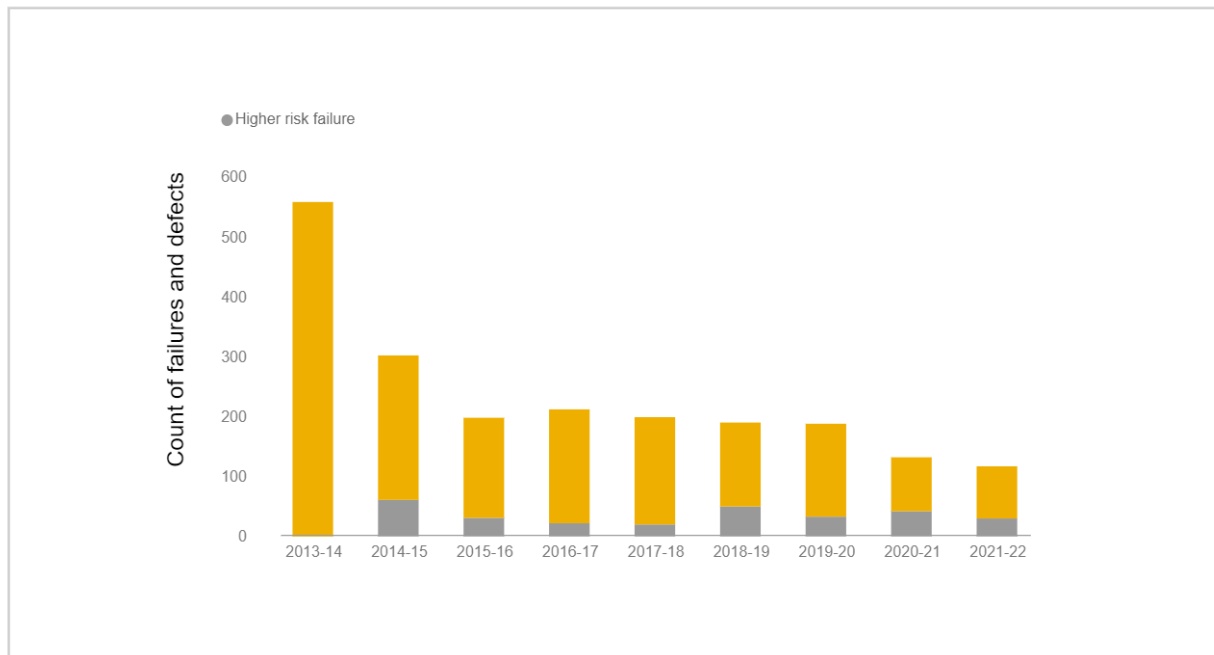
Rates are expressed using train km for the sectors represented in each reporting category. Includes collisions reported at both public and private access crossings.



Notes:

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

Figure 13: Level crossing equipment failures and defects, July 2013 to June 2022



Notes

- (1) Data cleansing has occurred as far back as 1 July 2014 in this occurrence category, meaning that higher risk failures and defects are unclassified, and the total count likely contains a significant proportion of non-reportable occurrences.
- (2) Excludes WA prior to 2014-15 due to incompatible historical data.

Level crossing equipment failures and defects

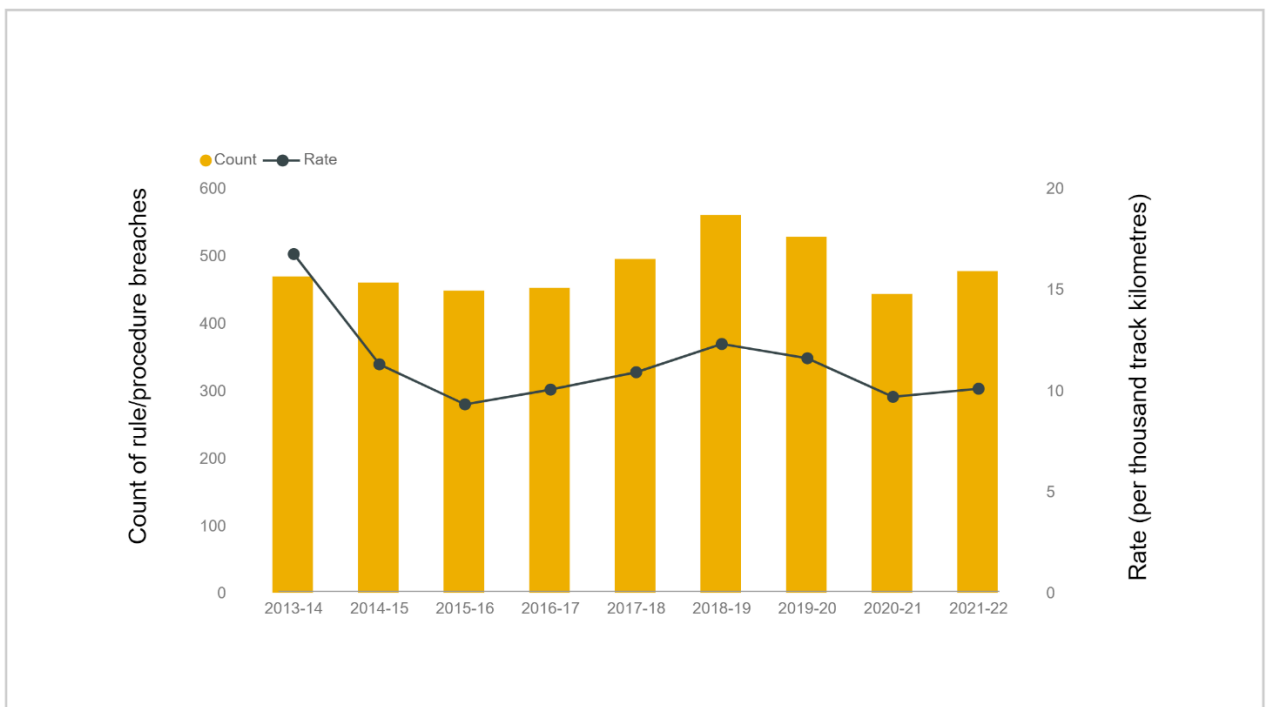
ONRSR’s risk-based analysis of level crossing equipment failures and defects is presented in Figure 13, which highlights the higher risk occurrences out of all failures and defects reported. These involve equipment failures or defects resulting in:

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

Examples of other level crossing equipment failures and defects reported to ONRSR and considered lower risk, include:

- failure of road boom(s) to fully lower but other active warning devices operational;
- failure of pedestrian gate(s) to close or boom(s) to lower;
- 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; and
- failure of pedestrian ‘don’t walk’ warning light(s).

Figure 14: Track work safeworking rule and procedure breaches, July 2013 to June 2022



Notes

(1) Rate calculation and Count: Vic. heavy rail excluded prior to 2014-15, and WA excluded prior to December 2015, due to incompatible data.

Safeworking rule and procedure breaches

The occurrences for safeworking rule and procedure breaches tend to fluctuate but we are starting to see an overall slight downward trend. The only way to normalise this information is through track kilometres, however this does not take into account the unprecedented amount of work on Australia’s rail system over the last decade. To see a slight downward trend in these circumstances means we are starting to move in the right direction.

A positive outcome of the focus ONRSR has put into this area is the increased use of technology to protect trackworkers. These technologies either prevent the breach or reduce the consequence of a breach occurring.