Level crossings

5. Appendix

Detailed sector breakdown

Mainline railway

The Railway Safety and Standards Board (RSSB) estimates that 6% of the total mainline system risk is from level crossings. The majority of this risk is borne by members of the public using the crossings, with most casualties being pedestrians and road vehicle occupants.

There are several types of level crossing in use on the mainline network. The table below shows level crossing numbers by type:

Table 5.1: level crossing types

Crossing type	Acronym	Crossing name	Number
Passive	UWC-T	User-worked crossing with telephone	1,514
Passive	UWC	User-worked crossing	286

Crossing type	Acronym	Crossing name	Number
Passive	OC	Open crossing	33
Passive	FP	Footpath crossing	1,798
Active Manual	MCG	Manually controlled gate	108
Active Manual	MCB	Manually controlled barrier	156
Active Manual	MCB-OD	Manually controlled barrier with obstacle detection	136
Active Manual	MCB-CCTV	MCB monitored by closed-circuit television	44
Active Automatic	AHB	Automatic half-barrier	404
Active Automatic	AFBCL	Automatic full barrier crossing locally monitored	3

Crossing type	Acronym	Crossing name	Number
Active Automatic	ABCL	Automatic half barrier crossing locally monitored	63
Active Automatic	AOCL+B	Automatic open crossing locally monitored with barrier	60
Active Automatic	AOCL/R	Automatic open crossing locally or remotely monitored	22
Active Automatic	UWC-MSL	User-worked crossing with miniature stop lights	259
Active Automatic	FP-MSL	Footpath crossing with miniature stop lights	167
Total	-	-	**5,453**

Source: Network Rail (ALCRM), May 2025

The level of protection afforded to users of the level crossing varies with the type of crossing. Those that provide a higher level of protection do not rely on the user to assess whether it is safe to cross, such as by looking for an approaching train. Instead warning(s) of an approaching train and/ or barriers are provided. Other factors such as the number of crossing barriers and whether the crossing has railway signals protecting it are also important.

The different types of level crossings can be classified in various ways. The previous table used

'Active, Automatic, Manual and Passive'.

Looking at data for the last 10 years (April 2013 to March 2023) there were 61 fatalities to level crossing users (excluding suicides). The table below shows the types of crossing where they occurred.

Table 5.2: level crossing fatalities

Crossing type	Number of fatalities	Percentage
Footpath	34	56
AHB	11	18
UWC-T	7	11
MCB-CCTV	4	7
Footpath-MSL	3	5
UWC-MSL	1	2
MCB	1	2

Source: RSSB, February 2024

The data illustrates that the greatest proportion of fatalities occurred at passive footpath crossings, followed by automatic half-barrier and user-worked crossings with a telephone.

Footpath crossings account for 34% of the level crossing estate.

The last level crossing incident resulting in train occupant fatalities (as of March 2026) occurred at Ufton Nervet in 2004, when a passenger train derailed after striking a car that had been deliberately parked on the crossing by its driver, as a suicidal act. The train driver and five passengers were killed, in addition to the car driver.

Data for the last 10 years (April 2013March 2023) shows there were 67 vehicular collisions. As the table below shows, AHB crossings were the greatest contributor but account for just 7% of Network Rail's level crossing estate. AHB crossings are very convenient for the user due to their short barrier down time. However, we provide guidance on situations where we consider their application is inappropriate and Network Rail are trialling the use of additional equipment to deter unsafe use (such as weaving around the barriers) of these crossings.

Table 5.3: level crossing vehicular collisions

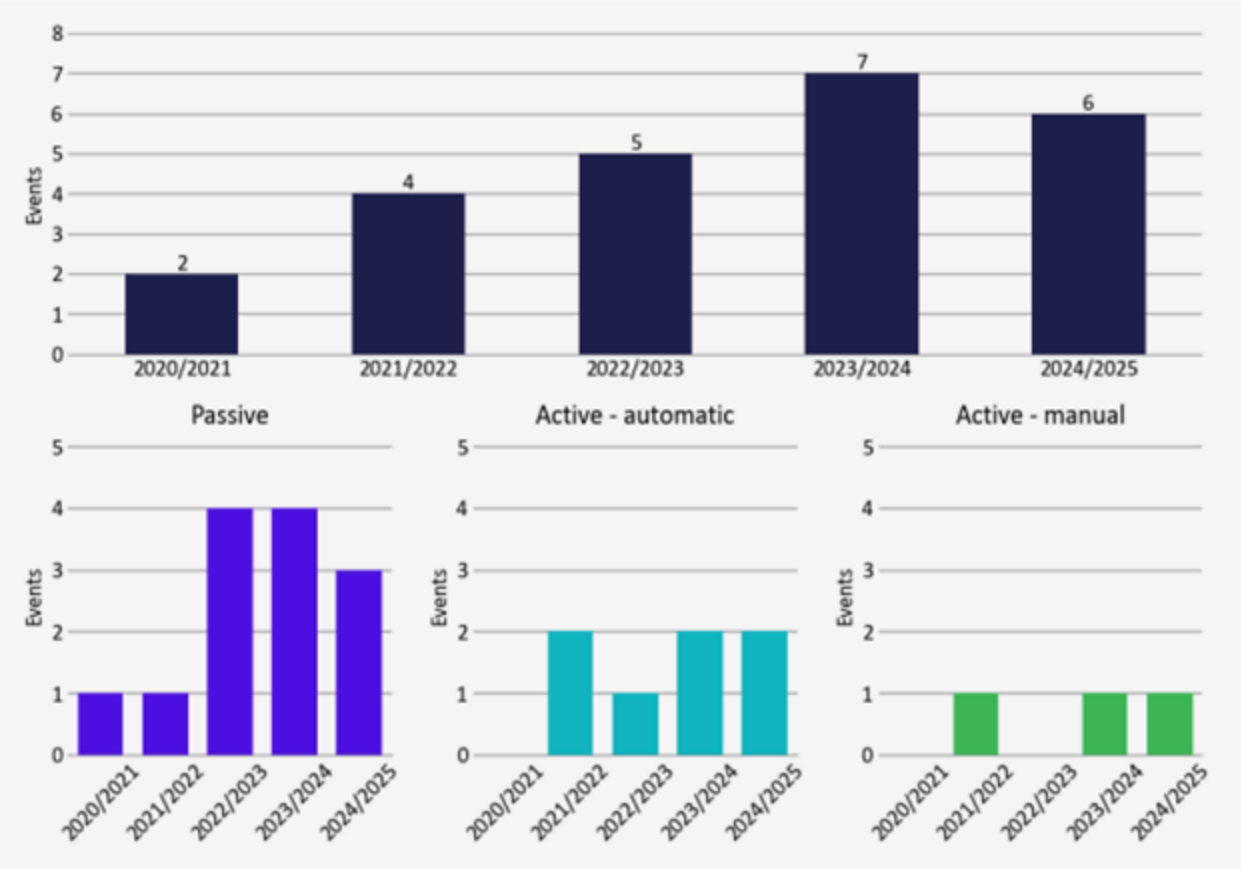
Crossing type	Number of strikes	Percentage
AHB	23	34
UWC-T	18	27
OC	9	13
UWC-MSL	5	7
MCB-CCTV	4	6
AOCL	4	6

Crossing type	Number of strikes	Percentage
UWC	3	4
Footpath-MSL	1	1

Source: RSSB, February 2024

As the graphs below illustrate there was a general increase in the number of collisions between road vehicles and trains at level crossings between 2020/2021 and 2023/2024, followed by a small decrease in 2024/2025. As mentioned above, passive crossings are the greatest contributor followed by active-automatic crossings. We are encouraging industry to explore new technologies to improve risk control at these crossings.

Figure 1:



Source: RSSB annual Health and Safety Report, 2024/25

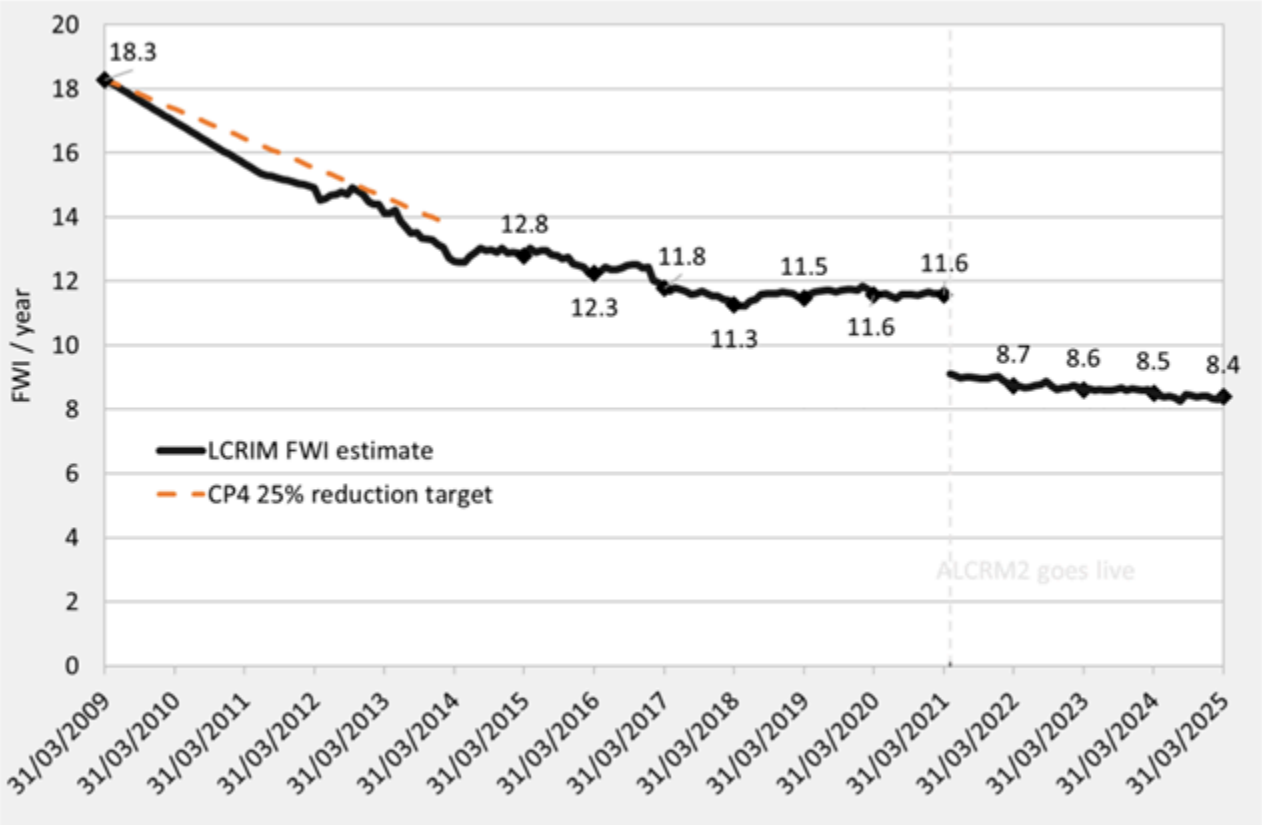
Network Rail

Network Rail has achieved considerable success in reducing risk at level crossings during Control Period 4 (CP4) and Control Period 5 (CP5). This was largely attributable to dedicated risk-reduction funds, which was strongly managed and directed from their Head Office.

In Control Period 6 (CP6), Network Rail did not have additional ring-fenced funds [PA1.1]to improve level crossing safety, and decision making was devolved to the routes and regions. In line with statutory requirements, it adopted reasonably practicable improvements in risk control. Network Rail focused on using better techniques and digital technologies to improve the way they maintain and manage their infrastructure and take steps to further reduce risk to the public at their level crossings. This approach has continued into Control Period 7 (CP7).

At CP6 exit, level crossing risk, as modelled by Network Rail's All Level Crossing Risk Model (ALCRM), was at 8.5 Fatalities and Weighted Injuries (FWI). For the first year of CP7, FWI declined slightly to 8.4.

Figure 2:



As of February 2026, Network Rail level crossing risk reduction CP7 safety benefits stood at 0.541 FWI. The scorecard target for CP7 is 0.471 FWI.

Network Rail produced a level crossings strategy for 2019-2029, which was adopted soon after the start of CP6. It sets out Network Rail's strategy to manage the safety and reliability of level crossings for the next 10 years.

We will continue to monitor Network Rail's progress against its targets and encourage Network Rail to continue implementing its level crossing strategy for 2019-2029 to reduce risk across the whole crossing population.

Heritage railway

The majority of heritage railways have level crossings as part of their operation; around half have level crossings that cross public carriageways. Our 2014 survey of level crossing types in the heritage sector found that around 16% of these public carriageway crossings were public open level crossings; half being automatic with lights (Automatic Open Crossings Locally Monitored)

(AOCL) and half being crossings with signage only, where the train driver is required to observe that the crossing is clear (Open Crossings) (OC).

RIDDOR reportable incidents for the heritage sector show that there have been 9 collisions between trains and vehicles between April 2013 to March 2023[PA2.1]. None of these resulted in reported injuries to the vehicle or train occupants.

Heritage railways generally operate at lower speeds not exceeding 25mph (40kmph). When compared to the mainline sector, the lower speed profile changes the level of risk associated with level crossings. However, the risk remains significant and our level crossing strategy remains relevant to the heritage sector. The same legislation applies, and we expect the sector to achieve the same legal standard as the mainline sector.

As the heritage sector expands and realises ambitions to extend or reinstate old railway lines, the level of interest in opening new, or reinstating level crossings is increasing. In line with the general principles of prevention, we expect operators to demonstrate that there is no reasonably practicable alternative to the provision of a new or reinstated level crossing; with the analysis based upon a proportionate, but suitable and sufficient, risk assessment. Whilst ORR does not approve or grant permission for new or reinstated level crossings, we may submit an opinion on the level crossing proposal as part of the Transport and Works Act 1992 (TWA) or the Transport and Works (Scotland) Act 2007 (TWAS) Order process.

ORR activity

ORR activity	The outcome we seek from this activity
Targeting inspection activity for Network Rail on particular aspects of risk management. In CP7 we are prioritising scrutinising arrangements for safer management of crossings that rely on users to decide for themselves when it is safe to cross or where the only information to aid	Dutyholders demonstrate targeted, risk-based improvements to protect the safety of level crossing users. Increased adoption of technology

ORR activity	The outcome we seek from this activity
decision-making is from telephoning a signaller. We expect the adoption of new technology to make a significant difference in controlling these risks.	to inform crossing users when it is safe to cross.
Monitoring Network Rail's delivery of its new level crossing strategy. We will be ensuring that routes and regions of Network Rail exercise devolved decision-making powers to introduce reasonably practicable improvements.	Evidence of consistent and effective application of the Network Rail level crossing strategy and increasing use of technical solutions leading to improved risk control.
We will support and encourage dutyholders to take a structured approach to level crossing risk assessment, in line with our guidance on level crossings to ensure it encourages a sound risk-based approach.	Improvements in level crossing risk assessment supported by appropriate guidance.
Encouraging Network Rail to be innovative in developing new technologies that will reduce risks at crossings with restricted sighting and AHB crossings.	Improved safety for users and train occupants at crossings that rely presently on the users' vigilance alone, or warning from drivers sounding the train horn, by adding a layer of engineered protection from new technologies. Preserving the convenience of AHB crossings but improving risk

ORR activity	The outcome we seek from this activity
	control by additional measures.
ORR will encourage early engagement with proposers of new level crossings, so that we can work with the proposer and encourage alternatives to crossings to be fully explored and delivered where reasonably practicable.	ORR will comment as necessary on proposals for a new level crossing as part of the Transport and Works Act 1992 (TWA) or Transport and Works (Scotland) Act 2007 (TWAS) Order process. ORR will not support the introduction of new level crossings where there are reasonably practicable alternatives.
Working with heritage operators to improve their Safety Management System by applying Heritage Railway Association guidance.	Improved consistency and maturity in safety management, resulting in improved risk control.
Promoting, within the heritage sector, the installation of LED road traffic light signals where appropriate to control risk, in accordance with dutyholders' risk assessment of crossing use and consideration of the current conspicuity of the crossing lights.	More widespread adoption of LED lights and other enhancements to conspicuity of warnings, making it easier to see the lights in a variety of environmental conditions.
Encouraging within the heritage sector, the conversion of open crossings and AOCLs to	Improved risk control by increase in numbers of crossings protected

ORR activity	The outcome we seek from this activity
barrier or gated types where appropriate.	by barriers or gates.
Encouraging the heritage sector to adopt the innovative technological solutions being brought into operation in the mainline sector, where this is appropriate, to better control risk. For example, through the use of 'overlay' miniature stop light systems in the conversion of passive crossings to active.	Improved risk control arising from increased adoption of innovative active warning techniques at passive crossings.

Acronyms and abbreviations

Acronym or abbreviation	Full name
ALCRM	All Level Crossing Risk Model
CP	Control Period
FWI	Fatalities and Weighted Injuries
HSWA	Health and Safety at Work etc Act 1974

Acronym or abbreviation	Full name
LED	Light Emitting Diode
ORR	Office of Rail and Road
ORV	Occupants of Road Vehicle
RAIB	Rail Accident Investigation Branch
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
RSSB	Rail Safety and Standards Board
TWA	Transport and Works Act 1992
TWAS	Transport and Works (Scotland) Act 2007

Glossary of terms

Term	Definition
Accidental mainline risk	Risk arising from railway operations or maintenance activities, excluding suicides.
Active crossings	Where the level crossing user is warned of the approach of the train through closure of gates or barriers and/or by warning lights and/or alarms.
Automatic crossings	The approaching train activates the closure sequence for the level crossing automatically. There are no protecting signals and the crossing area is not checked to ensure it is clear prior to the arrival of the train (see also manual crossing).
Control Periods	These are the five-year timespans to which Network Rail works for financial and other planning purposes. Each Control Period begins on the 1st April and ends on 31st March to coincide with the financial year. Control Period 4: 2009 to 2014 Control Period 5: 2014 to 2019 Control Period 6: 2019 to 2024 Control period 7: 2024 to 2029
Fatalities and Weighted Injuries	The aggregate amount of safety harm. One FWI is equivalent to: one fatality, or 10 major injuries, or 200 Class 1 minor injuries, or

Term	Definition
	200 Class 1 shock/trauma events, or 1,000 Class 2 minor injuries, or 1,000 Class 2 shock/trauma events.
Manual crossing	These crossings can also be termed railway-controlled. The crossing area is checked by a signaller/crossing keeper to ensure it is free of people/vehicles etc. before the protecting signals are cleared to allow the train through. This can also be done using technology, which scans the crossing, mimicking the action of the signaller/crossing keeper.
Passive crossings	The onus is on the level crossing user to determine if it is safe to cross. This can be based on sighting alone, or the sound of a train horn in some circumstances or, where a phone is provided, by telephoning the signaller.
Precursor Indicator Model	An RSSB-devised model that measures the underlying risk from train accidents by tracking changes in the occurrence of accident precursors.
Principles of prevention	The Management of Health and Safety at Work Regulations 1999, Schedule 1 sets out the general principles of prevention. Where an employer implements preventative and protective measures he shall do so on the basis of these principles.
Reporting of Injuries,	These Regulations require employers, the self-employed and those in control of premises to report specified workplace incidents.

Term	Definition
Diseases and Dangerous Occurrences Regulations 2013	
Safety Risk Model	A quantitative representation of the safety risk that can result from the operation and maintenance of the GB rail network.

- ← Previous 4. Continuous improvement