

## Our Approach to Managing Level Crossing Safety

### Our Policy

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Our policy towards managing level crossing risk is:

- that we are committed to reducing the risk at level crossings where reasonably practicable
- our efforts will be concentrated towards those crossings that are determined as presenting the greatest collective risk (i.e. the risk to both users and those who could be impacted by potential crossing incidents such as staff and passengers on trains) or that exhibit a high risk to individual users
- where reasonably practicable we will seek to close and/or divert crossings or enhance their safety through the provision of improved safety features/equipment
- only in exceptional circumstances shall we permit new crossings to be introduced onto the network
- we will continue to educate users on how to use crossings safely and highlight the dangers present
- working with the police and the HM Railway Inspectorate (Office of Rail Regulation) we will seek to encourage enforcement of the law and prosecution of anyone who abuses level crossings
- we will review the recommendations of accidents/incidents and take action as considered necessary
- we will regularly inspect and correctly maintain level crossing infrastructure (including managing vegetation) such that safety incidents due to infrastructure failure are minimised
- only competent staff will operate level crossings and their competence will be regularly assessed/monitored
- we will continue to request and participate in research to reduce level crossing risk
- we will continue to investigate, trial and implement new technology, processes and techniques that improve safety through either reduced cost or provision of enhanced protection
- we will form partnerships and improve relationships with others to take a holistic approach to reducing level crossing risk (e.g. Highways Agency, local councils, Train Operating Companies)
- we will use tools such as the All Level Crossing Risk Model to inform and support us in our decision making process
- we will regularly review risk in light of proposed changes either to railway operations, such as increased train frequency, or to the user population, such as increased user frequency

- we will seek to encourage planning authorities to cooperate in securing level crossing improvements in connection with new developments
- we want to learn from others and encourage others to learn from us.



## Background

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Level crossings provide a means for vehicles, pedestrians and animals to cross over railway lines. They exist in countries all over the world and in many different forms.

There are around 7000 level crossings in active use on Network Rail managed infrastructure. Of these approximately 1500 are on public vehicular roads and the remainder are where public footpaths, bridleways and private roads/tracks cross the railway. Some private vehicular crossings have public footpath or bridleway rights.

The layout, configuration and use of level crossings vary from location to location, so each one is essentially unique. To minimise the risk of trains striking crossing users the following features may also be present:

- barriers or gates at public vehicular crossings to physically prevent vehicle or pedestrian users from crossing the railway. These may be operated:
  - automatically upon detection of an approaching train, or
  - manually by railway staff present at the crossing (or from an adjacent signal box) or via remote control from the signal box controlling the areaSome barriers close off the entire road whereas others (i.e. half-barriers) simply close off the side of the road on which the road traffic approaches the crossing, leaving the exit from the crossing clear at all times
- coloured lights which provide a visual indication to the user of whether, or not, it is safe to cross; this may also be combined with an audible alarm
- telephones for the user to request permission from the signaller to cross

- gates or stiles to highlight to the user where the boundary with the railway begins and ends. These can also prevent inadvertent trespass of children or animals onto the crossing or, in the case of locked gates, unauthorised use
- signage to explain the safe method of using the crossing or to bring the user's attention to specific dangers
- railway signals that can be set to stop trains on the approach to crossings which are open to crossing users before they are closed to allow trains to pass
- railway signs that signify trains to stop on the approach to crossings which are crossed over when identified as safe to cross by the train crew.

Exactly which of these crossing safety features need to be provided have for many years been specified by legislative requirements and industry standards, supplemented by HM Railway Inspectorate guidance. The principal factors which influence the requirements are maximum train speed, train frequency, crossing user frequency and whether it is for public or private use. Other risks that arise at level crossings include user slips/trips/falls (including cyclists), trespass along the railway line itself, equipment damage due to vandalism, electric shock from overhead wires and vehicle collisions with barriers, pedestrians or other vehicles.

This document contains details of Network Rail's overall approach to managing level crossing safety.

## **Level Crossing Risk**

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Level crossings are safe if used correctly. Over 90% of risk in the previous five years has resulted from user misuse in the form of error or abuse - the remainder being due to other causes such as equipment failure, reduced visibility or railway operator error. Typical examples of user error include incorrect knowledge of operation, misjudging the time it takes the train to reach the crossing or making incorrect assumptions regarding who has priority of use, direction of travel or the presence of second train approaching usually from the opposite direction. Typical examples of user abuse include users driving around half-barriers, users crossing when the crossing lights are red, users not requesting the signaller's authority to cross (where required) and leaving gates open after use.

On average there are seven pedestrian and two to three vehicle occupant fatalities per year (excluding suicides). Accidents involving injury to persons on the train are rare. However, the ever present risk was highlighted in 2004 when a train derailed following a collision with a car that had deliberately parked on level crossing at Ufton Nervet, Berkshire resulting in seven fatalities; the vehicle occupant, five passengers and the train driver.

A number of changes are expected in the future that potentially could increase level crossing risk if longer term strategies and tactical initiatives are not put in place. These anticipated changes include:

- increased number of people living in Britain (i.e. more crossing users)

- increasing pressures for new residential and commercial development – particularly in the already densely populated South East
- the requirement to run additional train services and convey more passengers
- increased number of elderly drivers
- increased impatience brought about by the pace of modern life (i.e. users take greater risks to avoid having to wait for trains to pass).

## **Reducing Level Crossing Risk**

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The most effective way of reducing level crossing risk is to eliminate the crossing completely. Whilst purely private level crossings can be closed by agreement with authorised users, closure of public level crossings is notoriously more difficult under the present law. In addition, closure of a public bridleway or footpath level crossing may result in a requirement to provide an alternative route either in the form of a bridge over the railway, an underpass beneath the railway or through provision of a diversionary route to a nearby existing bridge, underpass or level crossing.

Provision of structures such as bridges or underpasses involves large capital investment. It can also take a long period of time before they are realised due to the need to obtain the necessary planning (and other) consents and the magnitude of the infrastructure works required. Additional land may also need to be purchased.

Network Rail is subject to the requirements of the Health and Safety at Work Act etc 1974 to reduce risk 'so far as is reasonably practicable'. In simple terms this means that the cost, time and effort required in providing a specific risk reduction measure needs to be commensurate with the safety benefit that will be obtained as a result of its implementation. Network Rail's health and safety management system (part of its safety authorisation issued by the Office of Rail Regulation) sets out the company's approach towards prioritisation of safety expenditure.

In the majority of cases the risk associated with individual level crossing use is insufficient to make a clear case for its closure and/or diversion. It is therefore necessary to understand any other benefits that can be factored in, for example reduced operational or maintenance costs, avoidance of forthcoming renewal costs, improved operating performance or funding obtained from other parties involved such as the Highways Agency, local councils or private housing developers. Management judgement also forms a key part of the decision process when qualitatively the risk warrants something to be done but the case for closure and/or diversion is not necessarily clear cut.

If it is not practicable to close and/or divert the crossing then it may still be possible to reduce risk through the provision of improved safety features where it is considered reasonably practicable.

In contrast provision of new level crossings would introduce additional risk and therefore would be permitted only in exceptional circumstances.

## Our Strategy

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Network Rail's overall strategy for managing level crossing risk is based upon a principle known as the four 'E's:

- Education; educating crossing users on how to use level crossings correctly and highlighting the dangers of misuse
- Enforcement; taking appropriate action to assist the police in identifying those who deliberately endanger others through their actions at level crossings with a view to securing their prosecution
- Enablement; developing appropriate techniques, processes, models and relationships/partnerships to improve the management of level crossing risk (e.g. Road Rail Partnership Groups, the All Level Crossing Risk Model)
- Engineering; requirement that level crossings are regularly inspected and correctly maintained. Additionally, where it is reasonably practicable to do so, enhancing crossing safety through means such as closure/diversion or provision of additional safety features/equipment (e.g. addition of telephones or lights, conversion from half-barriers to full-barriers).

Our strategy is not restricted solely to these elements and we will continually seek to learn more about the factors that contribute to level crossing risk. This includes activities such as:

- requesting and participating in continued research in this area through both industry and external bodies
- reviewing and acting on recommendations from previous accidents/incidents, and
- undertaking and acting on the findings of audits of our own company processes and procedures.

## Key Initiatives

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In addition to the established legislative requirements and risk management controls, Network Rail is taking forward the following key initiatives with a view to further improving level crossing safety:

- use of the All Level Crossing Risk Model (ALCRM) to gain a greater understanding of crossing risk and to target investment to close/divert or improve crossings where reasonably practicable
- continuing to implement and evolve the 'Don't Run The Risk' public awareness campaign to educate users on how to use level crossings correctly and the dangers of misuse
- investigation, trial and employment of measures to reduce the cost of level crossing closure such as 'modular'/standard bridge designs, new construction material /techniques/processes and challenging current construction standards

- realising the benefits from the formation of Road Rail Partnership Groups through taking measures to address level crossing safety from both a highway and railway perspective
- trialling of new technology which could reduce the cost of providing improved crossing safety features/equipment (e.g. conversion of automatic half-barrier crossings to automatic full-barrier crossings with obstacle detection)
- realising the benefits from the recent establishment of a National Level Crossing Safety Group and creation of a national specialist team
- realising the benefits from reducing the costs of level crossing design through bringing crossing renewal design in-house and reducing maintenance costs through the use of new technology to improve asset availability and reliability (e.g. replacement of filament bulbs with LEDs).

