Summary

- Level crossing accidents and fatalities have not significantly reduced for 30 years, and represent a high proportion of all railway deaths (excluding suicides and trespassers).
- Most of the risk at level crossings is caused by road users (mainly pedestrians and drivers) mis-using the crossing, either deliberately or inadvertently.
- Deliberate mis-use of level crossings should be treated as a serious criminal offence, and the feasibility of new offences to deter pedestrian mis-use should be investigated.
- More enforcement resources, making use of cost-effective technology such as ANPR are needed.
- Public education about the risks and consequences of level crossing mis-use is crucial, and a wide range of education and publicity interventions are available. These should be widely disseminated.
- Their effectiveness should be evaluated to determine if they can be improved.
- The railway sector and the highway and road safety sectors need to work very closely together to identify, co-ordinate and implement safety improvements at level crossings – this is not be the responsibility of the railway sector on its own.

Introduction

1 RoSPA is a registered charity that promotes accident prevention in all areas of life. Our mission is to save lives and reduce injury. RoSPA was a member of the Level Crossings Advisory Group, established by the Law Commission and the Scottish Law Commission as part of its review of, and subsequent consultation paper on, the law on level crossings. RoSPA welcomes the Committee’s Inquiry into Safety at Level Crossings and is grateful for the opportunity to submit evidence.

Safety at Level Crossings

2 There are over 6,000 level crossings, of many different types, in Great Britain. On average, there are 9 deaths, 7 major injuries and 23 minor injuries on levels crossings each year. In 2012/13, there were 9 deaths at level crossings (4 pedestrians and 5 vehicle occupants) and 10 collisions between trains and road vehicles. There were also 302 near misses with pedestrians and 152 with road vehicles, as well as 1,822 reported incidents of misuse of level crossings by pedestrians and 1,736 reported incidents of misuse by road vehicle drivers.

3 Over 90% of the risk at level crossings in recent years has been due to user error (e.g., not knowing how to operate the crossing, misjudging the time it takes the train to reach the crossing or not realising a second train is coming) or user abuse (e.g., driving around half-barriers, not stopping for red lights, not requesting permission to cross and leaving gates open).
A review of fatal accidents at level crossings in Great Britain between 1946 and 2009 identified that 1,250 people had been killed on level crossings over that 64-year period. Fatal accidents and fatalities at level crossings fell by about 65% in the first half of that period, but then remained constant for the rest of the period at about 11 fatal accidents and 12 deaths per year. The number of crossings fell by about 75% over the period. However, the number of fatal accidents had remained almost unchanged for about 30 years.

Almost all (95%) of the fatalities at level crossings were road users. Of the 1,252 fatalities, 700 (56%) were pedestrians, 487 (39%) were vehicle occupants, including two-wheeled vehicles and farm vehicles, 44 (4%) were railway staff, and 21 (2%) were railway passengers.

The review grouped level crossings into three broad types:

1. **Railway-controlled crossings**: railway staff operate the crossing (manually or by remote control), which is almost always interlocked with railway signalling, so it is not possible to clear the signals for a train until the crossing is closed to the road. The number of this type of crossing declined from about 4,150 in the late 1940s to 813 in 2006–2009. Accident rates on these crossings also declined and accounted for only about 5% of level crossing fatal accidents and fatalities in 2009.

2. **Automatic crossings**: an approaching train triggers the operation. Their numbers grew from zero before the 1960s to 800 in 2001/02–2005, but fell to 720 in 2006–2009. Accident rates are higher because their safe use depends primarily on road users observing warnings that a train is approaching. In 2009, automatic crossings accounted for 52% of fatal accidents and 54% of fatalities at level crossings.

3. **Passive (‘user-worked’) crossings**, including footpath crossings: those crossing must check it is clear to cross; sometimes telephones are provided to check with railway staff. Most level crossings are this type, which are typically on private roads, farms, or footpaths. They have declined from about 22,900 in late 1940s to 5,140 in 2006–2009. Their accident rate (mostly pedestrian accidents) is much lower than automatic crossings because they are not on public roads and have lower usage. However, their accident rate has not declined and they accounted for 43% of fatal accidents and 41% of fatalities on level crossings in 2009.

The review concluded that the principal reason why the number of fatal accidents has not declined since the early 1970s is the replacement of railway controlled crossings by automatic crossings. However, it notes that automatic crossings have a number of advantages, in that they do not need staff and create less delay for road users. Nevertheless, they are less safe, so a balance has to be struck between safety, cost and delay.

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* As noted in paragraph 2, this had reduced to an average of 9 deaths pa. by 2012/13.
Are current safety measures at level crossings adequate? How should they be improved?

In addition to bridges and underpasses what other cost-effective measures can be introduced to replace or improve safety at level crossings?

8 There is a comprehensive approach to improving safety at level crossings, including a programme of level crossing closures and improvements, risk assessments using the All Level Crossing Risk Model (ALCRM) model, thorough accident investigations and an extensive research and development programme.\(^5\)

9 However, given that level crossings are places where roads and road users cross the railway, they inevitably remain high risk infrastructure. The most effective way to reduce accidents, deaths and injuries at level crossings is to close the crossings if possible, which is Network Rail’s policy. They have closed 700 level crossings across Britain (about 10% of the total) since 2009 as part of their £130m national level crossing investment programme.\(^6\) However, it is not possible to close all crossings without a huge investment to provide alternatives, such as tunnels, bridges or road diversions.

10 The next most effective approach is to design level crossings that depend as little as possible on road users behaving safely, because crossings which depend on the behaviour of road users have the highest accident risks. An example of this approach is converting automatic half-barrier crossings to automatic full-barrier crossings with obstacle detection, so that a train is not cleared to pass the crossing unless it is clear.

11 Given the dominance of road user misuse as the cause of level crossing accidents, close co-operation between the railway sector and highway authorities and the police is essential. It would also be useful if there were fewer different types of level crossings as this would help the public to understand how they should be used.

12 The level and type of information differs significantly by level crossing type and sometimes within a single type of level crossing. In road user surveys and trials all respondents understood the ‘stop’ signals but responses to ‘amber’ and ‘not illuminated’ varied. Participants identified level crossing advance warning signs, but did not associate the different signs and signals with different types of level crossing. Comprehension of the St Andrew’s cross was particularly poor.

13 Awareness of the possibility of second trains was low, with participants expecting the barrier to rise immediately after the first train. In video scenarios, around 25% of participants would proceed over the crossing despite the presence of the lorry on the far side. Around a quarter of these people did not notice the lorry and a significant minority noticed it but were prepared to start over the level crossing anyway. The study recommended standardising barrier and gate markings, minimising the variety of signs and using vibro-tactile warnings (eg rumble strips) and cross hatching on the approach to level crossings.

14 Other recommendations included enhancing the salience of the crossing itself, and sightlines to it, influencing vehicles’ approach speed, preparing drivers for the possibility that they may have to stop, integrating level crossing signals with traffic lights or road markings and warning road users about additional trains when more than one is passing.
15 Vehicle Activated Signs (VASs) reduced the risk of vehicles blocking back on level crossings (ie, entering the crossing when the exit is blocked by other vehicles) by 60%, but only in the short-term (the first three months), after which blocking back returned to pre-VAS levels.\(^6\) Low cost mobile VASs could be deployed in short bursts at sites with blocking back problems, especially where blocking back is anticipated due to local events or road works. The vast majority of more severe events were due to misjudgements made by drivers, but almost a third of drivers were observed trapping the vehicle in front on the crossing.

16 Improvements could be made to public awareness of emergency phones at level crossings, and to 999 call pathways for reporting an incident.\(^9\) Three-quarters of people would call for help when faced with a level crossing incident, and 70% of these would use their mobile phone to call 999. Only 27% would use the level crossing phone. As only 42% of people were able to explain how to use an emergency phone correctly phone visibility, and use instructions, should be improved. A standardised Level Crossing Emergency Protocol should be developed, perhaps along the lines of Network Rail’s protocol to support the response to bridge strikes

17 RoSPA believes that greater use should be made of CCTV and Automatic Number Plate Recognition (ANPR) technology at level crossings, prioritising those with an identified problem of road user misuse. ANPR technology enables drivers who mis-use crossings to be identified and issued with a fixed penalty or prosecuted. This would provide a strong deterrent, especially if the ANPR cameras are visible and prominent. CCTV can provide powerful images to educate road users about the dangers of misuse of level crossings.

How should expenditure on improving safety at level crossings be prioritised in relation to other demands on the rail budget?

Is Network Rail giving sufficient priority to improving safety at level crossings?

18 Level crossings represent a growing proportion of the all railway deaths. According to the review (mentioned above), by 2009 deaths at level crossings represented 46% of all railway fatalities (excluding trespassers and suicides) – it was 11% in 1946 - 1950. Therefore, improving safety at level crossings should be one of the top safety priorities for the rail budget.

19 Given the fact that road users are the main cause of most level crossing accidents, there is a case for road budgets being used to help fund safety improvements at level crossings. The difficulty is that level crossing crashes and casualties are a very small proportion of overall road accidents and casualties (even though they are a major proportion of railway accidents and casualties). Therefore, it is natural that road safety budgets are focused on the main road safety issues.

20 However, the railways, highway authorities, police and HSE need to work closely together to ensure a consistent and integrated approach to level crossing safety, both in terms of national policy and local policy at level crossing sites. Now that some responsibility for public health has been transferred to local authorities, in England, there should also be opportunities for closer working with public health services.
Is Government policy and regulatory action by the Office of Rail Regulation (ORR) in relation to safety at level crossings adequate? What more should the Government and ORR do?

21 Misuse of level crossings by drivers should be treated as a serious criminal offence because the potential to cause a catastrophic accident, resulting in multiple fatalities, is clearly high. A collision between a train and a car at a level crossing in 2004 caused 7 deaths. The law and the penalties should reflect this level of risk. RoSPA believes that current road traffic offences should continue to regulate the conduct of drivers at level crossings that cross roads; it seems unnecessary to create new offences.

22 However, there is a case for new offences related to pedestrian behaviour at level crossings because road traffic offences do not, in general, regulate the conduct of pedestrians. In 2012/13, 4 pedestrians were killed at level crossings, 302 were involved in near misses with trains at level crossings and 1,822 incidents of pedestrian misuse of level crossings were reported. The RSSB has estimated that the risk of death or serious injury to pedestrians makes up 77% of the total risk to those crossing the railway at level crossings. A large proportion of this risk occurs at footpath crossings.

23 Therefore, RoSPA believes that there is a case for new offences that would apply to pedestrians who deliberately misuse level crossing. However, it must be made clear at the crossings when and how pedestrians should cross so that they do not face charges for reasonable mistakes.

24 It is important that laws and penalties act as a deterrent, which means that they have to be widely known, and there must also be a perception that those who breach the laws are likely to be detected and prosecuted.

How should the legislation governing level crossings be updated?

25 As stated in our response to the Law Commission and the Scottish Law Commission’s 2010 consultation paper RoSPA thinks that the regulation of safety at level crossings should be governed by the Health and Safety at Work Act 1974. However, given that railways and level crossings are a specialised area of knowledge and practice, we agreed with the provisional proposal in the consultation paper ‘that ORR, as the safety regulator for the railways, should remain as the body with overall responsibility for safety regulation at level crossings.’ Following this consultation, a draft Bill and Regulations under the Health and Safety at Work etc Act 1974 are being produced.

26 Highway authorities also have duties to ensure the roads near level crossing are safe to use, and appropriate signs and road markings are provided. As stated in paragraphs 21 – 25 above, RoSPA believes that deliberate misuse of level crossings by road users should be treated as a serious criminal offence under road traffic law.

27 Co-ordination between all the agencies involved is essential. Neither the rail sector nor the HSE have the necessary expertise (or resources) to manage the highways around level crossings and highway authorities and the police do not have the necessary expertise (or resources) to manage the railway side of level crossings. Very clear working relationships and protocols between the Health and Safety Executive (HSE), the Office of Rail Regulation (ORR), Network Rail, highway authorities, road safety practitioners and the police is crucial. A National Level Crossing Safety Strategy (similar to one produced in Australia) might help co-ordinate the activities of all these agencies.
How should public awareness of safety at level crossings be improved?

28 Raising public awareness is difficult to achieve and maintain without the funds to conduct sustained publicity and education campaigns, involving television, cinema, radio, online, social media and print adverts and resources.

29 A wide range of education and campaign materials are available, including Network Rail’s ‘Don’t Run The Risk’ campaign. Other examples include the Office of Rail Regulation’s guide to using level crossings safely, which is aimed at pedestrians and motorists. A range of school resources and other materials for parents, level crossing users and youth groups are published by Network Rail.

30 Advice is, of course, only useful if it is widely disseminated and promoted and reaches its intended audience. The ORR and Network Rail should work closely with Local Authority Road Safety Officers, other road safety and road user organisations, and public health practitioners, to increase the use of their campaigns and resources.

31 The LASER Alliance, which is hosted by RoSPA, and is committed to helping people learn how to make responsible decisions about safety and risk has a useful role to play in promoting level crossing safety, in conjunction with road and railway safety partners. A number of permanent safety centre members of the LASER Alliance, including Lifeskills (Bristol), DangerPoint (North Wales), Flashpoint (Bodmin), Safeside (Birmingham), Risk Factory (Edinburgh), Warning Zone (Leicester), have scenarios and distribute educational resources about railway safety.

Evaluation

32 Evaluation is a key way of assessing whether education initiatives are effective, and whether they can be improved. RoSPA, the Department for Transport and road safety practitioners produced an online evaluation toolkit (called “E-valu-it”) to help practitioners to evaluate their road safety education, training and publicity interventions. A similar approach and resource could be developed for railway education campaigns.
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