Rail Safety & Standards Board

Overview of the June 2006

Level Crossing Safety Performance Report

Level crossings are a key interface between the railway and the public. There are around 7,500 on the mainline railway network, and while they contribute only 6% of the overall railway risk profile, they do provide a significant proportion (35%) of the risk associated with train accidents. Misuse by crossing users contributes 95% of the risk at level crossings.

Some of the main facts arising from the analysis in this report are as follows:

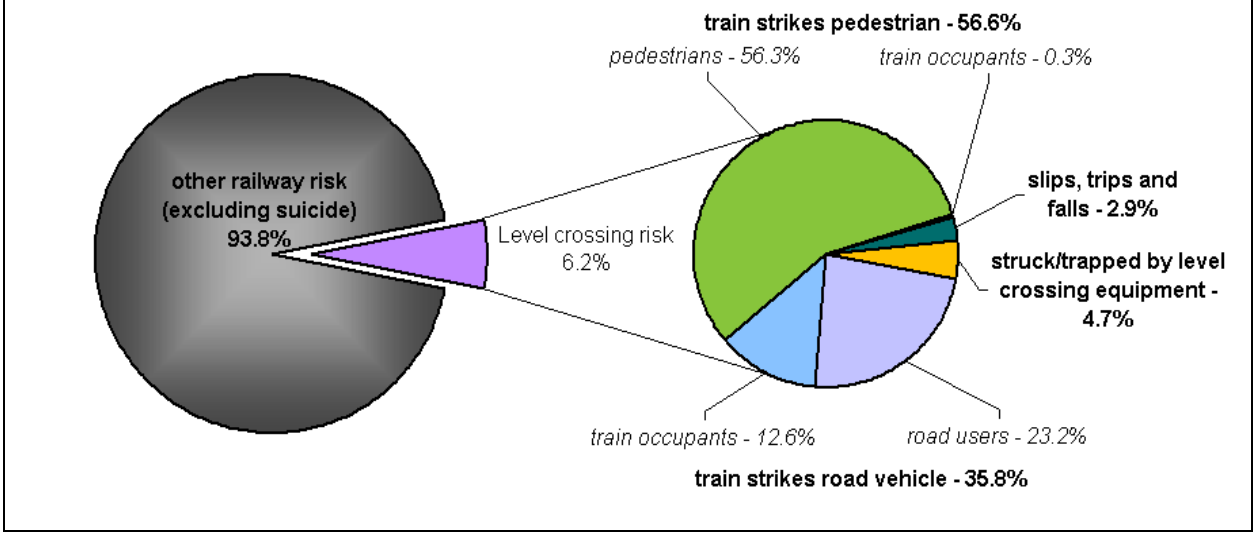
- There have been no train occupant fatalities or major injuries in accidents at level crossings since the incident at Ufton Nervet in November 2004.
- The level of risk from level crossing collisions has shown a slight improvement over the last five years.
- The rate of collisions with road vehicles at level crossings has remained constant, with 16 occurring in both 2004 and 2005.
- 2005 was the first year since 1999 where no derailment occurred as the result of a train striking a road vehicle on a level crossing.
- There were 13 accidental fatalities (ie not including suicides and suspected suicides) at level crossings in 2005 – three were road vehicle occupants, 10 were pedestrians.

Near miss and misuse incidents rose in 2005, compared with 2004.

Level crossing risk in context

Chart 1 shows level crossing risk weighed against the overall level of risk on the railway (as indicated by the Safety risk Model (SRM)). It illustrates that, excluding suicide, level crossings contribute approximately 6% of the total risk. The right-hand pie chart indicates that the majority of the risk comes from pedestrians being struck (57%), while the second highest risk arises from train collisions with road vehicles (35%). Of the risk at level crossings, over 95% is from human error and misuse; less than 5% is caused by hardware failure.

Chart 1 Level crossing risk in context of overall railway risk (excluding suicide)



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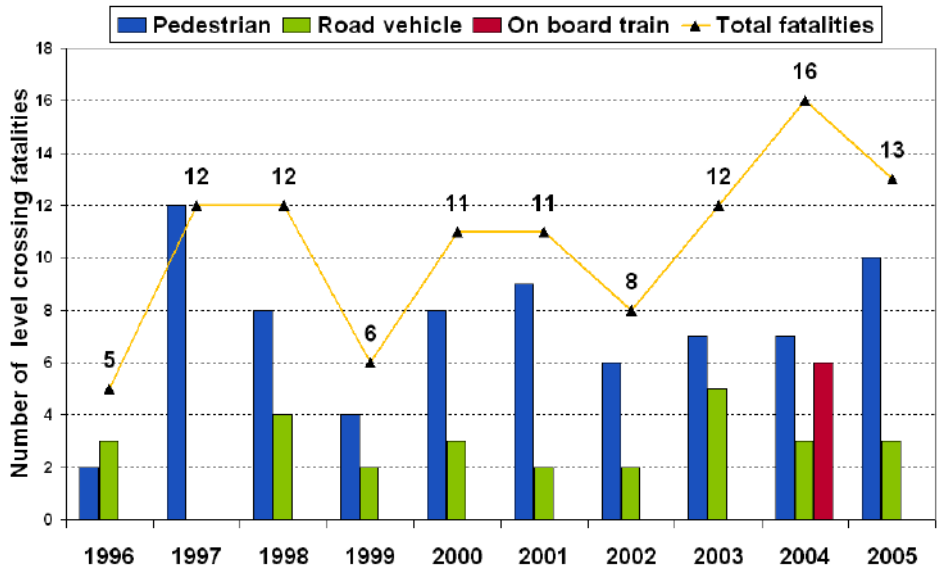
Overall risk at level crossings

The risk at level crossings is dominated by fatality risk, rather than major or minor injuries. Chart 2 presents the trend in accidental fatalities occurring at level crossings since 1996.

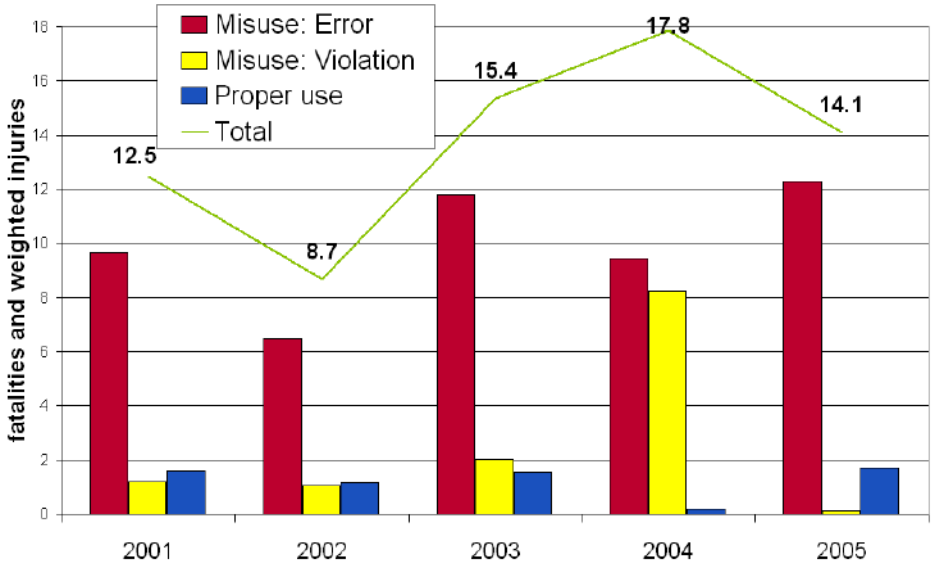
Chart 2 shows that in 2005, there were 13 accidental fatalities, 77% of which were pedestrian. This is an improvement on 2004's high total, however, it should be noted that this is largely due to the absence of a high-consequence event, such as occurred at Ufton Nervet in 2004. Pedestrian fatalities in 2005 were the most seen in a single calendar year since 1997.

Chart 2 Accidental fatalities at level crossings



The term 'trespass' is now confined to situations where people go where they are never authorised to be, rather than where they behave inappropriately (either from error or violation) at places where they are allowed to be at certain times and under certain conditions. This revision was brought about by a review of the circumstances of recent accidents at level crossings. Accidents occurring to users at level crossings are now classified as one of three types: proper use, misuse (error), or misuse (violation).

Chart 3 Injuries at level crossings by user-behaviour



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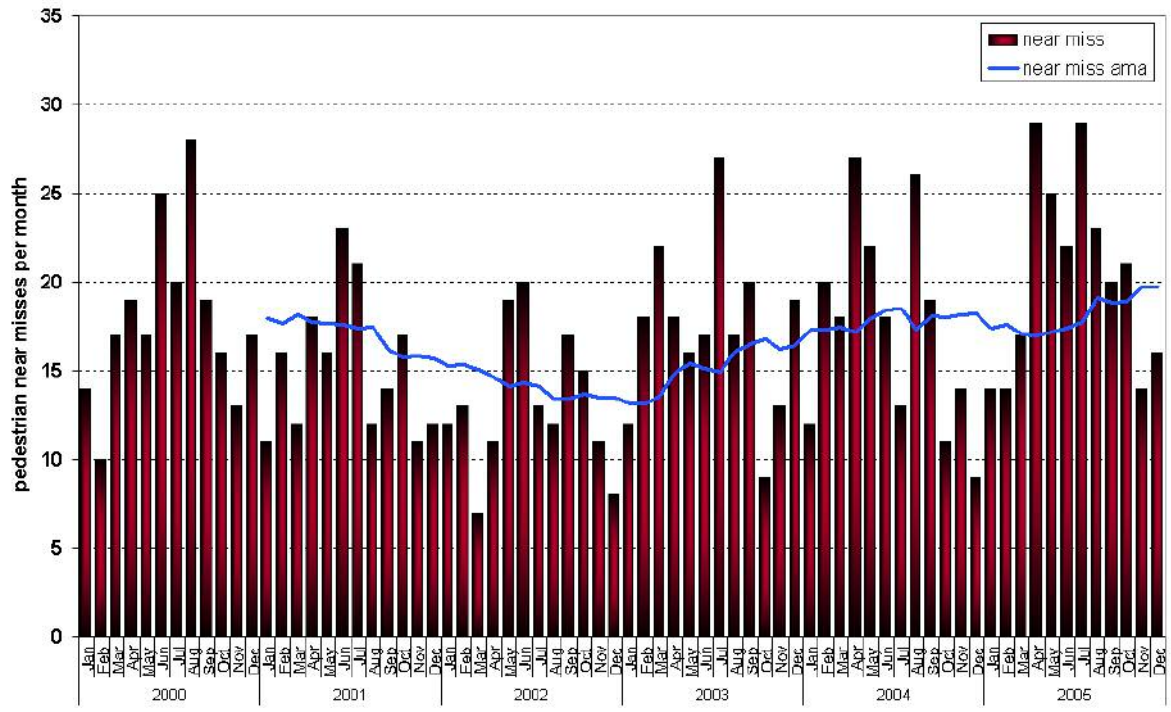
Note that the majority of harm arises from crossing user error, which has seen a 35% increase since 2004, although this is not statistically significant, because the figures are dominated by a small number of fatalities. Demonstrating this fact, 2005 saw a significant reduction (97%) in injuries sustained during crossing violations. Proper use appears to remain consistent with the average levels seen over the previous four years.

Pedestrian risk at level crossings

Ten pedestrians lost their lives in accidents at level crossings in 2005. This represents the highest fatality rate for pedestrians at level crossings since 1997 (see Chart 2). Due to the relatively small number of accidents occurring at level crossings, the safety of pedestrians at level crossings is further measured by looking at trends in reported misuse and near miss incidents. Near misses are considered to be reported more consistently than misuse as reports come predominantly from train drivers.

The number of reported pedestrian near misses for the period 2000 – 2005 is shown in Chart 4. On average, 203 incidents are reported to SMIS each year. Within each, peaks in reported near misses at user worked level crossings are evident during the summer months, as would be expected due to increased usage. Pedestrian near miss incidents continue to rise, with a higher number of incidents reported year on year since January 2003.

Chart 4 Average monthly pedestrian level crossing near miss incidents



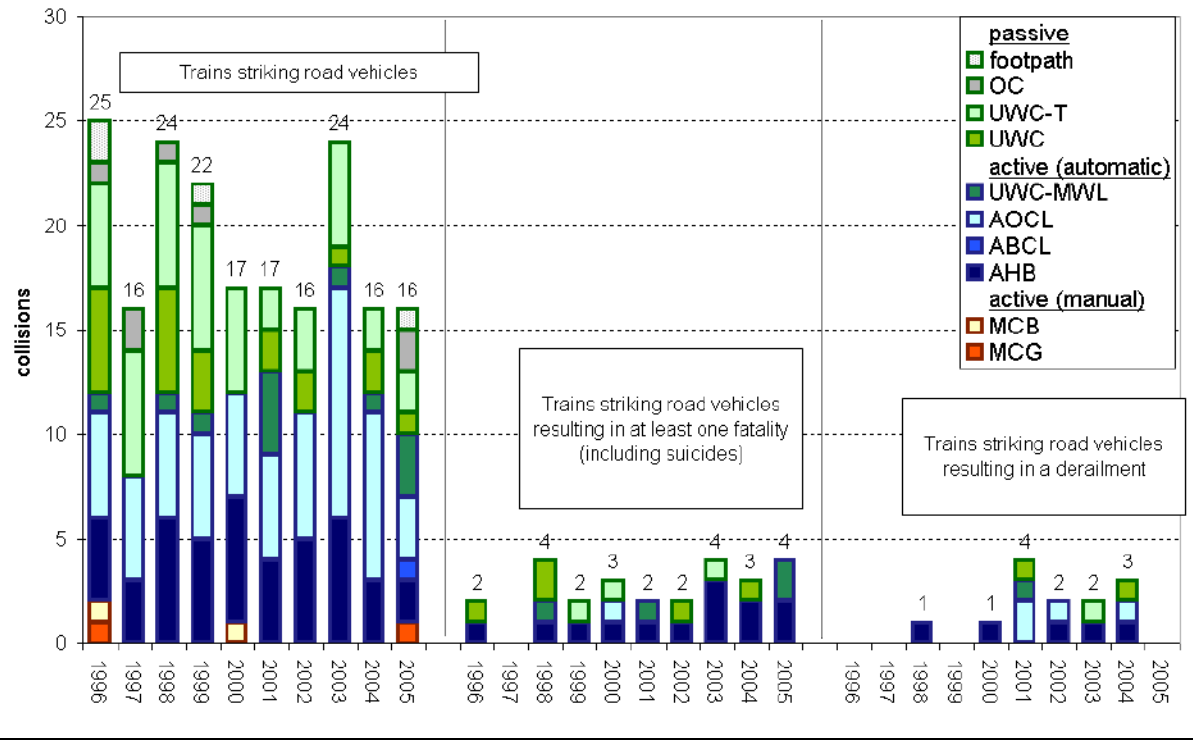
Road vehicle collisions at level crossings

Not all incidents of trains striking road vehicles result in death or serious injury to the vehicle occupant – in fact, the majority do not. Chart 5 shows the number of road vehicles hit by trains at level crossings over the ten years up to and including 2005. There were 16 such incidents in 2005, which is the same as the previous year. Although there is some evidence that the underlying rate may have dropped since the late 1990s, there is not enough data to assert this with a high level of confidence.

Road vehicle near miss and misuse incidents rose in 2005, compared with 2004. There were 172 road user near misses in 2005, against 161 the previous year. Similarly, road user misuse incident levels rose by 90 to 666 in 2005.

Another point illustrated on Chart 5 is that most incidents occur at AHB, AOCL and user-worked crossings. Relative to the number of crossings on the network, collisions are a particular problem on AOCLs, although plans are in place to minimise their numbers where reasonably practicable. Compared with previous years, fewer collisions occurred at AHB and AOCL crossings during 2005, but the reductions are small and not statistically significant. Collisions between cars and trains at other crossing types are relatively rare. There were no derailments as a result of trains striking rail vehicles in 2005, the first year this has occurred since 1999.

Chart 5 Road vehicles struck by trains at level crossings



Conclusions

Level crossings represent a significant risk to passengers, drivers, and the public. The train accident risk from level crossings is higher than the collision and derailment risk from SPADs.

There is currently considerable research and practical action being taken by the industry to better understand user behaviour at level crossings, and to implement additional controls and upgrades to improve level crossing safety performance. These are summarised in the full SPR, but examples include:

- Evaluating the safety benefit from installing miniature warning lights at user worked crossings.
- Assessing the feasibility of installing obstacle detection at level crossings.
- A programme of closure of specific level crossings.
- A national media campaign highlighting the dangers of level crossing misuse.

Further information:

The level crossing SPR can be downloaded from our website: www.rssb.co.uk.
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