OFFICE OF RAIL REGULATION

UK NSA Annual Safety Report 2013

September 2014

Contents

A. Introduction

A1. The purpose, scope and other addresses of the report

1. The purpose of this Report is to comply with Article 18 of the Railway Safety Directive which requires all National Safety Authorities (NSAs) to publish an annual safety report. The report covers the UK NSA's activities from 1 January to 31 December 2013.

2. In the UK, the role of NSA is shared between the Office of Rail Regulation (ORR) and the Department for Regional Development in Northern Ireland (DRDNI). ORR is responsible for England, Scotland and Wales, collectively known as Great Britain (GB), and DRDNI is responsible for Northern Ireland (NI). ORR represents DRDNI in relations with the European Railway Agency (ERA) and therefore this report covers the UK as a whole. There is a separate section covering DRDNI's activities in Northern Ireland (chapter I). The Common Safety Indicator (CSI) data has been aggregated at UK level and includes data for the mainline network in Great Britain and Northern Ireland.

3. The scope of this report is the entire UK mainline railway system (including the high speed line between London St Pancras and the Channel Tunnel (HS1)), and covers both 1435mm (GB) and 1600mm (NI) gauge networks. Mirroring the scope of UK implementation of the Railway Safety Directive, the report does not cover metros, tramways and other light rail systems, or infrastructure that is functionally separate from the rest of the UK mainline network.

4. The report does not cover the Channel Tunnel which has a separate NSA, the Intergovernmental Commission (IGC). The IGC produces a separate annual report to ERA.

5. As well as ERA, this report will be made available via ORR's website to the UK Department for Transport (DfT), the Railways Accident Investigation Branch (RAIB, the UK's NIB), the Railway Safety and Standards Board (RSSB), railway undertakings (RUs), infrastructure managers (IMs), entities in charge of maintenance (ECMs), passenger associations (Passenger Focus and London Travel Watch) notified bodies (NoBos) and designated bodies (DeBos).

A2. Possible significant organisational changes affecting the NSA

6. During 2013 there were no significant organisational changes made by ORR. There were also no significant legislative or organisational changes externally that significantly impacted upon ORR.

B. Overall Safety Performance and Strategy

B1. Main conclusions on the reporting year

1. For the UK, there are three main sets of trajectories and targets that are used to measure safety risk:

- The mainline railway industry produces a Strategic Safety Plan 2009-14 (SSP)
- The UK government sets targets for risk reduction in the High-Level Output Specification (HLOS) for 2009-14 Control Period (CP4)
- ERA sets National Reference Values (NRVs) in the context of Common Safety Targets (CSTs)

2. The reporting cycle for the UK is dictated by 5-year control periods which are part of the government High-Level Output Specification (HLOS). CP4 covered the period 1 April 2009 to 31 March 2014. The current Control Period (CP5) started on 1 April 2014 and runs until 31 March 2019.

3. Unlike in CP4, the UK government has not set targets for safety risk reduction in CP5. Instead it has explicitly funded certain areas to achieve further risk reduction, such as level crossings and track worker safety.

Strategic Safety Plan

4. The Strategic Safety Plan (SSP) is a joint statement by UK infrastructure managers and railway undertakings responsible for Britain's mainline rail network, setting out an agreed industry approach to managing safety. The SSP follows the Control Period cycle.

5. In the SSP, 15 trajectories have been developed which describe the industry's ambitions in nine identified key risk areas and identify actions that are being undertaken to achieve them.

6. The fifteen trajectories are:

1. Passenger slips, trips and falls in stations
2. Train crew injuries on board trains
3. Signals Passed At Danger (SPADs)
4. Risk to infrastructure workers

5. Station staff slips, trips and falls
6. Train accidents due to infrastructure failure
7. Trespass
8. Assaults on passengers
9. Assaults on train crew
10. Assaults on station staff
11. Public behaviour on level crossings
12. Vandalism
13. Passenger injuries on board trains
14. Passenger accidents at the platform-train interface (PTI)
15. Train accidents due to rolling stock failure

7. For all 15 categories, the risks meet (comply with) the trajectory over the 2009-14 Control Period. For passenger accidents at the platform-train interface (category 14), the risk from the category as a whole is within the trajectory. However the risk from boarding/alighting events (a subset of the platform-train interface category) is above the expected level.

National Reference Values (NRVs) and Common Safety Targets (CSTs)

8. The Railway Safety Directive states the requirement for Member States to ensure that safety is generally maintained and, where reasonably practicable, continuously improved. ERA has developed CSTs and NRVs to monitor the safety performance of Member States.

9. Data for 2013, as outlined in this report, indicate that UK's safety performance continues to be at an acceptable level in all measured NRV categories.

High-Level Output Specification

10. In the HLOS covering the period 2009-2014, the UK government Department for Transport (DfT) established safety metrics for both passenger risk and workforce risk and specified a requirement for a 3% reduction in both categories. The safety metrics were monitored using the RSSB Safety Risk Model.

11. The safety metric for passengers at the start of the control period (April 2009) was calculated as 1.070 Fatalities and Weighted Injuries (FWI) per billion passenger kilometres. The target for the end of the control period (March 2014) was 1.038 FWI per billion passenger kilometres.

12. The workforce safety metric at the start of the control period was calculated as 0.134 FWI per billion workforce hours. The target at the end of the control period was 0.130 FWI per million workforce hours.

13. By the end of CP4, the safety metric for passengers was 3.1% below the baseline metric. The workforce metric was 18.7% below the baseline over the same period.

Significant accidents

14. The UK railway industry uses the RSSB Safety Risk Model to model the risk from Potentially Higher-Risk Train Accidents (PHRTA). PHRTAs comprise the types of train accident that have the greatest potential to result in higher numbers of casualties, although the majority result in few or no injuries.

15. PHRTAs comprise train derailments, train collisions (excluding roll backs), trains striking buffer stops, trains striking road vehicles at level crossings, trains running into road vehicles not at level crossings (with no derailment), train explosions, and trains being struck by large falling objects.

16. In 2013 there were 31 PHRTAs compared to 36 in 2012. 11 of these incidents were investigated by the Rail Accident Investigation Body (RAIB). A list of the 31 PHRTAs can be found in Annex C.

PHRTA category	Number
Collisions with road vehicles not at level crossings	1
Collisions with road vehicles at level crossings	11
Derailments	13
Buffer stop collisions	2
Collisions between trains	4
Trains struck by large falling objects	0

B2. National safety strategy, programmes and initiatives

17. The scope of this report is the UK mainline network. It focuses therefore on the ORR safety strategy, programmes and initiatives in relation to Network Rail and the mainline freight and passenger railway undertakings.

18. ORR has teams of inspectors allocated to different areas of the railway network:

- The mainline infrastructure manager (Network Rail) and associated suppliers and contractors. Each Network Rail route has a team of inspectors assigned to it. There is also a national team that deals with issues, such as level crossings, that are relevant to all routes.

- Passenger railway undertakings
- Freight railway undertakings, metros, trams and heritage railways
- Transport for London (TfL). This team covers London Underground, the Docklands Light Railway and London Overground
- A central regulation team covering human factors, occupational health & safety and railway safety policy. The team also provides the UK secretariat to the IGC and CTSA which provide support to the head and members of the UK delegations.

ORR strategy

19. As well as the National Safety Authority, ORR is also the Regulatory Body (RB) for mainline railways in Great Britain. In October 2013 ORR published the 2013 periodic review (PR13) – a final determination of the outputs that the UK's principle mainline infrastructure manager (Network Rail) must deliver, the efficient cost of delivering those outputs, and the access charges the company can levy on train operators for using its network to recover those costs.

20. Network Rail's funding includes a ring-fenced fund to deliver level crossing closures. Funds have also been made available to enable electrical isolations to be taken more safely and quickly and to replace a number of road-rail vehicles.

21. ORR is strategic in how health and safety on Britain's railways are regulated. ORR's key approach is to deliver a safe railway where the health and safety management is cost effective and performance is amongst the best in the world. ORR's core safety strategy message explaining what is done and why is reproduced at Annex D.

22. ORR's health and safety strategy covers ten key areas:

1. Health and safety management
2. Industry staff competence and human failure
3. Management of change
4. Level crossings
5. Interface system safety
6. Infrastructure asset safety
7. Rolling stock asset management
8. Workforce safety
9. Occupational health
10. Europe

1. Health and safety management

23. A health and safety management system (SMS) is fundamental to the ability of an organisation to meet its legal obligations to identify, eliminate or reduce so far as is reasonably practicable, the risks its activities create.

24. ORR has developed the railway management maturity model (RM3), a tool which describes the components of effective safety management, such as leadership, staff competence, and proper risk management.

25. ORR uses RM3 to assess information gathered from inspections and investigations to develop a comprehensive picture of duty holder health and safety risk management capabilities. Duty holders are encouraged to use RM3 to test and pinpoint where and how to improve their capability to manage risk.

26. ORR's inspectors work directly with duty holders as well as holding workshops to show how best to use RM3 and to share good practice.

2. Industry staff competence and human failure

27. Workforce errors and violation can pose serious risks to railways. However, ORR is satisfied that both railway undertakings and infrastructure managers are taking positive action to sustain and improve staff competence. Human failure is a continuing priority because of the potential for multi-fatality events if a safety critical worker makes a mistake.

28. ORR encourages and supports infrastructure managers, railway undertakings and other duty holders to embed human factors considerations into their management systems and endeavour to error-proof their operations and equipment designed to prevent human failure contributing to accidents. Critical to achieving this is having a validated competence management system that is proportionate to the risk, targeted to the needs of the organisation and relevant to its medium and long-term development.

29. ORR's priorities for helping duty holders deal with human failure is to focus on ensuring that their SMS reliably identifies and controls risks from:

- unreliable performance and errors;
- performance and safety failure due to competence, non-compliant behaviours, distraction or ineffective supervision;
- safety impact from insufficient human resource; and
- failures due to poor design of equipment, workplaces or the design of safe systems of work.

3. Management of change

30. Change management processes are the means by which organisations ensure that changes to their structure, functions, procedures or processes are implemented such that the expected outcomes are delivered, and those issues that could have an impact on risk, are subject to rigorous self-assessment.

31. ORR's focus on the UK industry management of change is concerned with duty holders having adequate arrangements to deal with changes to their structure, functions, procedures or processes. To do this ORR engages with duty holders in the early stages of planning and makes sure that the principles of 'safety by design' are properly adopted.

32. If necessary, further control measures are identified and put in place before the change is implemented. The degree of effort required to manage the change should be proportionate to the extent and complexity of change.

33. ORR has produced guidance for the industry on using the CSM risk assessment as a change management process.[1]

4. Level crossings

34. There are approximately 6,500 level crossings in use on the national mainline rail network in Great Britain. The number of unsafe events occurring at level crossings in Great Britain compares favourably with the record of other countries in Europe.

35. ORR has a long-established policy that no new level crossings should be installed unless there are exceptional circumstances.

36. ORR's approach at existing level crossings is to:

- help closures happen, encouraging all risk assessments of crossings to consider closure first
- check that people understand the risks and controls
    - Competent people leading risk assessments
    - All parties, such as businesses that use crossings, railway undertakings and users, working together to consider risk and controls;
- ensure that there is a risk management plan for each crossing
- encourage innovation and new technologies:
    - In bridging and underpasses
    - In level crossing design and fitment
    - In specific controls at each crossing
- encourage a move away from a one-size-fits-all "types" of crossing approach.

37. ORR has produced guidance on the management, operation and modification of level crossings[2] and worked with Network Rail to produce guidance for members of the public including pedestrians, cyclists, motorists, motor cyclists and horse-riders on how to use level crossings safely.[3]

[1] ORR CSM risk assessment guidance: http://orr.gov.uk/__data/assets/pdf_file/0006/3867/common_safety_method_guidance.pdf

5. Interface system safety

38. Interface system safety risks are those that arise at the interface between parties on the railway, such as between different duty holders or between duty holders and other parties, such as passengers. Analysis shows that interface system safety is the second highest safety risk priority on the railway.

39. For mainline operations, ORR's interface system strategy is focused on the following areas:

- Low adhesion
- Signalling and telecommunications
- Emergency preparedness
- Platform train interface
- Trespass and vandalism including suicides
- Vehicle incursion (not at level crossings)
- Passenger slips, trips and falls
- Station crowding/ control of passenger congestion

40. Where appropriate ORR validates the key elements of a duty holder's SMS to ensure confidence in overall management capability on interface risks.

41. ORR promotes collaborative working between duty holders through industry groups to tackle specific interface risks.

6. Infrastructure asset safety

42. Infrastructure is defined as the fixed assets used for the operation of a transport system. This includes, but is not limited to:

- track (including switches and crossings);
- stations;
- structures, such as bridges, tunnels etc.;
- signalling equipment; and
- equipment supplying electricity for operational purposes (e.g. overhead line equipment).

43. The provision and maintenance of infrastructure is a primary element of effective, safe operation of the railway.

44. ORR carries out national inspections on structures management, and follows up local issues through specific inspection activities. We work with infrastructure managers, particularly Network Rail, to improve its approach to structures inspection, scheduling, recording, prioritisation and remedial action.

[2] http://orr.gov.uk/__data/assets/pdf_file/0016/2158/level_crossings_guidance.pdf and has

[3] http://www.networkrail.co.uk/level-crossings/using-level-crossings/

45. ORR also engages with infrastructure managers to ensure new infrastructure is properly designed and built and its maintenance incorporated into the existing management system.

7. Rolling stock asset management

46. Rolling stock has a direct and indirect contribution to risk on the railway. The integrity of the stock itself is key to reducing direct risk such as brake failure, axle failure or fire resulting in immediate occupant risk and secondary risk from evacuation on live railway.

47. Indirect risks generally relate to the resilience of stock to collision, known as ‘crashworthiness’. Recent serious train accidents, in the UK and elsewhere, have highlighted that crashworthiness significantly influences survival rates.

48. ORR, working with industry stakeholders over a period of time, has developed a number of protocols relating to the management of rolling stock risk, including regulations, guidance and standards. With the introduction of new technologies, material developments and changes in operating practices there is a steady evolution in protocols and practices. The overall risk contribution from rolling stock is historically low and reducing. The introduction of ECMs should further reduce risks associated with maintenance of private wagons.

49. ORR’s strategy for health and safety regulation of rolling stock is focused on management of change, particularly around the introduction of new technology and equipment to extend the life of existing stock.

8. Workforce safety

50. ORR’s corporate vision is zero workforce and industry-caused passenger fatalities, with an ever-decreasing overall safety risk.

51. There has been a steady improvement in the safety of workers in recent years. Working on the railway covers a wide range of occupations and activities such as maintenance/ construction workers, shunters and customer-facing roles including station staff and train crew. Staff in different roles can face a variety of hazards, some of which are particular to the rail industry, some of which are not.

52. ORR addresses workforce safety by influencing each part of the sector to establish a vision for workforce safety that will deliver continuous improvement towards the goal of excellence in health and safety risk management.

53. With regard to construction and maintenance ORR works with Network Rail and its contractors to reduce the amount of work done adjacent to open lines. We also check that there are robust risk controls associated with working at height, worker/traffic segregation and lifting operations.

54. ORR works with the freight sector and freight wagon suppliers to drive down shunting risks.

55. In addition, ORR takes action across the industry where there is inadequate risk control to reduce the number of slips, trips and falls.

9. Occupational health

56. Occupational or work-related ill health describes those conditions that are caused, or made worse, by work.

57. Occupational health covers many different aspects of workforce well-being. This includes health considerations from:

- Physical work activities such as musculoskeletal disorders arising from manual handling and exposure to hand arm vibration;
- Exposure to hazardous substances; and
- Mental health issues, for example stress.

58. ORR launched its first occupational health programme covering 2010-14 in 2010 with the aim of improving how health is led and managed by organisations in the rail industry. The second occupational health programme was launched in 2014 and runs until 2019.

59. Since the start of its occupational health programme ORR has positively engaged with rail companies, stakeholders and trade groups and has noted that many rail companies are starting to develop proactive management strategies and action plans.

60. ORR continue to pursue an occupational health programme believing that the industry can significantly improve its worker health management performance and secure the economic benefits that arise from better health management.

61. In particular, ORR encourages greater industry leadership and follow-through from middle managers, the sharing of good practice on health, promoting greater awareness on health issues (including the costs); and encouraging a culture of excellence in health risk management.

10. Europe

62. ORR works closely with the DfT to ensure that UK has the right framework of law and meets its European obligations.

63. As European policy becomes more influential, the effectiveness of policies and strategy at the domestic level are increasingly determined by the success of ORR's engagement within Europe. Our input and influence within the European framework is key to our strategic aims for the industry to achieve excellence in health and safety culture, risk control and in asset management.

64. ORR's strategy for engagement within Europe is to influence the development of the safety regulatory regime; ensure that legislation, guidance and liaison enable the rail industry to comply with European requirements; ensuring that the right arrangements for enforcement of the requirements are in place; and engaging effectively in the development of harmonisation initiatives.

B3. Review of the previous year

Infrastructure Manager - Network Rail

Management maturity

65. Network Rail is the main focus of ORR's regulation as it is a high-hazard industry and its health and safety management systems are still developing.

66. In 2013, Network Rail's corporate safety audit process started to look at individual risk areas from basic principles rather than just checking standards compliance. This can have an important role in driving safety leadership throughout the organisation.

67. ORR's inspections and interventions in 2013, using the RM3 management maturity model, found a slight improvement in duty holders' overall scores compared to 2012.

68. ORR's interventions found some improvements in safety culture and safety leadership; positive improvements in the management of risks associated with level crossings; in managing earthwork risks; and in responding to severe weather. However, ORR found too many cases where the performance and efficiency target focus of people's day jobs eclipsed the delivery of safety.

69. We found evidence of a lack of consistent and robust safety leadership. The slow pace of change means many long-standing issues remain around the quantity, complexity and resourcing of initiatives to drive health and safety improvements.

70. ORR also found evidence of under-performing change management processes. Projects and initiatives are insufficiently embedded or evaluated to ensure risks are managed effectively.

Level crossings

71. Level crossing safety continued to improve with a reduction in FWI over 2013. Network Rail took steps in 2013 to improve the risk assessment of individual level crossings.804 crossings were closed in CP4. Network Rail has been funded to continue the closure programme in CP5.

72. In 2013, Network Rail successfully recruited and trained over 100 level crossing managers to proactively inspect and provide customised risk assessments at individual crossings – an area ORR had previously pushed Network Rail to improve. ORR found evidence that these managers had developed

good personal knowledge of issues affecting individual crossings which resulted in immediate risk reduction action.

73. Nevertheless, there was still an over-reliance on an old assessment model designed for national risk-ranking purposes (the “all level crossing risk model”), and an underperformance in carrying out more suitable risk assessments. ORR’s work showed that level crossing managers received insufficient initial training. Network Rail is currently rolling out a new risk assessment process – with ORR input – and updates to the risk model. In the longer term this should address the issue.

74. ORR found evidence that Network Rail’s engagement with authorised users of user-worked crossings was inconsistent.

75. Network Rail is using new technology to better actively warn crossing-users of approaching trains at currently passive crossings.

76. Measures include provision of manually-controlled barriers with obstacle detector crossings. These are a new type of crossing fitted with radar and laser systems that can detect obstacles blocking the running line. The limited initial trials of these systems have left some technical issues which ORR has challenged Network Rail to resolve.

77. To ensure these technologies are used effectively, ORR is working with Network Rail to develop a passive crossing strategy to improve crossing safety in and after CP5. We will consider RSSB research into level crossing safety and recommendations from investigations carried out by RAIB.

Infrastructure risks

78. In 2013 Network Rail’s management of infrastructure risk showed evidence of improvement in its structures and earthworks and reductions in stretcher bar failures. ORR had to take some enforcement actions because of Network Rail failure to address basic risks like increases in the proportion of repeat track twist faults and the absence of electrical earthing at signal cabinets.

79. ORR supports Network Rail’s initiatives to change its basic asset management philosophy. This includes a shift away from extensive, prescriptive written standards and rules, to a more risk-based, competence-reliant approach called “business critical rules”. Similarly, Network Rail’s depot project is aimed at introducing best practice to delivery units in areas such as work visualisation, planning and risk assessment.

80. The volume and pace of planned changes over CP5 poses a large challenge, particularly in the first couple of years. We are looking to see a well-managed, staged approach to delivering these programmes – with appropriate resources, governance, assurance and review. These planned initiatives have the

potential to move Network Rail towards excellence in asset management. Without the necessary management maturity that we would expect, they risk becoming missed opportunities.

81. Network Rail's shift away from a rules-based towards a risk-based approach to asset inspection and management will help to better align its resources to close demonstrable asset risk gaps. Network Rail also needs to make better use of engineering solutions to control risk.

Track and off track

82. ORR found evidence of an inability to deliver sustained safe track asset management. For example, there was a 7% under delivery of Network Rail's corrected track renewal programme and a rise in its maintenance work-bank volumes. In the final CP5 determination maintenance budgets were ring-fenced. ORR pressure has led to Network Rail carrying out its own capability review of its maintenance functions, the outcomes of which will be known later in 2014.

83. ORR's inspections of maintenance delivery units in 2013 found a general compliance with minimum standards, characterised mainly by a reactive "find and fix", rather than the preferred "predict and prevent" approach.

84. A consequence of this reactive approach is that faults are not always fixed in the lasting way ORR would expect. During 2013, the proportion of repeat "level 2" track twist faults (where a track twist fault reappears) increased across the country. This shows a missed opportunity to secure effective long-term repairs.

85. In November 2013 ORR's enforcement work in Scotland revealed the scope for Network Rail to improve its staff competence, infrastructure access, work planning and resource levels.

86. ORR also found that the freight train derailments in 2013 at Gloucester and Camden in London were caused by several different factors including poor track quality, the result of inadequate long-term maintenance and renewal. This included underlying track precursor conditions such as poor drainage.

87. There was a notable reduction in the stretcher-bar failures trend at switches and crossings and we anticipate further improvements driven by the planned roll-out of a new fatigue-resistant design, after our pressure following the 2007 Grayrigg derailment prosecution against Network Rail.

Earthworks

88. Network Rail still has much work to do to introduce measures to predict and respond to earthwork failures. Although there were similar numbers of failures to previous years, derailments declined which demonstrates improvement. Better understanding and management of drainage is a vital element to control of risks at earthworks. Network Rail has identified and begun to plan proactive inspection of its drainage assets. ORR will use its inspections to ensure it carries these out.

89. During 2013, ORR continued to press Network Rail to improve its understanding of the risks arising from failed earthworks during extreme weather. This included in particular taking enforcement action in Scotland.

90. ORR found evidence that poor vegetation management was reducing earthworks inspectors' ability to carry out examinations to assess the condition of these assets. ORR's efforts to secure better vegetation management arrangements came to a head with enforcement action in November 2013 to ensure adequate assessment of slope condition. Network Rail complied with our notice which required improvements to be delivered by mid-January 2014.

Structures:

91. Network Rail improved its management of structures, reducing its backlog of examinations and condition assessments, nearer to the level ORR would expect. The importance of safe maintenance of structures to the integrity of the network is reflected in the increased funding allocated to Network Rail for its civil assets in CP5.

92. Network Rail's own review of its asset management capability identified significant under-resourcing. ORR will continue to check how this is addressed and how well the engineer competency regime is embedded. These measures should build on the evidence that ORR has seen of improved stewardship in the management of bridges, tunnels and viaducts.

93. As assessment of civil asset conditions becomes more sophisticated, ORR expects that Network Rail may need to identify more interim risk controls at certain structures, in order to ensure it maintains a safe structures portfolio.

94. Moreover, incidents at Sunderland and Denmark Hill led ORR to challenge Network Rail to develop an action plan to address the risks of delamination (a failure resulting from layers of different materials separating and losing their strength) at bridges with concrete encasement. Our inspection work will focus on this in 2014.

Safety-by-design

95. **Overview**: In 2013, ORR found insufficient evidence that Network Rail had considered the whole-life costs of major changes to infrastructure –not just the project capital costs –and taken the opportunity to improve safety. Changes may only be reasonably practicable at an early point in an infrastructure's life-cycle. It is important that Network Rail uses these opportunities to make advances to comply with the law, secure improvements for the next generation, and set standards for the rest of the network.

96. **Evidence:** ORR inspected a number of Network Rail's projects and found good safety features in all the designs under consideration, but noted further opportunities to secure safety benefits in some others. In

some projects, ORR inspectors were satisfied that the choices Network Rail made were on the basis of a good understanding of risk.

Infrastructure worker safety risk

97. **Overview:** Network Rail accepted our view that it must do much more to protect infrastructure and particularly track workers. Key developments such as "Sentinel 2" were implemented and good use was being made of Network Rail's close-call procedures by workers to identify incidents that could have proved dangerous. The 10-point plan for improved worker safety has the potential to bring significant improvement, but needs maturity and commitment to be implemented successfully.

98. **Evidence:** ORR's analysis of incidents and risk evidence very clearly illustrated that actual FWI harm to infrastructure workers worsened by 22% in 2013. It is now at its highest level for seven years. In recent years, the two biggest causes of worker fatality were being struck or crushed by trains or being involved in an at-work road accident.

99. Progress to introduce new technologies that would help remove or reduce risk to infrastructure workers was too slow and needs improvement. The use of available train-mounted equipment, such as plain line pattern recognition (rail defect identifying) equipment, would have helped to remove the need for workers to be on or about the track.

100. the CP5 final determination includes targeted funding to improve protection and warnings to track workers, taking electrical isolations, and better and safer road-rail vehicles.

Occupational road safety

101. **Overview:** The role of fatigue in a mobile workforce remained a key issue, particularly the often overlooked drive home or back to the depot after a long shift. In 2013, RSSB issued useful guidance[5] on its road driving risk website[6].

102. **Evidence:** four infrastructure workers were killed in road accidents while on-duty over the last three years. The risk is not new but can benefit from improved industry reporting. The volume of confidential incident reporting and assessment system (CIRAS) reports about workforce fatigue management in 2013-14 confirmed that this was a risk that the industry must manage better. Nottinghamshire police's investigation into the road accident that killed two welders on the A1 on 26 June 2013 is on-going.

103. Network Rail's own analysis showed that occupational road safety incidents made up over 50% of its serious workforce accidents in CP4. Common causes included: reverse parking, speeding, unsupervised manoeuvres, reckless driving, using mobile phones when driving and faulty road vehicles.

Occupational health performance

104. **Overview:** Network Rail's overall occupational health performance levels were still lower than other comparable sectors and need significant improvement.

105. **Evidence:** in 2013 ORR continued the on-going assessment of Network Rail's occupational health management performance. It focused on specific health risk areas:

- hand-arm vibration syndrome (HAVS);
- silica dust from ballast handling; and
- control of exposure to asbestos.

106. Site inspections found varying standards of compliance and a general lack of ownership and accountability. Often there was no suitable, co-ordinated and systematic approach to health management at route and site-levels, either by Network Rail or its contractors. During the year ORR also identified a number of specific areas of poor health management:

- over 300-Network Rail employee HAVS cases over CP4 – a high number;
- the lack of an effective plan to manage risks from handling asbestos; and
- poor arrangements for managing the health risks arising from silica dust.

107. Network Rail's new health and wellbeing strategy puts effective management of occupational health at its heart and identifies appropriate key topic areas for specific attention. We note the commitment made at senior-level to improve health management through the proposed appointment of additional occupation health professionals and full-time health and wellbeing managers for each route. ORR has developed an additional RM3 element to assess duty holders' management of occupational health.

Passenger Railway Undertakings

Management Maturity

108. **Overview:** ORR's railway management maturity model (RM3) is now embedded in most operators' safety management systems and is being used as part of their own auditing arrangements.

109. In 2013, ORR continued to encourage more progress on the use of activity-based safety performance indicators and outcomes, as these contribute to changing behaviours and reducing unsafe acts. ORR intends to seek further evidence of established safety activity indicators amongst every mainline operator in 2014.

110. **Evidence*:*** Train operating companies (TOCs) made progress in moving to RM3 predictable (level 4) levels of risk management RM3 scores in several criteria but ORR noted that implementation and

monitoring lags behind policy and planning criteria. We found some isolated examples of excellence in discrete topics, such as change management and auditing.

111. Some TOCs started to introduce proactive indicators and were already seeing positive changes in behaviours where this monitoring had started.

Train protection and warning system (TPWS)

112. **Overview:** The available evidence showed that some operational trends worsened in 2013. ORR expects the industry to improve the management of these risks, including signals passed at danger (SPAD) risk management. The SPAD reduction strategy being developed by the train operations risk group should help improve SPAD management.

113. ORR continued to seek evidence of operators' plans to enhance their driving cab's warning system equipment and fit further train protection on the network. A recent double SPAD highlighted the benefits of upgrading in-cab TPWS modules.

114. **Evidence:** In 2013 there was an increase in SPAD numbers from 2012, including a seven-year high in those ranked 16-19. There were 288 category A SPADs during 2013, an increase of 15% from 2012. There were 16 SPADs risk-ranked 20+ (a 6% decrease from 2012) and 78 ranked 16-19 (an increase of 22% from 2012).

115. Evidence from incidents and ORR's investigation of their causes identified weaknesses in the original TPWS equipment: it did not self-check or provide an indication to the driver of the reasons for an automatic brake application. In 2013, ORR asked operators to review their train protection equipment and controls in light of the increase in operating incidents, particularly the increase in SPADs and the continued existence of so-called "reset and continue" incidents, where the driver fails to alert the signaller about an automatic TPWS brake application and drives on.

116. ORR investigated an incident where shortcomings in the functionality of a basic form of TPWS equipment helped exacerbate the causes of a multiple SPAD. The incident's circumstances were complex, but fitting an enhanced form of TPWS would have reduced the risk. We look to all operators to follow the lead of others and plan upgrades to their TPWS equipment using existing overhaul programmes, or when faulty units need to be replaced. Some operators are now unilaterally replacing basic TPWS modules with enhanced versions.

Driver Management

117. **Overview:** we remain concerned about the impact of drivers losing concentration and becoming distracted as a cause of operational incidents, especially in light of the increase in SPADs in 2013. We encourage the analysis of remote on-train data recorder downloads to provide more reliable driver performance data.

118. **Evidence:** we continue to see evidence of interrupted concentration and distraction of drivers. This is an area that the industry must improve by considering what further steps can be taken to help understand what distracts drivers as they approach signals. Operating trend statistics worsened in 2013. Although the SPAD numbers stabilised at a higher-level towards the end of the year, their overall rise highlights scope for improvement – see page 32.

Low adhesion

119. **Overview:** Train operators made significant improvements in railhead low adhesion management. Both through improvements in the volume and consistency of sand applied to the track during brake applications, the reliability of those application rates and through improved general levels of maintenance and housekeeping.

120. **Evidence:** The buffer stop collision at Chester on 20 November 2013 demonstrated that railhead low adhesion remains a risk to all operators and identified scope to further reduce risk, where reasonably practicable.

Station management, train dispatch and the platform train interface

121. **Overview:** Evidence suggested that train dispatch standards were generally satisfactory, but more work needed to be done to improve the station-specific risk assessments used. ORR encouraged operators to proactively monitor the risks to passengers from getting on and off trains and at the platform train interface (PTI) more generally, including in the absence of trains. There is now cross-industry support to proactively use station CCTV to ensure dispatch duties are correctly resourced and carried out.

122. Station crowd congestion poses a difficult challenge across the network, from increasing passenger numbers, service disruption and station construction work. ORR noted the decrease in PTI risks in 2013, particularly during train dispatch procedures. We were pleased to note the industry built on this positively with a number of initiatives and programmes aimed at better managing the risk, including setting up the cross-industry PTI strategy group in which we take part.

123. **Evidence:** Overall PTI FWI harm increased 5.6% in 2013 and 7.6% over CP4, but these increases should be viewed in light of the growth in passenger numbers. About a quarter of the passenger fatality risk at the PTI involves circumstances where no trains were involved.

124. Crowd congestion emerged as a challenge at more stations around the network; not only from increased patronage, but also during service disruption and station construction work. ORR found some examples of good practice: at one location crowding was well managed by a dedicated control room. Automated congestion monitoring of crowds, once they reach critical levels, is potentially beneficial and can ensure effective control of passenger flows during train dispatch. The industry's people on trains and station risk group are seeking to improve crowd management both on trains and at stations.

125. In order to better manage the risks, there is a need and opportunity to look at ways to carry out unobtrusive monitoring of the PTI. This includes the use of platform CCTV to identify issues, to improve the understanding of passenger behaviour and staff resourcing levels so that control arrangements are appropriate at all times. Following discussions, we were pleased that all sides of the industry supported this initiative.

Rolling stock risks

126. **Overview:** ORR found evidence of too many vehicles returning to service with failures after overhaul or external maintenance. This could lead to components falling from them or have caused safety-critical faults. We expect operators to improve the management of such risk.

127. **Evidence:** In 2013, ORR examined operator's return-to-traffic arrangements and operators audits identified corrective action plans to improve contractors‟ standards. This remains an area where the industry has more work to do.

Freight Railway Undertakings

128. **Overview:** ORR was pleased with freight duty holders' increased adoption of the RM3 model. It helped build up a clearer picture of in-sector performance.

129. ORR was generally satisfied that the management systems of all companies were performing at acceptable levels, though there were inevitably areas for improvement. Restructuring in some companies resulted in some areas of reduced performance. This was set against an increase in freight traffic by 4.3% to 22.4 billion net tonnes per kilometre in 2013.

130. **Evidence:** Progress on the implementation of the entities in charge of maintenance (ECM) requirements for freight wagons continued and we completed all appropriate surveillance visits. The structure of the ECM process should, in due course, improve freight wagon reliability and safety, as maintainers apply more rigorous maintenance and inspection processes; and performance aligns with best practice.

131. There were six freight train derailments in 2013. The majority of these were caused by system interface issues between track condition and wagon performance which were previously considered acceptable. The incidents demonstrated that the assumptions on which the cross-industry standards were based may not be correct. ORR is working with the industry to determine if changes or different processes may be required, which include managing sector growth, wagon-loading, worker fatigue and safety-critical communication.

132. As noted previously, SPAD numbers continued to increase over 2013, including amongst freight operators. Most freight train SPADs were low-speed and relatively low risk but nevertheless add to the existing accident precursor risk gap.

Occupational health: train and freight operators

133. **Overview:** Several operators saw the benefits of robust occupational health strategies: better staff attendance, improved health and reduced employee absence costs.

134. ORR continued to monitor progress against operators' health strategies. There was evidence that significant benefits had been achieved from a more proactive approach, which enabled operators to identify gaps in their health monitoring and to improve their staff's sickness absence and overall wellbeing-levels.

135. **Legionella and bacteria**: In 2013, ORR published a case study with a train operator highlighting good practice in the management of water systems at carriage cleaning wash facilities. Rolling stock without toilet effluent retention tanks remains a threat to the health of track workers and presents an unattractive environment for passengers. Whilst with proper precautions the risk to health is relatively low, discharged effluent makes track inspection and maintenance more time consuming and costly.

136. Innovative engineering solutions are being sought to reduce the risk, including the introduction of global positioning system-controlled signal systems to prevent discharge at prescribed locations. This is a partial solution, but evidence suggests that it is better than improving on the procedural controls currently used on older rolling stock.

137. **Manual-handling**: ORR continued to check train operator's on-board manual-handling activities and some operators' assessments of such processes were not good enough. ORR found examples of staff carrying out activities which they were not required to do by their company.

138. ORR also examined the balance to be struck between staff being keen to assist passengers and ensuring trains run on time, while ignoring their own health and safety. We found examples of well-meaning staff pulling luggage at the same time as pushing wheelchair passengers. While this avoided passengers having to carry luggage on their lap, it presented a risk of injury to both passengers and staff. We asked train operators to review their arrangements, where needed.

139. ORR also worked with the industry to produce a wheelchair good practice guide for staff, managers and users aimed at preventing muscular skeletal injuries to staff. This can present a particular challenge at stations where there are large platform-train stepping distances, as this can pose manual-handling risks when using platform to train ramps. We are encouraging duty holders to assess and manage the risk of injury to their staff and ensure that they have adequate provisions in place to safely assist turn-up-and-go wheelchair users.

B4. Focus areas for next year

140. ORR published its focus areas for next year as part of the Health & Safety Report 2013[4].

141. ORR's key strategic health and safety objective as set out in the 2013-14 business plan[5] is:

> ***Drive for a safer railway:*** *Enforce the law and ensure that the industry delivers continuous improvement in the health and safety of passengers, the workforce and public, by achieving excellence in health and safety culture, management and risk control.*

[4] http://orr.gov.uk/__data/assets/pdf_file/0008/5579/health-safety-report-2013.pdf

[5] http://orr.gov.uk/__data/assets/pdf_file/0012/3252/business-plan-2013-14.pdf

D. Developments in Safety Performance

C1. Detailed analysis of the latest recorded trends

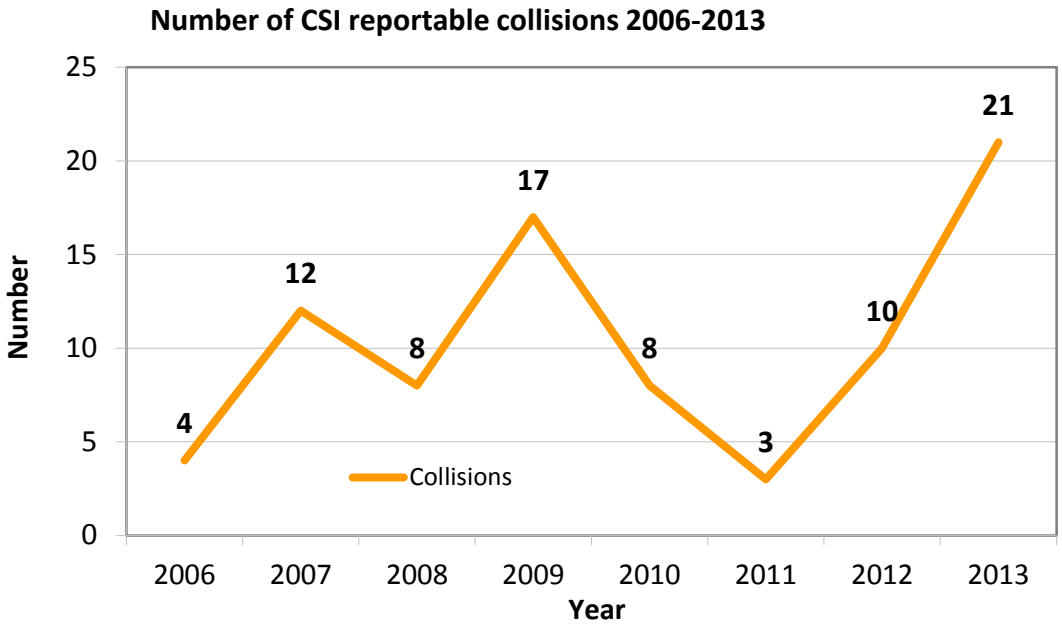
142. CSI data has now been collected for eight years. The scope of the statistics, the definitions applied and the data on CSIs can be found in Annex A.

143. In 2013 the total number of CSI reportable accidents was 81, an increase of six from 2012. Of the six CSI categories, the number of collisions, derailments and level crossing accidents increased. The number of accidents to persons caused by rolling stock in motion decreased. There were six CSI reportable fires in rolling stock, compared to none in 2012. A graph and appropriate analysis is included for each of the four CSI categories where incidents were recorded in 2013:

- Collisions
- Derailments
- Level crossing accidents
- Rolling stock in motion accidents

144. A graph for fires in rolling stock has not been included as there were no incidents in 2012 to make a comparison against.

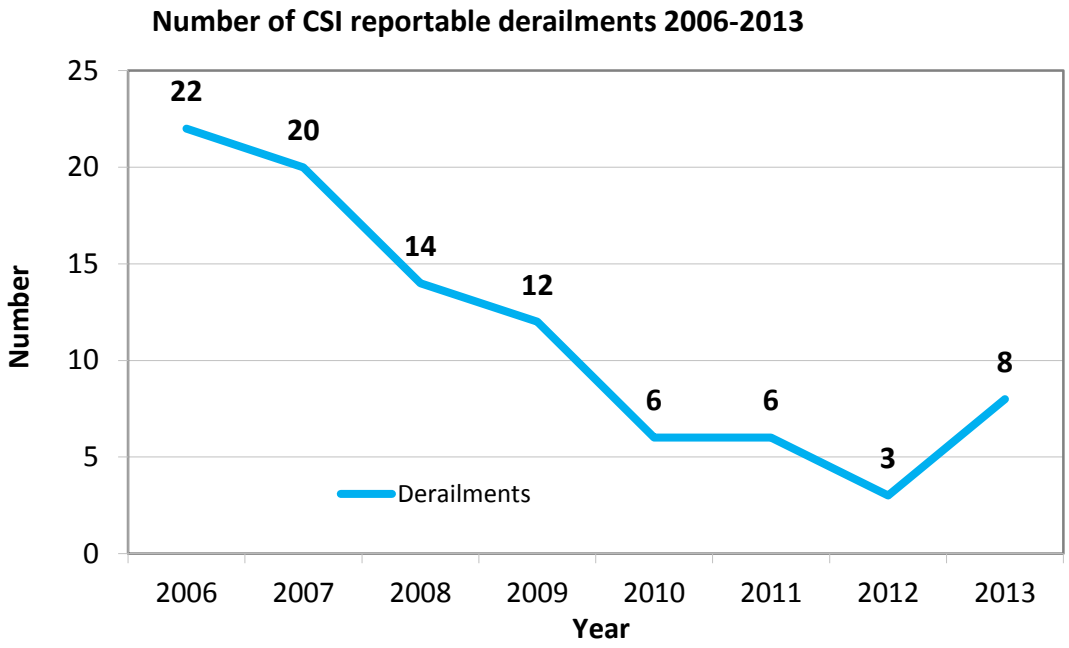
CSI reportable collisions



145. The number of CSI reportable collisions within the clearance gauge more than doubled from 10 to 21, although none resulted in a fatality or serious injury.

146. Of the 21 CSI reportable incidents, 11 were collisions with overhead line equipment (OLE), 3 were collisions with landslides and 3 were collisions with fallen trees.

CSI reportable derailments



147. In 2013 the number of derailments increased from 3 to 8, this is a significant increase following several years of improvement. Six of the eight derailments involved freight trains. Five derailments resulted from track or infrastructure causes of which two involved poorly loaded container wagons. Three derailments were caused by irregular working. None of the incidents resulted in a fatality or serious injury. For context, it is worth noting that in the late 1990s there were typically 40-50 freight train derailments every year.

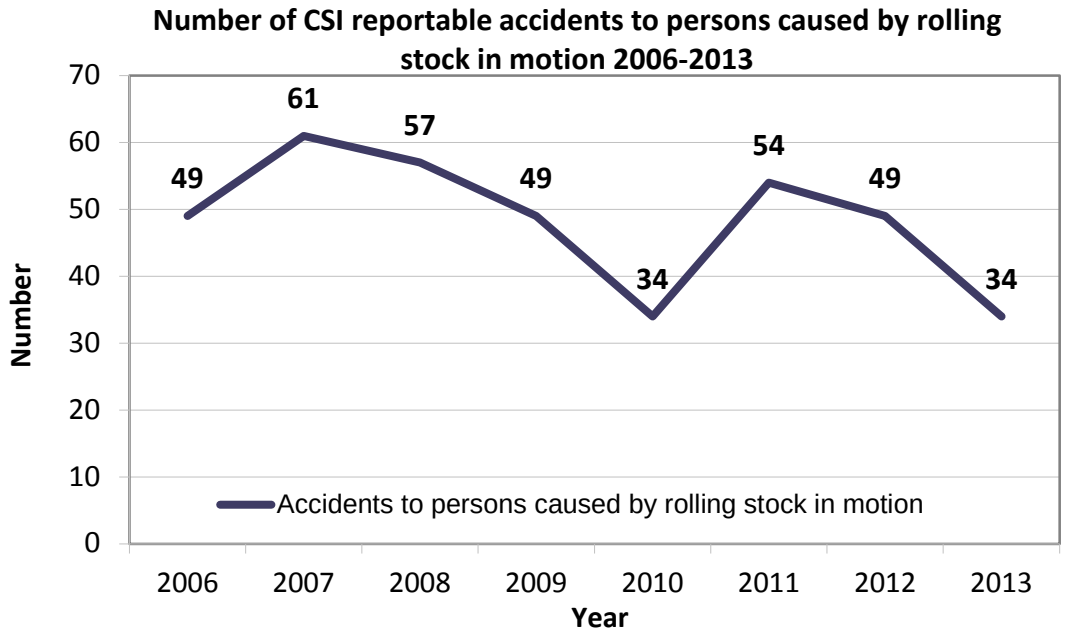
CSI reportable level crossing accidents

148. The number of reportable level crossing accidents increased slightly from 10 to 12. Of the 12 individual events, 7 resulted in fatalities; one in a double fatality; and two caused serious injuries to crossing users.

149. ORR remains focused on the continued risk posed by level crossings on the railway. We are conscious that much of the risk is based around user behaviour.

150. See the 'level crossings' section of chapter B3 for more information about ORR and industry strategy to reduce level crossing risk.

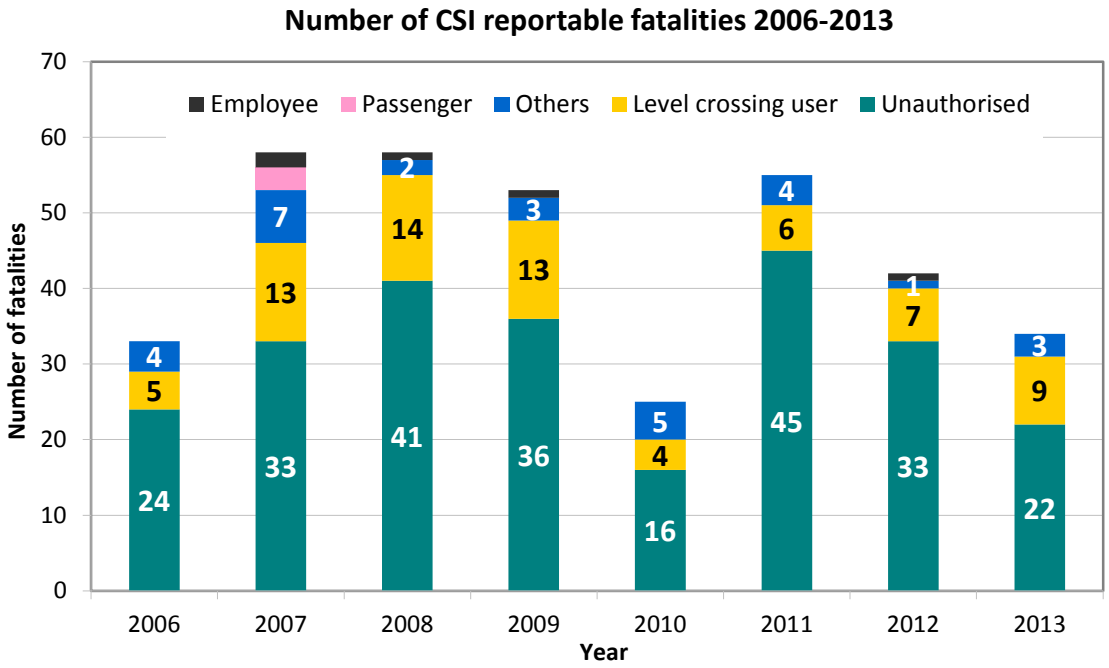
CSI reportable rolling stock in motion accidents



151. The number of rolling stock in motion accidents fell from 49 to 34, the joint lowest figure since CSI data has been collected.

152. All of the 34 CSI reportable fatalities in 2013 (see next section) were caused by rolling stock in motion. The downward trend in CSI reportable fatalities involving unauthorised access to the railway is partly reflected in the fall in rolling stock in motion accidents.

CSI reportable fatalities

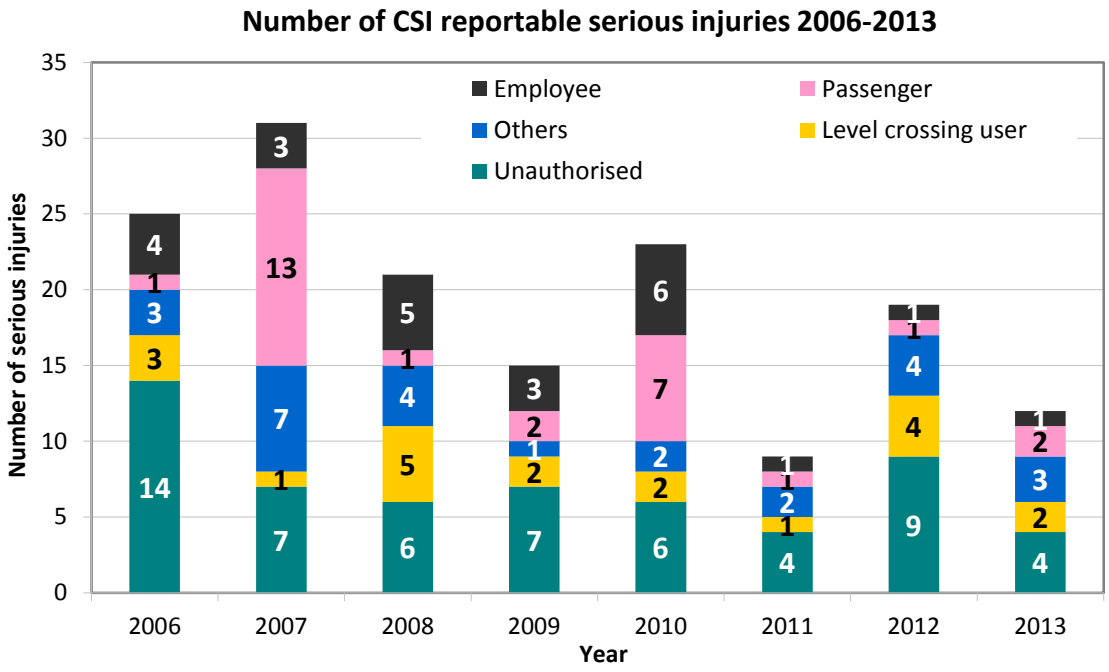


153. In 2013 the number of fatalities fell from 42 to 34. The majority of CSI reportable fatalities continues to be unauthorised users, although the 22 recorded in 2013 was below average since CSI began being recorded in 2006. For the fifth consecutive year there were no CSI reportable passenger fatalities.

154. There were 9 fatalities at level crossings, the fourth year in a row there has been an increase. Four incidents involved pedestrian users of crossings; one involved a cyclist; and three involved collisions with motor vehicles, one of which resulted in two fatalities.

155. The three 'other' incidents all occurred on platforms when people were struck by passing trains.

CSI reportable serious injuries



156. There were 12 CSI reportable serious injuries, seven less than in 2012.

157. There were two serious injuries to passengers, one of which occurred when a train was involved in a low-speed collision in a platform that was already occupied by another train.

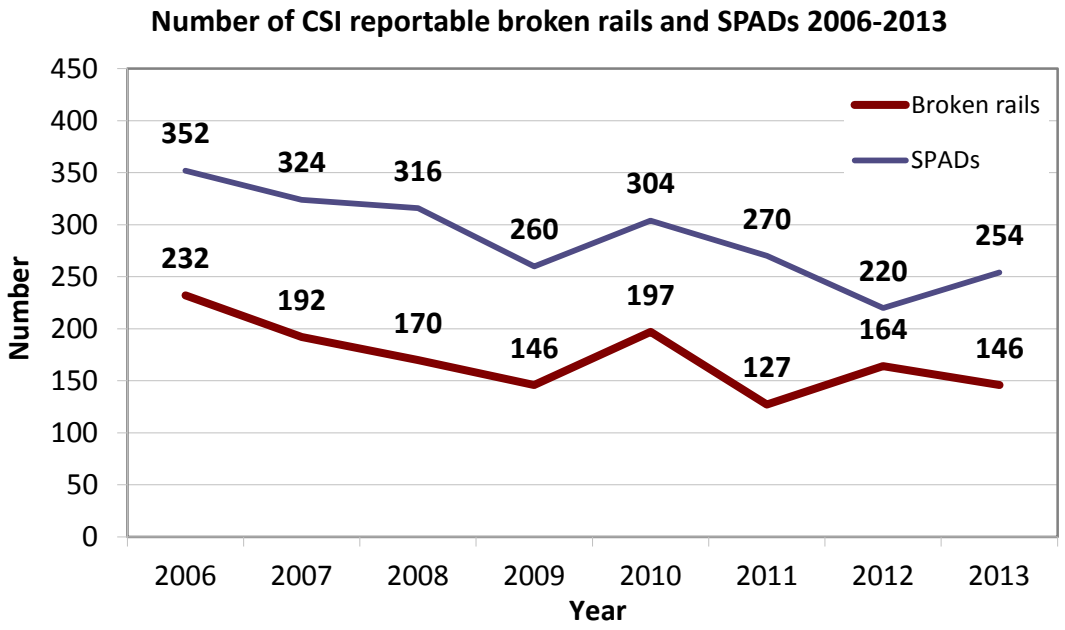
158. A look-out for an infrastructure maintenance team was struck by a train and seriously injured.

159. Two level crossing users were seriously injured after being struck by trains in separate incidents.

160. Four unauthorised users were seriously injured, two in separate incidents when they were struck by trains while trying to retrieve possessions from the running line.

161. There were three serious injuries at platforms, two of which involved passengers falling at the platform-train interface.

CSI reportable broken rails and SPADS

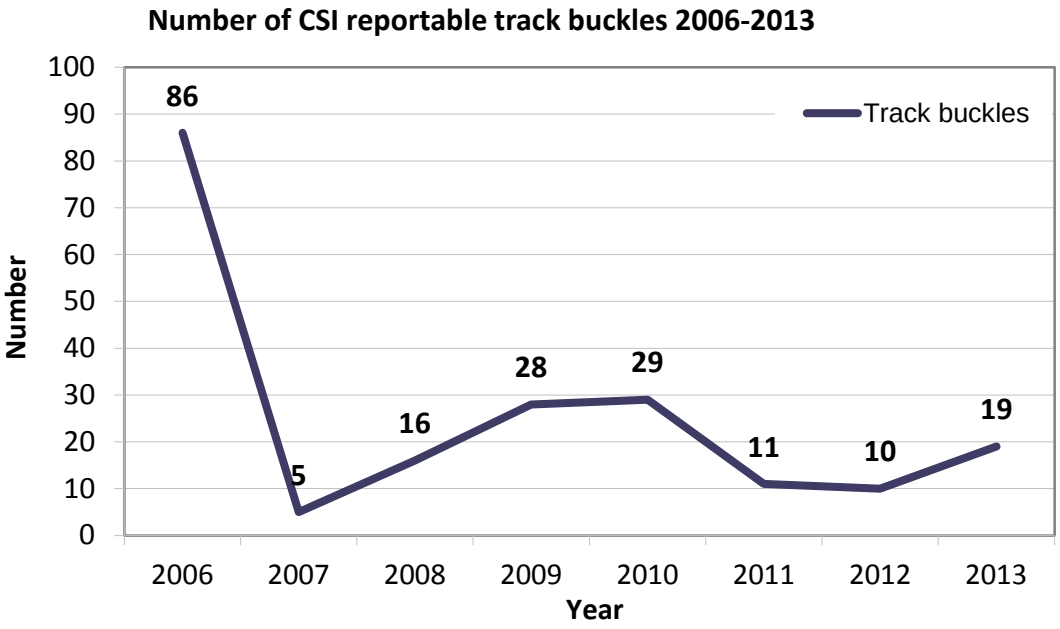


162. There were 146 broken rails in 2013, down from 164 in 2012. This is partly a reflection of the relatively mild temperatures at the end of 2013 compared to the prolonged cold temperatures at the beginning of the year.

163. The roll out of automatic ultrasonic inspection by Network Rail has been a key driver in identifying damaged rails before they break.

164. The number of SPADs increased after falling for the two previous years, however the number recorded is the second lowest since CSI data has been collected.

CSI reportable track buckles



165. The number of track buckles increased from 10 in 2012 to 19 in 2013. This is largely a reflection of the warmer summer in 2013 compared to the two previous years.

Automatic train protection

166. There are 15,498 route Km of track in the UK.

	Not equipped	Warning + stop	Discrete	Continuous	Total
Conventional mainline	1236 Km of route	13880 Km of route	0 Km of route	382 Km of route	15498 Km of route
High Speed 1				108 Km	108 Km

244 km of railway is fitted with ERTMS.

Level crossings

167. There are approximately 6447 level crossings on the GB mainline.

Level crossing type	Number
Active with automatic with user-side warning	293
Active with user-side protection	0
Active with automatic user-side protection and warning	450
Active with automatic user-side protection and warning, and rail-side protection	53
Active with manual user-side warning	0
Active with manual user-side protection	392
Active with manual user-side protection and warning	417
Passive	4842
Total	**6447**

C2. Results of safety recommendations

168. The Rail Accident Investigation Branch (RAIB) is the UK's National Investigation Body as defined in article 21 of the Railway Safety Directive. RAIB can direct safety recommendations to any organisation it regards as best placed to implement the required changes, including railway and non-railway

organisations. As National Safety Authority, ORR is responsible for ensuring that recommendations are properly implemented.

169. In 2013 RAIB produced 22 reports into incidents on the UK rail network, containing 81 recommendations. The incidents happened on the following type of rail system:

- 18 mainline
- 3 tramway
- 1 metro system

170. A list of the 18 mainline reports, the recommendations made, the measures taken to address the recommendation and the status of implementation can be found in Annex E. One of the mainline incidents that RAIB reported on was in Northern Ireland, details of which can be found in Section I.

171. Of the 81 recommendations in 2013, two were made against ORR following an incident near Stafford station where a locomotive travelling between Birmingham and Crewe passed a signal at danger (SPAD) by approximately 94 metres.

172. The first recommendation was for ORR to establish a process for the periodic management review of its assessment of safety certificate applications and the resolution of outstanding issues through supervision. The intent of this recommendation was to confirm that ORR's revised assessment and supervision process was effective in verifying that the risk from the commencement of operations by new train operators. The second recommendation was for ORR to assess if the SMS of the railway undertaking involved in the incident had established adequate controls regarding the competence of safety-critical staff, traction and rolling stock maintenance and safety culture.

173. Two other recommendations were made against ORR following incidents involving tramways. Tramways are out of the scope of this report so further information on the recommendations has not been included.

174. One existing recommendation to ORR is still in progress. The recommendation was one of two made to ORR following an uncontrolled freight train run-back between Shap and Tebay on the West Coast Main Line in Cumbria on 17 August 2010.

175. The recommendation asked ORR to provide information to industry on the accuracy of bio-mathematical models used to predict fatigue, including the Health & Safety Executive (HSE) Fatigue and Risk Index (FRI). ORR published guidance on the generic limitations of such models in January 2012, and is currently working with the Railway Safety and Standards Board (RSSB) to adapt and build upon recently published aviation industry guidance on the relative merits and limitations of particular bio-mathematical models.

C. Supervision

D1. Strategy and plan(s)

176. ORR publishes a strategy for regulation of health and safety risks [link]. This sets out how ORR set its priorities and targets its activities. ORR has a vision of zero workforce and industry-caused passenger fatalities, with an ever decreasing overall safety risk.

177. Since 2010, ORR has planned and delivered NSA work through the following risk priority programmes:

- Health and safety management
- Management of change
- Interface system safety
- Workforce safety
- Occupational health
- Construction design and management
- Management of assets to ensure safety
- Industry staff competence and capability

178. A number of sources of information inform the strategies and plans:

- Mainline accident and incident data collected in the Rail Safety and Standards Board's (RSSB) Safety Management Information System (SMIS) and analysed using the Safety Risk Model (SRM);
- Accident and incident data reported to us under the Reporting of Injuries Diseases and Dangerous Occurrences Regulations (RIDDOR);
- NIB investigation findings;
- Intelligence from our audit, inspection, investigation and enforcement activities;
- Informed peer-reviewed opinion from specialist experts; and
- Intelligence from EU and other international developments.

179. Having identified the main risk areas, ORR considers which should be our priorities i.e. those on which we should focus our attention as an NSA. This does not mean that we do nothing with the other

risks; we will still carry out work on other risks by conducting investigations of incident and complaints, monitoring the risk profile of each sector and will add other areas of risk to our collective inspection programmes if we feel it is warranted.

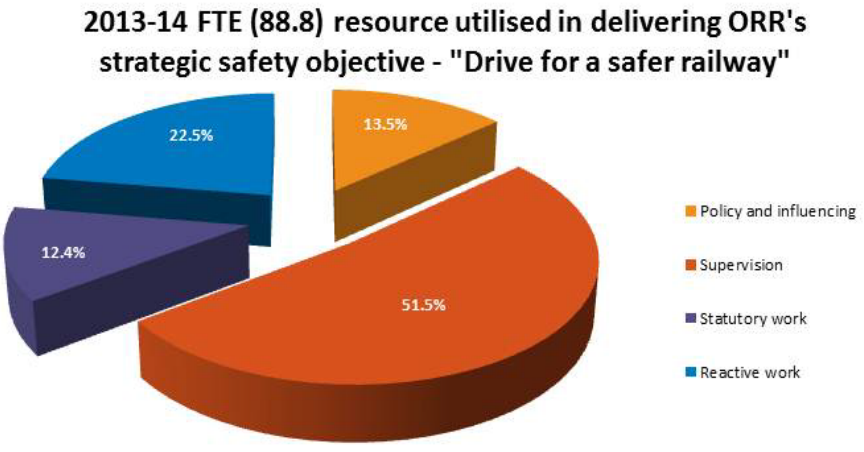
180. It is important to recognise that the risks are prioritised from our perspective as NSA. All risks, irrespective of their priority, must be controlled by the companies (whether railway undertakings, infrastructure managers, entities in charge of maintenance, suppliers etc.) that create them.

181. An important part of our prioritisation process is to “horizon-scan” and anticipate new and emerging risks, or existing risks where we can foresee that they may change in their importance.

182. Underpinning ORR’s prioritisation is a scorecard that is used to analyse the risks and give some ranking. This approach takes account of a range of issues, such as:

- How well the industry is managing the risk and whether we have confidence that performance will be sustained;
- The enforcement history - i.e. are we intervening more or less over time;
- Likely public, political and media concern; and
- Whether we are best placed to make a difference.

D2. Human resources



Note: RSD resource also used to deliver ORR's non-safety strategic objectives /activities, including CTSA / IGC.

183. In 2013 ORR utilised resource amounting to 88.8 FTE to deliver the strategic objective “Drive for a safer railway”. Of this resource, 51.5% was dedicated to supervision.

184. Statutory work includes handling NIB recommendations and issuing of safety certificates, safety authorisations, level crossing orders and train driver licenses.

185. Reactive work includes enforcement. In 2013 ORR carried out eight successful prosecutions in 2013[6]. ORR also issued 6 Prohibition Notices[7] and 17 Improvement Notices[8] in 2013.

D3. Competence

186. In line with the CSM supervision, ORR has an auditable competence management system.

187. The Inspector Competence Management System (CMS) is comprised of the following elements:

- recruit staff with existing skills or potential to develop them;
- assess training needs of new starters;
- deliver training;
- assess competence;
- set annual performance and development objectives;
- monitor performance;
- continual professional development/refresher training; and
- audit and review the CMS.

D4. Decision-making

188. ORR sets out the decision making criteria used to monitor, promote and enforce compliance with the regulatory framework and the procedure for establishing those criteria in the Enforcement Policy Statement[9]. ORR inspectors will use their discretion in deciding when to investigate or what enforcement action may be appropriate.

189. This policy statement sets out how ORR will use its powers under the Health and Safety at Work etc. Act 1974 (HSWA), to enforce compliance with both health and safety law and other relevant non-H&S legislation for which ORR is the enforcing authority, such as interoperability and accessibility. This policy does not deal with the enforcement of licence obligations which is dealt with separately under ORR's economic enforcement policy and penalties statement[10].

190. ORR has powers available to take enforcement action (including HSWA, Network Rail's network licence, operator licences and specific powers within the relevant non-H&S legislation) and will consider,

[6] Details of the prosecutions can be found on the ORR website: http://orr.gov.uk/what-and-how-we-regulate/health-and-safety/health-and-safety-enforcement/enforcement-action-taken/prosecutions

[7] Details of the Prohibition Notices issued by ORR are on the website: http://orr.gov.uk/publications/notices/legal-notices/prohibition-notices/prohibition-notices-2013

[8] Details of the Improvement Notices issued by ORR are on the website: http://orr.gov.uk/publications/notices/legal-notices/improvement-notices/improvement-notices-2013

[9] http://orr.gov.uk/__data/assets/pdf_file/0016/5650/hswa-enforcement-policy-statement.pdf

[10] http://orr.gov.uk/__data/assets/pdf_file/0018/4716/economic-enforcement-statement.pdf

using the principles of regulatory enforcement set out in the enforcement policy statement, the most effective, efficient and expeditious solution in the light of its legal obligations.

191. The ultimate purpose of our enforcement policy is to ensure that duty holders manage and control risks effectively, thus preventing harm.

192. When carrying out an investigation, ORR will seek to determine:

- causes;
- whether there has been a breach of legislation;
- whether action has been taken or needs to be taken to prevent a recurrence of an incident and / or to secure compliance with the law;
- lessons to be learnt and whether there is a requirement to influence the law and industry guidance; and
- what response is appropriate to a breach of the law.

193. ORR inspectors have a range of tools at their disposal in seeking to secure compliance with the law and to ensure a proportionate response when carrying out inspections and investigations and when dealing with criminal offences. Inspectors may offer duty holders information and advice, both face to face and in writing. This may include warning a duty holder that in the opinion of the inspector, they are failing to comply with the law.

194. Where there is a choice of remedy or enforcement mechanism available ORR is likely to consider:

- the remedies at its disposal;
- the likely effectiveness of each remedy;
- the speed of resolution;
- cost; and
- any other factors relevant to the specific case.

195. ORR uses the HSE Enforcement Management Model [link] when enforcing health and safety breaches, and a separate, supplementary process for other non-risk areas such as interoperability and accessibility.

D5. Coordination and cooperation

196. ORR has in place an agreement with the Channel Tunnel Safety Authority (CTSA, the NSA for the Channel Tunnel) for coordinated activities for inspection and auditing of railway undertakings that operate on both the UK mainline and the Channel Tunnel.

197. Joint inspections are carried out by inspectors from ORR and the French NSA (EPSF). A contract for reimbursement exists for ORR to charge relevant costs for work done for the CTSA back to Eurotunnel.

198. If an ORR inspector is working for the CTSA they will make informal contact with the relevant ORR account holder for the railway undertaking operating on the UK mainline.

199. ORR intends to put in place arrangements for coordination with other NSAs in line with Article 8 of the CSM on supervision. Developing these arrangements will take some time.

200. ORR is an active participant in the International Liaison Group of Government Railway Inspectorates (ILGGRI). In 2012 and 2013 ORR organised a number of supervision workshops for NSAs to discuss legislation, share best practice and discuss cooperation arrangements between NSAs.

201. ORR is also looking to develop its staff and share best practice in supervision through staff exchanges with other NSAs.

D6. Findings and measures taken

202. In section B of this report we describe the outcomes of our supervision activities targeted at Network Rail and other Railway Undertakings.

D. Certification and Authorisation

E1. Guidance

203. ORR produces guidance for the railway industry to the Railway and Other Guided transport Systems (ROGS) regulations which covers the key aspects of the legislation and includes a specific chapter on safety certification and authorisation[11].

204. ORR publishes on its website, the assessment criteria for which safety certificates and authorisations (mainline and non-mainline) are assessed against and also provides details of evidence expected from an applicant which will demonstrate compliance with the criteria. The opening chapters of the assessment criteria publication also explain the permissioning process and timescales for assessment of applications[12].

205. Applicants are encouraged to set out their application in the order of the criteria wherever possible to make it easier for assessment of the application. In addition, ORR publishes its assessment manual of how safety certificates and authorisations are assessed; this provides transparency of our process.

206. ORR welcomes discussions with applicants for safety certificate and authorisation from an early stage (up to 9-12 months before submitting). This enables any concerns or queries to be addressed at the outset and provide additional guidance to an applicant. Generally, these meetings are preferred and strongly recommended by both parties to avoid any confusion and potential rejection of an application upon submission.

207. Applicants for mainline safety certificates are required to complete the ERA application form which is on the ORR website along with our guidance. Applicants may also seek advice from their ORR contact should they encounter any difficulty in completing the form.

[11] http://orr.gov.uk/__data/assets/pdf_file/0020/2567/rogs-guidance.pdf

[12] http://orr.gov.uk/__data/assets/pdf_file/0020/3593/cert_auth_criteria_mainline.pdf

E2. Contacts with other NSAs

208. In 2013 ORR was not asked about the details of a Part A safety certificate by an NSA in another member state.

E3. Procedural issues

209. In 2013 the average issuing time for Part A Safety Certificates was within the four month timescale laid down in article 12(1) of the Railway Safety Directive. To facilitate the certificate and authorisation application process ORR provides guidance documents and informal advice to railway undertakings. This helps the applicant submit the correct documentation in the required format, reducing the administrative burdens for both the applicant and ORR.

E4. Feedback

210. ORR has an appeal process, should applicants be unhappy with ORR's final decision. Details are provided in our assessment manual and the ROGS guidance on the ORR website[13]. It should be noted that applicants are strongly encouraged to raise any concerns initially through their lead assessor. Depending upon the nature of the applicant's concern, it may be prudent to involve the assessment manager and head of inspection.

211. Over time, we have changed our processes for issuing safety certificates and authorisations to take account of feedback from industry.

[13] http://orr.gov.uk/__data/assets/pdf_file/0020/2567/rogs-guidance.pdf

E. Changes in legislation

F1. Railway Safety Directive

212. See table 1 in Annex B for details of legislation transposing the Railway Safety Directive into UK law.

F2. Changes in legislation and regulation

213. See table 2 in annex B for details of changes in the national regulatory framework (legislation and regulation) concerning railway safety during 2013.

F. Application of the CSM on Risk Evaluation and Assessment

G1. NSA experience

Decisions taken by the proposer on the level of significance of a change

214. The GB mainline infrastructure manager, Network Rail, makes widespread use of the CSM risk assessment, making the question of significance somewhat irrelevant. ORR supports this use of the CSM, even for changes that are not considered to be significant, as it is a legally valid risk assessment process that is acceptable throughout the EU.

215. Use of the CSM is less widespread among railway undertakings. A number of railway undertakings said they would be introducing changes in 2014 which could be 'significant' and therefore trigger use of the CSM, for example in the case of fitment of ECTS/ ERTMS equipment to existing fleets of vehicles.

Application of the risk management process by the proposers

216. Risk assessment has long been utilised in GB railways, so the introduction of the CSM has not required substantial change to existing processes. Inspection of railway undertaking/ infrastructure manager risk assessment processes is a prioritised area for ORR inspection using the Railway Management Maturity Model (RM3).

217. Network Rail makes an assessment of whether to use the CSM for all new projects and implements it selectively for existing projects. Using the Network Rail project governance process (GRIP), the use of CSM risk assessment is triggered at the stage of single option selection (stage 4). The CSM may be used earlier if all options under consideration require a risk assessment.

218. The requirements of the CSM are broadly in line with existing risk assessment processes in use across the UK railway industry, although some documents will need to be amended to bring them into line with the requirements of the CSM 'system definition'. The CSM independent assessment process is similar in nature to the safety verification process in the existing UK Railway and Other Guided Systems legislation.

219. Some railway undertakings have so far used the management of change function of their SMS to assess the significance of a proposed change.

Involvement of assessment bodies

220. ORR recommends that an assessment body is involved from the beginning of the project so that it can monitor the development of the hazard record, consider other relevant material (such as a safety plan) and possibly be asked by the applicant to observe tests. The assessment bodies must ensure that its involvement in these activities does not jeopardise its independence. The assessment body's role in oversight does not remove the responsibility of the proposer for overall safety.

Interface management

221. If the proposer disagrees with the decision of an assessment body it must record this in writing. They are not obliged to share this with ORR, but it may make sense for them to do so.

222. ORR expects that the interface issues in any significant change are adequately dealt with. ORR has made this point to Network Rail in respect of projects such as electrification which are currently being planned and it is reiterated in the Guidance we have issued in the UK on the CSM. We do not have any evidence at this stage that areas of risk are being missed as a consequence of poor interface management.

G2. Feedback from stakeholders

223. Stakeholders can express their experience of the CSM risk assessment in the annual health and safety report they are required to submit to ORR.

224. Network Rail has widely adopted the CSM as a risk assessment process, also using it for processes that do not fall under the scope of the CSM having applied a significance test. Network Rail noted the following 'lessons learned' from the use of safety verification:

- Engage with the process early
- Produce good quality scope definitions and verification plans
- Engage in and open and honest dialogue with assessors to allow issues to be quickly identified and addressed
- Manage effective closeout of all issues at each verification stage
- Document assumptions, discussions and agreements
- Engage with all affected project stakeholders at an early stage ("duty of co-operation")
- Advise assessors of changes to scope and time-scale as soon as possible.

G3. Revision of NSRs to take into account the EC regulation on CSM on risk evaluations and assessment

225. National Safety Rules require a risk assessment to be done, therefore there is no need to take account of the CSM. ORR's regulatory approach is already aligned with the CSM risk assessment.

226. RSSB is undertaking work to identify key risks and produce guidance.

G. Derogations Regarding ECM Certification Scheme

227. In the UK, no alternative measures through derogations to the ECM certification scheme were needed. By the 31 May 2013 deadline, ORR had certified a total of 9 ECMs.

H. Northern Ireland

Introduction

228. This section of the report covers the railway system in Northern Ireland for the period 1 January 2013 to 31 December 2013. The Department for Regional Development (DRDNI) acts as the NSA in Northern Ireland, although ORR represents DRDNI in relations with ERA.

229. DRDNI was established by article 3(1) of the Departments (Northern Ireland) Order 1999.

230. Translink is the brand name of the integrated public transport operation of Northern Ireland Railways (NIR) as well as Citybus, and Ulsterbus.

231. NIR operates a fully integrated system, acting as both Infrastructure Manager and Railway Undertaking. DRDNI assist NIR in operating rail services and provides funding to maintain and develop the rail infrastructure and rolling stock.

232. There are no metro, tram or other light rail systems in Northern Ireland, nor is there any privately owned railway infrastructure on which NIR services run.

233. There are a number of Heritage and tourist railways in Northern Ireland which are privately owned and run, mainly using dedicated track. They do not provide passenger services for the travelling public and do not receive funding from DRDNI.

234. All railway undertakings in Northern Ireland, including heritage railways, are required to comply with DRDNI safety regulations. In some circumstances heritage railways operating on their own tracks and at a line speed that does not exceed 25mph/40km may be exempted from some regulations where DRDNI is satisfied that the safety of passengers and the general public is not compromised.

The Safety Authority for Northern Ireland

235. In Northern Ireland the Safety Authority for the purpose of implementing the Railway Safety Management Regulations (Northern Ireland) 2006**,** (hereafter known as the "Safety Management Regulations") is DRDNI. The Department's key responsibilities as Safety Authority are:

- To ensure that NIR manages the network efficiently and in a way that meets the needs of its users;
- To encourage continuous improvement in health and safety performance;
- To secure compliance with relevant health and safety law, including taking enforcement action as necessary;
- To develop policy and enhance relevant railway health and safety legislation; and
- To issue or refuse safety certificates to railway operators in accordance with the "Safety Management Regulations".

236. The Safety Authority duties are managed by the Department's Transport Policy, Strategy and Legislation Division. DRDNI's role as NSA for Northern Ireland is to:

- Provide the appropriate regulatory framework so that railway safety is generally maintained and, where reasonably practicable, continuously improved;
- Assess each duty holder's application for safety certificates and authorisations, including their co-operation arrangements;
- Assess whether safety is being achieved by inspecting duty holders' SMS and assessing available safety information and data;
- Authorise the placing into service of structural subsystems in Northern Ireland on the UK trans-European network; and check that they are operated and maintained in accordance with the essential requirements.
- Authorise the placing into service of structural subsystems in Northern Ireland on the UK trans-European network; and check that they are operated and maintained in accordance with the essential requirements.

Development of railway safety in Northern Ireland

237. The purpose of the Railway Safety Management Regulations (Northern Ireland) 2006 was to harmonise safety standards on the NI Railway Network.

238. Part 2 and regulation 18 of the Regulations implement Directive 2004/49/EC on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of transport undertakings and Directive 2001/14/EC on the allocation of infrastructure capacity and the levying of charges for use of infrastructure and safety certification ("the Railway Safety Directive"), except in relation to access to training facilities, placing in service of in–use rolling stock and accident and incident investigation.

239. Part 2 of the Regulations contains prohibitions in relation to the operation of trains or vehicles on any railways in Northern Ireland and the management and use of infrastructure unless a person has established and is maintaining a safety management system and in specified cases has a safety certificate in relation to the operation of vehicles or a safety authorisation in relation to the management and use of infrastructure. Part 2 also makes provision in relation to the requirements for a safety management system and the issuing, amendment and revocation of safety certificates and authorisations and for the giving of notices to the Department.

240. Part 3 provides for general duties on any railway operators subject to the duties in Part 2 to carry out risk assessment, co–operate with each other and certain other persons and to prepare an annual safety report to the Department. It makes provision in relation to annual reports to the European Railway Agency and for the issuing, keeping and public inspection of documents.

241. Part 4 makes provision in relation to the carrying out of safety critical work on any railways. It imposes obligations on those controlling the carrying out of such work to ensure that it is only carried out by fit and competent persons, and that safety-critical work is not carried out by workers at risk of being fatigued.

242. Part 5 makes provision for appeals in relation to decisions relating to safety certificates and authorisations, for transitional provisions in relation to compliance with the provisions of regulations (3)(1) and (2), for the granting of exemptions and for a defence in relation to the safety verification requirements in regulation 4.

Common Safety Indicators

243. NIR have provided the required CSI data for 2013 as transport operator in NI. The CSI data has been aggregated at a UK level and includes data for both Great Britain and Northern Ireland (see section C and annex A).

Rail Accident Investigation Branch

244. The Rail Accident Investigation Branch (RAIB) established by the Railways and Transport Safety Act 2003 is established on a UK-wide basis.

245. In 2013 RAIB published one report into an incident in Northern Ireland. The incident occurred on 28 June 2012 when a train ran onto a washed-out embankment near Knockmore. The report made five recommendations, details of which are in Annex E.

Safety authorisations

246. No updated, amended or part authorisations were issued in 2013. DRDNI continues to work closely with NIR on the development of their application for authorisation.

Supervision of railway undertakings and infrastructure managers

247. The day to day supervision of the health and safety performance of the railway industry is undertaken through the Railway Safety Management Regulations (Northern Ireland) 2006 where the NSA is the Department.

248. The Department also continues to work closely with its counterpart in the Irish Republic, the Department of Transport and the Railway Safety Commission as well as the two railway operators on the island, NIR and Irish Rail, on all EU issues and mutual railway safety matters as they impact on the shared service between Belfast and Dublin. DRDNI also works closely with the Department for Transport (DfT) in Great Britain and ORR on European issues.

Conclusions

249. Safety performance on the Northern Irish mainline rail network remained at a high standard in 2013. European safety data showing that Northern Ireland has one of the safest railways in Europe.

250. Northern Ireland has historically a low level of serious rail incidents. This situation was maintained during 2013, with no reportable fatalities or serious injuries

Annex A: Common Safety Indicators

Number of accidents and Train*Km

Year	Type of accident							
	Collisions	Derailments	Level crossing accidents	Accidents to persons caused by RS in motion	Fires in RS	Others	Total	Train*Km (MLN)
2006	4	22	9	49	0	1	85	536
2007	12	20	14	61	3	0	110	521
2008	8	14	23	57	0	2	104	549
2009	17	12	16	49	6	4	104	569
2010	8	6	7	34	2	5	62	520
2011	3	6	11	54	3	2	79	533
2012	10	3	10	49	0	3	75	536
2013	21	8	12	34	6	0	81	531
2014								
2015								

Number of accidents/Train*Km

Year	Type of accident						
	Collisions	Derailments	Level crossing accidents	Accidents to persons caused by RS in motion	Fires in RS	Others	Total
2006	7.47E-03	4.11E-02	1.68E-02	9.15E-02	0.00E+00	1.87E-03	1.59E-01
2007	1.51E-02	3.97E-02	2.18E-02	1.04E-01	2.84E-03	9.46E-04	1.84E-01
2008	1.49E-02	3.49E-02	2.86E-02	1.04E-01	1.87E-03	1.87E-03	1.86E-01
2009	1.89E-02	3.13E-02	2.85E-02	9.93E-02	4.14E-03	3.22E-03	1.85E-01
2010	1.92E-02	2.75E-02	2.56E-02	9.26E-02	4.06E-03	4.45E-03	1.73E-01
2011	1.75E-02	2.15E-02	2.64E-02	9.47E-02	5.20E-03	4.83E-03	1.70E-01
2012	1.70E-02	1.51E-02	2.48E-02	8.96E-02	4.06E-03	5.91E-03	1.57E-01
2013	2.19E-02	1.30E-02	2.08E-02	8.18E-02	6.32E-03	5.21E-03	1.49E-01
2014							
2015							

N° of fatalities, Train*Km and Passenger*Km

Year	Category of persons							
	Passengers	Employees	Level crossing users	Unauthorised persons	Others	Total	Passenger*Km (BLN)	Train*Km (MLN)
2006	0	0	5	24	4	33	50	536
2007	3	2	13	33	7	58	50	521
2008	0	1	14	41	2	58	53	549
2009	0	1	13	36	3	53	53	569
2010	0	0	4	16	5	25	56	520
2011	0	0	6	45	4	55	56	533
2012	0	1	7	33	1	42	59	536
2013	0	0	9	22	3	34	59	531
2014								
2015								

N° of fatalities/Train*Km and Passenger*Km

Year	Category of persons						
	Passengers	Passengers	Employees	Level crossing users	Unauthorised persons	Others	Total
2006	0.00E+00	0.00E+00	0.00E+00	9.33E-03	4.48E-02	7.47E-03	6.16E-02
2007	2.84E-03	2.99E-02	1.89E-03	1.70E-02	5.39E-02	1.04E-02	8.61E-02
2008	1.87E-03	1.96E-02	1.87E-03	1.99E-02	6.10E-02	8.09E-03	9.28E-02
2009	1.38E-03	1.46E-02	1.84E-03	2.07E-02	6.16E-02	7.36E-03	9.29E-02
2010	1.11E-03	1.15E-02	1.48E-03	1.82E-02	5.57E-02	7.79E-03	8.43E-02
2011	1.11E-03	1.12E-02	1.49E-03	1.86E-02	6.38E-02	7.80E-03	9.25E-02
2012	0.00E+00	0.00E+00	1.11E-03	1.63E-02	6.32E-02	5.54E-03	8.61E-02
2013	0.00E+00	0.00E+00	7.44E-04	1.45E-02	5.65E-02	5.95E-03	7.77E-02
2014							
2015							
	related to Train*Km	related to Passenger*Km	related to Train*Km	related to Train*Km	related to Train*Km	related to Train*Km	related to Train*Km

N° of injures, Train*Km and Passenger*Km

Year	Category of persons							
	Passengers	Employees	Level crossing users	Unauthorised persons	Others	Total	Passenger*Km (BLN)	Train*Km (MLN)
2006	1	4	3	14	3	25	50	536
2007	13	3	1	7	7	31	50	521
2008	1	5	5	6	4	21	53	549
2009	2	3	2	7	1	15	53	569
2010	7	6	2	6	2	23	56	520
2011	1	1	1	4	2	9	56	533
2012	1	1	4	9	4	19	59	536
2013	2	1	2	4	3	12	59	531
2014								
2015								

N° of injures/Train*Km and Passenger*Km

Year	Category of persons						
	Passengers	Passengers	Employees	Level crossing users	Unauthorised persons	Others	Total
2006	1.87E-03	2.01E-02	7.47E-03	5.60E-03	2.61E-02	5.60E-03	4.67E-02
2007	1.32E-02	1.40E-01	6.62E-03	3.78E-03	1.99E-02	9.46E-03	5.30E-02
2008	9.34E-03	9.79E-02	7.47E-03	5.60E-03	1.68E-02	8.72E-03	4.79E-02
2009	7.82E-03	8.25E-02	6.90E-03	5.06E-03	1.56E-02	6.90E-03	4.23E-02
2010	8.91E-03	9.17E-02	7.79E-03	4.82E-03	1.48E-02	6.31E-03	4.27E-02
2011	8.91E-03	8.94E-02	6.69E-03	4.09E-03	1.11E-02	5.94E-03	3.68E-02
2012	4.43E-03	4.33E-02	5.91E-03	5.17E-03	1.18E-02	4.80E-03	3.21E-02
2013	4.84E-03	4.59E-02	4.46E-03	4.09E-03	1.12E-02	4.46E-03	2.90E-02
2014							
2015							
	related to Train*Km	related to Passenger*Km	related to Train*Km	related to Train*Km	related to Train*Km	related to Train*Km	related to Train*Km

Number of precursors and Train*Km

Year	Type of accident							
	Number of broken rails	Number of track buckles	Number of wrong-side signalling failures	Number of signals passed at danger	Number of broken wheels on rolling stock in service	Number of broken axles on rolling stock in service	Total	Train*Km (MLN)
2006	232	86	617	352	0	0	1287	536
2007	192	5	550	324	0	0	1071	521
2008	170	16	901	316	0	0	1403	549
2009	146	28	6	260	0	0	440	569
2010	197	29	10	304	0	1	533	520
2011	127	11	7	270	0	0	415	533
2012	164	10	4	220	0	0	398	536
2013	152	19	4	254	0	0	437	531
2014								
2015								

Number of precursors/Train*Km

Year	Type of accident						
	Number of broken rails	Number of track buckles	Number of wrong-side signalling failures	Number of signals passed at danger	Number of broken wheels on rolling stock in service	Number of broken axles on rolling stock in service	Total
2006	4.33E-01	1.61E-01	1.15E+00	6.57E-01	0.00E+00	0.00E+00	2.40E+00
2007	4.01E-01	8.61E-02	1.10E+00	6.40E-01	0.00E+00	0.00E+00	2.23E+00
2008	3.70E-01	6.66E-02	1.29E+00	6.18E-01	0.00E+00	0.00E+00	2.34E+00
2009	3.40E-01	6.21E-02	9.54E-01	5.76E-01	0.00E+00	0.00E+00	1.93E+00
2010	3.48E-01	6.09E-02	7.73E-01	5.77E-01	0.00E+00	3.71E-04	1.76E+00
2011	3.09E-01	3.31E-02	5.48E-01	5.48E-01	0.00E+00	3.71E-04	1.43E+00
2012	2.97E-01	3.47E-02	3.43E-01	5.06E-01	0.00E+00	3.69E-04	1.18E+00
2013	2.92E-01	3.61E-02	1.15E-02	4.87E-01	0.00E+00	3.72E-04	8.27E-01
2014							
2015							

Cost of all accidents, safety hours

Year	Type of accident							
	Costs of deaths in MLN €	Costs of injuries in MLN €	Costs of replacement or repair of damaged rolling stock and railway installations in MLN €	Costs of delays, disturbances and re-routing of traffic, including extra costs for staff and loss of future revenue in MLN €	Total costs in MLN €	Total number of working hours of staff and contractors lost as a consequence of accidents	Total number of working hours	Train*Km (MLN)
2006	80643600	5600250	16071468	17951385	120266703	33470	########	536
2007	129925800	6944310	44406218	8404773	189681101	21349	188624	521
2008	114448875	4073664	6228951	4558253	129256683	38115	238796	549
2009	91355000	2325400	5420412	160800824	259901636	n/a	n/a	569
2010	47322306	5106894	12774044	192056448	217259693	n/a	n/a	520
2011	96965000	1586700	3935000	5737719	108224419	n/a	n/a	533
2012	85752833	3881035	12812419		102446287	n/a	n/a	536
2013								
2014								
2015								

Cost of all accidents, safety hours: indicators

Year	Type of accident					
	Costs of deaths in MLN €	Costs of injuries in MLN €	Costs of replacement or repair of damaged rolling stock and railway installations in MLN €	Costs of delays, disturbances and re-routing of traffic, including extra costs for staff and loss of future revenue in MLN €	Total costs in MLN €	N°of working hours (MLN) of staff and contractors lost as a consequence of accidents/N°of working hours (MLN) of staff and contractors
2006	1.51E+05	1.05E+04	3.00E+04	3.36E+04	2.24E+05	0.02%
2007	1.99E+05	1.19E+04	5.72E+04	2.49E+04	2.93E+05	0.03%
2008	2.02E+05	1.03E+04	4.15E+04	1.92E+04	2.73E+05	0.05%
2009	1.91E+05	8.71E+03	3.32E+04	8.61E+04	3.21E+05	0.05%
2010	1.72E+05	8.93E+03	3.15E+04	1.28E+05	3.40E+05	0.05%
2011	1.78E+05	7.44E+03	2.70E+04	1.23E+05	3.36E+05	14.01%
2012	1.61E+05	6.27E+03	1.52E+04		3.02E+05	16.16%
2013						
2014						
2015						
	related to Train*Km					

Technical safety of infrastructure and its implementation, management of safety

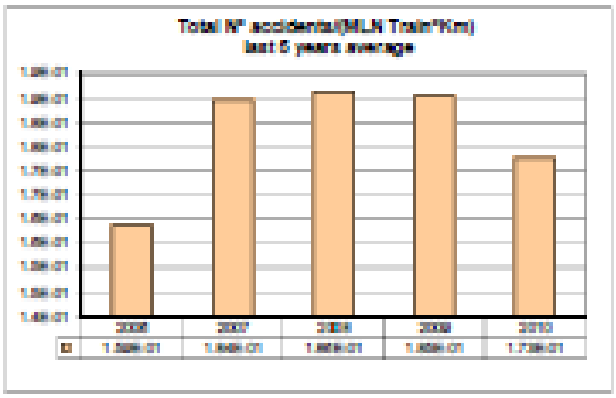
Year	Type of accident						
	Percentage of tracks with Automatic Train Protection (ATP) in operation	Percentage of Train*Km using operational ATP systems	Total number of level crossings	Number of track Km (double track lines are to be counted twice)	Total number of level crossings per track Km	Percentage of level crossings with automatic or manual protection	N°of audits accomplished / N° of audits required (and/or planned)
2006	4.28%	3.03%	7211	31594	2.28E-01	23.41%	93.20%
2007	4.24%	3.01%	7456	31515	2.37E-01	24.14%	97.60%
2008	4.24%	3.01%	6680	31534	2.12E-01	24.60%	102.00%
2009	4.24%	3.01%	6802	31571	2.15E-01	23.57%	83.48%
2010	4.24%	3.01%	6647	31631	2.10E-01	24.97%	88.29%
2011	4.24%	3.01%	6834	31448	2.17E-01	24.75%	90.80%
2012	4.24%	3.01%	6617	31534	2.10E-01	25.22%	89.00%
2013	4.24%	3.01%	6357	31075	2.05E-01	25.01%	90.76%
2014							
2015							

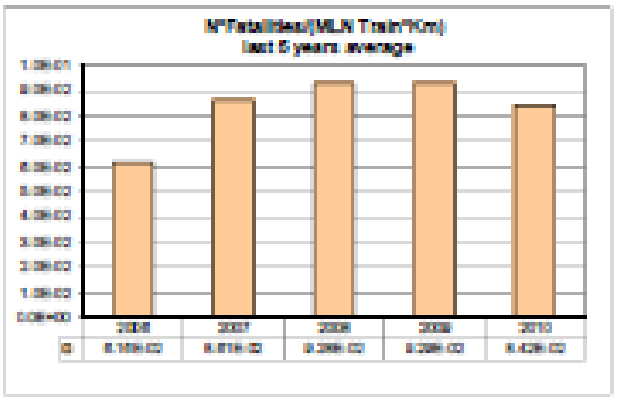
Technical safety of infrastructure and its implementation, management of safety

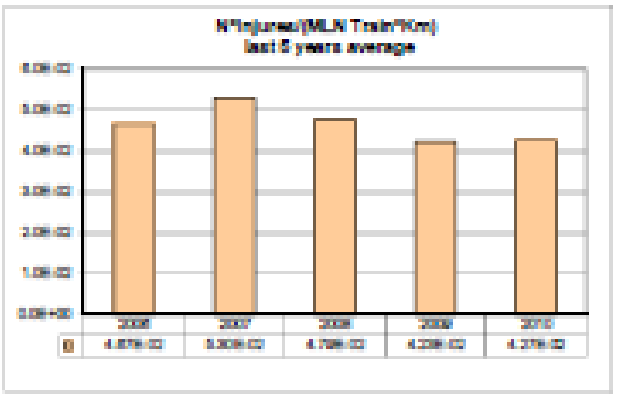
Year	Type of accident						
	Percentage of tracks with Automatic Train Protection (ATP) in operation	Percentage of Train*Km using operational ATP systems	Total number of level crossings	Number of track Km (double track lines are to be counted twice)	Total number of level crossings per track Km	Percentage of level crossings with automatic or manual protection	N°of audits accomplished / N° of audits required (and/or planned)
2006	4.28%	3.03%	7211	31594	2.28E-01	23.41%	93.20%
2007	4.26%	3.02%	7334	31555	2.32E-01	23.78%	95.40%
2008	4.25%	3.02%	7116	31548	2.26E-01	24.05%	97.60%
2009	4.25%	3.02%	7037	31554	2.23E-01	23.93%	94.07%
2010	4.25%	3.01%	6959	31569	2.20E-01	24.14%	92.91%
2011	4.24%	3.01%	6884	31540	2.18E-01	24.41%	92.43%
2012	4.24%	3.01%	6716	31543	2.13E-01	24.62%	90.71%
2013	4.24%	3.01%	6651	31452	2.11E-01	24.70%	88.47%
2014							
2015							

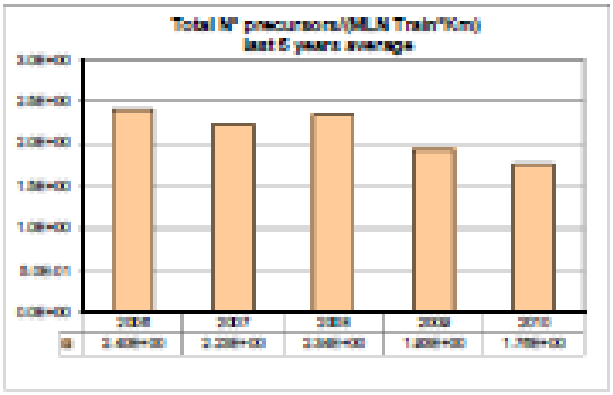
C.1. CSIs data

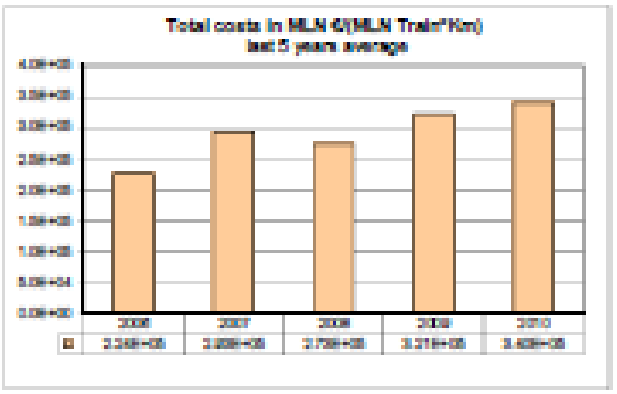
Performances at a glance





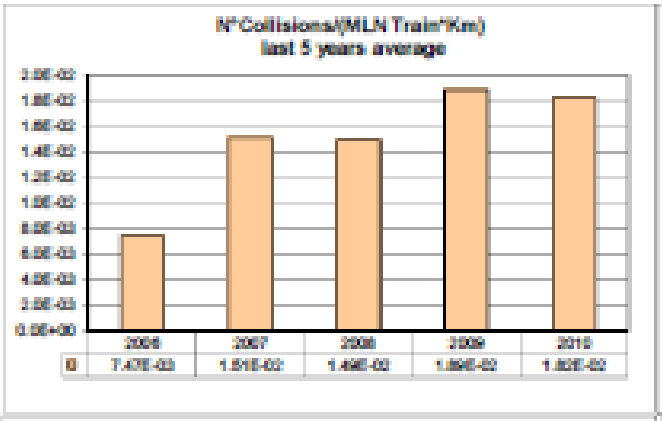


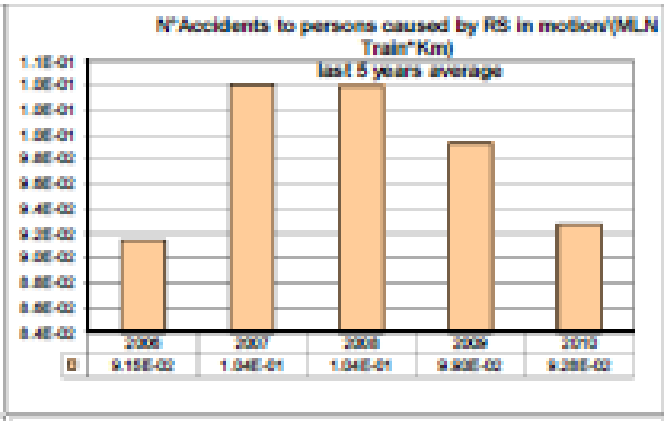


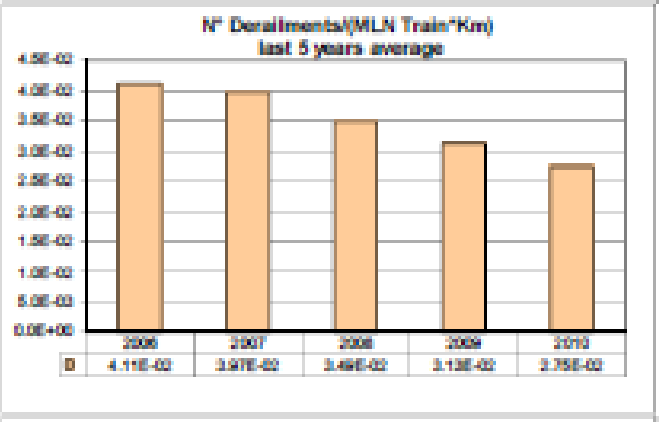


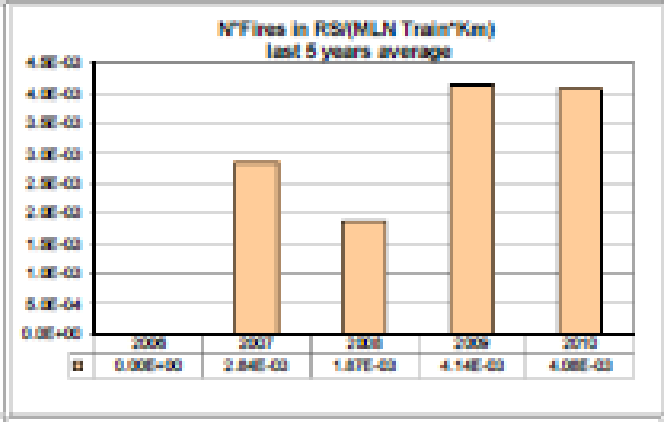
2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2009 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

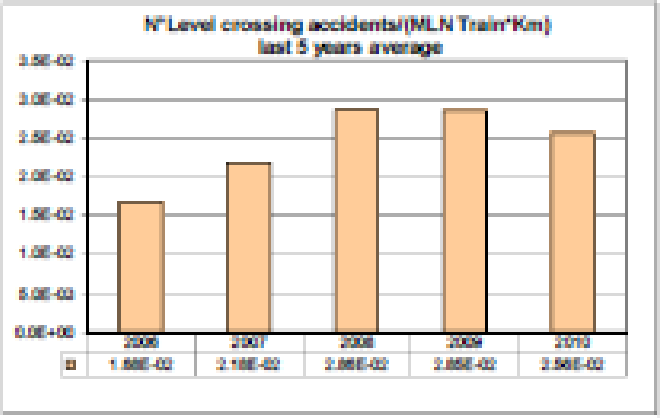
Accidents divided by type

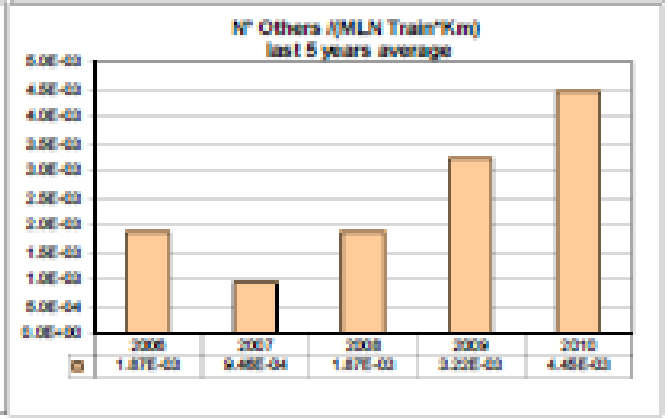






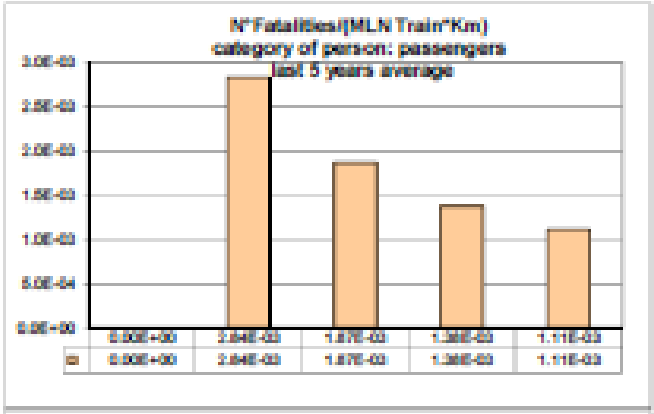


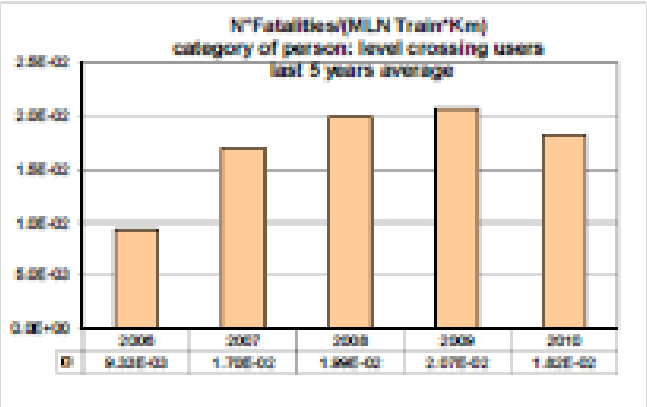


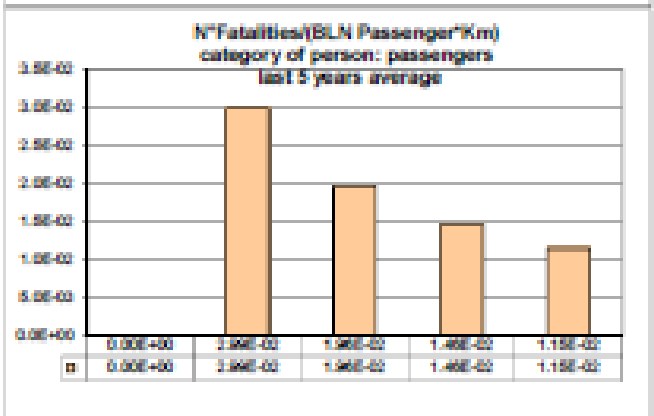


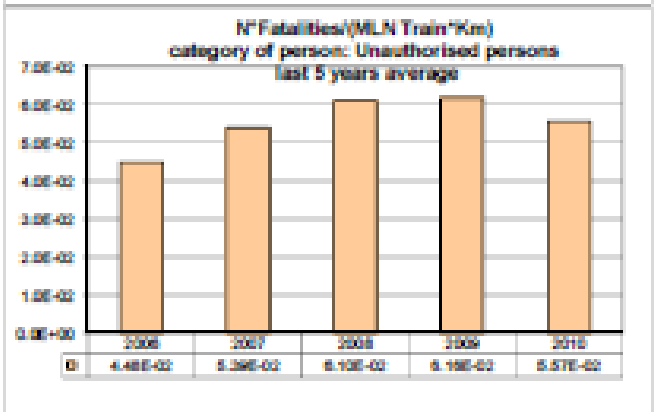
2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2008 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

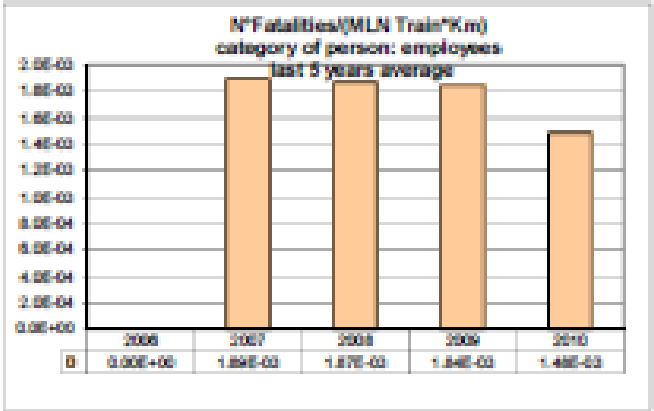
Fatalities divided by category of people involved

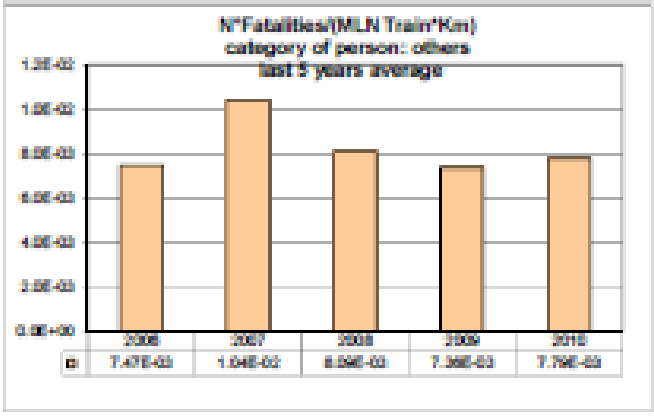






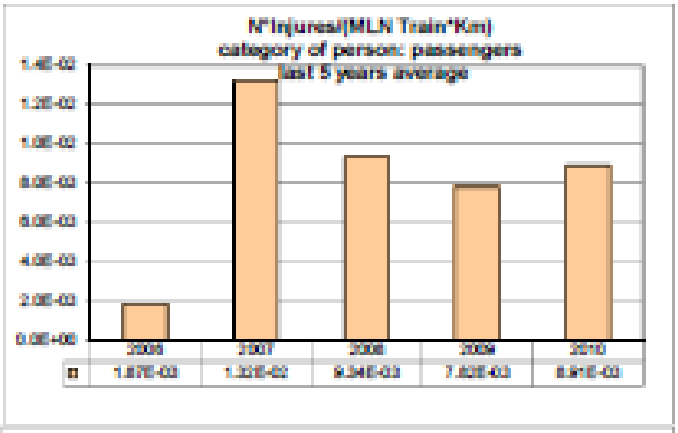


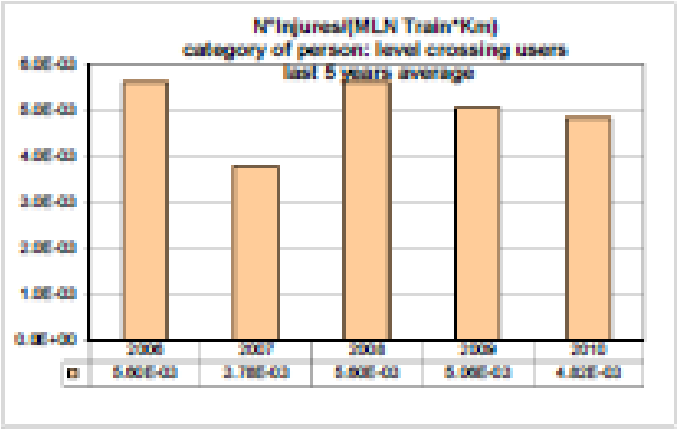


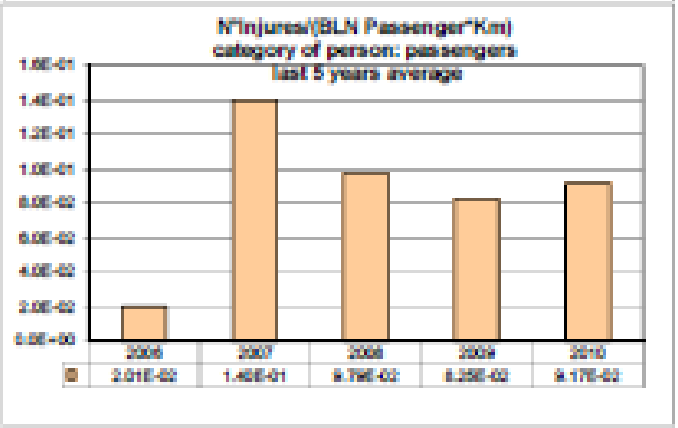


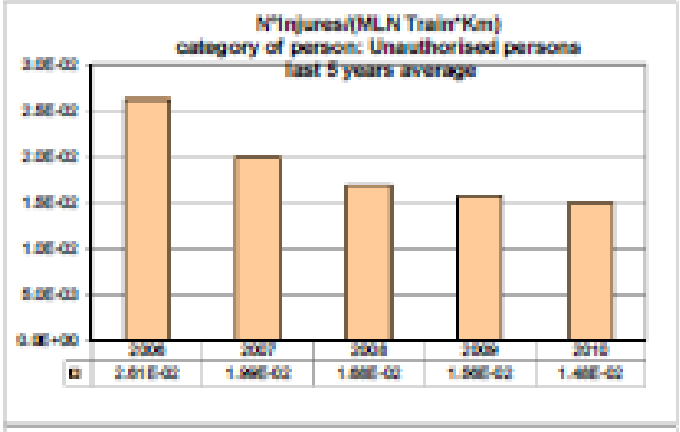
2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2008 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

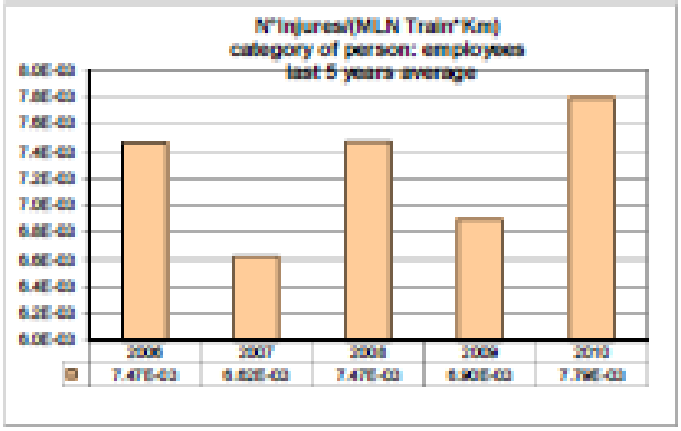
Injures divided by category of people involved

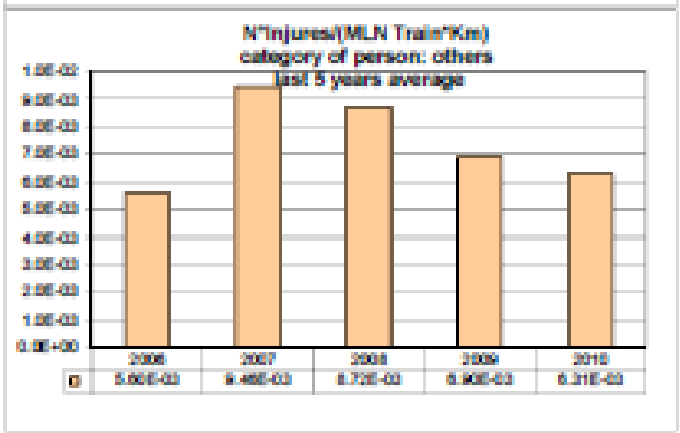






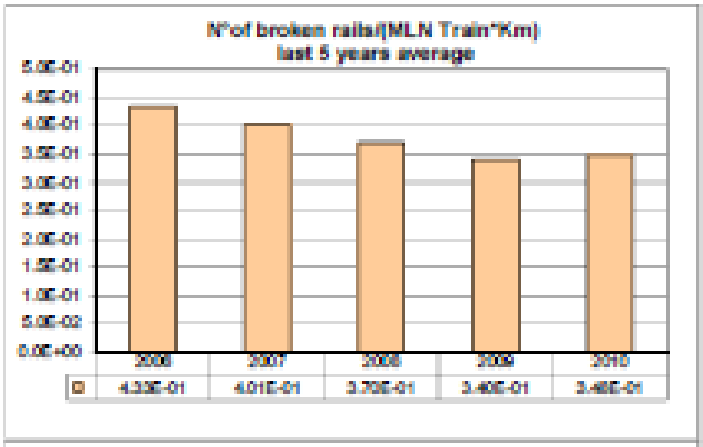


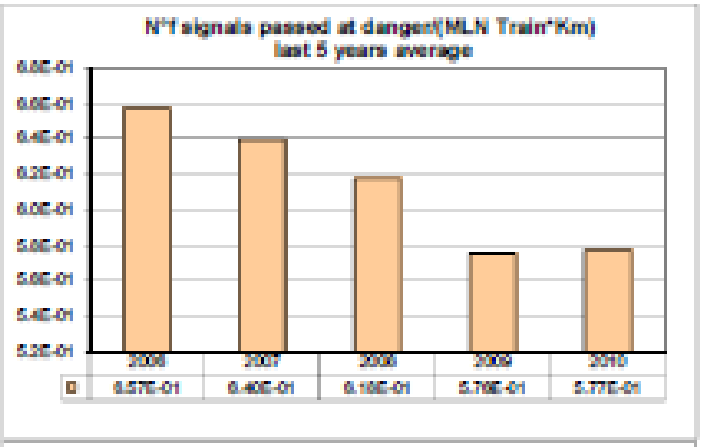


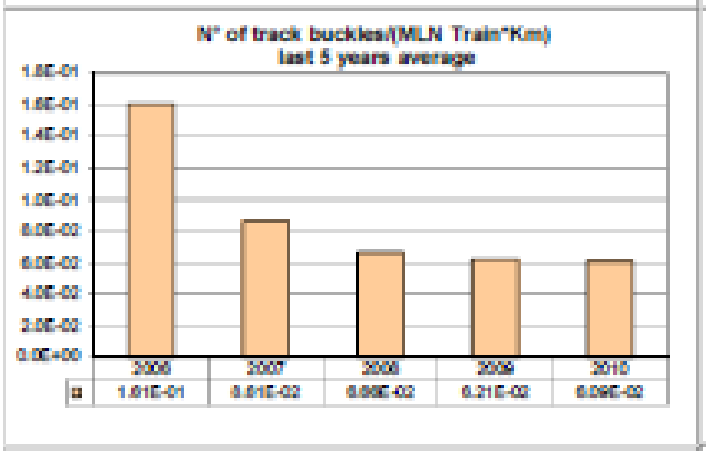


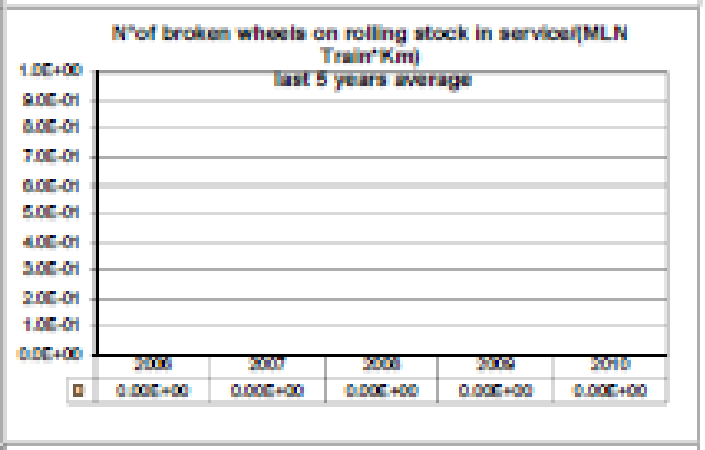
2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2008 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

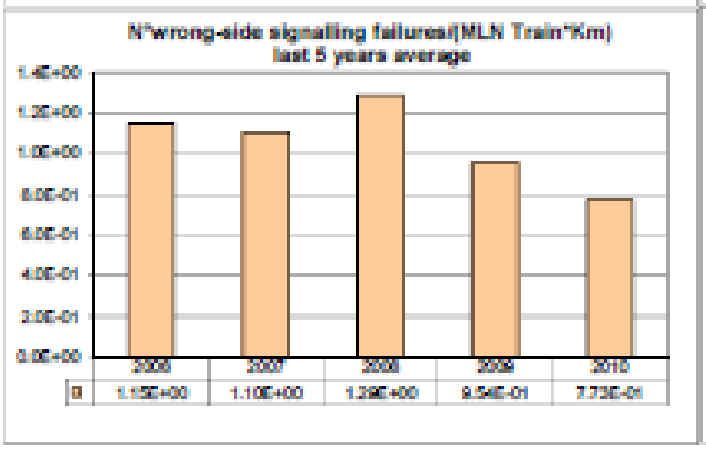
Precursors to accidents

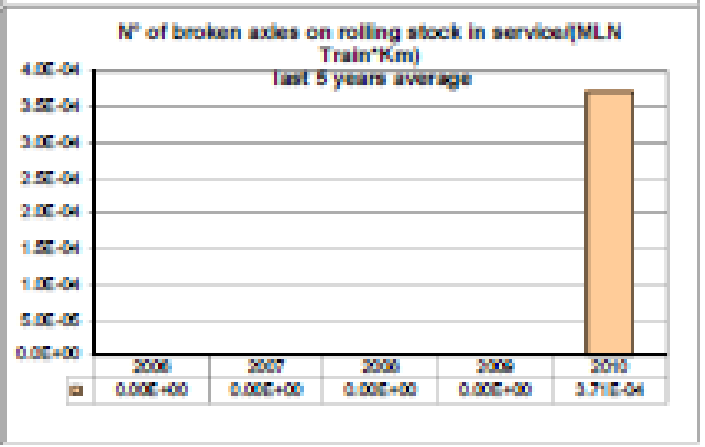






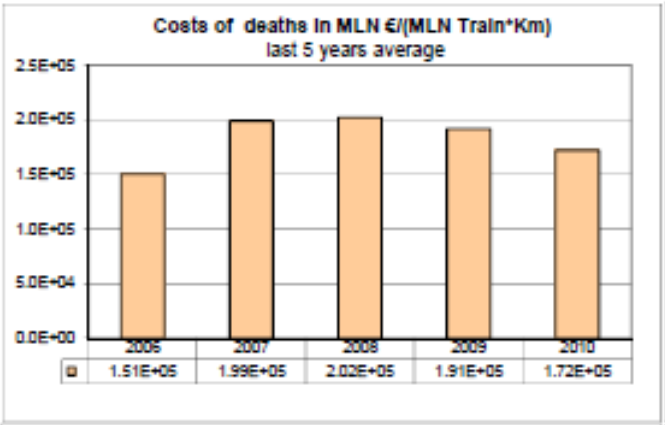


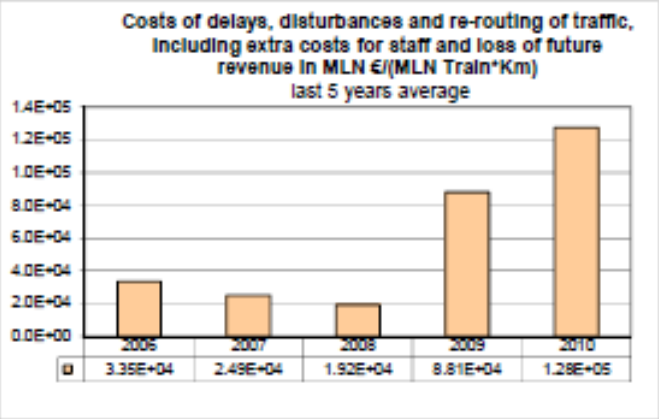


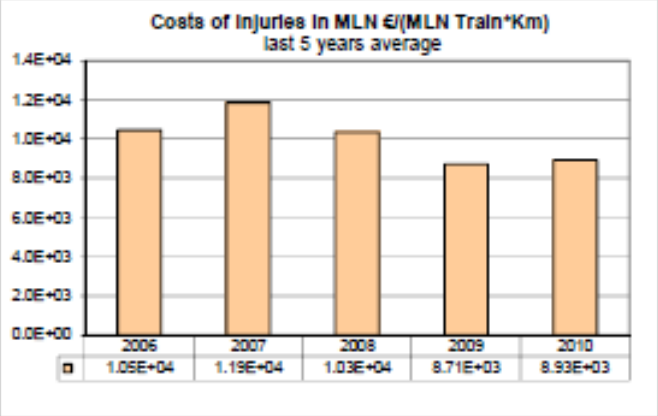


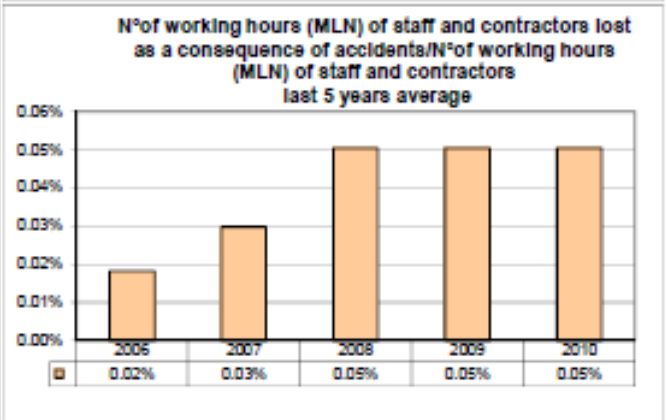
2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2008 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

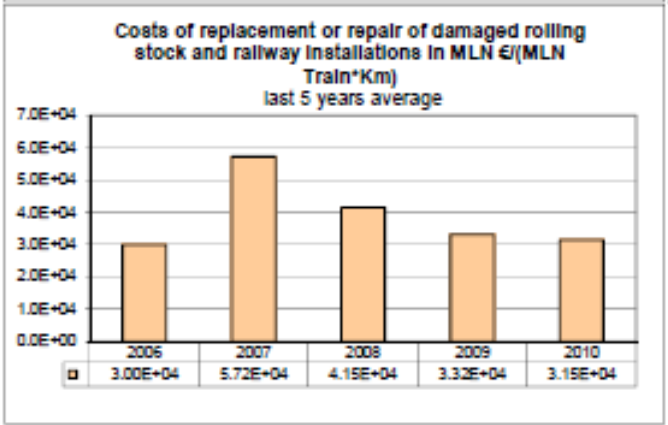
Cost of all accidents, number of working hours of staff and contractors lost as a consequence of accidents



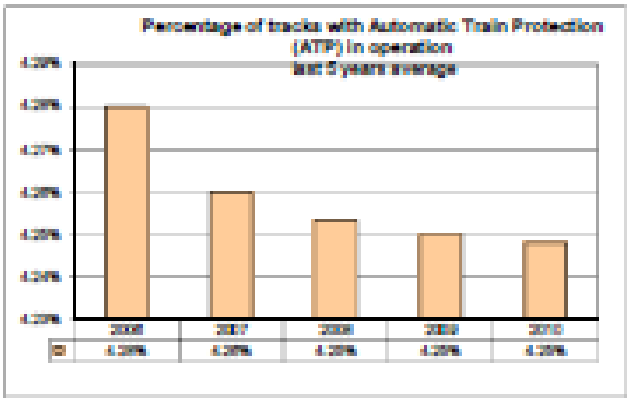


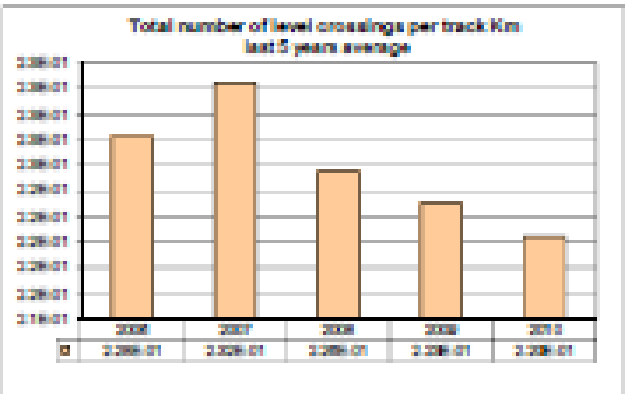


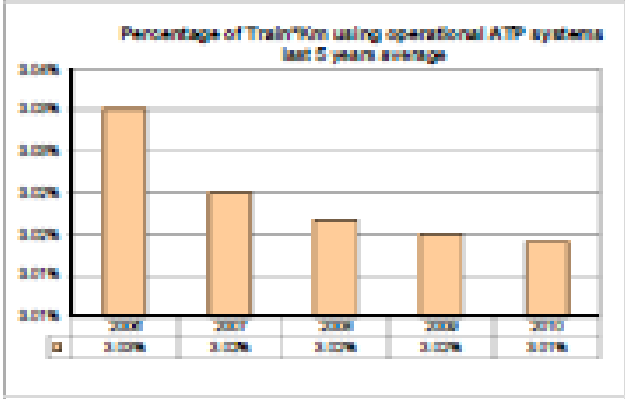


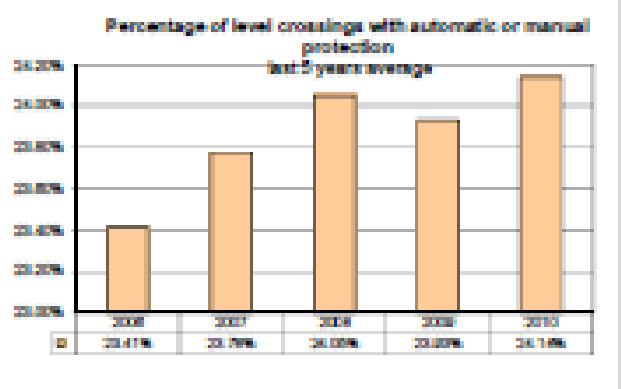


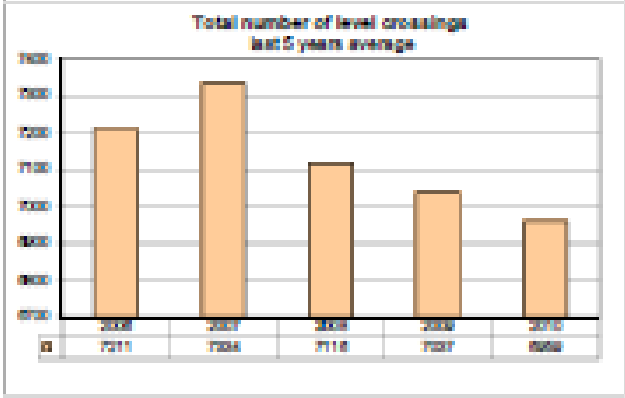
2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2008 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

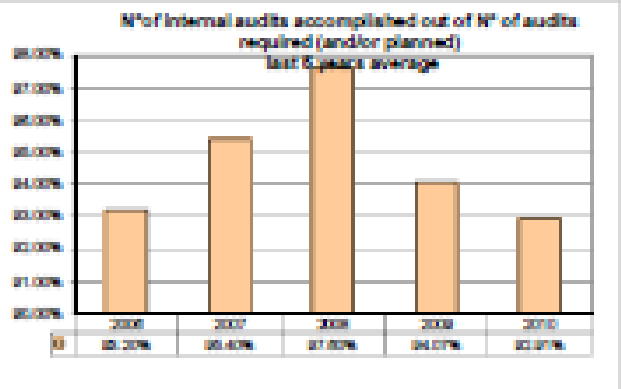


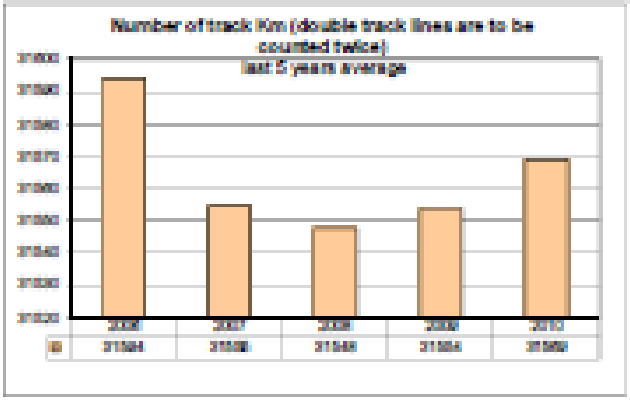












2007 report: values related to 2006.
2008 report: values related to the average between 2006 and 2007.
2008 report: values related to the average among 2006, 2007 and 2008.
2009 report: values related to the average among 2006, 2007, 2008 and 2009.

Annex B: Change in Legislation

Amendments to the Railway Safety Directive	Transposed (Y/N)	Legal reference	Date of entry into force
Directive 2008/57/EC	Yes	The Railways (Interoperability) Regulations 2011 [S.I. 2011/3066]	6 January 2012
Directive 2008/110/EC	Yes	The Railways and Other Guided Transport Systems (Safety) (Amendment) Regulations 2011 [S.I. 2011/1860]	26 August 2011
Directive 2009/149/EC	Yes	The Railways and Other Guided Transport Systems (Safety) (Amendment) Regulations 2011 [S.I. 2011/1860]	26 August 2011

Table 2

LEGISLATION AND REGULATION	Legal reference	Date of entry into force	Description of change	Reasons for the change
Concerning the NSA	The Railways and Other Guided Transport Systems (Miscellaneous Amendments) Regulations [S.I. 2013/950]	21 May 2013	The Regulations: • make the requirement for freight wagon entities in charge of maintenance (ECMs) to possess ECM certificates an enforceable obligation under the Health and	To amend the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (S.I. 2006/599) (ROGS) further so as to give effect to the certification system established by the ECM Regulation.

			Safety at Work etc. Act 1974; • ensure that decisions made in respect of ECM certificates by certification bodies can be appealed (as required in Commission Regulation (EU) 445/2011 [the ECM Regulation]); and • make changes to the Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006 ("EARR") (S.I. 2006/557) to extend the powers of ORR inspectors so that they can inspect and enforce in railway premises where an ECM may have maintenance facilities. The Regulations also give ORR the power to determine that a railway forms part of a metro or light rail system, part of a local, urban or suburban network or is a heritage, museum or tourist railway So that if ORR so determines, the railway will not be deemed part of the mainline railway and so will not be subject to the mainline railway provisions in ROG (i.e. the railway can be excluded from the provisions of Directive 2004/49/EC (as amended) as permitted by Article 2).	

Concerning NoBos, DeBos, ABs, third party entities for registration, examination, etc.	N/A	N/A	N/A	N/A
Concerning RUs/IMs/ECMs	The Railways and Other Guided Transport Systems (Miscellaneous Amendments) Regulations [S.I. 2013/950]	21 May 2013	The Regulations: • make the requirement for freight wagon entities in charge of maintenance (ECMs) to possess ECM certificates an enforceable obligation under the Health and Safety at Work etc. Act 1974; and • ensure that decisions made in respect of ECM certificates by certification bodies can be appealed (as required in the ECM Regulation). The Regulations also remove the requirement for mainline operators (RUs/IMs) to carry out safety verification under ROGS as an equivalent requirement has since been introduced by Commission Regulation (EC) 352/2009 on the adoption of a common safety method on risk evaluation and risk assessment (OJ No. L 108. 29.4.2009) which is directly applicable as a matter of UK law.	To amend the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) further so as to give effect to the certification system established by the ECM Regulation.
Implementation of other EU requirements (if concerning railway safety)	The Railways and Other Guided Transport Systems (Miscellaneous	21 May 2013	The Regulations: • amend the definition of “mainline railway” in ROGS; and • amend the Train	So that if ORR so determines, the railway will not be deemed part of the mainline railway and so will not be subject to the mainline railway

	Amendments) Regulations [S.I. 2013/950]		Driving Licences and Certificates Regulations 2010 (S.I. 2011/1860) to reflect the changes made to the definition of “mainline railway” in ROGS.	provisions in ROGS or the Train Driving Licences and Certificates Regulations 2010 (i.e. the railway can be excluded from the provisions of Directive 2004/49/EC (as amended) and Directive 2007/59/EC as permitted by Article 2).

Annex C: Potentially High-Risk Train Accidents

The events coloured in red are those that the UK NIB is investigating, or for which it has published a report.

Derailments (excluding level crossings) - 13			
Date	**Location**	**Railway Undertaking**	**Description**
21/01/2013	Castle Donnington	Freightliner	A freight train divided and partially derailed on plain line.
23/01/2013	Liverpool Street Station, London	Greater Anglia	A passenger train derailed on points, self-rerailing at subsequent points.
23/01/2013	Salford Crescent	West Coast Railway	The rear locomotive of a heritage train derailed and caught fire.
30/01/2013	Bargoed	Arriva Trains Wales	A passenger train derailed due to a landslide including trees and other debris.
31/01/2013	York Station	West Coast Railway	A steam-hauled heritage train derailed due to a suspected gauge defect.
09/08/2013	Worcester Shrub Hill Station	First Great Western	An ECS train derailed on points entering a siding.
27/08/2013	Stoke Lane LC	DB Schenker	A freight train was derailed near an under-track void.

15/10/2013	Gloucester	Direct Rail Services	A freight train derailed, continuing several miles, shedding a wagon's wheelset and its container.
15/10/2013	Primrose Hill, London	Freightliner	A freight train derailed, shedding a container and causing bridge and overhead wire damage.
06/11/2013	Hoo Jcn (Grain Branch)	DB Schenker	A freight train derailed whilst shunting.
20/11/2013	Herbrandston Junction	DB Schenker	A freight train derailed on trap points after a SPAD.
24/11/2013	Altofts Jcn	VolkerRail	A tamper derailed on points due to an operating incident.
30/12/2013	Goole	DB Schenker	A freight locomotive derailed on trap points after a SPAD.
Collisions between trains - 4			
Date	**Location**	**Railway Undertaking**	**Description**
06/04/2013	Glasgow Central High Level Scotland	First ScotRail	A passenger train collision took place at low speed upon arriving at the destination.

21/07/2013	Norwich Station	Greater Anglia	On arrival at its destination, a passenger train collided with a train stabled in the same platform.
25/09/2013	Manchester Victoria Station	Northern Rail	A slow-speed collision took place when a passenger train moved off in the wrong direction.
17/12/2013	Faversham (Ramsgate Line), Kent	Southeastern	A low-speed collision took place between trains which were to be coupled together.
Buffer stop collisions - 2			
Date	**Location**	**Railway Undertaking**	**Description**
02/05/2013	Bradford Interchange	Northern Rail	A passenger train collided with buffer stops at around 5mph.
20/11/2013	Chester	Virgin West Coast	A passenger train struck and destroyed buffer stops, injuring five on-board.
Trains struck by large falling objects - 0			
Collisions with road vehicles on level crossings - 11			
Date	**Location**	**Railway Undertaking**	**Description**

02/01/2013	Sandy Lane LC	Freightliner	A car became stranded on a level crossing and its passenger was fatally injured upon being struck by a freight train.
28/01/2013	Manorbier Newton LC	Arriva Trains Wales	A car passed the Stop lights at an open level crossing and was struck by a passenger train.
21/03/2013	Athelney LC	First Great Western	A car entered a level crossing after the barriers had lowered and its driver was fatally injured upon being struck by a passenger train.
09/04/2013	Great Coates, Lincolnshire	First Transpennine Express	Two people died when their car was struck by a passenger train on a halfbarrier crossing.
09/06/2013	Brompton Level Crossing	GB Railfreight	A train struck a stranded motorcycle on a level crossing.
24/06/2013	Ffynnongain Level Crossing, Carmarthenshire	Arriva Trains Wales	A passenger train struck an unoccupied mobility scooter on a crossing.
29/06/2013	North Green Level Crossing	Greater Anglia	A passenger train was struck by a car on an open crossing.
14/07/2013	Jetty Avenue Level Crossing	Greater Anglia	A passenger train struck a car and trailer at a user-worked crossing.
16/07/2013	Buttington Level Crossing	Arriva Trains Wales	A passenger train struck a tractor's trailer on a user-worked crossing.

12/11/2013	Sandy Lane Level Crossing, Oxfordshire	CrossCountry	A member of the public placed her car on a crossing and waited there until struck by a passenger train.
31/12/2013	Ruswarp, North Yorkshire	Northern Rail	A passenger train struck a pick-up truck on a user-worked crossing.
Collisions with road vehicles not at level crossings (excluding derailments) - 1			
11/11/2013	Bingley, West Yorkshire	Northern Rail	A parked car rolled away, stopped foul of the line and was struck by a passenger train.
Total - 31			

Annex D: ORR's core message on its strategy for health and safety regulation on GB railways

ORR as rail industry regulator

- We are the economic and safety regulator for the mainline railway industry in mainland Britain. This covers the principal infrastructure manager (Network Rail), their associated contractors and railway undertakings with access agreements to use the network.

- Our regulation focuses on business risk, recognising that business risk includes commercial risks and health and safety risks. Health and safety is not an overhead or an optional add-on. It is a fundamental requirement – and it is good for business.

Health and safety regulation

- We safeguard the public by challenging the rail industry to improve its health and safety performance and prevent people being killed, injured or made ill as a result of its activities.

What we do

- The rail industry in mainland Britain is made up of many businesses. We oversee those businesses and how they work together to keep the rail system safe.

- A business will be safe if its people manage risks effectively every day. Our role is to motivate businesses to have excellent health and safety management and to check that they identify and assess risks properly, control them effectively and comply with the law.

- We recognise that any business which either creates a risk or is partly responsible for a shared risk, must effectively manage that risk. This is irrespective of that business's profitability, availability of resources, or how long any contract they hold has left to run. Although ORR is also their economic regulator, this applies as much to ORR's dealings with Network Rail and HS1 Ltd as with any other companies. As the economic regulator for Network Rail, we decide what it has to deliver (its outputs) and how much this should cost. When we do this, we take safety into account so that the government's priorities are met. Quite simply, these are:

- a rail industry that maintains a high level of safety
- controls its costs and delivers both value for money for the taxpayer
- a good service to its customers

Our core focus

- We expect businesses to achieve proper control of risks by having an excellent safety management system. We expect leaders in the rail industry to understand their risks and how to measure their performance in controlling these.

- Our major concern is to secure high standards of protection from train-crash risk without businesses losing sight of other risks that need to be controlled, such as asbestos or falls from a height.

- We look for evidence of what is being done by businesses to control health and safety risks. We actively seek evidence through our inspections, investigations of incidents and permissions for certain activities. And we strike a balance on the resources we allocate to each. At all times, we act fairly and compare evidence against consistent standards of what businesses should be doing. ORR can use its enforcement powers to require improvement if that is needed.

- We will not settle for mediocrity or a culture of complacency. We will always ask whether improvement is needed, but we recognise that the law sets minimum standards and that an excellent organisation is one that delivers compliance with the law efficiently and consistently. We encourage excellence, but will not enforce beyond the standard set down in law.

- A railway system which is designed with safety in mind from the outset is more likely to deliver a railway that can be operated safely and efficiently for years to come. We expect careful thought during the design process to eliminate risks or reduce them where possible.

- We work with other European regulators to help deliver sensible regulation and a common European approach. This is so that trains can run through the Channel Tunnel to British and European destinations safely, and so that trains built in one country can operate in another. Like our European neighbours, we keep the legal framework for safety on the railway under review and can propose changes if necessary. We do this in line with the principles of better regulation, which underpin all that we do.

Annex E: safety recommendations

Incident	Safety recommendation	State of implementation
Reading West Junction	1 The intention of this recommendation is to make shippers and freight forwarders aware of published guidelines for the safe packing of freight containers. Following these guidelines ensures that the cargo within a sealed container remains evenly loaded and secure. Recent research indicates that the UK freight industry is not fully aware of the guidelines. The Heath and Safety Executive should identify and use the most appropriate means to make shippers and freight forwarders aware of the need to pack freight containers in accordance with the 'Guidelines for packing of cargo transport units', published by the International Maritime Organization, or an equivalent document. By the same means, it should also remind organisations of the need to have operational procedures, resources, equipment and training in place to ensure that cargo is evenly loaded and secure. The Heath and Safety Executive should also make other national and international safety regulators aware of the findings of this investigation and highlight the need to follow the guidelines (paragraphs 108a and 108a.i).	In Progress
	2 The intention of this recommendation is that rail freight and inter-modal freight terminal operators have arrangements in place to manage the risk associated with allowing poorly packed freight containers on the railway. Recognising that many of the indications of poor packing are hidden, operators should require that their customers give assurance that containers are packed in accordance with recognised good practice (eg the IMO/ILO/UNECE guidelines) and carry out appropriate audits to verify this. Where there is no assurance, operators should make physical checks to confirm the evenness of the load. Freightliner should review its operating procedures and conditions of carriage for freight containers. It should then implement any changes necessary to require that (paragraphs 108a, 108a.ii and 108a.iii): - senders provide certification sourced from the relevant party, or have equivalent procedural arrangements in place, which confirm that freight containers offered for transit have been packed in accordance with the 'Guidelines for packing cargo transport units', published by theInternational Maritime Organization, or an equivalent document; - the effectiveness of such certification or procedural arrangements are periodically audited, with remedial action taken as needed; and that where such arrangements are not in place: - alternative action is taken to confirm that the cargo in a container is both evenly and securely stowed. This recommendation may also be applicable to other operators of rail freight services and inter-modal freight terminals.	In Progress
	3 The intention of this recommendation is for inter-modal freight terminal operators to develop requirements and investigate introducing a suitable monitoring system, for use during routine container and train handling, to prevent freight container wagons entering traffic with a side-to-side wheel load imbalance. The system could be based on the measurement of individual or side-to-side wheel loads prior to the train entering traffic or the identification of freight container load offsets during lifting. Freightliner should develop requirements for a system to monitor and prevent load offsets from containers resulting in wagons with a side-to-side wheel load imbalance entering traffic from its terminals. The system should be considered when terminal equipment is planned to be installed or upgraded, and where practicable the system should be implemented (paragraphs 108a, 108a.ii and 108a.iii). This recommendation may also be applicable to other operators of inter-modal freight terminals.	In Progress
	4 The intention of this recommendation is to prevent track geometry faults being undetected after mechanised track maintenance work is completed. The need for a TQS to inspect and measure the track during and after this work is an important opportunity to identify faults that have formed, or existed beforehand. Recognising that current inspection arrangements may not result in reliable detection, Network Rail should assess and implement practical improvements. These could include consideration of the continuous recording of track geometry using approved manual methods (with allowance made for track deflection due to vehicle loading) and taking full advantage of the track measurement capabilities of tamping machines and similar track	In Progress

	maintenance plant. Network Rail should review and, where necessary, improve its processes for the detection of track geometry faults after mechanised track maintenance work to reduce the likelihood of such faults going undetected before the railway is handed back into service (paragraphs 108b.ii and 109).	
	5 The intention of this recommendation is for Network Rail to review its current processes for mechanised track maintenance, and develop and make available best practice guidelines that minimise the formation of geometry faults on crossovers and similar sections of track. Network Rail should establish best practice guidelines for mechanised track maintenance work in areas of switches and crossings that minimise the risk of track twist and other geometry faults forming, and remaining on, crossovers and similar sections of track. It should make its track maintenance teams aware of these and the importance of following them, wherever practicable (paragraph 110).	Implemented
Blatchbridge Junction	1 The intent of this recommendation is to reduce the risk of items of attached equipment falling from on-track machines onto the track. Network Rail should arrange for the maintainers and operators of its on-track machines to carry out a review of those machines and identify items of attached equipment that have the potential to be a threat to safety should the securing systems fail. For each item identified, the following steps should be taken: a) improve the design and/or maintenance arrangements to decrease the likelihood of the securing system failing; or fit secondary retention systems to prevent attached equipment falling onto the track should the securing system fail; b) consider the use of movement 'tell tales' to help identify bolts that are becoming loose; and c) describe the action that should be taken if attached equipment has been subjected to unusual loadings (such as impact or derailment forces) that may have affected the security of the fastening arrangements (for example, an assessment of the integrity of the fastening arrangements by a competent person) (paragraphs 112b, 112c, 113a, 113b and 114).	Implementation on-going
	2 The intent of this recommendation is to reduce the risk of staff misunderstanding the activities that need to be undertaken while maintaining on-track machines. Taking into account the output from implementing recommendation1, Network Rail, in consultation with the maintainers and operators of its on-track machines, should review and improve the maintenance instructions for each machine. As a minimum, the review should include consideration of: a) the clarity of the description of activities to be performed and the sufficiency of the technical detail included; b) the provision of key information such as torque settings at those points within maintenance instructions where the maintainer is required to use them; c) the clarity with which technical terms are described; and d) mandating checks to confirm that maintenance technicians are referring to maintenance instructions and that, where prescribed in the manufacturers maintenance instructions, the correct torque values are being used (paragraphs 112c and 114).	Implementation on-going
	3 The intent of this recommendation is to extend the scope of recommendations 1 and 2 to include all on-track machines that may operate on Network Rail infrastructure. Network Rail should implement a process to require that the owners of all on-track machines that operate on its infrastructure implement measures consistent with the intent of Recommendations 1, 2 and 5 (paragraphs 112b, 112c, 113a, 113b and 114).	Implementation on-going
	4 The intent of this recommendation is for Matisa to provide clear instructions so that the necessary maintenance tasks are carried out. Matisa (UK) Ltd should, in consultation with its customers, improve the clarity of the maintenance instructions for its on-track machines. As a minimum, the following improvements should be made: a) describe maintenance activities with sufficient technical detail; b) define the meaning of key terms that are otherwise open to interpretation such as 'check the integrity'; c) identify which fastenings could pose a risk to safety should they fail; d) include key values, such as torque settings, at those points within maintenance instructions where the maintainer is required to use them; and e) describe the action that should be taken if attached equipment has been subjected to unusual loadings (such as impact or derailment forces) that may have affected the security of the fastening arrangements (for example, an assessment of the integrity of the fastening arrangements by a competent person) (paragraphs 112c, 113a, 113b and 114).	In Progress
	5 The intent of this recommendation is to promote the early identification of corrosion on the bolts/fastenings of high-risk equipment so that corrective action can be taken. Network Rail, in consultation with the maintainers of its on-track machines, and taking into account the output from implementing recommendation 1, should enhance the inspection arrangements for its on-track machines by including a periodic cycle of visual inspections of high-risk fastenings (dismantling the mounting arrangement if necessary) to detect the presence of corrosion. Where corrosion of a bolt/fastening is identified, the source of the corrosion should be found and eliminated where possible. Where this is not possible, the relevant maintenance instructions should be enhanced to include the requirement for more frequent replacement of affected bolts/fastenings (paragraphs 112b and 112c).	Implementation on-going

	6 The intent of this recommendation is for Matisa to consider all working modes of a machine when designing component mounting arrangements. Matisa (UK) Ltd should modify its processes for designing on-track machines so that it includes the assessment of all modes of operation when designing component mounting arrangements. This includes the mounting arrangements on machines that can operate in a defined 'working mode' (ie at slow-speed) as well as travelling at higher speeds (ie being hauled) (paragraphs 112a and 114).	In Progress
	7 The intent of this recommendation is to reduce the risk of the P3 cab of P95 machines outside the United Kingdom detaching due to fastening failure. Matisa (UK) Ltd should communicate the findings from this report to operators and maintainers of P95 machines outside the United Kingdom with advice on necessary measures to reduce the likelihood of the P3 cab becoming detached and falling onto the track due to the failure of the fastening system (paragraphs 112a, 112b, 112c, 113c, 113b and 114).	Implemented
Lindridge Farm	1 The intent of this recommendation is to require signalling re-control projects to establish what signalling source records exist for the area being re-controlled, how up-to-date they are and whether they are correlated. If signalling source records are not available, the project's scope should explicitly include activities at its start to produce them so they are available to designers and checkers for their design work, testers for testing the design prior to it being commissioned, and to the maintainers afterwards. Network Rail should revise its project management processes and company standards to require that signalling re-control projects (ie projects transferring the control of signalling from one location to another when the interlocking, trackside signalling equipment and infrastructure are unchanged) identify the signalling source records that are needed for the design, checking and testing of these works. These projects should then be required to include activities within their scope of work to obtain these signalling source records, including correlating, updating or producing records as necessary (paragraphs 144a, 144c and 145).	In Progress
	2 The intent of this recommendation is to provide Network Rail SDG designers and checkers with a way of working which will remove the possibility of incorrect track circuit names being drawn on a signalling or scheme plan during its production, and then missed during the checking process. This way of working could be implemented in the software used by designers or by procedure. It is equally applicable to conceptual work (such as new designs) and non-conceptual work (such as the redrawing of an existing design). Network Rail should, in consultation with its principal signalling contractors, review the ways of detecting and addressing incorrect track circuit names for all types of signalling or scheme plan production. The review should consider what manual or automatic methods can be used by designers and checkers. The findings of the review should then be implemented by means of a time bound programme for changes to the tools and mandated design processes that cover this activity (paragraphs 144b, 144b.i, 144b.ii, 144d, 144e and 144f).	In Progress
	3 The intent of this recommendation is to mandate that the position of fixed infrastructure on any new signaller display is correlated to its position on the existing signaller display. By doing this any discrepancies can be identified and the reasons for them understood. Network Rail should revise its design processes so as to specifically require that the position of fixed infrastructure, shown on any new signaller's display being installed by a project, is correlated to its position as shown on the existing signaller's display that is being replaced. This work should be carried out by staff who are qualified as competent to do correlation, and when a discrepancy is found between the new and existing signaller displays, they should record it and investigate the reason for it. Such an investigation should include a check of the accuracy of associated records, such as signalling or scheme plans, and result in the necessary corrections being made to the design or to the records to resolve the discrepancy (paragraphs 144g, 144h and 146b).	In Progress
	4 The intent of this recommendation is to improve the controls for deferring test logs before a signalling system is commissioned. It calls for the risk to safety, design and functionality to be assessed when deferring an issue raised by a tester on the test log. That way all of the implications of not addressing the test log are considered. Network Rail should revise the controls for managing deferred test logs so that: - the person calling for the deferral of a test log is required to assess the risk to the safety, design and functionality of the signalling system by not closing the test log, record the outcome of their assessment and state any mitigation measures that need to be put in place before the signalling system can be commissioned; and - the tester responsible for commissioning the signalling system is required to review the assessment, agree to the deferral of the test log and to check that the suggested mitigation measures are in place, before allowing the signalling system to be commissioned (paragraph 144i).	Implemented
	5 The intent of this recommendation is to show a level crossing in the correct place on the signaller's display when telephones are fitted to it. It calls for Network Rail's standards to define who can make the changes to the signaller's display, what information is needed to make the changes and how the changes will be checked afterwards. This recommendation also calls for the change to the level crossing to be recorded in the signalling records, either by updating records such as the signalling plan, or by entering the change in the deficiency register. Network Rail should have procedures in place that require the signaller's display to be updated in a controlled manner when telephones are being fitted at a level crossing for the first time. The requirements should also include what steps must be taken to record the change to the level crossing in the signalling source records (paragraph 146a).	In Progress

Bradford Interchange	1 The intention of this recommendation is for Quattro Plant Limited to better control the design and modification of safety critical equipment by using appropriate measures of engineering safety management. Quattro should review, and amend, its procedure for the management of modifications to on-track plant, such that any future modificationswhich could affect the safety of RRVs follow the principles of engineering change management (paragraph 124), whether the work is done by third parties or in-house (paragraph 162a). As a minimum the review should identify, and action, the changes required to existing procedures to ensure that: a. modifications that have the potential to affect the safety of operation are risk assessed, and any residual risk or newly introduced risk is suitably mitigated by design measures or inclusion within inspection, testing and maintenance procedures; b. safety critical design work on RRVs is checked and subject to independent verification; c. safety critical design work on RRVs is fully and accurately documented; d. systems that are critical to safe operation are formally tested to a documented specification during the initial commissioning, or subsequent modification, to verify that they are operating correctly in all modes of operation, including checking the protection against all credible faults; and e. the access to safety critical systems, such as the rail axle interlocking circuit and its override, are reviewed and suitable restrictions are applied.	In Progress
	2 The intention of this recommendation is for Quattro Plant Limited to better manage the competence of its personnel and the provision of information to them. Quattro should review and improve its existing systems for the management of staff that are engaged in the maintenance, inspection and operation of road-rail vehicles (paragraphs 160a, 160b, 160c and 162b). As a minimum the review should identify the most effective means of: a. creating sufficient working documents for installation, test, inspection, maintenance and operation of safety critical systems on Quattro's RRVs; b. providing appropriate warning labels informing staff of the precautions to take when overriding safety critical systems on RRVs; c. improving management systems to ensure that: - all technical staff and machine operators are fully trained in the specific operations of safety critical systems on each type of RRV that they inspect, maintain and/or operate, and the safety measures to take when it is necessary to override them; - controls are in place to ensure that only competent persons are able to override safety critical systems; - depot staff and operators have access to information for the installation, test, inspection and maintenance tasks they are undertaking on safety critical systems; and - any unexpected behaviour of an RRV is reported and results in an investigation by a person competent to do so to fully discover the cause of the fault and that it is rectified appropriately before use. d. establishing monitoring systems to check that staff are correctly applying the inspection and maintenance procedures, and are competent to do so, including: - enhanced surveillance and regular audits; and - checks that staff are familiar with, and have access to, documentation that is relevant to the safety critical tasks they are undertaking. e. checking that the RRVs supplied for use on rail are fully operational and compliant with Quattro's own maintenance documents (these should include physical equipment checks at their depots and on worksites).	In Progress
	3 The intention of this recommendation is that Network Rail and its rail plant suppliers should minimise the risk of runaways of RRVs that rely upon procedures for their safe operation. Network Rail should review the adequacy of existing measures to prevent RRV runaways of RRVs that are not yet fitted with direct rail wheel braking and implement necessary improvements. This review should consider reinforcing procedures, briefing and training associated with the safe operation of RRVs. Priority should be the prevention of RRV runaways, but consideration should also be given to the means of regaining control should a runaway occur (paragraph 160d).	Implemented
	4 The intention of this recommendation is that Network Rail should review the scope of the compliance monitoring and assurance activities conducted upon, and by, its rail plant suppliers, and ensure that audits are more comprehensive. Network Rail should review the processes for audits of engineering safety management systems and the competence of technical staff that it conducts, or requires others to conduct, on rail plant suppliers. The objective of the review is to identify ways of improving the focus on engineering safety management and the quality of the end products. The findings of this review should be implemented and documented in revised management processes. In addition, Network Rail should take steps to improve the extent to which plant suppliers' own audits are directed in a similar manner (paragraph 162c).	Implemented
	5 The intention of this recommendation is that the vehicle acceptance process applicable to modifications to RRVs should be more widely understood.Network Rail should:a. brief all suppliers of RRVs on the scope of the engineering acceptance process, and the importance of submitting accurate, vehicle-specific information to VABs when seeking acceptance of modifications to RRVs (paragraph 163); andb. clarify with all suppliers of RRVs, and vehicle acceptance bodies, the extent to which reliance on 'first-of-class' approval is appropriate when modifications are made to a number of different vehicles that fulfil the same functional requirement but are significantly different in their design (paragraph 164).	In Progress

Stafford SPAD	1 The intent of this recommendation is to ensure the competence of Devon & Cornwall Railway's staff undertaking safety-critical work. Devon & Cornwall Railways should implement formal competence management processes for all safety-critical staff, taking account of best practice in the industry. This should include operational, maintenance and managerial staff, whether permanent or contracted-in (paragraphs 86, 87b to 88 and 89). Particular attention should be given to the management of train drivers on 'zero hours' contracts and those who drive for more than one company. Devon & Cornwall Railways should subsequently commission an independent review of the arrangements, and audit, to confirm effective implementation.	Implemented
	The intent of this recommendation is to clarify the procedures for making sure that vehicles have been examined by competent persons in accordance with vehicle maintenance instructions. Devon & Cornwall Railways should implement processes to confirm that locomotives, whether owned or hired-in, have been examined by competent persons and assessed as fit to run before they are released for operational use (paragraphs 88 and 90a).	Implemented
	3 The intent of this recommendation is to confirm that the Office of Rail Regulation's revised assessment and supervision process is effective in verifying that the risk from the commencement of operations by new train operators has been appropriately limited. The Office of Rail Regulation should establish a process for the periodic management review of its assessment of safety certificate applications and the resolution of outstanding issues through supervision (paragraph 91). This process should include an evaluation of the extent to which the assessments of applications from new operators are correctly identifying matters for urgent inspection or for refusal of certification. It should also evaluate the effectiveness of post-certification supervision in limiting the risk to the railway in cases requiring urgent inspection.	Implemented
	4 The intent of this recommendation is to ensure that the changes made to Devon & Cornwall Railways' safety management system have enabled its effective implementation. The Office of Rail Regulation should satisfy itself as soon as possible, through supervision, that Devon & Cornwall Railways' revised safety management system (paragraph 101) has established adequate controls regarding the competence of safety-critical staff, traction & rolling stock maintenance and safety culture (paragraphs 88, 89 and 90).	Implemented
	5 The intent of this recommendation is to minimise the risk that an individual's route knowledge will be inadequately assessed. RSSB should amend rail industry standard 'Management of route knowledge for drivers, train managers, guards and driver managers', Ref. RIS-3702-TOM, to require an assessment of the training needs of new staff. This should clarify how 'transferred-in' route and traction knowledge should be assessed by the new employer (paragraph 87c). Particular attention should be given to the management of train drivers on 'zero hours' contracts and those who drive for more than one company.	Implementation on-going
Kings Mill No1 Bridalway crossing	1 The intent of this recommendation is to raise the awareness of local authorities in relation to the risk associated with new schemes that involve level crossings. The Health & Safety Executive and the Office of Rail Regulation should draw the attention of local authorities to the need to consider the effects and possible risk associated with developments, such as the promotion of multi-user trails, which are likely to result in an increase in the number and type of users of routes passing over level crossings, with particular reference to the needs of vulnerable groups such as the elderly, users of mobility scooters and people with small children (paragraph 122d).	Implemented
Shrewsbury Station	1 The purpose of this recommendation is for Network Rail to ensure that the risk-based approach to inspection of points to reduce the risk of derailment, as intended by TRK/053 and as mandated by TRK/001, is correctly implemented by all of its maintenance delivery units. Network Rail should identify the maintenance delivery units which have not correctly adopted the risk-based approach to inspection of points intended by TRK/053 and mandated by TRK/001. It should then re-brief these maintenance delivery units on the requirement in TRK/001 and undertake follow up compliance monitoring activities to confirm that each maintenance delivery unit has adopted an appropriate regime, that all points have been the subject of a risk assessment and that all high-risk points are the subject of regular periodic TRK/053 detailed inspections (paragraph 84a).	Implementation on-going
	2 The purpose of this recommendation is to ensure that Network Rail's update of TRK/053 in response to Recommendation 2 of the RAIB report (18/2012) regarding the Princes Street Gardens' derailment also includes the findings of this investigation that have not already been addressed by other actions. Network Rail should rewrite TRK/053, its supporting Track Engineering Form and associated training and competence assessment material to: - remove inconsistency between them (eg TRK/053 and TEF/3029) (paragraph 85b); - align the competence requirements for supervisors in TRK/053 and TRK/001 and define how supervisors must gain and retain this competence in areas where all detailed inspections are undertaken by others (paragraph 84b.iii); - make clear that a routine measurement (currently using a TGP8 gauge) to identify wear is mandatory (paragraph 84b.iii); and - mandate that the routine measurement should be repeated for points in both normal and reverse positions (paragraph 84b.ii).	Implementation on-going

	3 The purpose of this recommendation is for Network Rail to consider whether it needs to mandate the removal and re-application of the grease during supervisor's visual inspections of points. Network Rail should determine if it is possible for supervisors to properly and reliably identify wear and damage and to use the TGP8 gauge without removing the grease and accumulated residue. Network Rail should also consider the risks associated with removing and re-applying the grease against the risks associated with a lack of detection of wear or damage. Depending on the outcome of this study, Network Rail should incorporate the findings into a future rewrite of TRK/053 (paragraphs 84b.i and 84b.iv).	Implemented
	4 The purpose of this recommendation is to ensure that Freightliner assesses the risks of continued operation when deficiencies in its maintenance practices have been identified. Freightliner should confirm that, where disparities are identified between working practices and the requirements of the maintenance instructions, it has arrangements in place to ensure that risks are adequately managed in the interim until the discrepancy is resolved (paragraph 85c).	Implemented
Roydon near miss	1 The intent of this recommendation is to improve the means by which controllers of site safety assess both the required and available sighting distance at sites of work. Network Rail should review, and then improve as appropriate, the methods by which controllers of site safety assess both the required and the available sighting distance when at sites of work. The review should include: - the accuracy, availability and presentation of information concerning the available sighting distances at sites of work (particularly in those areas where sighting is limited, or too short to permit a sufficient warning from one or more lookouts); - identification of recommended methods of assessing sighting distance when on site (including the use of special equipment); and - the adequacy of existing training and assessments of competence related to the assessment of sighting. (paragraph 93a)	In Progress
	2 The intent of this recommendation is to improve the planning of work on lines that are still open to traffic ('Red Zone working') such that the controller of site safety is provided with an adequate safe system of work pack. Network Rail should review, and then improve as appropriate, the methods by which planners assess the suitability of 'Red Zone working' when selecting an appropriate safe system of work. The review should include: - the availability and presentation of information on sighting distances and warning times; - an assessment of when and how the available information is generally used by planners and any barriers to its use; - the means by which planners establish locations at which multiple lookouts or special equipment are needed in order to provide sufficient warning; and - the means by which planners are informed of locations at which it is impossible for lookout(s) to provide sufficient warning without the use of special equipment. (paragraph 93c)	In Progress
Bulwell trackworker struck	1 The intent of this recommendation is that Network Rail provide information to those responsible for the planning, approval and verification of safe systems of work as to which safe systems of work it considers are appropriate for specific locations and circumstances. Network Rail should make information available to those responsible for the planning, approval and verification of safe systems of work about which safe systems of work it considers to be appropriate for a specified section of the line. This information should support the application of the principles of the hierarchy of safe systems of work. Network Rail should ensure that the information: - takes account of variations such as different types of work, resource levels, times of day and environmental conditions; - is periodically validated and maintained; and - is easily accessible to those responsible for the planning of safe systems of work. (paragraphs 163b, 164a and 164b).	Open
	2 The intent of this recommendation is to ensure that the use of Red and Green Zone safe systems of work is being effectively monitored. Network Rail should review the effectiveness of the current arrangements in place to monitor the usage of Red and Green Zone safe systems of work. It should identify and implement any appropriate measures identified as necessary for this monitoring to be effective (paragraphs 164c (iii) and 166).	Open
	3 The intent of this recommendation is for Network Rail to ensure that the resources required to plan and approve safe systems of work are adequate within off-track sections. Network Rail should determine what resources are necessary for the effective planning and approval of safe systems of work within off-track sections. It should take action to ensure that the required resources are available and that systems are put in place to ensure that they will remain so should additional tasks be assigned to these sections in the future (paragraphs 164b and 165). This recommendation may also apply to other parts of Network Rail where staff are required to work on or near the line.	Open

	4 The intent of this recommendation is for Network Rail to examine if the role of responsible manager has been effectively implemented within its organisation. Network Rail should establish if the requirement within NR/L2/OHS/019 issue 8 for non-cyclic safe systems of work to be approved by the responsible manager has been effectively implemented. In doing this it should specifically consider: - how the requirement was promulgated throughout its organisation; - the briefing and training of responsible managers; and - other barriers to implementation. It should develop a plan to implement any appropriate changes identified (paragraph 168).	Open
	5 The intent of this recommendation is to provide staff required to go on or near the line with clear and consistent information regarding the calculation of required warning times when working alone. Network Rail, in conjunction with RSSB, should review, and improve where necessary, the sections of the railway rule book and any standards, guidance and forms relevant to the patrolling, examining or inspecting of an open line when working alone. The review and any improvements made should aim to provide clear and consistent information regarding the calculation of required warning times (paragraph 169).	Open
Arley collision	1 The purpose of this recommendation is to point Network Rail to areas identified in this investigation for potential inclusion in its planned review of the management of engineering possessions and worksites and to encourage a fundamental assessment of the fitness for purpose of current arrangements. The recommendation is intended to achieve an improvement in the means for controlling the risk of collision between trains (and with plant) when travelling to and from their sites of work, and to gain assurance that arrangements for controlling the risks of collision are effectively planned and followed. Network Rail should: a. Review potential systems of work, and/or technical solutions, for reducing the risk of collision between trains when travelling to and from their sites of work. This review should include consideration of the following options: i. greater use of the signalling system during engineering work for controlling the movement of trains (paragraph 163); ii. means for detecting the position of trains when normal signalling is suspended; and iii. planning arrangements for engineering work that address the issue of simultaneous movements of trains travelling to and from their sites of work and which minimise the potential for such moves to bring trains in close proximity (paragraphs 162a and 163). b. Review (in consultation with RSSB as appropriate) permitted train speeds applying to movements in sections of line that are closed to normal traffic for engineering work, taking account of human factors affecting a driver's ability to judge the distance they can see to be clear, the stopping distance that can be achieved by their train's braking performance, the limitations of headlight illumination in darkness and a driver's route knowledge (paragraphs 162a and 164a). c. Seek an understanding of the reasons for, and scale of, local unauthorised deviations from possession plans, the effectiveness of the planning process to avoid such changes, as well as the suitability of procedures and managerial arrangements for identifying, and subsequently reviewing, unauthorised changes (paragraph 162d). The measures identified to further reduce the risk of collisions during engineering work should then be implemented in accordance with a timebound programme.	In Progress
	2 The purpose of this recommendation is to achieve effective communications between those managing engineering possessions and train drivers (and others working in the possession) so that the potential for miscommunication is reduced to a minimum and that communications take place only when it is safe to do so. Network Rail should: a. Review the equipment and protocols used by those managing possessions for communicating with train drivers to ensure that: i. Drivers are provided with all the information they need to carry out movements safely. The review should consider the use of a standardised format so that any missing information can be readily identified and queried by the driver. In addition to information such as the authorised maximum speed of travel and the driver's treatment of signal aspects, the format could also include confirmation that there are no vehicles obstructing the line to the driver's authorised stopping point (paragraph 162b). ii. Communications with drivers are made in a manner which does not risk distracting the driver from the driving task (paragraphs 162c and 164c). b. Network Rail should define when it may be necessary and appropriate to use competent persons as intermediaries when communicating instructions on vehicle movements to drivers. It should then further consider the formal competencies and non-technical skills required of a competent person and the means by which their competency and non-technical skills may be assured. Consideration should also be given to the practicalities of relaying instructions to drivers in ways that do not risk distracting drivers from their driving task (paragraphs 162b, 162c and 164c). Any resulting actions should be implemented as soon as possible.	In Progress
	3 The purpose of this recommendation is to gain assurance from Network Rail that it understands why the managerial arrangements in place at Saltley Infrastructure Maintenance Delivery Unit have not prevented a recurrence of non-compliant behaviour and to ensure that any measures put in place to address these issues will be effective in the long term. Network Rail should review why the measures taken to implement Recommendation 2 from RAIB report 01/2011 to achieve improved management surveillance and supervision at Saltley	In Progress

	Infrastructure Maintenance Delivery Unit, did not detect or prevent unauthorised changes being made to a plan of work and instances of non-compliance with its company standards for possession management. It should then implement any measures identified to bring about a sustained behavioural change (paragraphs 162d and 164b).	
Dunblane possession irregularity	No recommendations in report.	
Charing Cross	No recommendations in report.	
Beech Hill AHBC	1 The purpose of this recommendation is to replace, with LED units, all remaining 36 W wig-wags at level crossings, with those having 'Bliss' lenses a priority. Network Rail issued Special Inspection Notice SIN121 on 9 May 2013 to locate all such crossings on its infrastructure. This inspection is to be completed by 27 September 2013.Infrastructure managers should determine which level crossings are fitted with 36 W road traffic light signal (wig-wag) units or with 'Bliss' lenses and draw up a time bound plan so that their replacement with LED units is done as soon as possible, those with 'Bliss' lenses being dealt with first.	In Progress
	2 The purpose of this recommendation is to devise a method of assessing the risk of a bright background and glare preventing wig-wags, and other crossing equipment, from being seen and propose means of mitigating this (eg higher powered LED wig-wags, barrier skirts or other means of improving barrier conspicuity). Infrastructure managers should put in place a method of identifying those locations where there is a significant risk from sunlight impairing the visibility of level crossing wig-wags and barriers, propose suitable mitigation measures where appropriate and implement these measures. The method should be based on suitable research and include specific consideration of the possibility of glare, and the wig-wags being seen against a bright background and the barriers against a dark background, taking into account environmental factors and seasonal daytime variations. A programme of training and briefing of the staff carrying out the assessment should be implemented.	In Progress
	3 The purpose of this recommendation is to introduce a new 'brighter' type of LED wig-wag for use at sites where sunlight glare has been identified as a factor. Infrastructure managers should, in conjunction with the other industry parties, develop a new type of wig-wag unit with higher luminous intensity than the existing LED units for use at crossings where high background luminance and sunlight glare is a particular problem, and install these units at the appropriate locations.	In Progress
	4 The purpose of this recommendation is to ensure the inspection and maintenance process confirms that wig-wag light units continue to meet their specification (types other than 36 W, which will have been dealt with in Recommendation 1). This may be achieved by means of testing/ inspection or by replacing lamps at the end of a defined service life. Infrastructure managers should enhance the inspection and maintenance process for wig-wag lamps to provide assurance that they continue to meet their specified performance standard.	In Progress
Saxilby fatality	1 The intent of this recommendation is for Network Rail to control the risk arising from the use of agency staff in safety leadership roles. Taking account of the findings of this investigation (particularly in respect of the actions of the COSS on site and the absence of any effective performance review applied to the COSS), Network Rail should identify and then implement, suitable controls to assure the adequate performance of agency staff in safety leadership roles and/or take steps to reduce its dependence on such staff (paragraph 111a).	Open
	2 The intent of this recommendation is to address the safety risk arising from the management of agency staff in all roles involving work on and around the track. Network Rail, in consultation with all Sentinel sponsor organisations, should develop and implement arrangements to more effectively manage the risk arising from the use of agency staff undertaking work on and around the track. In developing the arrangements, Network Rail should, as a minimum, define improvements in respect of the following issues: a. the requirement for the performance, attitudes and behaviour of agency staff to be regularly monitored; b. the actions to be taken when deficiencies are identified, in particular the possible mechanisms to remedy the deficiency, reasonable timescales within which the deficiencies should be addressed, and the interim measures that can be applied pending resolution; c. the process for temporary suspension of the relevant certification within the Sentinel system and for the prompt reinstatement (to include guidance to contractors and agencies on their responsibilities for updating the status of affected agency staff) on Sentinel; and d. the arrangements for employers to share information in respect of the individuals involved in multiple investigations (paragraphs 111b, 111d and 112a and 112d).	Open

	3 The intent of this recommendation is for Carillion, in conjunction with SkyBlue, to validate, and where necessary improve, the way it manages the performance of agency staff. Carillion in conjunction with Sky Blue should commission an independent review of the changes they have made to their safety management arrangements following this accident (referred to in paragraphs 143 and 145), with the aim of confirming that they have delivered the necessary improvements. The review should include specific consideration of whether the measures taken in respect of managing the performance of agency staff, and following-up accidents and incidents involving them, have been effective in controlling the risk identified in this report. The review should be completed by March 2014 (paragraphs 112a, 112d and 112e).	Open
	4 The intent of this recommendation is to enhance the welfare of witnesses attending industry investigations into serious incidents and accidents. Network Rail, in consultation with other industry partners as appropriate, should review its processes and examine ways of improving their practices for interviewing witnesses who have been involved in serious incidents and accidents. Taking account of best practice from specialists in this area, it should develop guidance on planning for interviews and techniques for dealing with such witnesses. Training should be provided for individuals who are involved in industry investigation panels or conduct interviews as part of an investigation (paragraph 113).	Open
Barrow upon Soar derailment	1 The intent of this recommendation is to reduce the risk of an embankment failure due to flooding by providing the Route geotechnical team with information that will trigger an earthwork evaluation. Network Rail should amend its company standards so that track maintenance staff are required to notify the Route geotechnical team if the foot of an embankment is saturated, flooded or has recently been flooded, and a track geometry defect or loss of ballast is found on top of the embankment (paragraphs 114b, 114c, 114d.i, 114d.ii, 114d.iii and 115b).	Open
	2 The intent of this recommendation is to reduce the risk of an embankment failure by improving the process used by the Route geotechnical team to determine if an earthwork should be included in the flood warning database. Network Rail should amend its processes so that when assessing whether an embankment should be included in the flood warning database, the assessment should include additional factors which are relevant to its stability such as how the embankment was constructed (as far as can reasonably be determined) to understand the effect of water on any planes between different types of materials, and the history of flooding or ponding at the foot of the embankment (paragraph 115a).	Open
	3 The intent of this recommendation is to reduce the risk of an embankment failure by improving the quality of the earthwork evaluation process used by the Route geotechnical team. Network Rail should amend its company standards so that when an earthwork evaluation is carried out on an embankment, the evaluation should consider how the geometry of the track on top of an embankment has changed over time, using data recorded by Network Rail's track geometry recording trains. If the evaluation has been triggered by a change in track quality, flooding or the ponding of water, and includes an assessment of the embankment's susceptibility to flooding or water action, the levels of recent rainfall onto the top of the embankment should be considered as part of the assessment (paragraphs 116a and 116b).	Open
Balcombe Tunnel	1 The intention of this recommendation is to identify fixings at risk of failure based on current knowledge. Network Rail should, where failure could result in risk, identify where polyester resin anchors have been used to support structures (including overhead electrification and signalling equipment), and develop an appropriate regime to detect loose fixings including tactile testing where appropriate (paragraphs 129a and 132).	Implementation on-going
	2 The purpose of this recommendation is to prevent the further use of polyester resin anchors where their long-term performance may compromise safety. Network Rail should implement procedures to prevent the use of polyester resin anchors in circumstances where dampness or shrinkage may affect the safe performance of an asset (paragraph 129a).	Implementation on-going
	3 The purpose of this recommendation is to promote additional investigation prior to specifying materials where performance is critical. Network Rail should review, and if necessary amend its processes, such that designers of structures are required to positively confirm the compatibility of materials with their intended application and environment, including fixing metallic structures to masonry, if the application is safety critical (paragraph 130b).	Implemented
	4 The intention of this recommendation is to provide an effective asset management response when structure defects (or suspected defects) are reported. Network Rail should review and, if necessary, modify the management arrangements that are now in place to provide an appropriate engineering response when structure defects are reported. This should include assessing the risk in the period prior to rectification, the means to verify that work requested has been carried out, and whether the reported defect is an indication of a wider problem (paragraph 129b).	Implementation on-going
	5 The intention of this recommendation is to improve the quality of decision making in the management of structures. Network Rail should undertake a comprehensive review and, if necessary, implement a time-bound plan to modify its levels of staffing and competency requirements so that all technical tasks associated with the management of structures are performed or checked in a timely manner by sufficiently qualified and experienced staff (paragraph 129c).	Implemented

	6 The intention of this recommendation is to improve the effectiveness of Network Rail's investigations when abnormal events are reported. Network Rail should revise its arrangements for the briefing of staff or contractors who are sent to investigate reported defects, so that all relevant available information is provided, and correct any deficiencies found in those arrangements (paragraph 129e).	Implemented
	7 The intention of this recommendation is to provide adequate opportunities for examination and maintenance activities. Network Rail should review, and if necessary amend, its processes to include adequate safeguards such that sufficient track access is provided for the examination needs of all structures in a manner commensurate with the risk they pose to railway safety (paragraph 131).	Implementation on-going
	8 The intention of this recommendation is to improve the effectiveness of Network Rail's examinations regime for structures within tunnels. Network Rail should clarify arrangements, including its relationship with its contractors, for examining structures which are within tunnels, but are not fully encompassed by the normal tunnel management regime (paragraphs 132 and 133).	Implemented
	9 The intention of this recommendation is to improve the quality of information available to staff responsible for the management of structures including provision of information not required within the statutory Health and Safety File. Network Rail should review, and if necessary improve, arrangements for recording, storing and retrieving data so that all relevant information is readily available to staff undertaking the examination, evaluation and maintenance of structures (paragraph 134).	Implementation on-going
Littleport	1 The intention of this recommendation is to ensure that the risks associated with the authorisation of Temporary Non-Compliance certificates are properly assessed, and that appropriate mitigation is implemented. Network Rail should review the manner in which Temporary Non-Compliance certificates (TNCs) are being used in relation to overhead line equipment, and take corrective action if they are being issued without risks being adequately assessed and mitigated (paragraphs 170b and 170d).	In Progress
	2 The intent of this recommendation is to provide maintenance personnel who are required to check alignment of the overhead line equipment with information that is in a format that can be easily used, and is appropriate for their level of competence. Network Rail should review the standards and procedures for the management of overhead line alignment in order to provide maintenance staff with a simple means of relating measurements that are recorded at site to required alignment criteria. The review should include, at least, consideration of: - providing maintenance staff with information allowing them to determine the acceptable range of contact wire positions at every support; and - removing the need for maintenance staff to make their own assessment of pantograph movements when determining if adjustments to the overhead line are required (paragraphs 170a, 170c and 171).	In Progress