1. Purpose

1.1 This is the final paper in the fourth year of the Strategic Board Agenda. It shows how the board has considered 100% of the modelled safety risk for the industry along with some other business risks and opportunities. It considers the completeness of the process and discusses the strategic agenda from April 2012.

2. Background

2.1 During the course of the year the board has considered a number of strategic papers and presentations on the main elements of system risk\(^1\), as listed below:

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Paper 1</th>
<th>Paper 2</th>
<th>Industry Safety Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2011</td>
<td>System Safety learning – internal and external</td>
<td>Update to Safety Risk Model</td>
<td></td>
</tr>
<tr>
<td>July 2011</td>
<td>Workforce Risk</td>
<td>Research and Development Strategy</td>
<td></td>
</tr>
<tr>
<td>September 2011</td>
<td>Public Risk</td>
<td>Cross-industry support for long term strategy</td>
<td>Managing the safety implications of change</td>
</tr>
<tr>
<td>November 2011</td>
<td>Passenger Risk</td>
<td>Occupational Health</td>
<td></td>
</tr>
<tr>
<td>January 2012</td>
<td>Recent experience of working with ALARP in the rail industry</td>
<td></td>
<td>Alliancing and Occupational Health (16 February 2012)</td>
</tr>
<tr>
<td>March 2012</td>
<td>Annual Risk Review</td>
<td>Annual Standards Review</td>
<td></td>
</tr>
</tbody>
</table>

2.2 Each meeting considered a system safety item, including full coverage of the risk to passengers, staff and members of the public, stewardship reports from cross industry groups that RSSB facilitates and other areas of business risk and opportunity where RSSB facilitates cross industry working.

3. System safety risk - review of 2011/12

3.1 Figure 1 summarises the system safety risk, and shows that the board considered 100% of the modelled residual risk on the mainline railway through the three papers on passenger, workforce and public risk – as defined by the RSSB Safety Risk Model Version 7 (SRM v7). Each of the risk papers focussed on particular areas of risk within the category under discussion represented by the darker shades in Figure 1.

\(^1\) Covering safety, performance and efficiency
Risk areas represented by lighter shades were covered in the main paper or appendices, which showed all of the risk from the SRM, including summaries of how industry and RSSB address all risk areas. The public risk paper addressed suicides. Together this shows how the industry is managing all safety risk. Appendix 1 collates this into a summary of the SRM risks and actions.

Figure 2. How system risk was considered by the board

3.2 In September 2011 and February 2012 the board held Industry Safety Meetings with the industry leaders. The main themes of these meetings were industry change and occupational health, with updates on assurance.

3.3 In general the attention paid to each risk has been proportionate, and the board noted that the arrangements in place for duty holders, or collectively through RSSB or cross industry groups, are adequate to address the relevant risks. Where system issues were remitted to RSSB or relevant cross industry groups the actions identified have been noted in minutes and subsequent Board papers.

3.4 The board identified and discussed a number of system risk issues for further attention during the year: These are summarised in Appendix 2.

3.5 The board debated the industry use of ‘Taking Safe Decisions’ (TSD) and the experience of working with ALARP. It was concluded that TSD is a valuable support

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2 RSSB Taking Safe Decisions – How Britain’s railways take decisions that affect safety, 2008
document to duty holder decision making and should be promoted more widely, particularly among the new generation of train operator MDs.

3.6 The ORR is currently reviewing its regulatory priorities in light of the current and potential future safety risks presented by the railway. A question for the ORR has been the degree to which they can rely on the LUL and RSSB Quantitative Risk Assessment (QRA) models to provide a picture of current railway safety risks which is fit for purpose in informing the setting of regulatory priorities. In January 2012 the ORR requested a consultant to review the RSSB and LUL safety risk models.

3.7 The consultant’s report concluded that the RSSB SRM and LUL QRA provide an invaluable, richer and more robust picture of current railway safety risk than can be obtained by analysis of recent safety performance statistics alone and have, in the consultants view, played an important part in major safety performance improvements on the railway over the past two decades or so.

3.8 It was recommended that ORR can and should rely on these models to inform their strategic risk priorities, insofar as the models provide a better picture of current railway safety risk than can be obtained by any other means, but to determine their strategic risk priorities ORR need also to understand how risk is affected by changes in the railway, by changes in company safety performance, and by ORR’s own activities in influencing safety management. It is the combination of (current scale of risk) with (sensitivity to ORR influence), rather than either factor alone, which is important in setting ORR’s strategic priorities. The risk models are invaluable tools to help build this type of understanding, (and to help identify appropriate relevant leading indicators), and ORR should work with LU and RSSB to build their capability in these areas.

4. Data Quality

4.1 2011/12 saw continued attention to the quality of data used as the basis for decision-making. Data supports the SRM, HLOS metrics, SSP trajectories, Precursor Indicator Model (PIM), and decision making by industry and duty holders.

4.2 Notable developments in relation to data quality include: Completion of the fourth annual SMIS data quality health check with the improving results presented to the RSSB board and ORR in January 2012; ORR used significant amounts of RSSB data in their Annual Report 2011; Development of a risk model for depots, yards and sidings; Improvement has been seen in the reporting of RIDDOR reportable lost time injuries by Network Rail and its contractors – particularly for Network Rail maintenance staff who are now reporting five RIDDOR reportable lost time injuries for every major injury reported.

4.3 The Close Call Reporting system was made available to the industry in June 2012.

5. Progress on risk during 2011/12.

5.1 The charts 1 and 2 in Appendix 3 show that safety performance is broadly in line with HLOS for passenger risk and ahead of the metric for workforce.

5.2 In relation to the 2009-14 SSP trajectories, at the end of September 2011, 12 of the 15
key risk trajectories are on course. For the platform-train interface, passenger injuries onboard trains, and trespass current performance is not in line within the trajectory, as described in Appendix 3.

5.3 Train accident risk, as indicated by the PIM is on a downward trend after increasing over the period December 2009 to March 2011 – see charts 3 and 4 in Appendix 3.

6. **Monitoring safety within the HLOS for CP5**

6.1 The recommendation by the Safety Policy Group (SPG) and RSSB board for no safety metrics within the HLOS for CP5 is integrated into the Initial Industry Plan.

7. **Level crossings**

7.1 The Initial Industry Plan (IIP) includes proposals for funds to reduce level crossing risk by at least 50% by March 2019. The board discussed this proposal in the context of the potential reputational risk issues relating to accidents that occur at level crossings and whether such considerations are applied consistently across similar risk areas.

8. **Future of the Strategic Safety Plan?**

8.1 Safety Policy Group has recommended that a decision be taken not to compile a Strategic Safety Plan for Control Period 5, recognising that safety is a component of the IIP and Strategic Business Plan. SPG considers that RSSB and SPG should continue to be responsible for reviewing the content of the safety input to the SBP in the same way that did for the initial plan. This would require change in the RSSB Constitution as the railway group safety plan is the first of our formal ‘functions’. It is two years before it would be necessary to change the Constitution so it is not recommended that any change is initiated at this time.

9. **Other strategic risks and opportunities.**

9.1 During the year the board considered industry risks and opportunities arising from legislation (EU and GB), long term industry strategy, standards, and research & development. The papers were published on the RSSB web site. The board considered the significant non safety risks and opportunities where RSSB has a role in the industry. Cross industry issues identified were either remitted to RSSB or to a relevant cross industry group to follow up and minuted accordingly.

10. **Completeness of review**

10.1 The executive and members of RSSB staff have reviewed the risks covered in both safety and strategic non safety areas and consider that overall the company has considered and reported on the most significant risk and opportunity areas where RSSB can support the industry, in both the safety and business risk areas. There remain a number of business risk areas, identified in Appendix 2, where there is more that could be done to benefit the industry.

11. **Consideration of risk in 2012/13**

11.1 Given the repetitive nature of the papers, the board may wish to consider changes in the way it reviews risk, through strategic risk papers and stewardship reports.
11.2 Suggestion for future strategic papers include: reviewing train accident risk (the components of the PIM); the board’s role in supporting the industry in safety cooperation and system risk review, given the changes taking place in the industry.

12. Recommendations

12.1 The board is asked to;

- **CONFIRM** that they are content that during the year they have reviewed and considered the significant items of system safety risk that impact on the industry and are satisfied with the overall arrangements.
- **CONFIRM** that they are content that during the year they have reviewed and considered the other strategic risks and opportunities which face the industry where there are RSSB supporting activities, and that they are satisfied with the arrangements RSSB has in hand.
- **DISCUSS** and **AGREE** any changes to the strategic agenda for 2012/13.
- **CONFIRM** the SPG recommendation that a Strategic Safety Plan is not appropriate for Control Period 5
### Agenda Item 01

**Appendix 1 - Detailed breakdown of risk to passengers, workforce and members of the public, and 'snapshot view' of some of the ways in which sources of risk are being tackled**

#### Risk to Passengers

<table>
<thead>
<tr>
<th>Risk event</th>
<th>Type of event</th>
<th>Event ID</th>
<th>RSSB RMU projects to support industry</th>
<th>Industry co-operative actions</th>
<th>Key holder actions</th>
</tr>
</thead>
</table>
| In stations | Burns; Manual handling; Slips, trips and falls; platform-train interface accidents | T157 (published) on slips etc; being updated by new project T629 (published) | A full time Project Manager has been appointed to coordinate the work of the OPG sponsored Station Safety Sub Group. The project focuses upon all aspects of safety risk at stations, including passenger (PTI) and rail accident risk. The objective is to build upon existing research and deliver safety improvements to the industry. | Programme of staircase marking, increased use of the slip, trip and fall toolkit, passenger safety awareness campaigns. Improved emergency preparedness training of staff, enhanced luggage space, reduction in use of internal door operation, maintaining secure station accreditation and review of processes for ensuring passenger safety during service disruption |}
| On trains | Falls from train in running; Falls from train in stationary; Falls from train in running; Shock against objects | T605 (published) crowding on train accidents to some extent. T338 (published) Risk from on-board accidents. T063 (unpublished) passenger signage T666 (published); T769 (Published) – Guidance on SDO | Operations Focus Group recognised during 2010 the increasing significance of individual passenger accidents at railway stations. In response to this a working group has been formed and a number of new products developed such as RED 28 – Risk of the Platform Train Interface, R53703 – Rail Industry Standard for Passenger Train Dispatch and Platform Safety Measures, and a Special Topic Report on Passenger Risk on the Platform Train Interface. | Prevented awareness and accident prevention campaigns for staff, review of train dispatch arrangements, improve safety culture and a Special Topic Report on Passenger Train Safety management training programme. |}
| Station staff | Train despatch; Station management | T118, T143 | Rail Industry Standard (RIS) for Passenger Train Dispatch and Platform Safety Measures (RIS-2170) has been approved and issued. This standard provides information on the factors that should be considered when conducting train dispatch risk assessment and methods by which positive safety behaviours can be engendered in both staff and members of public. | Increased use of driving simulators, improved recording to reduce fatigue, and monitoring of driver performance, development of a competency standard for on board hospitality staff, personal development plans for drivers and review of SPADs to ensure all lessons learnt |}
| Train crew | Evacuation; SPADs; Train despatch | T125 (published) Buffer stops. T824 & T425 (published) relating to train slipup operations on platforms. | Platform safety issues are covered in station safety research guide (as T289). T811 Evaluating waysfinding systems for blind and partially sighted customers at stations (in progress) | |}
| Signaller | | T426 (published) on platform edge positions on the GB network | | |}
| Track worker | Maintenance work/error; Errors in possessions | T101 (published) on slips etc. | | |}
| Shunter | | T112 (published); T114, T143 (published) – Heat (for warmth); Weather, climate change. | | |}
| Weather | | T112 (published); T114, T143 (published) – Heat (for warmth); Weather, climate change. | | |}
| Adjacent property | | T060 (published) – management of structures & earthworks | | |}
| Infrastructure | Bridges; Broken rail; Bucked rail; Drainage; Fire or explosion; Stations; Track; Level; Point failure | T078, T207, T330, T357 (published) – derailment risk | | |}
| Rolling stock | Bogie/suspension; Brakes; Electrical; Interior; Other | T060 (unpublished) – Electric braking | | |}
| Level crossing | | T060 (unpublished) – Electric braking | | |}
| Crime | Assault; Assault; Objects known at train; Passenger trespasses | | | |}
| RRs at LX | Road users at level crossings | T299 (published) on sight in progress covering all areas of road rail interface | | |}
| Pedestrian | Passengers on footbridge crossings | T132 (published) on station crossings | | |}

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**Station Safety Sub Group.** The project focuses upon all aspects of safety risk at stations, including passenger (PTI) and rail accident risk. The objective is to build upon existing research and deliver safety improvements to the industry. Details on improvements and current projects include:

- **Risk to Passengers:**
  - **Risk from Type of event:** Fatal FWI RSSB R&D projects to support industry. Industry co-operative actions. Key holder actions.
  - **T157 (published) on slips etc.** Being updated by new project T629 (published).
  - **T829 (published)** on platform edge positions on the GB network.
  - **T426 (published)** on platform edge positions on the GB network.
  - **T666 (published); T769 (Published) – Guidance on SDO** on station safety issues.
  - **T118, T143** on rail industry standard for passenger train dispatch and platform safety measures.
  - **T125 (published)** on buffer stops.
  - **T824 & T425 (published)** relating to train slip-up operations on platforms.
  - **T811** on evaluating waysfinding systems for blind and partially sighted customers at stations (in progress).

- **Station staff:**
  - **Train despatch; Station management** on rail industry standard for passenger train dispatch and platform safety measures. (RIS-2170) has been approved and issued. This standard provides information on the factors that should be considered when conducting train dispatch risk assessment and methods by which positive safety behaviours can be engendered in both staff and members of public.

- **Train crew:**
  - **Evacuation; SPADs; Train despatch** on platform edge positions on the GB network.

- **Signaller:**
  - **T426 (published)** on platform edge positions on the GB network.

- **Track worker:**
  - **Maintenance work/error; Errors in possessions** on slips etc. (T101).

- **Shunter:**
  - **T112 (published); T114, T143 (published) – Heat (for warmth); Weather, climate change.**

- **Weather:**
  - **T112 (published); T114, T143 (published) – Heat (for warmth); Weather, climate change.**

- **Adjacent property:**
  - **T060 (published) – management of structures & earthworks** on slips etc. (T101).

- **Infrastructure:**
  - **Bridges; Broken rail; Bucked rail; Drainage; Fire or explosion; Stations; Track; Level; Point failure** on slips etc. (T078, T207, T330, T357).

- **Rolling stock:**
  - **Bogie/suspension; Brakes; Electrical; Interior; Other** on slips etc. (T060).

- **Level crossing:**
  - **T060 (unpublished) – Electric braking** on slips etc. (T101).

- **Crime:**
  - **Assault; Assault; Objects known at train; Passenger trespasses** on slips etc. (T060).

- **RRs at LX:**
  - **Road users at level crossings** on slips etc. (T299).

- **Pedestrian:**
  - **Passengers on footbridge crossings** on slips etc. (T132).
## Risk to Workforce

<table>
<thead>
<tr>
<th>Risk to</th>
<th>Risk from</th>
<th>Type of event</th>
<th>Fatality</th>
<th>FPIW</th>
<th>RSSB R&amp;D projects to support industry</th>
<th>Industry co-operative actions</th>
<th>Duty holder actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure workers, train crew</td>
<td>Problems with the track, signaling systems, or bridges, embankments, tunnels etc.</td>
<td>Problems with the track, signaling systems, or bridges, embankments, tunnels etc.</td>
<td>0.17</td>
<td>1.14</td>
<td>Research projects: T359, T683, T679, T696 T804 and T808</td>
<td>Industry co-operative input to Railway Group Standards and Technical Specifications for interoperability. RSSB focuses on achieving consistency in the procurement of critical materials and services.</td>
<td>Strategic replacement of softwood sleepers. Application of latest technology to reduce track defects. Focussed risk assessment on track stressing &amp; effects of weather on embankments and structures. Identification and remedy of 'rough-ride' sites. Bridge examination intervals based on risk. Further lever test kits being made available following successful trials by NR maintenance staff.</td>
</tr>
<tr>
<td>Train crew</td>
<td>Faults with train interior (including seats and windows). Electrical faults. Brakes, bogies etc.</td>
<td>Faults with train interior (including seats and windows). Electrical faults. Brakes, bogies etc.</td>
<td>0.06</td>
<td>0.70</td>
<td>Research projects: T066, T310, T600, T228, T796 T797 and T910</td>
<td>RSSAS aims to give consistency to the procurement of critical materials and services.</td>
<td>Introduction of a digital reader to measure axle box temperatures and new rolling stock with improved interior design. Fit high intensity headlights to class 142 and 143 fleets to enable increased visibility to track workers and people working on or near the line. Improve cab environment of class 66 locomotives to minimise fatigue levels. Fitment of a second interlock switch to class 150 to reduce the risk of ‘wrong-side’ door interlock failure.</td>
</tr>
<tr>
<td>Train crew, track workers</td>
<td>Train accidents due to adverse weather conditions.</td>
<td>Train accidents due to adverse weather conditions.</td>
<td>0.01</td>
<td>0.06</td>
<td>Research projects: T112, T552, T554, T643, T925</td>
<td>The Sustainable Rail Programme is looking at the future effects of the environment on the railway.</td>
<td>Improving inspection and maintenance of earthworks to combat increased risk from extreme weather. Defibrillation works across owned, managed and leased locations.</td>
</tr>
<tr>
<td>Train drivers, station staff</td>
<td>Shock and trauma due to attending to or witnessing passenger accidents.</td>
<td>Shock and trauma due to attending to or witnessing passenger accidents.</td>
<td>0.00</td>
<td>0.04</td>
<td>Research projects: T157, T317, T749 and T829</td>
<td>Passenger safety awareness campaign for boarding/lighting trains. Improvements to customer display screens and public address systems to reduce crowding around signs and late rushes to trains. Review of incidents of passengers being taken ill on trains to establish common causes and develop plans to reduce the numbers of such incidents.</td>
<td></td>
</tr>
<tr>
<td>Station staff, train crew, crossing keepers</td>
<td>Assaults. Arson, missiles thrown at trains, objects on the line and other acts of vandalism. Witnessing suicides and accidents to / near misses with trespassers.</td>
<td>Assaults. Arson, missiles thrown at trains, objects on the line and other acts of vandalism. Witnessing suicides and accidents to / near misses with trespassers.</td>
<td>0.07</td>
<td>3.48</td>
<td>Research projects: T138, T137, T223, T703, T704 and T845</td>
<td>A variety of initiatives including ‘trackoff’ (RSSB) and ‘No Messin’ (NR) Campaigns. CSS and CPSP focus on public behaviour. RPSPG focuses on assaults against staff and passengers. BTP Operation Drum to target cable theft. The industry works closely with the National Suicide Prevention Group.</td>
<td>General improvements made to CCTV systems across a number of stations. Rail enforcement officers given direct access to the BTP radio network. Improved conflict training for members of staff. Fencing priorities matched with trespass hotspots. Campaign run during school holidays to deter trespass and anti-social behaviour. Closure of access to unused platforms. Placing of Samaritans posters around stations and additional staff training to identify potentially suicidal people. Utilise SWeRev2.0 to educate new staff on conflict avoidance and management.</td>
</tr>
<tr>
<td>Crossing keepers, train crew, infrastructure workers</td>
<td>Accidents at level crossings. Road vehicle incursions. Bridge strike.</td>
<td>Accidents at level crossings. Road vehicle incursions. Bridge strike.</td>
<td>0.08</td>
<td>0.17</td>
<td>Research projects: T935, T663, T728 and T730</td>
<td>The Department for Transport (DfT) produced a report after the Great Heck accident setting out the steps to be taken by railway infrastructure authorities and highway authorities to manage the risk of the accidental incursion of road vehicles.</td>
<td>Continued development of NR’s Don’t Run the Risk campaign. NR risk assessment of crossings through the Level Crossing Risk Model. Cameras installed at all level crossing to identify incidents of road vehicle misuse. Strategy to upgrade AoCLs and close UCWs where possible. Promote improved driver reporting of crossing misuse and active participation in raising public awareness of level crossing risk.</td>
</tr>
<tr>
<td>Train drivers, station staff</td>
<td>Attending to or witnessing accidents similar to passenger accidents in stations.</td>
<td>Attending to or witnessing accidents similar to passenger accidents in stations.</td>
<td>0.00</td>
<td>0.12</td>
<td>Research projects: T157, T317, T749 and T829</td>
<td>1645 is also evaluating the Network Rail campaign with SARR which is raising awareness of the hazards of railways. National Suicide Prevention Group’s work with the rail industry.</td>
<td>New passenger emergency evacuation signage to train. Implement a programme of societal safety enhancements to reduce passenger accidents. Surface testing/inspection &amp; improved surfaces on platforms and footbridges.</td>
</tr>
<tr>
<td>Track workers</td>
<td>Occupational hazards including electrocution and being struck by trains.</td>
<td>Occupational hazards including electrocution and being struck by trains.</td>
<td>3.18</td>
<td>13.38</td>
<td>Research projects: T749 and T854</td>
<td>Trainings of streamlined arrangements to take possession led by NR West Coast Route Modernisation, supported by RSSB Rules team. ISLG and PSLG focus on track safety. OFG also has a remit to look at risk to and from track workers. ISLG are continuing to look at possession working and occupational health as part of their 2011 work plan. OFG sponsored briefing pack on the arrangements for level crossing within possessions and at workstations.</td>
<td>The Close Call System (CCS) launched in June 2011 to encourage collection of trackside near misses. Improvement of possession management system and safety critical communications protocol with a simplification of rules. NR analysis of human factors issues and related potential safety disturbances for current and proposed new systems of track access; NR simplification of rules for plant use, with aim to match plant more closely to task needs and staff skills; NR year-long plant to target top three sources of risk, and release of annual DVD. Use of safety triangles / positive safety triangles (e.g. Birse Rail) to encourage and reward safety, and monitor proactive and reactive measures; contractor initiatives to instil strong safety culture at all levels of organisation (e.g. Carlton’s ‘Behaving Safely’ campaign).</td>
</tr>
<tr>
<td>Train crew</td>
<td>Personal injuries, SPADs.</td>
<td>Personal injuries, SPADs.</td>
<td>0.70</td>
<td>5.73</td>
<td>Research projects: T863 and T666</td>
<td>Fitment of TPWS at permanent speed restrictions and in-cab modifications. TPWS Strategy Group also established as a sub-group to the management system. Uncrashed basis for derailment / collision scenarios.</td>
<td>Trains fitted with incident response kits and additional training for staff in order to act as quickly as possible in emergency situations. Improvement in training and competence management schemes. Injury prevention initiatives (e.g. First Group) based on booklets, DVDs and staff briefings. Proactive fatigue management system. Unobtrusive monitoring of drivers (via OTMR) and train despatch. Re-engineering of catering vehicles to reduce the occurrence of scalds and burns. Undertake publicly campaigns highlighting risks when boarding/alighting at stations, depots and lineside.</td>
</tr>
<tr>
<td>Station staff</td>
<td>Personal injuries. Accidents related to train despatch and station management.</td>
<td>Personal injuries. Accidents related to train despatch and station management.</td>
<td>0.03</td>
<td>2.17</td>
<td>Research projects: T743, T749 and T634</td>
<td>Aerodynamics GB Working Group covers any past and ongoing slipstream work. Train dispatch rules being reviewed in order to be simplified (TOM SC). OFG has established a dedicated station safety improvement programme with RSSB resource. RED and Opweb are available to frontline staff.</td>
<td>Continued use of the slips, trips and falls toolkit and the HSE’s ‘shattered lives’ campaign, review workforce footwear and communication campaigns. Training needs analysis for conductor and train dispatch staff duties and use outputs to update training courses. Publicly campaign highlighting the hazards to station staff of doors, drawers and floors. Improve Driver Only Operation (OOD) dispatch equipment on stations. Provision of mobile panic attack alarms for use when staff open and close offices and stations.</td>
</tr>
<tr>
<td>Signalman/ crossing keepers</td>
<td>Personal injuries, public assaults.</td>
<td>Personal injuries, public assaults.</td>
<td>0.05</td>
<td>0.19</td>
<td>Research projects: T014, T108, T145, T146, T180, T204, T347, T465, T606, T534, T629 and T682</td>
<td>Monitoring of voice communications and sharing the results to improve the quality.</td>
<td>NR programme to assess and manage workload, NR evaluations of injury risk from lever operation. NR introduction of revised computer-based training, and safety briefings for signalmen. Reorganisation of Communication Review Groups (CRG) and league tables.</td>
</tr>
</tbody>
</table>

### Total

| | 4.4 | 27.2 |
Risk to Public

<table>
<thead>
<tr>
<th>Risk from the site type of event</th>
<th>Fatal</th>
<th>Fall</th>
<th>RSSB actions to support industry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Railway</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trespass by rail at grade crossing</td>
<td>0.64</td>
<td>0.04</td>
<td>RSSB published research projects: T230. Improving rail user and pedestrian behaviour at level crossings. T383. Safer European level crossing assessment and technology (SELCAT). T230. Understanding human factors and developing risk reduction solutions for pedestrian crossings at railway stations and T350. Improving safety and accessibility at level crossings for all published. T811. Discussion on the reasons for railway accidents and level crossing potential solutions.</td>
</tr>
<tr>
<td><strong>Road vehicle</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>3.33</td>
<td>2.62</td>
<td>RSSB will hold the 12th Global Level Crossing Symposium in October 2012 in partnership with Network Rail and the ORR.</td>
</tr>
<tr>
<td><strong>Level crossing</strong></td>
<td>5.11</td>
<td>3.23</td>
<td>No research specifically addressing public risk.</td>
</tr>
<tr>
<td>Level crossing</td>
<td></td>
<td></td>
<td>The work of systems interface committees and standards committees related to engineering issues.</td>
</tr>
<tr>
<td><strong>Rolling stock</strong></td>
<td>2.22</td>
<td>1.60</td>
<td>Engineering research predominantly focused on rolling stock itself and passengers.</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>3.22</td>
<td>3.05</td>
<td>RSSB has worked closely with Network Rail and appropriate European committees (CEN/TS) to establish requirements that are relevant to the GB railway industry in the Structural Eurocodes.</td>
</tr>
<tr>
<td><strong>Station staff</strong></td>
<td>3.23</td>
<td>3.35</td>
<td>RSSB has published research projects: T114. Improving the arrangements for train dispatch from stations. T749. Guidance on protecting people from the aerodynamic effects of passing trains in progress.</td>
</tr>
<tr>
<td><strong>Worker health and welfare</strong></td>
<td>1.71</td>
<td>1.01</td>
<td>No research specifically addressing public risk.</td>
</tr>
<tr>
<td><strong>Signaller</strong></td>
<td>2.52</td>
<td>1.26</td>
<td>No research specifically addressing public risk.</td>
</tr>
<tr>
<td><strong>Transport</strong></td>
<td>2.04</td>
<td>2.04</td>
<td>RSSB has completed a number of projects related to the prevention of train accidents that are relevant to the GB railway industry in the Structural Eurocodes.</td>
</tr>
<tr>
<td><strong>Suicide</strong></td>
<td>2.13</td>
<td>1.26</td>
<td>Project T945 Improving suicide prevention measures on the rail network in Great Britain, in progress.</td>
</tr>
</tbody>
</table>

Risk to Industry

<table>
<thead>
<tr>
<th>Risk from the industry type of event</th>
<th>Fatal</th>
<th>Fall</th>
<th>RSSB actions to support industry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Railway operations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry operators</td>
<td></td>
<td></td>
<td>General improvements made to CTC TV systems across a number of stations; general management and maintenance of systems also upgraded.</td>
</tr>
<tr>
<td>Duty holders actions</td>
<td></td>
<td></td>
<td>Rail enforcement officers given direct access to the BTP radio network, enabling them to contact BTP immediately when necessary. TOCs, Network Rail and BTP use a variety of staffing measures including security guards, rail enforcement officers, special constables and police community support officers.</td>
</tr>
<tr>
<td><strong>Public sector</strong></td>
<td></td>
<td></td>
<td>Improved conflict training for members of staff using SMART/RTK. BTP is the ACPO lead on railway crime. Use of mini-helicopters and regular visits to scrap dealers, in-vehicle tracking, in-office security. Network Rail to use SMART water to identify its cables.</td>
</tr>
<tr>
<td><strong>Risk to community</strong></td>
<td></td>
<td></td>
<td>Provision of service at specific locations for people waiting on platforms.</td>
</tr>
<tr>
<td><strong>Road safety</strong></td>
<td></td>
<td></td>
<td>The Network Rail No Messin! continues to run. Events offering activities such as sports, art, dance and music held in six cities across the UK that have been identified as hotspots for railway crime.</td>
</tr>
<tr>
<td><strong>Public protection</strong></td>
<td></td>
<td></td>
<td>Network Rail’s Partnership Awards recognize work by groups to encourage the public to act responsibly when using the railway.</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td></td>
<td></td>
<td>A number of RCBL also have working groups to manage risk in their area, with BTP</td>
</tr>
</tbody>
</table>

**Public sector**

1. Third party risk also has the potential to arise from workforce activity away from the mainline railway, for example road traffic accidents whilst driving between sites. This is not covered by the SRM.
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Appendix 2 – Risk areas considered over the year

During the course of the year the board has considered and reviewed a number of areas of risk derived from passenger, workforce and public risk papers, learning from accidents and operational experience discussions, the Industry Safety Meetings and other inputs. The board reviewed, discussed and supported a number of system risk issues which would be progressed during the year as follows:

1. Irregular working – Work is ongoing through the Operations Focus Group (OFG) to better define what is meant by irregular working and to develop an industry irregular working risk ranking methodology.

2. Station safety – A special topic report was produced relating to the risk at the platform-train interface. The board reviewed and discussed the station safety improvement project being led by OFG.

3. Occupational health – The board reconsidered RSSB’s role in relation to supporting industry occupational health activities and supported further work in this area. Outline proposals were presented to the February Industry Safety Meeting.

4. Road vehicle driving – The Board requested RSSB to gather data on road vehicle injuries and fatalities amongst the industry’s workforce who drive as part of their duties to illustrate the scale of the risk exposure, ascertain whether companies are taking a sufficiently proactive approach and what RSSB could do to improve the situation.

5. Managing change – opportunities for the development of meaningful partnerships/alliace between Network Rail Routes and Train operator to improve cooperation and safety through understanding of interface risks, joint development of control measures, joint development of business cases, joint safety improvement plans and proactively challenging projects and risk aversion.

6. Assurance – Reviewed again following on from discussions in 2010. Some progress has been made but it was identified that further work is required to support this activity. RSSB has a safety assurance project ongoing.

Last year’s Annual Risk Review paper identified the potential benefits of having a pan industry approach strategy for the future of data collection and sharing. This has led to some further work to capture and record what data systems exist, but there remains no agreed way forward. This is potentially a critical activity in the light of Network Rail’s devolution.
Appendix 3 – Monitoring of progress against the HLOS safety targets and train accident risk indicated by the Precursor Indicator Model

The DfT established HLOS safety metrics for passenger and workforce, specifying a 3% reduction of risk for both over CP4. Progress is monitored through the update of the SRM. Between SRM updates monitoring is undertaken and reported to the Board. The charts 1 and 2 below show that safety performance is broadly in line with HLOS for passenger risk and ahead of the metric for workforce.

In relation to the 2009-14 SSP trajectories, at the end of September 2011, 12 of the 15 key risk trajectories are on course. For the platform-train interface, passenger injuries on-board trains, and trespass current performance is not within the trajectory, as follows:

- For the passengers at the platform-train interface the increase in risk and the associated issues are being tackled by OFG, which has established a station safety subgroup.
- For passenger injuries on-board trains, the overall risk increase is very small at the stage and could be more to do with variability in the analysis methodology used. The situation will be monitored.
- For trespass, there was a notable increase in the performance measure between SRM updates, due largely to the data periods covered by SRMv6.5 and SRMv7. The interim methodology shows a decreasing trend from the higher SRMv7 point estimate.

Chart 1 Progress against HLOS target for passenger risk (FWI per billion passenger km)

Chart 2. Progress against HLOS target for workforce risk
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Appendix 3 – Monitoring of progress against the HLOS safety targets and train accident risk indicated by the Precursor Indicator Model

(FWI per million workforce hours)

Chart 3

Precursor Indicator Model for Train Accident Risk split by Precursor Group (PIM version 7.2011_December)
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Appendix 3 – Monitoring of progress against the HLOS safety targets and train accident risk indicated by the Precursor Indicator Model

Chart 4.

Precursor Indicator Model for Train Accident Risk
with Passenger Indicator split by Precursor Group (PMI version 7.2011_December)