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Introduction

Purpose of this report

Leading Health and Safety on Britain’s Railway (LHSBR) is the strategy adopted by Britain’s rail industry to identify areas where specific initiatives may reduce harm and to be a reference point for industry collaboration in relation to health and safety management on the railway. The strategy covers 12 priority risk areas and nine areas of capability improvement.

This report has been published by RSSB, with input from industry, to give an overview of progress in implementing the LHSBR strategy, as agreed at the System Safety Risk Group (SSRG), the Health and Wellbeing Policy Group (HWPG) and the Industry Health and Safety Meeting (IHSM). The report aims to:

- share information
- provoke discussion
- elicit feedback
- help monitor cross-industry activity
- improve the industry’s safety, health and wellbeing performance.

RSSB welcomes comments on this report – in particular, where stakeholders are aware of significant industry activity which is relevant to LHSBR, but which does not appear herein. Such feedback will enable us to improve the coverage and usefulness of future editions. Please see the Risk Groups and Contacts section at the end of the report for contact details.

General

Health, safety and wellbeing collaboration

The Rail Delivery Group (RDG) is responsible for leading industry in the implementation of the LHSBR strategy. RSSB provides support by independently monitoring safety performance and implementation of the strategy and through independent thought leadership, expertise, information and data analysis.

The System Safety Risk Group (SSRG) promotes industry collaboration on safety issues aligned to the risk areas in LHSBR. The Health and Wellbeing Policy Group (HWPG) promotes industry collaboration on health and wellbeing issues. Figure 1 shows these relationships in diagrammatic form.
The Industry Health and Safety Meeting (IHSM) is the whole industry leaders’ meeting to systematically and collectively examine and collaborate on the risk and management capability areas in LHSBR. IHSM is an RDG-led meeting, hosted by RSSB and collaboratively managed by both organisations. The next meeting will be held on May 22nd 2019 and will focus on Fatigue, Health and Wellbeing.

**Workforce health and wellbeing**

**Key data**

In 2018, four rail organisations took part in a pilot to provide a bulk upload of some basic health and wellbeing data.

Using populational statistics (from sources such as the Health Survey for England, HSE and the Labour Force Survey), it has been possible to calculate the approximate prevalence of key health and wellbeing problems for the rail industry and its 240,000 staff.

**Figure 2:** Overview of data from the pilot bulk upload project
As with most industries, the railway faces the challenge of an aging workforce. Records state that 32% of the workforce aged over 50. A myriad of challenges are presented: older workers are more likely to suffer from chronic ill-health, resulting in longer absences; both mental and physical strength stereotypically decline as we age, and shift work can have a greater effect on an older workers health.

One of the most prominent health problems facing Britain’s workforce is weight-related health. Approximately 64% of Britain are either overweight or obese, approximating over 150,000 of the industry. This figure has been steadily growing since the early 1990’s across Great Britain and is a proven risk factor to a collection of sometimes life-changing and chronic diseases.

Many roles in the railway are sedentary, such as train drivers sitting in a cab for long periods of time, gate staff not overly mobile, customer service staff relatively inactive for the most part. Sedentary lifestyles pose an increased risk of developing diseases such as different cancers, has been shown to be a risk factor to coronary heart disease and cardiovascular disease (estimated 10% of the rail industry, or 25455 people at risk in rail) and is even thought to potentially contribute to anxiety and depression.

A final risk factor to good health, prevalent in the rail industry, is participation in shift work. As the railway operating times change, and with a high percentage of infrastructure works being carried out overnight, shift work is common in the rail industry. Shift work can disrupt the body’s natural circadian rhythm, setting the way for problems such as disrupted sleep, digestive disruption and alertness problems, even cardiovascular disease. Research even goes as far as to suggest a link between type 2 diabetes and shift work, caused by a failure to produce appropriate levels of insulin due to the body’s constant disruption. Though, it is worth noting that the Health Survey for England suggests that up to 20% of the population may be living with undiagnosed diabetes, in rail this could mean up to 48,000 people.

Many of the most prevalent health problems are clearly interlinked, proving risk factors to one another, and for the most part linked to unhealthy lifestyle behaviours. Though it is important to reiterate that these figures are industry estimates, based on populational data, the size of the populations involved show that these are significant issues even if the lower end of estimates are used. In order to get a more exact representation of health and wellbeing in the rail industry, a more collaborative and consistent approach to data collection is required across all sections of the industry. The healthy behaviours industry group is using this type of baseline data to drive their activities to help improve employee health and wellbeing.

Industry activity

In January RSSB, on behalf of and in conjunction with, the Health and Wellbeing Policy Group, organised the annual Health and Wellbeing Conference. The conference focused
upon the health and wellbeing roadmap and the good work being done by each of the industry groups to move health and wellbeing forward.

The event met its original objectives to:

- Focus on the Industry Health and Wellbeing Roadmap
- Allow attendees to share and learn from experiences, gain knowledge and leave with tools and ideas on how to implement change in their organisations.
- Inform the Health & Wellbeing Policy Group for future and current work.

100% of the delegates felt the event was a good use of their time and the content was relevant to their role. Some highlights of the feedback include; “The event was great, I only wish my colleagues would have joined me!” and “Very well-organised, content was very interesting, presentations excellent”

The conference marked the final activity for the Chair of the Health and Wellbeing Policy Group Andy Thomas who hands over the role to John Halsall.

Public behaviour

Key data update

Figure 3 shows harm due to trespass since 2014/15 on a quarterly basis and Figure 4 shows the trend in the number of trespass incidents.
Figure 5 shows suicide fatalities by period for the last 4 years. At the end of the period there were 19 confirmed/suspected suicides, the same amount as recorded in Period 11 2017/18. This brings the total number of incidents for the year to date to 205, 3 fewer than the 208 recorded last year. The number of events this year continue to track those of 2016/17 which saw the fewest number of suicides on the network since 2010/11.

1928 life-saving interventions have been made year to date, a 31% increase on numbers recorded in 2017/18. Of this year’s total 20% have been made by rail staff and 9% by members of the public.
The events in period 11 accounted for 56,000 delay minutes; bringing the total to 623,000 for the year. The associated financial cost of that delay was circa £4m. The total for 2018/19 is around £51m.

**Industry activity – Trespass**

Work continues on each of the elements of the Trespass Improvement Programme shown in Figure 6. The public media campaign in relation to You vs. Train will be reactivated in March before the new campaign is launched in May. The programme has developed sports and community partnerships with the English Football League and Street Games and extra partnership activities will be focussed at the key trespass hotspots that have been identified.

RSSB is supporting the Trespass Improvement programme in co-ordinating the first Industry Trespass Conference to be held on 30th April 2019 in London that will launch a number of the programmes activities.

![Figure 6: Trespass Improvement Programme Activities](image)

The British Transport police has developed clear guidance for all front line BTP officers telling them to prioritise trespass incidents involving children or youths and what to do when they attend these incidents. These are known as the Pickford Principles and briefing are being given across the country to help embed them.
RSSB support - Trespass

In addition to providing support to the industry trespass improvement programme, RSSB has been progressing the bowtie workstream. The industry bowtie has been published on the RSSB trespass webpages and further industry workshops have been held to prioritise control measures. The outcomes from these workshops are being reviewed by the Trespass Risk group and Trespass Improvement Programme and will feed into their future activities.

Research project T1168 Evaluating Effectiveness of Trespass Detection and Prevention methodologies is in development and aims to understand what motivates trespassers and how this differs geographically and temporally and develop guidance on experimental design to evaluate interventions in the future and a framework for scoring the success of different interventions.

A new project on Suicide, Trespass and Risky Behaviour Reduction (STaRR) funded through TOC17 has commenced. It is being delivered through collaboration involving Network Rail, FirstGroup, Urban Control, University of Nottingham, DW Windsor and Innovation Factory. The project will develop and evaluate a suite of new interventions that include new connected lights, speakers and signs that can be deployed at stations and level crossings which are the key locations for antisocial and risky behaviour. The University of Nottingham will evaluate the effectiveness of these interventions using a new behavioural framework that they have developed in previous work. Data will be collected using new low-cost sensors that use Internet of Things connectivity. Ultimately the aim is to create intelligent stations and level crossings that can automatically respond to users to deter those considering suicide or trespassing and reduce other risky behaviour, for example at the train platform interface or in unsafe use of crossings.

Industry activity – Suicides

In a recent episode of BBC Two’s Victoria Derbyshire Show, a young woman was reunited with the Govia Thameslink train driver who saved her life on his second day of being qualified. During the episode of the show, Samaritans Executive Lead for Media Advice Service spoke about the value of ordinary people engaging with vulnerable individuals and reinforced the Small Talk Saves Lives campaign.

The third phase of the industry’s Small Talk Saves Lives campaign launched in November 2018 has been recently been evaluated. It created 110 million viewing opportunities nationally across all media channels and saw four million people watch the accompanying video. Since the launch, 74% of those that saw the campaign said that it gave them the confidence to intervene with someone that may be in crisis.

The highlight of the period was the support the industry gave Samaritans’ Brew Monday campaign on 21st January 2019. Brew Monday takes place on ‘Blue Monday’ – the third Monday of January, often referred to as the most difficult and depressing day of the year. Whilst there is little science behind Blue Monday, the start of a new year is a
difficult and lonely time for many. The rail industry and Samaritans aim to make this
time of year more manageable by bringing family, friends and colleagues together for a
chat and a cuppa in a safe environment where they can share problems and concerns
before they reach a point of crisis. This year thousands of rail staff and Samaritans
volunteers took part in 159 events held at stations across the country.

On March 19 the new Samaritans campaign; Real People, Real Stories will be launched.
Figure 7 provides examples of the materials. For details about how to support the
campaign, or to be added to the mailing list for the next two countdown emails covering
the campaign development and delivery, contact d.masters@samaritans.org.

Figure 7: Real People, Real Stories example poster

Station operations

Key data update

Figure 8 shows the modelled risk monitored the People on Trains and at Stations Risk
Group (PTSRG), it represents 49% of the total accidental network risk. Risk from slips,
trips and falls within the remit of PTSRG comprises 30.4 FWI per year, which accounts
for 44% of PTSRG-owned risk – by far the largest of any accident category.

- The combined modelled harm to passengers and the public is calculated to be
  58.8 FWI per year.
- The modelled harm to the workforce is calculated to be 9.9 FWI per year.

Note: The SRM models the overall risk on the mainline railway, taking into account the
characteristics of all possible potential precursors. This chart shows the risk associated
with the accident categories on trains and in stations. It is based on information from
SRMv8.5 (published 29 March 2018) and represents the modelled estimate of the
underlying risk.
Figure 8: SRM modelled risk monitored by PTSRG

Figure 9 presents the harm on board trains and at stations, excluding the workforce. The overall harm to passengers and the public has fallen since the last quarter but is higher than the same period in 2017/18.

Figure 9: Physical harm in stations and on trains (excluding workforce)

Figure 10 shows the level of harm due to slips trips and falls, it shows that the reported harm is increasing and the moving average is at its highest level since 2014/15.
Figure 10: Passenger and Public slips trips and falls

<table>
<thead>
<tr>
<th>Year</th>
<th>Minor</th>
<th>Major</th>
<th>Fatal</th>
<th>Annual moving average</th>
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</thead>
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<tr>
<td>2014/15</td>
<td>6.2</td>
<td>5.5</td>
<td>4.5</td>
<td>5.7</td>
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<td>2015/16</td>
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<td>7.3</td>
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<td>6.7</td>
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<td>2016/17</td>
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<td>5.9</td>
<td>3.9</td>
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<td>2017/18</td>
<td>4.6</td>
<td>6.1</td>
<td>5.6</td>
<td>4.3</td>
</tr>
<tr>
<td>2018/19</td>
<td>4.4</td>
<td>6.5</td>
<td>3.5</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Figure 11 shows the location of non-fatal slips, trips and falls in stations between 01 April 2017 and 08 December 2018 by station area. All incidents in the ‘Stairs’ category were reported as occurring on stairs. Due to imperfect data entry, some incidents in the ‘Footbridge / subway’ category occurred on stairs, while others occurred on level parts of these access routes. The category ‘Platform’ includes incidents that are recorded as occurring wholly on platforms – ‘Platform-train interface’ incidents occurred across the PTI, regardless of whether a train was present or not.

Figure 11: Location of passenger and public slip, trips and falls within stations

The causes of these events are shown in Figure 12. Note that the areas in this figure represent the amount of harm that occurred, not the number of events that occurred. Causes for slips, trips and falls have been broken down into three high-level cause groups, which are colour-coded as follows:
- Infrastructure factors (light green): factors that may be improved by direct work on the station eg by cleaning up spills as soon as they occur, gritting effectively, keeping surfaces well-maintained and level.
- Passenger factors (dark green): factors that may be improved if passenger behaviour was altered eg if passengers avoided travelling while intoxicated, did not rush for trains, and booked assistance if they had any physical health issues.
- Misjudgement (blue): factors for which there is more limited information about how to improve, including events that have no cause attached.

**Figure 12:** Causes of passenger and public Slips, Trips and Falls in Stations

Figure 13 shows the level of harm from slips, trips and falls for the workforce. Despite the relatively consistent level of harm there has been a consistent rise in the moving average since quarter three of 2017/18. Figure 14 shows the causes of workforce slips trips and falls. Whilst many of the causes and the controls are similar to those events involving the public and passengers, the workforce. It should be noted that the infrastructure factors cause a greater proportion of the harm to workforce than in the passenger, and factors that are related to the use of the station by other users are responsible for a smaller proportion of the harm.
Key Incidents

Replacement buses: On 2 October, a replacement bus struck a tree in the Crosby area. The driver then reportedly drove on ‘as if nothing had happened’. He was also reportedly rude to passengers. This demonstrates some of the risks that can be imported by rail replacement alternatives as there is still have a duty of care to passengers on rail replacement services.
Station overrun at Dunkeld & Birnam on 27 October was due to poor railhead conditions. However a passenger tried to alight from a non-platformed carriage, but was prevented from doing so by a member of traincrew.

On 18 December, passengers were taken into Wimbledon Depot after their train had been cancelled at Raynes Park. Station staff at Wimbledon were reportedly unable to check the rear two vehicles before departure.

On 28 October, a dewirement near Portobello Junction lead to a number of passengers self-evacuating in the Royal Oak/Westbourne Park area. On 1 November, a person on a bridge near East Gates MCB caused a delay that led passengers to force train doors and self-evacuate. All passengers were later escorted to the platform at Colchester Town by traincrew. RSSB first highlighted the self-evacuation issue to the People on Trains and in Stations Risk Group (PTSRG) using figures based on Network Rail’s control logs since the Kentish Town incident of 2011. These figures are now being verified via old and new SMIS. In the meantime, a knowledge search is being set in motion to assess why self-evacuation seems to be on the up (in terms of a societal cause). This work is being undertaken under the aegis of PTSRG. For RDG, analysis is also being undertaken of recent investigation reports to determine the link between self-evacuation and problems in the control room. RAIB’s report on the Lewisham incident(s) of March 2018, when published, will feed into this. RSSB currently intends to combine the outputs of both workstreams with the verified statistics into one learning digest for the industry.

Industry activity

The PTSRG continues to provide oversight and monitoring of its key risk areas, and as a result has engaged in a number of activities.

- The task and finish group for slip, trip, falls commissioned by PTSRG has now concluded its activity. The group have also considered other topics for bow ties, such as trap and drag and have tasked the Platform Train Interface Working Group (PTI-WG) with reviewing these.

- Commissioned research into reviewing the potential to update the Selective Door Operation (SDO) assessment tool.

- Mapped the relationship of PTRSG with other groups and strengthened relationships. This has included providing support and oversight, and removing duplication, for activities and research into areas such as understanding components of successful training on managing work-related abuse for frontline rail staff (led by the Work Related Violence Steering Group. ref: T1173) and Trespass from platform ends (Trespass Risk Group).

- Commissioned research into the Health, Safety and Wellbeing impacts of crowding, which will inform an update to the crowding management guidance (ref: T1147)
RSSB support

RSSB continues to strongly support this area with products, services, advise and targeted guidance. This has included:

The delivery of knowledge searches, which have included:

- The knowledge search on mitigation of Slips, Trips and Falls, in Stations (ref: S327) has been completed, presented to the group and published. [https://www.sparkrail.org/Lists/Records/DispForm.aspx?ID=25889](https://www.sparkrail.org/Lists/Records/DispForm.aspx?ID=25889)

Work has been delivered on the requested deeper thematic analysis of Slips, Trips and Falls safety performance and establishing if groups of disabled and elderly passengers are more vulnerable greater harm.

The delivery of a slip, trip falls bow tie which will now be published along with guidance on how to use this at a variety of levels from strategic safety management to practical local application. The group have also considered other topics for bow ties, such as trap and drag and have tasked the Platform Train Interface Working Group (PTI-WG) with reviewing these.

Road risk

Key data

Figure 15 presents the overall level of harm arising from road traffic accidents. Most of the 0.5 fatalities and weighted injuries (FWI) recorded in quarters one to three 2018/19 are major.

Figure 16 shows the overall level of harm for quarters one to three per year. Disregarding the figures for those years in which fatalities were recorded, Figure 16 shows quarters one to three in 2018/19 have experienced a higher rate of harm when measured against the quartes one to three stats back to 2008/09. This of course does not mean that rail-related road driving is getting more dangerous, rather that levels of reporting are higher now than they were a decade ago.

Please note that these chart includes the road accident in June 2014 that resulted in three contractor fatalities; initially missing from safety performance data due to it being considered out of scope, it has subsequently been reviewed and included.
Most of the recorded driving incidents continue to be caused by third party action, narratives suggesting that rear-end collisions are the most common occurrence.

**Key Incidents**

For a complete breakdown of the Road Traffic Collision events recorded in SMIS during quarter 3, see the [Q3 - Road Risk Safety Performance Report](#).

The following is an extract of some of the key RTCs events during the last 3 months.
12 December: Head-on collision with car overtaking – contractor (third party), injuries uncertain. At 22:35, a pick-up travelling west from Aberdeen to Aviemore was involved in a head-on collision with an oncoming third-party vehicle, which was overtaking another on the A95 at Grantown On Spey. The staff driver became trapped by the air bag and was later released by fire brigade personnel. Both members of staff were taken to hospital as a precaution.

3 December: Rear-end collision in Tottenham leads to cannon – NR (third party, 3 injuries. At 09:00, it was reported that a staff vehicle had been involved in an accident in the Tottenham area. The vehicle was hit from behind, which caused staff vehicle to cannon into the car in immediately in front. Three members of staff were travelling in vehicle at time: the driver reported a stiff back/neck; one passenger reported a stiff back, the other a stiff neck. All had to take time off work. It was later reported that the driver of the third-party vehicle had admitted losing concentration, although the prevalent wet conditions were also deemed to be in the causal chain.

24 November: Third party vehicle spins ahead of staff vehicle in Doncaster, collision ensues – contractor (third party), 1 injury. At 07:00, a member of staff was driving to work at Doncaster when the car in front spun 180 degrees, causing a collision. The member of staff sustained cuts to the head, body, knees back, neck and shoulders. The emergency services were called and the member of staff was taken to hospital. The third party driver provided a positive alcohol test.

7 November: Minibus goes off road near Heckington – contractor (road conditions), 4 injuries At 05:20, it was advised that five members of contractor staff had been involved in a road traffic accident at Great Hale Fen, near Heckington, on their way home from a possession. One person sustained a suspected broken leg, one suffered bruising to right knee and shoulder, one suffered whiplash and bruising to left shoulder and chest, one suffered whiplash. It transpired that the incident had occurred close to 04:00, after the team had left the compound. Their minibus was travelling along a country lane when the driver lost concentration and missed the bend, causing it to leave the road and run into a ditch.

6 October: Man Vic driver injured in cab in Manchester – TOC (third party), 1 injury. At 21:30, a Manchester Victoria-based driver reported that the taxi in which he was travelling for work purposes was struck in rear by a third-party vehicle while stationary in Manchester.

Industry activity

The following is a summary update from each of the represented railway sectors and associate members of the Road Risk Group:

Freight Sector – NFSG

Key areas focused on at the last meeting of NFSG Road Risk Champions Group were:
• Collection of data
• Freight sector charter
• Risk plans supporting delivery of the charter.

It was noted that regarding collection of data, there were three key areas of interest:
• activity and outcome data
• how each FOC is working towards excellence
• maturity and efficacy of safety management systems in improving practise among organisations.

The group is keen to develop a freight sector common road driving policy. The aim is to design the policy to mirror the DfBB Risk Assessment sections, and to include an appendix for the individual FOC to put specific and bespoke information in. The aim of the group is to have a draft available for approx. June 2019.

The group have also committed to developing a framework of requirements for freight companies to use when procuring taxis.

The group is also considering using the criteria for the DfBB risk assessment to pilot a freight sector RM3 road risk management maturity evidence matrix.

**Train Operations Sector – RDG TOSF**

There is a heavy reliance on rail replacement bus service when trains are not running, activities to initiate work around this with Train Operators Safety Forum at RDG are ongoing. A review is being undertaken of the ATOC guidance for road transport, and there is some useful content therein, but there are opportunities to develop this further, looking at minimum standards for rail replacement bus services and taxi services. It is anticipated that the first review of the standard will be complete early in March.

A lot of work is being done within Arriva to look at data and ensure that everyone is contributing to SMIS as they should. RM3 has been examined to see if it can be applied to road transport, which it can. RM3 has now been rolled out to Arriva buses.

**Network Rail – NR Road Safety Steering Group**

Network Rail are beginning to future fit vehicles to suit the operational work and conditions. The first vehicles have been rolled out into Wales, and remaining vehicles will need to be brought into the country ahead of the end of March 2019 to avoid cost implications following the commencement of the Brexit negotiation period. Figure 17 provides an infographic of Network Rails road fleet activity.
Highways England – Driving for Better Business (DfBB)

Highways England’s DfBB team hosted a Road Safety Summit for the public sector at the House of Commons on Tues 22nd Jan. This event was held to update on work related road safety and associated compliance activity and to promote awareness of ‘Driving for Better Business’.

The DfBB team were also invited to present to Rail Industry Contractors Association (RICA) on behalf of Highways England, and a positive response was received from members, especially regarding fatigue.

RSSB support

RSSB and Highways England continue to work together to promote DfBB across the rail industry. The new RSSB - Rail industry road risk resource centre will be launched at the end of March 2019 and will offer rail organisations a comprehensive resource to support the effective management of occupational road risk across the rail industry and supply chain.

There are three sections:

- The introduction of DfBB programme to help each organisation improve the management of occupational road risk across their business
How to get involved with the wider rail industry and collaborate with others to learn and share good practice to improvement the management of road risk

Access to work-related road risk safety performance data & analysis

Mark Philips, CEO RSSB was one of the key speakers at the Highways England – Public Sector Road Safety event on Tues 22nd Jan at the House of Commons.

RSSB continues to work with RRG to develop the scope for the development of a Rail industry management of occupational road risk charter that can also be applied to the rail industry supply chain.

Level crossings

Key data

Figure 18: Fatalities and weighted injuries at level crossings

There were no fatalities or major injuries at level crossings in Quarter three. However, there been three such incidents (see 7.2) so far in quarter four.

Key Incidents

On 21 January a person was struck on Church Path No. 41 footpath crossing, near Monks Risborough. The person reportedly sustained a fractured skull. The crossing, which is protected by signage only, is accessible by stiles and could therefore not be locked out of use post-event.
On 29 January, a train struck and killed a person on Crescent Road AHB in Birkdale; BTP deemed the incident a ‘non-suspicious accident’.

On 7 January, a passenger train struck a taxi at Warden AHB, between Hexham and Haydon Bridge. There were no reported injuries to the 31 passengers, driver or guard on board. The taxi driver and passenger were both uninjured. The taxi driver had taken a wrong turn and then proceeded to turn in the road on the level crossing but got stuck. After exiting the vehicle, they had been attempting to alert the signaller at Hexham SB, when the accident occurred.

On 6 February a person was struck on Tibberton No. 8 footpath crossing. Initial investigation suggests that the person acknowledges the approach of Paignton – Manchester Piccadilly on the Up line and then stepped out behind the train, immediately in front of the ex-Nottingham on the Down line. Weather conditions were said to be foggy at the time of the incident, with visibility of approximately 150 metres.

**Industry activity**

Discussions on process improvements continue to incorporate greater consideration of level crossing risk from franchise bids / timetable changes. This in turn will allow funding and plans to be created to mitigate increases in risk.

Given the noted increase in barrier strikes at level crossings by road vehicles over the last year, the industry is confirming the financial impact and whether the costs associated (including Schedule 8 payments for delay) are being reclaimed from the vehicle’s insurers.

The Network Rail is investigating the legacy impact of mobile safety vehicles and red-light safety cameras to determine what the preferred approach to enforcement will be for Control Period 6.

The Level Crossing Strategy Group has been reflecting on the lessons learnt from maximising the utilisation of Control Period 5’s level crossing fund. This has included points on the legal process to close crossings, working with local authorities and prioritising funding spend based on fatalities and weighted injuries as a measure of risk.

**RSSB support**

A In order to try to retain – and promote – corporate memory, RSSB was asked by the Level Crossing Strategy Group to produce a ‘digest’ that documented the development of level crossing, the associated safety mitigations and lessons learnt from past incidents. This is a ‘live’ document, to be updated periodically with new learning, new technological developments and so on.

The document was published at the end of January and a rolling programme put in place to provide updates. So far over 50 copies have been downloaded by members from the website. It was publicised in [Rail Safety Review #24](#) at the end of January. Further
promotion (such as Your RSSB) is expected. The Level Crossing Digest can be accessed from here: https://www.rssb.co.uk/pages/level-crossings.aspx

Fatigue

Key Data

Findings are emerging from the cross-industry fatigue survey of over 7500 people from more than 25 organisations. As Figure 19 shows a key finding is that 23% of the respondents are suffering from excessive levels of sleepiness, meaning that they have an elevated likelihood of dozing off. Excessive levels of sleepiness can indicate an underlying sleep issue (which may or may not be medical in nature) and should be investigated.

Figure 19: Reported levels of sleepiness (Epworth Sleepiness scale)

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<th>Category</th>
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</tr>
<tr>
<td>Higher normal daytime</td>
<td>41%</td>
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<tr>
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<td>10%</td>
</tr>
<tr>
<td>Moderate excessive</td>
<td>8%</td>
</tr>
<tr>
<td>Severe excessive</td>
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Industry activity

The rail industry’s Fatigue Champion (Stuart Webster-Spriggs, Volker Rail) ran workshop sessions at the Health and Wellbeing Conference on 29th January, with the aim of raising awareness of seven key activities that he is championing and getting feedback from delegates on any perceived gaps.

The Freight Fatigue Code of Practice, developed by the NFSG Fatigue Sub-group, was endorsed at the RDG Freight Board in January. The sub-group is currently planning the activities that will be needed to embed the Code of Practice.

The TOC Fatigue Working Group has kicked off two workstreams. The first is looking at processes to check staff fitness for duty, and the second is a review of planned and actual working patterns of safety critical staff against risk-based working pattern guidelines.
Network Rail is continuing with its Fatigue Improvement Programme, including finalising work on the Exceedance Management module of their standard, significant work on impact assessments, engagement with TU representatives and Health and Wellbeing specialists. A Fatigue Awareness Week has been organised for March 2019 The week will incorporate presentations on resilience, sleep, fatigue, wellbeing and many more topics.

**RSSB support**

RSSB continues to support the industry activity described above. In addition, RSSB is leading on:

- Organising and hosting the 5th RSSB Fatigue Risk Management Forum event on 26th February 2019. The Forum covered: the fatigue survey results, updates from significant industry working groups and programmes, a panel discussion and insights into practices from other industries. In the afternoon, sector working groups discussed the results from the fatigue survey, prioritised their areas for concern and identified pieces of work that would need to be done to address them.

- Over 60 people attended the event and all attendees agreed or strongly agreed with the statement, “The event was a good use of my time.” The net promoter score based on the event was +68.

- Analysing the results of the cross-industry fatigue survey, which provides data to drive fatigue risk management activities. So far 25 company reports and 3 sector reports have been produced. Industry results were presented and discussed at the Forum event mentioned above.

Work is continuing on research project T1130 – Fitness for duty decision aid. Recent developments in this area of research have meant that the project needs to change its approach; a project steering group meeting is scheduled for 27th February to agree the new way forward for the project.

**Workforce safety**

**Key data**

This section looks at workforce safety on the running line. Infrastructure work does take place away from the running line, such as in restricted areas in stations, but it is beyond the reporting scope of running line reporting and station staff reporting.

Figure 20 shows near misses with infrastructure workers. The data is from the updated SMIS and is slightly different to the Network Rail data which has an additional 8 events spread across Periods one, six and seven in 2018 data quality work is currently underway. Figure 21 shows the number of trains wrongly authorised or signalled into possessions or line blockages.
Key incidents

On 9 November 2018, an ECS formation stopped short of a trolley that had been left on the line at Long Marston. This recalls the incident at Heathrow Tunnel Junction in December 2014, and is a reminder that a lack of location knowledge, for example, could be a precursor to something more serious.
Industry activity

A workshop was held with key industry stakeholders to evaluate the ongoing effectiveness of the Industry Common Induction programme on the merits of the costs versus benefits realised over the last five years against the original brief. Consideration was also given to its appropriateness moving in to CP6 and the changing rail environment. It was agreed to continue with the ICI programme as a Sentinel competence, however work was required to review its content, training and assessment execution and finally timescales of competence and recertification. The Infrastructure Safety Leadership Group (ISLG) intends to create a Problem Definition Statement (PDS) to capture the project remit, scale and scope of the activity and identified objectives outcomes for delivery.

Incidents of trains being signalled into blocked lines continue to occur, but the 2018 ISLG work on the protection of staff in line blockages is reportedly gaining recognition and momentum, which is driving the desire to change people and processes in line with the recommendations embedded within the associated report. ISLG is to host a workshop at its March meeting in which all actions will be evaluated in terms of their risk impact, achievability and mitigation outcomes. Note, however, that RAIB is also now undertaking a class investigation into factors affecting safety-critical human performance in signalling operations on the national network.

Infrastructure asset integrity

Precursor Indicator Model

The Precursor Indicator Model (PIM) indicates changes in risk from potentially high-risk train accidents. It does this by tracking changes in the frequency of accident precursors and using risk weightings derived from the Safety Risk Model (SRM). Figure 22 shows the PIM of train accident risk estimate to period 11 2018/19.

The underlying train accident risk from causes relating to all precursors up to the end of P11 2018/19 (02 February 19) is estimated at 4.89 FWI per year. The period-on-period change in the risk estimate between P10 2018/19 and P11 2018/19 was an increase of 0.01 FWI per year.
Workforce assaults and trauma

Industry activity

PTSRG continues to have close link to the Work Related Violence Steering Group and the Policing and Security Group who lead this area.

The data intelligence from the National Workplace Violence Analysis report from the Policing and Security Group continues to be shared with PTSRG. This identifies the top 20 locations and the total number of workplace violence recorded by each operators. At present (2018-19 YTD) the top 5 operators account for 56% of all offences recorded during this period.

RSSB support

RSSB have continued to facilitate a closer working relationship between the groups and are currently undertaking research into areas such as understanding components of successful training on managing work-related abuse for frontline rail staff (T1173), and a knowledge search on Domestic and international best practice (in training and situation management) prevention of customer-to-staff workplace violence/abuse.
Train operations

Key data

Figure 23 shows the Potentially High-Risk Train Accidents (PHRTAs) and Figure 24 shows the SPAD annual moving total and risk.

**Figure 23:** Potentially High-Risk Train Accidents (PHRTAs)

**Figure 24:** SPAD annual moving total and risk
There were 25 SPADs during January. This is 6 greater than January 2018. The three-year average for the previous three Januarys is 22.3. The annual moving total, which was 304 a year ago, is now 301. This is 6 greater than last month and 3 fewer than last year. Of the 25 SPADs during January, 14 involved TPWS brake demands, 4 were interventions and 10 were activations.

Key incidents

On 27 November, a post-SPAD derailment occurred at Hanwell. The train involved – a 12-car ECS EMU – and it came off on some trap points. The driver reportedly said they had looked at the subsidiary aspect vice the main aspect in error.

On 21 December, a Class 37 in a convoy came off at Doncaster, while traversing a tight curve having just left Roberts Road depot. RAIB is to produce a Safety Digest on this incident.

On 28 January, a passenger train (Class 150) came off in service at Penryn. There was minor damage to the track, but no reported injuries. RAIB is to produce a Safety Digest on this incident.

Industry activity

TARG supported the sourcing of safety critical communication recordings to ensure a consistent approach to their use at CRGs, following this being raised by the OPSRAMs. A strengthened approach to the Implementation of T1078 Safety Critical Communications Training Programme was also supported, with specific individuals to be identified to undertake telephone interviews with the aim of understanding good practice with current use, as well as barriers.

The main pieces of work that the SPAD Risk sub-group (a sub group of TARG) are currently engaged on include the ongoing embedding of the SPAD strategy and a project looking at the rise in SPAD numbers around May/June last year.

As part of embedding the strategy a survey has been carried out to gauge the industry’s uptake of it and the activities supporting this. Updated results from the survey were presented at the last meeting and give a positive picture from those who have responded. Work is ongoing to understand what those who have not responded have done to build up a more complete picture and help understand how to embed the strategy further.

A number of initiatives were also discussed at the meeting, the main one is a proposal for the SPAD strategy document to be restructured and the information made available in a more accessible fashion that will enable more effective promotion and targeted uptake by the industry. This may include: the production of tailored ‘good practice’ guides for senior leaders, driver managers or other staff; incorporation of information from the document “How to manage SPAD risk better: A guide for directors”; as well as
a communications strategy to raise industry awareness of the revised materials once they are complete.

**RSSB support**

RSSB will continue work on producing briefing materials to aid with the understanding the SPAD risk ranking tool. The aim of these is to explain the key features and what the outputs from the tool can be used for and how they should be interpreted. This is intended to improve industry understanding of the tool following feedback at the October meeting of the SPAD Risk Sub Group.

The work to look at the SPAD increase in Period 03 of 2018/19 is being undertaken by RSSB. This project will centre around a human factors analysis of 40 SPAD reports, supplemented with additional analysis and understanding using the red aspects approaches to signal toolkit (RAATS). There will be an update on the work to the next SPAD Risk sub-group meeting in early May.

**Freight**

**Key incidents**

At Wembley Yard on 22 November, 20 HTA wagons that had not been scotched rolled and came to a stand on the approach to WM786 signal on the Down Departure line. The risks associated with incorrect scotch use was demonstrated in Austria on 8 November, when a failure to remove scotches led a freight to derail – and run in a derailed state for over 10 kilometres.

At 3 December, a freight train rolled back after the driver took power at Dartford (Platform 2), having received a proceed aspect. In doing so, it set off a SPAD alarm.

**Industry activity**

As the freight sector approaches the end of year the NFSG has reflected on a very productive year for the NFSG Steering Group, NFSG and its sub-working groups, as everyone worked hard to deliver the ‘Integrated Plan for Freight Safety’ which dovetails into the national strategy, Leading Health and Safety on Britain’s Railways. The revised plan (version 2 April 2018) focused on 5 key priority risk areas.

Following a review of the NFSG Steering Group Term of Reference, the NFSG revised there’s and subsequently developed Project Charters for each of the five risk areas; Freight Fatigue, Road Risk, Freight Derailments, Common Safe Systems of Work (SSOW) and Trespass.
Working groups were agreed and actions plans were development and approved by the Steering Group, who in turn report back the CEO’s and MD’s of the freight sector at the RDG Freight Board.

Fatigue
The group quickly agreed that a Code of Practice was required to ensure all FOC’s worked to the same parameters. Supported by the RSSB Human Factors team, the workshops involving rostering teams identifying the achievable steps outlined in the ORR guidance. The outcome was the ‘National Freight Safety Group Code of Practice: Managing Freight Fatigue’. This was drafted and submitted the RDG Freight Board, where it was endorsed in January 2019 and is now been implemented by all the FOC’s. The sub-group are now working to establish the next steps in implementation including a ‘Stakeholder Engagement Program’ and a centralised monitoring regime of any exceedances to the new Code of Practice.

Road Risk
This group quickly aligned itself the national Road Risk Group, facilitated by the RSSB and established a freight sub-group to ensure a collective approach was being fed back to the national group. The FOC’s all agreed that this topic carries a huge amount of risk due the data they all hold, however it soon became apparent that this data was not held centrally and therefore all FOC’s agreed in December 2018 to share previous data and from 2019 onwards to add all road traffic accidents into SMIS. The sub-working group agreed that their minimum standard for managing road risk will be Highways England – Driving Better Business, however the group are now formulating as plan to drive continuous improvement through shared best practice, which includes addressing the risk around transporting employees in taxis.

Freight Derailment
A significant amount of research stemming back to 2015 had already been undertaken by the RSSB to address main line derailment risk, under the banner of the Cross-Industry Freight Derailment Working Group (XIFDWG), as a formal response to an ORR concern regarding the interaction of track, vehicles and freight container loads. This work is all now but completed and the work has now moved from an RSSB to an RDG project with the FOC’s jointly funding a Project Manager, to ensure the delivery of suite of actions to reduce to the risk of mainline derailments. Network Rail, who play a significant role at the NFSG have worked closely with Huddersfield University to add a risk score to the wheel impact load detectors in the UK, as this allows quantification of overall system risk then shared with the FOC’s to action.

Common Safe System Of Work (SSOW)
The well-established Rail Freight Operators Group (RFOG) was tasked with the Common SSOW project to mitigate the risk of errors occurring during train preparation and
examination at sites with multiple users. The group soon agreed template and process of management, however it has not been established where all Common SSOW will be hosted. During this time the project saw a significant level of creep, as the positive collaboration and support from Freight Board, opened questions around other practices documented in each Duty Holders supplementary operating procedures. This has now led to the RDG Freight Board appointing another Project Manager to establish the opportunities the sector has by collaborating on operating and loading procedures.

Trespass

Unfortunately, over the last few years the majority of FOC’s and some of their customers have seen trespass incidents leading to some very serious incidents. It was therefore a priority of the NFSG to establish a sub-working group to look at the best practices and lessons learnt from recent incidents. The Chair of the NFSG Trespass sub-group is attending the National Trespass Risk Group and it was quite quickly established that trespass data off the network is not been captured centrally. It was therefore agreed that all FOC’s would enter all their trespass data into SMIS and the groups focus would be on the risk on their own infrastructure, but also consider their customers i.e. where they operate and stable trains.

RSSB support

Figure 25 shows the current collaboration framework in place.
RSSB continues to support the freight sector by providing them with meeting resources for both the NFSG and its Steering Group. As stated above the NFSG Integrated Plan for Freight Safety, dovetails into LHSBR with a freight sub-working groups in trespass, fatigue and road risk all feeding back into RSSB industry groups. RSSB leads associated to these risk themes are additionally supporting the sub-groups either through direct attendance or via a peer review of work being undertaken.

The Risk Safety Intelligence team continue to enhance the NFSG Scorecard through a program of engagement with SMIS leads in each FOC.

## Capability improvement

### Annual Health and Safety Report

RSSB will publish a new Annual Health and Safety Report in June 2019. This will also serve as the year-end version of this report, with expanded content. The new report will summarise safety performance (previously covered by the Annual Safety Performance Report), safety learning (previously covered by the Learning from Operational Experience Annual Report), and industry activity.

### Taking Safe Decisions

The update of Taking Safe Decisions is nearing completion although there will be a delay to the planned March launch to allow additional time to respond to a legal review of the text, which will bring further clarity to the document. This key document sets out the industry consensus position on how GB rail companies take decisions that affect safety to meet legal and business requirements. To embed the principles in the document RSSB will be undertaking a 12-month engagement programme and producing supporting material, potentially incorporating a short e-learning module to guide people through the basic principles and test their understanding.

### Safety Management Intelligence System

#### Data quality

Over the final months of 2018 RSSB worked with its members to review the quality of SMIS records. The measures for the 2018 Data Quality Assessment in new SMIS provide a baseline assessment of Accuracy, Timeliness and Completeness. Results for each measure have been shared via individual scorecards, which show company performance benchmarked against the national average.

Overall the quality of the basic event data in SMIS is high for events that result in harm or are potentially high risk, reflecting the effort and commitment of the SMIS input
teams from across the industry. As SMIS is used more widely for company reporting – a focus of the current SMIS uplift project (see below) - any local data quality issues will become more visible and there will be a greater onus on fixing them.

**SMIS uplift**

The SMIS Uplift Project will enable SMIS user organisations to make greater use of SMIS for safety monitoring and analysis.

A dedicated RSSB team is visiting SMIS user organisations to understand how they are currently using the system, capture their requirements and tackle barriers to greater use. The team then uplift the company’s capability by providing deliverables such as SMIS Business Intelligence (BI) training and developing bespoke reporting dashboards. Follow-on contacts are scheduled to monitor and support embedding.

Early work on the project began in October 2018 and is on track to meet the target of increasing SMIS usage for 16 user organisations by the end of 2018/19. It has already delivered significant member benefits and RSSB now plans to extend the project to the end of 2019/20 with a target of increasing usage for all SMIS user organisations with requirements.

**RISQS Update**

Two projects have been initiated to improve the scheme for both buyers and suppliers. These are:

**Onboarding:** This service will be offered to all buyers within the scheme and will look to ensure that all relevant businesses within their supply chain are members of the scheme, increasing overall supply chain assurance within buying organisations. A trial with Balfour Beatty will start in March 2019, after which the service will be offered to other buying organisations. The project will take approximately 2 years to complete depending on demand. A number of industry buyers have approached the RISQS team prior to project launch.

**Benchmarking:** This will use information in the RISQS system, initially from verification rather than audit, to benchmark suppliers against their competitors. Buyers will be able to search for a certain standard of supplier for each project code. It is hoped this will drive safety standards within the supplier community through competition. Benchmarking of audits based on project codes will be introduced towards the end of the calendar year.

Additionally, RSSB is undertaking a scheme price review for buyers and suppliers which was promised by RSSB when it took over the scheme in 2018. The outputs of the review will be announced towards the end of March 2019.
RISAS Update

A review of the scheme has been sponsored by the RISAS committee and commenced in January 2019. The review is being carried out by Richard Sharp who was part of the team that transferred RISQS into RSSB in May 2018. The review will deliver a set of recommendations for the committee and the RSSB board to consider at the end of March 2019 with interim findings available from 28th Feb 2019.
## Risk groups and contacts

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<th>Risk Area</th>
<th>Lead Group</th>
<th>Contact</th>
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<td>System safety risk (overview of all safety risk areas)</td>
<td>System Safety Risk Group</td>
<td><a href="mailto:SSRG@rssb.co.uk">SSRG@rssb.co.uk</a></td>
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<td></td>
<td>Chair - Steve Murphy, MTR Crossrail</td>
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<td>Workforce Health and Wellbeing</td>
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<td>Health&amp;<a href="mailto:Wellbeing@rssb.co.uk">Wellbeing@rssb.co.uk</a></td>
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<td>Public Behaviour</td>
<td>Suicide Prevention Duty Holders Group (SPDHG)</td>
<td>Secretariat: <a href="mailto:Ariane.Ally@networkrail.co.uk">Ariane.Ally@networkrail.co.uk</a></td>
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<td>Trespass Risk Group (TRG)</td>
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<td>Station Operations</td>
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<td>Road Risk</td>
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<td>Level Crossings</td>
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