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17 October 2013

Ms Carolyn Griffiths
Chief Inspector of Accidents
RAIB
Cullen House
Berkshire Copse Road
Aldershot
Hampshire GU11 2HP

Dear Carolyn

RAIB report: Fatal accident at James St Station Liverpool

I write to report¹ on the consideration given in relation to the three recommendations in the above report, published on 27 November 2012 that were addressed to ORR.

The annex to this letter provides the detail of the actions taken where all 3 recommendations are 'in progress'. We expect to update RAIB on recommendations 1 and 2 by 31 January 2014 and on recommendation 3 by 30 April 2014.

We expect to publish this response on the ORR website on 29 October 2013.

Yours Sincerely

Chris O'Doherty



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¹ In accordance with The Railway (Accident Investigation and Reporting) Regulations 2005 paragraph 12(2)(b)

Initial consideration by ORR

1. The recommendations contained in the report were addressed to ORR when RAIB published its report on 15 February 2012. After considering the report / recommendations, we passed recommendations 1 and 2 to Merseyrail asking it to consider and where appropriate act upon them. Recommendation 3 was directed to ORR in conjunction with industry parties.
2. Details of the consideration given and any action taken, in respect of the recommendation is provided below.

Recommendation 1

The objective of this recommendation is to reduce train dispatch accident risk by improving the way in which trains are operated.

Merseyrail should evaluate equipment and operational arrangements that allow the person responsible for train dispatch to:

- a. observe the platform and train without interruption for as long as possible, ideally until the train has left the platform; and
- b. stop the train directly and quickly in an emergency.

Equipment and operational arrangements should be evaluated for existing trains and platforms, and for planned changes and upgrades. The outcome of the evaluation should be a plan to implement appropriate measures to improve safety at the platform/train interface.

Actions taken or being taken to address the recommendation

3. In its initial response on 18 January 2013 Merseyrail explained that it had commissioned a study with Interfleet Technology, with the actions arising out of this report to be used as a basis for addressing recommendation 1. We wrote to Merseyrail on 4 March 2013 requesting sight of the proposed actions from the study.
4. On 26 March 2013 Merseyrail responded and explained that it had now engaged with QSS, an external rail consultancy party instead of Interfleet Technology. The approach to be used was Scoping, Analysis, Decision and Review, with the outcome intended to demonstrate that any decisions taken are rational, equitable and defensible. It was anticipated that the evaluation/decision work would be complete by June 2013.
5. On 5 June 2013 we wrote to Merseyrail and asked for sight of the paper submitted by QSS that outlined the approach to implement the recommendation. This was provided by Merseyrail on 20 June 2013 and can be found at Annex B.

6. The paper describes the approach that Merseyrail will take to address recommendation 1 i.e. to evaluate equipment and operational arrangements that allow the person responsible for train dispatch to:

- a) observe the platform and train without interruption for as long as possible, ideally until the train has left the platform and
- b) stop the train directly and quickly in an emergency.

7. However there was no confirmation that the evaluation had been completed. We wrote to Merseyrail on 8 August 2013 to request further information to provide details in relation to the actions that they have taken / will be taking and the associated timescales; and invited them to attend a meeting to review these issues on the 29th October. ORR has continued to work with and liaise with Merseyrail and as a result further information in relation to the actions it is taking was provided by Merseyrail on 19 August 2013.

ORR Decision

8. We are meeting with Merseyrail on 29 October 2013 to consider the additional information it has provided. We expect to provide an update to RAIB after this meeting and by 31 January 2014.

Status: In progress. ORR will update RAIB by 31 January 2014

Recommendation 2

The objective of this recommendation is to reduce the likelihood of falls through the platform edge gap.

Merseyrail, in consultation with Merseytravel, Network Rail and other relevant industry bodies, should evaluate equipment and methods that reduce the likelihood of a person falling through the platform edge gap. Platform edge gap fillers and vehicle body side panels should be included in the evaluation, the outcome of which should be a plan to implement measures when appropriate to do so, for example when trains or the infrastructure are changed, improved or replaced.

Actions taken or being taken to address the recommendation

9. In its initial response on 18 January 2013 Merseyrail explained that it had made arrangements to meet with Network Rail and Merseytravel to discuss early proposals on how to address recommendation 2 by way of a workshop. We wrote to Merseyrail on 4 March 2013 requesting sight of the outcomes of the workshop.

10. On 26 March 2013 Merseyrail confirmed that a workshop involving RSSB, ORR, Merseytravel, Network Rail ASLEF and RMT had been held on 12 March 2013. It was agreed that the outputs from this workshop (Annex C) would be fed into

the work being undertaken by RSSB to develop and publish future industry guidance on measures that promote the safe movement of trains from platforms.

11. Merseyrail also confirmed that it intended to consider the implementation of a number of quick win solutions identified as part of a review of Merseyrail's underground station risk assessments being completed to RIS 3703 TOM.

12. We wrote to Merseyrail on 5 June 2013 requesting further information on the considerations made at the above mentioned workshop, a description of the proposals grouped as 'quick wins' and 'strategic actions' and plans to implement and progress both quick win and strategic actions.

13. Merseyrail provided a further response on 20 June 2013. In this response Merseyrail explained that at the RSSB/ORR workshop, to consider recommendation 3, on 27 March 2013, it had proposed that RSSB undertake research and produce guidance into platform train interface activity. It confirmed that a number of actions associated with this recommendation would be linked to recommendation 3 and it would use the output of that research when appropriate to do so. In the meantime Merseyrail had been proactive in engaging with Merseytravel, Network Rail and other industry bodies to discuss the potential risk to passengers associated with the interaction between platforms and trains on the Merseyrail network. Merseyrail also provided a summary of the Merseyrail hosted workshop on 12 March 2013, this can be found at Annex C. Merseyrail explained that the quick win measures identified were in the process of being implemented and that the strategic actions had been input to the industry workshop held on 27 March 2013.

14. Merseyrail explained it was awaiting published guidance to the rail industry from RSSB and that it would consider and incorporate solutions onto the Merseyrail network where and when it was appropriate to do so. Merseyrail are currently working to procure a new fleet and confirmed that consideration is currently being given to incorporating engineering solutions to both trains and infrastructure within this project to address the risks contained within the RAIB recommendations. We wrote again to Merseyrail on 8 August to request additional information and to book a meeting to discuss its actions.

15. ORR has continued to work with and liaise with Merseyrail and as a result further information about the actions it is taking was provided by Merseyrail on 19 August 2013.

ORR decision

16. We are meeting with Merseyrail on 29 October 2013 to consider the additional information it has provided. We expect to provide an update to RAIB after this meeting and by 31 January 2014

Status: In progress. ORR will update RAIB by 31 January 2014

Recommendation 3

The objective of this recommendation is for the rail industry to be provided with guidance on reducing risk at the platform/train interface.

The Office of Rail Regulation should, in conjunction with railway industry parties, ensure that the findings of this report are taken into account in published guidance on the types of measures that promote the safe movement of trains from platforms through the adequate control of risk.

The areas that should be the subject of particular consideration in such guidance are:

- a. equipment and methods which enable the person responsible for dispatch to observe the platform/train interface without interruption for as long as possible, ideally until the train has left the platform;
- b. equipment and methods which enable the person responsible for dispatch to stop a train quickly in an emergency; and
- c. adaptation of trains and infrastructure to reduce the size of the platform edge gap when this is possible and appropriate, for example in connection with investment in new trains and infrastructure.

Actions taken or being taken to address the recommendation

17. At the joint 'Best practice in managing platform-train interface risk' ORR/RSSB workshop on 27 March 2013 Merseyrail proposed that RSSB undertake research with a view to producing guidance into platform train interface activity. The proposal was supported by all attendees and accepted by RSSB. Notes of the workshop are attached as Annex D for information.

18. The RSSB Board has asked that a comprehensive review of PTI issues takes place (including such items as platform heights and the gap between the platform and the train) and that a rail industry wide strategy be produced. On 5 September 2013 a paper was presented to the RSSB Board outlining a plan as to how the industry will come together to write such a strategy including the scope of the strategy itself.

19. RSSB provided the additional information below on 1 October 2013:

The strategy is to recognise that there are many different facets to managing the PTI, including safety, operational performance, right of access for train operation including freight services, accessibility, public behaviour/perception, consistent industry approaches, reducing cost etc.

In view of this range of issues, [RSSB] consider that it will take some time and coordinated effort to bring it together in a coherent GB strategy/framework for

managing the safety and operational risk at the PTI. The strategy will need to take both a short term and a long term approach to improving the PTI. It is therefore considered that the strategy should be broken down to consider both new railway developments /major renewals and existing stations and rolling stock. The strategy will also have to be clear about its aims and objectives and should take a risk based approach thereby taking full account of the costs and benefits of the proposals being developed.

In discussions held to date a number of themes and issues to be addressed have been identified as follows:

Establishing the aims of the strategy – for example:

A consistent decision framework for the development and management of the PTI that reduces safety risk and optimises operational performance and availability of access in a manner that promotes the long-term best interests of the mainline railway system as a whole for:

- *New railway developments/major renewals; and*
- *Existing stations and rolling stock*

Establishing the objectives of the strategy through the consideration of people, processes and technology – for example:

- *Establish the optimum platform/train interface arrangements(s)*
- *Define the target train dispatch system(s)*
- *Develop and implement a PTI risk assessment tool*
- *Publish good practice guidance on managing the PTI*
- *Produce a migration plan*
- *Produce a communications strategy – including internal industry communications and a public media campaign.*

The issues the strategy will need to address include:

- *The need for an initial scoping study to identify the boundaries for the strategy and what needs to be considered*
- *Analysis of the advantages and disadvantages of different platform heights and train footstep positions to consider whether it is possible to have level access universally across the network and a go anywhere train, including:*
 - *Boarding/dwell times*
 - *Universal unassisted boarding/managing persons with restricted mobility*
 - *The need for one or more target platform/train interface arrangements, defining where the use of each was appropriate (which may or may not include the current standard platform position and boarding arrangements), taking account of:*
 - *The needs of projects such as Thameslink, Crossrail and HS2*
 - *The creation of permanent constraints for track geometry, rolling stock and speed through the platforms*

- *Effects of coexisting with existing platforms of different heights, and stepping gaps on the same routes*
 - *It is anticipated that this will include the need for a detailed HAZOP study of the hazards and operational performance and train access implications of the different platform heights.*
- *Understanding the relationship between PTI gaps and injury types and rates*
 - *Yellow line marking and associated signage and instructions given to passengers*
 - *Viewing and managing the train dispatch corridor*
 - *Use of mitigation such as platform gap fillers and bodyside panels*
 - *Stopping trains during dispatch – on train and/or from platform*
 - *Identification of emerging risks and early quick wins*
 - *The requirements of the European legislation and the TSIs including the accessibility requirements in the Persons with Reduced Mobility TSI*
 - *Examining the strategies for managing the PTI and lessons that can be learnt from other railways in the UK and abroad*
 - *Managing public behaviour (including the effects of alcohol) – the case for a national media campaign.*

Proposed approach

To ensure industry buy into the strategy and commitment to the implementation of the actions defined in the strategy, it has been proposed that there should be an industry steering group to oversee the development of the strategy. This approach worked well for the development and implementation of the TPWS strategy. This PTI strategy group should be a senior level group that can make decisions given the wide range of performance and engineering issues to be covered within the strategy. In addition to the safety aspects, it is proposed the group would report to the RSSB board. The group should aim to finish its task once the strategy has been established. It is important that the group has an industry chairman and could comprise; Industry chairman; TOC representatives; Network Rail representatives; ATOC representative; DfT representative; ORR representative; RSSB – RSSB lead, strategy group facilitator.

In addition to the above, consideration should be given to including other representation such as freight operators, London Underground and Passenger Focus.

The strategy group will need to liaise closely with existing industry groups considering PTI related issues such as System Safety Risk Group (SSRG) and its safety station subgroup as well as the Industry Standards Coordination Committee (ISCC). Once the strategy has been established, it is proposed that it is implemented and monitored by the SSRG station safety sub group reporting to the board through SSRG. Any subsequent standards changes will be progressed through the normal ISCC process.

While the proposed strategy group would oversee the development of the strategy, there will be a significant amount of Research and Development and other project work needed in support of its development. It is proposed that there should be a multifunctional RSSB project team (operations, engineering, human factors, risk assessment and research and development) to coordinate the RSSB Research and Development and project work needed to achieve this.

It is considered that while the strategy could take six months to develop, the current on-going activities should continue in a coordinated way to ensure they are directed towards the goals of the emerging strategy.

As part of the development of the proposals for the PTI strategy, consideration has also been given to the implications of commissioning a national media campaign to try and influence passenger behaviour in stations and at the PTI. Work to date indicates that there are significant potential benefits and costs associated with such media campaigns. Given this potential significant cost, a full assessment of the likely costs and benefits will need to be carried out and, if it is to go ahead, a means of cross industry funding will need to be established.

ORR decision

20. There has been a substantial amount of consideration given to this recommendation including industry workshops where stakeholders had the opportunity to contribute views to this national issue. The result was a paper to the RSSB board on 5 January and the consequent endorsed approach by RSSB for to adopt a strategy approach (paragraph 17). The strategy is expected to take six months to develop, ORR will continue to engage with RSSB during the development stage and will update RAIB when further information is available.

Status: In progress, ORR will update RAIB by 31 May 2014.

QSS Paper

(reference: recommendation 1 paragraph 4)

To: Merseyrail Electrics 2002 Ltd (MEL)

Subject: Paper to Describe Approach Recommended by QSS for Managing Recommendations 1a and 1b of RAIB Report Ref 22/2012 regarding the Fatality at James Street Station on 22nd October 2011.

Paper Prepared by:

The QSS Group Ltd, 2 St Georges House, Vernon Gate, Derby DE1 1UQ

Author: Dave Holder Principal Safety Consultant

Reviewer: Allan Jones Managing Director

Executive Summary:

This paper outlines the approach recommended by The QSS Group Ltd (QSS) to address the Recommendations 1a and 1b of RAIB Report Ref 22/2012 regarding the Fatality at James Street Station in October 2011.

These recommendations are intended for Merseyrail to reduce train dispatch accident risk by improving the way in which trains are operated.

They recommend that Merseyrail '*evaluate equipment and operational arrangements that allow the person responsible for train dispatch to:*

1a observe the platform and train without interruption for as long as possible, ideally until the train has left the platform;

and

1b. stop the train directly and quickly in an emergency.'

In this paper, QSS lay out how this can be accomplished using recognised Industry Techniques to deliver an effective and 'safe' decision as to what action to take.

The paper first outlines the principles behind the approach, which is along the lines of the 'Taking Safe Decisions' guidance currently published by the RSSB. This approach is organised into four stages SCOPING, ANALYSIS, DECISION, REVIEW.

The paper then further outlines how each of the four stages of this approach can be managed by QSS on behalf of MEL to achieve a satisfactory outcome in this particular exercise.

The 'Taking Safe Decisions' Process – Overview

Most decisions in the rail industry can have implications on the safety of the operations and the people involved. As a well-established industry with numerous levels of control measures in place many of the safety related decisions can be fully supported by implementation of the existing rules, procedures etc. This leaves the rest of the decisions to be taken based on a variety of inputs including quantitative and qualitative factors. RSSB have documented the established processes within the industry in their 'Taking Safe Decisions' document. Following the principles in this document will lead to fully supportable decisions being made which meet the legislative requirements and the expectations of stakeholders and society.

SCOPING: The key to all this is the initial scoping of the decision that needs to be taken. An understanding of the problem and the influences on any outcomes is needed to build a process with the appropriate level of information gathering, analysis and scrutiny. There are some decisions where this vision can only be provided by an independent party. The closer to the decision and its implications you are the more likely that earlier stages are skipped and solution mode is selected.

ANALYSIS: Analysis of the information and development and selection of potential alternative solutions has to be done at the appropriate level as over analysis can lead to lack of clarity and excessive time and resources spent on the particular decision and conversely a cursory analysis will risk missing crucial features.

DECISION: The QSS Group is there to help you through the decision taking process by providing structured support for scoping, Information gathering and analysis together with independent review and scrutiny of the final decision. Using a variety of techniques such as workshops, interviews, questionnaires for information gathering and software tools for analysis of quantitative assessment of risk we can give your decision takers the clarity of the problem, the alternatives and their implications so that the key decision can be taken from a position of knowledge which is fully supportable in future dealings with stakeholders.

REVIEW: The final decisions taken must be reviewed and confirmed as rational (based on reasonable data and logical analysis), equitable (takes into account all concerned parties) and defensible (can be justified and explained if challenged).

Scoping

QSS will first confirm and agree the main process steps and intended timetable for the exercise. RSSB guidance provides review tools that QSS will use with MEL to determine an appropriate level of analysis and will help direct a list of suitable participants in the process so that their time can be booked in advance.

QSS will also examine the extent to which other parties (apart from MEL) may be involved in the development of solutions (such as Network Rail, Train Leasing Company) and will agree the extent to which these other parties may need to be involved in the exercise.

QSS will gather information on the current Dispatch process, so the extent to which the dispatch is observed and controls are available to stop the train during the dispatch sequence are understood. Any geographical, technical, degraded mode working or other variations will need to be noted so that eventual options can be evaluated for each different circumstance.

QSS will then discuss with MEL representatives the options available to address the objectives of these Recommendations. This will in part be technical (Fleet modification etc.) and will in part be Operational (staffing, location of staff, specific responsibilities). Options to be analysed will likely include fitment of new or altered equipment on trains, to facilitate both the requirement for observation from the train and the facility to stop the train quickly if needed and changes to Operational arrangements with staff competence, numbers and locations being considered along with strengthened guidance.

During this discussion, other factors which will reduce exposure to the risk or consequences of similar incidents may arise, and these will to be noted for later review.

Analysis

Using the RSSB guidance, suitable analysis methods will be selected for each of the issues identified.

Analysis will then be facilitated / carried out by QSS to establish the costs of each potential option, and the effect on risk of each. It is recognised that some modifications may have detrimental effects on risk outside the dispatch scenario and such effects must also be evaluated.

Of particular interest will be the likely changes to incident consequence should the proposed changes be implemented, as better observation of the platform and train, and a facility to stop the train more quickly, is unlikely to remove the likelihood of personal injury altogether. This will have to be evaluated and a view taken, so that 'cost per fatality saved' calculations are realistic.

The costs of design, development, deployment and maintenance of any technical changes will have to be analysed to give whole life costs against which benefits can be evaluated. It is noted that the RAIB Report states '*Equipment and operational arrangements should be evaluated for existing trains and platforms, and for planned changes and upgrades.*' For this reason, the potential replacement of the entire Merseyrail Fleet will have to be considered as having an effect on the cost-benefits of making changes. Page 4 of 4

Decision

QSS will then present the information from the Analysis in a structured manner that will allow MEL to take appropriate decisions. These decisions will be formally recorded together with the reasons and justification.

MEL have a duty to evaluate the options firstly against the legal requirements for Rail Safety Management Systems, on Good Practice that is known to exist elsewhere on UK Railways, and on the basis of 'reasonable practicability' which requires cost benefit analysis information to justify and support.

Where the decision to change is not mandated using these legal requirements, MEL may well choose to make changes based on improving Business Performance, reducing reputational risk or because it fits in with longer term objectives (such as Environmental / sustainable etc.). Decisions made on this basis will be captured.

QSS would recommend MEL consider the widest possible range of actions to take to mitigate against future incidents of this type, even if each may only make a small contribution to risk reduction, so that MEL can be shown to be taking improvement actions in the light of this event.

Review

Once the decision(s) have been taken, QSS will document the decisions and present the documentation for final review by MEL and other interested parties. The Review will be intended to confirm that the decision(s) can be shown to be:

- Rational – based on realistic data and reasonable logic;
- Equitable – having taken into account the inputs and requirements of relevant parties;
- Defensible – is documented to the extent required to ensure the decision(s) can be defended if challenged at a later date.

QSS will write up the results of the review and amend documentation as necessary to produce a final version of the assessment report.

Next Steps:

On Acceptance by MEL of the principles laid out in this document (at Board Meeting or similar), QSS will discuss with MEL the scale of support required so that we can prepare and submit a costed proposal to undertake support for the exercise.

End of paper

**Workshop organised by Merseyrail involving RSSB, ORR, Merseytravel,
Network Rail ASLEF and RMT held on 12 March 2013**

(reference: recommendation 2 paragraph 10)

***Summary of workshop held 12th March 2013 to address delivery of RAIB
recommendation 2 from James St. Fatality***

The Objectives of the Workshop where:

- To understand PTI risks and issues
- To increase awareness of the current work streams that are taking place
- To share the challenges that we face as a Rail Industry in addressing this risk
- To identify/evaluate initiatives that reduce the likelihood of a person falling through the platform edge gap
- Through the above provide suggested input to proposed Industry guidance on adaptations of trains and infrastructure to reduce the size of platform edge gaps

The workshop was led by Andy Wallace (RSSB), it was structured so as to provide both an informative and participative forum providing the opportunity for attendees to both understand the problem area and positively contribute initiatives for future consideration and evaluation.

The workshop was split into 3 Sessions.

Session 1 - Personal Reflection - to evaluate both equipment and methods that reduce the likelihood of a person falling through the platform gap.

Session 2 - Identifying Key Focus Areas and positive learning.

Session 3 - Platform Train Interface Safety Improvement suggestions

People who attended:

The group was made up of a cross section of Managers from the business who have relevant knowledge and experience of both fleet hardware and train operations specific to dispatch. There was also attendance by Senior Managers and Directors who were able to add their experience in terms of strategic approach and potential costing, and Trade Union officials and Health & Safety representatives.

Session 1 summary: Personal Reflection - to evaluate both equipment and methods that reduce the likelihood of a person falling through the platform gap.

In this session participants individually considered the 2 things that have the greatest **negative** impact upon platform-train interface safety at Merseyrail stations.

The outputs from participants were:

- Passenger Behaviour
 - Alcohol
 - Rushing
 - Passenger profile
 - Old
 - Young
 - Prams and luggage
- Platform Train Gap
- Overcrowding
- Rolling Stock
- How the train is controlled from dispatch until leaving platform
- Infrastructure issues – station design sometimes prevents passengers from being seen
- Disruption – passengers not knowing where to go if there are platform changes
- Operational performance vs. safety performance

The 2 things that have the greatest **positive** impact upon platform-train interface safety at Merseyrail stations.

The outputs from participants were:

- Competent staff
 - Diligence of staff (low number of incidents given the large number of trains dispatched)
 - Targeted security staff – BTP/CFS
 - Well trained ME staff
 - Maintenance staff (NR & fleet) well trained and manage our network
- Single type of rolling stock with sliding doors – consistency
- One member of staff (no platform staff) dispatching train
- Campaigns – TravelSafe/Eye Witness/joint communications between Trade Unions and MEL
- Willingness to challenge passenger behaviour on train and at stations
- CCTV
- Yellow lines on platforms

Session 2 summary: Identifying Key Focus Areas .This session was designed to give participants the opportunity to reflect upon the positive and negative factors identified in Session 1: and consider how that learning could be used in a positive way.

The outputs from participants were:

- There are consequences to actions
 - Systems

Procedures

Guidance

- Dangers of complacency/assumptions cause incidents
- The platform/train interface is not important to passengers – there is a need to educate the public
- It is difficult/costly to eliminate the gap between platform and train
- Staff are now taking ownership – lesson learnt - see something and take action
 - Staff effectively undertaking risk assessments at time of dispatch (dynamic)
 - Staff now making more conscious decisions – safety critical
 - Staff now take a different view of what can happen with passenger behaviour
- Written rules can be different to activity in practise – we need to get to a position where rules and activity are the same
- We need to find out why passengers do not follow rules – how do we get passengers to follow the rules
- Can we make it easier to follow the rules

Session 3 summary: Platform Train Interface Safety Improvement suggestions

In the final session all participants were asked to brainstorm solutions that would, they believe improve platform train interface and as a consequence reduce the likelihood of falls through the platform edge gap.

A large number of solutions were captured in the session with then a review of the solutions taking place obtaining a consensus view on how they should be categorised based on ease of implementation and the benefits that they would deliver. This allowed the participants to denote, through voting, their preferred solutions within the context of this benefit/easy to implement framework.

The outputs of the above process were collated into two categories:

- Strategic – significant cost/not easy to implement (influencers include time and process)/degree of benefit to be quantified.
- Quick Wins – relatively lower cost/easy to implement/degree of benefit to be quantified.

The tables below show the strategic and quick win solutions and how they were “ranked” via a voting process.

Strategic

Title

Number of Votes

NR/TOCS to align standards for trains and platforms when train or the infrastructure is changed (group standards)	16
Platform surface improvements	8
LED on footplate	8
Long term change to railway regulations	7
Solid rubber gap fillers/body-side panels	2
Body detectors (too close)	1
Audible sound to indicate train in platform	0
Real time CCTV on trains	0
Lighting of gap (up lights)	0
Tactile paving	0

Quick Wins

Title	Votes
Media Campaign/Local/National/TV/Social Media	19
Focussed passenger behaviour/Travel safe supported	15
Do risk profile of stations (identify hotspots)	9
Redeployment of staff to platforms during peak times (passenger behaviour control)	9

P.A. messages “mind the gap” (stations and trains)	8
Pro-active monitoring CCTV (passengers and staff)	5
Consistent signage stations posters	5
Create toolbox of solutions	3
Signage – Trains	2
Local Poster/Leaflet campaign	2
Yellow/red/hatched platform markings (consistent standards)	2
Audible sound to indicate train is about to move	1
Change of railway byelaws	1
Staff guidance on duty of care	1
Signs opposite platform (mind the gap)	0
Staff survey (suggestion box)	0

Additional work undertaken by Merseyrail to date:

1. All 13 Sub-Surface platforms to have a yellow line 600mm from platform edge for the whole length of the platform (120mts)

2. "Stand behind yellow Line" to be stencilled on the platform coper every 30 metres
3. Platform Safety poster which has been approved by RSSB Human Factors specialist, to be exhibited on Platforms, tunnel walls and in high capacity lifts at Hamilton Square and James Street.
4. Regular Public Address announcements from MEC reminding passengers to "Stand behind the Yellow Line"
5. Horizontal, Vertical and Diagonal measurements taken of all 13 platforms by use of laser device. This highlighted that Hamilton Square; Platform 1 is outside of current industry standards.
6. Platform train Interface risk assessments have been undertaken at Merseyrail 13 Sub-Surface stations against Rail Industry Standard for passenger train dispatch and platform safety measures. (RIS 3703)

Office of Rail Regulation and Rail Safety and Standards Board
Best practice in managing platform-train interface risk
Notes of industry workshop, 27 March 2013
(reference: recommendation 3 paragraph 16)

Introduction

The aims of the day and the topics to be covered (below) were introduced by ORR:

- the background to the Platform-Train Interface (PTI) issue and the Rail Accident Investigation Branch (RAIB) James Street report recommendations;
- the scale and nature of PTI risk;
- the need for local, site-specific, risk assessment and the new Railway Industry Standard on train dispatch and platform safety;
- causes of PTI risk;
- the 'so far as is reasonably practicable' (SFAIRP) test and use of the 'Taking Safe Decisions' guidance';
- sharing good practice solutions and ways forward.

Analysis of the PTI risk and sources of advice and information

Rail Safety and Standards Board (RSSB) noted that over the last decade PTI risk has consistently resulted in about 10 fatalities and weighted injuries (FWI) to passengers per year, which is around 20% of the total passenger risk. PTI incidents not associated with boarding and alighting (not BA) (5.1 FWI/year) are far more likely to result in fatalities or major injuries than PTI associated with boarding and alighting (BA) (5.3 FWI/year) The latter, though more common, generally only lead to minor injuries. The number of PTI incidents has increased as passenger numbers have increased. Despite this increase, once normalised, the rate of PTI related FWI/passenger journey has remained broadly at the same level. A key contributor to PTI events is passenger intoxication. The PTI risk profile differs between men and women: 16-30-year old males are far more likely to be involved in PTI (not BA) incidents.

PTI research

The wide range of RSSB research done on or around the PTI risks was noted, including: T132, T426, T743, T749, T764, T1029 (which is currently developing a risk assessment tool) and R545 (work to evaluate platform gap fillers and rolling stock body-side panels, as identified by the RAIB report into the James Street passenger fatality).

PTI risk causes

The cross-industry Operations Focus Group work since 2010 was noted, encouraging cooperation and driving improvement in PTI risk management through the Station Safety Improvement Programme (SSIP). We noted that the key PTI issues that we need to address include:

- the culture of intoxication, which may take a generation to address, though early signs of success include the alcohol ban on London Underground;

- managing planned and unplanned crowding-related PTI risks and the best practice approach achieved during the London 2012 Olympics;
- the need for close liaison between Network Rail, train and station operators;
- the need for clear sighting lines for platform interface equipment;
- the difficult historic platform-train gaps legacy at numerous stations;
- the need to manage the increased PTI risk caused by winter conditions, particularly at unstaffed stations;
- trespassing risk on station infrastructure;
- balancing the need to optimise the use of station commercial concession holders;
- the challenge in maintaining older stations, with problems such as leaky roofs;
- the need to manage potential pinch-points caused by ticket barriers;
- the need progressively to improve station/platform accessibility, possibly as part of new franchise agreements;
- the perennial problem of passenger slip, trip and falls risks;
- the need to avoid last minute platform changes; and
- the need to balance public performance measures against safety aims.

Future challenges

The future cross-industry challenges for addressing PTI risks were noted, including:

- the inconsistent infrastructure legacy, such as curved or cambered platforms;
- multiple access complex interface issues at stations, which are often managed by different, customised, local controls;
- the need to join-up a lot of people and kit in close proximity;
- the need to manage simultaneously both PTI and start-against platform signal passed at danger (SASPAD) risks;
- inconsistent cross-industry good practice;
- the need to accommodate a likely doubling in passenger demand over the next 30 years;
- perennial problem of passenger slip, trip and fall risks;
- the need to improve station accessibility for all passengers; and
- The need to understand better the causal factors underlying PTI risk, platform and station issues.

Railway Industry Standard - issue 2

We noted publication of the Railway Industry Standard on train dispatch issue 2, along with other useful work, such as:

- the July 2011 special topic report
- the Red 28 briefing DVD
- the development of a professional train dispatch policy, including non-technical skills needed for train dispatch
- Network Rail 'Miss Office Party' slip, trip and fall prevention campaign
- First Capital Connect's use of pictorial warning posters and Scotrail's community visits work.

Future focus on reducing PTI risks

- set a cross-industry vision for reducing PTI risks;
- better understand the underlying root causes of PTI risks;

- improve the use of safety management systems in addressing PTI risks;
- apply design, technological and engineering solutions to reduce or remove PTI risks;
- identify the right industry sponsors to lead and embed best practice solutions;
- maintain national cross-industry collaboration and communication; and
- focus on reducing the risks of importing the effects of passenger intoxication on to the railway, including eventually making it socially unacceptable to travel while unreasonably intoxicated.

Workshop session on the causes of risk at the PTI – the challenges

Annex 1 provides the detailed feedback from the various table discussions, but in summary the consolidated causes and subsequent controls of PTI risk could be grouped into: passenger behaviour; station operator; infrastructure manager-train operator interface; industry standards; rolling stock; national cross-industry and government-led issues; and some of their immediate solutions.

Simon French of RAIB, noted the possible risk of making the railway environment feel too safe for passengers. He spoke about the use of rolling stock body-side panels to help fill PTI gaps, and the continued need for effective platform dispatch competences and supervision. Engineering fixes are an important risk control, but other factors such as avoiding late platform changes and encouraging positive staff action are also needed.

Reducing risk at the PTI on London Underground

It was noted that PTI risk posed 26% of the risk to passengers on London Underground's network, of which 'passenger being struck by a train', 'falling on to the track', 'wilfully accessing the track (trespassing)' and 'passenger intoxication' were key root causes. To reduce the risks of passengers being caught in doors and dragged, London Underground uses:

- sensor-edge doors to detect obstacles on more recent rolling stock;
- a full 'along-the-platform' view, using platform-based CCTV and an in-cab screen; and
- 'door chimes' to warn passengers that doors are about to close.

We noted that London Underground risk-prioritises its stations into 'class A' straight platforms and 'class B' curved platforms, and use platform staff to assist with curved platform dispatch. London Underground's new S-class stock is fitted with in-cab CCTV to assist the driver with platform dispatch. London Underground drivers receive annual train dispatch training, which includes role play and signal passed at danger avoidance training that is broadly based on the application of a memory check-list approach.

We noted that London Underground's key driver for in-cab CCTV was to enable shorter 11-second approach and depart dwell times and ultimately optimise service capacity. Every 16-weeks, London Underground's PTI equipment is fully checked, in addition to daily and routine maintenance checks. We noted that CCTV footage of the platform PTI can be patched from Victoria line trains through to line control centres.

London Underground's network PTI group includes operational, health and safety, trade union and asset performance representation. London Underground's new 'shark-tooth' mind-the-closing-doors signs were currently being trialled on Victoria Lines doors, along with enhanced 'mind-the-gap' audio platform messages.

Introduction of S-stock on London Underground

It was noted that Bombardier's S-class upgrade rolling stock included 191 seven and eight car sets providing level access to a 150-year old Metropolitan Line infrastructure with different platform heights, lengths, curvature and passenger access points; most stations are rear-loading passenger access. London Underground's objective is compliance with the Rail Vehicle Accessibility Regulations (RVAR) with the provision of wheelchair access points and to grow passengers with reduced mobility service usage.

The best fit between S-stock and infrastructure was achieved by use of laser equipment to measure PTI gaps before test rolling stock was operated to enable corrective measures to be installed and re-assure the rolling stock migration process. London Underground changed train stop positions to minimise gaps. London Underground seeks to maintain a consistent 950mm platform height through regular tamping.

The S-stock's sensor-edge door strips operate through friction detection - if something is preventing the doors from closing, the train stops and automatically shows an in-cab CCTV image of the door that has failed to close. It then allows the doors to be pushed back manually twice before closing forcefully the third time. S-stock stock used platforms have under platform up lighting and track reflective strips, as well as lighting of the door tread, to help illuminate the PTI gap and improve passengers' PTI risk awareness.

London Underground use 'Mind-the-gap' audio messages using a male voice to differentiate it from the female voice destinations announcements. London Underground are looking at using perishable PTI fillers for managing 30mm PTI gaps, under platform fillers for 25mm gaps and mechanical-operated fillers interlocked with signal systems for managing 100mm gaps. However, London Underground recognised the potential balance to be struck between using PTI fillers and the potential service reliability and hence crowding risks their failure may generate.

Responses to questions from the floor

In dealing with crowding risks, London Underground focus on training staff, particularly platform assistance staff and in ensuring the provision of good quality PTI images through daily equipment checks. London Underground's in-cab CCTV images run on screen from top left (front of train) to bottom right (rear of train). We noted that passenger boarding and alighting incidents on London Underground tend to pose minor risks.

The law, reasonable practicability and standards

ORR outlined the duties on employers and others under the Health and Safety at Work etc. Act 1974:

- section 2 imposes a duty on employers to protect their employees from work-related risks, *so far as is reasonably practicable (SFAIRP)*;
- section 3 imposes a duty on employers to protect those affected by work activities (ie. passengers) from risks, *so far as is reasonably practicable (SFAIRP)*;
- section 7 imposes a duty on employees to take reasonable care of themselves and cooperate with their employer, *so far as is necessary* while at work;

Other key relevant legal requirements from the Management of Health and Safety at Work Regulations 1999:

- section 4 requires employers to apply the principle of prevention, that is often called the hierarchy of risk control, which begins with avoiding the risk, and is used to select risk control options following a risk assessment process;
- section 10 requires employers to provide their employees with comprehensible and relevant health and safety information, such as details of risk assessment, emergency arrangements and identifying competent people;
- section 11 imposes a duty on different employers (such as train operators and infrastructure managers) on the same premises to cooperate and work together for health and safety purposes, including sharing information about relevant workplace risks.

We noted the newly applied European Commission Common Safety Methods of risk assessment and evaluation, which broadly mirrors the existing risk assessment-related process under the Management of Health and Safety at Work Regulations and therefore, importantly, does not seek to duplicate the risk assessment process.

We noted how the Persons of Reduced Mobility (PRM) Technical Specification for Interoperability (TSI) and the Rail Vehicle Accessibility Regulations (RVAR) apply to Britain's railways. Neither defines platform stepping distance or specifies maximum dimensions. We noted the requirement for wheelchair ramps to be secured into the train during use. Disabled passengers are under no obligation to book in advance, though this is encouraged to ensure that help is at hand and the risk of train delay is minimised. Other implications of accessibility legal requirements include colour-contrasting doors and handles.

In conclusion, ORR noted the importance of removing PTI risk at source, good communication with passengers and praising good staff performance in managing PTI risks.

Taking Safe Decisions guidance, industry standards

RSSB noted the Railway Industry Standard on train dispatch and the potential need to amend it if work following the RAIB James Street report identifies PTI enhancements where the benefits outweigh the cost. We noted that RSSB was re-briefing the 'Taking Safe Decisions' guidance to the industry and plans to revise it by late 2013. We noted that following the processes in 'Taking Safe Decisions' guidance provided duty holders with evidence to defend the rationale for its safety decision making. We noted that duty holder inactivity in risk assessment and risk control provided no defence in court.

RSSB's 'Taking Safe Decisions' guidance provides industry employers with a structured process that gives them confidence in achieving legal compliance through their decision making. This included how to use cost benefit analysis to help inform safety investment decisions, compliance with the *so far as is reasonably practicable* test under the Health and Safety at Work Act and how to differentiate between health and safety legal compliance decisions, commercial business decisions and regulatory and government decisions to go beyond the *so far as is reasonably practicable* test.

Address by Director of Rail Safety

• ORR's Director of Rail Safety, explained that ORR's objective was for all duty holders to strive towards excellence in the management of health and safety culture and risk control. He noted that his contact with the public and Members of Parliament following PTI incidents, and identified three key challenges for the industry:

- collaboration: the need for different duty holders to share and learn from best practice facilitated by RSSB and ORR;
- consistency – the need to manage the PTI better, including improved training, management and supervision of staff and consistent compliance with industry standards, including improved localised risk assessment processes; and
- continuous improvement – the need to improve and seek more imaginative risk control solutions, consider human factors aspects, regularly review staff working instructions particularly following changes in circumstances, the need for enhanced crowding control procedures, particularly as passenger numbers continue to increase and cause more, and possibly new, PTI risk.

Presentation by Abellio

The new head of Safety and Environment at Abellio Greater Anglia, noted the impact of Aa fatality at Gidea Park station in January 2007, and a dispatch incident at Brentwood in January 2011, as catalysts for change at Greater Anglia. We noted the process Abellio had gone through to review and improve its management of PTI risks, which included:

- reviewing the safety management system and functional responsibilities, which included shifting responsibility for PTI risks on to drivers and not station managers;
- how Network Rail's route managed devolution had enhanced the local operator and infrastructure manager relationship;
- reviewing best practice on PTI management from other operators;
- a comprehensive literature review;
- reviewing the operational hazards posed by the PTI;
- applying the hierarchy of risk control to PTI risk mitigation;
- close liaison with RSSB's station safety team; and
- use of the PTI component of the Safety Risk Model.

The lessons Abellio learned in improving PTI risk management included:

- not over-relying on PTI risk management documentation;
- the need to customise controls to individual station and rolling stock risk profiles;

- importance of clarity about roles and responsibilities and reviewing the implications from historical incident and near-miss data;
- the importance of a strong competence management system to influence employee behaviours and ensure employees understand the link between the processes they are being asked to follow and the risks it controls;
- need for station operator and infrastructure manager to coordinate and cooperate on relevant infrastructure enhancements;
- use of safety data to prioritise improvements and rank risks so that they are better linked to the understanding of the operational risk profile;
- use of local station risk assessments and a review of risk assessment as circumstances change;
- need to work with local union safety representatives;
- using the hierarchy of risk controls for dealing with interface risks;
- periodically reviewing risk assessment, particular after changes in circumstances;
- need for a cross-functional approach, which includes both guards and drivers; and
- the need to challenge what you think you know.

Key results of Abellio's approach have been that service delays are now caused only for the right reasons, changes to its safety management system and use of a joint Network Rail and Abellio cost benefit analysis review of non-safety related station improvements.

Presentation by First Group

First Scotrail noted that PTI represented 22% of its interface risk. First Scotrail did an external review to identify PTI management practices across First Group's five-companies to identify and share good practice using a PTI steering group. This has led to PTI becoming a new focus area for managers and the more consistent application of the Railway Industry Standard for train dispatch, which First had customised into 'Your dispatch policy' guidance for its staff. This led to a focus on passenger flows, staff training and development, closer working with Network Rail and a positive focus on staff performance - a more positive staff culture about managing the PTI.

First drivers are trained to take a systematic approach to checking in-cab monitors from top left to bottom right, a check that the pictures they are seeing are 'live' and an instruction that if they become distracted, to start the PTI checking process again. In response to questions from the floor, Alan confirmed that First Group takes a dynamic approach to risk assessment, that First record their drivers' behaviour to ensure compliance with good practice, and noted operators' duty of care toward vulnerable passengers included those distracted using smartphones when boarding and alighting trains.

It was confirmed that First's Siemens class 380s doors re-open twice if obstructed and close more forcefully the third time. First try proactively to 'police' passengers behind the platform yellow line and acknowledge the risk mitigation provided by hatched platform markings to indicate where train doors align at higher risk platforms. We noted that First Group use a safety calendar which, for example, identifies school holidays. First also use a rail communications strategy, which includes briefing school children on rail dangers and promoting positive safe behaviours. We noted the alcohol ban on trains in Scotland between 9pm and 10am which started in August 2012.

We noted First Great Western's continued use of locomotive-hauled 'slam door' stock, which could lead to dispatch irregularities, such as doors not being fully closed, but resting on their lock catch, causing door re-opening in service risk, the risk from passengers climbing in through droplight door windows, and using door handles as handholds for jumping on to trains. In order to manage the risk from slam door stock and generally raise staff awareness First guards are trained to look behind every five seconds when managing the PTI from their on-platform position, to identify potential platform hot spots.

We noted the risk associated with running services while Reading station was being re-built. These included the need to deploy extra staff to keep passenger flows moving, improved passenger way-finding signage, the need to realign PTI platform-train door access points and in operating with long train-shortened platform PTI alignments.

The challenges for First, included difficulty in facilitating guards' view of the PTI from sealed powered doors, maintaining platform mirrors and CCTV, the need for train-stop platform plungers to enable platform staff to proactively intervene PTI incidents, possibly by piggy-backing on existing GSM-R or Train Protection and Warning Systems equipment.

Workshop session sharing good practice feedback

Annex 2 provides the detailed feedback from the various table discussions, but in summary the consolidated best practice solutions to PTI risk, including out-of-the-box ideas, could be grouped into: passenger; station/service operator; infrastructure manager-service operator interface; industry standards; rolling stock; national cross-industry; and government-led solutions.

Suggestion for a national television advertisement campaign

Picking up on one of the feedback suggestions, ORR asked whether the industry should consider a national television advertisement campaign, similar to Network Rail's 'Don't run the risk' level crossing safety campaign. A show of hands vote showed overwhelming support.

Proposal from Merseyrail

Merseyrail noted how the workshop would help address recommendation three of RAIB's James Street report and proposed that RSSB initiate a project to share best practice in PTI risk management.

Head of Traffic Operations and Management at RSSB, accepted the proposal by Merseyrail and undertook to develop a PTI good practice guidance which would be put through the Railway Group Standards process and consulted on before publication. He also suggested that examples of good practice could initially be shared on OPSweb and invited the audience to forward ideas and initiatives to his team at RSSB.

Changes to the Rule Book that had been introduced to strengthen the train dispatch process were brought to the attention of the attendees

There was a challenge to the ORR to have a joined up approach between the economic and safety regulator so that there is a consistent approach made to Network Rail and others over the funding mechanisms for station platform improvements.

In response to the challenge ORR noted the important role it could play in ensuring the safety impact of ORR's Periodic Review 2013 was carefully balanced against the need for efficiencies.

Addendum 1**Feedback from table discussions on causes of risk at the PTI – the challenges:***Passenger focus:*

- boarding and alighting is not just a physical issue, it requires customer education;
- if customers are overly protected there's risk from creating an environment in which customers do not see the risks and dilute their personal responsibility;
- passengers often assume that doors close to timetables and not 2-minutes before departure;
- educating passengers about inappropriate unseasonal footwear: predominantly wearing of high-heels;
- the need for passenger awareness campaigns to enhance passengers' appreciation and education of PTI risks;
- use of ticket barriers to bar station entry to intoxicated passengers and targeted use of additional security staff;
- the 'turn up and go' culture of train travel accommodates passenger behaviour unacceptable in airline travel;
- passengers' failure to perceive the risk because of the distractions from personal smart-phones, MP3 players, portable PCs and games and potential future distraction risks from virtual reality glasses; and
- platform posters are no longer the whole solution.

Station/service operator focus:

- there's no 'one size fits all' approach to applying guidance and standards, so operators approaches are inconsistent;
- bad weather increases PTI risks;
- need to manage passenger distraction from mobile phones, headphones, MP3, etc;
- unmanaged risk can increase during station upgrade work;
- vulnerable passengers now means children, disabled, the elderly, parents with buggies, passengers with luggage, and not just intoxicated passengers;
- use of Driver Only Operations at unstaffed stations, but the risk can be reduced through use of CCTV;
- staff competence and their awareness of the risks and proactive engagement with vulnerable passengers;
- ad-hoc crowding events caused by planned engineering work, large events, service delays;
- increasingly congested platforms;
- risks from wrong-side door release;
- platform bottle-necks caused by train preparation work or barrier problem caused delays;
- over-reliance on door-obstruction detection alerts;
- need to be clear about roles and expectations in the PTI dispatch corridor;
- inappropriate or incomplete way-finding signs;
- poor identification of the foreseeable hazards;

- need to carefully balance the message that the railway is a safe place, but that there are identifiable risks;
- use of web-based social-media forums to provide 'travel safe' rail alerts;
- use of ticketing gate-line barrier as an opportunity for station staff to proactively challenge intoxicated passengers, while recognise that this increases the risk from staff being abused and/or assaulted;
- active use of local Bye Laws to ban alcohol consumption at stations (RSSB recognised that there was little point in developing work on actively using Bye Laws unless station operators were prepared to follow through with actions); and
- review of station staffing to align with PTI risk peaks, such as during crowding and passenger intoxication peaks.

Infrastructure manager-operator interface focus:

- need to balance onus on drivers between monitoring PTI and start-against platform signal passed at danger (SASPAD) risks;
- need to balance pressure on achievement of the time-keeping public performance measure, timetable planning and safe station management and train dispatch risks;
- poor infrastructure and train maintenance, including dirty/damaged/misaligned CCTV, monitors, mirrors PTI monitoring equipment;
- need to manage platform maintenance work obstacles;
- inappropriate platform furniture which obscures signage and encourages crowding during wet weather;
- narrowing or managing wide stepping distances through the application of solutions;
- long train-short platform misalignment;
- need to manage sub-optimal dispatch locations;
- late service platform changes;
- inconsistent or ineffective platform markings;
- slippery platform surfaces;
- inappropriate or incomplete way-finding signs;
- 'winterisation' caused risks at the PTI;
- platform risks from passing high-speed train aerodynamics;
- poorly sited passenger information screens;
- inappropriately located platform equipment; and
- involving station or near station pub managers, or other alcohol retail outlets, in arrangements for managing intoxicated passengers.

Infrastructure manager focus:

- incentivise use of infrastructure design to close PTI gaps, such as straightening/re-aligning infrastructure to close PTI gaps, and causes of PTI gaps, such as poor track geometry.

Standards focus:

- standards are focused at separating train and platform and not optimising the PTI fit.

Rolling stock focus:

- guards inability to observe PTI from a departing train with sealed power door windows;
- lack of in-train handrails; and
- use opportunities to fill PTI gaps through enhanced train design.

National cross-industry focus:

- general agreement with the broad principles of train dispatch as applied nationally;
- need for a national communication campaign, to include expected passenger behaviour in the yellow line PTI corridor; the conditions of accepting intoxicated passengers, standardised posters, standardised announcements (both automatic and manual) and a next train due 'count down' indicator;
- review of whether stations should host alcohol purchase outlets, including pubs;
- need to manage variations in train design;
- for too long PTI has been in the 'too difficult to tackle' pile;
- in the longer term, developing a culture where it is unacceptable to travel while intoxicated, as is the case on airlines, by 'nudging' passengers' perceptions away from the 'turn up and go' nature of Britain's mainline railways;
- national approach to reducing PTI stepping distances; and
- recognition that we can make the rail environment feel too safe for passengers so that they can fail to identify risks, a phenomenon which may have occurred on Heathrow Express.

ORR-focus:

- clarity about how to manage the balance between meeting the now higher expectations for safety and service public performance measure targets.

Government-focus:

- need for additional station development investment; and
- need for a joined-up, cross industry design standards document to help migrate to improved PTI gaps.

Addendum 2**Consolidated feedback from table discussions on sharing good practice – meeting the challenges***Passenger focus:*

- need for customer education including understanding the consequences of their behaviour;
- seek opportunities to 'nudge' passenger behaviour, such as publicly embarrassing them for bad PTI behaviour;

Station/service operator focus:

- staff awareness increased by briefing, training and supervision;
- provision of standardised station posters;
- use of consistent stock formations;
- provision of breathalysers to enable staff to test whether intoxicated passengers are fit to travel;
- refusing access to intoxicated and 'unfit to travel' passengers, through application of local Bye Laws and use of conflict avoidance training for front-line staff;
- need to assist vulnerable passengers even if they have not booked assistance;
- need for DOO drivers to be able to use station personal address systems to make PTI and train dispatch announcements;
- use of platform-edge technology such as obstacle detection, smart CCTV systems and invisible PTI protection curtains; and
- standardise mainline stations' 'mind-the-gap' announcements,

Infrastructure manager-operator interface focus:

- under-platform up-lighting the PTI gaps and additional signage to increase passenger awareness of the risk. We noted this was already installed on the Tyne and Wear Metro system;
- closing the PTI gap with fillers or realigning train and infrastructure through the application of Railway Group Standards that seek to optimise the PTI gap fit;
- installation and procedures for use of on-platform instant emergency stop (through use of ERTMS or GSM-R) equipment with platform warning lights, including the provision of remote handheld devices for train dispatch staff;
- increased use of station CCTV coverage;
- use of optical-motion CCTV detection screens and warning messages;
- use of remote control room dispatch via CCTV feeds;
- proactive use of social media network to warn of PTI risks;
- optimising use of British Transport Policy services;
- use of crowd or passenger flow controls;
- look at other industry solutions and good practice , such as the use of guarding in construction, fairgrounds, airlines and cruise industries;
- provision of real-time passenger communication;

- need for a solution to curved platforms because they are a particular problem for longer trains;
- design challenge of aligning new trains with old infrastructure;
- use of remote control door closing for guards/drivers at curved platforms or where equipment is defective;
- use of targeted platform barriers to help prevent passengers running on platforms;
- use of dynamic gap fillers;
- use of selective door operations to reduce risk at certain platforms;
- seek to optimise train stopping position to reduce PTI risks; and
- improve service reliability to reduce platform crowding.

Infrastructure manager focus:

- rebuilding the network to make lines straighter, provide platform screen doors,
- platform hatching of PTI corridor and train door platform alignment markings;
- use of crowd or passenger flow controls; and
- good track geometry invariably delivers a good PTI gap.

Rolling stock focus:

- provision of standardised rolling stock;
- providing of PTI corridor CCTV images to train guard;
- provision of droplight windows, or modification of rolling stock design to provide guards with a view of the PTI corridor until the train has left the station;
- operate shorter wheel-base or articulated trains to better align train to curved platforms;
- ability for remote-controlled dispatch by the guard.

RSSB focus:

- need to ensure the Railway Group Standard focus on the passengers' experience, which may require us to re-evaluate how we do things;
- the correctness of industry gauge clearance standards and the need to use cost benefit analysis to help make informed decisions about the costs and benefits of changing the standard and closing the PTI gap;
- need for enhanced procedures, for example on train dispatch;
- standards process facilitates too many rolling stock and infrastructure variations, deviations and derogations;
- wider use of Safety Management Information System to help identify risk and customise enhancement of PTI solutions; and
- investigate use of dynamic PTI gap fillers.

ORR focus:

- balance the need for the railway to discharge its legal duty but for passengers to take responsibility;
- need to ensure Network Rail remains incentivised even if PTI enforcement is TOC-focused; and
- need for additional enforcement to address bad passenger behaviour.

Government-focus:

- inclusion of enhance platform staffing within franchise specification/bids;
- need for a long-term vision, which draws a 'line in the sand' for re-building infrastructure to enhance the PTI (by focusing on both train and infrastructure) and includes standardised platform and track bed heights etc;
- use of 'dry' stations and trains, where all alcohol consumption is banned;
- need to identify solutions based on safety, operational and customer benefits;
- need for cross-industry culture change campaign to address the scale of the passenger intoxicated and unfit to travel issue: '*How many drinks is too many to travel?*';
- need for a holistic-approach to alcohol on the railways, which may consider whether there should be pubs in stations.
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Annex 3

List of organisations that attended the PTI workshop at ORR, One Kemble Street, London, on 27th March 2013

ORGANISATION

Heritage Railway Association

RSSB

Greater Anglia

Northern Rail

Greater Anglia

Northern Rail

RMT

First Transpennine Express

Merseyrail

Heathrow Express

Southeastern

DfT

LUL

First Great Western

Network Rail

First Great Western

Southern

LUL

RSSB

C2C

ASLEF

London Travelwatch

C2C

TSSA

Network Rail

First Hull Trains

DB Regio Tyne and Wear Metro
Ltd

RSSB

Network Rail

DLR

East Coast

Angel Trains

RSSB

East Midlands Trains

Network Rail

Chiltern Railways

East Coast

Network Rail

East Coast

Network Rail

South West Trains

South West Trains

Network Rail

Eversholt

RSSB

Network Rail

First Hull Trains

Arriva Trains Wales

Southeastern

LOROL

Cross Country

ATOC

LOROL

First Scotrail

First Capital Connect

Virgin Trains

Interfleet

East Coast

RSSB

RSSB

RAIB

Network Rail

Southern

Grand Central

Merseyrail

LUL

RAIB

First Scotrail

West Coast Railway Company
Ltd

RAIB

Network Rail

