Rail Industry Standard
RIS-3703-TOM
Issue: 5   **Draft:** 1c
Date: September 2022

Passenger Train Dispatch and Platform Safety Measures

Synopsis

This document sets out requirements and guidance for the development, review and implementation of passenger train dispatch processes and measures to manage the safe behaviour of passengers at the platform train interface.

Published by RSSB

Issue Record

Issue	Date	Comments
One	June 2011	Original document.
Two	March 2013	Supersedes issue one. Amendments are to incorporate changes made to GERT8000 Rule Book Module SS1 (Station duties and train dispatch), to include relevant aspects of OFG sponsored work carried out by RSSB to review station safety and to make other amendments identified as a result of the 12-month review of the document.

Issue	Date	Comments
Three	September 2017	Supersedes issue two. Amendments are to incorporate: a) Changes made to GERT8000 Rule Book Module SS1 (Station duties and train dispatch). b) Change in scope so that requirements and guidance apply to infrastructure managers and railway undertakings in line with recommendations from RAIB investigations. c) Additional requirements and editorial changes to existing requirements to provide greater clarity, so each requirement, its rationale and associated guidance are clearly described, including legal obligations associated with passenger train dispatch and platform safety. d) Additional guidance, appendices and diagrams, as well as updates to existing guidance and appendix to incorporate recommendations from RAIB investigations, findings from research, guidance, standards and other documentation published since 2013 and deviation requests from TOCs, for example those relating to the position of the guard. e) Expanded reference section to include recent research, guides, standards, on-line tools and other documentation to support duty holders. f) Amended definition section.

Issue	Date	Comments
Four	March 2020	Supersedes issue three. Amendments are to incorporate: a) Additional appendix relating to design and position of platform markings. b) Updated requirements related to platform-train interface (PTI) risk assessment. c) Numerous editorial changes to align with RSSB standards policy. d) Updated references.
4.1	July 2021	Supersedes issue four. The content on the design and position of platform edge markings, yellow lines and tactile pavings, which was contained in Appendix K, is now contained in RIS-7016-INS. The changes to this issue contain references to that standard.
Five	September 2022 [proposed]	Superseded issue 4.1. Guidance revised in topic areas 'Assessment responsibilities' and 'Requirement to review' to encourage better collaboration with trade union representatives when reviewing, modifying or implementing train dispatch arrangements.

Revisions have been indicated with a vertical black line in this issue.

Superseded Documents

The following Rail Industry Standard is superseded, either in whole or in part as indicated:

Superseded documents	Sections superseded	Date when sections are superseded
RIS-3703-TOM issue 4.1	All	03/09/2022 [proposed]

Supply

The authoritative version of this document is available at www.rssb.co.uk/standards-catalogue. Enquiries on this document can be submitted through the RSSB Customer Self-Service Portal https://customer-portal.rssb.co.uk/

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Part 1   Purpose and Introduction

1.1   Purpose

1.1.1   This document is a standard on passenger train dispatch (including empty coaching stock) and platform safety measures.

1.1.2   This document sets out:

a) The risk assessment process to support the development, review, and implementation of train dispatch processes and measures to manage the safe behaviour of passengers (which includes members of the public) at the platform-train interface (PTI). This includes rolling stock calling at the platform as well as those passing through the platform such as freight;

b) Operational requirements and guidance for specifying and implementing train dispatch processes; and

c) Guidance on the measures that can be implemented to manage the safe behaviour of passengers at the PTI.

1.1.3   The requirements and guidance are consistent with legal obligations set out in the *Railways and Other Guided Transport Systems (Safety) Regulations 2006*, the *Electricity at Work Regulations 1989* and the *Control of Electromagnetic Fields at Work Regulations 2016*.

1.2   Parameters of the platform-train interface

1.2.1   For the purpose of this document, the PTI covers:

a) The length and width of the platform

b) The length, height and width of the train up to the bodyside furthest from the platform

c) Trains stopped/arriving at the platform, departing from or passing through the platform without stopping, and when no train is present at the platform

d) Electrification systems or live train-mounted electrical equipment.

1.2.2   This is illustrated in:

a) Figure *1*
b) Figure *2*.

The height of the train encompassing electrification systems or live train mounted electrical equipment

The full length of the train and platform

The width of the platform and train

Up to the bodyside furthest from the platform
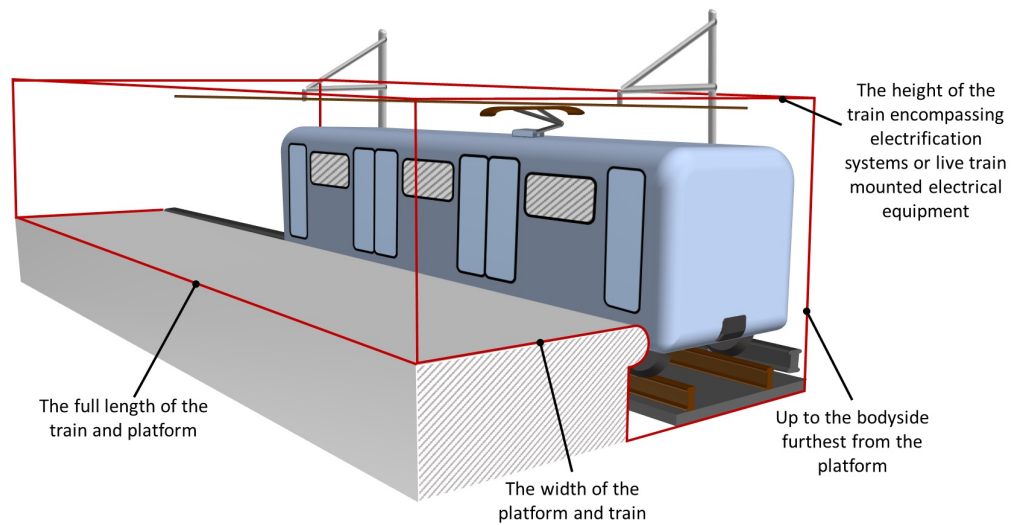
Figure 1: Parameters of the PTI with train in platform

The height of the electrification system and equipment

The full length of the platform

The width of the platform and track closest to the platform
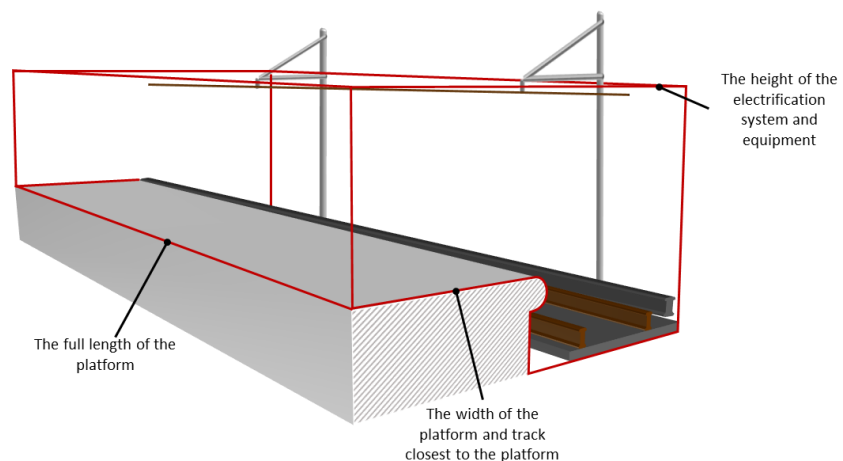
Figure 2: Parameters of the PTI with no train in platform

1.3   Platform-train interface risk

1.3.1   The PTI poses risk to passengers (including members of the public) and staff in relation to:

a) Platforms in operational use
b) Trains stopped/arriving at, departing from or passing through the platform without stopping
c) Intentional and unintentional access to the track, either from the platform or the train when it is stopped in the platform
d) Electric shock from electrification or live train-mounted electrical equipment.

1.3.2   This risk is comprised of high likelihood, but low severity hazardous events, such as slips, trips and falls; and low likelihood but high severity hazardous events, such as dragging; falling from the platform and being struck by the train; and being struck by the train when standing on the platform. A list of hazardous events that can occur at the PTI is set out in Appendix *A*.

1.3.3   The development, review and implementation of appropriate train dispatch processes and measures to manage the safe behaviour of passengers at the PTI can help to mitigate the likelihood and severity of these events.

1.3.4   Other risk control measures are likely to be required to manage this risk, such as those relating to the design and maintenance of stations and platforms; engineering requirements for equipment and design of rolling stock and door operations. Within this document, *page 95* lists standards and research that can be consulted to inform the development and implementation of these controls.

1.4   Application of this document

1.4.1   Compliance requirements and dates have not been specified because these are the subject of internal procedures or contract conditions.

1.4.2   If you plan to do something that does not comply with a requirement in this RIS, you can ask a Standards Committee to comment on your proposed alternative. If you want a Standards Committee to do this, please submit your deviation application form to RSSB. You can find advice and guidance on using alternative requirements on RSSB's website www.rssb.co.uk.

1.5   Health and safety responsibilities

1.5.1   Users of documents published by RSSB are reminded of the need to consider their own responsibilities to ensure health and safety at work and their own duties under health and safety legislation. RSSB does not warrant that compliance with all or any documents published by RSSB is sufficient in itself to ensure safe systems of work or operation or to satisfy such responsibilities or duties.

1.6   Structure of this document

1.6.1   This document sets out a series of requirements that are sequentially numbered. This document also sets out the rationale for the requirement, explaining why the requirement is needed and its purpose and, where relevant, guidance to support the requirement. The rationale and the guidance are prefixed by the letter 'G'.

1.6.2   Some subjects do not have specific requirements but the subject is addressed through guidance only and, where this is the case, it is distinguished under a heading of 'Guidance' and is prefixed by the letter 'G'.

1.7   Approval and Authorisation

1.7.1   The content of this document will be approved by Traffic Operation and Management Standards Committee (TOM SC) on 28 June 2021 [proposed].

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1.7.2   This document will be authorised by RSSB on 29 July 2022 [proposed].

Part 2   Platform Train Interface Risk Assessment

2.1   Requirement to undertake assessment

2.1.1   A risk assessment shall be undertaken for each platform.

Rationale

G 2.1.2   The *Railways and Other Guided Transport Systems (Safety) Regulations 2006*, the *Management of Health and Safety at Work Regulations 1999* and the *Health and Safety at Work etc Act 1974* require a risk assessment to be undertaken.

G 2.1.3   The *Control of Electromagnetic Fields at Work Regulations 2016* requires the assessment and control of any risks from electromagnetic fields in the workplace.

G 2.1.4   The *Electricity at Work Regulations 1989*, 'regulation 14', states that: 'no person shall be engaged in any work activity on or so near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless:

a) It is unreasonable in all the circumstances for it to be dead; and
b) It is reasonable in all the circumstances for him/her to be at work on or near it while it is live; and
c) Suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.'

G 2.1.5   The likelihood of hazardous events occurring and the potential severity of these events vary from platform to platform.

G 2.1.6   The risk assessment helps determine:

a) The factors that affect the likelihood and potential severity of hazardous events for each platform; and
b) The controls required to mitigate risk so far as is reasonably practicable.

Guidance

G 2.1.7   Infrastructure managers (IMs) and/or railway undertakings (RUs) can initiate assessment(s) and develop a risk-based prioritisation plan for carrying out assessments. A combination of factors can be considered to determine prioritisation. These include, but are not limited to:

a) Station footfall
b) Number of recorded incidents at a station relating to the PTI and/or dispatch
c) Number of platforms and how busy they are
d) Type of station, for example terminus or through station
e) Type and variety of dispatch processes used at platforms
f) Number of trains stopping at or passing through the platform, the variety of train types and formation of trains stopping at platforms
g) Whether platforms are permanently staffed, staffed at peak times or unstaffed
h) Whether there are known risks, issues or hazards that have been reported by staff and/or passengers for certain platforms

i) Type of passengers, for example, commuters or leisure/infrequent users

j) Risk of electric shock from electrification or live train-mounted electrical equipment

k) Changes to the station, rolling stock or platform that could affect train dispatch and/or the safety of passengers and/or staff at the PTI.

G 2.1.8   The scope and content of the risk assessment is set out in section *2.2* of this document.

G 2.1.9   The arrangements for IMs and RUs to work in collaboration to complete an assessment per platform are set out in section *2.3* of this document.

2.2 Scope of assessment

2.2.1   The scope of the assessment shall consider the risk presented in the following circumstances:

a) At all times on the platform, including when there is no train in the platform and when trains are passing through the platform

b) During train arrival

c) During train boarding and alighting

d) During train dispatch and departure.

2.2.2   IMs and RUs shall determine the extent of the assessment so that it is consistent with the:

a) Planned, permitted, potential and actual usage of the platform by passengers and trains;

b) Physical characteristics of the platform, equipment and trains stopping and passing through the platform; and

c) IMs' and RUs' spheres of operational and commercial control, including legal and contractual obligations.

Rationale

G 2.2.3   Hazardous events at the PTI can occur:

a) At all times on the platform, for example, when the platform is empty of moving vehicles or when moving vehicles are passing through the platform;

b) Where there are moving vehicles, entering, stopped at and departing from the platform; and

c) Where there is the presence of electrification or live train-mounted electrical equipment.

G 2.2.4   The type of hazardous event and potential severity of these events varies from location to location and during train arrival, boarding and alighting, dispatch and departure and at all times on the platform. These items represent the critical areas of risk within the parameters of the PTI.

G 2.2.5   Moving vehicles passing through the platform create aerodynamic effects. A risk assessment informs the identification and implementation of measures to mitigate

this risk. RIS-7016-INS provides information regarding when aerodynamic effects are considered.

Guidance

G 2.2.6   The assessment includes but is not limited to:

a) The design and operation of the station, including the provision of information

b) The layout, design and management of the platform as well as provision, location and design of platform-based dispatch equipment. This includes the location of dispatch staff

c) Passenger and staff behaviour, including objects carried above head height which could reduce electrical clearances. This includes equipment (for example, dispatch bats/flags) and/or handsignals to support dispatch

d) The characteristics of the rolling stock calling at and passing through the platform. This includes on-board equipment to support dispatch of trains stopping at the platform and live train-mounted equipment, as well as how characteristics of the rolling stock can affect the location of dispatch staff

e) Operational and environmental conditions, for example dwell time, crowding and weather.

G 2.2.7   Appendix *B* describes these factors in detail along with associated considerations and guidance.

G 2.2.8   Each factor can be considered in terms of the effect it has on the likelihood and severity of hazardous events occurring during train arrival, boarding and alighting, dispatch, departure at all times on the platform.

G 2.2.9   The relationship between these factors may also be considered in terms of how they combine to influence the likelihood and severity of hazardous events, for example:

a) Time of day;
b) Passenger behaviour; or
c) Influence of the layout of the platform on the ability of staff to undertake train dispatch duties correctly.

G 2.2.10   Perturbed, degraded and emergency situations also influence the likelihood and severity of hazardous events occurring and can be considered within the assessment.

G 2.2.11   Rolling stock includes, but is not limited to:

a) Passenger and freight trains
b) On-track machines and engineering trains
c) Trains that start or terminate at the platform
d) Trains that couple/uncouple at the platform
e) Empty coaching stock
f) Parcel trains
g) Heritage and charter trains.

G 2.2.12   IMs and RUs may use the factors listed in section *2.1* of this document to help determine the extent of the assessment. These factors can also inform the risk assessment as they can affect the likelihood and severity of hazardous events.

G 2.2.13   The RSSB PTI Risk Assessment Tool can be used to carry out the assessment, allowing users to undertake an assessment by platform and per train type stopping at the platform. Additional factors not contained in the tool can also be considered, for example those relating to electrical safety, staff error and injury, permissive working and degraded working. See Appendix *B*.

G 2.2.14   If IMs and/or RUs do not wish to use the tool, they can create their own template to undertake an assessment by platform and per train type stopping at the platform. The factors described in Appendix *B* can be used.

G 2.2.15   RIS-7016-INS sets out the risk assessment methodology to assess aerodynamic risk and identify actions to control risk. The RSSB Platform Aerodynamic Risk Assessment Tool may also be used to undertake this assessment.

G 2.2.16   The Health and Safety Executive provides guidance in relation to occupational health and safety risk assessment. This can be used to help assess the risk of injury to staff at the PTI.

G 2.2.17   The RSSB Safety Risk Model may also be used to help inform the risk assessment as it provides a quantitative representation of the potential accidents or incidents resulting from operations at the PTI.

G 2.2.18   Additional information may also be required to inform the assessment, for example, company risk register, station risk assessments, crowd control plans for the station, existing platform risk assessments, dispatch plans and relevant competence records of dispatch staff. Additional sources of information can be identified and collated before the assessment is undertaken.

G 2.2.19   Further resources relating to electrical safety are to be found from *page 95* of this document.

G 2.2.20   The RSSB PTI Risk Assessment Tool, the RSSB Platform Aerodynamic Risk Assessment Tool and the RSSB Safety Risk Model are all available on the RSSB website.

2.3   Assessment responsibilities

2.3.1   IMs and/or RUs shall:

a) Nominate and authorise representatives to undertake the assessment; and
b) Agree arrangements for managing the end-to-end assessment process.

Rationale

G 2.3.2   The *Railways and Other Guided Transport Systems (Safety) Regulations 2006*, 'regulation 22, Duty of Cooperation', requires collaboration in assessment and for procedures to be agreed for working in collaboration.

G 2.3.3   IMs and RUs bring together the competence and information about the operational context necessary to make informed assessment decisions.

Guidance

G 2.3.4   Representatives from organisations that are responsible for the following can lead the assessment:

a) Managing and operating the station and platforms under assessment

b) Operating trains that call at the platform(s) under assessment.

G 2.3.5   If the assessment has been initiated due to a proposed change, then the change proposer may wish to lead the assessment in relation to the risks associated with that specific change, if they are competent to do so.

G 2.3.6   It is good practice to include in the assessment team representatives with experience and knowledge in:

a) The station and platform

b) The trains stopping at the platform

c) The train dispatch arrangements, including equipment used for dispatch

d) Human factors, including understanding and influencing passenger and staff behaviours

e) Risk assessment and management

f) Health and safety, including trade union health and safety representatives

g) Electrical safety, for example, an electrically competent person.

G 2.3.7   Representatives from stakeholder organisations can also be included within the assessment team. Stakeholders could include the Office of Rail and Road (ORR), other operators at the station and, where applicable, the IM or RU who undertakes dispatch on behalf of the IM and/or RU carrying out the assessment.

G 2.3.8   If different from the above, the owner of assets relevant to the assessment can be part of the assessment team.

G 2.3.9   The end-to-end assessment process includes, but is not limited to:

a) Carrying out the risk assessment

b) Developing, reviewing and implementing appropriate systems of train dispatch and measures required to manage the safe behaviour of passengers at the PTI, encompassing local instructions and procedures. This includes determining:

i)   Risk reduction so far as is reasonably practicable

ii)   Governance arrangements and responsibilities for implementation

iii) Timescales and priorities.

c) Recording and storing the results of the assessment and agreed risk control measures to be implemented

d) Agreeing and implementing arrangements for monitoring and review.

2.4   Applying assessment results

2.4.1   Train dispatch processes and measures to manage the safe behaviour of passengers at the PTI shall be implemented using the findings from the risk assessment.

2.4.2   Train dispatch processes and measures to manage the safe behaviour of passengers at the PTI shall be:

a) Appropriate and proportionate to risks identified for each platform; and

b) Reduce risk to a level that is deemed reasonably practicable.

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G 2.4.3   The *Railways and Other Guided Transport Systems (Safety) Regulations 2006* requires measures to be developed and implemented to control identified risks so far as is reasonably practicable.

G 2.4.4   Train dispatch processes help mitigate the likelihood and severity of hazardous events, so far as is reasonably practicable, during train arrival, boarding and alighting, train dispatch and departure.

G 2.4.5   Measures to manage the safe behaviour of passengers at the PTI help to mitigate the likelihood and severity of hazardous events, so far as is reasonably practicable, during train arrival, boarding and alighting, train dispatch, departure and when continuously on the platform.

Guidance

G 2.4.6   Agreed risk acceptance principles and commercial considerations will help IMs and RUs to inform the development, review and implementation of these processes and measures.

G 2.4.7   IMs and RUs can determine that residual risk could be reduced further through the implementation of additional controls, such as those relating to new equipment, resourcing, infrastructure and/or rolling stock.

G 2.4.8   IMs and RUs can implement controls across platforms and/or route(s) to control generic risks identified through the assessment, for example, passenger education programmes.

G 2.4.9   The use of the risk assessment, agreed risk acceptance principles and commercial considerations help determine whether or not the costs of control(s) are disproportionate to the safety benefits.

G 2.4.10   It is good practice to consider the extent to which proposed controls may introduce risk not relating to the PTI and the impact this could have on proposed safety benefits.

G 2.4.11   Risk acceptance principles are set out in the *Common Safety Method on Risk Evaluation and Assessment* (CSM RA) and RSSB's *Taking Safe Decisions*.

G 2.4.12   Where applicable, IMs and RUs work in collaboration to develop, review and implement controls. For example, an IM may liaise with RUs whose trains stop at its stations, so that due consideration is given to the formation of trains and the likely position of on-board staff involved during the train dispatch process.

G 2.4.13   The development, review and implementation of governance arrangements, including accountabilities and responsibilities for implementation between IMs and RUs, are to be within:

   a)   The known and planned limits of the operational context of the IMs and RUs; and

   b)   The sphere of operational and commercial control of the IMs and RUs, including legal and contractual obligations.

G 2.4.14   To help inform the implementation of controls, IMs and RUs determine:

a) Agreed actions to control risk, so far as is reasonably practicable, that are appropriate, proportionate, specific, measurable, achievable and realistic

b) Priority levels, costs and any business case requirements

c) Project team(s) responsible for developing, reviewing and implementing controls

d) The method(s) for developing, reviewing and implementing controls, which may include development and testing, as well as amendments or additions to competence management arrangements, procedures, local instructions, resourcing and equipment

e) Process for engagement and consultation, for example trade union health and safety representatives. This includes providing suitable and timely communications to staff in advance of implementation

f) Timescales and milestones so that progress can be monitored and close out dates agreed.

G 2.4.15   Operational requirements and associated guidance to develop, review and implement train dispatch processes are provided in Part 3 as well as:

a) Appendix *C*

b) Appendix *D*

c) Appendix *E*

d) Appendix *M*

G 2.4.16   Guidance to inform the development, review and implementation of measures to manage the safe behaviour of passengers at the PTI is provided in:

a) Appendix *F*

b) Appendix *H*

c) Appendix *J*

d) RIS-7016-INS contains information on the design and position of platform edge markings, yellow lines and tactile paving.

e) Appendix *L*

f) Appendix *M*

G 2.4.17   From *page 95* of this document, there are standards and documents listed that can be consulted to inform the development and implementation of controls relating to dispatch equipment, platform and station infrastructure and rolling stock design (for example doors, in-cab controls).

2.5   Assessment Records

2.5.1   The assessment records shall, as a minimum, include:

a) Reason(s) for undertaking the assessment

b) The assessment team

c) Station and platform profile

d) The results of the assessment

e) The agreed actions to be taken.

Rationale

G 2.5.2   These items provide a historical record of the assessment process and the decisions made that can be referred to in future assessments.

G 2.5.3   The items provide the rationale for risk control measures to be implemented and demonstrate how decisions were made.

Guidance

G 2.5.4   Information relevant to 'reason for undertaking the assessment' encompasses the reason why the risk assessment was initiated.

G 2.5.5   Information relevant to 'the assessment team' includes details of the representatives who undertook the assessment, representatives from stakeholder organisations, if applicable, and the agreed responsibilities for managing the end-to-end assessment process.

G 2.5.6   Information relevant to 'station and platform profile' includes, but is not limited to:

a) Name of the station
b) Platform under assessment
c) Date and time of the assessment
d) Date of last assessment
e) Station footfall
f) Changes to the station, rolling stock or platform since the last assessment (if not addressed under 'reason for undertaking the assessment')
g) Staff concerns and/or customer complaints relevant to the assessment
h) Recorded safety and/or operational incidents relevant to the assessment (if not addressed under 'reason(s) for undertaking the assessment')
i) Type and formation of train(s) calling at the platform
j) Mode of dispatch for each train calling at the platform
k) Type of station and platform, for example whether the station is a terminus station; whether the platform is a through platform, and if so unidirectional or bi-directional
l) Type and speed of non-stopping trains passing on line(s) adjacent to the platform.

G 2.5.7   Information relevant to 'the results of the assessment' includes, but is not limited to:

a) A description of risks assessed
b) The evaluation of risks, including consideration of contributory factors, effectiveness of existing control measures and explanation for the evaluation result
c) Additional notes and photos, if applicable, captured by the assessor(s) to inform the assessment.

G 2.5.8   Information relevant to 'agreed actions to be taken' encompasses all agreed actions in relation to the development, review and implementation of risk controls.

G 2.5.9   This information includes dispatch plans and local instructions specifying, for example, staff operating positions and describing the arrangements necessary to

control the risks associated with dispatching trains from the platform concerned. Photographs and diagrams can aid understanding.

G 2.5.10   Decisions where it has been agreed that no action is to be taken, are recorded, along with evidence to justify the decision.

G 2.5.11   An issues log can also be maintained and outstanding items tracked until it is agreed by those involved that they have been resolved.

G 2.5.12   Ownership of the record(s) can be recorded including:

   a) The individual, team or role who has responsibility for owning and storing the record
   b) The method and location for storing the record
   c) The responsibilities and methods for communicating the record
   d) The date when the assessment, train dispatch processes and measures to manage the safe behaviour of passengers at the PTI will be reviewed. A calendar-based schedule can be implemented based on the risk profile of the station and platform(s).

2.6   Requirement to monitor

2.6.1   Arrangements shall be put in place to monitor train dispatch processes and measures to manage the safe behaviour of passengers at the PTI.

Rationale

G 2.6.2   The *Railways and Other Guided Transport Systems (Safety) Regulations 2006* requires monitoring arrangements to be developed and implemented.

G 2.6.3   Monitoring arrangements help determine the extent to which train dispatch processes and measures to manage the safe behaviour of passengers at the PTI mitigate, as planned, the likelihood and severity of hazardous events, so far as is reasonably practicable. This includes the extent to which:

   a) These processes and measures can be and are being implemented by staff, including resourcing required versus resourcing applied;
   b) Implementation of these processes and measures introduces new risks that need to be assessed and controlled; and
   c) Common themes have been identified across platforms and stations to inform subsequent action plans.

Guidance

G 2.6.4   Examples of the sources of information that can be used for monitoring purposes include, but are not limited to:

   a) Live monitoring, for example, through planned and unplanned inspections, management supervision, safety tours, face-to-face discussions, unobtrusive observations and reviews of CCTV
   b) Audits of stations, platform management and rolling stock

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    c) Safety and operational performance measures relating to platform safety and/or the dispatch process. These include activity and outcome based measures

    d) Reported accidents, incidents, near misses, issues, hazards and concerns by staff and passengers

    e) PTI incident data recorded in the RSSB safety management intelligence system (SMIS) and reported in the RSSB annual safety performance reports

    f) Rail Accident and Investigation Branch (RAIB) investigations into accidents associated with the PTI that are relevant to the operational context of the IMs and RUs

    g) Competence management records of dispatch staff, platform staff and relevant members of station staff and train crew

    h) Results from risk assessments and/or monitoring activity of stations and platforms with similar characteristics and risks to those being monitored

    i) Publication of industry guidance and research, for example by RSSB, Rail Delivery Group (RDG), trade unions or the Rail Research UK Association (RRUKA).

G 2.6.5   Analysis of the results of monitoring identifies areas for improvement across platforms and stations, including if residual risk could be reduced further through the implementation of additional controls, such as those relating to new equipment, resourcing, infrastructure and/or rolling stock.

G 2.6.6   The analysis of monitoring results informs, so far as is reasonably practicable, action plan(s) and business cases (if applicable) to address improvement areas.

G 2.6.7   IMs and RUs can share monitoring results and analysis to identify common areas for improvement and arrangements to work in collaboration.

G 2.6.8   Involving stakeholders such as trade union health and safety representatives in developing action plans can help to evaluate their effectiveness.

G 2.6.9   Monitoring arrangements include, as a minimum:

    a) Responsibilities and accountabilities for monitoring, including involvement of stakeholders

    b) Priorities for monitoring, for example based on safety risk

    c) The monitoring activities to be undertaken, how these will be undertaken and the schedule for monitoring

    d) The results and analysis of monitoring, including decisions made and subsequent action plans

    e) The storage, communication, implementation and evaluation of results, analysis, decisions and actions taken.

2.7   Requirement to review

2.7.1   The train dispatch processes and measures to manage the safe behaviour of passengers at the PTI shall be reviewed when:

    a) A change is proposed;

    b) An incident has occurred;

    c) Monitoring arrangements indicate a review is required; or

d) The scheduled review date set by the IM and/or RU is near expiration.

Rationale

G 2.7.2   The *Railways and Other Guided Transport Systems (Safety) Regulations 2006* requires risk associated with change to be reviewed.

G 2.7.3   The CSM RA requires any technical, operational or organisational change to be reviewed to determine if it is 'significant'. If a change is deemed 'significant', as defined in the CSM RA and through this review, then the CSM RA process is to be applied and recorded.

G 2.7.4   Incidents and monitoring arrangements indicate that train dispatch processes and/or measures to manage the safe behaviour of passengers at the PTI may not be mitigating, as planned, the likelihood and severity of hazardous events, so far as is reasonably practicable.

G 2.7.5   IMs and RUs set review dates for assessments, train dispatch processes and measures to manage the safe behaviour of passengers at the PTI.

G 2.7.6   The review helps determine:

a) If the current assessment, train dispatch processes and measures to manage the safe behaviour of passengers at the PTI remain valid;
b) If existing train dispatch processes and/or measures to manage the safe behaviour of passengers at the PTI require changing to mitigate, as planned, the likelihood and severity of hazardous events, so far as is reasonably practicable;
c) If additional controls are required; and
d) The extent of assessment required to identify and/or inform changes to existing controls and/or development and implementation of additional controls.

Guidance

G 2.7.7   Changes can be planned, unplanned, permanent or temporary. Examples of changes that can initiate a review include, but are not limited to:

a) Introduction of new trains or changes to existing trains
b) Variations to train formations
c) Changes to staffing levels and/or staffing roles, on and off the train, including introduction of new staff
d) Changes to dispatch arrangements, for example, modes of dispatch, position of staff, equipment, and where an alternative train dispatch procedure is introduced at short notice (for example, due to staff illness)
e) Changes to legislation, policies and/or procedures and industry good practice
f) Increase to staff workloads and/or duties that could have a detrimental effect on their ability to carry out dispatch tasks and/or manage passenger safety
g) Organisational changes, including change in franchise
h) Alterations to signalling equipment
i) Alterations (temporary and permanent) to stations, platform and/or track
j) Alterations to CCTV equipment

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k) Changes to the timetable that could increase risk at the PTI, for example permanent or temporary cancellation of a service that increases crowding on other services

l) Changes to operating conditions and/or the service provided

m) Temporary changes such as the installation of temporary structures or repair and renewal work

n) Special events

o) Increased passenger numbers over a period of time

p) Change in electrical clearance available due to change of train type(s), changes to the electrification systems, platform heights and rail cant

q) Speed increases of non-stopping passenger or freight services passing adjacent to the platform.

G 2.7.8   Incidents that can initiate a review are set out in Appendix *A*.

G 2.7.9   Where the current assessment, train dispatch processes and measures to manage the safe behaviour of passengers at the PTI remain valid, a new review date is agreed and recorded, along with the evidence to justify the decision.

G 2.7.10   Where an assessment is required, the extent of the assessment is determined so that it is appropriate and proportionate to the proposed changes to existing controls and/or development and implementation of additional controls.

G 2.7.11   The assessment can be initiated by IMs, RUs or the change proposer.

G 2.7.12   It is good practice for the arrangements for reviews to include as a minimum:

a) Triggers for review

b) Responsibilities and accountabilities for review

c) The review team

d) How the review will be undertaken, the review schedule, and and who will be consulted, for example, relevant staff and trade union members

e) The results and analysis of the review, as well as decisions made and subsequent actions taken

f) The storage, communication, implementation and evaluation of results, analysis, decisions and actions.

Part 3   Train Dispatch

3.1   Introduction

Guidance

G 3.1.1   Specific requirements and guidance relating to dispatch equipment can be found in:

   a) RIS-8060-CCS *Engineering Requirements for Dispatch of Trains from Platforms*
   b) RIS-2703-RST *Driver Controlled Operation (DCO) On-Train Camera/Monitors (OTCM)*
   c) NR L2 TEL 31111 *Design and Installation Requirements for Driver Only Operation (Passenger)*.

G 3.1.2   Rules for completing dispatch tasks can be found in: GERT8000 Rule Book, Module SS1, *Station Duties and Train Dispatch*.

G 3.1.3   Risks associated with platforms within a route and the factors to consider in terms of a driver's or guard's knowledge of these risks can be found in RIS-3702-TOM *Management of Route Knowledge*.

G 3.1.4   Specific principles and considerations for the different methods of dispatch are set out in Appendices *C*, *D* and *E*.

3.2   The dispatch corridor

3.2.1   Staff involved in the train dispatch process shall be provided with a view that enables them to observe the train dispatch corridor to:

   a) Monitor passenger behaviour on the platform. The types of behaviours that increase risk during dispatch can be found in Appendix *M*;
   b) Determine nothing and/or no-one has fallen onto the track or is trapped by the train doors;
   c) Where practicable, monitor all train doors during the door closing process; and
   d) Determine that all doors are securely closed and the train can safely depart from the platform.

Rationale

G 3.2.2   This view enables staff involved in the train dispatch process to react to any emerging risks that may occur while the train is arriving, stationary or departing the platform.

G 3.2.3   The ability of staff involved in the train dispatch process to monitor passenger behaviour enables them to communicate with anyone that is carrying out an unsafe act and to stop the train dispatch process until it is safe to allow the train to depart the platform.

G 3.2.4   With all staff involved in the train dispatch process being able to observe if anyone or anything has fallen on to the track, the train can be prevented from moving until the object or person has been removed from the track.

G 3.2.5   The ability of all staff involved in the train dispatch process to view all the train doors which they are responsible for observing during the door closing process, allows staff

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to identify if anything or anyone has become trapped in the train doors. If anything or anyone does become trapped within the train doors, this view would allow staff involved in train dispatch to stop the train dispatch process and only restart the process when it is safe to do so. This view also enables staff to ensure that all train doors are closed prior to the train departing the platform.

Guidance

G 3.2.6   The view illustrated in Figure *3* consists of:

a) The full length of the train
b) The length of the platform accommodated by the train
c) The gap between the train and the platform
d) At least the height of the doors.

Note:

Minimum distances from the platform edge are only specified as part of the technical requirements for platform-mounted monitors and on-train camera/monitor systems.

Network Rail standard NR L2 TEL 31111 specifies the minimum as 1000 mm from the platform edge for platform-mounted cameras.

RIS-2703-RST specifies the minimum as 1500 mm for vehicle-mounted cameras parallel to passenger bodyside entrances and at least 1000 mm, from the bodyside of the train elsewhere.
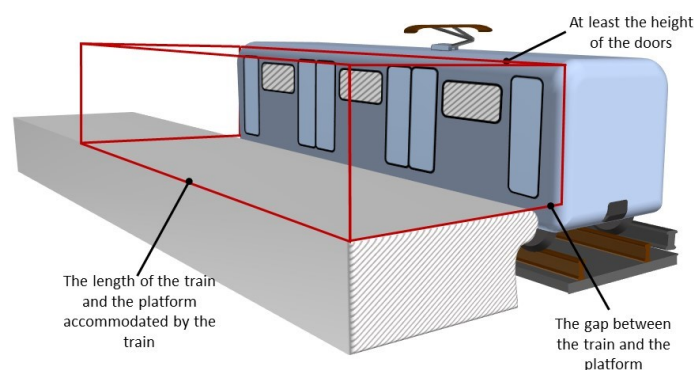

Figure 3: The train dispatch corridor

G 3.2.7   Staff responsible for train dispatch are provided with a view of all the train doors which they are responsible for observing during the door closing process.

G 3.2.8   The view is achieved throughout the dispatch procedure, during typical day and night and weather-related visibility conditions and regardless of whether the train is

dispatched using cameras/monitors, mirrors or line of sight. Minimum requirements for the facilities used can be found in RIS-8060-CCS.

G 3.2.9   The risk assessment informs the line of sight required in all lighting conditions to complete the train safety check. If the risk assessment identifies issues with achieving line of sight in all lighting conditions, consideration is given to:

a) The suitability of the dispatch mode for the platform and/or rolling stock in use;

b) The provision of monitors to assist with achieving a better view;

c) Number of staff. For example, there may be a need to increase the number of staff involved in the dispatch process, especially if a line of sight is not achievable or the dispatch corridor has blind spots due to curvature or platform furniture; and

d) Position of staff responsible for the train safety check. For example, the guard or member of platform staff may need to move position to complete the train safety check.

G 3.2.10   Where monitors/cameras are used, they enable staff throughout the dispatch process to visually detect persons or objects that are anywhere within the train dispatch corridor, in the typical day and night visibility conditions. To help achieve this, staff are provided with:

a) An optimal number of clear images (RSSB research project T535 *Assessing the impact of increased numbers of CCTV images on driver only operation of trains* suggests a maximum of 12);

b) Suitable platform lighting and positioned monitors/cameras;

c) Sufficient time (including platform dwell time);

d) Zero or a manageable level of distraction; and

e) Training, including non-technical skills, to reliably scan, detect and act.

G 3.2.11   To inform this decision, consideration is given to whether the view will:

a) Increase the risk of distraction of staff involved in the train dispatch process, for example, by viewing a wider area that may include busy station entrances; and

b) Impact on the speed and accuracy in which the train dispatch process can be completed.

3.3   Mode of train dispatch

3.3.1   The mode of train dispatch used on each individual platform and for each type of rolling stock shall reflect the findings of the risk assessment.

Rationale

G 3.3.2   There are various modes of train dispatch used within the rail industry. In deciding on the most effective mode to be used at any given platform, consideration of the layout of the platform and the variation of the types of rolling stock that stops at the platform will inform the most effective mode of train dispatch to be introduced.

G 3.3.3   The train dispatch process adopted at each platform can vary depending on the type of rolling stock and the formation of the train. The mode of working will also influence the train dispatch process, for example, where services already operate under driver

controlled operation (DCO) but the services are to be increased from 8-car to 12-car trains. The provision of additional measures may be needed to carry out the train safety check, for example an additional member of staff and additional equipment such as look back mirrors

Guidance

G 3.3.4   Where practicable, the implementation of the same technology along an entire route can minimise costs, the workload on train dispatch staff and the potential for human error that can arise from dispatch staff performing a variety of dispatch modes.

G 3.3.5   The use of RA indicators provides mitigation against start against signal (SAS) signals passed at danger (SPADs). Factors to consider when deciding on whether to use a RA indicator are detailed in *G 3.3.8* of this document.

G 3.3.6   Information relevant to the mode of dispatch for each platform encompasses a description of the dispatch mode(s) and associated equipment that will be deployed for each platform, based on the risk assessment. This includes:

a)   The modes and associated equipment to be deployed during normal situations, for different rolling stock, including infrequent services stopping at the platform and the dispatch of empty coaching stock; and

b)   Alternative modes of train dispatch permissible for use where the normal mode cannot be used. For example, situations where platform starting signals cannot be cleared, where the train is stopped at a platform at which it is not scheduled to stop, where a movement authority cannot be issued and drivers have to receive the signallers permission to proceed, when there is a failure of the train dispatch equipment or during emergency situations.

G 3.3.7   When deciding on train dispatch modes and associated equipment, the following factors will affect which mode is used:

a)   The length of the platform

b)   The formation of the trains that stop at the platform

c)   The curvature of the platform

d)   Any platform furniture or structures that may interfere with the view of the train dispatch corridor

e)   The ability of those involved in train dispatch to view the external hazard lights on the entire length of the train

f)   The ability of all staff involved in the train dispatch procedure to observe all train doors during the door closing process

g)   The ability of train dispatch staff to watch the entire train until it has fully departed the platform

h)   The location of the existing DCO equipment on the platform (if provided)

i)   The location of the starting signal, banner repeater or OFF indicator (where provided) and the sighting of this signal throughout the train dispatch procedure

j)   The positioning of the guard on the train (where provided)

k)   The potential use of alternative modes of train dispatch at the platform if the agreed modes become ineffective or unavailable

l) The ability of staff involved in the train dispatch process to carry out their duties without undue physical or mental exertion

m) The effect that environmental issues may have on the equipment, for example, sunlight on a platform mirror, or ambient noise that may lessen the effects of audible signals

n) The diversity of equipment required to be used at a single platform for different types of rolling stock, for example, DCO look-back for four-car trains but 'close doors' (CD) and 'right away' (RA) indicators for 12-car trains

o) Crowding on the platform which may affect the efficiency of the equipment to be used, for example at busy periods, passenger could obscure the view

p) The position of the electrification system and live train-mounted electrical equipment the risks posed to staff, passengers and members of the public. Guidance can be found in GLGN1620.

G 3.3.8   If visual communications such as handsignals, CD/RA indicators are used to dispatch trains then the following factors that affect the ability of staff to see the communication are assessed as part of the risk assessment:

a) Position of members of staff in relation to the communication to be seen

b) Obscuration of the starting signal (where provided) prior to commencing the train dispatch process

c) Glare from the sun or other light sources

d) Obscuration of the communication, for example, by station furniture or people on the platform

e) Ease with which the communication can be distinguished from the background

f) Other safety-critical tasks that are required at a similar time to giving or receiving the communication

g) The development of new dispatch equipment or processes, for example, illuminated dispatch bat or white lights which can be more visible to the driver or guard

h) Whether the physical location of switches/buttons to operate 'train ready to start' (TRTS)/CD/RA equipment reduces the dispatcher's ability to see the train dispatch corridor.

G 3.3.9   The risk of TRTS/CD/RA equipment being operated by unauthorised persons can be reduced if the equipment is operated by a key or protected by other security arrangements.

3.4   The dispatch plan

3.4.1   A train dispatch plan shall be developed.

Rationale

G 3.4.2   A dispatch plan helps to control risks or potential hazards identified during the risk assessment and enables all staff involved in the train dispatch process to dispatch trains and manage PTI risk in a consistent and robust manner on a platform-by-platform basis.

Guidance

G 3.4.3   The dispatch plan is created using GERT8000 Rule Book, Module SS1 and includes:

a) The method(s) of dispatch for each platform including dispatching empty coaching stock (ECS)

b) Instructions for undertaking each method of dispatch, including pictorial representation of the platform, positions for dispatch, risk areas and location of relevant equipment

c) Roles and responsibilities of those involved in dispatch

d) The communication process for those involved in dispatch

e) Procedures for train dispatch during degraded operations and emergencies. This includes situations when a train stops at a platform at which it is not scheduled to stop.

G 3.4.4   Specific emphasis within the dispatch plan is placed on monitoring during the door close process and during train departure. Such processes are designed to mitigate the risk from staff involved in the train dispatch process failing to observe a person falling between the platform and the train, a person trapped in the doors or any other potentially dangerous occurrences taking place.

G 3.4.5   Consideration is given to the level of monitoring required during train dispatch, for example:

a) Additional monitoring by other members of staff using CCTV monitors away from the train or platform (for example, in an office at the station); or

b) Platform staff positioning themselves on the platform before the train arrives so they can observe the train and have overall awareness of any developing hazards or PTI risks.

G 3.4.6   The view of the platform starting signal, banner repeater or OFF indicator (where provided), is considered when determining the position of members of staff involved in the train dispatch process to avoid the risk of the train being dispatched against a signal at danger.

G 3.4.7   Dispatch plans provide clear and easy-to-understand instructions so that staff can undertake each dispatch mode. Instructions can include:

a) Monitoring the movement and behaviour of passengers and managing distractions;

b) Identifying if the train has stopped in the incorrect location within the platform (overrun or stop short), and what action to take;

c) Managing the train dispatch corridor, especially in those circumstances where there is not a clear gap between passengers and the train and/or when crowding affects the view of the train dispatch corridor;

d) Responding to emerging risks, managing interruptions and requirements for re-starting the dispatch process;

e) Performing dispatch tasks. This can include the suitable position(s) to perform the tasks as well as techniques to use, for example, risk-triggered commentary, point and call and/or Z scanning. This can also emphasise the requirement to complete a thorough visual check of the doors and not to rely on interlock lights or external hazard lights/body-side indicator lights as an indicator that it is safe to depart;

    f) Responding to a PTI incident, including methods of informing the driver and stopping the train if possible;

    g) Modes of train dispatch to be adopted during degraded operations;

    h) When passengers are to be treated as being potentially trapped in train doors and the action that is to be taken;

    i) Methods of determining that slam doors are correctly closed before the train starts away from the platform;

    j) PTI risks on the platforms, what is considered dangerous/unsafe passenger behaviour on the platform and what actions staff are to take, e.g. stop the train dispatch process, intervene and then re-start the process or ideally intervene before starting the dispatch process; and

    k) How staff can assist passengers, for example, those with impairments, luggage or small children, and when dispatch tasks take priority. When assisting passengers, care is taken by staff in terms of adopting safe manual handling techniques and not placing themselves in a position of risk.

G 3.4.8   Dispatch plans also detail how information will be communicated between different members of staff at each stage of the train dispatch process and when contingency measures are in place. This includes:

    a) Purpose

    b) Meaning

    c) Permitted format of communication signals

    d) Action to take if the communication is not clear

    e) Contingency measures in the event that any of the forms of communication fail or become ineffective.

G 3.4.9   If there is potential for confusion or misinterpretation, audible signals (for example, those used to inform passengers that train doors are about to close) can be distinguished by:

    a) Using different types of sounds (for example, voice versus whistle);

    b) Having different uniform pitches from each other (for example, a low-pitched sound versus a high-pitched sound);

    c) Using a pitch change within a sound; or

    d) Varying the temporal pattern, (for example, a long slow blast versus two short blasts).

G 3.4.10   All elements of train dispatch are communicated and easily accessible to all members of staff to which they apply.

G 3.4.11   Considerations concerning train dispatch during degraded situations can be found in section *3.6* of this document.

3.5   Training and assessment

3.5.1   All staff involved in the train dispatch process shall be trained and assessed on a regular basis in line with company competence management systems, including the following:

a) The staff's understanding of the train dispatch corridor
b) The modes of train dispatch for each location
c) The dispatch plans
d) Procedures for degraded dispatch
e) Variations of rolling stock and train formation
f) Any identified risks.

3.5.2 Records of all training and assessment shall be kept and maintained in a robust manner in line with company competency management systems.

Rationale

G 3.5.3 The *Health and Safety at Work etc Act 1974* requires staff to be competent to undertake any activities that they will complete during their day-to-day duties. A suitably designed training and assessment plan for each member of staff involved in train dispatch will help with this.

G 3.5.4 If staff involved in the train dispatch process are adequately trained, competent and confident in undertaking the train dispatch process for the platforms at which they work, the risk of incidents or accidents can be reduced. The understanding of degraded dispatch modes also enables these modes to be introduced swiftly if they are required.

Guidance

G 3.5.5 Training and assessment on degraded working can include:

a) How to deal with a train stopping incorrectly within a station, whether stopping short of, or overrunning, the designated stopping point;
b) The ability and understanding of the actions to take in the event that a train does not stop in the correct position within the platform; and
c) Managing different types of incidents correctly to swiftly reduce the risk of passengers falling on to the track, activating passenger alarms/emergency egress devices or self-evacuating.

G 3.5.6 The competency of staff involved in train dispatch is such that they can competently and consistently carry out their dispatch duties to the standard expected by the duty holder during normal, degraded and emergency situations.

G 3.5.7 Following any changes to the train dispatch process, additional training will enable all members of staff to maintain their competency in the area in which they work. Additional assessment or a change in assessment may also be needed. These can be identified through a training needs analysis and as an output from the risk assessment process for the change as described in section *2.7* of this document.

G 3.5.8 Additional guidance relating to staff training can be found in Appendix *M*.

3.6 Degraded dispatch

3.6.1 Any train dispatch modes that are to be introduced at short notice (for example, due to staff illness or equipment failure) shall form part of the risk assessment.

Rationale

G 3.6.2   Having an effective method of working during degraded situations allows a speedy response to equipment failure, staff illness or changes in train formations.

G 3.6.3   The modes to be adopted during degraded operations form part of the risk assessment so that they are determined safe, fit for purpose and clear to all staff.

Guidance

G 3.6.4   The modes of train dispatch used during degraded situations could be:

a) The use of a back-up mode of train dispatch (where available)
b) Driver look-back (the driver leaving the cab if necessary)
c) The driver closing each door individually
d) Assistance from platform staff (where available)
e) The guard (where provided) moving to a different position within the train
f) Routing the train to an alternative platform where dispatch equipment is working correctly
g) The train not stopping at the affected station (where no alternative platform is available).

G 3.6.5   When deciding on an alternative mode of train dispatch during degraded situations, the most suitable mode can be identified by considering:

a) The suitability of the contingency measure at each affected station
b) The time taken to carry out the alternative method of train dispatch, dependent on:

   i)   The train formation
   ii)   Curvature of the platforms
   iii)   Time of day e.g. peak or off peak, day or night, special events taking place
   iv)   Station footfall

c) The number of affected station stops (if on-train equipment has failed)
d) The frequency of exposure, that is, the number of trains affected by the fault (if platform equipment has failed)
e) The availability of competent staff to assist in train dispatch
f) The effects of multiple look-back dispatches on the potential for musculoskeletal injury
g) The impact of any delays caused by longer dwell times, for example, due to crowding on platforms and the knock-on risk from assaults
h) The impact of cancelling the train or not stopping the train at a booked station
i) The distance to an alternative platform, for example, if there is a greater distance for passengers to traverse when moving around the station, the risk of slips, trips and falls could be increased.

G 3.6.6   Effective maintenance procedures are put in place so that all dispatch equipment is operating at its optimal level. By introducing a robust procedure, the effects of damage and vandalism can also be identified and rectified quickly, thereby reducing the likelihood of going into degraded dispatch mode.

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G 3.6.7   Guidance concerning alternative modes of train dispatch that might be introduced during degraded operations can be found in Appendices *C*, *D* and *E*.

G 3.6.8   Additional factors to consider for degraded dispatch can be found in Appendix *B*.

Appendices

Appendix A   Hazardous Events

The content of this appendix is provided for guidance only.

A.1   Hazardous events may occur at the PTI as set out in Table *1*. This list has been generated from:

a) SMIS
b) The PTI strategy technical report
c) RSSB (2017) *Risk associated with train dispatch. Consolidation of current knowledge.*

A.2   A PTI incident involves the person wholly or partially crossing the boundary between the platform and the track, or the platform and the train (if present). Such incidents include:

a) People coming into contact with trains when on the platform
b) Person becoming trapped in the train door
c) Person falling between the train and the platform
d) Tripping, slipping or falling when traversing the PTI
e) Falling to the track and being struck by a train
f) Falling to the track and being electrocuted.

A.3   The list presented in this appendix is not exhaustive. It contains hazardous events that include PTI incidents (as defined above), passenger incidents at the platform, operational incidents and workforce occupational health and safety incidents. This is because these hazardous events may occur within the defined parameters of the PTI.

A.4   Stop short and door release, wrong side door release, dispatching against a signal at danger and person on the train exterior might also be pre-cursors to other hazardous events. For example, a stop short might lead to passengers rushing to the train doors causing a passenger injury while boarding the train. The risk assessment can consider how pre-cursor events might lead to passenger and/or workforce harm and what this may mean for risk mitigation.

Hazardous events
Passenger and/or member of workforce struck by train when on platform
Passenger and/or member of workforce fall from platform (not struck or does not suffer an electric shock)
Passenger and/or member of workforce fall from platform and struck by train
Passenger and/or member of workforce fall from platform suffering electric shock
Passenger and/or member of workforce trapped in stationary train doors (boarding or alighting)
Passenger and/or member of workforce suffers electric shock from electrification or live train-mounted electrical equipment

Hazardous events
Member of workforce suffers medical implant malfunction due to electromagnetic fields present
Passenger and/or member of workforce trapped in train doors and train subsequently departs (boarding or alighting)
Passenger and/or member of workforce fall between stationary train and platform
Passenger and/or member of workforce fall between train and platform, and train subsequently departs
Passenger and/or member of workforce fall between train and platform as train arrives and/or departs
Passenger and/or member of workforce struck by train door while on platform
Passenger injury while boarding train
Passenger injury while alighting train
Passenger alighting or falling from train onto track
Passenger and/or member of workforce coming into contact with object/ infrastructure on or near the platform
Passenger and/or member of workforce slip/trip/fall or other injury while on platform
Workforce injury while helping passenger board or alight, for example, manual handling injury
Workforce and/or passenger assault at the PTI
Person on train exterior at the PTI
Workforce musculoskeletal disorders (MSD) or pain associated with PTI related activity For example, checking DCO monitors, DCO using look-back, putting down and lifting up ramps
Stop short
Stop short and door release
Wrong side door release
Dispatching against a signal at danger

Table 1: Hazardous events that can occur at the PTI

Appendix B   Assessment Factors

The content of this appendix is provided for guidance only.

B.1   This section sets out assessment items that can form the risk assessment. These have been generated from:

a) The RSSB PTI Risk Assessment Tool
b) The PTI strategy technical report
c) RSSB (2017) *Risk associated with train dispatch. Consolidation of current knowledge*
d) Ongoing research being carried out by RSSB.

B.2   This list is not exhaustive and the items have been selected as they affect the likelihood and/or severity of hazardous events. Assessing these items can help determine:

a) The factors that affect the likelihood and potential severity of hazardous events for each platform; and
b) The controls required to mitigate risk so far as is reasonably practicable.

B.3   The items are grouped as follows:

a) **Station characteristics.** These are characteristics of the station, including design, operation and provision of information that can affect the behaviour and decision-making of passengers and staff
b) **Platform layout, design and equipment**. This also includes the provision, location and design of equipment on the platform to support train dispatch
c) **Passenger characteristics and behaviours**. These are the types of passengers who use the platform and the typical behaviours they exhibit
d) **Staff behaviours.** These are the behaviours and/or characteristics of staff and the factors that can affect behaviour and decision-making
e) **Rolling stock characteristics and equipment.** These are characteristics of the rolling stock calling at and passing through the platform that can affect passenger behaviour, the management of passengers on the platform and/or the completion of dispatch duties. This includes on-board equipment to support dispatch of trains stopping at the platform and live train-mounted equipment
f) **Operational and environmental conditions**. These are conditions that can affect passenger behaviour, the management of passengers on the platform and the completion of dispatch duties, for example weather, noise, crowding, special events.

B.4   Assessment items denoted with an asterisk are currently not contained in the RSSB PTI Risk Assessment Tool. These items may be added if the IM/RU is using the tool and wishes to assess them.

Section 1: Station characteristics

B.5   These items are only assessed per station under assessment.

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Assessment item	Example considerations
Access to the platform	Are there means of preventing access to the platform (for example ticket barriers or gate line staff) to prevent people waiting on platforms? Are access routes to and between platforms quick, easy, safe and convenient to use? Are methods in place to effectively prevent late running passengers from approaching the departing train? Are platform ends fitted with anti-trespass/suicide gates?
Station assistance	Are staff present at the station to assist passengers and help influence passenger behaviour? If the station is unmanned, are there controls in place to help the driver or guard to manage the PTI during dispatch? For example: a) The ability for the driver to make announcements on the platform as well as on the train b) Consideration of additional bodyside lighting c) The provision of unaided access/egress for passengers that require special assistance.
Station information	Are customers provided with timely and clear information (visual and/or announcements) when in the station so they can find their platform and board in a timely and safe manner? Does the location of information affect the behaviour of passengers? When is train departure information removed from customer service screens? For example, two minutes before departure? 30 seconds? Not at all?
Station wayfinding	Does wayfinding in the station provide passengers with easy to understand directions so they can find their platform and board in a timely and safe manner?
Station closure	Is there a station closure procedure? And can staff implement it? Are clear and well-positioned instructions explaining how to exit the station quickly and safely provided to passengers?

Assessment item	Example considerations
Maintenance and renewal work	Is station maintenance and renewal work assessed for potential impact on risk at the PTI?
	Could storage of machinery for maintenance and renewal work affect passenger behaviour and/or the completion of dispatch duties, for example, through visual obstruction?
	Is suitable mitigation in place before the work begins to manage these risks?
Level crossings	Are there level crossings at the end of platforms that will affect the train dispatch process?
	For example, 'barrow crossings' where passengers may run across at the last minute to catch the train.
	Are there time limits associated with level crossing equipment? Such as the white flashing light at an automatic barrier crossing locally monitored (ABCL)?
Other*	Do other features within the station affect train dispatch or measures to manage passenger safety?

Table 2: PTI risk assessment factors - station characteristics

Section 2: Platform layout, design and equipment

B.6   These items can be used to assess each platform.

Assessment item	Example considerations
Position of starting signals and other signals controlling train movements	Is there a risk of read across on signals, due to close proximity of the signals?
	Is the view of fixed signals obscured? For example, by platform curvature, other fixed structures or the train being in the platform?
	This information may be contained in the signal sighting assessment.
Position of electrification system*	Are the safety distances described in GERT8000-HB16 and GERT8000-HB17 being maintained?
	Have activities been risk assessed to determine which are reasonable to be carried out with the electrification system live and what suitable precautions are required to manage the risk to a tolerable level?

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Assessment item	Example considerations
Platform length and width	Is the minimum usable platform width sufficient in relation to line speed? See RIS-7016-INS.
	Is there sufficient space on the platform for all waiting and movement along the platform to take place behind the yellow line?
	Does the space on the platform affect passenger movement and the view of the dispatch corridor?
	Is the platform capable of fully accommodating all train formations?
	Are train stopping positions clearly marked?
	What controls exist for managing risk related to coaches not accommodated within the platform?
Pinch points	Does the position of fixed or temporary structures create any pinch points?
Security	What arrangements are in place to manage security on the platform? For example: a) Security of platform ends b) British Transport Police (BTP) present on the platform c) CCTV and is it connected to the BTP?
Platform curvature and slope	Does platform curvature impinge upon the dispatch corridor?
	Does the platform slope? If so, does this pose a risk to people with pushchairs, and/or users of wheelchairs and/or mobility scooters?
	GN022 RDG *Safety Management of Pushchairs and Wheelchairs on Station Platforms* provides advice on identifying and mitigating the risk of wheeled vehicles rolling away if left unattended on the platform.
Platform surface	Does the platform surface create a risk of slips, trips or falls?
Platform lighting	Does lighting on the platform affect the boarding and alighting of passengers and/or completion of dispatch tasks?
	Is the platform fully covered by a canopy and does this affect lighting?

Assessment item	Example considerations
Platform structures and furniture	Does station furniture (including ticket machines), booking offices, commercial structures and/or fixed structures impinge upon the dispatch corridor or influence passenger movement on the platform? Is the risk of late running passengers emerging from station outlets considered in terms of the line of sight of staff involved in the train dispatch process?
Platform markings and signage	Is the platform edge clearly marked for all passengers? Where required, are warning signs for hazards provided that are relevant, well-maintained and positioned so people can see them? Is there a yellow line on the platform to delineate the platform edge area where passengers are not to walk or wait? Is there a tactile warning provided 760mm from the platform edge? Are the platform markings in good condition? Are all of the platform markings necessary for operational or safety purposes and working effectively for the purpose they are intended? Requirements for platform edge markings, yellow lines and tactile paving are contained in RIS-7016-INS.
Platform announcements	Do staff quickly and effectively deliver warnings and instructions to passengers on the platform? Are there help points on the platform to support passenger decisions? Do staff respond to requests for help in a timely manner? Does the coverage of platform announcements adequately cover the passenger dwelling areas of the platform?
Platform monitoring	To what extent is the full length and width of the platform monitored by staff or via CCTV?
Retrieving objects dropped on the track	What arrangements are in place to manage the retrieval of dropped objects?

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Assessment item	Example considerations
Island platform (if applicable)*	Do trains require simultaneous attention on either side on island platforms? How is the dispatch of simultaneous trains managed by staff? What impact could the above have on staff distraction, visual attention and workload?
Position and clarity of platform monitors or mirrors	Can drivers clearly see dispatch monitors or mirrors from the designated stopping position? Do the monitors or mirrors provide a clear view of the entire dispatch corridor? Does the quantity, quality and size of platform monitors/mirrors affect the performance of dispatch tasks? Can a test target object be reliably detected in all lighting conditions using the monitors or mirrors? See RIS-8060-CCS.
Platform-based indicators	Are CD/RA indicators clearly legible for the dispatcher and the driver? Can the dispatcher operate CD/RA equipment and still maintain a clear view of the entire dispatch corridor? Can the dispatcher operate other dispatch equipment and still maintain a clear view of the entire dispatch corridor? Is the OFF indicator clearly legible from the preferred dispatch position? Is new platform-based equipment required? If so, could this equipment introduce new risks?
Other equipment*	What type of equipment is used on the platform? For example, tow tractors, powered cleaning equipment? Are pedestrians and vehicles separated?

Assessment item	Example considerations
Departing trains	Do the characteristics of the platform affect staff's ability to observe the train clear of the platform? Can platform staff stop the train in an emergency? What platform-based controls can be put in place to mitigate train departure risk?

Table 3: PTI risk assessment factors - platform layout, design and equipment

Section 3: Passenger characteristics and behaviours

B.7 These factors can be considered per platform.

Assessment item	Example considerations
Typical passenger groups	Who are the main passenger groups and what behaviours take place? Who are the 'at risk' passengers? What arrangements are in place to help manage and support passengers?
Passenger and non-passenger experience and knowledge of the railway	Consider what additional hazards may be imported by lack of familiarity (or over-familiarity) with the station, platform and/or rolling stock.
Passenger capabilities	Is assistance available to passengers with impairments? For example, use of staff or companion programmes? Is there a tactile warning provided 760mm from the platform edge?
Attitudes	Consider foreseeable variances in personal attitudes, for example, taking a shortcut due to poor perception of risk.
Motivations and likely behaviours	Consider passenger motivations and likely behaviours; for example, commuters, infrequent travellers, leisure travellers or tourists and persons with a limited understanding of English.

Assessment item	Example considerations
Objects carried by passengers*	Consider the objects which may be carried by passengers, especially objects which may be carried above passengers' heads, for example helium balloons, selfie sticks, child on parent's shoulders, and items allowed by the conditions of carriage.

Table 4: PTI risk assessment factors - passenger characteristics and behaviours

Section 4: Staff behaviour

B.8   These factors can be considered per platform. This information may already be contained within an existing role or task-based assessment.

Assessment item	Example considerations
Staff error	What typical errors do or could dispatch staff make?
	Are there behaviours and/or characteristics of the individual that can contribute to the occurrence of errors? For example, inexperience or unfamiliarity with context (such as route or platform); inadequate scanning technique; over reliance on traction interlock; slipping into 'auto pilot'; rushing to complete dispatch.
	Are any conditions likely to increase or induce staff error? For example, distraction from mobile phones, advertising displays, visual media, station furniture and platform layout.

Assessment item	Example considerations
Staff injury*	Could completion of dispatch tasks increase risk of injury to staff? For example: a) Are there areas where dispatch bats or similar must not be raised too high in case of electric shock? This would also apply to dispatch related handsignals. b) Position of the in-cab monitors or platform-based monitors or mirrors causing MSD or other related pain. c) Use of look-back causing MSD or other related pain. d) Slip, trip or fall risk from guards boarding and alighting the train to carry out their dispatch duties. e) Slip, trip or fall risk from platform staff walking along the platform to carry out dispatch duties. f) Manual handling injuries associated with helping passengers board or alight. The Health and Safety Executive provides guidance in relation to occupational health and safety risk assessment. This can be used to help assess the risk of injury to staff at the PTI. References on electrical safety are provided in *page 95* of this document.
Staff workload and distraction	Is staff workload (high or low) such that it is likely to lead to fatigue, errors or workarounds (violations)? Are suitable breaks provided? Are dispatch staff required to perform any other duties, such as managing passenger behaviour, that may lead to distraction or increased workload? Conflict situations, such as managing passengers, may lead to staff becoming distracted; what support is provided to preserve the integrity of the train safety check?

Assessment item	Example considerations
Communication*	What communication equipment is required and available to undertake dispatch?
	What method(s) of communication are detailed in existing dispatch plans?
	Are there risks of miscommunication between staff?
	What controls are in place to reduce the risk of miscommunication?
Procedures	To what extent do staff apply the same method to dispatch all trains from the platform?
	Is the responsibility for undertaking the train safety check clearly described and understood?
	How does the dispatch plan describe the way passengers will be managed during arrival to departure of trains?
	To what extent does the dispatch process fully support staff to undertake their duties? For example, company policy regarding the position of the guard.
	Do any other procedures within the rest of the station affect train dispatch?
Dispatch by another IM or RU*	Is dispatch carried out by a different IM or RU? If so, does this have an impact on how dispatch plans are developed and executed?
	How are staff from other IMs or RUs made aware of the hazards and dispatch plans that exist at this location?

Table 5: PTI risk assessment factors - staff behaviour

Section 5: Rolling stock characteristics and equipment

B.9   These factors can be considered per train type calling at the platform. Consideration can also be given to the types of trains passing through the platform, such as those described in section *2.2* of this document, where applicable.

Assessment item	Example considerations
Stopping positions	Are train stopping positions clearly marked and can the driver clearly see and read these? This information may be contained in the signal sighting assessment. Are train length reminders provided and are they effective? Do train stopping positions affect completion of dispatch tasks and maintain a view of the dispatch corridor? Does the train stopping position affect passenger behaviour? For example, overcrowding at pinch points, or rushing from waiting areas? Is the size of the step gap along the platform considered when stopping positions are determined?
Distance between train and platform and/or between coaches	What is the stepping distance between the train and the platform? This can be recorded as follows for each train type calling at the platform: Horizontal (mm) = Vertical (mm) = Diagonal (mm) = These measurements may vary along the platform, and so more than one value can be recorded. It can also be useful to identify locations with higher values to help prioritise mitigations. RIS-7016-INS provides more details in relation to step gaps. In addition, RSSB research project T1037 provides measurements for passenger vehicle footstep positions to reduce stepping distances and gauging constraints - see *page 95* of this document. Does this distance pose a risk to passengers? What is the size of the gap between the train bodyside and the platform edge? What is the risk of a passenger falling between the train bodyside and platform edge, for example, between coaches? Are inter-vehicle barriers installed which can reduce or remove the gap between coaches?

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Assessment item	Example considerations

Train formations	Is there variation in the length and type of train calling at the platform?
	
	How does this affect the completion of dispatch tasks and maintaining a view of the dispatch corridor?
	
	For example:
	
	   a) Does the length and/or type of train mean the guard or member of platform staff (where applicable) needs to move position to complete the train safety check?
	   b) Does the formation or type of train create blind spots in the dispatch corridor?
	   c) Does the type or length of train affect ability to see monitors, mirrors or CD/RA indicators?
	
	How does the type and length of train affect the behaviour and management of passengers?
	
	Do trains run in reverse formation and, if so, does this affect the behaviour and management of passengers?
	
	How is passenger behaviour and safety managed when units forming part of the train are not in public service? Is it clear to drivers where they are to stop in such circumstances?

Assessment item	Example considerations
Train doors	Does the type, number, location and/or operation of the doors have an impact on passenger behaviour, risk to passengers and/or completion of dispatch tasks?
	Can the design of door controls affect the completion of dispatch tasks?
	For example:
	a) Are door controls positioned so the driver or guard can maintain a clear view of the dispatch corridor?
	b) Are door controls designed so they cannot be confused and result in a wrong side door release?
	Is the train fitted with a correct side door release enabler?
	Are trains fitted with door obstacle or sensitive edge detection systems, including partial release and re-close functionality.
	Does the design of train doors allow interlock when clothing or a body part is trapped?
Driver view	Can the driver see platform staff give the 'station work complete' and 'train safety check complete' signals?
	Can the driver clearly see platform-based dispatch monitors or mirrors from their driving position?
	If in-cab monitors are used, does the design, location, number and size of monitors affect the performance of dispatch tasks?
	Do in-cab images provide a clear view of the entire dispatch corridor, including critical access points to the platform?
	Do the quality, quantity and/or sequence of images presented affect performance of dispatch tasks?

Assessment item	Example considerations
Guard's view on board the train	Does the train design affect the guard's view of the dispatch corridor?
	For example, does the location of bell-buzzer controls affect the guard's view of the dispatch corridor?
	Can the guard see platform staff give the 'station work complete' and 'train safety check complete' signals?
	Are/could additional controls and equipment be provided such as monitors for guards? If so, could this introduce new risks?
Departing trains	Can the driver or guard observe the train until it is clear of the platform? For example, does the design of the guard's window limit the view?
	Can the guard stop the train in the event of an emergency?
	What factors affect the driver's or guard's ability to observe the train clear of the platform and/or stop the train in the event of an emergency?
	Could being able to observe the train clear of the platform introduce new risks? For example, keeping in cab monitors on during departure?
	What train-bourne controls can be put in place to mitigate train departure risk?

Assessment item	Example considerations

On-board passenger information	What information are passengers provided with on the train to support decision-making and encourage safe boarding and alighting? For example:
	
	    a) Are passengers provided with clear and timely on-train announcements of the next station stop and any hazards or instructions to do with alighting?
	    b) Do passengers receive clear and timely on-board visual information giving the name of the next station stop?
	    c) Can the station name on the platform be clearly seen from all train carriages?
	    d) Do on-board announcements indicate which side the platform will be on?

Live train-mounted electrical equipment*	What is the position of live train-mounted electrical equipment? Does the position pose any risk to passengers and staff? Is there a risk assessment in accordance with GLRT1210, taking into account any change in rolling stock? What suitable precautions are required to manage the risk to a tolerable level?
Multiple trains and/or coupling/uncoupling of trains	What controls exist for managing passengers where coupling/uncoupling operations take place or where trains share platforms?
Empty coaching stock	What controls exist for managing passengers when there is ECS in the platform? What is the process and who is responsible for checking, locking and dispatching the empty coaches?
Terminating trains*	What controls exist for managing passengers when trains terminate in the platform?

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Assessment item	Example considerations
Passing trains	Do passing trains create significant aerodynamic risk?
	If so, are people protected from aerodynamic effects by a yellow line installed in the high aerodynamic risk default position and suitable additional risk controls?
	If the yellow line is not installed in the high aerodynamic risk default position, are there sufficient other controls to encourage passengers to move further back from the edge when a non-stopping train is approaching?
	Is it clear to blind passengers that they need to move further back from the platform edge than the tactile paving when a non-stopping train is passing? e.g. do announcements or other warning methods make this clear?
	What methods are in use to warn deaf passengers of the risk of passing trains? Would signage or information screens be most affective?
	RIS-7016-INS sets out the methodology for assessing aerodynamic risk and identifying actions to control risk. The RSSB Platform Aerodynamic Risk Assessment Tool can also be used to undertake this assessment.
	Do passing trains create other risks to passengers on the platform? For example, risk of being struck by a passing train when leaning over the platform edge.
	Are passengers on the platform provided with targeted announcements to warn them of passing trains and actions they are to take?

Assessment item	Example considerations
Heritage and/or charter trains	Does the platform used by heritage and/or charter trains require a unique method of dispatch?
	Do these trains present passengers with increased stepping distance?
	Are they fully accommodated within the platform?
	What arrangements exist to manage the passengers and spectators associated with these trains?
	What controls exist to manage any coaches not accommodated within the platform?
	How are special train and charter operators staff made aware of risk control measures?
Parcel and/or on-track machines/engineering trains*	Is the platform used by parcel trains, on-track machines or engineering trains?
	Do these trains create any risk to passengers and/or staff?

Table 6: PTI risk assessment factors - rolling stock characteristics and equipment

Section 6: Operational and environmental conditions

B.10   These can be considered per platform.

Assessment item	Example considerations
Sunlight and weather	To what extent does sunlight and/or weather conditions affect passengers and/or staff?
	Could the effectiveness of the train safety check be affected by bright/low sunlight and/or adverse weather?
	What arrangements are in place to manage the impact of bright/low sunlight and/or adverse weather?

Assessment item	Example considerations
Noise*	Does the noise from diesel engines make it difficult for staff and/or platform users to hear station announcements, radio messages etc?
	Does the background noise make it difficult for staff and/or platform users to hear station announcements, radio messages etc?
	Do noise, alarms, communications and announcements from other platforms and trains affect the completion of dispatch tasks and/or the behaviour of passengers?

Assessment item	Example considerations
Perturbed, degraded and emergency working (including staff shortage)*	What are the contingency measures to manage perturbed, degraded or emergency situations in terms of managing passengers and completing train dispatch?
	Are controls in place for when staff are not available?
	When assessing and determining contingency measures, the following can be considered:
	a) What type of situations could realistically occur?
	b) What equipment failures could affect train dispatch?
	c) How long could the situation(s) last?
	d) How many trains and/or platforms could be affected?
	e) Would the time taken to dispatch the train increase, and what would this mean for safety and performance?
	f) What would be the impact of cancelling the train, not calling at effected stations or taking the platform out of use?
	g) What arrangements exist to manage the risk associated with these conditions?
	h) What alternative dispatch arrangements are/could be used?
	i) Are competent staff available to assist in train dispatch and the management of passengers from affected stations and/or trains?
	j) Have contingency measures been tested? If so, how effective are they?
	k) What arrangements are in place for monitoring and maintaining equipment?
Emissions*	Do emissions gather under canopies, obscure signals, affect air quality etc?

Assessment item	Example considerations
Dwell time	Does the dwell time affect the behaviour of passengers?
	Does the dwell time affect the performance of dispatch tasks?
Crowding	Does service frequency create risk at certain times of day? For example, too many passengers alighting, not enough trains to cope with customer demand.
	Are train formations lengthened during peak travel periods? If yes, are additional staff needed to perform the train safety check, or manage increased passenger numbers?
	Does crowding on the platform affect the view of the dispatch corridor, for example when a driver is using monitors or mirrors or a guard is using line of sight?
	What controls are in place to manage the effects of crowding on the platform? For example, targeted announcements, monitoring crowding, restricting access.
	How are special events managed?
	Is the position of the yellow line optimised to provide sufficient waiting space and a clear platform edge zone when there is regular crowding?
Permissive working	What arrangements exist (or are required) to prevent train crew from misinterpreting signals or hand signals meant for others?
	Does permissive working present, or could it present any risk to passengers? If so what controls are in place to mitigate this risk?
Unscheduled stops*	What provisions exist for trains making unscheduled stops?
	Is consideration given to the risk of train surfing? Is the location one known for train surfing incidents?
Short notice platform alterations	What arrangements are in place to manage short notice platform alterations?

Table 7: PTI risk assessment factors - operational and environmental conditions

Appendix C   Considerations for Driver Controlled Operation

The content of this appendix is intended as guidance only.

Introduction

C.1   This appendix provides guidance on DCO train dispatch and is grouped by the following methods:

a) Driver look-back
b) Platform-mounted look-back mirrors
c) Train-mounted look-back mirrors
d) CCTV with platform-mounted cameras and monitors
e) CCTV systems with platform cameras transmitting to in-cab monitors
f) CCTV system with train-mounted cameras and in-cab monitors
g) Platform dispatch staff.

C.2   Some principles and considerations within this appendix are repeated. Organisations only need to read the sections that describe the method(s) of driver-only dispatch that is used by them.

General

C.3   The layout of the driving cabs can affect the method of DCO dispatch to be used. This includes but is not limited to:

a) The seating position of the driver and his/her ability to view the DCO dispatch equipment from the seated position
b) If there is a requirement for the driver to leave his/her seat to look out of the window, can this be done without the increased risk of musculoskeletal disorders developing?
c) When the train is ready to depart, is it possible for the driver to monitor the train dispatch corridor and the line ahead?
d) How difficult would the train dispatch procedure be to complete if the driver did not stop the train at the exact stopping point?

C.4   The following measures can be implemented to minimise the risks associated with DCO:

a) Correct-side door-enable (CSDE)
b) Selective door opening (SDO)
c) Automated announcements
d) In-train CCTV
e) Use of the traction interlock light (lit) and external hazard indicators/bodyside indicator lights (extinguished) as an initial indication that the doors have closed
f) Use of sensitive edge or threat detection technology.

C.5   If the traction interlock light or external hazard indicators/bodyside indicator lights are used as an initial indication that train doors have closed, a check of the exterior of the train is required to determine that nothing is trapped in the closed doors using the method of DCO being used at the platform.

C.6   If a train is stopped out of course at a station at which it is not booked to call, for example, stopped at a signal at danger or stopped by train failure, as well as following the instructions detailed in GERT8000 Rule Book Module TW1 , the Rule Book Module SS1 provides instructions to drivers for when a train is stopped out of course at a station. Before deciding whether it is safe to restart the train in this situation, the driver, where practicable, will consider the following:

a) Has the traction interlock light extinguished while the train has been stationary at the platform? If it has, then it may be necessary to check that no one or nothing has fallen on to the track on the non-platform side

b) If there is anyone close to the edge of the platform?

c) If the entire length of the train cannot be seen from the driving cab, it may be necessary for the driver to position themselves on the platform to obtain a view of the entire length of the train

d) Following these checks, if there is anyone close to the train, warn them to stand clear.

Driver look-back

C.7   Where driver look-back is being used to dispatch DCO trains, the following factors are considered:

a) The ability of the driver to view the entire length of the train dispatch corridor and complete the train safety check in all lighting conditions following an appropriate risk assessment

b) The cab layout allows the driver to comfortably look back out of the side window and operate the door controls

c) The train has the ability for the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI

d) The driver's view along the length of the train enables them to view all train doors as they close, and to observe that all external hazard lights/bodyside indicator lights have extinguished

e) The stopping point at the platform does not hinder the driver's ability to view the starting signal or banner repeater (where provided).

C.8   If any of these factors cannot be met, an alternative mode of dispatch could be required. Examples, where practicable, include:

a) Guard operation

b) Platform dispatch staff

c) Platform-mounted look-back mirrors

d) Train-mounted look-back mirrors

e) CCTV with platform-mounted cameras and monitors

f) CCTV systems with platform cameras transmitting to in-cab monitors

g) CCTV system with train-mounted cameras and in-cab monitors.

C.9   If DCO look-back is unable to be used due to a fault with the cab window or poor visibility, it will be necessary to introduce an alternative mode of train dispatch. Where practicable, this could be:

a) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)
b) Platform dispatch staff (where platform dispatch staff are readily available).

If none of the alternative modes of train dispatch are immediately available and the inability to use driver look-back is due to a fault on the train, the train can be removed from service.

Platform-mounted look-back mirrors

C.10   Where platform-mounted look-back mirrors are being used to dispatch DCO trains, consideration is given to the following:

a) The ability of the driver to view the entire length of the train dispatch corridor and complete the train safety check in all lighting conditions following an appropriate risk assessment
b) The positioning of the look-back mirrors allows the driver to comfortably observe the mirrors from within the cab, where practicable
c) The train has the ability for the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI
d) The driver's view along the length of the train enables them to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished
e) The stopping point at the platform does not hinder the driver's ability to view the starting signal or banner repeater (where provided)
f) The positioning of the look-back mirrors so as to minimise the effect of different factors that may obscure the driver's view. For example, glare, platform furniture, vegetation and people on the platform.

C.11   If DCO look-back mirrors become defective, an alternative method of train dispatch is required. Where practicable, this could be:

a) The driver leaving the cab to obtain a full view of the train dispatch corridor
b) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)
c) Platform dispatch staff (where platform dispatch staff are readily available).

If none of the alternative methods of train dispatch are immediately available, it will be necessary to, if possible, divert the train to another platform or prevent trains from stopping at the affected platform.

Train-mounted look-back mirrors

C.12   Where train-mounted look-back mirrors are being used to dispatch DCO trains, the following factors are considered:

a) The ability of the driver to view the entire length of the train dispatch corridor and complete the train safety check in all lighting conditions following an appropriate risk assessment

b) The train has the ability for the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI

c) The driver's view along the length of the train enables them to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

d) The stopping point at the platform does not hinder the driver's ability to view the starting signal or banner repeater (where provided).

C.13   If train-mounted look-back mirrors become defective, an alternative method of dispatch is introduced; where practicable, this could be:

a) The driver leaving the cab to obtain a full view of the train dispatch corridor

b) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)

c) Alternative platform-based equipment if available (such as monitors)

d) Platform dispatch staff (where platform dispatch staff are readily available).

If none of the alternative methods of train dispatch are immediately available the train can be removed from service.

CCTV with platform-mounted cameras and monitors

C.14   Where CCTV with platform-mounted cameras and monitors are used to dispatch DCO trains, the following factors are considered:

a) The train has a function to enable the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI

b) The optimal number of images displayed is not exceeded

c) The driver's view along the length of the train enables them to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished. This view is to be achievable in all typical day and night lighting conditions

d) The stopping point at the platform does not hinder the driver's ability to view the starting signal or banner repeater (where provided)

e) The positioning of the platform-mounted monitors so as to minimise the effect of different factors that may obscure the drivers view and considering all lighting conditions. For example, glare, platform furniture, vegetation and people on the platform.

C.15   If CCTV cameras and monitors become defective, an alternative method of dispatch is required; where practicable, this could be:

a) The driver leaving the cab to obtain a full view of the train dispatch corridor

b) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)

c) Platform dispatch staff (where platform dispatch staff are readily available)

d) Platform-mounted look-back mirrors (if fitted).

If none of the alternative methods of train dispatch are immediately available it will be necessary to, if possible, divert the train to another platform or prevent trains from stopping at the affected station.

CCTV systems with platform cameras transmitting to in-cab monitors

C.16   Where CCTV systems with platform cameras transmitting to in-cab monitors are used to dispatch DCO trains, the following factors are considered:

a) The train has a function to enable the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI

b) The optimal number of images displayed is not exceeded

c) The drivers view along the length of the train in all lighting conditions enables them to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

d) The stopping point at the platform does not hinder the driver's ability to view the starting signal or banner repeater (where provided).

C.17   If CCTV cameras and monitors become defective, an alternative method of dispatch is required; where practicable, this could be:

a) The driver leaving the cab to obtain a full view of the train dispatch corridor, where possible

b) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)

c) Platform dispatch staff (where platform dispatch staff are readily available)

d) Platform-mounted look back mirrors (if fitted).

If none of the alternative methods of train dispatch are immediately available, it will be necessary, where possible, to route trains in to an alternative platform (if the fault is with the platform-mounted cameras) or remove the train from passenger service (if the fault is deemed to be with the train bourne monitors).

CCTV system with train-mounted cameras and in-cab monitors

C.18   Where CCTV systems with train-mounted cameras and in-cab monitors are used to dispatch DCO trains, the following factors are considered:

a) The train has a function to enable the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI

b) The optimal number of images displayed is not exceeded

c) The driver's view along the length of the train in all lighting conditions enables them to view all train doors as they close and to observe that all hazard warning lights/bodyside indicator lights have extinguished

d) The stopping point at the platform does not hinder the driver's ability to view the starting signal or banner repeater (where provided).

C.19   If CCTV cameras and monitors become defective, an alternative method of dispatch is required, where practicable, this could be:

a) The driver leaving the cab to obtain a full view of the train dispatch corridor, where possible

b) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)

c) Platform dispatch staff (where platform dispatch staff are readily available)

d) Platform-mounted look-back mirrors or monitors (if fitted).

If none of the alternative methods of train dispatch are immediately available it will be necessary to remove the train from passenger service.

Platform dispatch staff - CD/RA

C.20   Where trains are being dispatched using CD/RA indicators, the following considerations are given to the view by platform staff from the location of the CD/RA equipment.

a) Platform staff can view the entire length of the train dispatch corridor

b) Platform staff can view all of the train doors during the door closing process in all lighting conditions and observe all external hazard lights/bodyside indicator lights have extinguished

c) Platform staff can view the starting signal, banner repeater or OFF indicator (where provided).

If any of the above factors is not possible, it may be necessary to introduce an additional member of platform staff.

C.21   If the CD/RA equipment becomes defective, an alternative method of dispatch is required. This could include:

a) Dispatch by platform staff using handsignals

b) Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation).

Platform dispatch staff without CD/RA

C.22   Where trains are being dispatched by platform dispatch staff not using CD/RA, the following factors are considered:

a) The combination of the driver and platform staff are able to view the entire length of the train dispatch corridor and complete the train safety check

b) The train has a function to enable the driver to make a passenger announcement (if required) to warn passengers that the train doors are about to close and to manage risk at the PTI

c) The driver's and platform staff's view along the length of the train enables them to view all train doors, during all lighting conditions, as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

d) The stopping point at the platform does not hinder the driver's or platform staff's ability to view the starting signal, banner repeater or OFF indicator (where provided)

e) The driver can clearly observe and distinguish the handsignals being displayed by the platform staff

f) Any dangers presented by the electrification systems.

If any of the above is not possible, an alternative method of dispatch is required; where practicable, this may include:

i)   Guard operation (where a guard is readily available and if the rolling stock is suitable for guard operation)

ii) The provision of another member of platform dispatch staff (where another member of platform dispatch staff is readily available).

Appendix D   Considerations for train dispatch by guard

The content of this appendix is intended as guidance only.

Introduction

D.1   This appendix provides guidance on train dispatch by guard and is grouped by the following methods:

a) Dispatch using bell/buzzer codes
b) Dispatch using handsignals
c) Dispatch with the assistance of platform staff
d) Platform-mounted mirrors
e) CCTV with platform-mounted cameras and monitors.

D.2   Some principles and considerations within this appendix are repeated. Organisations only need to read the sections that describes the method(s) of guard dispatch that is used by them.

General

D.3   If the risk assessment has identified the position of the guard responsible for dispatch as an issue, the following is taken into account to help determine the designated positioning of the guard within the train:

a) The characteristics of the platform (for example curvature or platform furniture), and train (for example length, design of doors, operation of doors)
b) The types of passengers that use the platform and their typical behaviours (for example rushing for the train from the stairs)
c) The position of equipment, if relevant, that will be operated by the train dispatch staff to assist with train dispatch, for example CD/RA
d) The location of platform staff in case they are required to signal to the guard to stop the train
e) The ability of the guard to move within the train to achieve the view of the train dispatch corridor prior to the train departing the platform. This includes being able to stop the train or notify the driver to stop if required
f) The ability of the guard and/or platform staff to check that the platform starting signal/banner repeater or OFF indicator (where provided) is displaying a proceed aspect prior to the train dispatch process commencing.

D.4   If a train is stopped out of course at a station at which it is not booked to call, for example, stopped at a signal at danger or stopped by train failure, as well as following the instructions detailed in GERT8000 Rule Book, Module SS1, before deciding whether it is safe to restart the train in this situation, the guard, where practicable, will consider the following:

a) Has the traction interlock light extinguished whilst the train has been stationary at the platform? If it has, then it may be necessary to check that no one or nothing has fallen on to the track on the non-platform side
b) If there is anyone on the platform close to the train

c) If the entire length of the train cannot be seen from the location of the guard, it may be necessary for the guard to position themselves on the platform to obtain a view of the entire length of the train, contacting the driver before doing so

d) Following these checks, if there is anyone close to the train, warn them to stand clear.

Dispatch using bell/buzzer codes

D.5   Where dispatch by a guard using bell/buzzer codes is being used, consideration is given to the following:

a) The guard's view along the length of the train enables them to view, in all lighting conditions, all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

b) If the train consists of slam door stock, all doors are to be visually (and physically, where practicable) checked to ensure that they are closed

c) The guards view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure.

D.6   If the bell/buzzer function on the train is not working, an alternative method of train dispatch is required, this could be:

a) Handsignals from guard to driver

b) Handsignals from platform staff to driver (as described in GERT8000 Rule Book Module SS1)

c) CD/RA indications (where fitted)

d) Cab to cab telephone, where permitted by company instructions.

If none of the alternative methods of train dispatch are immediately available, the train can be removed from service.

Dispatch using handsignals

D.7   Where dispatch via handsignals from the guard to the driver is being used, consideration is given to the following:

a) The position of the guard allows the driver to observe the guard's handsignals

b) The guard's view along the length of the train enables them to view, in all lighting conditions, all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

c) If the train consists of slam door stock, all doors are to be visually (and physically, where practicable) checked to ensure that they are closed

d) If the guard is required to move away from the door controls after the 'ready to start' signal has been given, the location to which they are moving provides a better view of the train dispatch corridor, can be reached prior to the train departing and provides the facility to stop the train if necessary

e) The guard's view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure

f) Any risks presented by the electrification systems.

If none of the above factors can be met, an alternative method of train dispatch is required; these may be:

i)   Handsignals from platform staff to driver

ii)   Using bell/buzzer communication (where fitted)

iii)   CD/RA indications (where fitted).

Dispatch with assistance from platform staff

D.8   Where dispatch by a guard with the assistance of platform staff is being used, consideration is given to the following:

a) If dispatch is being assisted by platform staff, the combined view of the platform staff and the guard, in all lighting conditions, enables them to observe the entire length of the train dispatch corridor and all train doors during the door closing process. The view also allows members of dispatch staff to observe that, where applicable, all external hazard lights/bodyside indicator lights have extinguished (for example, where the guard is using a local door to view the train dispatch corridor, the bodyside indicator light will not be extinguished)

b) If the train consists of slam door stock, all doors are to be visually (and physically, where practicable) checked to ensure that they are closed

c) If the guard is required to move away from the door controls after the 'ready to start' signal has been given, the location to which they are moving provides a better view of the train dispatch corridor, can be reached prior to the train departing, and provides the facility to stop the train if necessary

d) The guard's view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure.

If any of the above factors cannot be achieved, it may be necessary to provide an additional member of platform staff and/or change the method of dispatch.

Platform-mounted mirrors or monitors

D.9   Where dispatch by a guard using platform-mounted mirrors or monitors is being used, consideration is given to the following:

a) The ability of the guard to view the entire length of the train dispatch corridor and complete the train safety check in all lighting conditions following an appropriate risk assessment

b) The guard's view along the length of the train enables them to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

c) If the train consists of slam door stock, all doors are to be visually (and physically, where practicable) checked to ensure that they are closed

d) If the guard is required to move away from the door controls after the 'ready to start' signal has been given, the location to which they are moving provides a better view of the train dispatch corridor; can be reached prior to the train departing and provides the facility to stop the train if necessary

e) The guard's view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure.

D.10   If the platform-mounted mirrors or CCTV cameras and monitors become defective or obscured, for example by sunlight, it will be necessary to introduce an alternative method of train dispatch; this may be:

a) The provision of platform staff; or

b) Collaboration between the guard and the driver to jointly carry out the train dispatch procedure, where practicable.

Appendix E   Considerations for train dispatch by platform staff

The content of this appendix is intended as guidance only.

Introduction

E.1   This appendix contains guidance on procedures for train dispatch by platform staff and is grouped by the following methods:

a) Platform staff dispatch using handsignals to the guard
b) Platform staff dispatch using handsignals to the driver
c) Platform staff dispatch using CD/RA indicators.

E.2   Some principles and considerations within this appendix are repeated. Organisations only need to read the sections that describe the method(s) of train dispatch by platform staff that are used by them.

General

E.3   If the risk assessment has identified the position of dispatch staff on the platform as an issue, the following is taken into account to help determine the designated positioning:

a) The location of the guard and/or the driver in relation to the platform and their view of the train dispatch staff. This includes the positioning of the platform staff to enable the driver to see their hand signals
b) The location of equipment operated by the platform staff, for example, CD/RA, and the view available from that location; this view includes the entire train dispatch corridor
c) The characteristics of the platform (for example curvature or platform furniture), and train (for example length, design of doors, operation of doors)
d) The types of passengers that use the platform and their typical behaviours, for example, rushing for the train from the stairs
e) Any dangers presented by the electrification systems.

If more than one member of platform staff is being used during the train dispatch process, a clear definition of the member of platform staff with lead responsibility is identified and communicated.

E.4   Before deciding whether it is safe to restart a train that has been stopped out of course at a station , the driver/guard and platform staff can come to an understanding as to how the train is to be safely restarted, with consideration given to the following:

a) If there is anyone on the platform close to the train
b) Can the entire length of the train be seen from the position on the platform?
c) Following these checks, if there is anyone close to the train, they are warned to stand clear.

E.5   If the entire length of the train cannot be seen, the guard/driver and platform staff can agree the best method to work collaboratively to safely restart the train.

Platform staff dispatch using handsignals to the guard

E.6   Where trains are being dispatched by platform staff giving handsignals to the guard, the following factors may be considered:

a) Does the combined view along the length of the train, in all lighting conditions, enable staff involved in the train dispatch process to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished?

b) If the train consists of slam door stock, all doors are to be visually (and physically, where practicable) checked to ensure that they are closed

c) If the guard is required to move away from the door controls after the 'ready to start' signal has been given, the location to which they are moving provides a better view of the train dispatch corridor and this new method of working has been risk assessed. The platform staff are to be informed of the new position at which the guard will be located

d) The platform staff's view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure

e) Any dangers presented by the electrification systems.

E.7   If handsignals cannot be viewed by the guard due to darkness or poor visibility, an additional member of platform staff is required to relay the handsignal to the guard.

Platform staff dispatch using handsignals to the driver

E.8   Where trains are being dispatched by the platform staff displaying handsignals to the driver, the following factors may be considered:

a) The combined view along the length of the train enables staff involved in the train dispatch process to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

b) The platform staff's view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure

c) Any dangers presented by the electrification systems.

If handsignals cannot be viewed by the driver due to darkness or poor visibility, an additional member of platform staff may be required to relay the handsignal to the driver.

Platform staff dispatch using CD/RA indicators

E.9   Where trains are being dispatched by the platform staff operating CD/RA indicators, the following factors may be considered:

a) The combined view along the length of the train enables staff involved in the train dispatch process to view all train doors as they close and to observe that all external hazard lights/bodyside indicator lights have extinguished

b) The platform staff's view of the starting signal, banner repeater or OFF indicator (where provided) is such that it can be checked prior to commencing the train dispatch procedure.

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If the CD/RA equipment becomes defective, it may be necessary to provide another member of platform staff to relay the 'close door' and 'right away' indications to the driver or introduce an alternative method of train dispatch.

Appendix F   Managing Passenger Behaviour

The content of this appendix is intended as guidance only.

Introduction

F.1   This appendix provides guidance on the measures to manage the safe behaviour of passengers at the PTI.

F.2   Measures have been grouped as follows:

   a) Platform management
   b) Customer information
   c) Passenger education
   d) Monitoring
   e) Crowd management
   f) Staff interactions.

F.3   This appendix is supported by the following appendices:

   a) Appendix *H*
   b) Appendix *J*
   c) Appendix *L*
   d) Appendix *M*

General

F.4   Measures to manage the safe behaviour of passengers help to mitigate certain hazardous events as set out in table *8*.

Hazardous events
Passenger struck by train when on platform
Passenger fall from platform (not struck or does not suffer an electric shock)
Passenger fall from platform and struck by train
Passenger fall from platform suffering electric shock
Passenger trapped in stationary train doors (boarding or alighting)
Passenger suffers electric shock from electrification or live train-mounted electrical equipment
Passenger trapped in train doors and train subsequently departs (boarding or alighting)
Passenger fall between stationary train and platform

Hazardous events
Passenger fall between train and platform and train subsequently departs
Passenger fall between train and platform as train arrives and/or departs
Passenger struck by train door while on platform
Passenger injury while boarding train
Passenger injury while alighting train
Passenger alighting or falling from train onto track
Passenger coming into contact with object/infrastructure on or near the platform
Passenger slip/trip/fall or other injury while on platform
Person on train exterior at the PTI

Table 8: Hazardous events that measures to manage the safe behaviour of passengers at the PTI may help mitigate

F.5   Measures to manage the safe behaviour of passengers are informed by the risk assessment, taking into account the goals, attitudes and motivations of passengers as well as the capabilities, training and attitudes of staff. In addition, the behaviour of passengers can change when there is disruption, degraded or emergency situations, and it is therefore helpful to consider whether specific approaches are needed.

F.6   Measures can be combined to help mitigate the likelihood and severity of hazardous events, for example, staff interactions with passengers, combined with monitoring and passenger education. They can also be used to help support safe dispatch, for example through crowd control.

F.7   The development, review and implementation of measures to manage the safe behaviour of passengers are part of a consistent and integrated strategy for promoting desirable behaviour.

F.8   Implementing measures may require, for example, changes to procedures, equipment and/or staff roles and responsibilities. Principles of change management are provided at the end of this appendix.

F.9   Infrastructure and rolling stock design also help to influence passenger behaviour, for example, by:

a) Reducing stepping distances, such as through altering platform heights and/or widths or the introduction of platform or train bourne gap fillers;

b) Creating a platform recess;

c) Removal of structures on the platform that cause passengers to walk or wait close to the platform edge;

d) Designing clear door closing alarms that passengers understand; or

e) Introducing sophisticated obstacle door detection and protection.

F.10   These approaches are outside the scope of this standard. On *page 95* there is a list of standards and research that may be consulted.

Platform management

F.11   Platform management can encourage safe passenger behaviours. For example:

a) Removal of potential slip, trip and fall hazards on the platform

b) Use of salt and grit on platforms for icy conditions and slip resistant surfaces may reduce slip hazards

c) Good housekeeping on the platform. This includes keeping the platform clear of objects, litter and vegetation that may cause an obstruction during checks of the train or pose a risk to passenger movements

d) Reduction in the use of platform vehicles to reduce the risk of passengers walking or waiting too near the platform edge

e) Keeping the yellow line, tactiles and white line in good condition. Requirements for platform edge markings, yellow lines and tactile paving are contained in RIS-7016-INS.

Customer information

F.12   Provision and location of customer information, in the station, on the platform, on the train and/or prior to entering the station helps passengers make informed and safe decisions regarding their travel, especially those with impairments and/or reduced mobility. Examples include:

a) Well-positioned signage, wayfinding, notices and instructions in the station, on the platform and on the train, that are simple to locate, read and understand help direct and inform passengers without causing pinch points

b) Clearly publicised facilities within stations; for example, waiting rooms, concourses and platforms

c) Real time and easily accessible information about journeys and services help passengers plan their journeys, especially during service disruption

d) Real-time information on train length, formation and stopping positions may help passengers plan their waiting position on the platform

e) Information on the location of accessible carriages so that passengers and staff can be prepared for boarding or alighting as soon as the train arrives

f) Clearing of information on specific departures in a timely manner can reduce the risk of passengers rushing and trying to board the train as the doors are closing

g) On-board announcements of upcoming stations. These may be automated or from a member of staff. For services that do not have on-board announcements, illuminated and/or additional station name boards mounted on the platform can help passengers identify which station they are arriving at, enabling them to identify the right time to alight

h) On-board announcements indicating which side of the train doors will open. This helps passengers arrange themselves such that those alighting can move towards the correct side and obstacles (such as luggage and bicycles) can be moved

i) Display and communication of policies for luggage, cycles and pushchairs, including space available on trains

j) The type of assistance available, especially for those with impairments and/or reduced mobility

k) The location and number of customer information screens provides information and can influence where people stand in the station and on the platform. This can help to avoid pinch points.

F.13   Different forms and combinations of media can be used to provide timely customer information and direction (see passenger education below).

F.14   Information provided in various languages, where possible, helps passengers from different countries, particularly at stations with international transport links.

Passenger education

F.15   Passenger education campaigns (in stations, on platforms and on board trains) influence passenger behaviour by raising awareness of risks associated with the PTI and exhibiting types of safe passenger behaviours.

F.16   For example, an awareness-raising campaign on door trapping could focus on:

a) The meaning of the door close alarm;
b) How doors respond to obstructions, for example, passengers may think they reopen like lift doors;
c) The risk of harm associated with closing doors; and
d) The actions that can be taken to avoid door trappings.

F.17   Passenger education campaigns can communicate relevant by-laws and company policies, such as those associated with the consumption of alcohol ('dry trains').

F.18   Passenger education campaigns can use multiple formats to communicate messages such as:

a) Targeted announcements in the station, on the platform and on the train
b) Customer information screens
c) Online and press media
d) On-board magazines
e) Radio
f) Safety signage and posters
g) Mobile devices
h) Customer events and interventions in schools.

F.19   For example, real time platform-specific announcements, coupled with safety signs, can be used to:

a) Encourage passengers to take additional precautions such as holding onto pushchairs or securing wheelchair brakes when trains pass through the platform;
b) Encourage them to move safely away from the platform edge; or

c) Warn passengers (especially those with pushchairs or in wheelchairs) of passing trains (passenger and/or freight) and the potential risk they create.

F.20   The forms of communication are appropriate for the type of information communicated and the type of passengers receiving the information.

Monitoring

F.21   Real-time monitoring of passengers, in the station, on the platform or on the train help target interpersonal interactions and/or announcements. Appendix *M* provides examples.

F.22   Real-time monitoring can also be used to recognise and support crowd management.

F.23   The competence management system for staff who monitor passengers can include how to recognise behaviour that increases the risk of accidents and how to maintain overall awareness, so as to avoid becoming fixated on a specific set of behaviours or passengers and missing other behaviours that may increase risk. Example passenger behaviours to include in training are provided in Appendix *M*.

Crowding

F.24   Crowding has a negative effect on passenger behaviour and wellbeing. For example, crowding on the station, platform and/or on the train, can induce anger, confusion, anxiety, stress, pushing and standing too close to the platform edge or train doors (when on the train). Crowding can also create blind spots in the dispatch corridor.

F.25   Crowding plans include approaches such as:

a) Recognising and managing crowding on and off the train, during normal, perturbed, degraded and emergency situations;
b) Recognising and managing crowding on and off the train, during special events, such as concerts, racing events and sports matches;
c) Controlling access to the platform to reduce crowding on the platform;
d) Deploying additional staff allocated to the areas where significant crowding occurs;
e) Using office-based staff to support station/platform staff during times of severe disruption;
f) Establishing communication links and protocols between station and platform staff and train crew to warn of potential crowding, either in the station, on the platform or on the train;
g) Opening exit gates during busy times to help to alleviate congestion; and
h) Identifying and removing pinch points caused by station furniture to reduce crowding in these areas.

F.26   Crowd management plans can be regularly reviewed by considering examples of situations that could occur and then applying the plans to see if those situations could be managed. This may be achieved through simulated and/or desktop exercises.

F.27   Training on crowd control includes:

a) How to monitor crowd density and recognise crowding situations

b) Effective communication skills and protocols, including conflict management
c) Understanding own and other roles
d) Use of technology systems, including CCTV, customer information systems, PA and dynamic signage, radio and telephone communications, and automatic gate lines.

Staff interactions

F.28   Staff in the station, on the platform and/or on the train positively influence passenger behaviours and support passengers. Such staff include:

a) Ticket office staff
b) Dispatch staff
c) Station and concourse staff
d) Customer service personnel within the station and on the train
e) Gate line staff
f) Staff responsible for revenue collection at the station and/or on the train
g) Call centre staff who may assist with train bookings, queries and complaints.

F.29   These staff can:

a) Provide directions and/or information to support passenger decision-making and wayfinding;
b) Help passengers who may be at greater risk of a PTI incident in the station, on the platform, on and off the train. For example, providing assistance to passengers with impairments and those with reduced mobility;
c) Co-ordinate with other members of staff to provide passengers, who may be at greater risk of a PTI incident, with assistance;
d) Communicate to passengers the type of behaviours they are to exhibit, either face-to-face, through general safety announcements and/or announcements targeted to specific behaviours in the station, on the platform or on the train. For example, staff make timely announcements to passengers who are boarding and alighting that they are not to board or alight when the door alarm sounds, or drivers make announcements that are delivered on the train and on the platform;
e) Recognise and act to stop passenger behaviours that may increase risk at the PTI, for example, passengers rushing through the station, obstructing doors or standing too close to the platform edge. This could be through talking to the passenger, targeted announcements or recording and reporting the behaviour;
f) Report accidents, incidents, near misses, complaints, issues and hazards that are relevant to the safe management of passengers at the PTI; and
g) Provide seasonal assistance for luggage or when there is a large event on.

F.30   The competence management system for staff who are responsible for managing passenger behaviour or have the opportunity to influence behaviour can include the behaviours and circumstances that require intervention, what interventions are expected and how to effectively apply them, for example how to make announcements or interact with passengers to achieve maximum effect and a change in behaviour. Further guidance on this is provided in Appendix *M*.

Change management

F.31   Implementing measures to encourage safe behaviours amongst passengers can require change to procedures, equipment and/or staff roles and responsibilities. To support change, the following principles can be considered:

a) Obtaining management buy-in and support, including finances and resources required to implement the change. The level of buy-in and support reflects the scope, cost and complexity of the change

b) Engagement and involvement of relevant personnel, including change champions, if applicable. This can include involvement in the decision-making processes, where practicable. The level of engagement and involvement reflects the scope, cost and complexity of the change

c) Communicating the change, including purpose, scope, benefits and additional support to be provided

d) Changing or providing additional training and instructions, where required, to support implementation. This can be considered for both managers and front-line staff.

Appendix H   Design and Delivery of Verbal Announcements

The content of this appendix is intended as guidance only.

H.1   The guidance in this appendix applies to non-mandatory verbal announcements or warnings delivered in stations, on platforms and on trains.

H.2   Where announcements are used, the provision of visual information in addition can help to improve effectiveness. This also helps cater for different passenger groups, such as those with hearing impairments, those whose first language is not English and passengers who may be wearing headphones.

Purpose

H.3   Recorded announcements are suitable to provide information and give instructions, but might have limited influence on the behaviour of regular passengers, due to the repetitive nature of the messages and the influence of other factors on their behaviour.

H.4   Recorded announcements are best used to provide routine information and instructions aimed at inexperienced passengers. The exception to this is an announcement giving information that passengers find useful for the completion of their journey and are therefore listening out for, (for example, platform and station information). Recorded announcements are suitable to reinforce messages through repetition or to provide a timely reminder of hazards and required behaviour.

H.5   Live announcements may be more likely to be complied with than recorded announcements, as they can be perceived as being more accurate and up-to-date. They are most effective when used in real time to target specific behaviours, situations and people (for example, delivered by a person who can see the platform at the time when the instruction is required to be followed).

H.6   The visible presence of the announcer, for example on the platform, in the station or on the train, is likely to provide the greatest compliance because people will know that someone is watching whether they comply or not, and could take further action if they do not.

H.7   Targeted announcements, identifying a specific individual, generally achieve greater compliance.

H.8   Inconsistent and poor-quality announcements reduce the effectiveness of any instructions.

H.9   It is helpful to consider the purpose of the message being communicated through the announcement. Is it to:

   a) Provide information?
   b) To keep passengers informed?
   c) Or to give instructions?

      Depending on the purpose, the delivery, content and timing of the message might change.

H.10   So that announcements are delivered clearly, consideration can be given to the following:

a) Chimes: All announcements may be preceded by a chime to indicate an announcement is about to be made

b) Speakers: Provide sufficient quantities of speakers so that announcements are transmitted to all required areas, for example in the station, on the platform and/or on the train

c) Volume: It is good practice for audible announcements not to cause discomfort to passengers or staff and for there to be a significant difference between the level of background noise and the level of the announcement. 'Inclusive mobility – a guide to best practice on access to pedestrian and transport infrastructure', published by the Department for Transport (DfT), recommends at least a +5dB signal/ambient noise ratio for passengers with hearing impairments

d) Repetition: In a station environment, all announcements may be repeated at least once and consistently throughout the areas the announcements are being delivered.

H.11   Consideration can also be given to the gender of voice announcements, as this can affect the extent to which people pay attention to the announcement and connect to the content of the announcement.

Timing of announcements

H.12   Safety announcements can be most effective when delivered at the time of the action, activity or behaviour, where increased awareness is required and/or when an action or behaviour is required. They can be framed in a positive manner such as 'stand clear' as oppose to 'do not stand'. For example:

a) On-board announcements such as 'stand clear of the closing doors' delivered before the door is closing and/or when trapped items are detected in the doorway; or

b) Messages to encourage people to keep away from the platform edge delivered when people are too close to the edge and when it is especially important to keep away from the edge, such as when the train is arriving, about to leave or passing through at high speed.

H.13   Verbal announcements that are delivered too frequently may annoy passengers and may be unlikely to have a positive effect on behaviour.

H.14   Safety announcements can be further enhanced by addressing areas of limited passenger knowledge. For example, to help reduce the potential for door trappings, messages can:

a) Make clear the meaning of the door alarm and the action to take; and

b) Emphasise how doors react to obstructions, such as bag straps and scarves, and the need to stand clear of closing doors and not obstruct them.

Content of announcements

H.15   Verbal announcements can be used to provide a warning or information. In both cases, an instruction can inform passengers what to do in response.

H.16   Warning messages delivered as verbal announcements include the following components:

      a) Detail of the person speaking, for example, 'this is the guard speaking'

      b) Explicit description of the hazard

      c) Impact and severity of potential consequences

      d) Instructions about how to avoid the consequences, for example, what people are to do and when.

H.17   The content of the message:

      a) Is brief

      b) Uses simple language in the present tense and in a positive manner such as 'stand clear' as opposed to 'do not stand'

      c) Avoids slang or jargon.

H.18   The person delivering the message:

      a) Uses a moderate to fast pace and avoids speaking in a monotone voice or making lengthy pauses

      b) Uses a tone that demonstrates the message is important and speaks in a calm manner

      c) Clearly enunciates and avoids hesitation

      d) Uses the active voice, for example, 'passengers on platform two stand away from the platform edge'

      e) Uses a first-person conversational tone, in the same way they would communicate with a friend or colleague

      f) Uses commands such as 'must' instead of 'shall' to convey a sense of urgency, when communicating targeted actions to be taken.

H.19   Alert words at the beginning of an announcement can attract attention and communicate the importance of the announcement. More important announcements can use stronger alert words so that they will be attended to more than less important announcements. Examples of alert words that can be used are 'danger', 'warning', 'caution' and 'notice'. 'Danger' is perceived to be stronger than 'warning' and 'caution'. 'Notice' has the lowest perceived strength of these examples.

H.20   Verbal announcements can be used to provide passengers with information that allows them to either wait in the right place in good time for the arrival of the train or by the train doors for alighting the train. If passengers do not have necessary information in time, then they may be inclined to rush and this can increase the chance of accidents during boarding or alighting. Verbal announcements are one method to deliver this information. As well as basic information, such as the platform number, it is beneficial to give information that informs passengers where to wait on the platform or on which side of the train doors will open.

H.21   At large, busy stations, it may not always be possible to provide all train-related announcements during peak hours, as the number of announcements required is likely to be high. Doing so may hinder clear understanding by passengers. In these conditions, priority can be given to providing announcements for services that are running outside of their specified timetable allocation, emergencies, platform changes, cancellations and to long distance or special services. This information can be provided on the train, for example when there are connecting services.

Consideration can be given to providing announcements for train services likely to be used by inexperienced passengers. Targeted announcements on platforms can also be used.

H.22   If a last call announcement is made, this can be stated prior to the announcement of the train details.

H.23   Communications with passengers are more effective if traincrew and/or station and platform staff put themselves in the position of the passenger and consider what type of information they would want if they were the passenger. For example, what service information would they need? What would be the best way to get their attention? What would be the best way to explain risk at the PTI and the actions required to be safe?

H.24   Guidance on the wording of safety signs provided in Appendix *L* is also applicable to the wording of verbal announcements.

H.25   Effective communications are influenced by a range of other factors. It is therefore helpful to consider the impact of the following factors when designing and delivering verbal announcements or warnings:

a) Communication system. How reliable and suitable is the system? Can it deliver good quality communications? Does the equipment support real-time targeted communications; for example, roving microphones for platform staff?

b) Workload, operational demands and task prioritisation. Do staff have time to make announcements? Are other tasks and demands prioritised over making announcements?

c) Non-technical skills and knowledge. Do staff have the communication skills to make effective announcements? Do they have a view of targeted areas and the situational awareness to know when to make the announcements? Do they understand the risks and actions that need to be communicated? Do they have the knowledge and training to understand what makes for good communication and well-structured messages?

d) Attitude. Do staff see the benefit in making announcements to passengers? Are they confident about making announcements?

H.26   Further guidance on effective communications can be found in RSSB research project T1065.

Appendix J   Design of Effective Safety Posters and Messaging for Passengers

The content of this appendix is intended as guidance only.

J.1   Posters and messaging help to convey simple direct communications about risks, to discourage inappropriate behaviours and to encourage appropriate behaviours. These can be presented in stations, on platforms and trains, on social media and other suitable formats, such as journey planners accessed through smart phones.

General design principles

J.2   Posters and messaging have to stand out so they compete with other advertising and eye-catching features in the station, on the platform and train. The input of relevant specialists or professionals can be beneficial to create effective posters and/or messaging.

J.3   Messages and tone can be tailored (for example, is the message conveyed using humour or in a serious way) to appeal to the attitudes and motivations of the target group of passengers. For example, some passengers value speed of journey more than other factors, so messages that refer to delay as a potential consequence can be targeted towards them. Different groups of passengers (for example, regular travellers, commuters, leisure travellers, children and inexperienced travellers) respond favourably to different messages and can be targeted accordingly.

J.4   Posters and messaging can be changed regularly so that they continue to catch the audience's attention.

Text

J.5   It is good practice to use brief, direct messages to convey a clear action and avoid small text or long explanations. Examples in the platform context are:

a) 'Stay away from the platform edge'
b) 'Stay behind the yellow line while waiting'
c) 'Always walk when on the platform'
d) 'Arrive in good time for your train'
e) 'Move along the platform away from the entrance'
f) Keep objects below head height'.

J.6   It is good practice to use large and clear text that can be easily read from a distance and with colour that contrasts strongly with the background.

Graphics

J.7   Graphics can help to convey the message and make it eye-catching (especially if vibrant colours are used). They could:

a) Be simple illustrations that can be seen from a distance; and
b) Illustrate the nature of the hazard, the potential consequences of unsafe behaviours and, where possible, the desired behaviour.

J.8   Common symbols convey quickly and clearly some messages without the need for text. For example, a red circle with a diagonal line through it is typically used to denote prohibited behaviours.

J.9   However, the use of too many different colours can make posters and messaging more difficult to read.

Position

J.10   Position posters and messages in the normal line of sight of people and in a prominent place where users are likely to be and have time to read and digest the messages. For example, waiting on the platform, sitting or standing on the train or walking a typical route through the station.

J.11   Position posters and messages so that they do not cause a distraction to a passenger, driver and/or staff member responsible for dispatching the train.

J.12   The same principles apply to positioning messages on social media or other systems; for example, position in a prominent place where users browse or click to, considering when people will use social media or other systems and have time to read and digest the messages.

J.13   Guidance from Appendix *H* and Appendix *L* can be used to inform the content and wording of posters and messaging.

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Appendix K   Not used

K.1   This appendix is intentionally blank. Information on the design and position of
           platform edge markings, yellow lines and tactile paving is contained in RIS-7016-INS.

Appendix L   Design of safety signs and platform markings (excluding yellow lines, tactile paving and platform edge markings)

The content of this appendix is intended as guidance only.

L.1   The guidance in this appendix applies to non-mandatory safety signs and platform markings (excluding the yellow lines and platform edge markings) to promote safe behaviour of people on the platform.

L.2   Other requirements for signs are contained in RIS-7016-INS and GIRT7033.

Purpose

L.3   Safety signs and platform markings are used to promote safe behaviour. For example:

a) Safety signs on the platform and bodyside of the train, coupled with platform markings, to alert people of hazards

b) Markings on the platform to inform passengers of the train door positions, allowing passengers to be better prepared to board the train when it arrives. Although useful, these may cause crowding around particular doorways.

L.4   Safety signs are best used to present specific, authoritative and instructional messages that relate to specific hazards in the station, on the platform and/or on the train.

Position

L.5   Safety signs and platform markings are positioned to be:

a) Associated with the hazard referred to

b) Conspicuous

c) Far enough from the hazard to allow sufficient time to take any actions needed to avoid the hazard

d) In the natural line of sight of a person waiting in a typical position, seated on the train or walking a typical route in the station or on the platform, or located in a specific area associated with the risk

e) Not obscured, for example, when the platform or train gets busy

f) Not in a place that they will obscure the signalling equipment or impair the view of dispatch staff

g) Not in a place that they will impede passenger movement, flow or safety.

L.6   RIS-7016-INS contains requirements regarding the location of isolated columns used to mount signs and other constraints when choosing the position of safety signs.

Visual design

L.7   To be effective, it is good practice for safety signs and platform markings to be:

a) Eye-catching;

b) Readable from the distance they are intended to be viewed;

c) Consistent with the design of other signs and markings used within the relevant environment (for example, station, platform and/or train) to maximise familiarity and comprehension; and

d) Understood without the need to read text, so that people who do not have a full comprehension of English still benefit from them.

L.8   The principles set out in BS EN ISO 7010:2012+A6:2016 can be used to help design signs. BS EN ISO 7010:2012+A6:2016 covers how to use shapes, colours and symbols to create signs with specific meanings. It specifies the use of supplementary signs, including arrows, and the combination of signs. It provides information on the selection of sign sizes.

L.9   RSSB (2003) *Engineering - Improvements to Safety Signage on Passenger Trains: Guidelines for Symbol Design and Testing* contains information on how to design and test new symbols for use on safety signs.

Content and wording

L.10   The following guidance is based on RSSB (2003) *Engineering - Improvements to Safety Signage on Passenger Trains - Graphics Guidelines for Safety Signs.*

L.11   Safety signs and platform markings include three components:

a) Explicit illustration of the hazard
b) Description or illustration of the impact and severity of potential consequences
c) Instructions about how to avoid the consequences.

L.12   An alert word such as 'danger', 'warning', or 'caution' attracts attention to the sign and gives an indication of the severity of the hazard.

L.13   Examples of alert words are:

a) 'Danger'
b) 'Warning'
c) 'Caution'
d) 'Notice'.

L.14   'Danger' is perceived to be stronger than 'Warning' and 'Caution'. 'Notice' has the lowest perceived strength of these examples.

L.15   To enhance readability:

a) Use short, concise expressions
b) Use simple, short and directive words (that is, describe what they need to do) where possible
c) Use active sentences, for example 'Stand behind the yellow line', rather than 'Standing too close to the edge is dangerous'
d) Be consistent in word order and use
e) Where a statement describes a sequence of events, present words in the order of required actions.

L.16   Avoid:

a) Statements which rely on punctuation

b) Informality or humour, as this may dilute the meaning and importance of the message
c) Negative statements
d) Double or multiple negatives
e) Qualifying negatives, for example, 'except'
f) Vague modifiers, for example 'many'
g) Redundant modifiers, for example 'sufficient', 'enough'
h) Contradictory modifiers, for example 'quite extreme'
i) Weak modifiers, for example 'quite', 'rather', 'well', 'fairly'
j) Phonetic confusions, for example 'hear' versus 'here'
k) Common semantic confusions, for example 'continuously' versus 'continually'
l) Jargon, use plain English where possible.

Appendix M   Staff Training and Assessment

The content of this appendix is intended as guidance only.

M.1   This appendix provides guidance to inform the training and assessment of dispatch staff (drivers, guards/conductors and platform staff, specifically in relation to their dispatch duties) and staff who are not responsible for dispatch but have an opportunity to influence passenger behaviour.

M.2   This information complements existing guidance contained in:

a) *Developing and maintaining staff competence: Railway Safety Publication 1*, Office of Rail and Road, November 2016
b) RS100 *Good practice guide on competence development*.

M.3   This appendix provides guidance on:

a) Risk-based training needs analysis
b) Training and assessment objectives
c) Methods to train and assess
d) Incorporating passenger behaviour into training
e) Non-technical skills
f) Amending training and assessment in light of change.

Risk-based training needs analysis

M.4   To identify the required knowledge, technical and non-technical skills as well as the standards of performance expected, a training needs analysis or risk-based training needs analysis is completed. This is informed by the risk assessment as well as PTI risk data from the RSSB Safety Risk Model.

M.5   A risk-based training needs analysis toolkit is available on the RSSB website.

M.6   This analysis can be used to:

a) Prioritise training and assessment requirements;
b) Determine the type and content of training and assessment required to initially develop knowledge, technical and non-technical skills to the required standard; and
c) Determine the frequency of refresher training and reassessment to maintain or continually develop the required knowledge, technical and non-technical skills.

M.7   Knowledge, technical and non-technical skills are identified and developed for normal, perturbed, degraded and emergency operating conditions as well as special events (a concert or sporting event, for example). This is because risk and associated controls can differ during these conditions, so additional knowledge and skills may be required.

M.8   The risk-based training needs analysis helps to identify which, if any, safety-critical activities are non-essential for train operation in perturbed, degraded and emergency operating conditions, taking into consideration additional risk that may be introduced by not completing these activities.

Example training and assessment objectives

M.9   Training and assessment helps enable and ensure staff:

a) Understand the definition of the PTI and the risks relevant to the operational context;

b) Are able to effectively respond to a PTI incident;

c) Can recognise behaviour that increases the risk of accidents and effectively intervene. The risk assessment informs this;

d) Can identify relevant risks and are able to take suitable action to help mitigate these risks;

e) Understand their role and responsibilities in relation to train dispatch and/or influencing passenger behaviour;

f) Understand the contributory factors influencing PTI risk, including the behaviours and decisions of passengers; and

g) Help to manage passengers during normal, degraded or emergency operations as well as times of crowding.

M.10   In addition to this, training and assessment helps enable dispatch staff to:

a) Carry out their dispatch tasks reliably in a systematic way, in line with company procedures, so that the complete area is checked every time the train safety check is performed. For example, checking the train from front to rear, checking each door portal and the dispatch corridor from front to rear, monitoring during train departure, where possible, and re-starting the process if interrupted;

b) Prioritise train dispatch tasks above other duties, such as ticket collecting or answering questions;

c) Implement alternative methods of dispatch that may be introduced during degraded operations or following dispatch equipment failure;

d) Clearly understand when passengers are to be treated as being potentially trapped in train doors and the action that should be taken. In the case of trains with manually closed (slam) doors, this training clearly defines the methods of determining that slam doors are correctly closed before the train starts away from the platform; and

e) Clearly understand the possible impact on passenger behaviour when using audible alarms, and potential actions passengers may take.

Example training and assessment methods

M.11   It is good practice to use multiple methods of training and assessment. Examples include:

a) Classroom-based learning and assessment, using activities, exercises and videos

b) Simulator and/or simulated scenario-based training and assessment, covering normal, perturbed, degraded and emergency situations

c) On-the-job training, coaching and assessment, including peer learning

d) E-learning and self-directed learning and assessment.

M.12   The following can also be used to support development and learning:

a) Staff inductions

b) Safety days, briefings and team talks

c) Company articles illustrating examples of where staff have successfully influenced passengers' decisions and behaviours

d) Booklets, checklists, procedures, decision-making aids and briefing notes

e) Feedback, coaching, safety conversations and safety tours.

Understanding passenger behaviour

M.13   Particular passenger behaviours and characteristics increase risk and can be covered within training, along with example ways to influence behaviour.

M.14   Example passenger behaviours and characteristics include:

a) Intoxication or under the influence of drugs, for example they may be unsteady on their feet or confused. RSSB has published guidance on managing alcohol risks to personal safety and security on the railway, see *page 95*

b) Being impaired, for example, with reduced mobility, sensory and/or visual impairment and less visible impairments, such as autism. These can be addressed by specific awareness training

c) Irregular users of the railway and/or the station, for example they may be hesitating or looking around as if lost

d) With suitcases, pushchairs, carrying bikes or other baggage; for example, they may be struggling with luggage, a pushchair or other heavy/awkward baggage

e) Being elderly and/or with children

f) Being part of a mixed group where some people are travelling and some people are not

g) Waiting, walking or sitting very near the platform edge

h) Leaning on the train or over the platform edge

i) Running towards the platform and/or along the platform

j) Not paying attention to surroundings because of a distraction; for example, a newspaper, phone, tablet or headphones

k) Trying to get on or off the train too late when the doors are closing

l) Running or rushing in general

m) Looking for an item dropped on the track or close to the platform edge

n) Interfering with the train (for example, banging on the windows, trying to open the doors when they are already locked)

o) Messing around on the platform

p) Carrying objects above head height (for example, helium balloons, selfie sticks, child on parent's shoulders, and items allowed by the conditions of carriage).

Non-technical skills

M.15   Non-technical skills refer to social, cognitive and personal skills and enhance task completion, as set out in Table *9*. Further details can be found in the RSSB project T1064 *Developing tools to extend non-technical skills to non-driver roles*.

M.16   Staff can be trained to use techniques such as risk-triggered commentary to help them apply these non-technical skills.

Non-technical skill category	Example description for dispatch staff	Example description for staff not responsible for dispatch
Situational awareness	Attention to detail and maintaining concentration during the train safety check, maintaining overall awareness of risks and passenger behaviour on the platform during dispatch	Maintaining overall awareness to be able to recognise passenger behaviours associated with risk at the PTI
Conscientiousness	Taking a systemic approach when monitoring and checking doors and following the dispatch procedure each time	Checking that passengers are not putting themselves at risk through their behaviour
Communication	Clear and correct instructions to staff and passengers during dispatch, including assertive communication when challenging passengers' unsafe behaviour	Communicating correct customer information, including assertive communication when challenging unsafe passenger behaviour
Decision making and action	Diagnosing and solving problems, acting in a timely manner and making effective decisions to maintain the safety of passengers during dispatch tasks	Deciding on the correct course of action if a potential risk at the PTI has been spotted
Co-operation and working with others	Treating passengers with respect, and working with other staff to complete dispatch duties, where applicable	Supporting passengers by providing information and treating them with respect

Non-technical skill category	Example description for dispatch staff	Example description for staff not responsible for dispatch
Workload management	Prioritising dispatch tasks and staying calm during very busy periods such as peak travel and disruption Managing periods of low work and the transition from low to high workload	Knowing when to prioritise influencing passenger behaviour over other tasks
Self-management	Confidence to challenge passengers who are exhibiting unsafe behaviours and maintaining knowledge of techniques to use during dispatch; for example, risk-triggered commentary	Feeling confident and showing initiative to challenge passengers who are exhibiting unsafe behaviours

Table 9: Example non-technical skills for staff

Trainers, assessors and line managers

M.17   To help staff develop and apply the required knowledge and skill, the knowledge, technical and non-technical skills of relevant trainers, assessors and front-line managers is developed. For example:

a) Knowledge of PTI risk and contributory factors influencing PTI risk informed by the risk assessment

b) Understanding the knowledge and skills required by staff and the standard of performance that is expected of them

c) Understanding the methods and approaches to develop, assess and support the application of the required knowledge and skills

d) Development of their own non-technical skills to enhance their communication and coaching.

Change

M.18   Training and assessment may need to be amended or provided in line with any changes that may occur, for example, to the dispatch process or locations where staff work. The risk-based training needs analysis, along with the risk assessment and outputs from CSM RA (if applicable) determine additional training and assessment requirements.

M.19   It is good practice for staff to be trained and competent to undertake new/additional tasks in advance of any implementation.

Definitions

alert word	A word presented at the beginning of a verbal warning to indicate the level of priority or hazardous nature of the event. Alert words include words such as 'danger', 'warning' and 'caution'.
good practice	A process or method that has been shown to work well; succeeds in achieving its objective(s); is widely accepted; and therefore can be recommended as an approach.
infrastructure manager (IM)	Has the meaning given to it in the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended), but is limited to those infrastructure managers who hold a safety authorisation issued in respect of the mainline railway. Source: *ROGS*
railway undertaking (RU)	Has the meaning given to the term 'transport undertaking' in the Railways and Other Guided Transport Systems (Safety) Regulations 2006 as amended, but is limited to any private or public undertaking the principal business of which is to provide rail transport services for goods and/or passengers, with a requirement that the undertaking must ensure traction. Source*: ROGS*
risk-triggered commentary	A method of keeping essential information in the working memory by verbalising the activities that are being undertaken.
test target object	An object used for simulating incidents when testing the train dispatch system or process. Test target objects should be the same as or similar to (and no more difficult than) those that would be expected to be seen during train dispatch. GEGN8560 *Guidance on Engineering Requirements for Dispatch of Trains from Platforms* provides guidance on suitable test target objects.

train dispatch corridor	The train dispatch corridor encompasses:
	
	    a) The full length of the train;
	    b) The length of the platform accommodated by the train;
	    c) The gap between the train and the platform and
	    d) At least the height of the doors.

train dispatch process	This encompasses the agreed mode of train dispatch for each class of train and the associated procedures required to implement this mode of dispatch.
train safety check	The process carried out before giving the 'ready to start' signal to the member of train-crew, or starting the train to check that nothing is potentially trapped on the outside of the train and it is safe to start the train. In the case of manually closed doors, the train safety check also checks whether the doors are properly closed.

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Z scanning

This is a method of checking usually used in relation to CCTV monitors. It involves viewing the images from top to bottom, left to right in a 'Z' formation.

References

The Catalogue of Railway Group Standards gives the current issue number and status of documents published by RSSB.

RGSC 01	Railway Group Standards Code
RGSC 02	Standards Manual

Documents referenced in the text

Railway Group Standards

GIRT7033	Lineside Signs
GLRT1210	AC Energy Subsystem and Interfaces to Rolling Stock Subsystem

RSSB Documents

GERT8000	Rule Book
GLGN1620	Guidance on the Application of the Control of Electromagnetic Fields at Work Regulations
RIS-2703-RST	Driver Controlled Operation (DCO) On-Train Camera/Monitors (OTCM)
RIS-3702-TOM	Management of Route Knowledge
RIS-7016-INS	Interface between Station Platforms, Track, Trains and Buffer Stops
RIS-8060-CCS	Engineering Requirements for Dispatch of Trains from Platforms
RS100	Good practice guide on competence development
RSSB (2003)	Engineering - Improvements to Safety Signage on Passenger Trains: Guidelines for Symbol Design and Testing
RSSB (2015)	The Platform Train Interface Strategy
RSSB (2015)	The Platform Aerodynamic Risk Assessment Tool
RSSB (2016)	Taking Safe Decisions
RSSB (2016)	Platform Safety: The Facts and Your Role.
RSSB (2016)	Risk-based training needs analysis toolkit
RSSB (2017)	Risk associated with train dispatch. Consolidation of current knowledge
RSSB (2019)	Annual Safety Performance Report. A Reference Guide to Safety Trends on GB Railways. 2017/2018
T535	Assessing the impact of increased numbers of CCTV images on driver only operation of trains

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T1029	Designing a tool to support duty holders in the assessment of platform/train interface risk
T1037	Investigation of passenger vehicle footstep positions to reduce stepping distances and gauging constraints
T1065	Identifying and developing good practice for making on-train announcements in the event of an incident: guidance for managers and training material
T1118	Optimising the design and position of platform markings designed to keep people away from the platform edge

Other References

BS EN ISO 7010:2012+A6:2016	Graphical symbols. Safety colours and safety signs. Registered safety signs
Cabinet Office Emergency Planning College	Understanding Crowd Behaviours: Guidance and Lessons Identified.
Common Safety Method for Risk Evaluation and Assessment (CSM RA)	The CSM RA is a framework that describes part of the common mandatory European risk management process for the rail industry
Department for Transport	Accessible Train Station Design for Disabled People: A Code of Practice (2010)
Department for Transport	Design Standards for Accessible Railway Stations (2015)
Department for Transport	Inclusive mobility – a guide to best practice on access to pedestrian and transport infrastructure (2005)
Health and Safety Executive	The Health and Safety Executive provides guidance in relation to occupational health and safety risk assessment
Health and Safety Executive	Health and Safety at Work etc Act 1974
Health and Safety Executive	Management of Health and Safety at Work Regulations 1999
Health and Safety Executive	The Control of Electromagnetic Fields at Work Regulations 2016
Health and Safety Executive	The Electricity at Work Regulations 1989
NR L2 TEL 31111	Design & Installation Requirements for Driver Only Operation (Passenger)
Office of Rail and Road	Developing and maintaining staff competence: Railway Safety Publication 1, November 2016
The Railway and Other Guided Transport Systems (Safety Regulations) 2006	Regulations introduced to put the requirements of the 2004 European Railway Safety Directive into practice in Great Britain

GN022 RDG	Safety Management of Pushchairs and Wheelchairs on Station Platforms

Other relevant documents

Railway Group Standards

GMRT2111	Rolling Stock Subsystem and Interfaces to AC Energy Subsystem
RIS-2747-RST	Functioning and Control of Exterior Doors on Passenger Vehicles

National Technical Specification Notices (NTSNs)

PRM NTSN	Persons with Reduced Mobility National Technical Specification Notice (PRM NTSN). Published by the Secretary of State on 1 January 2021 pursuant to regulation 3B of the Railways (Interoperability) Regulations 2011. This NTSN replaces and substantially reproduces the provisions of Commission Decision 1300/2014 of 18 November 2014 (the PRM TSI), and includes relevant amendments made by Commission Regulation (EU) 2019/772 which came into force in June 2019.

RSSB Documents

GIGN7633	Guidance on Lineside Signs
GIGN7634	Index for Lineside Signs
RIS-3437-TOM	Defective On-Train Equipment
RS800	Managing drivers on routes undergoing significant change
RSSB 2014	Working Together. Wheel Chair Good Practice Guide
RSSB 2016	The Platform Train Interface Strategy: Technical Report
RSSB 2016	Leading Health and Safety on Britain's Railway: A Strategy for Working Together
RSSB 2016	A Good Practice Guide to Integrating Non-Technical Skills into Rail Safety Critical Roles:
RSSB 2016	Managing alcohol risks to personal safety and security on the railway. A good practice guide:
RSSB 2017	Implementing Risk Triggered Commentary for Train Dispatch - A Summary Booklet for Managers
RSSB 2017	Applying Risk Triggered Commentary to Train Dispatch - A staff booklet
RSSB 2018	Respect the Edge Campaign.
T1035	Evaluating technological solutions to support driver only operation train dispatch

T1054	Evaluating Platform Gap Fillers to Reduce Risk at the Platform/ Train Interface
T1055	Improving accessibility and safety for mobility scooter users travelling by rail
T1057	Investigating the risks posed by luggage to passengers and staff on trains and stations
T1059	Evaluating the use of on-train driver controlled operation (passenger) monitors during station departures
T1064	Developing tools to extend non-technical skills to non-driver roles
T1068	Supporting a fair culture - creating appropriate plans after incidents
T1098	Identifying mitigations for the risk of unplanned movement of wheelchairs and pushchairs on station platforms
T1102	Optimising door closure arrangements to improve boarding and alighting
T1135	Development of an operational decision-making model for abnormal working
T1142	Developing management and leadership skills for staff with operational line management duties
T1147	The health and safety effects of crowding on trains and in stations
T605	Evaluating techniques, including modelling and contingency planning, for managing crowded trains as a result of service disruption, local events or sheer weight of rush hour traffic
T656	Design for Crowd Behaviour
T759	Improving the methods used to provide access to and from trains for wheelchair users
T764	Evaluation of the benefits of yellow lines on non-high speed platforms
T834	Reducing accidents through inclusive design: steps, stairs and ramps
T881	Evaluating wayfinding systems for blind and partially sighted customers at stations

Other References

Office of Rail and Road	Railway Safety Principles on Driver Controlled Operation
Office of Rail and Road	Goal-setting Principles for Railway Safety (2016)
Rail Accident Investigation Branch	Occupied wheelchair contacting a passing train at Twyford station 7th April 2016. Report 01/2017

Rail Accident Investigation Branch	Passenger trapped and dragged under a train at West Wickham 10 April 2015. Report 03/2016
Rail Accident Investigation Branch	Passenger trapped and dragged by a train at Hayes & Harlington station 25 July 2015. Report 12/2016
Rail Accident Investigation Branch	Passenger trapped and dragged by a train along the platform at Bushey station 26th March 2018. Safety Digest 07/2018
Rail Accident Investigation Branch	Dog trapped and dragged by a train at Elstree & Borehamwood station 7th September 2018. Report 03/2019
Transport Research Laboratory	Qualitative study of passenger behaviour at the PTI