

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## Synopsis

This document provides the definitions of the most commonly used terms in the Railway Group Safety Performance Report to assist Railway Group members in their own safety performance monitoring and comparisons. It also provides guidance on the methods employed for normalising safety event data.

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# Railway Group Safety Performance Monitoring – Definitions and Guidance

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# Railway Group Safety Performance Monitoring – Definitions and Guidance

## Part A

### A1 Issue Record

Issue	Date	Comments
One	April 1999	Original document
Two	February 2003	Supersedes issue 1

Additional parts of revised pages have been marked by a vertical black line in the adjacent margin. Formatting revisions have not been marked by a vertical black line in this issue because the document has been revised throughout.

This document will be updated when necessary by distribution of a complete replacement.

### A2 Implementation of this document

The publication date of this document is 1 February 2003.

This document supersedes the following Railway Group Guidance Note:

Railway Group Standard	Issue No.	Title	RGS sections superseded by this document	Date(s) as of which sections are superseded
GE/GN8510	1	Railway Group Safety <b>Performance</b> Monitoring – Definitions / <b>Terminology</b> and Guidance	All	5 April 2003  (document withdrawn as of this date)

### A3 Responsibilities

Railway Group Guidance Notes are non-mandatory documents providing helpful information relating to the control of hazards and often set out a suggested approach, which may be appropriate for Railway Group\* Members to follow.

\* The Railway Group comprises Railtrack PLC, Railway Safety, and the train and station operators who hold Railway Safety Cases for operation on or related to infrastructure controlled by Railtrack PLC.

Railtrack PLC is known as Railtrack.

### A4 Health and safety responsibilities

In issuing this document, Railway Safety makes no warranties, express or implied, that compliance with all or any document published by Railway Safety is sufficient on its own to ensure safe systems of work or operation. Each user is reminded of its own responsibilities to ensure health and safety at work and its individual duties under health and safety legislation.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

**Railway Group Guidance Note**  
**GE/GN8510**  
**Issue Two**  
**Date February 2003**  
**Page 3 of 32**

## **A5 Technical Content**

The technical content of this document has been approved by:  
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## **A6 Supply**

Controlled and uncontrolled copies of this document may be obtained from the  
Industry Safety Liaison Dept, Railway Safety, Evergreen House,  
160 Euston Road, London NW1 2DX.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## Part B

### B1 Purpose

This document provides the definitions of the most commonly used terms in the Railway Group Safety **Performance Report** in order to assist Railway Group members in their own safety **performance** monitoring and **comparisons**. It also provides guidance on the methods employed for **normalising** safety event **data**.

### B2 Application of this document

#### B2.1 To whom the guidance applies

This document contains requirements that are applicable to Railway Safety and duty holders of the following categories of Railway Safety Case:

- a) infrastructure controller
- b) station operator
- c) train operator.

Under the Railways (Safety Case) Regulations 2000, the duty holder at a station (as defined in those Regulations) is responsible for ensuring that the requirements of Railway Group Standards are complied with. At a station, contractual arrangements (including a lease) do not by themselves relieve the duty holder of his obligations under those regulations.

#### B2.2 Documents supported by this Guidance Note

There are no documents supported by this Guidance Note.

### B3 Definitions

#### Infrastructure controller

Any company on the list of infrastructure controllers maintained and published by Railway Safety.

#### Railtrack controlled infrastructure

Railtrack controlled infrastructure (RCI) is the infrastructure that falls within the geographic boundaries of Railtrack's operational railway, including the permanent way and land within the lineside fence, and plant used for signalling or exclusively for supplying electricity for operational purposes to Railtrack's operational railway. It does not include stations, nor does it include depots, yards or sidings owned by or leased to, other parties. However, it does include permanent way at stations and plant within these locations used for signalling Railtrack's operational railway or exclusively for supplying electricity for operational purposes to the operational railway.

#### Station operator

The person or body in possession of the station operator's licence and thus having responsibility for control of the station.

#### Train operator

The person or body in possession of the relevant passenger or non-passenger train operator's licence for the train movement. The train operator may well contract with other rail businesses for provision of traincrew and/or traction and rolling stock, but its responsibilities as train operator remain. This is clearly defined in each operator's Railway Safety Case.

#### Train surfer

A person riding on the outside of a train irrespective of whether they have authority to do so and regardless of how they began their journey.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## B4 Safety Performance Reporting

### B4.1 Introduction

Consistency in **definition** is crucial to the use of any **data**. For safety analysis results and monitoring reports to be widely understood, it is essential that a common language is used both within railway organisations and between them. The use of the common language supported by clear definitions should avoid time consuming and costly translation and reconciliation.

The current definitions of the most commonly used terms in the Safety **Performance Report** produced by Railway Safety are set out in this document. The **performance report's** definitions are consistent with the meaning given to them in Railway Group Standard [GE/RT8047](#), SMIS and Railway Group Guidance Note [GE/GN8522](#). They are commended for use by all members of the Railway Group to assist transparency and comparability of the monitoring and assessment work done within the Railway Group.

Many of the definitions which apply to **data** used in the Safety **Performance Report** are common to both HMRI **data** sources as well as the Railway Group's own databases. However, certain differences exist in key areas, for example, definitions of person types such as passenger and public. There are also some definitions, such as suspected suicides and Railway Safety Case scope, which are specific to the Railway Group.

### B4.2 Safety Performance Report scope

Following the restructuring of the rail industry in April 1994, a new scope for defining safety **events** related to railway activities and operations was necessary. This differed from statutory reporting requirements and was based on the requirements of the Railway Safety Case Regulations 1994. **Data** required to be made available for the purposes of monitoring safety **performance** would relate only to those activities and operations falling under these regulations.

Generally, **data** and information shown in the Safety **Performance Report** is provided in the scope of Railtrack's Railway Safety Case (and including stations on RCI), with one or two exceptions, such as dangerous goods incidents. However, with the implementation of the Railway Safety Case Regulations 2000 and as a result of commitments made by the industry in the Railway Group Safety Plan (RGSP), the scope of the Safety **Performance Report data** and information requirements is now much wider and includes, for example, **data** relating to on-train passenger accidents.

The following sections provide a summary of the wider Safety **Performance Report** scope, showing the types of **events** that are included and excluded.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### Railway Safety Case scope

#### 4.3 Railway Safety Case scope

The Safety **Performance Report** scope covers all **events** occurring on or affecting RCI and at stations on RCI including:

- a) **events** off the running line but which physically obstruct a running line
- b) **events** on concourses, platforms, routes between platforms (including stairs, lifts, bridges, subways and escalators). Note that **events** on stairs, etc leading up to station entry point are included, if the stairs solely give access to the station
- c) **events** occurring within possessions on or affecting RCI
- d) accidents whilst boarding or alighting trains at stations
- e) accidents to passengers wholly on and contained within the confines of a train.
- f) **events** on the railway side of the point of entry to a station, unless in the specifically excluded list below.

The following types of event are excluded unless they affect RCI or a station:

- a) those within depots, sidings or yards not directly under Railtrack's control
- b) those within a traincrew depot
- c) those on a public highway
- d) those within railway owned offices
- e) those occurring within separate premises within a station, for example restaurants, retail premises, offices and toilets
- f) those within the staff side of ticket offices
- g) those within station car parks.

#### Notes

1. External door accidents/incidents in running, and out of gauge loads are not regarded as wholly within the confines of the train and hence are included.
2. A solely on-board passenger or workforce injury caused by, for example, a buffer stop collision is included as the injury arises from an event (such as a train accident) which is included. Similarly, driver trauma caused by a train striking a person on the line is included as the latter is an event that is included).
3. An accident to a passenger from spilt hot drinks or internal doors is included.
4. A signal passed at danger in a siding (not on RCI), but which affects RCI by physically obstructing a running line is included.
5. Car accidents on the public highway and involving workforce whilst travelling between sites of work whilst excluded from the scope of the Safety **Performance Report**, are reportable to SMIS in accordance with the requirements of Railway Group Standard **GE/RT8047**.

A car crashing onto a railway line (such as RCI) is included.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## B5 Person types

### B5.1 Person type definitions

This section provides details on Railway Group definitions of the various person types. It should be noted that there are some differences from the person types defined in Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995. For example, Railway Group classify all personal accidents either to a passenger, member of public or workforce. A person's actions, such as trespassing, are an attribute rather than a separate person type. However, trespasser is a separate person type under RIDDOR 1995.

### B5.2 Railway Group and RIDDOR 1995 differences

Before providing the Railway Group definitions, the following table summarises the main person types and differences between those used by Railway Group and those used by HMRI, as defined by RIDDOR 1995.

Person Types (Railway Group only)		HMRI differences (main only)
Category	Sub Categories	
Passenger	Passenger *	HMRI specifically exclude trespassers and deliberate fare evaders.
	Person-on-business (train based) * for example Customs & Excise staff	HMRI do not group under passengers, or split between train based and not train based.
Workforce	<ul style="list-style-type: none"> <li>• Workforce (Railway Group employee) *</li> <li>• Contractor (Non-Railway Group employee) *</li> <li>• BTP *</li> <li>• On-board catering staff * (Persons on business, franchisee's employees)</li> </ul>	
Public	Persons on property *	HMRI specifically exclude trespassers.
	Railway neighbour *	No direct equivalent. HMRI have a separate person type of persons on property if not trespassing.
	Persons-on-business (not train based) *	HMRI do not group under public or split between train based and not train-based.
		HMRI have a separate person type of trespasser (see below).
* In every case may involve person who is trespassing		

The main differences between HMRI and Railway Group definitions are:

- a) trespassers are a person type and not an attribute related to an individual's actions (hence a passenger cannot be a trespassing passenger under RIDDOR 1995)
- b) the person type of member of public does not exist, and members of the public are treated either as trespassers or persons on property.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### B5.3 Railway Group person type definitions

The definitions of the person types used in the Safety Performance Report, and generally by the Railway Group, are shown below. These have been applied in the Safety Performance Report since April 1995.

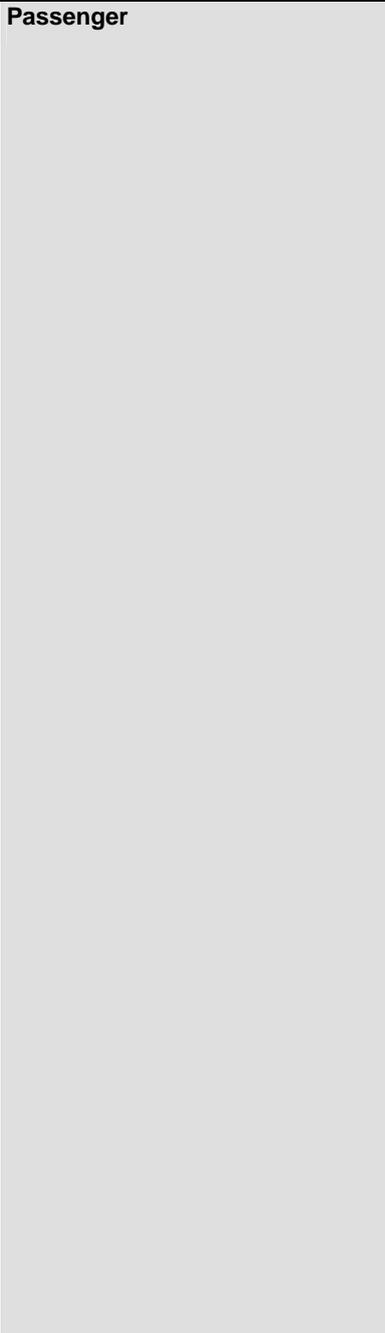
### B5.4 Passenger

A person travelling, that is someone who is actually on board a passenger train for travel purposes, or intending to travel irrespective of the person's actions. This includes:

- a) persons who, in the course of travelling, open doors whilst a train is in motion, for example under the influence of alcohol, or climb out of the train to train surf
- b) train surfers, unless this is their sole activity whilst on the train (see note 5 below)
- c) before and after on-board train travel, but whilst still on the operational railway, irrespective of whether the person has a right or is authorised to be in the place where the accident occurred
- d) passengers who deliberately cross tracks between platforms at stations (such that they are trespassing) (see note 4 below)
- e) passengers who step from platforms
- f) passengers who use a crossing at a station with or without authority.

Notes:

1. Confirmed suicides, such as where a person jumps from platform, even if there is clear evidence of intention to travel or having travelled on train to place where accident occurred should not be included as passengers (see note 6).
2. A person who falls from a platform due to illness to be treated as a passenger, irrespective of valid authority to travel.
3. Workforce travelling on duty, for example a railway driver 'travelling passenger' (or on 'the cushions') should be regarded as on duty and workforce but, if travelling before or after their turn of duty, they should be treated as a passenger. This also applies for RIDDOR 1995 purposes – the HSE's guidance on RIDDOR 1995 to the contrary is an error.
4. For the purposes of reporting under RIDDOR 1995, passengers deliberately crossing the tracks at stations or who in any other way trespass (that is a passenger trespasser) should be reported as a trespasser and not a passenger.
5. Train surfers are not normally regarded as passengers as they do not board the train in the normal way and are not on board the train for travel purposes. If, however, they begin their journey travelling in the normal manner and then decide to train surf they are treated as passenger trespassers.
6. Suspected suicides at stations by persons who showed an intention to travel or had travelled are included as passengers because of the difficulty of distinguishing between platform jumps and genuine falls/slips. Only if it is a confirmed suicide (that is, by coroner's inquest verdict) is it excluded (and treated as public).
7. For the purposes of statutory reporting, passengers who commit suicide by falling from a train are included as passengers. Note, however, that the HMRI separately groups such cases as suicides.



# Railway Group Safety Performance Monitoring – Definitions and Guidance

**Passenger – (continued)**

**B5.4.1 Passenger trespasser**

This includes a passenger (as defined above) who is in a place they have no right or authority to be, for example:

- a) crossing tracks at a station
- b) a train surfer, if they had previously travelled as a passenger on the train.

Note:

For the purposes of the Safety Performance Report passenger trespassers are included within the data relating injuries to members of the public.

**B5.4.2 Person-on-business (train-based)**

Persons who are on duty on trains should be treated as passengers. This includes, for example:

- a) Customs & Excise staff
- b) HMRI staff.

For the purposes of RIDDOR 1995, these staff should be reported as persons-on-business by the infrastructure controller and train operators. Note that HMRI however do not group them under passenger.

Note: Staff of a franchise operator on trains (such as on-board catering) are not included under this category.

## **Railway Group Safety Performance Monitoring – Definitions and Guidance**

### **Workforce**

#### **B5.5 Workforce**

All persons working for the Railway Group on railway operations (either as direct employees or under contract).

Notes:

1. A direct employee is an employee of a Railway Group member.
2. 'Under contract' relates to workforce working as contractors, such as under a contract to a Railway Group member (either as a direct employee of a Railway Group member or of contractors to such organisations).
3. Staff travelling on duty, including drivers travelling passenger – on 'the cushions', are to be regarded as workforce. When travelling before or after a turn of duty, they are to be treated as passengers.

##### **B5.5.1 British Transport Police**

British Transport Police (BTP) employees working for Railway Group members on railway operations should be treated as workforce.

##### **B5.5.2 On-board catering staff (person on business, franchisee's staff)**

Franchisees' staff (and any persons under contract to them) on a train, for example providing catering services, should be treated as workforce.

##### **B5.5.3 Trackside employees**

This includes members of the workforce employed in engineering or technical activities on or near the line or lineside (as defined in the Rule Book, which includes within 4 feet of platform edge).

Note:

1. Engineering or technical activities are civil engineering, signal engineering, electrification, telecoms, building works, shunting and other supporting activities (such as point winding, handsignalling, lookouts, COSS, PICOP, engineering supervisory duties, patrolling and walking to perform any engineering or technical activities).
2. Engineering or technical activities excludes work by those in existing railway train (wo)man grades, fitters attending a failed train and signalmen unless engaged in one of the above activities, such as handsignalling. It would include those in existing grades of permanent way staff, S&T, overhead line and shunters when performing trackside activities.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## B5.3.3 Public

This includes persons other than those that are passenger or workforce.

### Public

- a) Person-on-business (not train based)  
This includes persons who are justifiably on business connected with the railway (but not train based). For example:
  - i) someone seeing off or meeting a passenger
  - ii) taxi drivers
  - iii) persons working at stations such as Royal Mail staff or tenants' employees on stations and staff of catering franchisees (but not train based).
- b) Person-on-property  
This includes persons who become affected by the railway whilst being on it. For example:
  - i) a person using a level crossing or bridge who become affected by **events** on the railway
  - ii) persons who have no intention of travelling and who may or may not be trespassing, for example using railway property as a means of access (such as taking a short cut through an open station) or electrocuted throwing objects onto railway etc or walking by the line
  - iii) trespassers on railway property.
- c) Railway neighbour  
This includes persons not on railway property but who:
  - i) become affected by it, for example a bystander on the pavement injured by scaffolding falling from railway property
  - ii) affect it, such as a vandal throwing stones whilst from a place off railway property.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### B6 Person's intentions

#### B6.1 Use in Safety Performance Report and HMRI data

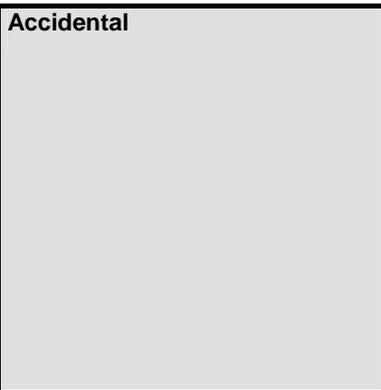
The concept of intention, being either suicide, suspected suicide or accidental, only applies to the Safety Performance Report data. Data used by HMRI is based upon coroners' inquest verdicts and it does not publish figures using categorisations equivalent to those used in the Safety Performance Report.

#### B6.2 Accidental

This applies to cases where the person did not intend to take their own life or injure him or herself.

There is often a need for managerial assessment by applying standard criteria – the 'Ovenstone criteria' adapted for railways and shown in [GE/GN8547](#) – to identify those cases that are truly accidental and in order to remove cases of suspected or attempted suicide. Such assessment cannot necessarily be made using only the coroner's inquest verdict. An open verdict could be assessed managerially as either suspected suicide or accidental depending on the available corroborating evidence.

The categorisation is irrespective of whether the person has a right or is authorised to be where the accident occurred, such that they may be trespassing. Where doubt exists about the categorisation, an injury should be treated as accidental and not suspected/attempted suicide.



#### B6.3 Suicide

This includes only those fatalities where the coroner's inquest returns a verdict of suicide or, in Scotland, where the investigation process indicates suicide.



#### B6.4 Suspected/attempted suicide

This includes only those fatalities or injuries where there is objective evidence (other than the coroner's inquest verdict) indicating the person's intention to take their own life or injure themselves.

This decision to be based on applying the 'Ovenstone criteria' – as adapted for railways – shown in [GE/GN8547](#).



# Railway Group Safety Performance Monitoring – Definitions and Guidance

## B7 Injury types

### B7.1 Safety Performance Report terms and definitions

The following definitions apply to all data used in the Safety Performance Report. It should be noted that the RIDDOR 1995 major injury definition is also applied to passengers and public for the purposes of the Safety Performance Report.

Fatality

### B7.2 Fatality

This is identical to the RIDDOR 1995 definition, that is, due to an accident and including where death occurs within twelve months of and as a direct result of an accident.

This excludes death from natural causes, for example heart attack, fits and in some circumstances drug overdose.

Major injury

### B7.3 Major injury

This is as defined in RIDDOR 1995, but note the additional guidance provided in GE/GN8522. Whilst for the purposes of RIDDOR 1995 reporting this definition applies only to employees, for Railway Group purposes the definition is applied to all person types, including passenger and public.

#### B7.3.1 Passenger and public major injuries

Statutory reportable An injury defined as major by RIDDOR 1995 and where the person is taken from the scene/site directly to hospital (but excluding self-inflicted injuries).

Not statutory reportable An injury defined as major by RIDDOR 1995 but which does not result in the person being taken from the scene/site directly to hospital.

#### B7.4.2 Workforce major injuries

An injury reportable as a major injury as defined by RIDDOR 1995, irrespective of whether there was an absence from duty.

Minor injury

### B7.4 Minor injury

An injury that is not fatal or major.

#### B7.4.1 Passenger and public minor injuries

Statutory reportable An injury where the person is taken from the scene/site directly to hospital for treatment (but excluding self-inflicted injuries).

Not statutory reportable Any injury that does not result in the person being taken from the scene/site directly to hospital.

#### B7.4.2 Workforce minor injuries

Statutory reportable An injury that results in an absence from duty of more than three consecutive days (excluding day of injury but including any non-working days).

Note:

Excludes cases of shock or psychological trauma.

Not statutory reportable Any injury that is not fatal or major, and does not result in an absence of more than 3 days.

Note:

Excludes cases of shock or psychological trauma.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### Lost time accident

#### B7.5 Lost time accident

This term only applies to workforce and includes:

- a) fatalities
- b) major injuries, including those not involving an absence from duty
- c) minor injuries resulting in an absence from duty (but excluding the day of injury).

### Statutory reportable injury

#### B7.6 Statutory reportable injury

This applies to injuries reportable under RIDDOR 1995.

Note:

Shock or psychological trauma are not regarded as injuries for the purposes of RIDDOR 1995, irrespective of whether the person:

- a) has been taken from scene directly to hospital for attention
- b) is absent from duty as a result.

### Shock and trauma

#### B7.7 Shock and trauma

Shock, or psychological trauma, is regarded as an injury for the purposes of reporting to SMIS, but such cases are not included in the Safety **Performance Report**, unless specifically indicated.

### Equivalent fatality

#### B7.8 Equivalent fatality

All fatalities and injuries expressed in terms of fatalities where:

- 10 major injuries = 1 fatality
- 200 minor injuries = 1 fatality

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## B8 Accidents types

### Personal accident

#### B8.1 Other documents

See also Railway Group Standard [GE/RT8047](#) and supporting guidance note [GE/GN8547](#).

#### B8.2 Personal accident

A personal accident is an uncontrolled, unplanned event that results, or could in similar circumstances result, in an individual being injured or shocked.

This may also include ill health that is attributable to a single event while at work, including inhaling, swallowing or otherwise absorbing any substance, or from suffering lack of oxygen, except where a reportable disease is involved.

The following personal accident categories are used in the Safety **Performance Report** to indicate the nature of the accident and involvement or otherwise of trains and rail vehicles.

##### B8.2.1 Train accidents

This applies to injuries resulting from accidents involving trains and rail vehicles. For example:

- a) collisions
- b) derailments
- c) trains striking obstacles, such as obstructions on the track or at level crossings
- d) train fires
- e) open door 'collisions' (with passing train or lineside structure).

See below for further guidance on the train accident categories.

##### B8.2.2 Movement accidents

This applies to injuries sustained during or in connection with the movement (or operation) of trains/rail vehicles, but excluding injuries sustained in train accidents (see above). It includes injuries involving stationary trains, for example accidents during boarding and alighting from trains and accidents occurring on board trains.

##### B8.2.3 Non-movement accidents

This applies to injuries resulting from, for example:

- a) slips, trips and falls on platforms
- b) falls on stairs/escalators at stations

that are unconnected with the movement (or operation) of trains/rail vehicles.

##### B8.2.4 Station accidents

This is a term used only in the Safety **Performance Report** and includes injuries resulting from both movement and non-movement accidents that occur at stations.

Movement accidents included in this term should be those associated with platform management, for example boarding/alighting, but not those occurring wholly on board a train whilst the train is at a station.

##### B8.2.5 Natural causes

Cases of death attributed to natural causes, or illnesses/conditions that are not work-related, are not to be regarded as a personal accident, and as such do not generally require to be reported in compliance with this procedure.

However if such death or illness or condition placed others in danger owing to the nature of the task being carried out by the employee at the time, the event must be reported as a personal accident, detailing the nature of the 'natural cause or illness/condition' involved.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### Occupational ill health

#### B8.3 Occupational ill health

This includes any case of ill health that is suspected or known to have resulted from the affected person's work activity or work environment, other than ill health caused by personal accident or assault.

This term applies only to cases of occupational ill health diagnosed or certified by a doctor or medical practitioner and includes cases of reportable disease.

### Reportable disease

#### B8.4 Reportable disease

This applies to any case of disease listed in Schedule 3 of RIDDOR 1995, contracted whilst carrying out a specified work activity.

Cases of reportable disease are a specific form of occupational ill health.

### Train accidents

#### B8.5 Train accidents

This includes the following types of event that are reportable under RIDDOR 1995 (see [GE/GN8522](#) for further guidance).

##### B8.5.1 Collisions between trains or railway vehicles

All passenger train collisions are included and non-passenger train collisions on a running line where damage (including breaking glass) occurs. Any collision in a siding that obstructs the running line is also included.

##### B8.5.2 Buffer stop collisions

This includes trains striking a buffer stop (other than in a siding) where injury arises or the train or rail vehicle is damaged.

##### B8.5.3 Derailments

This includes all passenger train derailments, and derailments of non-passenger trains on running lines. Any derailment in a siding that obstructs the running line is also included.

##### B8.5.4 Collisions between trains and projections from other trains or vehicles on parallel lines

This includes an open train door striking a passing train.

##### B8.5.5 Trains running into obstructions

This includes trains running into an obstacle at level crossings (such as a road vehicle, gate or horse/cattle), or anywhere on a running line if damage occurs. It also includes trains being struck by obstructions and resulting in damage.

##### B8.5.6 Fires on trains

This includes fires, severe electrical arcing or fusing on:

- a) any passenger train or train conveying dangerous goods
- b) a non-passenger train where the fire is extinguished by fire brigade.

##### B8.5.6 Other accidents to trains

For example, an open door on train striking a lineside structure, for example a bridge.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

Signal passed at danger

## **B8.6 Signal passed at danger**

Signal passed at danger (SPAD) is the term used to describe an incident when any part of a train has passed a stop signal at danger without authority or where an in-cab signalled movement authority has been exceeded without authority.

### **B8.6.1 Category A**

When a stop aspect, end of in-cab signalled movement authority or indication (and any associated preceding cautionary indications) was displayed correctly, in sufficient time for the train to be stopped safely at the signal or end of in-cab movement authority

### **B8.6.2 Category B**

When a stop aspect or end of in-cab signalled movement authority, that previously showed a proceed indication, was displayed because:

- a) infrastructure failure (for example, signalling or level crossing equipment has failed or malfunctioned)
- b) it was returned to danger in error

## **B9 Types of train**

Passenger train

### **B9.1 Train**

For the purposes of this document 'train' includes a locomotive, tramcar or other power unit vehicle used on the transport system.

### **B9.2 Passenger train**

A train that is in service and available for use of passengers. A train of empty coaching stock brought into a terminal station, for example, becomes a passenger train in service as soon as it is available for passengers to board.

Non-passenger train

### **B9.2 Non-passenger train**

Any train that is not available for the use of passengers. This includes: empty coaching stock trains (see above), freight trains, and light locomotives.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### B10 Running lines

#### B10.1 Running line

A 'running line' is a line that is ordinarily used for the passage of trains. It is as shown in Table 'A' of the sectional appendices. All lines that are not running lines are, therefore, regarded as loops or sidings.

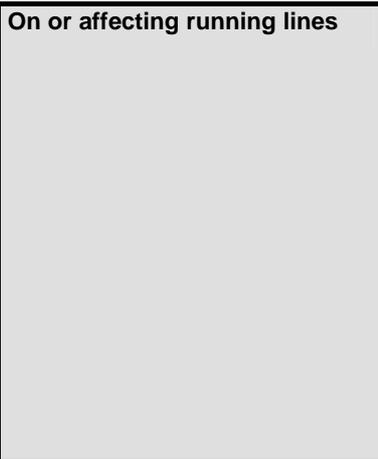
A running line may be 'passenger' or 'freight only'. The running line may be under an engineer's possession and not available for normal train running.

#### B10.2 On or affecting running lines

'On running lines' is self-explanatory. However, 'affecting' can be open to misinterpretation. In practice, this should apply to those **events** that do not occur on a running line but where a running line is affected. For example, a collision or derailment in a yard, depot or siding results in an adjacent running line being endangered, that is, physically obstructed by the derailed vehicle(s).

Collisions and derailments occurring within yards, depots or sidings are considered not to have affected a running line where:

- a running line is not physically obstructed by derailed vehicles, or
- for precautionary reasons only an adjacent running line is blocked or trains run at reduced speed only due to the presence of investigation, rerailing or emergency services personnel close to the running line, or pending confirmation that derailed vehicles are close to, but not obstructing, running line
- a non-derailed portion of the train or shunt movement becomes stranded on the running line simply because the train/movement cannot continue.



### B11 Level crossing categories

#### B11.1 Protection

The 'protected' and 'unprotected' definitions apply to all **data** and are based on HMRI groupings, as published in their Annual Reports on railway safety.

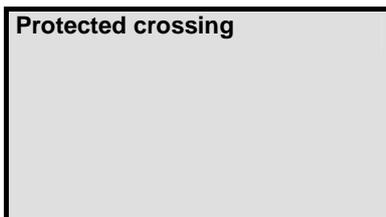
#### B11.2 Protected crossing

##### B11.2.1 Manual

Level crossings where the barrier or gates are manually operated by railway employees, such as MG, MCB, MCB with CCTV (see section B11.4).

##### B11.2.2 Automatic

Level crossings where protection is automatically operated, such as AHB, ABCL, AOCL, AOCL, and UWC with MWL (see section B11.4).



#### B11.3 Unprotected crossing

Level crossings where any protection is not automatically controlled or manually controlled by railway employees, such as UWC, UWC with T, OC, FP (see section B11.4).



# Railway Group Safety Performance Monitoring – Definitions and Guidance

## Types of crossing

### B11.4 Types of level crossing

The level crossing types (and abbreviations) as used and published by the HMRI are used in the Safety **Performance Report**:

MG	Manned gates operated by railway employee, including those operated by trainmen
MCB	Manually controlled barriers operated by railway employee
MCB with CCTV	Manually controlled barriers with closed circuit television
AHB	Automatic half barriers
ABCL	Automatic barrier crossing, locally monitored
AOCL	Automatic open crossing, locally monitored
AOCR	Automatic open crossing, remotely monitored
UWC	User worked crossing with either gates or lifting barriers operated by user (not railway employee)
UWC with T	User worked crossing equipped with telephone to the supervising signalbox
UWC with MWL	User worked crossing equipped with miniature warning lights
OC	Open crossing
FP	Footpath level crossing

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### B12 The normalisation of safety event **data**

#### B12.1 Normalisation **data** for Safety Performance Report

The following table summarises the normalisation **data** used in the Safety Performance Report.

#### B12.2 Passenger journeys

Passenger operating journeys. **Data** obtained from computer analysis of passenger revenue information (CAPRI) for operating journeys only.

##### B12.2.1 Passenger transits

Journeys starting/ending at a station and interchanging journeys. **Data** based formula applied to the passenger journey **data** obtained from CAPRI.

Passenger journeys

#### B12.3 Passenger miles

Passenger miles. **Data** obtained from CAPRI.

Passenger miles

#### B12.4 Train miles

**Data** used by Railway Safety is obtained from Sema Schlumberger for its own purposes. Train operators can obtain the same information from **performance** and loading analysis database information (PALADIN) using its train miles monitoring statistics facility.

##### B12.4.1 Passenger

Passenger train miles, excluding empty coaching stock (ECS) train mileage, for example 'loaded' miles only.

##### B12.4.2 Total

For passenger train operating companies this includes both passenger train and ECS train (that is, 'loaded' and 'unloaded') mileage.

For non-passenger train operating companies this is the total train miles.

Train miles

#### B12.5 Rail vehicles

Includes serviceable and stored serviceable vehicles and excludes stored unserviceable vehicles.

Rail vehicles

#### B12.6 Guidance on normalisation of **data**

Guidance on the normalisation of safety **data** is set out in Appendix A.

# Railway Group Safety Performance Monitoring – Definitions and Guidance

## Appendix A

### Guidance on the normalisation of safety event **data**

#### 1 Introduction

##### 1.1

The aims of this part of the document are to:

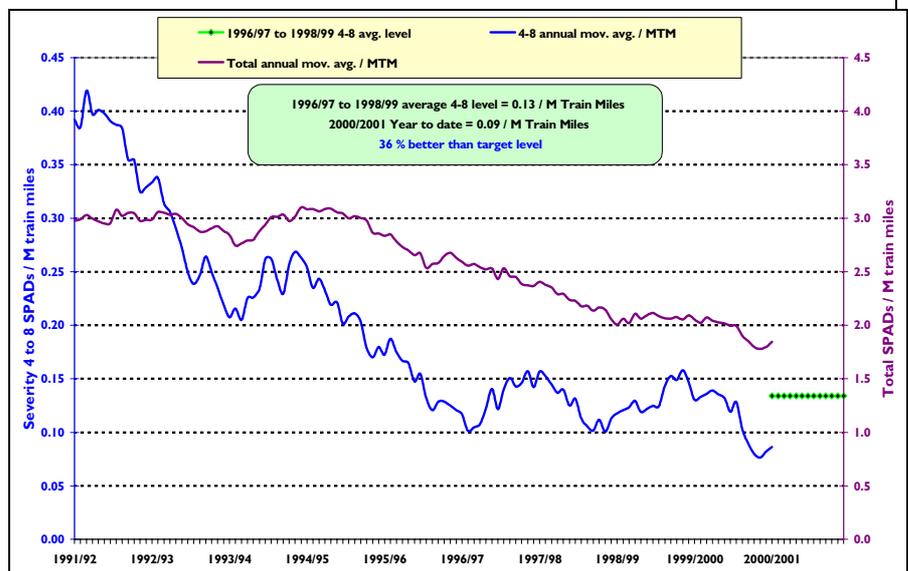
- a) Provide some useful information and guidance on the use of accident/incident rates, that is, normalised accident/incident **data**, as used within the railway industry. Relevant examples should be used, with reference made to general guidance (such as HSE guidance) and examples where appropriate.
- b) Identify possible pitfalls to avoid in the use and presentation of such **data** and the methods of calculation for the different types of base **data** – or normaliser.

##### 1.2

The HSE, in its Guidance Note HS(G)65 Successful Health and Safety Management, provides some information on the use of injury frequency and injury incidence rates.

##### 1.3

Examples of normalised accident rates can be found in Railway Safety's Safety **Performance Report**. The following chart is such an example and presents graphically the normalised rate of signals passed at danger (SPADs), that is SPADs per million train miles.



## Railway Group Safety Performance Monitoring – Definitions and Guidance

### 2 Why use accident/incident rates?

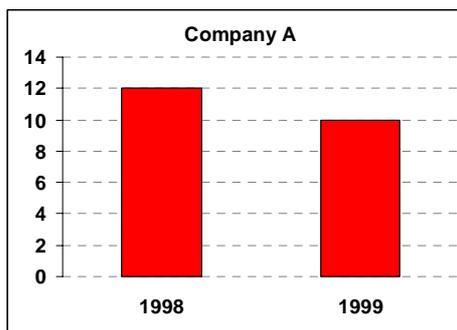
#### 2.1

Raw accident/incident **data** rarely indicate the true picture in terms of safety **performance** because it takes no account of changes in activity (such as number of train runs) or operations (such as number of vehicles).

#### Example 1

Company A had 12 employee injuries during 1998 and 10 in 1999.

This raw **data** suggests that the company's safety record improved in 1999 as shown in the following chart, although this was not the case.



Accident/incident rates are more useful means of measuring safety **performance** for the following reasons:

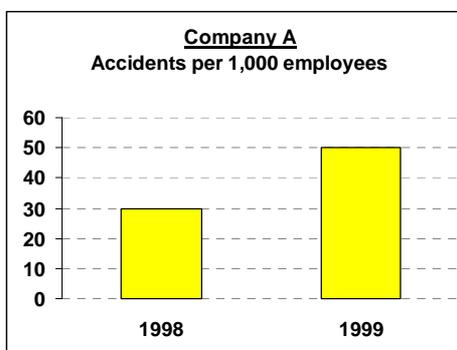
- they enable an organisation to measure and compare its safety **performance** over a number of months or years. This is particularly important where its size or the scope and nature of its activities or operations are subject to change.

Normalised **data** should take account of such changes to provide a better indication of whether its safety **performance** is getting better or worse as a result of the changes.

#### Example 2

As shown in example 1, Company A had 12 employee injuries during 1998 and 10 in 1999. However, at the end of 1998 half its workforce left the service of the company.

Use of an accident rate shows that its safety record had worsened quite dramatically in 1999 – the accident rate increased by 66%!



# Railway Group Safety Performance Monitoring – Definitions and Guidance

- b) they enable an organisation to compare its safety **performance** with:
- i) accident statistics published by external sources (for example the HSE or HSC)
  - ii) similar organisations in the same industry sector.

Some **comparisons** should, of course, often use a combination of both, for example, **comparisons** with national statistics over a number of years.

- c) they enable the level of risk to be evaluated. As explained, raw accident numbers provide little information about how safe an organisation may be. '10 employee injuries in 1999' does not give an accurate indication of safety **performance** and, equally, it provides no measure of the risk of injury occurring to an employee.

On the other hand, an accident rate, although it is always based on historic **data**, gives us the actual risk over a period of time. This historic risk may be used to evaluate future risk.

## 3 What is a normaliser?

### 3.1

A normaliser is **data** (sometimes known as a **normalising** base) that converts raw **data** into a common rate for ease of comparison. For safety **performance** purposes, this rate is obtained by linking the actual number of **events** to measures of either:

- a) the level of work activity related to the type of event, or
- b) the persons or assets that are employed/involved. For example:

<b>Example 3</b>	
<u>Work activity related accident/incident rates:</u>	<u>Person/asset related accident/incident rates:</u>
a) Signals passed at danger – per million train miles	a) Employee injuries – per thousand employees
b) Passenger injuries – per million passenger journeys	b) Open door incidents – per thousand vehicles

### 3.2

Different normalisers can, however, be used to measure the same accident or incident type. For example, employee injuries can be normalised using employee numbers (such as injuries per thousand employees) or the hours worked by these employees (such as injuries per million hours worked).

## 4 When to normalise – and when not to!

### 4.1 A introduction to when to normalise

Whilst **normalising** is a good tool for analysis purposes, there may be times when it may not in fact be the right tool for the task in hand and should, therefore, be applied with caution.

## Railway Group Safety Performance Monitoring – Definitions and Guidance

### 4.2 Will normalising actually help?

At times, only a simple measure is needed and using the raw **data** should provide the necessary information. Attempting to normalise may unnecessarily complicate matters when there is no need to compare with other organisations or evaluate risk.

#### Example 4

- How many **events** in the year-to-date compared with the same time last year (that is comparative running totals).
- When there has been a spate of **events** – for example, 'three in the last fortnight, against two in the last three years'.

The following are occasions where the use of normalised **data** may be inappropriate:

- The normaliser has changed little from period to period, or year to year.  
In this case there is little point in **normalising** the event **data** since the end result should provide little benefit over the use of raw event **data**.
- Events** are infrequent (say one or two a year). See also section 4.5 below.
- See also section 4.4 below.

### 4.3 Has there been significant changes in the normaliser?

It is important to remember that the normaliser, where readily available, must be watched for significant changes that may, in turn, have a significant effect on accident rates. Such changes may occur due to changes in activity or persons/things employed.

However, in some cases, a change of **definition** may be applied that affects the normaliser. This may require investigation with the supplier of the **data**.

Such significant changes, the reasons for them and their effects on current **performance** targets, where relevant, should be explained.

### 4.4 Benchmarking/comparing normalised data

Normalised accident rates are meaningless unless benchmarked or compared with the rates for previous years or other organisations. Using a normalised accident rate without benchmarking does not add value and is of no greater benefit than the use of raw **data**.

### 4.5 The effect of small numbers

Often, where very small numbers of **events** are involved, the raw figures may be sufficient or may convey more meaning.

#### Example 5

A single accident produces a normalised rate of 3.657.

Mathematically the figure is correct, but the three decimal points suggests it to be a much more accurate indication of **performance** than may be the case.

The example shown above may be considered as an example of spurious accuracy, a fault found too often in accident/incident statistics.

To overcome possible problems associated with a small number of **events**, it is advisable to use one or both of the following options for presenting the **data**:

- use the raw figures in isolation
- quote the raw figures together with the rate.

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#### 4.6 Is the normaliser relevant to what is being measured and is it suitable?

For a number of event types, such as passenger injuries, the normalised accident/incident rates are well established (see, for example, the graphs and tables in the Safety **Performance Report**).

However, at times there may be the need to identify or develop a new normaliser for use with a specific event type. When attempting to do so, it is important to select a normaliser that has a direct relationship with the type of event being measured.

##### Example 6

There is a direct link between the number of passenger injuries and the volume of passenger business. Therefore, it is acceptable for passenger journeys, etc to be used for **normalising** passenger accidents.

It would not be desirable to normalise the incidence of car theft from station car parks using passenger journeys since there is only an indirect relationship with the event type. Not all passengers use cars and station car parking facilities vary widely between stations.

The key question to be answered is 'what is the activity that actually gives rise to the event?' For car theft, it may be necessary to relate such **events** to car park occupancy or, possibly, car park ticket sales.

This is merely applying common sense, but should ensure the normaliser is relevant and suitable. The suitability of a normaliser again comes into question when attempting to compare different organisations, or departments/functions of the same organisation. Here the key questions are 'does the normaliser take into account the differences in activities/operations?' and 'does it penalise specific types of operation?'

##### Example 7

Use of train mileage **data** to normalise SPADs (for example, per million train miles), is suspected to be biased against inner suburban train operations which experience higher signal density, greater propensity for approaching signals at danger and a higher intensity of traffic.

It should be noted that some event types could use several different normalisers for different categories of the event, with some more appropriate than others.

Passenger journeys **data** is suitable to normalise passenger non-movement accidents, but passenger mileage is not and may be better used **normalising** passenger movement accidents. Although the latter does measure passenger activity, asking the key question shows that non-movement accidents do not occur on trains and passenger miles incorporates mostly on-train travel. It therefore relates to an activity not exposed to the accident risk.

#### 4.7 Is the **normalising** base or the subsequent accident rate easy to understand?

This depends upon the intended audience's understanding of the subject. The key questions to ask are:

- a) Will the audience know what the normaliser is intended to convey about the organisation's safety **performance** or risk level?
- b) Can it be easily explained?

For example, a normaliser may be devised which is perfectly suitable for the event type but is so complex that it can only be explained to another statistician.

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It is crucial that the audience comprehends the **data** and, to achieve this, consideration should be given to briefing-in when first introducing normalised accident rates, or when significant changes are made to the way in which statistics are presented.

It may also be of benefit to include a description of what the presented **data** represents, for example, a brief description of how the rate is calculated and any assumptions made in its calculation. Although this will inevitably take much time to prepare, it should often considerably improve the understanding of the subject and help to prevent:

- a) misunderstandings; resulting in the wrong conclusions being drawn or incorrect action taken,
- b) needless discussion in meetings about what the figures mean,
- c) time spent in preparing the **data** being wasted.

A typical need for briefing concerns the average type normaliser. In this case, it is important to make it clear how the accident rate quoted is being expressed, such as 'per annum', 'per period', 'per month', etc as this can drastically affect the audience's understanding.

### 4.8 Can the **normalising base data** be obtained easily and accurately?

Some **data** is held in centralised databases, such as passenger journeys, and may be easily obtained and provided regularly to contributing organisations as part of the agreed arrangements. However, other **data** may not be so readily available and work may be needed to both create and maintain the database required.

#### Example 8

Train mileage **data** is readily available from centralised systems and provides **data** relevant to trains operated by each individual train operator. However, for train operator A, whose drivers work trains operated by train operator B and C, to calculate the train mileage for trains worked by its drivers may require considerable effort every period/month.

Given the limited application of some normalisers (such as the given in example 8 above), a compromise may have to be adopted. This may involve calculating the normaliser less frequently or, alternatively, only when significant change occurs, for example at timetable changes. However, care should be taken when making such compromises to ensure the normaliser does not fall too far adrift between recalculations.

In some cases, the ideal **normalising** base may not be available or may not be so for some years until the advent of more advanced technology.

#### Example 9

SPADs would, perhaps, be best normalised against the 'number of red signals approached'. Such **data** cannot be easily obtained and, by its very nature, would be affected by changes in operational circumstances.

Sampling methods, perhaps using cameras fitted to trains or the use of IECC/SSI signalling system **data** may provide a partial solution.

### 4.9 What if an appropriate normaliser does not exist?

The lack of an appropriate normaliser is not always the end of the story.

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The frequency of raw, partial **data** can always be calculated into an annual frequency, such as numbers of fatalities per annum. This is not an ideal solution, but helps in situations where there is a lack of normalisation **data**.

### Example 10

A projected annual frequency is calculated using part-year raw **data**. However, it is necessary to base the calculation on an easily measurable period of time, for example calendar months or financial periods.

Using financial periods as the basis, calculate the number of accidents for a give time period, say Periods 1 – 6. Divide this cumulative figure by the number of periods used – in this example, six periods – and then multiply by 13 (there being 13 financial periods in a year).

A sophisticated example is the use of equivalent fatalities. This uses a formula to convert the number of fatalities, major injuries and minor injuries into a single figure:

$$1 \text{ equivalent fatality} = 1 \text{ fatality} = 10 \text{ major injuries} = 200 \text{ minor injuries}$$

Equivalent fatalities could be used with an appropriate **normalising** base or projected annual frequency rates calculated.

## 5 Types of normaliser

### 5.1 Normaliser types

Normalisers fall into two distinct types and it is important to understand the different types of normaliser since for each the method of calculation of the accident/incident rates is different. Use of the wrong method of calculation will give inaccurate and misleading information. The methods of calculation are shown in section 8.

#### 5.1.1 Cumulative type

This type of normaliser:

- a) is measured against levels of work activity or operations (such as passenger journeys, passenger miles, train miles)
- b) accumulates over time.

Whilst not always the case, particularly where the safety record may be continually improving, the number of **events** should also increase over the same time period.

#### 5.1.2 Average type

This type of normaliser:

- a) is measured against the persons or assets involved (for example number of employees, number of vehicles)
- b) does not accumulate over time but may show small changes in levels between periods.

This type of **normalising** base is often difficult to understand. The problem is that whilst time and the number of **events** both accumulate, the **normalising** base does not. This makes the method of calculating an accident rate more difficult.

### 5.2 Rates expressed differently

It is important to avoid confusion when comparing seemingly similar rates emanating from two – or more – different sources for the same event **data**. The rates shown may be presented or expressed differently, for example period rates shown by one and annualised period rates shown by another. The two will differ by a factor of 13 and they will appear, at first glance, to have no relationship at all.

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A simple test can be carried out to determine whether the two sources are presenting the same basic information in a different way. Multiplying the lower rate by 13 may solve the matter – both rates should be the same. If not, further information/guidance should be sought from the sources.

### 6 Calculating risk levels using normalised accident rates

#### 6.1 Formula alteration

By simply altering the formulae used to calculate the accident rates, irrespective of the type of **normalising** base used, it is possible to calculate risk levels.

#### 6.2 Cumulative type **normalising** base

To obtain the level of risk of injury for an individual passenger journey the calculation is reversed to obtain, for example, the number of journeys per injury, that is, for a given time period, divide the cumulative number of passenger journeys by the cumulative number of passenger injuries.

A figure of 200,000 passenger journeys per injury would equate to an individual journey injury risk level of 1 in 200,000, or  $5 \times 10^{-6}$ .

#### 6.3 Average type **normalising** base

In similar fashion, the risk level is obtained by reversing the calculation method to give, for example, the number of injuries per 1,000 employees.

Therefore, an annual injury rate of 40 injuries per 1,000 employees equates to 25 employees per injury (that is  $1,000 \div 40 = 25$ , which equates to an annual injury risk of 1 in 25, or  $4 \times 10^{-2}$ ).

### 7 Sources of normalisation **data**

#### 7.1 Availability of sources

The following provide some guidance on the sources of normalisation **data**; principally those available within and to the Railway Group are shown but other known, useful sources are also listed.

#### 7.2 Industry systems

A number of the rail industry's own systems and databases are able to provide **data** useful for normalisation purposes. The following are examples of such systems – the list is not exhaustive and there may be others that should be of value either for internal (that is, within a single organisation) or national use.

Source	Comments	Normaliser
An organisation's own personnel database	Casual and part-time staff should be included.	No. of employees
	For 'hours worked' all actual overtime, Sunday and rest-day working hours should be included.	No. of hours worked

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Source	Comments	Normaliser
TRUST based systems (for example PALADIN) provide <b>data</b> both to train operators and infrastructure controller.	Passenger train operators need both 'loaded' and 'empty' (that is passenger train and ECS train) mileage. Use <b>data</b> obtained from the train mile monitoring statistics print. Vehicle and Unit mileage may also be available.	Train mileage.
Ticket sales systems, (for example CAPRI) which uses <b>data</b> generated under the RRAS; <b>data</b> supplied to passenger train operators.	For normalisation purposes use passenger operating journeys only. Note: Not all passenger train operators are included in RRAS and CAPRI.	Passenger journeys.
	Utilises CAPRI-generated <b>data</b> to determine the passenger throughput at stations. <b>Data</b> currently used by Railway Safety based on <b>data</b> available for 1992/93 and 1993/94.	Passenger miles. Passenger transits.
<b>Data</b> derived from organisation's own databases and using train mileage <b>data</b> (see above).		Total number of trains run.
<b>Data</b> from organisation's own databases or Fleet/T&RS sources. May also be available from rolling stock library (RSL), which has <b>data</b> related to all operational vehicles.	Only service vehicles and stored serviceable vehicles should be included. In the case of multiple units, use either the number of units, or the total number of vehicles. In the case of HSTs, power cars (such as class 43) and trailer vehicles should be shown separately.	Vehicle class/type.
<b>Data</b> available from GEOGIS/RAR/MIMS. Internal Railtrack databases may provide breakdown by type of level crossing, bridge or signal.	Figures unlikely to change significantly from one period to the next.	Level crossings, signals/bridges.

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### 7.3 Other sources

The following are examples of non-rail industry sources of **data** that may prove useful for normalisation purposes or comparison purposes.

Source (Publisher)	Comments
GB Transport Statistics	Provides <b>data</b> and statistics on all forms of transport, including railways.
National Statistics (Office of National Statistics)	Provides statistical information on UK population.
Supplementary Statistics (UIC)	Provides <b>data</b> for other railways in Europe and worldwide, including <b>data</b> on accidents, loads, passenger travel.
Quarterly Statistics Bulletin (Strategic Rail Authority)	

## 8 Methods of calculation of accident/incident rates

### 8.1 Cumulative type **normalising base**

In the following, the accident rate is to be expressed as per million passenger journeys. The calculation method is the same for individual periods, annual averages, and year-to-date rates.

(1) No. of accidents (such as passenger injuries) in the time period	<b>24</b>
(2) <b>Normalising base data</b> (number of passenger journeys, in millions) for the same time period as in (1)	<b>5</b>
(3) Divide (1) by (2) to give accident rate	<b>4.8</b>

### 8.2 Average type **normalising base**

In all of the following, the accident rate is to be expressed as per 1,000 employees. The calculation method is the same for individual periods, annual averages, etc.

#### 8.2.1 Period rate

This is the rate for the individual period concerned. It is not particularly meaningful when measuring against an annual target.

1. No. of <b>events</b> (for example staff lost time accidents) in the period	<b>12</b>
2. <b>Normalising base data</b> (such as average number of employees) for the period (see Note 1)	<b>3000</b>
3. Divide (1) by (2) and multiply by 1,000 to give period accident rate	<b>(12 ÷ 3000) x 1000 = 4.0</b>

#### 8.2.2 Annualised Period rate

This converts the period rate into an annualised rate that can be used to compare against annual averages, etc.

Follow steps of 8.2.1 above, then multiply result by 13	<b>4.00 x 13 = 52.0</b>
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## 8.2.3 Annual average rate

This is used for calculating the rate for an entire year.

1. Sum of <b>events</b> (for example staff lost time accidents) in year (financial or calendar)	<b>140</b>
2. <b>Normalising</b> base <b>data</b> (such as average number of employees) for year (see Note 2)	<b>2800</b>
3. Divide (1) by (2) and multiply by 1,000 to give annual average rate	<b><math>(140 \div 2800) \times 1000 = 50.0</math></b>

## 8.2.4 13-period moving average rate

This is used for calculating a moving average rate for selected 13 periods.

Note that where the 13 periods selected are those for a complete financial year, the 13-period annual moving average rate will equate to both the annual average rate (see 8.2.3 above) and year-to-date rate (see 8.2.5 below).

1. Sum of <b>events</b> (for example staff lost time accidents) in the selected 13 periods	<b>140</b>
2. <b>Normalising</b> base <b>data</b> (such as average number of employees) for the selected 13 periods (see Note 2)	<b>2800</b>
3. Divide (1) by (2) and multiply by 1,000 to give annual rate	<b><math>(140 \div 2800) \times 1000 = 50.0</math></b>

## 8.2.5 Year-to-date rate

This rate is normally used to assess progress during the current year against:

- annual targets
- the annual average or year-to-date rate for previous year(s).

1. Sum of <b>events</b> (for example staff lost time accidents) in the year-to-date (in this case 3 periods)	<b><math>2 + 3 + 4 = 9</math></b>
2. Sum of <b>normalising</b> base <b>data</b> (such as number of employees) for the same 3 periods (see Note 2 below)	<b><math>700 + 600 + 500 = 1800</math></b>
3. Divide (1) by (2) and multiply by 1,000 to give the average period rate	<b><math>(9 \div 1800) \times 1000 = 5.0</math></b>
4. Then multiply result of (3) by 13 to 'annualise' the rate	<b><math>5.0 \times 13 = 65.0</math></b>

### Notes

- For an individual period, the average number should be calculated by obtaining the average of the period start and period end figures.
- For a number of periods, the average number should be calculated by obtaining the average of all the period figures, using either the 'period start' or 'period end' figure as the basis. Whichever option is chosen, it must be applied throughout to maintain consistency.

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## References

Railway Group Standards and other Railway Group Documents

<a href="#">GA/RT6001</a>	Railway Group Standards Change Procedures
<a href="#">GE/RT8047</a>	Reporting of Safety Related Information
<a href="#">GE/GN8547</a>	Guidance on the reporting of Safety Related Information
<a href="#">GE/GN8522</a>	RIDDOR 1995 – Supplementary Guidance on Statutory Reporting
<a href="#">GO/RT3000</a>	Rule Book

The Catalogue of Railway Group Standards and the Railway Group Standards CD-ROM give the current issue number and status of documents published by Railway Safety.

### Other References (Legislation and associated Guidance)

Guidance Note HS(G)65 Successful Health and Safety Management  
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR 1995).

### Further Reference Material

GB Transport Statistics  
National Statistics (Office of National Statistics)  
Supplementary Statistics (UIC)  
Quarterly Statistics Bulletin (Strategic Rail Authority)