Rail Safety Statistics Quality Report

Release Date: 22 September 2016

Contents

Introduction

This is a report on the quality of the rail safety statistical release and data portal tables. It helps users to understand the quality of our statistics, and also ensures ORR is compliant with principle 4 of the Code of Practice for Official Statistics[1].

The quality report covers the following areas:

- **Methodology** – detail on the various data sources and methodology used to compile the statistics;
- **Historic background** – a background to rail safety statistics and details of changes throughout the time series;
- **Relevance of the data** – the users of the statistics, and our engagement;
- **Accuracy and reliability** – the accuracy of the statistics;
- **Timeliness and punctuality** – our timescales for the production, quality assurance and publication of the statistics;
- **Accessibility and clarity** – the format of our statistics and where they can be found;
- **Coherence and comparability** – comparisons to similar statistics published elsewhere.

Rail safety statistics is an annual release, providing data on the mainline, London Underground and non-mainline networks to provide a comprehensive overview of safety across Great Britain.

ORR publishes quality reports on other ORR statistics which can be found on the statistical release page.

[1] Principle 4: Sound methods and assured quality. Statistical methods should be consistent with scientific principles and internationally recognised best practices, and be fully documented. Quality should be monitored and assured taking account of internationally agreed practices. The Code of Practice can be accessed here http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html

Methodology

The data contained within this release are sourced from:

- RSSB's Safety Management Information System (SMIS) – the industry's national database for recording of safety related events that occur on the Great Britain mainline rail network.
- London Underground's Safety and Environment Analysis (LUSEA) – records information on all safety related incidents on the London Underground network.
- Office of Rail and Road (ORR) Webform - records safety incidents which occur on non-mainline railways including heritage operators, tramways, light rail systems and other operators on non-Network Rail infrastructure in Great Britain.
- British Transport Police – statistics on assaults to passengers and members of the public.

The rail safety statistical release covers the following areas:

- Fatalities and injuries – the number of fatalities and injuries to workforce, passengers and members of the public.
- Passenger safety – the number of fatalities and injuries by severity and incident type
- Workforce safety – the number of fatalities and injuries by severity and worker type
- Public safety – the number of public fatalities (including suicides) and injuries by severity and person category type
- Train accidents – the number of passenger, workforce and public fatalities (excluding trespass) in train accidents and the number of train accidents by type and severity.
- Road-rail interface – the number of incidents at level crossings, vehicle incursions onto the running line and bridge strikes.

Fatalities and injuries data are aggregated to create a single measure called FWI (or Fatalities and Weighted Injuries). This is used to represent the aggregate amount of harm on the mainline to passengers, workforce and members of the public (including suicides).

One FWI is equivalent to:

- one fatality, or
- 10 major injuries, or
- 200 Class 1 minor injuries, or
- 200 Class 1 shock/trauma events, or
- 1,000 Class 2 minor injuries, or
- 1,000 Class 2 shock/trauma events.

More information on definitions is available in Appendix 7 of RSSB's Annual Safety Performance Report

Historical background

- 1840 – Railway Inspectorate established with responsibility of overseeing the safety of British Railways and Tramways
- 1900 – Railway Inspectorate given powers to investigate accidents to staff
- 1990 – Railway Inspectorate becomes part of Health & Safety Executive (HSE)
- 2006 – Railway Inspectorate becomes part of Office of Rail Regulation (ORR) and re-named Her Majesty's Railway Inspectorate (HMRI)
- 2009 – Renamed the Railway Safety Directorate (RSD)

Railway operators have a statutory requirement to report accidents to RSD, and since 1946 the Railway Inspectorate has published statistical data and key events on an annual basis. Between 1946 and 1991 this was published by calendar year, but since 1991 data has been published by financial year.

In addition to the reporting of accidents, those in the railway industry are subject to the Reporting of Injuries, Disease and Dangerous Occurrences Regulations (RIDDOR). The latest version of this legislation was laid before parliament in June 2013 coming into force on 1 October 2013. RIDDOR, which replaced the Notification of Accidents and Dangerous Occurrences Regulations (1980) in 1985, is the instrument which regulates the statutory obligation to report deaths, injuries, diseases and dangerous occurrences that take place at work or in connection with work.

For more detail on the types of injuries, disease and dangerous occurrences covered by RIDDOR please see the HSE website.

Relevance

The degree to which the statistical product meets the user needs in both coverage and content.

Rail safety statistics are key measures of safety on the mainline, London Underground and non-mainline rail networks in Great Britain, thereby providing the most comprehensive set of statistics on safety on. The safety of all users and those working within the industry is a top priority for the industry and these statistics provide one measure of the success of achieving a safe railway.

Health and safety data published on our data portal is used by a range of groups and individual for planning, analysis, decision making, academic research and data validation.

More detailed information on users of ORR statistics and meeting the needs of users is available on our user engagement webpage.

Accuracy and reliability

The proximity between an estimate and the unknown true value.

It is mandatory for all infrastructure managers and railway undertakings operating on Network Rail managed infrastructure, London Underground and non-mainline networks to report all health and safety incidents to ORR who have the responsibility of overseeing the safety of Britain's railways and tramways.

RIDDOR 2013 provides clear classifications and definitions of the categories of incidents. Incidents reported through the LUSEA and ORR webform are therefore adjusted to ensure that they comply with the categories defined by RIDDOR and there is consistency between the three data sources. The data received from the three sources is subject to a quality assurance process carried out by ORR.

Variance between an estimate and the unknown true value could occur where reportable incidents have not been reported or reported within the incorrect RIDDOR classification. Reasons for such incorrect reporting could include a lack of adequate training by those responsible for reporting incidents or staff involved in incidents not reporting them to those responsible for RIDDOR submissions.

In January 2011 RSSB published an independent review of RIDDOR reporting by Network Rail, its contractors and London Underground which concluded that there had been a significant level of under-reporting of RIDDOR minor injuries by Network Rail staff and its contractor companies between 2005/06 and 2009/10. RSSB estimated that 500 to 600 RIDDOR minor injuries may not have been reported by Network Rail Infrastructure Projects and Maintenance teams over the five year period between 2005/06 and 2009/10. This estimate represents a range of 37% to 42% under reporting for RIDDOR minor injuries. The report also concluded that there had been some under reporting of major injuries to ORR. Improvement schemes implemented since the publication of the report should have helped to decrease the level of under reporting identified by the review.

All data received from LUL, RSSB and BTP are subject to a series of quality assurance checks before publication. We check the data are provided in the correct format, there are no inconsistencies and that trends over time are similar, to ensure accurate data are published.

Timeliness and punctuality

Timeliness refers to the time gap between publication and the reference period. Punctuality refers to the gap between planned and actual publication dates.

Rail safety statistics are available on the ORR data portal within six months of the financial year ending, published in September.

The publication schedule available on the ORR website outlines the publication dates for National Statistics quarterly and annual statistical releases and other statistics up to 12 months in advance http://orr.gov.uk/statistics/release-schedule.

Accessibility and clarity

Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.

All rail statistics data tables can be accessed free of charge on the ORR Data Portal. Charts and commentary about the statistics and trends are provided in the statistical releases.

The rail safety reports currently published on the data portal are:

- Broken rails and buckled rails - Table 5.31
- Key statistics - Fatalities and injuries - Table 5.10
- Key statistics - Passenger safety - Table 5.18
- Key statistics - Public safety - Table 5.22
- Key statistics - Road rail interface - Table 5.24
- Key statistics - Train accidents - Table 5.26
- Key statistics - Workforce safety - Table 5.34
- Passenger and public assault - Table 5.15
- Public fatalities occurring to children - Chart 5.21
- Reported vandalism incidents - Table 5.23
- Train accidents with passenger or workforce fatalities - Table 5.27
- Workforce assaults, threats and verbal abuse - Table 5.7
- Workforce near misses - Chart 5.11

For further information about these statistics please contact the Information & Analysis Team at rstats@orr.gsi.gov.uk

The procedures and policy used to ensure sound confidentiality, security and transparent practices.

ORR is fully compliant with the Statistics and Registration Service Act 2008 and principle 4 of the Code of Practice for Official Statistics.

ORR receives safety data from Rail Safety and Standards Board (RSSB), British Transport Police (BTP), London Underground Limited (LUL) and from dutyholders through our own Webform.

The data are supplied electronically and stored in a data warehouse (ORRbit). Only selected members of staff have access to the data warehouse and access is password protected. The data provision and storage processes have been independently assessed by external consultants Amour Group to ensure they are secure. Internal and external IT vendors also conduct periodic assessments of our systems.

ORR has systems and processes in place to safeguard personal identities/details and commercially restricted information. The statistics are internally validated by two teams before it is granted a 'publication' status and viewable on the data portal. Connections to remotely hosted databases are within a secure network and penetration testing has confirmed that the data portal is secure against external attacks.

Coherence and comparability

Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain.

To ensure the highest achievable levels of coherence and comparability between the three data sources (SMIS, LUSEA and ORR Webform), as part of the quality assurance process, data received from London Underground (LUSEA) and the ORR Webform is adjusted to ensure that it is compliant with RIDDOR classifications.

There were changes to the definition of RIDDOR reportable minor injuries which came into operation from April 6th 2012 which has resulted in a reduction in comparability between minor injuries data recorded before and after this date. Before 6th April 2012 RIDDOR reportable minor injuries were reportable if the injured person was incapacitated for work for more than three consecutive days, after which it changed to seven consecutive days.

Rail safety statistics for the mainline network and LUL are comparable to data published on the RSSB website and by TfL respectively. Occasionally differences may occur as there may have been updates to incident records between publication dates. Reasons for such changes could include changes as a result of further investigations into incidents or the development of injuries sustained in previously reported incidents. For example, where the coroner reports a verdict, previous records may need to be updated to reflect this.

The standardisation of incident reporting through RIDDOR classification provides comparability between the statistics published in this statistical release and those published by other industries based on RIDDOR. These statistics can be found on the Health and Safety Executive website.

Other relevant datasets are available from the links below:

- ORR's Health & Safety Report – Health and safety performance on all of Great Britain's railways.
- RSSB's Annual Safety Performance Report – A reference guide to safety trends on Great Britain's mainline railway.
- HSE's Health & Safety Statistics – Work-related ill-health, workplace fatalities and injuries, and enforcement in Great Britain.
- BTP's Crime Statistics – Recorded crimes by area.

Comparability to European statistics

Eurostat collect statistics on train accidents, fatalities and serious injuries. These are available on the Eurostat website.

In addition, the European Union Agency for Railways[2] collects data on Common Safety Indicators, which are a common set of rail safety data used to monitor the development of safety across Europe. These datasets are available on their website.

[2] Formerly the European Railway Agency (ERA)

This publication is available at orr.gov.uk

Any enquiries regarding this publication should be sent to us at orr.gov.uk