Britain’s railways current health and safety performance: key facts

1. This section presents some facts that show the variation in scale of the four sectors of Britain's railways and statistics on accidents and incidents. However, as this data is collected in different ways across the industry, it has not been possible to present all the data in a uniform manner.

2. Some comparative data for European railways and other modes of transport is also presented below. Specific data relating to individual programmes/enablers is included within each relevant chapter.

European railways health and safety performance

3. Data collected by Eurostat and analysed by Britain’s Rail Safety and Standards Board show that GB ranks very highly among the 25 EU states as regards safety; it is one of the very best in Europe.

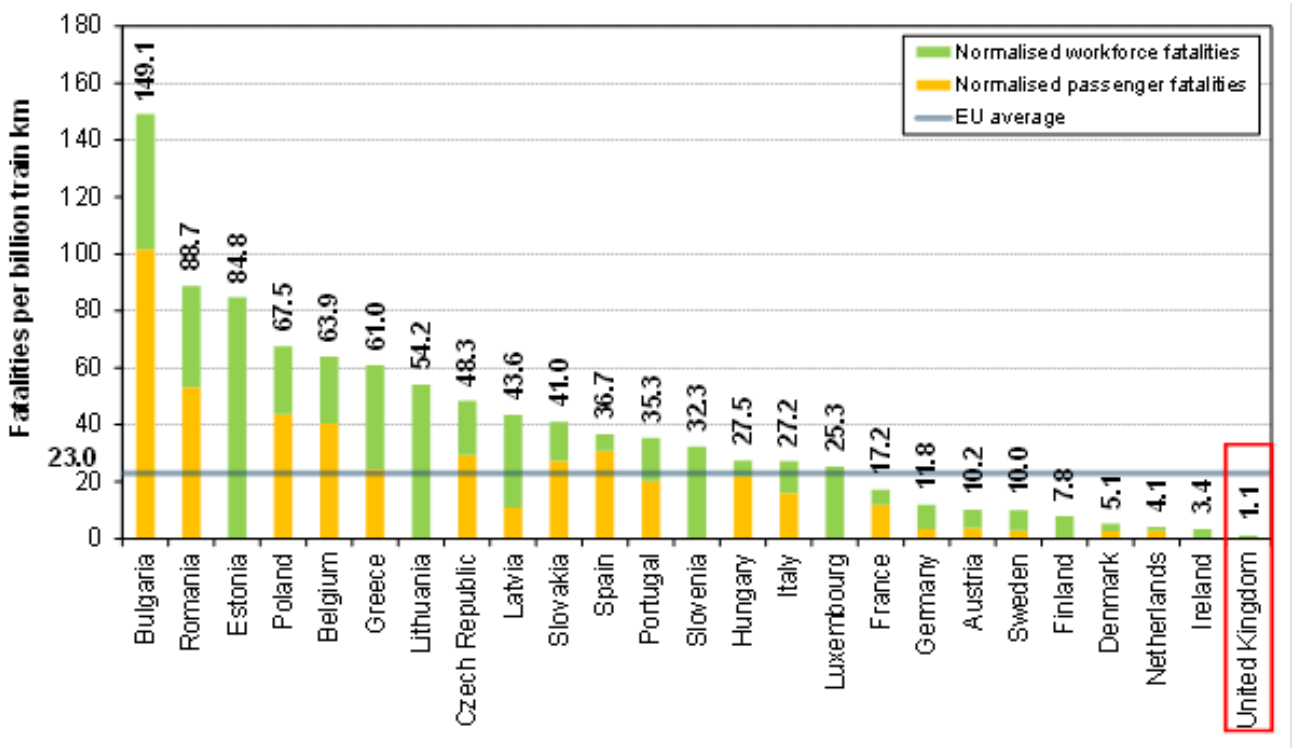


Figure 1 - Comparison of passenger and workforce fatality rates across the European Union’s railways, 2008-12, from RSSB analysis based on Eurostat data

Health and safety performance for different modes of transport

4. Rail travel on Britain's railways also compares favourably with other modes of transport. The table below shows the number of passenger casualties per billion passenger journeys for different modes of transport between 2001 and 2010.

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2003-2012 average
Air [1]												
	Killed	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00
	KSI[2]	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00
	All[3]	0.00	0.01	0.00	0.01	0.01	0.04	0.02	0.00	0.01	0.01	0.01
Rail[4] [5]												
	Killed	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	All	32.5	31.2	26.0	26.3	23.2	24.5	26.9	26.5	25.4	25	26.4
Water[6]												
	Killed	0.0	0.0	0.4	0.4	0.0	1.1	0.5	1.4	0.8	0.0	0.4
	KSI	61	44	39	48	48	89	56	66	93	43	56
Bus or coach												
	Killed	0.2	0.4	0.2	0.4	0.3	0.1	0.3	0.2	0.2	0.2	0.4
	KSI	10	10	7	9	10	10	8	9	8	7	9
	All	175	178	158	152	158	156	138	141	138	118	151
Car[7]												
	Killed	2.8	2.6	2.6	2.5	2.2	1.9	1.6	1.3	1.4	1.3	2.0
	KSI	27	25	22	22	20	18	17	15	14	14	20
	All	294	284	277	263	251	228	221	209	195	188	241
Van[8]												
	Killed	0.9	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.6
	KSI	10	8	7	7	5	5	5	4	4	4	6
	All	90	77	73	69	59	55	54	51	51	51	62
Motorcycles[9]												
	Killed	116	106	99	109	100	91	85	81	72	67	93
	KSI	1,276	1,209	1,127	1,175	1,141	1,113	1,054	1,044	1,119	1,094	1,137
	All	4,739	4,663	4,229	4,227	3,972	3,966	3,749	3,764	4,019	3,929	4,145
Pedal cycles												
	Killed	26	33	34	32	33	25	22	23	22	24	27
	KSI	544	561	547	542	561	561	568	573	646	668	585
	All	3,841	4,043	3,839	3,598	3,945	3,566	3,575	3,555	3,889	3,816	3,761
Pedestrian												
	Killed	41	35	36	35	35	31	26	23	24	23	31
	KSI	423	393	383	370	380	356	317	312	319	333	359
	All	1,942	1,832	1,789	1,625	1,657	1,526	1,410	1,415	1,403	1,403	1,605

Figure 2 - Passenger casualty rates by mode: 2003-2012 per billion passenger journeys[10], from DfT

[1] Passenger casualties in accidents involving UK registered airline aircraft in UK and foreign airspace.
[2] KSI = killed or seriously injured.
[3] All = Killed, seriously and slightly injured
[4] Financial years and national railway only.
[5] Passenger casualties involved in train accidents and accidents in railway vehicles movement incidents. Figures up to 2008-09 only include franchised train operators, from 2009-10 they also include the non-franchised operators First Hull Trains, Grand Central etc.
[6] Passenger casualties on UK registered merchant vessels. From 2010 there are no UK registered Cruise ships.
[7] Financial year passenger kilometres data revised from 2004-05.A break in the local bus series (outside London) and a shift in estimation methodology from 2004-05, means that figures before then are not comparable.
[8] Driver and passenger casualties.
[9] Rider and pillion casualties.
[10] Previous years' figures have been revised. This is the latest chart available from DfT at this time, see https://www.gov.uk/government/statistical-data-sets/tsgb01-modal-comparisons#table-tsgb0107-ras53001.

The scale of the railway industry in Great Britain

Mainline railway statistics

5. For 2013-14, the total of timetabled train kilometre for all passenger operators in Great Britain was 524.8 million kilometres, up by 0.5% to 2012-13, with 59.7billion franchised passenger kilometres and 1.59 billion passenger journeys. The mainline railway covers over 29,000 kilometres of track, with around 40,000 bridges and tunnels and 2,500 railway stations; and employs around 100,000 people.

6. The table below illustrates data reported into RSSB's Safety Management Information System (SMIS) and modelled by its Safety Risk Model (SRM). It shows the trends in harm to passengers, the workforce and the public represented as the fatalities and weighted injuries index (FWI).

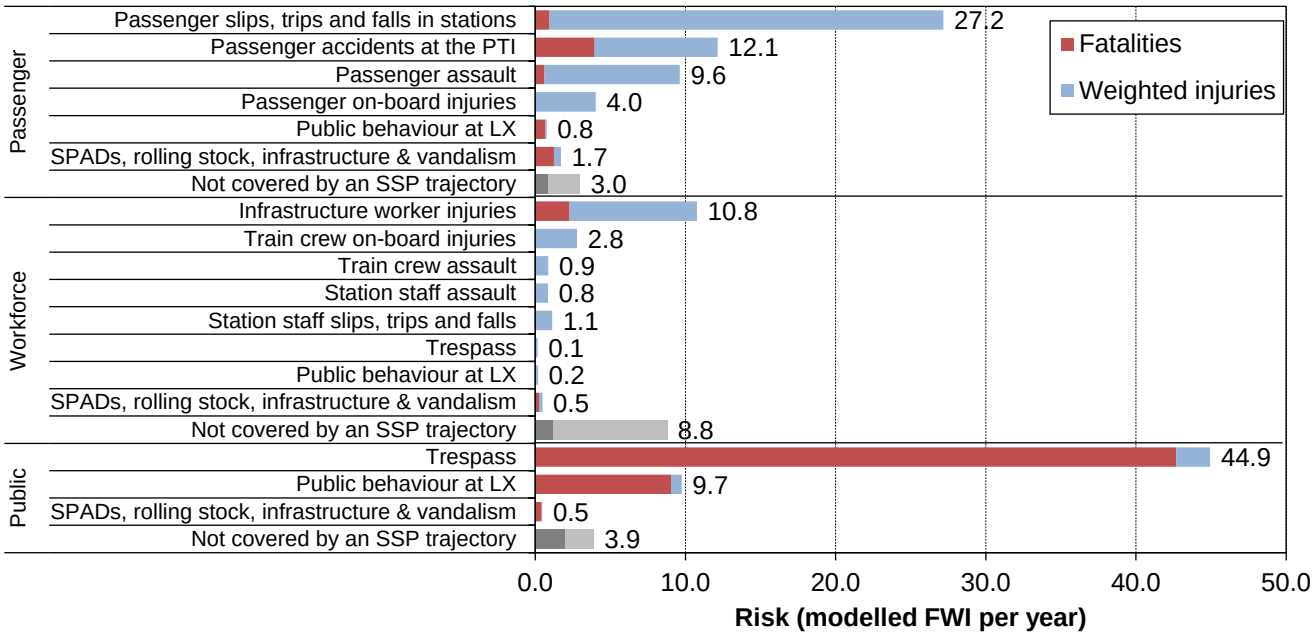


Figure 3 - Risk profile by SSP trajectories (total FWI and fatalities), from RSSB SRM v8

7. The SRM, version 8 (March 2014), shows that for the mainline railways 41% of the risk is to the public (excluding suicides and suspected suicides), 41% to passengers, and 18% to the workforce.

8. Over control period 4 (2009-14), the workforce safety trend improved, but this trend worsened in 2013-14, mostly because of risks to track workers. Over the same period, risks to passengers increased, mostly because of a rise in passenger slips, trips and falls, which was driven predominantly by increases in passenger growth. During 2009-14, risks to members of the public reduced, mainly because of reductions in level crossing and especially the decline in trespass events.

9. The industry's Strategic Safety Plan has identified the proportion of FWI risks by groups affected. The groups, sorted by decreasing FWI risk are:

- trespassers;
- members of the public using level crossings;
- members of the workforce working on the infrastructure; and
- passenger accidents at stations.

10. The chart below - which cover 89% of the total FWI risk and 94% of the total fatality risk – covers the risk profile across the industry's strategic safety plan's risk categories as measured using FWI:

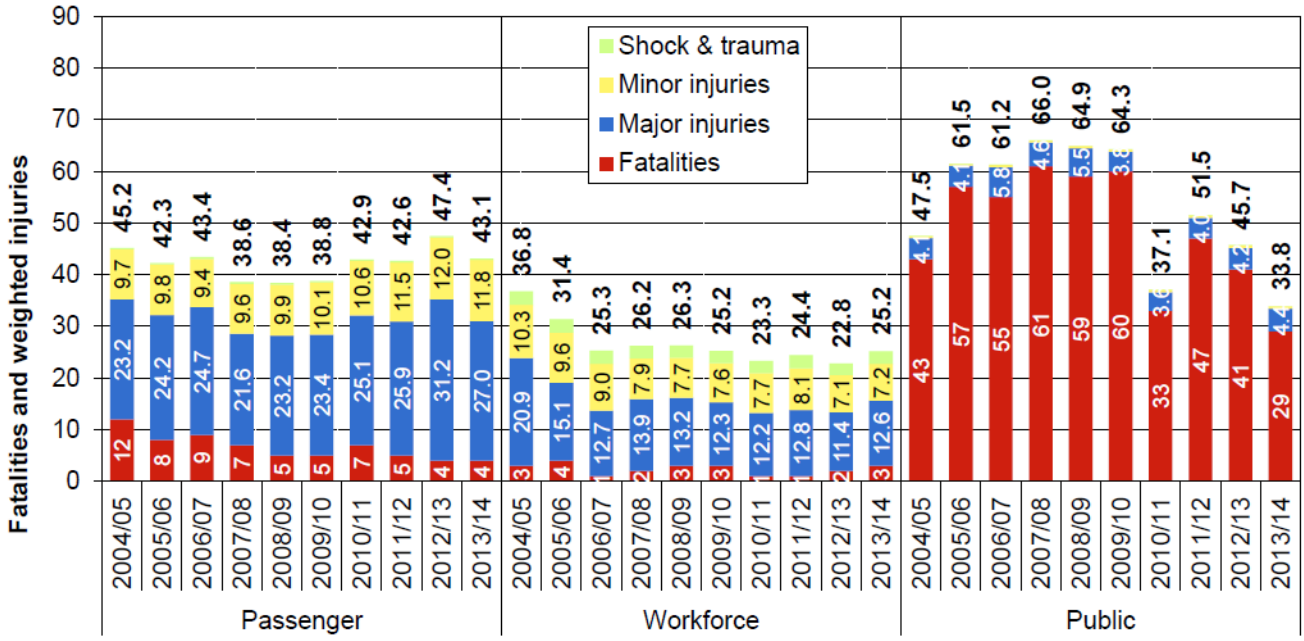


Figure 4 - railway accidental fatalities and weighted injuries, 2003-14, Chart 3 from RSSB's 2013-14 ASPR

London Underground statistics

11. On London Underground, 1.265 billion passenger journeys were made in 2013-14, compared with 1.229 billion in 2012-13; a 3% increase. Passenger numbers have grown by a third over the last decade. LU serves just over 270 stations, has 400km of track and runs over 69 million train km per year.LU employs approximately 19,000 members of staff across the network.

12. The graph below compares the fatalities and weighted injuries profile for the mainline railway and LU. It is not possible to draw direct comparison because of differences in the operating environment; LU passenger journeys are shorter, services are more frequent and congested. However, LU and the mainline both shift similar volumes of passengers on a daily basis. The comparative graph shows that LU is broadly safer than the mainline railway when

FWI is compared per billion passenger journeys, the one exception being he higher level of passenger slips, trips and falls on escalators, which is explained by over 400-escalators at LU's 270 stations; significantly more than is on the mainline.

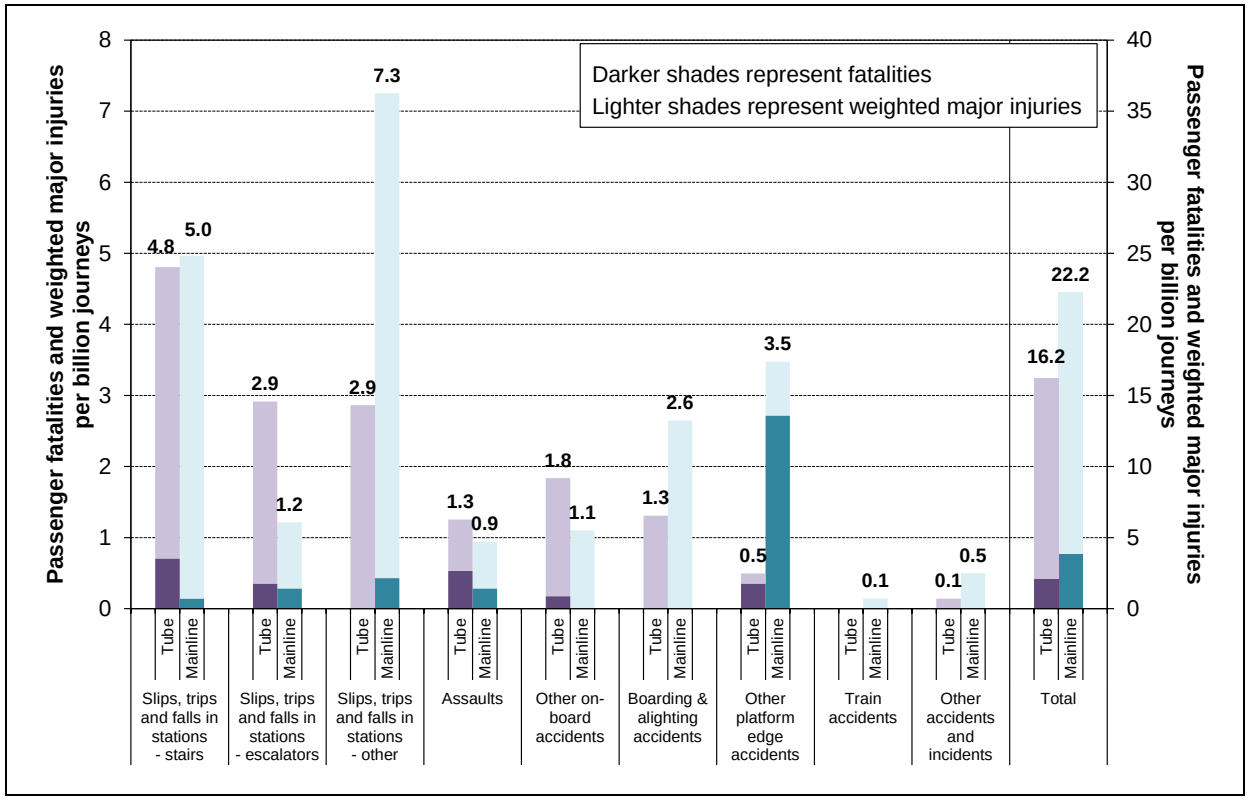
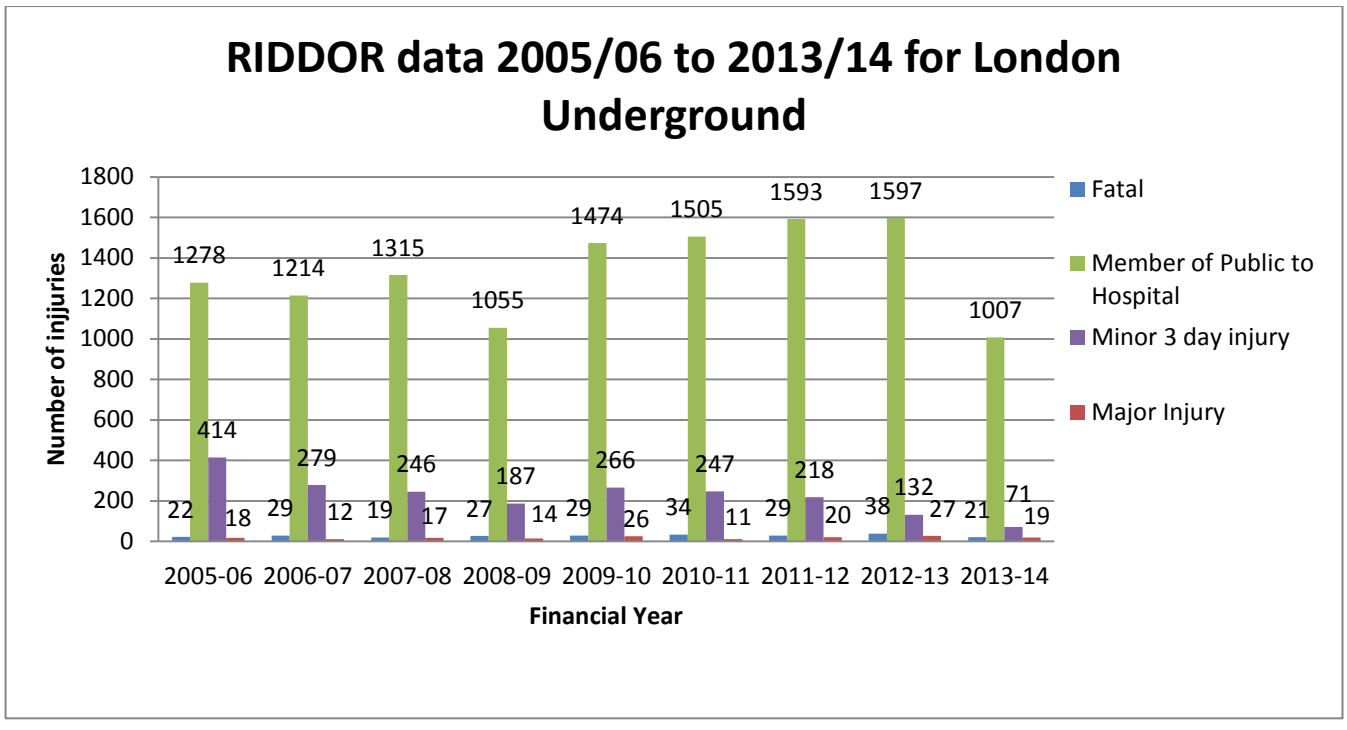


Figure 5 - Comparison of fatality and weighted injury profile for the mainline railway and LUL 2008-09 to 2012-13, Chart 40 from RSSB's 2013-14 ASPR

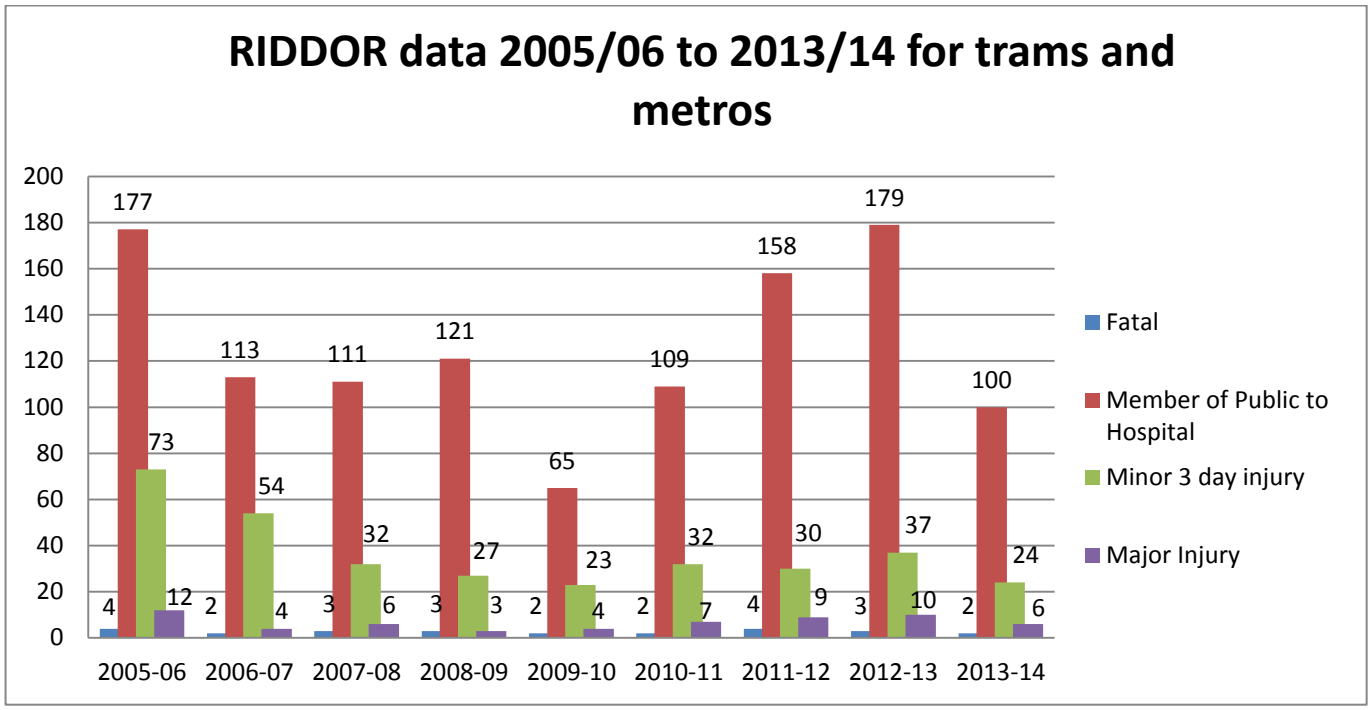


Trams and light railways statistics

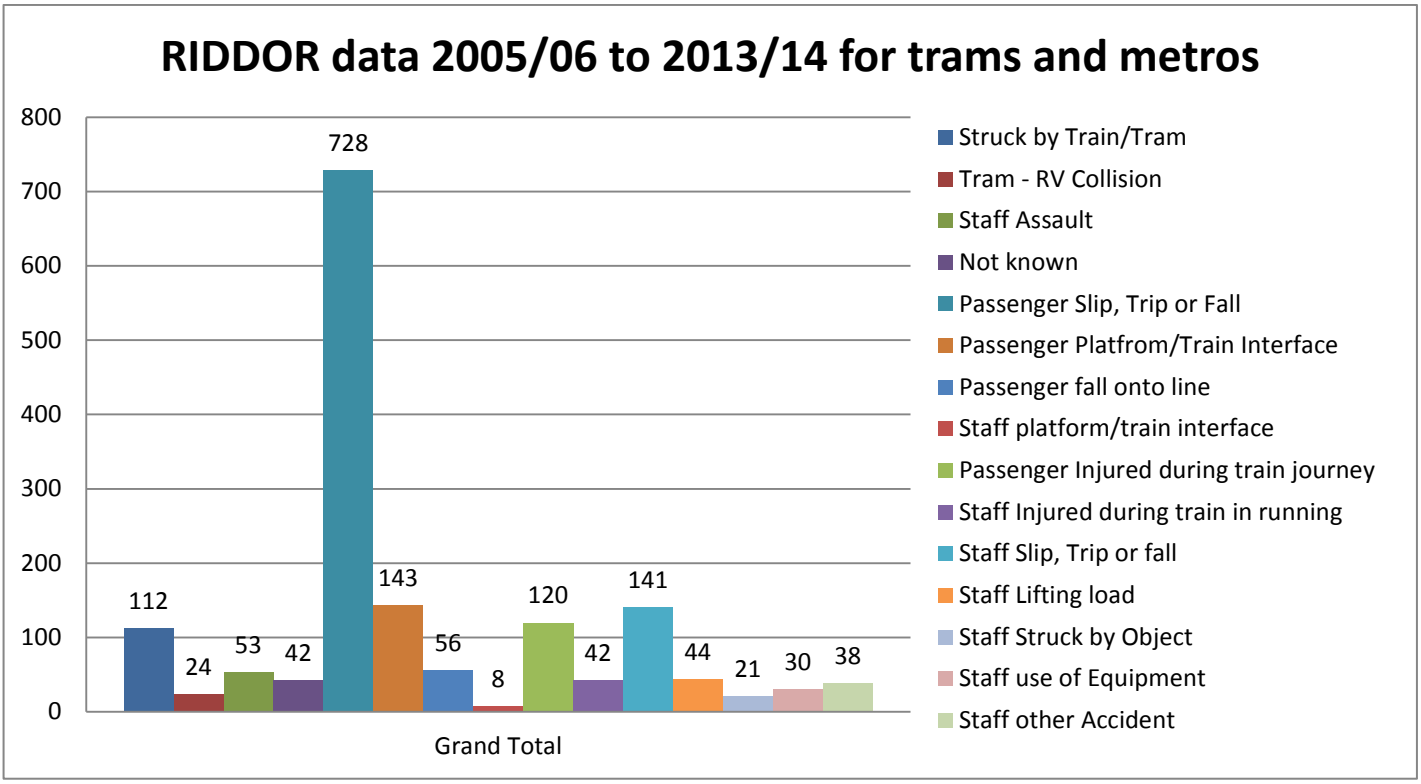
13. According to the DfT Transport statistics 2013-14 report[11], in 2013-14, there were 227 million passenger journeys on trams and light railways in England; a 2% increase on the previous year. Across the eight light railway systems in England there were 227 million passenger journeys in 2013-14, a 2% increase on the previous year. Of those, 12.7 million passenger journeys were made on the Glasgow's Subway in 2013-14. Approximately 2,750 people are employed on Britain's tram and light railway companies in Britain.

14. The tram system in Britain is relatively new and limited in geographical extent, so incident data banks are small. Currently, our understanding of risk, therefore, comes mainly from the knowledge and experience of ORR's own staff supplemented by general industry experience, but the sector is developing a consolidated incident recording database which should improve the level and consistency of cross-industry data collection.

15. As with tram systems, for other metros and light railways incident and injury datasets are small. Our understanding of the risk therefore, comes mainly from the experience of our own staff. The submissions made under the ROGS Safety authorisation and certificate process helps us to understand how duty holders manage risk. We also use intelligence from our inspection and investigation findings, as well as safety performance.



[11] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/320645/light-rail-and-tram-statistics-2013-14.pdf

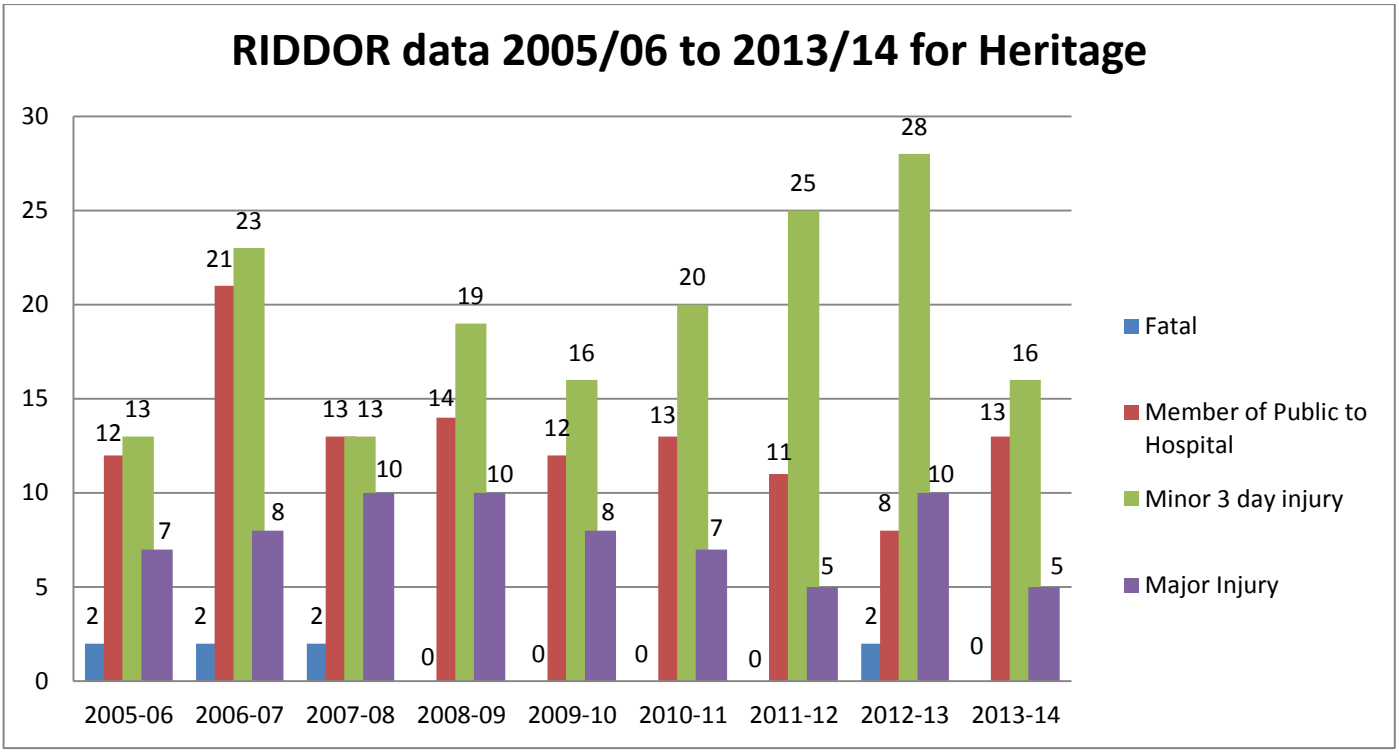


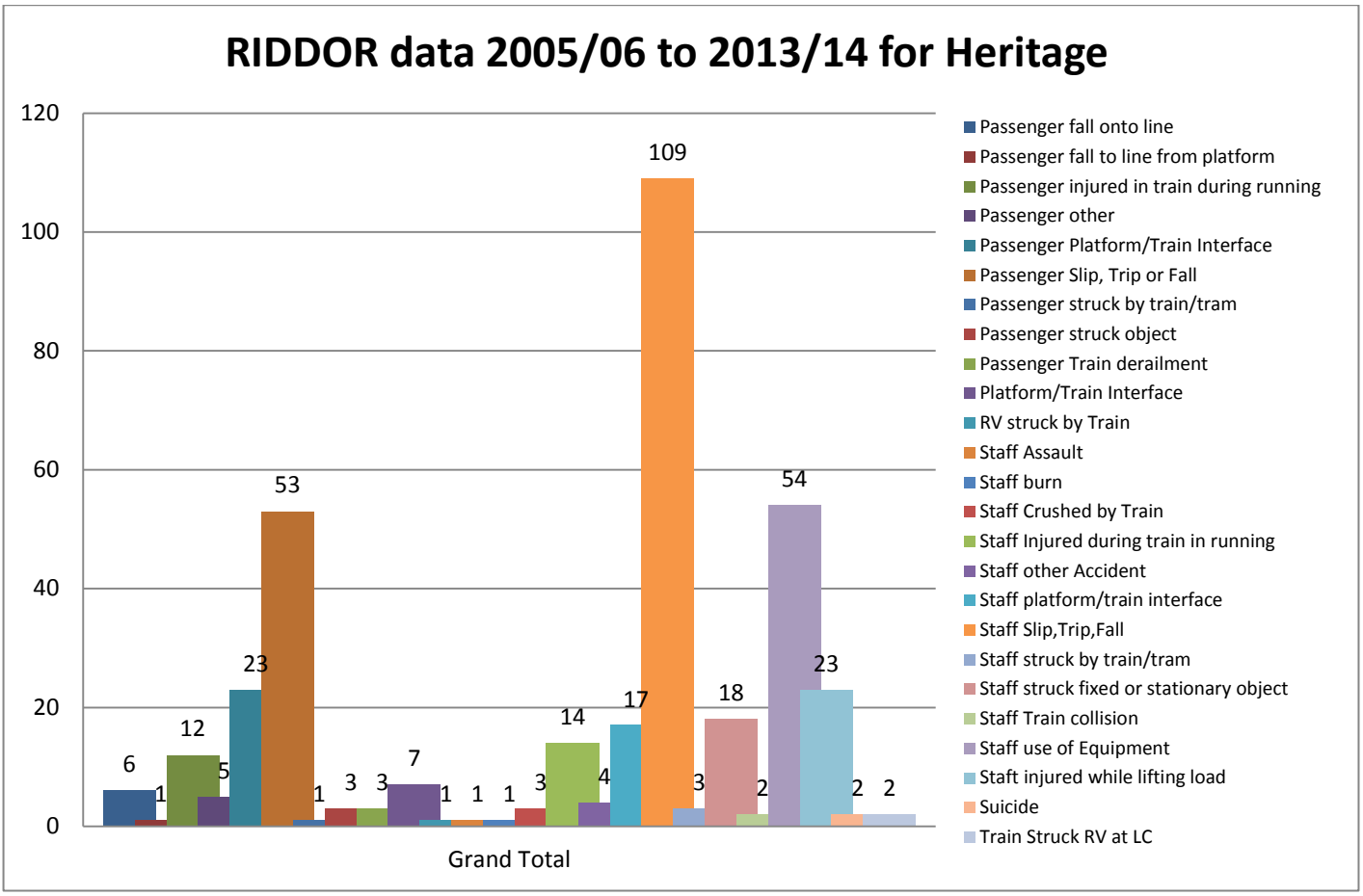
Heritage railways[12] statistics

16. During 2012, heritage railways, tramways and museums carried 7.1million passengers and 14million passenger journeys and 110million passenger miles. Maintenance, repairs and new builds of locomotives and other rolling stock is carried out in 180-workshops. Heritage railways employ 2,300 people (many of whom work part-time) plus around 19,000 volunteers.

17. There is less numerical data for the heritage sector than the rest of the industry, so our understanding of risk comes from the experience of ORR's own staff supplemented by information from the Heritage Railway Association. The heritage railways are subject to many of the risks that we see elsewhere on the railways and some that are specific to this sector.

[12] See: http://www.heritagerailways.com/


RIDDOR data 2005/06 to 2013/14 for Heritage
30
25
20
15
10
5
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
Fatal
Member of Public to Hospital
Minor 3 day injury
Major Injury


RIDDOR data 2005/06 to 2013/14 for Heritage
120
100
80
60
40
20
0
Grand Total
Passenger fall onto line
Passenger fall to line from platform
Passenger injured in train during running
Passenger other
Passenger Platform/Train Interface
Passenger Slip, Trip or Fall
Passenger struck by train/tram
Passenger struck object
Passenger Train derailment
Platform/Train Interface
RV struck by Train
Staff Assault
Staff burn
Staff Crushed by Train
Staff Injured during train in running
Staff other Accident
Staff platform/train interface
Staff Slip,Trip,Fall
Staff struck by train/tram
Staff struck fixed or stationary object
Staff Train collision
Staff use of Equipment
Staff injured while lifting load
Suicide
Train Struck RV at LC