Australian Government
Australian Transport Safety Bureau

Australian Rail Safety Occurrence Data

1 January 2002 to 31 December 2011

Research

ATSB Transport Safety Report
Rail Statistics
RR-2012-001
Final

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ATSB TRANSPORT SAFETY REPORT

RR-2012-001
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SAFETY SUMMARY

Safety message

This report tables rail safety occurrence data by state and territory between 1 January 2002 and 31 December 2011. The data is presented as counts, and divided by kilometres travelled or the number of track kilometres to allow comparison between states. This report excludes tram, light rail and monorail operations.

The data presented is designed to assist rail safety professionals and researchers in understanding and taking action to reduce the safety risk. In addition, it can be used for international comparative research, while informing the public about emerging issues in rail safety. The data in this report contains information about the following safety-critical events:

- fatalities
- serious personal injuries
- derailments
- collisions
- level crossing occurrences
- signals passed at danger (SPAD)
- load irregularities
- track and civil infrastructure irregularities.

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Abstract

This report tables rail safety occurrence data by state and territory between 1 January 2002 and 31 December 2011. Data is adjusted biannually to reflect new information that comes to light during the reporting period. There is a lag period of approximately 3 to 4 months between the end of the 6-monthly reporting period and publication of this data. The data is presented as counts, and normalised using kilometres travelled or number of track kilometres. Data presented in this report conforms to *ON-S1: Occurrence Notification Standard 1 (2004)* and *OC-G1: Occurrence Classification Guideline 1 (2008)*. This report excludes tram, light rail and monorail operations.

DEFINITIONS AND ABBREVIATIONS

Definitions

Jurisdiction	This means an Australian state or territory

Abbreviations

ARO	Accredited rail operator
ATSB	Australian Transport Safety Bureau
DIRN	Defined Interstate Rail Network
km	Kilometres
NA	Not applicable
OC-G1	Occurrence Classification Guideline
ON-S1	Occurrence Notification Standard
RSR	Rail Safety Regulations (Victoria)
RSRP	Rail Safety Regulators' Panel
SPAD	Signal passed at danger

INTRODUCTION

The responsibility for rail safety in Australia is shared by government and industry. To assist in maintaining and continuously improving rail safety, governments from each state and the Northern Territory have implemented rail safety legislation and established a rail safety regulator. The regulators are responsible for establishing standards in rail safety management and monitoring the industry's compliance with those standards in order to meet community expectations and maintain public confidence.

Industry is responsible for addressing risks to safety by identifying and implementing the most effective and efficient solutions via their safety management systems. It is accountable for achieving required safety outcomes.

As part of this process of shared responsibility, industry reports rail safety occurrences to the regulators. The regulators and operators use this data to assist with their safety analyses and programs.

The present count data is designed to assist rail safety professionals and researchers in understanding and mitigating risk. In addition, it can be used for international comparative research, while informing the public about emerging issues in rail safety. The present data set contains frequency counts of the following safety-critical event types:

- derailments
- collisions
- level crossing occurrences
- signals passed at danger (SPAD)
- load irregularities
- track and civil infrastructure irregularities.

As the data were collected and published on a jurisdictional basis, frequency counts for each of the above occurrences (except for SPADs) are normalised according to the size of the industry. The normalising data used were:

- train kilometres
- freight train kilometres
- passenger train kilometres
- total track kilometres.

In addition, frequency counts are provided for:

- fatalities
- serious personal injuries.

The data comprises railway safety occurrences in Australia from 1 January 2002 to 31 December 2011. The first table of each set contains occurrence frequency counts by state and territory, and the second contains counts normalised by appropriate activity data, where available.

Line graphs showing trends across each 6-month period are also provided for most of the normalised occurrence categories. Where the data was episodic, bar graphs are used for the relevant jurisdiction. When the data for all jurisdictions was episodic for an occurrence type rather than continuous, a graph has not been provided.

Rail safety regulators have provided this data to the Australian Transport Safety Bureau (ATSB) for national publication.

The definitions for data provided in each of the categories for the period are:

- 1 January 2002 to 30 June 2008 are taken from *Occurrence Notification Standard 1* (ON-S1, 2004 Rail Safety Regulators' Panel).
- 1 July 2008 to 31 December 2011 are taken from *Occurrence Classification Guideline 1* (OC-G1, July 2008 Rail Safety Regulators' Panel).

The ON-S1 was revised in 2008 to clarify definition and terminology issues discovered in ON-S1 (2004) and to further support uniform reporting of rail safety occurrences across Australia. The OC-G1 was developed as a separate document from ON-S1 in order to exclusively deal with the classification of data.

The change of classification rules from ON-S1 (2004) to OC-G1 (2008) for the rail safety occurrences contained in this report means that:

- Tables 21 and 22 – Load Irregularities – under the OC-G1 (2008) definitions now includes 'Loose Load Fastening', which had not been included in this category under the ON-S1 (2004); therefore, with this addition, a rise in Load Irregularity occurrences may be apparent.
- Tables 23 and 24 – Track Infrastructure Irregularities – have previously incorporated both running lines and yard occurrences. Data submitted under the OC-G1 (2008) only includes running line figures for the latter categories; therefore, a decline in numbers from 2008 in comparison to previous years may be apparent.

Disclaimer

The data contained in the tables of this report are subject to review and amendment as additional or more detailed information becomes available through investigations and enquiries into occurrences, or as regulators undertake data audits as part of their quality processes in relation to data management. This review may in some instances result in occurrences being re-classified, and therefore historical data in this report may vary to previously published reports.

This data is supplied to the ATSB by state and territory rail safety regulators. The ATSB accepts no liability for any loss or damage suffered by any person or corporation resulting from the use of this data.

DATA

Fatal and serious personal injuries

Fatalities

Table 1: Biannual count of Australian rail fatalities by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	2	0	0	1	4	0	11	18
	Jul-Dec	1	1	4	1	10	0	5	22
2003	Jan-Jun	2	0	0	2	4	0	11	19
	Jul-Dec	1	0	0	0	6	0	7	14
2004	Jan-Jun	0	0	0	1	7	0	7	15
	Jul-Dec	2	1	2	0	5	0	8	18
2005	Jan-Jun	1	0	2	0	5	0	3	11
	Jul-Dec	5	0	2	0	9	0	7	23
2006	Jan-Jun	5	0	1	2	7	0	5	20
	Jul-Dec	4	0	1	2	7	1	4	19
2007	Jan-Jun	0	0	2	3	17	0	3	25
	Jul-Dec	3	0	3	0	6	0	5	17
2008	Jan-Jun	3	0	1	0	11	0	2	17
	Jul-Dec	3	0	0	0	6	0	5	14
2009	Jan-Jun	2	0	0	0	10	0	5	17
	Jul-Dec	1	1	2	2	4	0	1	11
2010	Jan-Jun	2	0	2	2	4	0	7	17
	Jul-Dec	2	0	0	1	5	1	4	13
2011	Jan-Jun	2	0	0	0	2	1	9	14
	Jul-Dec	3	1	3	3	6	0	5	21
Total		44	4	25	20	135	3	114	345

Serious personal injuries

Table 2: Biannual count of Australian rail serious injuries by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW
2002	Jan-Jun	8	0	5	5	15	0	NA
	Jul-Dec	7	0	34	13	11	0	NA
2003	Jan-Jun	8	0	0	4	14	0	NA
	Jul-Dec	3	1	1	2	17	1	NA
2004	Jan-Jun	2	0	2	4	7	0	NA
	Jul-Dec	36	0	7	11	2	0	NA
2005	Jan-Jun	2	1	8	0	12	0	NA
	Jul-Dec	7	0	2	0	40	0	NA
2006	Jan-Jun	3	0	1	2	35	0	NA
	Jul-Dec	6	4	0	7	77	0	NA
2007	Jan-Jun	8	0	1	2	87	0	NA
	Jul-Dec	11	0	2	2	70	0	NA
2008	Jan-Jun	13	0	1	0	55	0	NA
	Jul-Dec	5	0	0	2	38	0	NA
2009	Jan-Jun	15	0	2	4	32	1	NA
	Jul-Dec	7	0	1	5	23	1	NA
2010	Jan-Jun	8	0	2	1	11	1	NA
	Jul-Dec	7	0	1	0	7	0	NA
2011	Jan-Jun	6	0	2	2	27	0	NA
	Jul-Dec	12	1	2	2	29	1	NA
Total		174	7	74	68	609	5	NA

Running line derailments

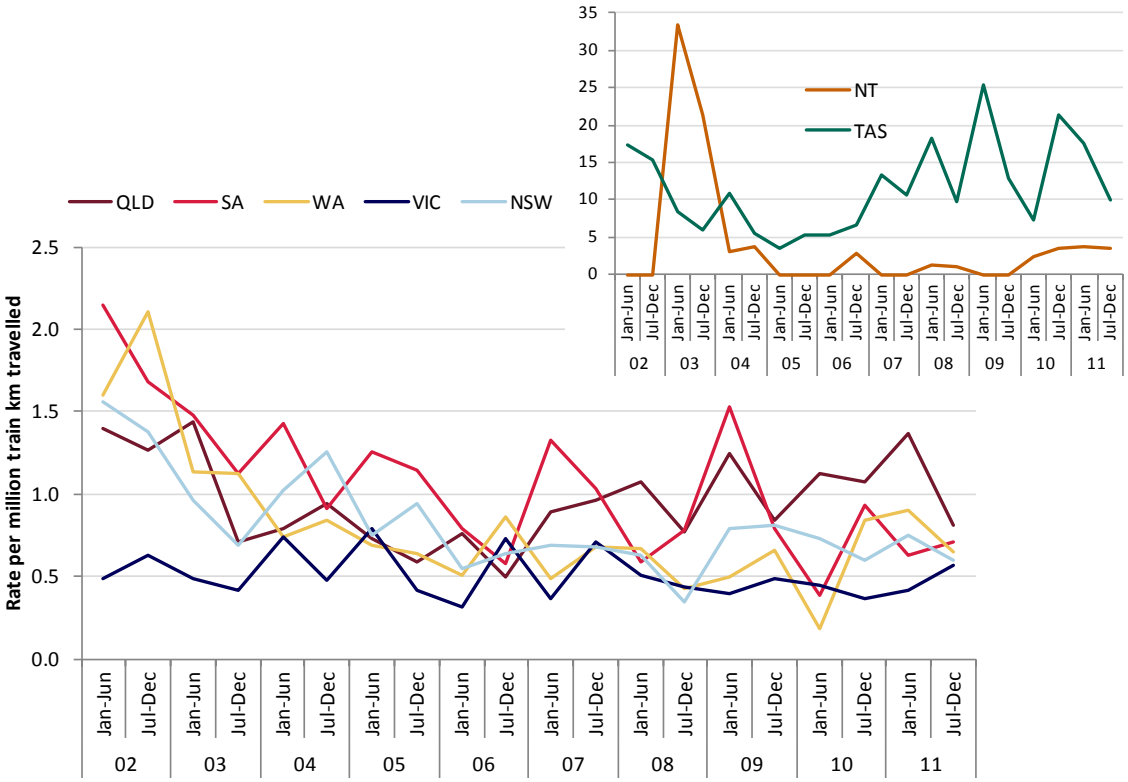
Table 3: Biannual count of Australian running line derailments by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	27	0	18	16	9	8	50	128
	Jul-Dec	25	0	15	20	12	7	43	122
2003	Jan-Jun	27	3	12	11	9	4	29	95
	Jul-Dec	14	2	9	12	8	3	21	69
2004	Jan-Jun	15	2	12	8	14	6	32	89
	Jul-Dec	19	2	8	10	9	3	39	90
2005	Jan-Jun	14	0	11	8	15	2	23	73
	Jul-Dec	12	0	10	8	8	3	28	69
2006	Jan-Jun	14	0	7	6	6	3	16	52
	Jul-Dec	10	2	5	11	14	3	19	64
2007	Jan-Jun	17	0	11	6	7	6	20	67
	Jul-Dec	20	0	9	9	13	5	21	77
2008	Jan-Jun	21	1	5	11	9	8	18	73
	Jul-Dec	17	1	7	7	8	4	10	54
2009	Jan-Jun	23	0	12	8	7	9	23	82
	Jul-Dec	17	0	6	11	8	5	24	71
2010	Jan-Jun	21	2	3	3	7	3	21	60
	Jul-Dec	20	3	8	15	6	9	18	79
2011	Jan-Jun	21	3	5	19	7	7	23	85
	Jul-Dec	16	3	6	14	10	4	19	72
Total		370	24	179	213	186	102	497	1,571

Table 4: Normalised biannual rate of Australian running line derailments per million km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	1.40	0.00	2.15	1.60	0.48	17.39	1.56	1.44
	Jul-Dec	1.26	0.00	1.68	2.11	0.62	15.22	1.38	1.37
2003	Jan-Jun	1.44	33.33	1.48	1.13	0.48	8.33	0.96	1.10
	Jul-Dec	0.71	21.28	1.12	1.13	0.42	6.00	0.68	0.78
2004	Jan-Jun	0.79	3.05	1.43	0.74	0.74	10.91	1.02	0.99
	Jul-Dec	0.94	3.76	0.92	0.84	0.47	5.45	1.25	0.98
2005	Jan-Jun	0.73	0.00	1.25	0.69	0.79	3.42	0.75	0.80
	Jul-Dec	0.59	0.00	1.15	0.64	0.42	5.22	0.94	0.75
2006	Jan-Jun	0.76	0.00	0.79	0.51	0.31	5.26	0.55	0.59
	Jul-Dec	0.49	2.90	0.58	0.86	0.73	6.52	0.63	0.70
2007	Jan-Jun	0.89	0.00	1.32	0.48	0.37	13.33	0.69	0.75
	Jul-Dec	0.96	0.00	1.03	0.68	0.71	10.64	0.68	0.82
2008	Jan-Jun	1.07	1.27	0.58	0.67	0.50	18.26	0.63	0.79
	Jul-Dec	0.77	1.13	0.78	0.42	0.44	9.70	0.34	0.56
2009	Jan-Jun	1.24	0.00	1.53	0.49	0.40	25.42	0.79	0.91
	Jul-Dec	0.84	0.00	0.79	0.65	0.49	12.80	0.81	0.77
2010	Jan-Jun	1.13	2.29	0.38	0.18	0.45	7.32	0.73	0.67
	Jul-Dec	1.07	3.47	0.93	0.84	0.36	21.38	0.60	0.85
2011	Jan-Jun	1.36	3.61	0.63	0.90	0.42	17.59	0.75	0.91
	Jul-Dec	0.81	3.43	0.71	0.64	0.57	9.95	0.60	0.72
Rate all periods		0.95	1.95	1.06	0.76	0.51	10.93	0.82	0.86

Figure 1: Normalised biannual rate of Australian running line derailments per million km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011



Running line collisions

Collisions with trains

Table 5: Running line collisions with train, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	3	0	1	1	1	0	3	9
	Jul-Dec	3	0	0	0	0	0	4	7
2003	Jan-Jun	3	0	1	1	4	0	1	10
	Jul-Dec	4	0	0	0	2	0	2	8
2004	Jan-Jun	0	0	0	0	1	1	3	5
	Jul-Dec	1	0	0	0	0	0	0	1
2005	Jan-Jun	4	1	1	3	1	1	2	13
	Jul-Dec	2	0	0	1	2	0	2	7
2006	Jan-Jun	0	0	0	0	2	0	2	4
	Jul-Dec	1	0	3	3	0	3	4	14
2007	Jan-Jun	0	0	0	2	1	0	3	6
	Jul-Dec	0	0	0	2	4	0	4	10
2008	Jan-Jun	1	0	0	2	4	0	3	10
	Jul-Dec	1	1	0	2	2	0	5	11
2009	Jan-Jun	3	0	0	2	0	1	4	10
	Jul-Dec	3	0	1	0	2	0	2	8
2010	Jan-Jun	0	0	1	1	7	0	3	12
	Jul-Dec	0	0	0	0	1	0	3	4
2011	Jan-Jun	2	0	0	0	0	0	4	6
	Jul-Dec	1	0	1	3	0	0	4	9
Total		32	2	9	23	34	6	58	164

Table 6: Normalised running line collisions with train, biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.16	0.00	0.12	0.10	0.05	0.00	0.09	0.10
	Jul-Dec	0.15	0.00	0.00	0.00	0.00	0.00	0.13	0.08
2003	Jan-Jun	0.16	0.00	0.12	0.10	0.21	0.00	0.03	0.12
	Jul-Dec	0.20	0.00	0.00	0.00	0.10	0.00	0.07	0.09
2004	Jan-Jun	0.00	0.00	0.00	0.00	0.05	1.82	0.10	0.06
	Jul-Dec	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2005	Jan-Jun	0.21	1.80	0.11	0.26	0.05	1.71	0.06	0.14
	Jul-Dec	0.10	0.00	0.00	0.08	0.10	0.00	0.07	0.08
2006	Jan-Jun	0.00	0.00	0.00	0.00	0.10	0.00	0.07	0.05
	Jul-Dec	0.05	0.00	0.35	0.23	0.00	6.52	0.13	0.15
2007	Jan-Jun	0.00	0.00	0.00	0.16	0.05	0.00	0.10	0.07
	Jul-Dec	0.00	0.00	0.00	0.15	0.22	0.00	0.13	0.11
2008	Jan-Jun	0.05	0.00	0.00	0.12	0.22	0.00	0.11	0.11
	Jul-Dec	0.05	1.13	0.00	0.12	0.11	0.00	0.17	0.11
2009	Jan-Jun	0.16	0.00	0.00	0.12	0.00	2.82	0.14	0.11
	Jul-Dec	0.15	0.00	0.13	0.00	0.12	0.00	0.07	0.09
2010	Jan-Jun	0.00	0.00	0.13	0.06	0.45	0.00	0.10	0.13
	Jul-Dec	0.00	0.00	0.00	0.00	0.06	0.00	0.10	0.04
2011	Jan-Jun	0.13	0.00	0.00	0.00	0.00	0.00	0.13	0.06
	Jul-Dec	0.05	0.00	0.12	0.14	0.00	0.00	0.13	0.09
Rate all periods		0.08	0.16	0.05	0.08	0.09	0.64	0.10	0.09

Collisions with rolling stock

Table 7: Running line collisions with rolling stock, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	1	0	0	0	0	0	1	2
	Jul-Dec	1	0	0	1	2	0	1	5
2003	Jan-Jun	0	0	0	0	0	0	0	0
	Jul-Dec	1	0	0	0	2	0	0	3
2004	Jan-Jun	1	0	0	0	1	0	0	2
	Jul-Dec	2	0	0	1	3	1	0	7
2005	Jan-Jun	2	0	0	1	1	0	0	4
	Jul-Dec	1	0	1	0	2	0	0	4
2006	Jan-Jun	0	0	0	1	5	0	0	6
	Jul-Dec	2	0	0	0	2	0	1	5
2007	Jan-Jun	0	0	1	0	0	0	0	1
	Jul-Dec	1	0	0	2	0	0	0	3
2008	Jan-Jun	1	0	0	0	5	1	0	7
	Jul-Dec	2	0	0	0	1	0	0	3
2009	Jan-Jun	0	0	0	0	1	0	0	1
	Jul-Dec	2	0	0	0	3	2	0	7
2010	Jan-Jun	2	0	0	0	2	0	1	5
	Jul-Dec	1	0	0	0	0	0	0	1
2011	Jan-Jun	1	0	0	1	1	1	1	5
	Jul-Dec	0	0	0	0	1	0	0	1
Total		21	0	2	7	32	5	5	72

Table 8: Normalised running line collisions with rolling stock, biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.05	0.00	0.00	0.00	0.00	0.00	0.03	0.02
	Jul-Dec	0.05	0.00	0.00	0.11	0.10	0.00	0.03	0.06
2003	Jan-Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Jul-Dec	0.05	0.00	0.00	0.00	0.10	0.00	0.00	0.03
2004	Jan-Jun	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.02
	Jul-Dec	0.10	0.00	0.00	0.08	0.16	1.82	0.00	0.08
2005	Jan-Jun	0.10	0.00	0.00	0.09	0.05	0.00	0.00	0.04
	Jul-Dec	0.05	0.00	0.11	0.00	0.10	0.00	0.00	0.04
2006	Jan-Jun	0.00	0.00	0.00	0.08	0.26	0.00	0.00	0.07
	Jul-Dec	0.10	0.00	0.00	0.00	0.10	0.00	0.03	0.05
2007	Jan-Jun	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.01
	Jul-Dec	0.05	0.00	0.00	0.15	0.00	0.00	0.00	0.03
2008	Jan-Jun	0.05	0.00	0.00	0.00	0.28	2.28	0.00	0.08
	Jul-Dec	0.09	0.00	0.00	0.00	0.05	0.00	0.00	0.03
2009	Jan-Jun	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.01
	Jul-Dec	0.10	0.00	0.00	0.00	0.18	5.12	0.00	0.08
2010	Jan-Jun	0.11	0.00	0.00	0.00	0.13	0.00	0.03	0.06
	Jul-Dec	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2011	Jan-Jun	0.06	0.00	0.00	0.05	0.06	2.51	0.03	0.05
	Jul-Dec	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.01
Rate all periods		0.05	0.00	0.01	0.02	0.09	0.54	0.01	0.04

Collisions with person

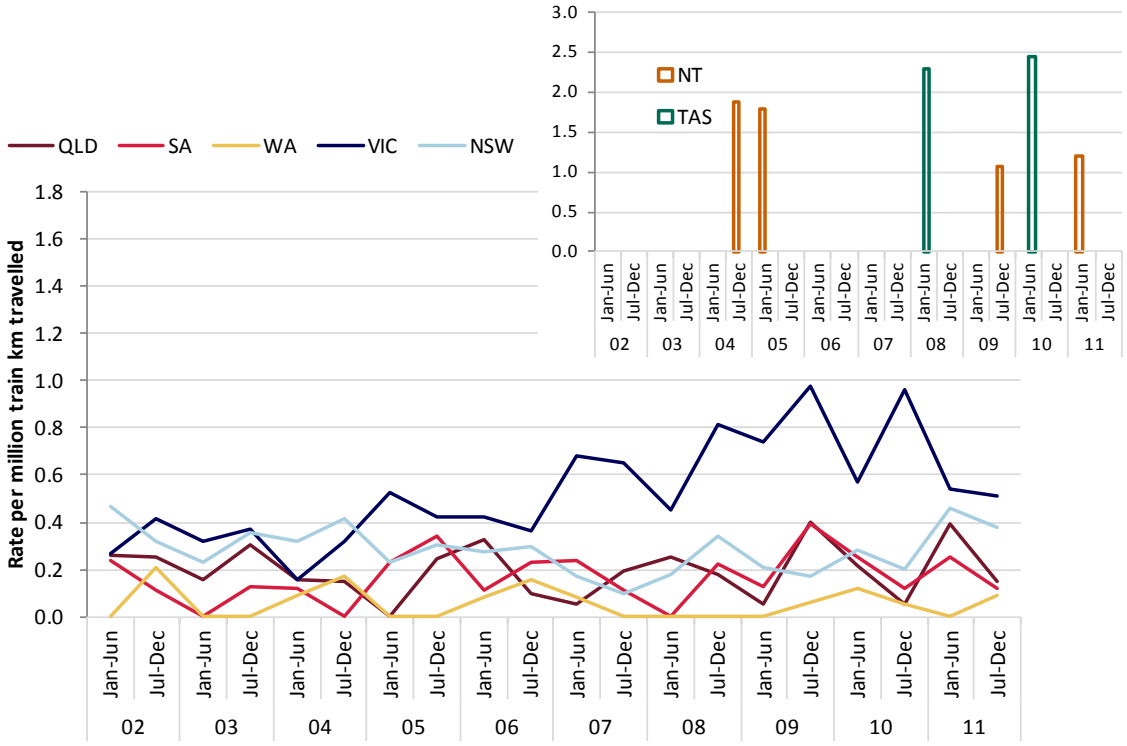
Table 9: Running line collisions with person (not at a level crossing), biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	5	0	2	0	5	0	15	27
	Jul-Dec	5	0	1	2	8	0	10	26
2003	Jan-Jun	3	0	0	0	6	0	7	16
	Jul-Dec	6	0	1	0	7	0	11	25
2004	Jan-Jun	3	0	1	1	3	0	10	18
	Jul-Dec	3	1	0	2	6	0	13	25
2005	Jan-Jun	0	1	2	0	10	0	7	20
	Jul-Dec	5	0	3	0	8	0	9	25
2006	Jan-Jun	6	0	1	1	8	0	8	24
	Jul-Dec	2	0	2	2	7	0	9	22
2007	Jan-Jun	1	0	2	1	13	0	5	22
	Jul-Dec	4	0	1	0	12	0	3	20
2008	Jan-Jun	5	0	0	0	8	1	5	19
	Jul-Dec	4	0	2	0	15	0	10	31
2009	Jan-Jun	1	0	1	0	13	0	6	21
	Jul-Dec	8	1	3	1	16	0	5	34
2010	Jan-Jun	4	0	2	2	9	1	8	26
	Jul-Dec	1	0	1	1	16	0	6	25
2011	Jan-Jun	6	1	2	0	9	0	14	32
	Jul-Dec	3	0	1	2	9	0	12	27
Total		75	4	28	15	188	2	173	485

Table 10: Normalised running line collisions with person (not at a level crossing), biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.26	0.00	0.24	0.00	0.27	0.00	0.47	0.30
	Jul-Dec	0.25	0.00	0.11	0.21	0.42	0.00	0.32	0.29
2003	Jan-Jun	0.16	0.00	0.00	0.00	0.32	0.00	0.23	0.19
	Jul-Dec	0.30	0.00	0.12	0.00	0.37	0.00	0.36	0.28
2004	Jan-Jun	0.16	0.00	0.12	0.09	0.16	0.00	0.32	0.20
	Jul-Dec	0.15	1.88	0.00	0.17	0.32	0.00	0.42	0.27
2005	Jan-Jun	0.00	1.80	0.23	0.00	0.52	0.00	0.23	0.22
	Jul-Dec	0.24	0.00	0.34	0.00	0.42	0.00	0.30	0.27
2006	Jan-Jun	0.33	0.00	0.11	0.08	0.42	0.00	0.27	0.27
	Jul-Dec	0.10	0.00	0.23	0.16	0.37	0.00	0.30	0.24
2007	Jan-Jun	0.05	0.00	0.24	0.08	0.68	0.00	0.17	0.25
	Jul-Dec	0.19	0.00	0.11	0.00	0.65	0.00	0.10	0.21
2008	Jan-Jun	0.26	0.00	0.00	0.00	0.45	2.28	0.18	0.21
	Jul-Dec	0.18	0.00	0.22	0.00	0.82	0.00	0.34	0.32
2009	Jan-Jun	0.05	0.00	0.13	0.00	0.74	0.00	0.21	0.23
	Jul-Dec	0.40	1.06	0.39	0.06	0.98	0.00	0.17	0.37
2010	Jan-Jun	0.21	0.00	0.25	0.12	0.57	2.44	0.28	0.29
	Jul-Dec	0.05	0.00	0.12	0.06	0.96	0.00	0.20	0.27
2011	Jan-Jun	0.39	1.20	0.25	0.00	0.54	0.00	0.46	0.34
	Jul-Dec	0.15	0.00	0.12	0.09	0.51	0.00	0.38	0.27
Rate all periods		0.19	0.32	0.17	0.05	0.52	0.21	0.29	0.27

Figure 2: Normalised running line collisions with person (not at a level crossing), biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011



Collisions with infrastructure

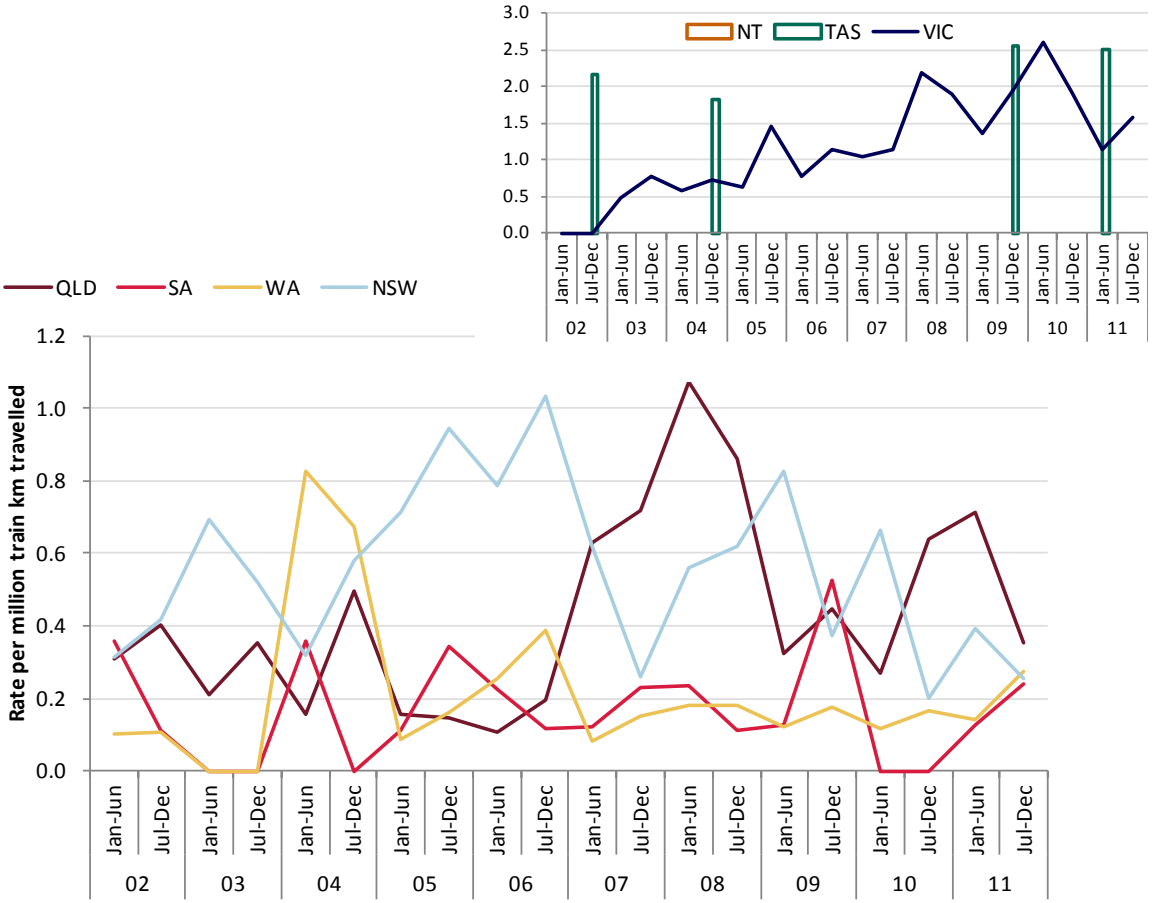
Table 11: Running line collisions with infrastructure, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	6	0	3	1	0	0	10	20
	Jul-Dec	8	0	1	1	0	1	13	24
2003	Jan-Jun	4	0	0	0	9	0	21	34
	Jul-Dec	7	0	0	0	15	0	16	38
2004	Jan-Jun	3	0	3	9	11	0	10	36
	Jul-Dec	10	0	0	8	14	1	18	51
2005	Jan-Jun	3	0	1	1	12	0	22	39
	Jul-Dec	3	0	3	2	28	0	28	64
2006	Jan-Jun	2	0	2	3	15	0	23	45
	Jul-Dec	4	0	1	5	22	0	31	63
2007	Jan-Jun	12	0	1	1	20	0	18	52
	Jul-Dec	15	0	2	2	21	0	8	48
2008	Jan-Jun	21	0	2	3	39	0	16	81
	Jul-Dec	19	0	1	3	35	0	18	76
2009	Jan-Jun	6	0	1	2	24	0	24	57
	Jul-Dec	9	0	4	3	32	1	11	60
2010	Jan-Jun	5	0	0	2	41	0	19	67
	Jul-Dec	12	0	0	3	32	0	6	53
2011	Jan-Jun	11	0	1	3	19	1	12	47
	Jul-Dec	7	0	2	6	28	0	8	51
Total		167	0	28	58	417	4	332	1,006

Table 12: Normalised running line collisions with infrastructure, biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.31	0.00	0.36	0.10	0.00	0.00	0.31	0.23
	Jul-Dec	0.40	0.00	0.11	0.11	0.00	2.17	0.42	0.27
2003	Jan-Jun	0.21	0.00	0.00	0.00	0.48	0.00	0.70	0.39
	Jul-Dec	0.35	0.00	0.00	0.00	0.79	0.00	0.52	0.43
2004	Jan-Jun	0.16	0.00	0.36	0.83	0.58	0.00	0.32	0.40
	Jul-Dec	0.49	0.00	0.00	0.67	0.74	1.82	0.58	0.55
2005	Jan-Jun	0.16	0.00	0.11	0.09	0.63	0.00	0.71	0.43
	Jul-Dec	0.15	0.00	0.34	0.16	1.47	0.00	0.94	0.70
2006	Jan-Jun	0.11	0.00	0.22	0.25	0.79	0.00	0.79	0.51
	Jul-Dec	0.20	0.00	0.12	0.39	1.15	0.00	1.03	0.69
2007	Jan-Jun	0.63	0.00	0.12	0.08	1.05	0.00	0.62	0.58
	Jul-Dec	0.72	0.00	0.23	0.15	1.14	0.00	0.26	0.51
2008	Jan-Jun	1.07	0.00	0.23	0.18	2.19	0.00	0.56	0.88
	Jul-Dec	0.86	0.00	0.11	0.18	1.90	0.00	0.62	0.79
2009	Jan-Jun	0.32	0.00	0.13	0.12	1.37	0.00	0.83	0.63
	Jul-Dec	0.45	0.00	0.52	0.18	1.95	2.56	0.37	0.65
2010	Jan-Jun	0.27	0.00	0.00	0.12	2.61	0.00	0.66	0.75
	Jul-Dec	0.64	0.00	0.00	0.17	1.92	0.00	0.20	0.57
2011	Jan-Jun	0.71	0.00	0.13	0.14	1.14	2.51	0.39	0.51
	Jul-Dec	0.35	0.00	0.24	0.28	1.59	0.00	0.25	0.51
Rate all periods		0.43	0.00	0.17	0.21	1.15	0.43	0.55	0.55

Figure 3: Normalised running line collisions with infrastructure, biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011



Collisions with road vehicle

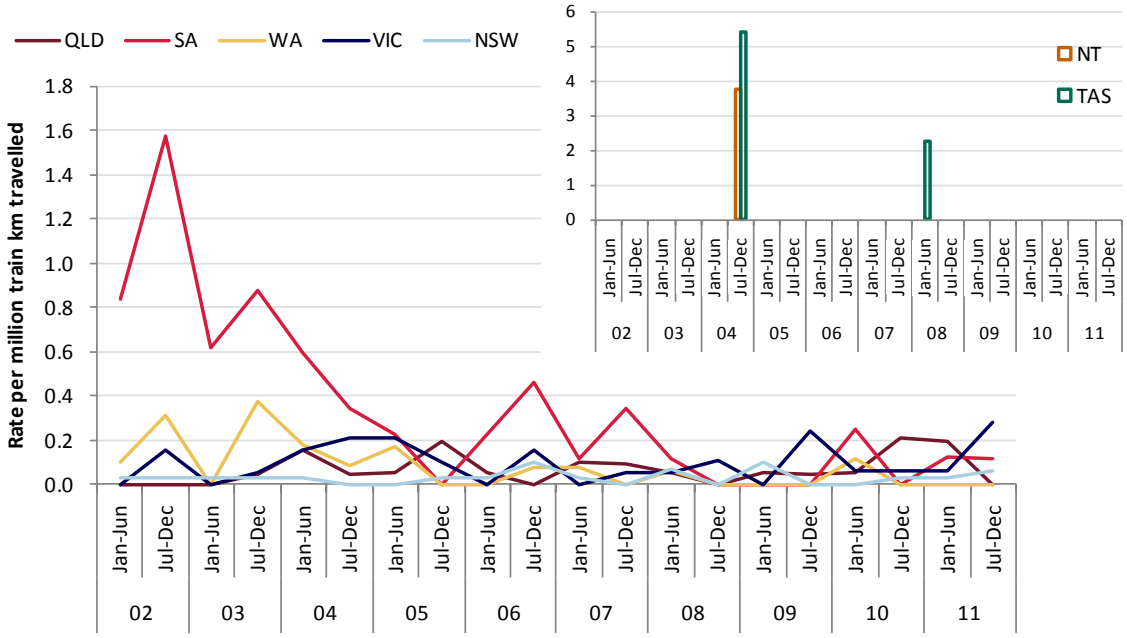
Table 13: Running line collisions with road vehicle (not at a level crossing), biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0	0	7	1	0	0	1	9
	Jul-Dec	0	0	14	3	3	0	1	21
2003	Jan-Jun	0	0	5	0	0	0	1	6
	Jul-Dec	1	0	7	4	1	0	1	14
2004	Jan-Jun	3	0	5	2	3	0	1	14
	Jul-Dec	1	2	3	1	4	3	0	14
2005	Jan-Jun	1	0	2	2	4	0	0	9
	Jul-Dec	4	0	0	0	2	0	1	7
2006	Jan-Jun	1	0	2	0	0	0	1	4
	Jul-Dec	0	0	4	1	3	0	3	11
2007	Jan-Jun	2	0	1	1	0	0	1	5
	Jul-Dec	2	0	3	0	1	0	0	6
2008	Jan-Jun	1	0	1	1	1	1	2	7
	Jul-Dec	0	0	0	0	2	0	0	2
2009	Jan-Jun	1	0	0	0	0	0	3	4
	Jul-Dec	1	0	0	0	4	0	0	5
2010	Jan-Jun	1	0	2	2	1	0	0	6
	Jul-Dec	4	0	0	0	1	0	1	6
2011	Jan-Jun	3	0	1	0	1	0	1	6
	Jul-Dec	0	0	1	0	5	0	2	8
Total		26	2	58	18	36	4	20	164

Table 14: Normalised running line collisions with road vehicle (not at a level crossing), biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.00	0.00	0.84	0.10	0.00	0.00	0.03	0.10
	Jul-Dec	0.00	0.00	1.57	0.32	0.16	0.00	0.03	0.24
2003	Jan-Jun	0.00	0.00	0.62	0.00	0.00	0.00	0.03	0.07
	Jul-Dec	0.05	0.00	0.87	0.38	0.05	0.00	0.03	0.16
2004	Jan-Jun	0.16	0.00	0.60	0.18	0.16	0.00	0.03	0.16
	Jul-Dec	0.05	3.76	0.34	0.08	0.21	5.45	0.00	0.15
2005	Jan-Jun	0.05	0.00	0.23	0.17	0.21	0.00	0.00	0.10
	Jul-Dec	0.20	0.00	0.00	0.00	0.10	0.00	0.03	0.08
2006	Jan-Jun	0.05	0.00	0.22	0.00	0.00	0.00	0.03	0.05
	Jul-Dec	0.00	0.00	0.46	0.08	0.16	0.00	0.10	0.12
2007	Jan-Jun	0.10	0.00	0.12	0.08	0.00	0.00	0.03	0.06
	Jul-Dec	0.10	0.00	0.34	0.00	0.05	0.00	0.00	0.06
2008	Jan-Jun	0.05	0.00	0.12	0.06	0.06	2.28	0.07	0.08
	Jul-Dec	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.02
2009	Jan-Jun	0.05	0.00	0.00	0.00	0.00	0.00	0.10	0.04
	Jul-Dec	0.05	0.00	0.00	0.00	0.24	0.00	0.00	0.05
2010	Jan-Jun	0.05	0.00	0.25	0.12	0.06	0.00	0.00	0.07
	Jul-Dec	0.21	0.00	0.00	0.00	0.06	0.00	0.03	0.06
2011	Jan-Jun	0.19	0.00	0.13	0.00	0.06	0.00	0.03	0.06
	Jul-Dec	0.00	0.00	0.12	0.00	0.28	0.00	0.06	0.08
Rate all periods		0.07	0.16	0.34	0.06	0.10	0.43	0.03	0.09

Figure 4: Normalised running line collisions with road vehicle (not at a level crossing), biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011



Level crossing occurrences

Road vehicle collisions

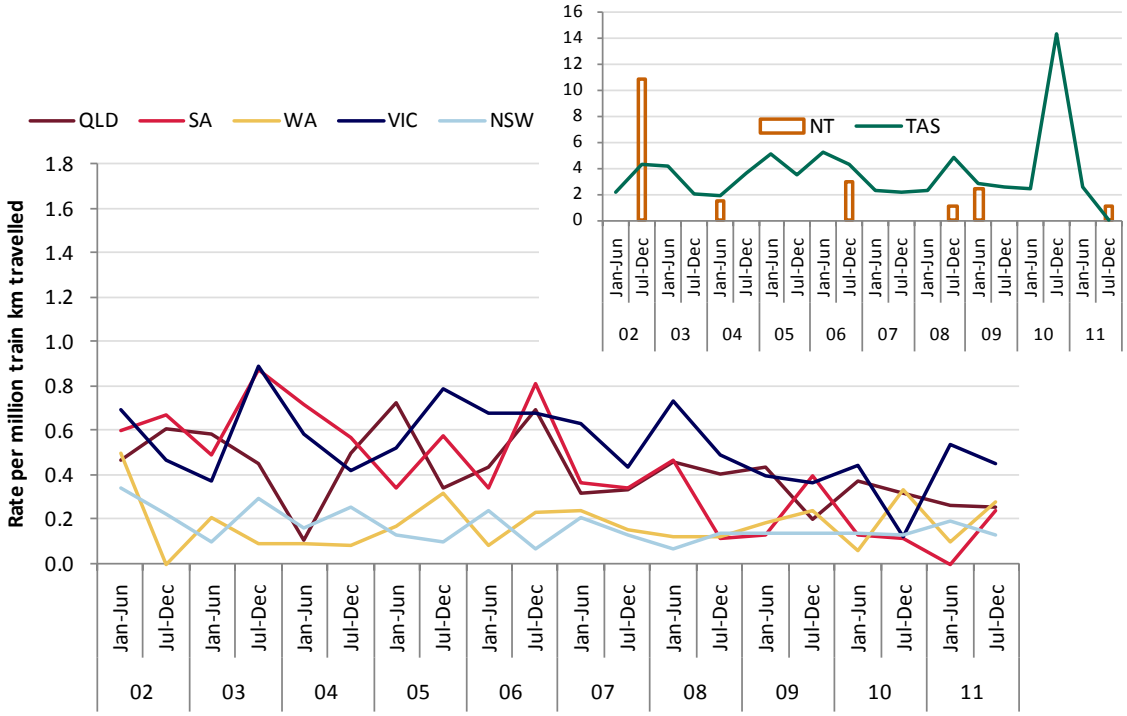
Table 15: Road vehicle collisions at level crossings, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	9	0	5	5	13	1	11	44
	Jul-Dec	12	1	6	0	9	2	7	37
2003	Jan-Jun	11	0	4	2	7	2	3	29
	Jul-Dec	9	0	7	1	17	1	9	44
2004	Jan-Jun	2	1	6	1	11	1	5	27
	Jul-Dec	10	0	5	1	8	2	8	34
2005	Jan-Jun	14	0	3	2	10	3	4	36
	Jul-Dec	7	0	5	4	15	2	3	36
2006	Jan-Jun	8	0	3	1	13	3	7	35
	Jul-Dec	14	2	7	3	13	2	2	43
2007	Jan-Jun	6	0	3	3	12	1	6	31
	Jul-Dec	7	0	3	2	8	1	4	25
2008	Jan-Jun	9	0	4	2	13	1	2	31
	Jul-Dec	9	1	1	2	9	2	4	28
2009	Jan-Jun	8	2	1	3	7	1	4	26
	Jul-Dec	4	0	3	4	6	1	4	22
2010	Jan-Jun	7	0	1	1	7	1	4	21
	Jul-Dec	6	0	1	6	2	6	4	25
2011	Jan-Jun	4	0	0	2	9	1	6	22
	Jul-Dec	5	1	2	6	8	0	4	26
Total		161	8	70	51	197	34	101	622

Table 16: Normalised road vehicle collisions at level crossings, biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.47	0.00	0.60	0.50	0.70	2.17	0.34	0.50
	Jul-Dec	0.61	10.87	0.67	0.00	0.47	4.35	0.22	0.41
2003	Jan-Jun	0.59	0.00	0.49	0.21	0.37	4.17	0.10	0.34
	Jul-Dec	0.45	0.00	0.87	0.09	0.89	2.00	0.29	0.50
2004	Jan-Jun	0.10	1.52	0.71	0.09	0.58	1.82	0.16	0.30
	Jul-Dec	0.49	0.00	0.57	0.08	0.42	3.64	0.26	0.37
2005	Jan-Jun	0.73	0.00	0.34	0.17	0.52	5.14	0.13	0.40
	Jul-Dec	0.34	0.00	0.57	0.32	0.79	3.48	0.10	0.39
2006	Jan-Jun	0.44	0.00	0.34	0.08	0.68	5.26	0.24	0.40
	Jul-Dec	0.69	2.90	0.81	0.23	0.68	4.35	0.07	0.47
2007	Jan-Jun	0.31	0.00	0.36	0.24	0.63	2.22	0.21	0.35
	Jul-Dec	0.34	0.00	0.34	0.15	0.43	2.13	0.13	0.27
2008	Jan-Jun	0.46	0.00	0.47	0.12	0.73	2.28	0.07	0.34
	Jul-Dec	0.41	1.13	0.11	0.12	0.49	4.85	0.14	0.29
2009	Jan-Jun	0.43	2.42	0.13	0.19	0.40	2.82	0.14	0.29
	Jul-Dec	0.20	0.00	0.39	0.24	0.37	2.56	0.14	0.24
2010	Jan-Jun	0.38	0.00	0.13	0.06	0.45	2.44	0.14	0.24
	Jul-Dec	0.32	0.00	0.12	0.33	0.12	14.25	0.13	0.27
2011	Jan-Jun	0.26	0.00	0.00	0.09	0.54	2.51	0.20	0.24
	Jul-Dec	0.25	1.14	0.24	0.28	0.45	0.00	0.13	0.26
Rate all periods		0.41	0.65	0.42	0.18	0.54	3.64	0.17	0.34

Figure 5: Normalised road vehicle collisions at level crossings, biannual rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011



Level crossing collisions with person

Table 17: Level crossing collisions with person, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0	0	2	0	3	0	1	6
	Jul-Dec	0	0	1	2	3	0	0	6
2003	Jan-Jun	1	0	1	0	1	0	0	3
	Jul-Dec	1	0	3	0	3	1	2	10
2004	Jan-Jun	0	0	1	0	1	0	1	3
	Jul-Dec	2	0	1	0	1	0	0	4
2005	Jan-Jun	0	0	2	0	2	0	0	4
	Jul-Dec	1	0	0	0	2	0	1	4
2006	Jan-Jun	0	0	1	0	4	0	0	5
	Jul-Dec	2	0	1	0	1	0	0	4
2007	Jan-Jun	0	0	1	2	2	0	0	5
	Jul-Dec	0	0	0	0	3	0	1	4
2008	Jan-Jun	0	0	1	0	3	0	0	4
	Jul-Dec	0	0	0	0	1	0	0	1
2009	Jan-Jun	0	0	0	0	5	0	0	5
	Jul-Dec	0	0	0	1	4	0	0	5
2010	Jan-Jun	0	0	1	1	4	0	0	6
	Jul-Dec	0	0	0	1	1	0	0	2
2011	Jan-Jun	0	0	0	0	1	2	0	3
	Jul-Dec	2	0	2	0	5	0	0	9
Total		9	0	18	7	50	3	6	93

Table 18: Normalised level crossing collisions with person, rate per million train km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	0.00	0.00	0.24	0.00	0.16	0.00	0.03	0.07
	Jul-Dec	0.00	0.00	0.11	0.21	0.16	0.00	0.00	0.07
2003	Jan-Jun	0.05	0.00	0.12	0.00	0.05	0.00	0.00	0.03
	Jul-Dec	0.05	0.00	0.37	0.00	0.16	2.00	0.07	0.11
2004	Jan-Jun	0.00	0.00	0.12	0.00	0.05	0.00	0.03	0.03
	Jul-Dec	0.10	0.00	0.11	0.00	0.05	0.00	0.00	0.04
2005	Jan-Jun	0.00	0.00	0.23	0.00	0.10	0.00	0.00	0.04
	Jul-Dec	0.05	0.00	0.00	0.00	0.10	0.00	0.03	0.04
2006	Jan-Jun	0.00	0.00	0.11	0.00	0.21	0.00	0.00	0.06
	Jul-Dec	0.10	0.00	0.12	0.00	0.05	0.00	0.00	0.04
2007	Jan-Jun	0.00	0.00	0.12	0.16	0.10	0.00	0.00	0.06
	Jul-Dec	0.00	0.00	0.00	0.00	0.16	0.00	0.03	0.04
2008	Jan-Jun	0.00	0.00	0.12	0.00	0.17	0.00	0.00	0.04
	Jul-Dec	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.01
2009	Jan-Jun	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.06
	Jul-Dec	0.00	0.00	0.00	0.06	0.24	0.00	0.00	0.05
2010	Jan-Jun	0.00	0.00	0.13	0.06	0.25	0.00	0.00	0.07
	Jul-Dec	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.02
2011	Jan-Jun	0.00	0.00	0.00	0.00	0.06	5.03	0.00	0.03
	Jul-Dec	0.10	0.00	0.24	0.00	0.28	0.00	0.00	0.09
Rate all periods		0.02	0.00	0.11	0.02	0.14	0.32	0.01	0.05

Signals passed at danger (SPAD)

Driver misjudged, completely missed and starting against signal (human error)

Table 19: Driver misjudged, completely missed and starting against signal, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW
2002	Jan-Jun	62	NA	12	7	24	NA	46
	Jul-Dec	64	NA	9	10	19	NA	53
2003	Jan-Jun	52	NA	7	9	17	NA	47
	Jul-Dec	57	NA	20	11	16	NA	89
2004	Jan-Jun	63	NA	9	21	16	NA	128
	Jul-Dec	63	NA	12	30	19	NA	104
2005	Jan-Jun	48	NA	9	18	16	NA	104
	Jul-Dec	62	NA	14	25	27	NA	110
2006	Jan-Jun	61	NA	12	23	23	NA	95
	Jul-Dec	39	NA	10	15	24	NA	100
2007	Jan-Jun	54	NA	9	15	25	NA	120
	Jul-Dec	65	NA	20	28	36	NA	125
2008	Jan-Jun	66	NA	16	19	27	NA	99
	Jul-Dec	48	NA	16	21	29	0	133
2009	Jan-Jun	35	NA	6	31	26	0	102
	Jul-Dec	49	NA	8	25	34	0	88
2010	Jan-Jun	54	NA	8	31	30	0	86
	Jul-Dec	44	NA	8	35	31	0	94
2011	Jan-Jun	37	NA	15	45	31	1	100
	Jul-Dec	31	NA	11	34	33	0	106
Total		1,054	NA	231	453	503	1	1,929

Signal restored as train approaches

Table 20: Signal restored as train approaches, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW
2002	Jan-Jun	147	NA	18	28	62	NA	11
	Jul-Dec	137	NA	18	21	76	NA	13
2003	Jan-Jun	126	NA	11	64	69	NA	17
	Jul-Dec	134	NA	17	43	97	NA	58
2004	Jan-Jun	155	NA	21	41	77	NA	123
	Jul-Dec	161	NA	20	34	56	NA	141
2005	Jan-Jun	120	NA	21	56	58	NA	113
	Jul-Dec	153	NA	19	35	49	NA	122
2006	Jan-Jun	151	NA	18	41	56	NA	142
	Jul-Dec	142	NA	13	47	53	NA	92
2007	Jan-Jun	138	NA	10	31	68	NA	106
	Jul-Dec	149	NA	18	53	88	NA	110
2008	Jan-Jun	134	NA	17	50	46	NA	136
	Jul-Dec	179	NA	18	40	71	0	121
2009	Jan-Jun	154	NA	20	52	69	0	146
	Jul-Dec	138	NA	19	49	82	0	143
2010	Jan-Jun	122	NA	18	49	77	0	161
	Jul-Dec	144	NA	28	40	86	0	146
2011	Jan-Jun	108	NA	17	37	94	0	164
	Jul-Dec	144	NA	15	39	113	0	150
Total		2,836	NA	356	850	1,447	0	2,215

Load irregularities

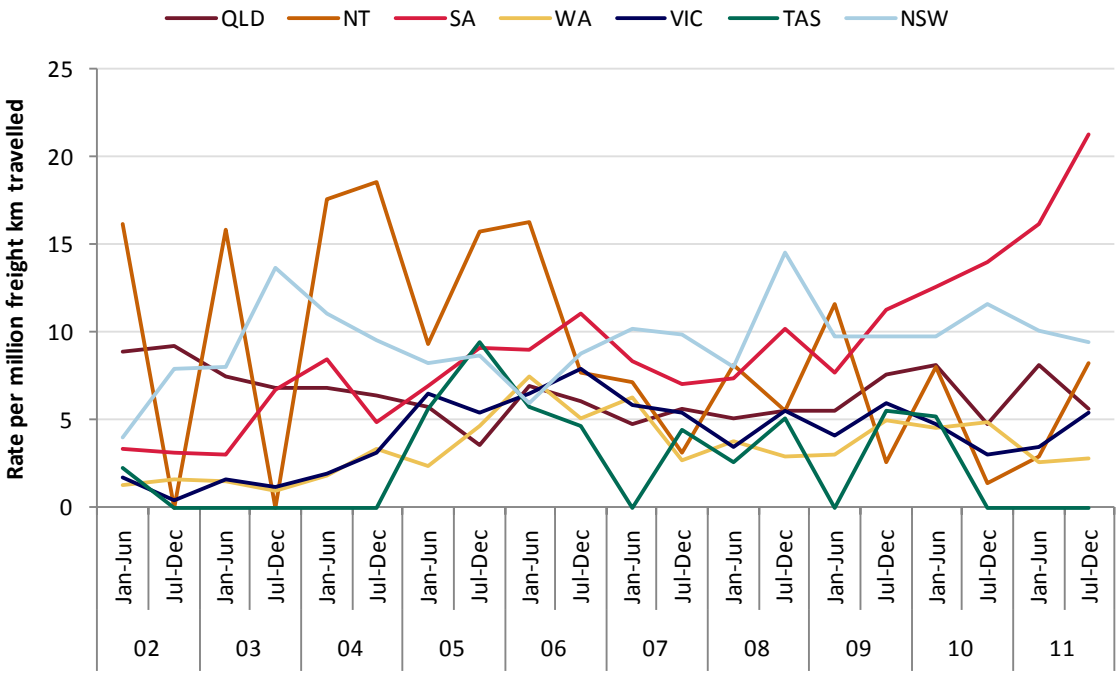
Table 21: Load irregularities, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	110	1	11	8	5	1	37	173
	Jul-Dec	116	0	11	10	1	0	64	202
2003	Jan-Jun	88	1	9	9	4	0	59	170
	Jul-Dec	86	0	20	6	3	0	106	221
2004	Jan-Jun	82	10	29	13	5	0	94	233
	Jul-Dec	84	8	19	25	8	0	91	235
2005	Jan-Jun	72	4	28	17	18	3	81	223
	Jul-Dec	48	7	35	37	15	5	80	227
2006	Jan-Jun	81	7	38	53	18	3	57	257
	Jul-Dec	80	4	43	40	22	2	83	274
2007	Jan-Jun	58	4	33	47	16	0	86	244
	Jul-Dec	78	2	28	22	13	2	88	233
2008	Jan-Jun	64	5	29	32	8	1	71	210
	Jul-Dec	81	4	42	24	12	2	134	299
2009	Jan-Jun	64	8	27	26	7	0	84	216
	Jul-Dec	98	2	37	46	11	2	84	280
2010	Jan-Jun	95	6	48	42	9	2	79	281
	Jul-Dec	53	1	60	50	6	0	100	270
2011	Jan-Jun	67	2	64	34	7	0	95	269
	Jul-Dec	66	6	93	37	12	0	91	305
Total		1,571	82	704	578	200	23	1,664	4,822

Table 22: Normalised load irregularities, biannual rate per million freight km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	8.88	16.13	3.33	1.31	1.70	2.22	3.97	5.00
	Jul-Dec	9.16	0.00	3.11	1.58	0.35	0.00	7.95	5.95
2003	Jan-Jun	7.47	15.87	3.03	1.49	1.57	0.00	8.02	5.44
	Jul-Dec	6.80	0.00	6.70	0.89	1.13	0.00	13.65	6.63
2004	Jan-Jun	6.78	17.64	8.46	1.83	1.89	0.00	11.07	6.69
	Jul-Dec	6.33	18.56	4.91	3.29	3.14	0.00	9.53	6.22
2005	Jan-Jun	5.71	9.37	6.97	2.30	6.51	5.63	8.23	5.94
	Jul-Dec	3.55	15.77	9.09	4.65	5.42	9.47	8.69	5.93
2006	Jan-Jun	6.95	16.24	8.95	7.47	6.51	5.77	5.98	7.09
	Jul-Dec	6.00	7.68	11.03	5.09	7.96	4.65	8.74	7.15
2007	Jan-Jun	4.71	7.17	8.32	6.22	5.78	0.00	10.22	6.78
	Jul-Dec	5.63	3.13	7.00	2.70	5.42	4.44	9.83	6.06
2008	Jan-Jun	5.07	8.08	7.35	3.76	3.45	2.52	7.96	5.62
	Jul-Dec	5.46	5.55	10.15	2.85	5.46	5.09	14.59	7.49
2009	Jan-Jun	5.53	11.61	7.68	3.03	4.12	0.00	9.76	6.18
	Jul-Dec	7.52	2.57	11.31	4.99	5.90	5.54	9.80	7.55
2010	Jan-Jun	8.15	8.03	12.56	4.55	4.75	5.19	9.74	7.84
	Jul-Dec	4.78	1.39	14.02	4.89	2.95	0.00	11.64	7.23
2011	Jan-Jun	8.09	2.85	16.20	2.58	3.41	0.00	10.13	7.10
	Jul-Dec	5.61	8.18	21.27	2.78	5.35	0.00	9.45	7.19
Rate all periods		6.36	8.21	9.34	3.47	4.11	2.64	9.40	6.58

Figure 6: Normalised load irregularities, biannual rate per million freight km travelled by jurisdiction and year, 1 January 2002 to 31 December 2011



Track infrastructure irregularities

Table 23: Track and civil infrastructure irregularities, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

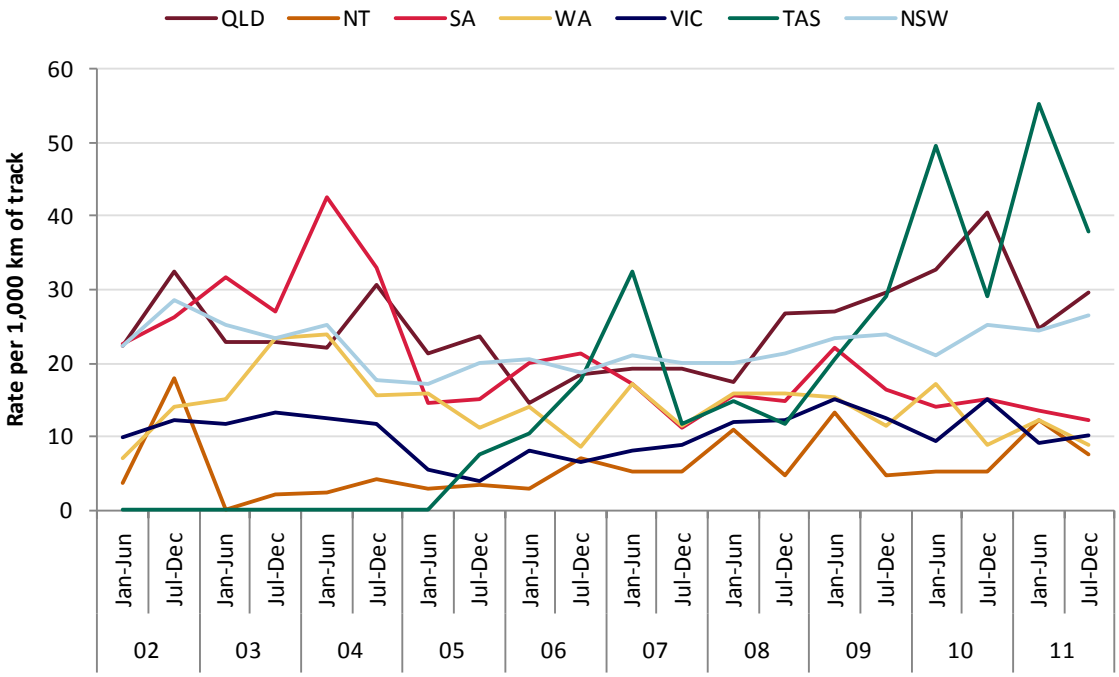
Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	215	1	111	60	54	0	218	659
	Jul-Dec	312	5	128	118	67	0	280	910
2003	Jan-Jun	222	0	155	116	65	0	246	804
	Jul-Dec	222	2	132	178	73	0	228	835
2004	Jan-Jun	224	4	208	182	69	0	246	933
	Jul-Dec	311	7	161	119	65	0	173	836
2005	Jan-Jun	216	5	70	122	36	0	167	616
	Jul-Dec	237	6	72	86	26	6	196	629
2006	Jan-Jun	158	5	95	110	53	7	201	629
	Jul-Dec	201	12	102	68	44	12	184	623
2007	Jan-Jun	209	9	82	135	54	22	205	716
	Jul-Dec	209	9	53	90	59	8	197	625
2008	Jan-Jun	190	19	73	130	79	10	195	696
	Jul-Dec	281	8	67	131	81	8	209	785
2009	Jan-Jun	292	23	99	125	101	14	231	885
	Jul-Dec	314	8	70	95	83	20	234	824
2010	Jan-Jun	348	9	64	142	63	34	201	861
	Jul-Dec	408	9	68	85	100	20	239	929
2011	Jan-Jun	249	21	61	120	60	38	232	781
	Jul-Dec	291	13	55	90	67	26	252	794
Total		5,109	175	1,926	2,302	1,299	225	4,334	15,370

Table 24: Normalised track and civil infrastructure irregularities, biannual rate per 1,000 km of track by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	22.40	3.58	22.65	7.14	9.82	0.00	22.24	16.75
	Jul-Dec	32.45	17.92	26.12	14.05	12.19	0.00	28.57	23.11
2003	Jan-Jun	22.75	0.00	31.66	15.16	11.82	0.00	25.10	20.74
	Jul-Dec	22.78	2.00	26.96	23.26	13.28	0.00	23.27	21.15
2004	Jan-Jun	22.15	2.31	42.66	23.79	12.55	0.00	25.10	23.01
	Jul-Dec	30.69	4.04	33.02	15.56	11.82	0.00	17.65	20.61
2005	Jan-Jun	21.30	2.88	14.60	15.86	5.42	0.00	17.04	14.80
	Jul-Dec	23.66	3.44	15.07	11.18	3.91	7.44	20.00	15.16
2006	Jan-Jun	14.58	2.87	19.90	14.01	7.97	10.29	20.51	14.86
	Jul-Dec	18.52	6.90	21.38	8.66	6.62	17.65	18.78	14.71
2007	Jan-Jun	19.23	5.20	17.19	17.25	8.12	32.35	20.92	16.92
	Jul-Dec	19.23	5.19	11.11	11.37	8.87	11.76	20.10	14.74
2008	Jan-Jun	17.48	10.96	15.59	15.85	11.88	14.71	19.90	16.33
	Jul-Dec	26.87	4.61	14.92	15.95	12.18	11.63	21.33	18.68
2009	Jan-Jun	27.08	13.25	22.01	15.21	15.19	20.50	23.49	20.87
	Jul-Dec	29.73	4.61	16.29	11.44	12.48	29.15	23.83	19.60
2010	Jan-Jun	32.60	5.18	14.12	17.09	9.48	49.64	20.95	20.41
	Jul-Dec	40.61	5.18	15.00	8.76	15.04	29.07	25.07	21.66
2011	Jan-Jun	24.62	12.08	13.39	12.30	9.03	55.23	24.34	18.15
	Jul-Dec	29.65	7.48	12.12	8.89	10.08	37.96	26.45	18.43
Rate all periods[1]		24.82	5.91	20.46	13.95	10.30	14.90	22.22	18.50

[1] The denominator in this figure is the addition of all track kilometres over 10 years between 1 January 2002 and 31 December 2011.

Figure 7: Normalised track and civil infrastructure irregularities, biannual rate per 1,000 km of track by jurisdiction and year, 1 January 2002 to 31 December 2011



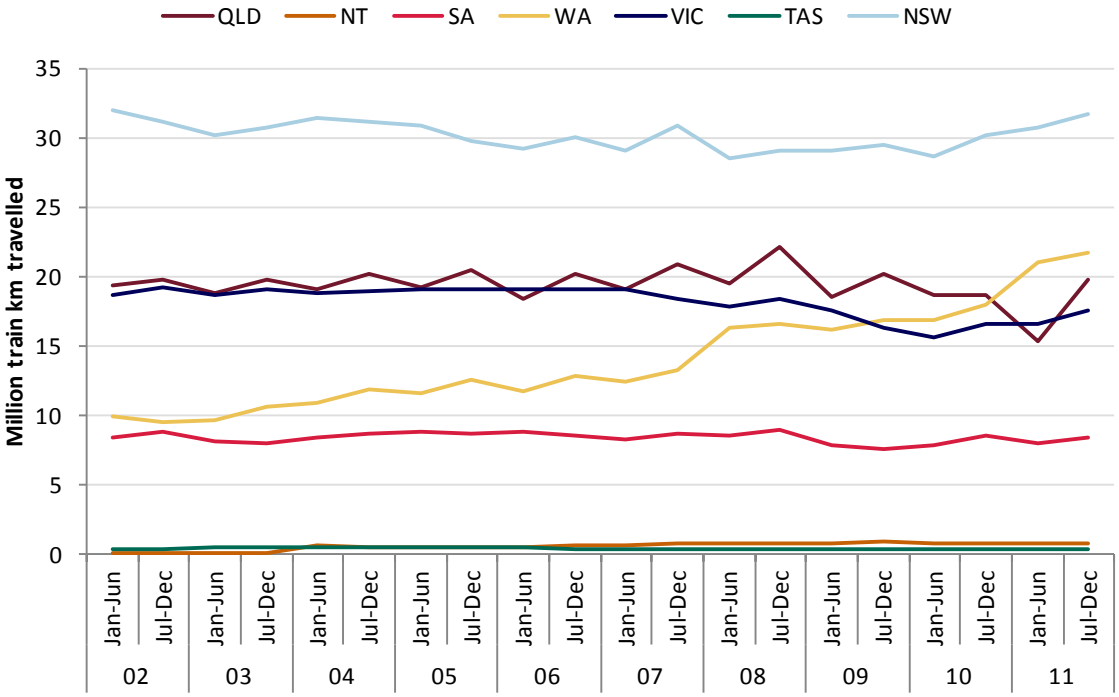
Rail industry activity

Total train km

Table 25: Number of million total train km travelled, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	19.310	0.088	8.373	9.985	18.661	0.460	32.000	88.877
	Jul-Dec	19.790	0.092	8.905	9.489	19.243	0.460	31.201	89.180
2003	Jan-Jun	18.800	0.090	8.120	9.707	18.711	0.480	30.211	86.119
	Jul-Dec	19.820	0.094	8.002	10.635	19.078	0.500	30.666	88.795
2004	Jan-Jun	19.090	0.656	8.396	10.881	18.813	0.550	31.353	89.739
	Jul-Dec	20.250	0.532	8.740	11.917	18.977	0.550	31.133	92.099
2005	Jan-Jun	19.300	0.557	8.786	11.650	19.087	0.584	30.818	90.782
	Jul-Dec	20.480	0.560	8.714	12.570	19.087	0.575	29.714	91.700
2006	Jan-Jun	18.360	0.573	8.889	11.798	19.087	0.570	29.249	88.526
	Jul-Dec	20.260	0.689	8.630	12.830	19.087	0.460	29.987	91.943
2007	Jan-Jun	19.092	0.692	8.304	12.427	19.087	0.450	29.012	89.064
	Jul-Dec	20.834	0.811	8.750	13.250	18.424	0.470	30.895	93.434
2008	Jan-Jun	19.564	0.787	8.582	16.385	17.828	0.438	28.488	92.072
	Jul-Dec	22.118	0.882	8.939	16.555	18.379	0.413	29.052	96.337
2009	Jan-Jun	18.510	0.828	7.848	16.207	17.550	0.354	29.069	90.366
	Jul-Dec	20.160	0.939	7.620	16.812	16.383	0.391	29.488	91.793
2010	Jan-Jun	18.623	0.874	7.882	16.896	15.699	0.410	28.647	89.030
	Jul-Dec	18.711	0.865	8.629	17.948	16.638	0.421	30.212	93.424
2011	Jan-Jun	15.406	0.831	7.960	21.070	16.670	0.398	30.658	92.992
	Jul-Dec	19.770	0.876	8.410	21.763	17.614	0.402	31.630	100.465
Total		388.247	12.316	168.479	280.774	364.101	9.335	603.483	1,826.735

Figure 8: Number of million total train km travelled, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

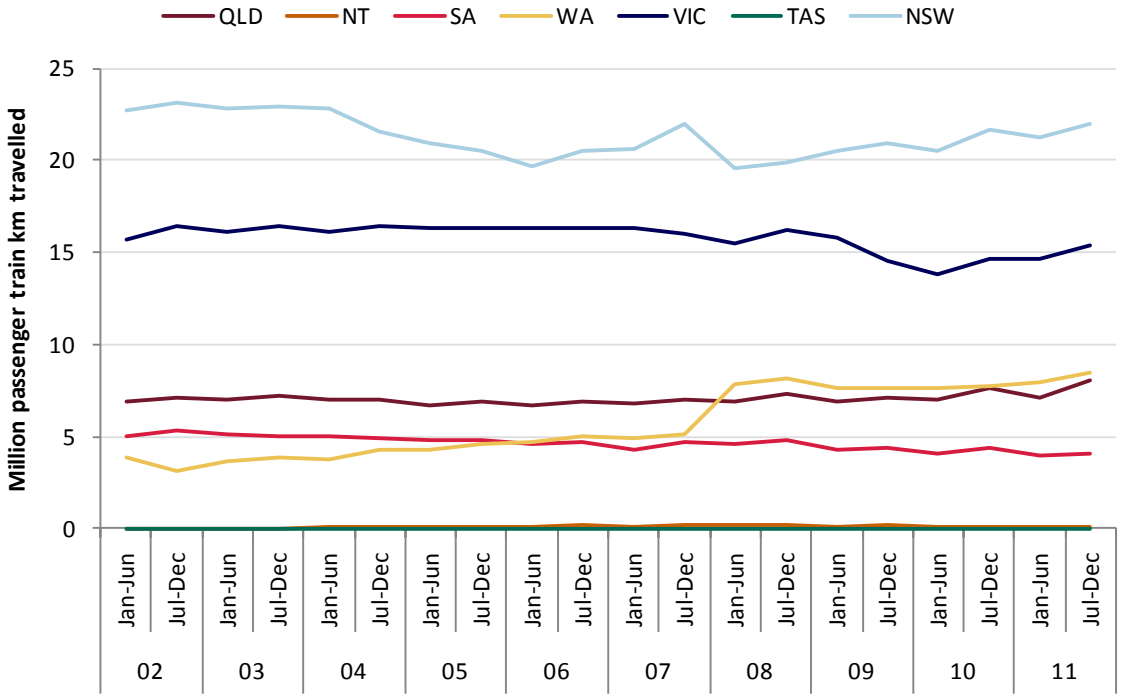


Passenger train km

Table 26: Number of million passenger train km, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	6.920	0.026	5.074	3.876	15.728	0.010	22.670	54.304
	Jul-Dec	7.130	0.027	5.363	3.153	16.409	0.010	23.150	55.242
2003	Jan-Jun	7.020	0.027	5.153	3.657	16.160	0.030	22.850	54.897
	Jul-Dec	7.170	0.025	5.017	3.884	16.426	0.040	22.900	55.462
2004	Jan-Jun	7.000	0.089	4.970	3.785	16.160	0.050	22.860	54.914
	Jul-Dec	6.990	0.101	4.867	4.311	16.426	0.050	21.580	54.325
2005	Jan-Jun	6.700	0.130	4.767	4.260	16.321	0.051	20.980	53.209
	Jul-Dec	6.950	0.116	4.865	4.620	16.321	0.047	20.510	53.429
2006	Jan-Jun	6.710	0.142	4.645	4.704	16.321	0.050	19.710	52.282
	Jul-Dec	6.930	0.168	4.730	4.970	16.321	0.030	20.490	53.639
2007	Jan-Jun	6.779	0.134	4.338	4.866	16.321	0.030	20.600	53.068
	Jul-Dec	6.974	0.172	4.748	5.104	16.025	0.020	21.940	54.983
2008	Jan-Jun	6.936	0.168	4.634	7.869	15.510	0.041	19.570	54.728
	Jul-Dec	7.273	0.161	4.803	8.135	16.182	0.020	19.870	56.443
2009	Jan-Jun	6.947	0.139	4.330	7.640	15.850	0.033	20.460	55.398
	Jul-Dec	7.135	0.160	4.349	7.590	14.518	0.030	20.920	54.701
2010	Jan-Jun	6.972	0.128	4.061	7.669	13.806	0.025	20.540	53.200
	Jul-Dec	7.627	0.147	4.351	7.714	14.606	0.024	21.620	56.088
2011	Jan-Jun	7.124	0.128	4.009	7.903	14.620	0.023	21.280	55.086
	Jul-Dec	8.010	0.143	4.038	8.470	15.370	0.017	22.000	58.048
Total		141.297	2.330	93.112	114.178	315.401	0.629	426.500	1,093.447

Figure 9: Number of million passenger train km, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

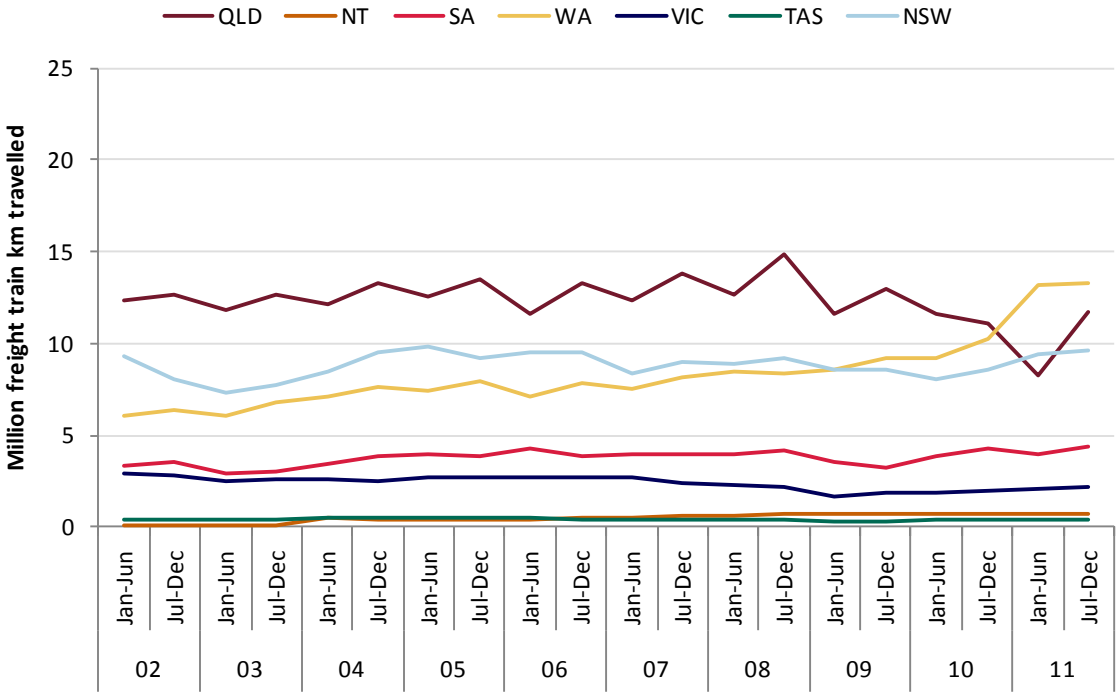


Freight train km

Table 27: Number of million freight train km travelled, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	12.390	0.062	3.299	6.109	2.933	0.450	9.330	34.573
	Jul-Dec	12.660	0.065	3.542	6.336	2.834	0.450	8.051	33.938
2003	Jan-Jun	11.780	0.063	2.967	6.050	2.550	0.450	7.361	31.221
	Jul-Dec	12.650	0.069	2.985	6.751	2.652	0.460	7.766	33.333
2004	Jan-Jun	12.090	0.567	3.426	7.096	2.652	0.500	8.493	34.824
	Jul-Dec	13.260	0.431	3.873	7.606	2.550	0.500	9.553	37.773
2005	Jan-Jun	12.600	0.427	4.019	7.390	2.766	0.533	9.838	37.573
	Jul-Dec	13.530	0.444	3.849	7.950	2.766	0.528	9.204	38.271
2006	Jan-Jun	11.650	0.431	4.245	7.094	2.766	0.520	9.539	36.244
	Jul-Dec	13.330	0.521	3.900	7.860	2.766	0.430	9.497	38.304
2007	Jan-Jun	12.313	0.558	3.966	7.561	2.766	0.420	8.412	35.996
	Jul-Dec	13.860	0.639	4.002	8.146	2.399	0.450	8.955	38.450
2008	Jan-Jun	12.628	0.619	3.948	8.516	2.318	0.397	8.918	37.344
	Jul-Dec	14.845	0.721	4.136	8.420	2.197	0.393	9.182	39.895
2009	Jan-Jun	11.563	0.689	3.517	8.567	1.700	0.321	8.609	34.967
	Jul-Dec	13.025	0.779	3.271	9.222	1.864	0.361	8.568	37.092
2010	Jan-Jun	11.651	0.747	3.821	9.227	1.893	0.385	8.107	35.831
	Jul-Dec	11.084	0.718	4.278	10.234	2.032	0.397	8.592	37.336
2011	Jan-Jun	8.282	0.703	3.951	13.167	2.050	0.375	9.378	37.906
	Jul-Dec	11.759	0.733	4.372	13.294	2.245	0.385	9.630	42.417
Total		246.950	9.986	75.367	166.596	48.700	8.706	176.983	733.287

Figure 10: Number of million freight train km travelled, biannual count by jurisdiction and year, 1 January 2002 to 31 December 2011

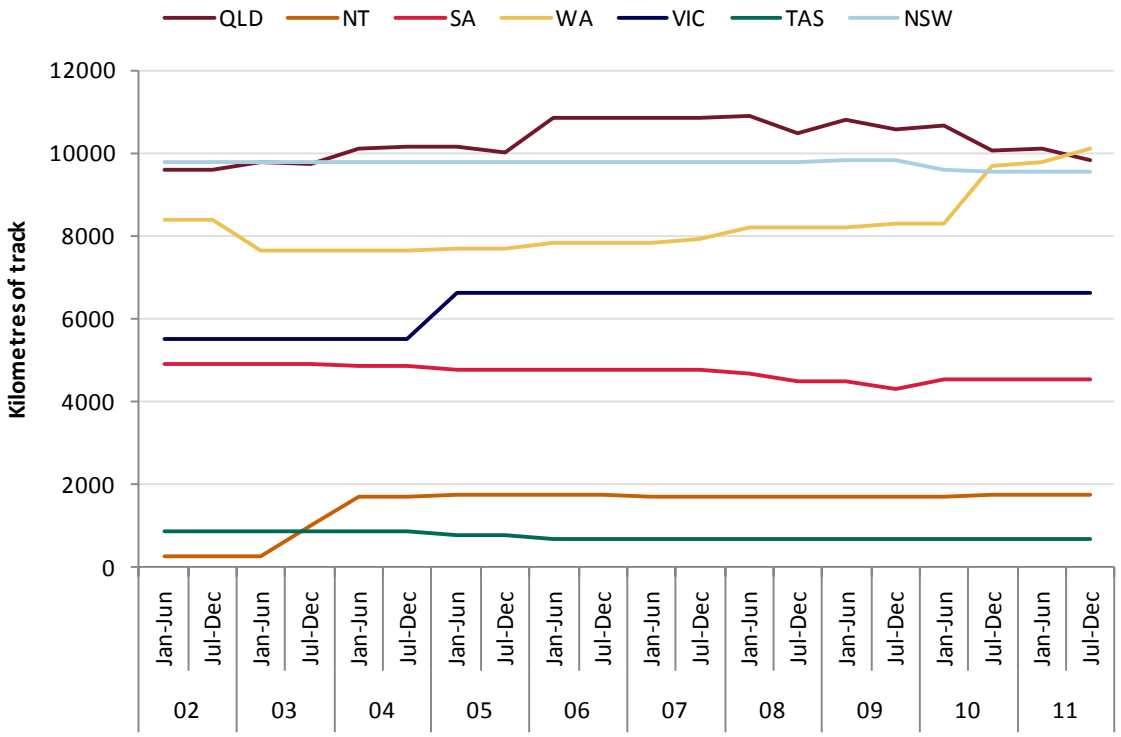


Total track km

Table 28: Number of track km by jurisdiction and year, 1 January 2002 to 31 December 2011

Year		QLD	NT	SA	WA	VIC	TAS	NSW	Total
2002	Jan-Jun	9,598	279	4,900	8,398	5,498	880	9,800	39,353
	Jul-Dec	9,614	279	4,900	8,398	5,498	880	9,800	39,369
2003	Jan-Jun	9,757	280	4,896	7,654	5,498	880	9,800	38,765
	Jul-Dec	9,746	998	4,896	7,654	5,498	880	9,800	39,472
2004	Jan-Jun	10,115	1,732	4,876	7,650	5,498	880	9,800	40,551
	Jul-Dec	10,134	1,732	4,876	7,650	5,498	880	9,800	40,570
2005	Jan-Jun	10,139	1,738	4,796	7,691	6,648	807	9,800	41,619
	Jul-Dec	10,017	1,744	4,777	7,691	6,648	807	9,800	41,484
2006	Jan-Jun	10,838	1,743	4,773	7,849	6,648	680	9,800	42,331
	Jul-Dec	10,851	1,740	4,770	7,855	6,648	680	9,800	42,344
2007	Jan-Jun	10,866	1,732	4,770	7,824	6,648	680	9,800	42,320
	Jul-Dec	10,868	1,734	4,770	7,916	6,648	680	9,800	42,416
2008	Jan-Jun	10,869	1,734	4,681	8,203	6,648	680	9,800	42,615
	Jul-Dec	10,457	1,734	4,492	8,214	6,648	688	9,800	42,033
2009	Jan-Jun	10,781	1,736	4,498	8,220	6,648	683	9,834	42,400
	Jul-Dec	10,560	1,735	4,297	8,303	6,648	686	9,819	42,048
2010	Jan-Jun	10,675	1,736	4,534	8,309	6,648	685	9,596	42,183
	Jul-Dec	10,047	1,738	4,534	9,701	6,648	688	9,534	42,890
2011	Jan-Jun	10,112	1,738	4,554	9,760	6,648	688	9,530	43,030
	Jul-Dec	9,816	1,738	4,538	10,127	6,648	685	9,528	43,080

Figure 11: Number of track km by jurisdiction and year, 1 January 2002 to 31 December 2011



EXPLANATORY NOTES

National

Supported by a contribution from the Australian Transport Safety Bureau (ATSB), the Rail Safety Regulators' Panel (RSRP) completed a national data quality review in December 2006. This review aimed to identify any differences in the process used to categorise rail safety occurrence data. The draft findings from the data audit show marked differences in the methods of safety occurrence reporting and data capture between regulators and accredited rail operators (AROs). Differences in particular safety occurrence categories between some jurisdictions may be the result of different reporting practices, even where the data is normalised. This data excludes tram and monorail data.

Serious personal injury

Regulators and industry are experiencing difficulties in collecting supporting information necessary to grade injury severity according to the definition in *ON-S1: Occurrence Notification Standard* (2004) and *OC-G1: Occurrence Classification Guideline 1* (2008). They are working to resolve this issue; in the interim, most jurisdictions are attempting to adhere to the definition of serious injury as in ON-S1 and OC-G1.

States and territories

Queensland

- Data for Load Irregularity 2002 to 2007 does not include the sub-category Loose Load Fastening. This brings Queensland in line with other jurisdictions reporting.
- Maintenance issues detected and corrected as part of a normal maintenance program has not been included in Track/Civil Infrastructure Irregularity as per the current OC-G1 definition.
- Queensland has revised serious injury numbers between 2003 and 2009 to reflect the inclusion of serious slip, trip and fall occurrences. Queensland's serious injury count excludes injuries sustained from assaults on railway premises.
- Queensland Rail conducted an audit of track kilometres in July 2011, reporting fewer track kilometres, from July 2011 onwards.

Northern Territory

- Numbers include occurrences for the construction period of the Alice Springs-Darwin railway at the time when it was not a part of the Defined Interstate Rail Network (DIRN) (became part of DIRN on 1 January 2004).

South Australia

- Track and Civil Infrastructure figures exclude track obstructions and maintenance detected broken rails. South Australia categorise running line broken rails and broken rails in yards separately and only running line broken rails have been included. South Australia does not collect data relating to maintenance detected broken rails on running lines or in yards.
- The fatalities recorded for 2010 - 2011 are subject to review pending the outcome of a Coronial Report.

Western Australia

- Please note that the collision with a person at a level crossing did not involve serious injury or death to the person (July - December 2009).

Victoria

- With the introduction of the new Rail Safety Regulations (RSR) 2006, Victoria had a broader definition of serious injury for the period 1 August 2006 to 29 February 2008. With effect 1 March 2008, the RSR was changed to be in line with ON-S1.
- From 28 January 2003, AROs were requested to report all incidents. Subsequently, the number of incidents has increased from 1 February 2003 to date.
- Normalising data between 1 January 2005 and 30 June 2007 is based on 2004 figures. From 1 July 2007, Total Passenger Train Kilometres (millions) are based on scheduled services.
- The increase in reported serious injuries for the calendar year 2011 is being investigated by TSV in regard to how operators apply the OC-G1 definition. This investigation may result in a correction to the numbers in the next report.
- Of Victoria's total 17 fatalities for 1 January to 30 June 2007, 11 resulted from the Kerang incident.
- From July 2008, occurrences reported are classified in accordance with OC-G1. Therefore, Load Irregularities now include Loose Load Fastening (which was previously excluded). For Track and Civil Irregularities, Broken Rails includes both train operations and maintenance detected on the running line only. Misaligned and Spread Track is running line only, whereas previously both running line and yard were reported.

New South Wales

- Data in this return (to end December 2011) has been revised following verification of NSW occurrence records against the National Coroners Information System (NCIS), managed by the Victorian Institute of Forensic Medicine. The main change resulting from this exercise is a large reduction in the count of fatalities (Table 1) and collisions with person (Table 9) for reporting periods prior to 2005. The reduction reflects occurrences that were originally captured as OC-G1 Collision with Person but were found to involve intentional self harm according to the NCIS (as determined at time of notification or at case completion). These occurrences have been re-coded as OC-G1 Suspected Suicide and are now excluded from ATSB summary statistics.
- Occurrences prior to 2005 were reported under a different notification and classification scheme to ON-S1 / OC-G1 and will not necessarily be comparable with more recent data for some rail incident types.
- Injury Statistics: Rail Transport Operators advise they are unable to access the information required to grade injury according to the criteria of ON-S1 (2008). Injury statistics for NSW are based on a broader (more inclusive) definition than ON-S1 (2008) and are not comparable with other jurisdictions.
- The sub-categorisation of Collision into Running Line and Yard was introduced in OC-G1 (2008). The entire NSW collision record has been reclassified in accordance with the OC-G1 (2008) definition of Running Line Collision.
- Signal Passed at Danger (SPAD): increase in SPADs from 2004 is due to change in major operator's detection and reporting processes.
- The Australian Rail Track Corporation (ARTC) advises that total track kilometres may not include all sidings and loops.

APPENDIX A: SOURCES AND SUBMISSIONS

Sources of Information

References

Rail Safety Regulators' Panel (2004). *ON-S1: Occurrence Notification Standard 1, 2004.*

Rail Safety Regulators' Panel (2008). *OC-G1: Occurrence Classification Guideline 1, 2008.*

Submissions

A draft of this report was provided to the following organisations:

- New South Wales Independent Transport Safety Regulator
- Transport Safety Victoria
- Queensland Department of Transport and Main Roads
- Western Australian Department of Transport
- South Australian Department of Planning, Transport, and Infrastructure
- Tasmanian Department of Infrastructure, Energy and Resources
- Northern Territory Department of Lands and Planning.

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Research

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Australian Rail Safety Occurrence Data

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