



Rail safety statistics

QUARTERLY STATISTICS FOR THE PERIOD ENDED 31 MARCH 2013

Prepared by Financial, Economic and Statistical Analysis, Ministry of Transport

Rail safety statistics

April 2013

This report is based on rail occurrence reports provided by rail operators. These reports cover a wide range of occurrences including both accidents (events that caused death, injury or significant property damage) and incidents (events that placed, or could have placed, someone or something at risk of death, injury or significant property damage). Only a relatively small number of occurrences result in injury or significant property damage. The less serious occurrences are useful for identifying potential safety issues. This report presents both the number of occurrences and the number of deaths and injuries from accidents.

Key points

This quarter there have been:

765	reported occurrences, resulting in
5	deaths
43	injuries
1	death in level crossing accidents
2	injuries in level crossing accidents
4	deaths in person on track accidents
-	injuries in person on track accidents
-	deaths in operating accidents
41	injuries in operating accidents

In the last 12 months there have been:

3039	reported occurrences, resulting in
25	deaths
151	injuries
5	deaths in level crossing accidents
9	injuries in level crossing accidents
19	deaths in person on track accidents
4	injuries in person on track accidents
1	death in operating accidents
138	injuries in operating accidents

Note that rail deaths can include suicides.

NOTES:

- A database was initiated during 1993 to collate information about rail occurrences. Previously the only rail safety data collected at a national level was for level crossing motor vehicle crashes attended by the Police.
- Occurrence reports are provided to the Ministry of Transport and the NZ Transport Agency by rail operators, usually within 72 hours of the occurrence or when enough information has been compiled.
- Caution should be exercised in interpreting the statistics in this report given the small number in some categories and the short time periods involved.

Rail occurrences in New Zealand reported by rail operators

Rail occurrences

Occurrence category	Jan to Mar 2013	Last 12 months
Collisions (between rail vehicles)	11	37
Derailments (of rail vehicles)	50	240
Fires (on trains/by track)	49	95
Level crossing	49	262
Obstruction	61	341
Operating	389	1421
Person on track	91	331
Shunting	1	15
Tram	-	3
Vandalism	51	246
Other	13	48
Total	765	3039

Casualties from rail accidents

Accident category	Jan to Mar 2013			Last 12 months		
	Deaths	Serious injuries	Minor injuries	Deaths	Serious injuries	Minor injuries
Collisions (between rail vehicles)	.	.	1	.	.	1
Derailments (of rail vehicles)	.	.	.	.	.	.
Fires (on trains/by track)	.	.	.	.	.	1
Level crossing	1	1	1	5	3	6
Obstruction	.	.	.	.	.	.
Operating	.	.	40	1	1	135
Person on track	4	.	.	19	3	1
Shunting	.	.	.	.	.	.
Tram	.	.	.	.	.	.
Vandalism	.	.	.	.	.	.
Other	.	.	.	.	.	.
Total number of casualties	5	1	42	25	7	144

Rail occurrences by local government region

Local govt region	Jan to Mar 2013	Last 12 months
Northland	9	39
Auckland	179	689
Waikato	56	230
Bay of Plenty	18	121
Gisborne	5	7
Hawke's Bay	16	65
Taranaki	25	67
Manawatu-Wanganui	104	334
Wellington	175	688
Nelson-Marlborough-Tasman	18	82
West Coast	32	129
Canterbury	98	424
Otago	17	105
Southland	13	59
Total	765	3039

Reporting of occurrences

Since late 2011 the NZ Transport Agency and rail operators have been working together to improve the reporting of all occurrences, including near misses and behaviour or situations that could lead to accidents. This helps to identify safety issues before they result in accidents that cause property damage or injury.

It is likely that some of the increase in reported occurrences from previous reports is due to this focus on improved reporting, rather than a decrease in safety, but this has not been analysed in detail.

Level crossings

Definition: occurrences at a level crossing (public or private) involving a motor vehicle, a pedestrian or a pedal cyclist. Occurrence reports may include information about the type of protection present at the level crossing.

Number of level crossing occurrences

Occurrence type	Jan to Mar 2013	Last 12 months
Level crossing – collision with motor vehicle	6	22
Level crossing – near collision with motor vehicle	33	187
Level crossing – collision involving a pedestrian or pedal cyclist	2	7
Level crossing – near collision involving a pedestrian or pedal cyclist	2	11
Level crossing – other	6	35
TOTAL	49	262

Type of protection present and working for level crossing occurrences

Protection type	Jan to Mar 2013		Last 12 months	
	Present	Working	Present	Working
Flashing lights & bells (FLB)	10	10	87	86
Half arm barriers with lights and bells (HAB)	9	9	81	78
Stop signs/St Andrews signs	3	3	26	26
TOTAL	22	22	194	190

None	3	-	15	-
Not known	24	-	53	-

Type of protection present and working for level crossing collision with motor vehicle

Protection type	Jan to Mar 2013		Last 12 months	
	Present	Working	Present	Working
Flashing lights & bells (FLB)	2	2	5	5
Half arm barriers with lights and bells (HAB)	-	-	1	1
Stop signs/St Andrews signs	-	-	7	7
TOTAL	2	2	13	13

None	2	-	5	-
Not known	2	-	4	-

Crashes and casualties for level crossing collisions with motor vehicles (Crash Analysis System) ⁽¹⁾

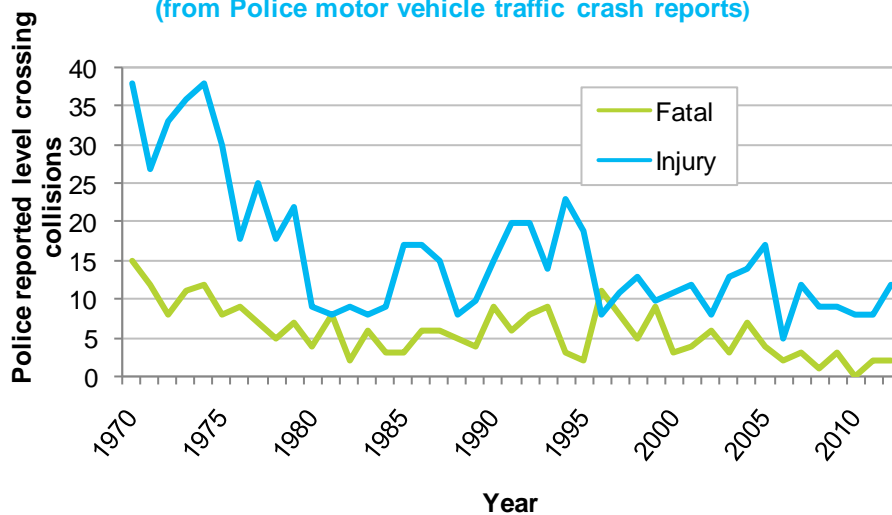
Data derived from Police traffic crash reports of collisions with motor vehicles at level crossings.

Year	Crashes		Casualties		
	Total	Fatal	Deaths	Serious injuries	Minor injuries
2000	14	3	4	7	8
2001	16	4	4	-	18
2002	14	6	6	4	7
2003	16	3	3	10	7
2004	21	7	8	7	11
2005	21	4	4	8	14
2006	7	2	2	6	1
2007	15	3	5	6	13
2008	10	1	1	5	8
2009	12	3	4	8	6
2010	8	-	-	4	7
2011	10	2	2	5	8
2012	14	2	2	4	10

The latest annual injury crash data available from the crash analysis system is for 2012.

Level crossing collisions by crash severity (1970–2012)

(from Police motor vehicle traffic crash reports)



Note: pre-1980 data are derived from historical records.

(1) the Crash Analysis System (CAS) is a tool available to registered users that manages, analyses and maps traffic crash and related data, based on Police traffic crash reports (TCR) forwarded to the NZ Transport Agency.

Obstruction

Definition: occurrences where an object obstructing the rail corridor has been struck by a train or nearly been struck by a train. This excludes level crossing collisions.

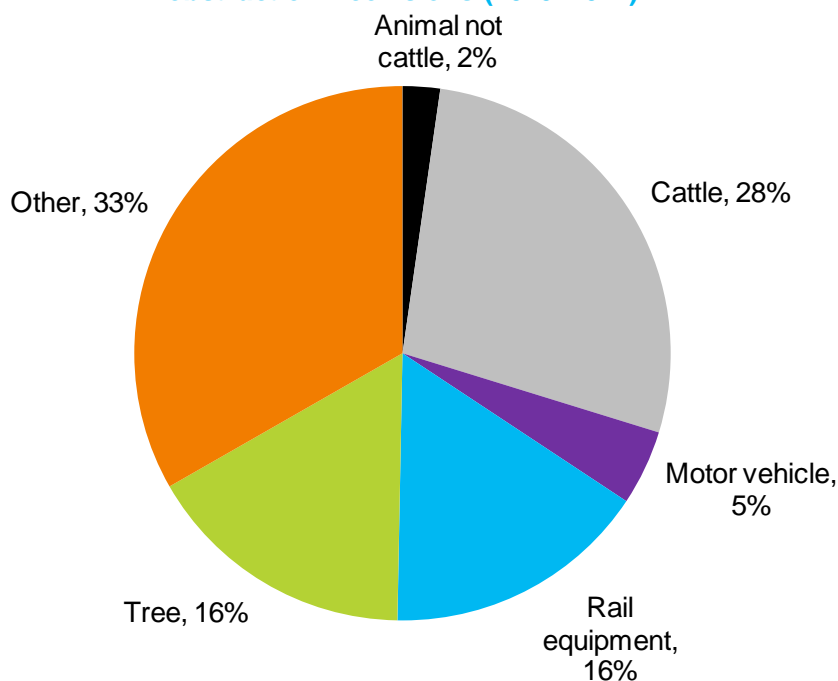
Overall there were 341 obstruction occurrences recorded for the last 12 months, with 188 of these being collisions.

Obstruction 'collision with object' occurrences by type of object struck

Type of object struck	Jan to Mar 2013	Last 12 months
Animal not cattle	-	6
Cattle	10	60
Motor vehicle	2	6
Rail equipment	7	37
Rocks or stones	-	6
Slip	-	6
Tree	7	23
Other	10	44
TOTAL	36	188

Note: total may include unknown objects

Type of object struck by a train by percentage of reported obstruction – collisions (2010–2012)



Note: percentages have been rounded and may not add up to 100%

The 'Other' category covers a wide range of different objects including: shopping trolley, bicycle, ladder, metal scrap, rake, tyre and many others.

Person on track

Definition: occurrences where a person on track (defined as being on or obstructing the rail corridor not at a level crossing) has been struck by a train, nearly struck by a train or observed to be present without a train being in the vicinity. These occurrences relate to members of the public trespassing in the rail corridor and can include suicides. Rail operator staff or contractors are included in the “Operating” category.

Number of occurrences

Occurrence type	Jan to Mar 2013	Last 12 months
Person on track – collision	4	23
Person on track – near collision	68	256
Person on track – other	19	52
TOTAL	91	331

Historical time series of reported casualties by calendar year for person on track collisions

Year	Deaths	Serious injuries	Minor injuries
2000	17	2	1
2001	11	2	3
2002	10	5	2
2003	14	5	3
2004	5	-	1
2005	9	-	1
2006	14	7	1
2007	3	6	1
2008	7	3	1
2009	7	2	1
2010	9	1	-
2011	11	2	3
2012	16	5	1

Vandalism

Definition: occurrences where an object has been thrown at a train, an object has been deliberately placed on the track, or rail property has been altered deliberately or stolen.

Number of occurrences

Occurrence type	Jan to Mar 2013	Last 12 months
Vandalism – object placed on track	3	22
Vandalism – object thrown at train	20	74
Vandalism – rail property vandalised	17	58
Vandalism – tagging	8	49
Vandalism – theft of rail property	1	24
Vandalism - other	2	19
TOTAL	51	246

Vandalism – object thrown at train

Object thrown at train	Jan to Mar 2013	Last 12 months
Bottles	-	1
Rocks or stones	18	66
Unknown objects	2	6
Other	-	1
TOTAL	20	74

Fire

Definition: occurrences where there was a fire either trackside by the rail corridor or on board a rail vehicle.

Fire location	Jan to Mar 2013	Last 12 months
Trackside fire	41	73
Fire on board a rail vehicle	8	22
Total	49	95

Derailment

Definition: occurrences where a train or rail vehicle has derailed while moving along a rail track. The type of rail vehicle that derailed is identified as best as possible from occurrence reports. Note: many of these derailments occur in rail yards during loading and shunting operations.

Derailments by type of rail vehicle (including bogies)

Type of rail vehicle	Jan to Mar 2013		Last 12 months	
	On mainline	In yard	On mainline	In yard
Hi rail vehicle	3	2	4	10
Lead bogie	-	3	2	16
Locomotive	1	7	10	27
Shunt	-	2	1	26
Trailing bogie	-	6	1	20
Tram	-	-	1	0
Wagon	3	23	5	117
Other	-	-	-	-
TOTAL	7	43	24	216

Note: a Hi rail vehicle is a general purpose rail capable truck, utility, car, bus or van, used to transport people, equipment or materials to a site, or to carry out on-rail tasks such as inspection, grease dispensing, weed spraying, drain cleaning etc. For more detail, please go to <http://www.kiwirail.co.nz/glossary-of-terms.html>

Operating

Definition: occurrences that occur during the course of rail operations in motion but excludes those categorised as derailments, collisions or shunting occurrences.

Operating occurrences by type

Occurrence type	Jan to Mar 2013	Last 12 months
Illegal passenger on train	5	16
Infrastructure	157	549
Level crossing alarm failure	5	15
Load related	35	100
Near collision	6	14
Rolling stock	10	33
SPAD related	60	208
Track warrant irregularity	7	26
Track occupancy irregularity	11	63
Other	93	397
TOTAL	389	1421

Note: SPAD = signals passed at danger.

Time series casualty data

Deaths and reported injuries for motor vehicle crashes at a level crossing in the Crash Analysis System (CAS)

		Year										
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Motor vehicle level crossing casualties	Deaths	6	3	8	4	2	5	1	4	0	2	2
	Injuries	11	17	18	22	7	19	13	14	11	13	14

The latest annual injury crash data available from the CAS is for 2012.

Note: The number of level crossing deaths in CAS may be lower than the number in the rail occurrence database as CAS includes only official road deaths. Deaths determined by the coroner to be a result of medical events or suicide are not included as official road deaths.

Reported injury numbers may differ between the two systems. CAS includes road crashes attended and reported by Police.

Deaths and reported injuries for grouped rail accident types in the rail occurrence database

		Year										
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Motor vehicle level crossing casualties	Deaths	8	4	7	5	2	6	3	4	0	2	2
	Injuries	14	10	16	18	6	14	8	8	9	13	7
Pedestrian level crossing casualties	Deaths	2	2	4	3	2	1	1	0	1	0	4
	Injuries	0	1	0	0	0	0	2	0	0	0	0
Pedal cyclist level crossing casualties	Deaths	0	0	0	0	0	0	0	0	0	0	0
	Injuries	1	1	1	0	0	0	0	0	1	0	2
Person on track casualties	Deaths	10	14	5	9	14	3	7	7	9	11	16
	Injuries	7	8	1	1	8	7	4	3	1	5	6
Other casualties - members of the public	Deaths	0	1	0	0	0	0	2	1	0	0	1
	Injuries	18	24	22	14	22	1	4	13	25	27	16
Other casualties - rail employees	Deaths	2	0	0	0	0	1	0	0	0	0	0
	Injuries	13	31	14	19	17	11	12	10	15	42	104
All rail accident deaths and injuries	Deaths	22	21	16	17	18	11	13	12	10	13	23
	Injuries	53	75	54	52	53	33	30	34	51	87	135

Statistics prepared by Financial, Economic and Statistical Analysis, Ministry of Transport. Enquiries regarding these statistics may be directed to Financial, Economic and Statistical Analysis, Ministry of Transport, PO Box 3175, Wellington or by email on info@transport.govt.nz.

For further information on crash statistics see *Motor Vehicle Crashes in New Zealand*, the annual statistical statement produced by the Ministry of Transport. This publication is available online at www.transport.govt.nz