



Rail safety statistics

QUARTERLY STATISTICS FOR THE PERIOD ENDED 31 MARCH 2012

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

Rail safety statistics

May 2012

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.

Key points

This quarter there have been:

589	reported occurrences, resulting in
3	deaths
26	injuries
2	deaths in level crossing accidents
3	injuries in level crossing accidents
1	death in person on track accidents
2	injuries in person on track accidents
-	deaths in operating accidents
21	injuries in operating accidents

In the last 12 months there have been:

1910	reported occurrences, resulting in
13	deaths
90	injuries
3	deaths in level crossing accidents
13	injuries in level crossing accidents
10	deaths in person on track accidents
5	injuries in person on track accidents
-	deaths in operating accidents
72	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 New Zealand 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 in the light of 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 2011	Jan to Mar 2012	Last 12 months
Collisions (between rail vehicles)	8	3	13
Derailments (of rail vehicles)	71	81	320
Fires (on trains/by track)	11	20	51
Level crossing	53	40	155
Obstruction	45	77	258
Operating	129	274	769
Person on track	22	45	156
Shunting	8	1	18
Tram	-	2	3
Vandalism	16	42	154
Other	-	4	13
Total	363	589	1910

Casualties from rail accidents

Accident category	Jan to Mar 2011			Jan to Mar 2012			Last 12 months		
	Deaths	Serious injuries	Minor injuries	Deaths	Serious injuries	Minor injuries	Deaths	Serious injuries	Minor injuries
Collisions (between rail vehicles)	.	.	.	.	.	.	.	.	.
Derailments (of rail vehicles)	.	.	.	.	.	.	.	.	.
Fires (on trains/by track)	.	.	.	.	.	.	.	.	.
Level crossing	1	3	1	2	1	2	3	1	12
Obstruction	.	.	.	.	.	.	.	.	.
Operating	.	1	3	.	-	21	.	-	72
Person on track	2	1	.	1	2	-	10	3	2
Shunting	.	.	.	.	.	.	.	.	.
Tram	.	.	.	.	.	.	.	.	.
Vandalism	.	.	.	.	.	.	.	.	.
Other	.	.	.	.	.	.	.	.	.
Total number of casualties	3	5	4	3	3	23	13	4	86

Rail occurrences by local government region

Local govt region	Jan to Mar 2011	Jan to Mar 2012	Last 12 months
Northland	10	4	15
Auckland	71	131	490
Waikato	37	52	148
Bay of Plenty	16	25	85
Gisborne	-	1	5
Hawke's Bay	9	23	64
Taranaki	9	19	50
Manawatu-Wanganui	30	93	217
Wellington	66	111	394
Nelson-Marlborough-Tasman	11	13	47
West Coast	24	22	81
Canterbury	54	60	211
Otago	21	19	52
Southland	5	16	51
Total	363	589	1910

Note: total includes unknowns so region data may not add to column total.

Reporting of occurrences

From late 2011 the NZ Transport Agency and rail operators have been working together to increase 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.

The number of reported occurrences in the January-March 2012 quarter (589) has increased from the January-March 2011 quarter (363). This is likely to be due to the focus on improved reporting, rather than a decrease in safety. For example, while the number of person on track occurrences doubled, there was no increase in the number of reported collisions or near collisions with people on the track. The increase in person on track occurrences was due to the reporting of cases where people were seen in the rail environment in a potentially dangerous situation.

Level crossings

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

Number of level crossing occurrences

Occurrence type	Jan to Mar 2011	Jan to Mar 2012	Last 12 months
Level crossing – collision with motor vehicle	9	6	27
Level crossing – near collision with motor vehicle	36	27	99
Level crossing – collision involving a pedestrian or pedal cyclist	1	2	2
Level crossing – near collision involving a pedestrian or pedal cyclist	4	1	13
Level crossing – other	3	4	14
TOTAL	53	40	155

Type of protection present and working for level crossing occurrence

Protection type	Jan to Mar 2011		Jan to Mar 2012		Last 12 months	
	Present	Working	Present	Working	Present	Working
Flashing lights & bells (FLB)	11	11	13	13	31	31
Half arm barriers with lights and bells (HAB)	5	5	11	11	32	32
Stop signs/St Andrews signs	2	2	3	3	12	12
TOTAL	18	18	27	27	75	75

None/not known	35	-	13	-	80	-
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Type of protection present and working for level crossing collision with motor vehicle

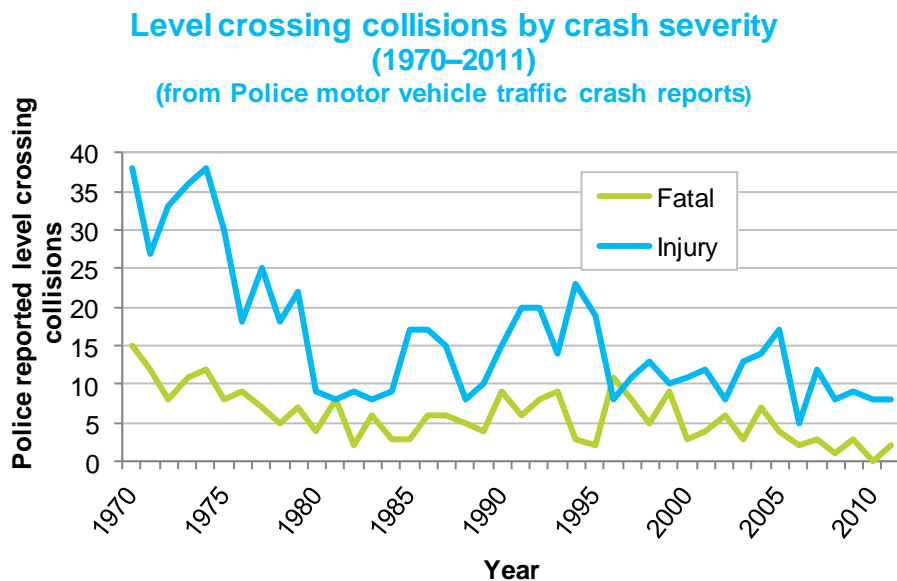
Protection type	Jan to Mar 2011		Jan to Mar 2012		Last 12 months	
	Present	Working	Present	Working	Present	Working
Flashing lights & bells (FLB)	1	1	1	1	3	3
Half arm barriers with lights and bells (HAB)	-	-	-	-	-	-
Stop signs/St Andrews signs	1	1	1	1	6	6
TOTAL	2	2	2	2	9	9

None/not known	7	-	4	-	18	-
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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



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 (NZTA).

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.

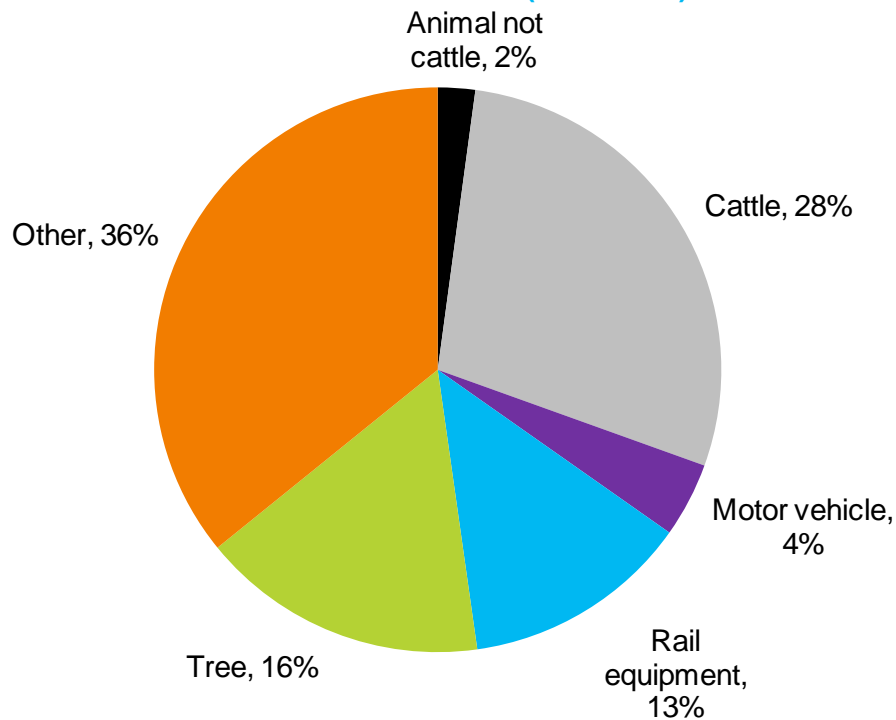
Overall there were 258 obstruction occurrences recorded for the last 12 months, with 163 of these being collisions.

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

Type of object struck	Jan to Mar 2011	Jan to Mar 2012	Last 12 months
Animal not cattle	-	2	4
Cattle	5	8	43
Motor vehicle	-	5	7
Rail equipment	10	6	22
Tree	2	10	36
Other	17	13	51
TOTAL	34	46	163

Note: total may include unknown objects

Type of object struck by a train by percentage of reported obstruction – collisions (2009–2011)



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

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 2011	Jan to Mar 2012	Last 12 months
Person on track – collision	3	2	16
Person on track – near collision	17	20	89
Person on track – other	2	23	51
TOTAL	22	45	156

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	2

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 2011	Jan to Mar 2012	Last 12 months
Vandalism – object thrown at train	10	14	59
Vandalism - other	6	28	95
TOTAL	16	42	154

Vandalism – object thrown at train

Object thrown at train	Jan to Mar 2011	Jan to Mar 2012	Last 12 months
Bottles	-	-	3
Rocks or stones	9	12	50
Unknown objects	1	2	5
Other	-	-	1
TOTAL	10	14	59

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 2011	Jan to Mar 2012	Last 12 months
Trackside fire	4	11	25
Fire on board a rail vehicle	7	9	26
Total	11	20	51

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 2011		Jan to Mar 2012		Last 12 months	
	On mainline	In yard	On mainline	In yard	On mainline	In yard
Hi rail vehicle	-	-	3	3	7	6
Lead bogie	-	2	-	12	4	26
Locomotive	3	15	3	12	14	51
Shunt	-	15	-	8	-	49
Trailing bogie	-	1	-	7	1	21
Tram	1	-	-	-	1	-
Wagon	1	33	2	31	5	135
Other	-	-	-	-	-	-
TOTAL	5	66	8	73	32	288

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 2011	Jan to Mar 2012	Last 12 months
Collision	1	-	-
Illegal passenger on train	4	4	19
Infrastructure	48	66	177
Insecure load	4	18	39
Level crossing alarm failure	2	9	18
Near collision	4	3	13
Rolling stock	5	7	20
SPAD related	17	65	118
Track warrant irregularity	3	9	32
Track occupancy irregularity	13	15	56
Other	28	78	277
TOTAL	129	274	769

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										
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Motor vehicle level crossing casualties	Deaths	4	6	3	8	4	2	5	1	4	-	2
	Injuries	18	11	17	18	22	7	19	13	14	11	13

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										
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Motor vehicle level crossing casualties	Deaths	4	8	4	7	5	2	6	3	4	-	2
	Injuries	39	14	10	16	18	6	14	8	8	9	12
Pedestrian level crossing casualties	Deaths	1	2	2	4	3	2	1	1	-	1	-
	Injuries	-	-	1	-	-	-	-	2	-	-	-
Pedal cyclist level crossing casualties	Deaths	-	-	-	-	-	-	-	-	-	-	-
	Injuries	-	1	1	1	-	-	-	-	-	1	-
Person on track casualties	Deaths	11	10	14	5	9	14	3	7	7	9	11
	Injuries	5	7	8	1	1	8	7	4	3	1	4
Other casualties - members of the public	Deaths	-	-	1	-	-	-	-	2	1	-	-
	Injuries	13	18	24	22	14	22	1	4	13	25	17
Other casualties - rail employees	Deaths	-	2	-	-	-	-	1	-	-	-	-
	Injuries	13	13	31	14	19	17	11	12	10	15	38
All rail accident deaths and injuries	Deaths	16	22	21	16	17	18	11	13	12	10	13
	Injuries	70	53	75	54	52	53	33	30	34	51	71

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 in secondary school libraries and many public libraries and online at www.transport.govt.nz