



Transportation  
Safety Board  
of Canada

Bureau de la sécurité  
des transports  
du Canada



# **STATISTICAL SUMMARY**

## **RAILWAY OCCURRENCES 2014**

30 June 2015

Canada 

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Statistical Summary – Railway Occurrences 2013 (Transportation Safety Board of Canada)

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# Foreword

This document provides Canadians with an annual summary of selected railway safety data. It covers federally regulated railways only. Non-federally regulated data reported to the Transportation Safety Board of Canada (TSB) are not included in this report. The TSB gathers and uses this data during the course of our investigations to analyse safety deficiencies and identify risks in the Canadian transportation system.

On March 12, 2014, the TSB implemented new regulations that changed the reporting requirements effective July 1, 2014. These changes are reflected in this statistical summary.

Users of these statistics are advised that, in a live database, the occurrence data are constantly being updated. Consequently, the statistics may change slightly over time. Further, as many occurrences are not formally investigated, information recorded on some occurrences may not have been verified. The 2014 statistics presented here reflect the TSB database updated as of 13 February 2015.

To enhance awareness and increase the safety value of the material presented in the *TSB Statistical Summary – Railway Occurrences 2014*, readers are encouraged to copy or reprint in whole, or in part, for further distribution of the data presented (with acknowledgement of the source).

The TSB is an independent agency operating under its own Act of Parliament. Its sole aim is the advancement of transportation safety.

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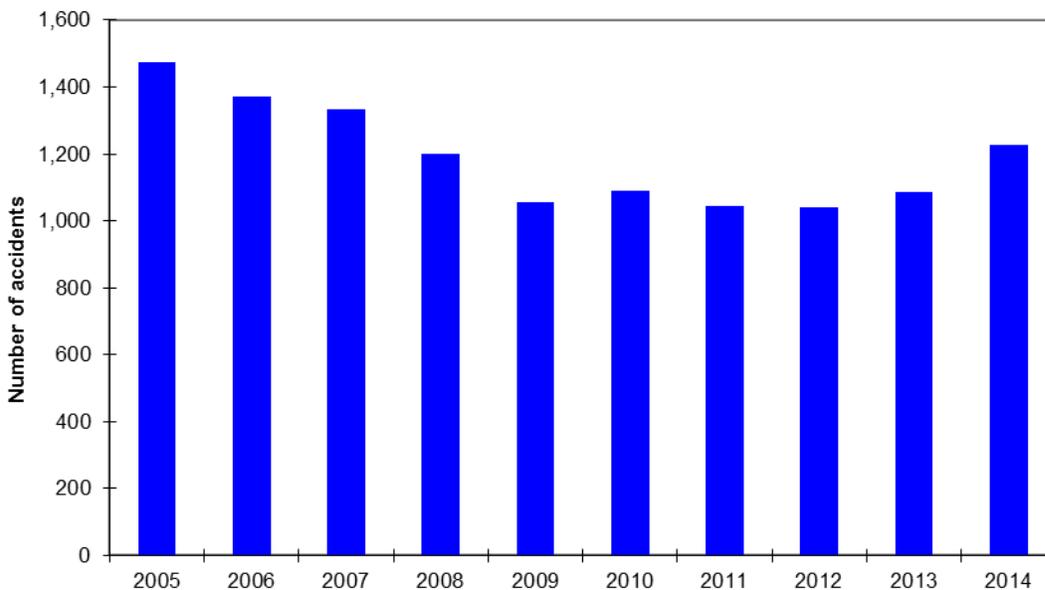
# Statistical Summary – Railway Occurrences 2014

## Accidents

### Overview of accidents and casualties

In 2014, 1,225 rail accidents<sup>1</sup> were reported to the TSB (Figure 1), a 13% increase from the 2013 total of 1,087 and a 15% increase from the 2009–2013 average of 1,063.

Figure 1. Number of rail accidents, 2005–2014



Freight trains accounted for 46% of all trains involved in rail accidents in 2014. Four percent (56 in total) were passenger trains with the remaining 50% comprising mainly single cars/cuts of cars, locomotives and track units.

The largest proportion of reported rail accidents comprised non-main-track derailments<sup>2</sup> and collisions (62%). In 2014, excluding crossing and trespasser accidents, non-main-track accidents accounted for more than three quarters of the total (79%) (Figure 2). Typically, most non-main-track accidents are minor, occurring during switching operations at speeds of less than 10 mph.

Main-track derailments and collisions accounted for 9% of all accidents in 2014, compared to 8% in the previous year.

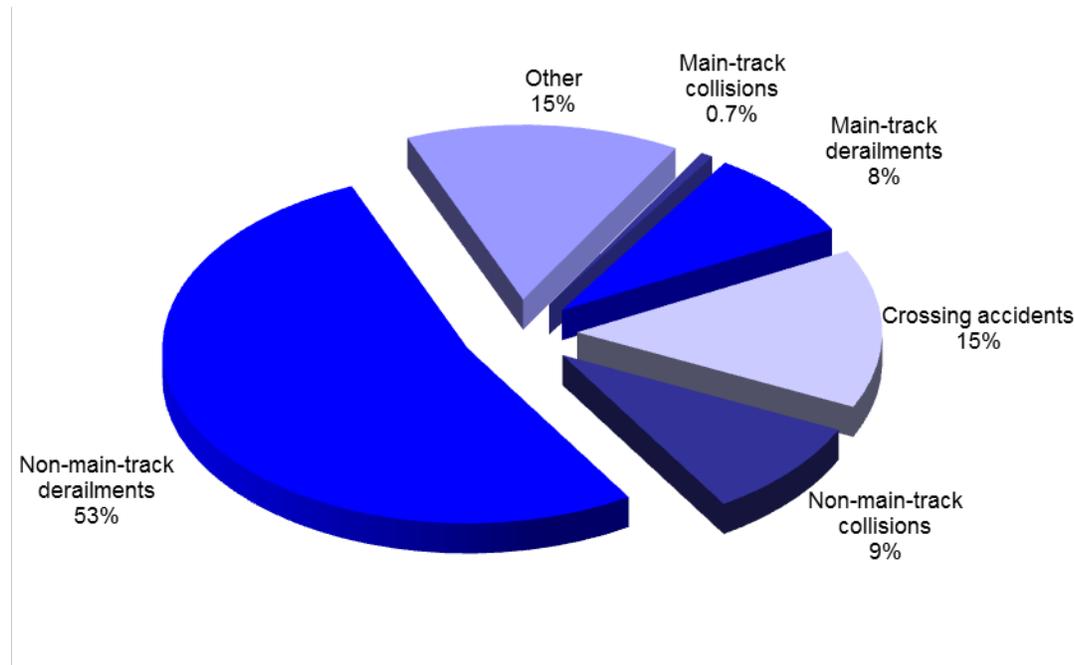
In 2014, 15% of rail accidents involved vehicles or pedestrians at rail crossings, slightly down from 17% over the previous five years.

<sup>1</sup> Refer to Appendix B for the definition of reportable railway accident.

<sup>2</sup> Refer to Appendix B for the definition of derailment.

The proportion of other accident types<sup>3</sup> (15%) in 2014 is slightly down from the previous five-year average (17%).

Figure 2. Percentage of rail accidents by type, 2014



In 2014, 174 accidents involved dangerous goods<sup>4</sup>, up from 145 in 2013 and up from the five-year average of 131. Five accidents resulted in a dangerous goods release in 2014, down from 7 in 2013, but up from the five-year average of 4. One of the 5 accidents involved a release of petroleum crude oil.

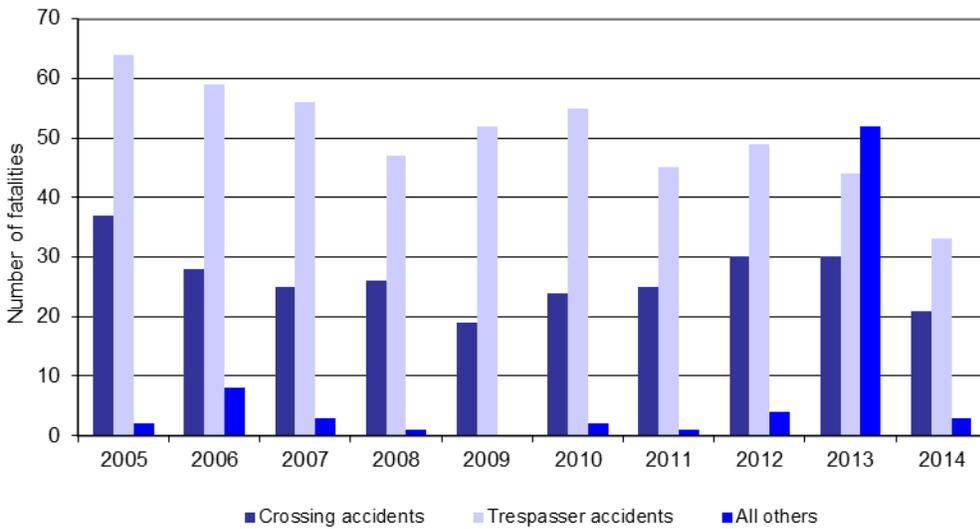
Rail fatalities totalled 57 in 2014, down from 126 recorded last year (including 47 fatalities at Lac-Mégantic) and down from the five-year average of 86. Crossing fatalities totalled 21 in 2014, down from 30 in 2013 and down from the five-year average of 26 (Figure 3). Trespasser<sup>5</sup> fatalities totalled 33 in 2014, compared to 44 last year and 49 for the five-year average. In 2014, two rail employees were fatally injured, unchanged from the five-year average.

<sup>3</sup> Other accident types include but are not limited to, trespasser, collisions/derailments involving track units, rolling stock collision with object, or employee/passenger accidents.

<sup>4</sup> Accidents involving dangerous goods can include road vehicles carrying dangerous goods.

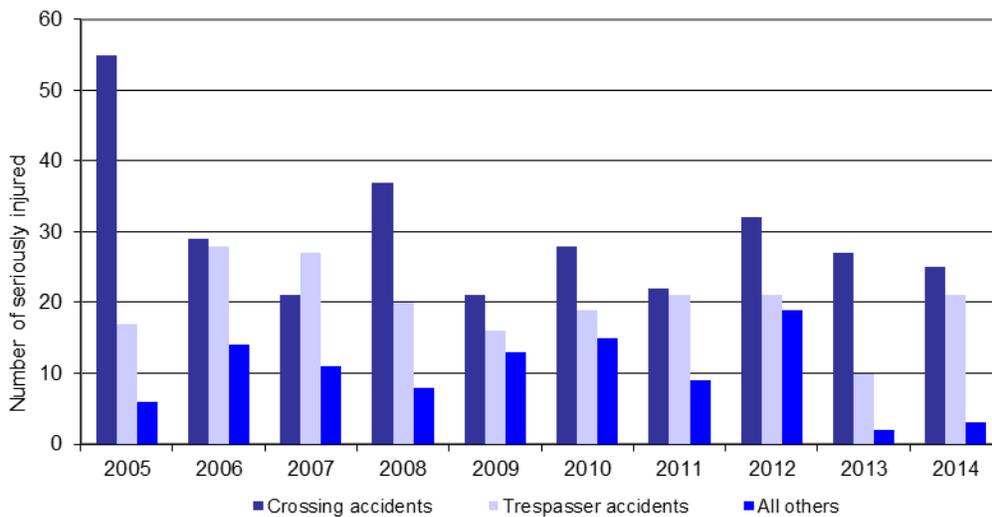
<sup>5</sup> Trespasser accidents involve persons, primarily pedestrians, not authorized to be on railway rights-of-way and who are struck by rolling stock other than at railway crossings.

Figure 3. Number of fatalities by type of occurrence, 2005–2014



A total of 49 serious injuries resulted from rail occurrences in 2014 (Figure 4), up from 39 in 2013 but down from the five-year average of 55. Trespasser injuries totalled 21 in 2014, up from 10 last year and up from the five-year average of 17. Crossing accidents<sup>6</sup> resulted in 25 serious injuries, down slightly from 27 in 2013 and down from the five-year average of 26. Three rail employees were seriously injured in 2014 compared to 2 in 2013 and compared to 8 for the five-year average.

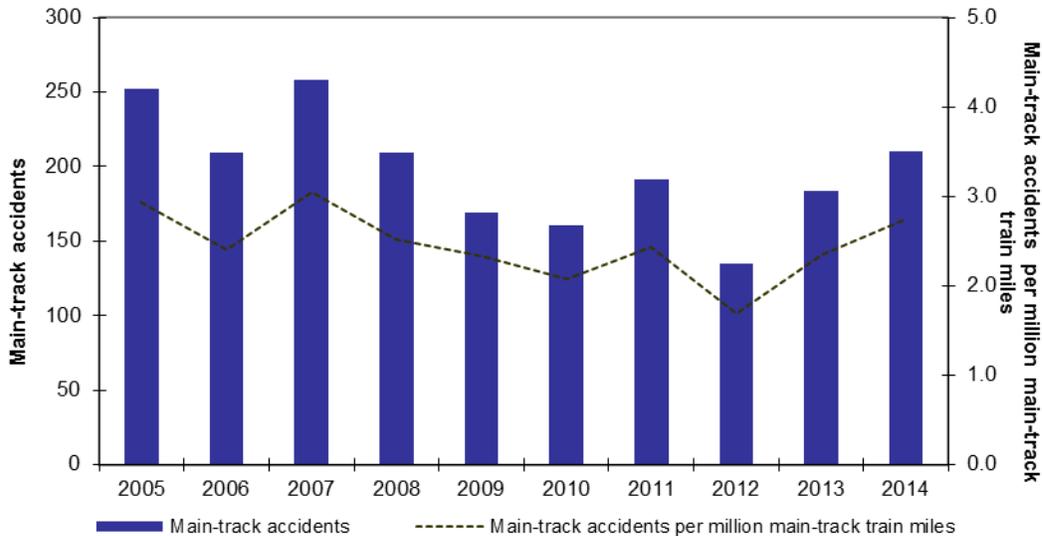
Figure 4. Number of seriously injured by type of occurrence, 2005–2014



<sup>6</sup> A crossing accident occurs when railway rolling stock is involved in a grade-crossing collision with a motor vehicle or pedestrian, resulting in death, serious injury or property damage.

The number of main-track accidents<sup>7</sup> totaled 210 in 2014 (Figure 5), up 14% from 184 reported in 2013 and up 25% from the five-year average of 168. Rail activity on main track decreased by 3% from the previous year<sup>8</sup>. The main-track accident rate in 2014 was 2.7 accidents per million main-track train-miles, up 17% from 2.3 in 2013, and up 23% from the five-year average of 2.2.

Figure 5. Number of main-track accidents and accident rates, 2005–2014



## Accidents by type

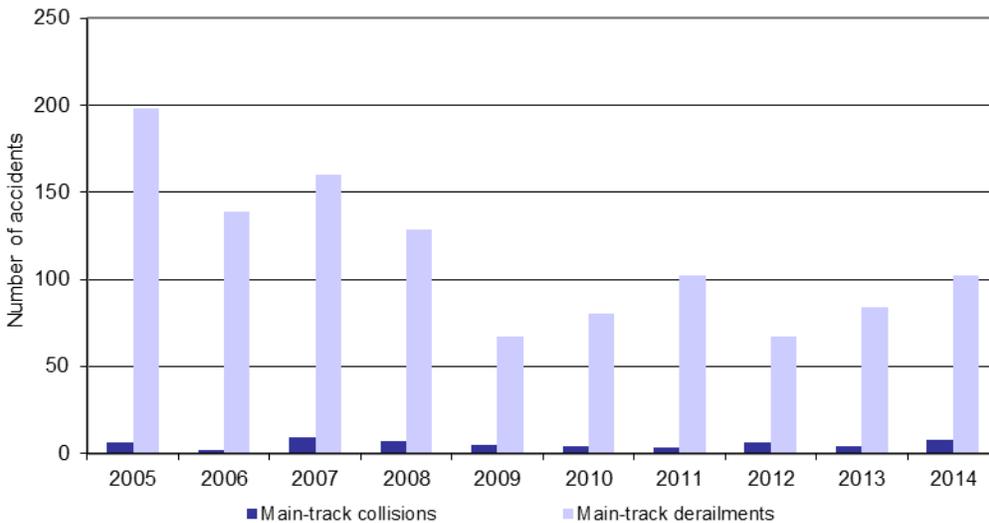
Main-track collisions and derailments are the most serious categories of rail accidents in terms of potential risk to the public and financial loss (e.g., when passenger trains are involved or dangerous goods are released from trains that derail in populated areas).

There were 8 main-track collisions (Figure 6) in 2014, up 4 from the 2013 total and five-year average of 4. No fatalities or serious injuries resulted from main-track collisions in 2014. There was no release of dangerous goods as a result of main-track collisions.

<sup>7</sup> Accidents which occur on main-track or spurs (not including crossing and trespasser accidents) are combined in order to match the figures used in the activity data, which is based on combined main track and spur million track miles.

<sup>8</sup> As provided to TSB by the Strategic Information Branch of Transport Canada.

Figure 6. Number of main-track collisions and derailments, 2005–2014



A total of 102 main-track derailments (Table 4a & 4b) were reported in 2014, a 21% increase from the 2013 total of 84 and a 28% increase from the five-year average of 80 (Figure 6). Thirty of the 102 main-track derailments occurred in Alberta (29%), and 18 of these 30 derailments (60%) involved 6 or more cars.

The number of main-track derailments per million main-track train-miles increased to 1.3 in 2014 from 1.1 the previous year and from the five-year average of 1.0.

No fatalities or serious injuries resulted from main-track derailments in 2014.

In 2014, there were 25 main-track derailments involving dangerous goods, up from 11 in 2013 and up from the five-year average of 12. Three of these resulted in a release of product (crude oil, jet fuel, and petroleum distillates).

In 2014, 42% of assigned factors<sup>9</sup> for main-track derailments were Track-related compared to the five-year average of 36%. Equipment-related factors accounted for 24% of all assigned factors compared to 32% for the five-year average. Actions-related factors<sup>10</sup> were reported in 17% of main-track derailments in 2014 compared to the five-year average of 21%.

Non-main-track collisions (Tables 5a & 5b) totalled 112 in 2014, up from 93 in 2013 (Figure 7) and up from the five-year average of 94. Derailments occurred in 38% of non-main-track collisions, and 74% of these non-main-track collision derailments involved the derailment of one or two cars.

<sup>9</sup> Occurrences are normally reported to TSB with one assigned factor. Since multiple factors can contribute to an occurrence, the TSB may assign additional factors to an occurrence. Note that when multiple factors are assigned to an accident, they are considered to have acted in combination to contribute to the occurrence.

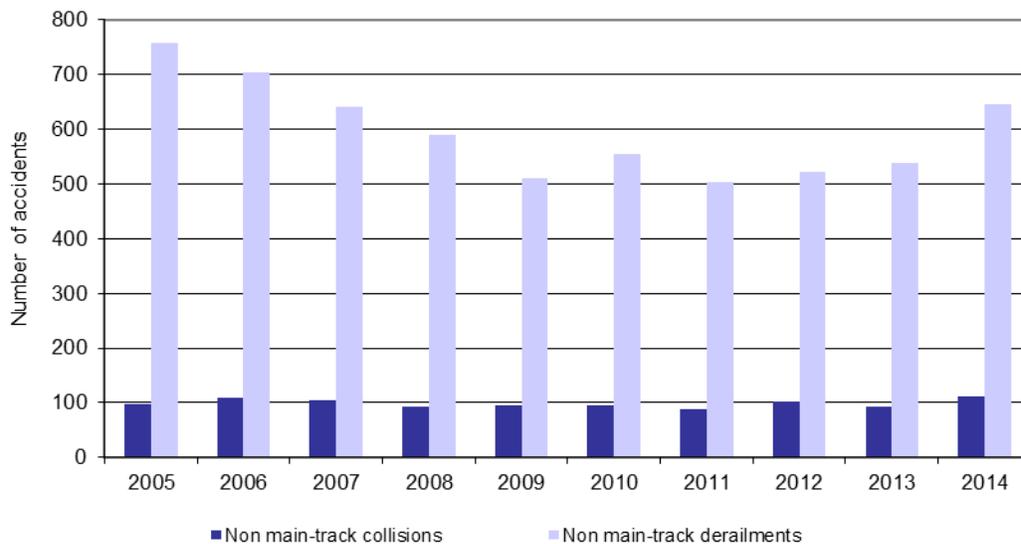
<sup>10</sup> Actions-related factors are, but not limited to, non-compliance with prescribed procedures such as failure to protect or failure to secure. Note that in previous publications, Actions-related factors were referred to as Rules-related factors.

No fatalities or serious injuries resulted from non-main-track collisions in 2014.

Dangerous goods were involved in 33% of non-main-track collisions, none of which resulted in a release of product.

Factors assigned to non-main-track collisions were mostly Actions-related (88%) compared to 85% for the last five-year average. Failure to protect, such as improper positioning of movements and handling of switches, was assigned most often as a factor.

Figure 7. Number of non-main-track collisions and derailments, 2005–2014



There were 645 non-main-track derailments<sup>11</sup> (Tables 6a & 6b) in 2014, up 20% from last year and up 23% from the five-year average of 525 (Figure 7). In 81% of these accidents, one or two cars derailed. The 26% increase in reported 1-2 car non-main-track derailments relative to the five-year average is consistent with the change in reporting requirements in the new TSB regulations, which provide a clear definition of what must be reported.

No fatalities or serious injuries resulted from non-main-track derailments in 2014.

Dangerous goods cars were involved in 15% of non-main-track derailments with none resulting in a release of dangerous goods.

In 2014, Actions-related factors represented 45% of all factors assigned to non-main-track derailments, which is comparable to the five-year average of 44%. Track-related factors assigned to non-main-track derailments represented 32% of all assigned factors, comparable to the five-year average of 35%. Environmental-related factors represented 13% of all assigned factors in 2014, up from 7% for the five-year average.

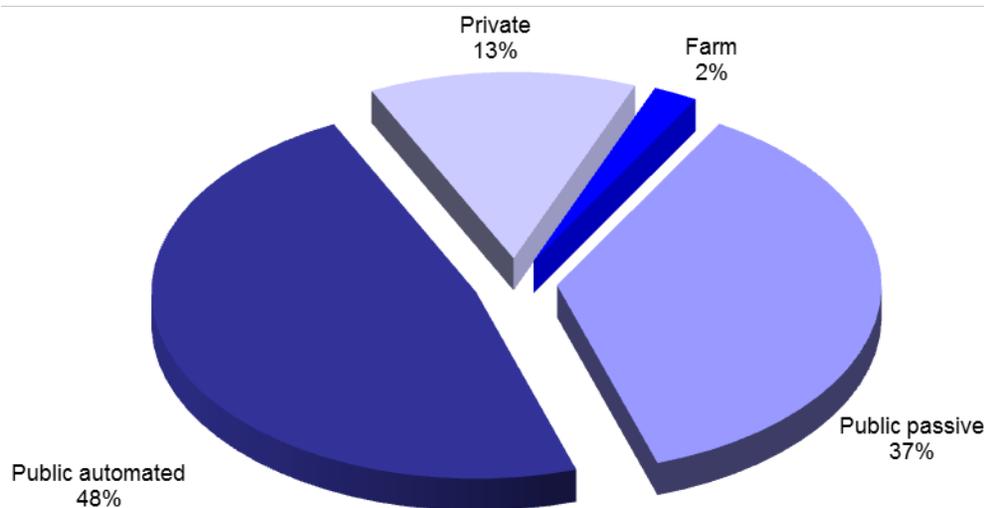
<sup>11</sup> New TSB regulations came into effect on July 1, 2014. The new regulations require that all derailments be reported, including minor derailments where there were no injuries and no damage to track or equipment.

Crossing accidents (Tables 7 and 8) represent one of the more serious types of rail accidents in 2014, with 22% of these resulting in either serious or fatal injuries.

There were 180 crossing accidents in 2014, comparable to the 184 reported in 2013 and comparable to the five-year average of 183. Accidents at public automated crossings (86) decreased 20% from the 2013 total of 107 and decreased 10% from the five-year average of 96. Accidents at public passive crossings (66) were up slightly from the five-year average of 64. Accidents at private crossings (24) increased 24% from the five-year average of 19.

The proportion of crossing accidents that occurred at public automated crossings decreased from 58% in 2013 to 48% in 2014 (Figure 8). Although there are 50% more public passive crossings than public automated ones, the higher number of accidents occurring at automated crossings is due, in part, to higher vehicle and train traffic volumes at these crossings.

Figure 8. Percentage of crossing accidents by type of crossing, 2014



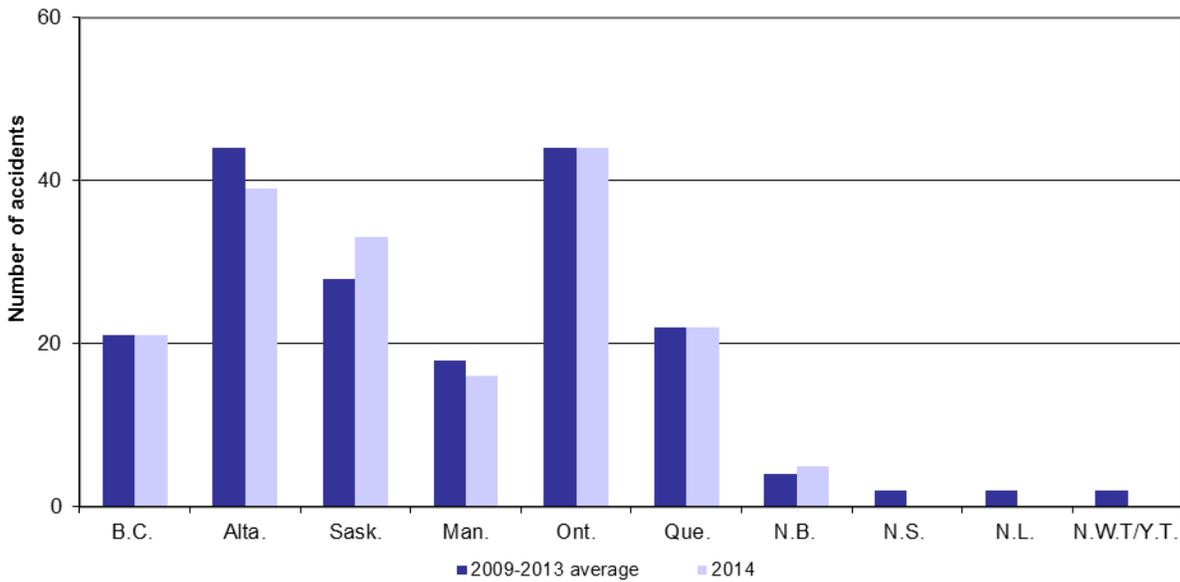
There were 20 fatal crossing accidents in 2014, down slightly from the 22 reported in 2013 and from the five-year average of 22. Although crossing accidents involving pedestrians accounted for 8% (14) of all crossing accidents in 2014, they accounted for 45% (9) of fatal crossing accidents.

Crossing-related fatalities totalled 21 in 2014 compared to 30 last year and to the five-year average of 26. Pedestrians comprised 43% of crossing-related fatalities.

In 2014, 9 crossing accidents resulted in derailments, up from the 2013 total of 6 and the five-year average of 4.

Ontario was the province where the most crossing accidents occurred, comprising 24% of all crossing accidents, unchanged from the five-year average (Figure 9). Alberta had the second highest total, with 22% of crossings accidents compared to 24% for the 5 five-year average. Those two provinces were followed by Saskatchewan with 18%, Quebec and British Columbia with 12% each, and Manitoba with 9% of crossing accidents in Canada.

Figure 9. Number of crossing accidents by province, 2014

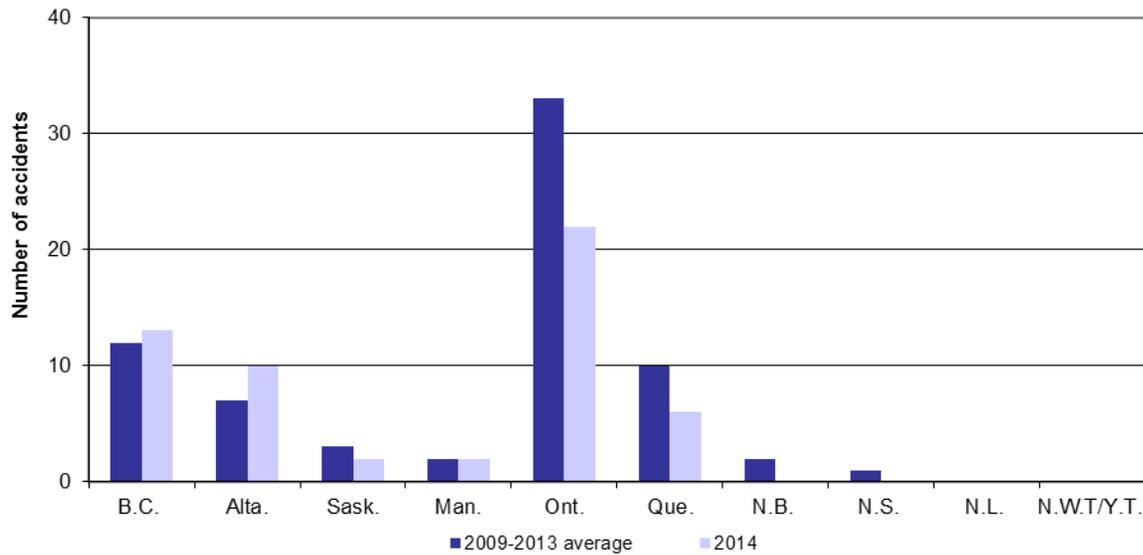


Trespasser accidents (Table 9) involve persons, primarily pedestrians, not authorized to be on railway rights-of-way and who are struck by rolling stock at a location other than a railway crossing. These accidents totalled 55 in 2014, down slightly from the 2013 total of 58 and down from the five year average of 70.

In 2014, Ontario accounted for 40% of trespasser accidents with a total of 22, followed by British Columbia with 24%. Alberta accounted for 18% of all trespasser accidents, and Quebec for 11%.

In 2014, the proportion of trespasser accidents that were fatal (58%) was down compared to the five-year average of 68%. The proportion of trespasser accidents resulting in serious injuries (38%) was higher than the five-year average of 25%.

Figure 10. Number of trespasser accidents by province, 2014



## Incidents

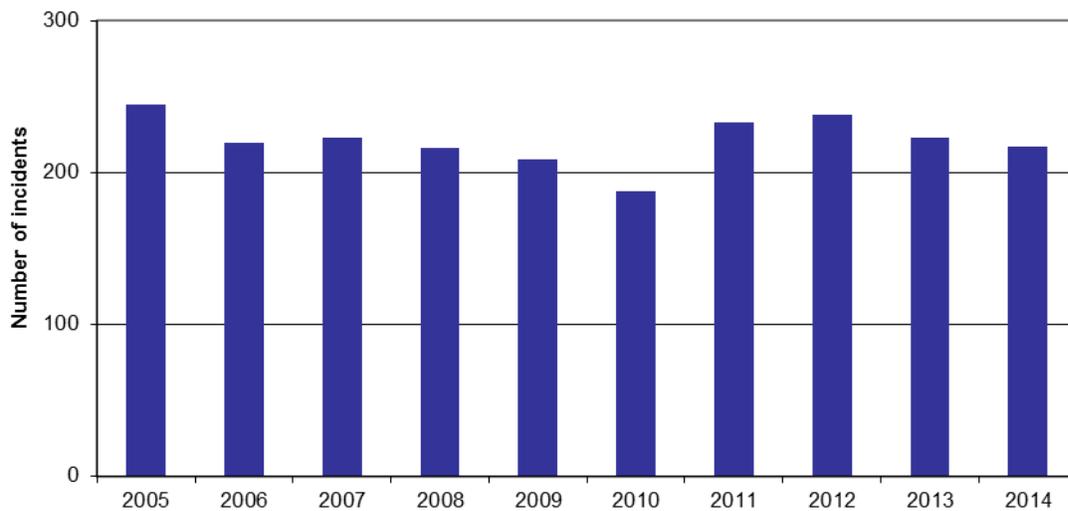
### Overview of incidents

In 2014, there were 217 reported rail incidents, down slightly from 223 in 2013 and comparable to the five year average of 218. Movement exceeding the limit of authority<sup>12</sup> (59% of reportable incidents) continued to be the main incident type since 2006, followed by dangerous goods leakers (29%) and runaway rolling stock (5%).

Note that in addition to the 10 runaway rolling stock incidents in 2014, 20 accidents involving runaway rolling stock occurred, for a total of 30 occurrences involving runaway rolling stock in 2014.

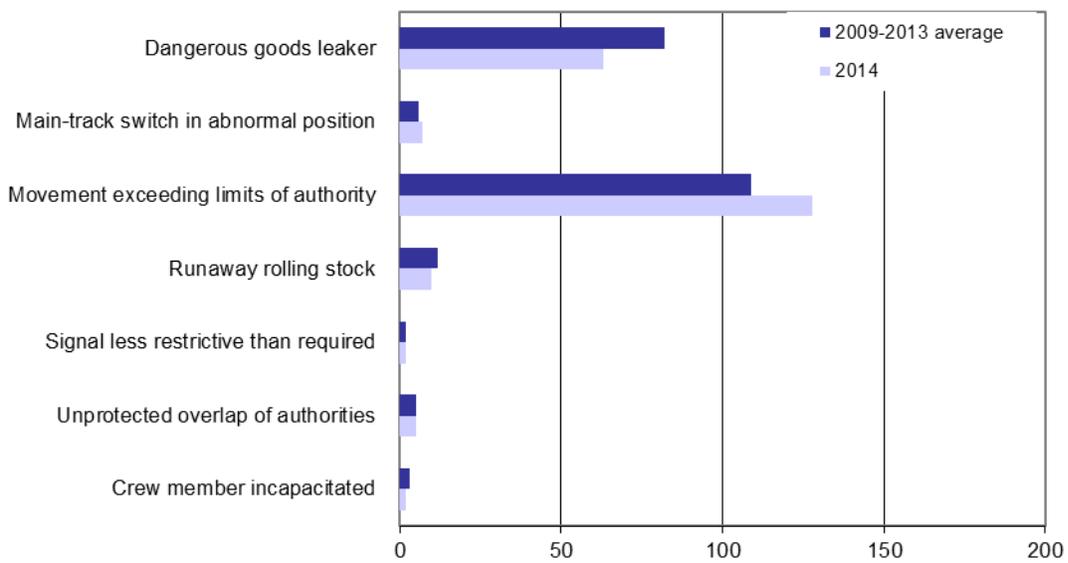
<sup>12</sup> A movement exceeding limits of authority incident occurs when rolling stock occupies a main track or subdivision track, or track work takes place, in contravention of the Rules or any regulations made under the *Railway Safety Act*.

Figure 11. Number of rail incidents, 2005–2014



In 2014, there were 128 incidents where the movement exceeded the limit of authority, a 31% increase from the 98 recorded in 2013 and an 18% increase from the five-year average of 109 (Figure 12).

Figure 12. Number of rail incidents by type, 2014



A dangerous goods (DG) leaker incident<sup>13</sup> is the unintentional release of a hazardous material while in transit, and does not involve an accident. Twenty-two percent of these incidents involved release of petroleum crude oil. The reported DG leaker incidents totaled 63 in 2014, which is a 33% decrease from the 2013 total of 94 and a 24% decrease from the five-year average

<sup>13</sup> Under the new reporting requirements the minimum reporting threshold for incidents (200 litres) involving the release of low vapour pressure flammable liquids has been harmonized with Part 8 of the Transportation of Dangerous Goods Regulations. Formerly, any release of that product type was reportable.

of 82. While DG leaker incidents represented 50% of all incidents in 2005, they accounted for 29% of reported rail incidents in 2014 (Figure 12).

The 2014 decrease in DG leaker incidents is due in part to the harmonization of the new rail regulations with Part 8 of the TDG Regulations. A DG release of flammable liquid (Class 3) is a reportable incident if more than 200 litres are released. (The new regulations do not specify a threshold for reportable gas releases (Class 2). In the first six months of 2014 (before the new regulations came into force), the monthly average was 6.7 DG leakers, for an annualized rate of 80 per year, comparable to the five-year average of 82 per year. In the second half of 2014, under the new regulations the monthly average dropped to 3.8 DG leakers. This yields an annualized rate of 46 DG leakers per year.

# Appendices

## Appendix A: Data tables

**Table 1**  
**Railway occurrences and casualties**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Accidents</b>	<b>1476</b>	<b>1371</b>	<b>1334</b>	<b>1199</b>	<b>1055</b>	<b>1089</b>	<b>1044</b>	<b>1041</b>	<b>1087</b>	<b>1225</b>
Main-track collisions	6	2	9	7	5	4	3	6	4	8
Main-track derailments - 1-2 cars*	103	83	76	67	39	40	44	35	52	46
Main-Track Train Derailments - 3-5 cars	28	8	25	16	6	11	17	9	13	15
Main-Track Train Derailments - 6 or more cars	67	48	59	46	22	29	41	23	19	41
Crossing accidents	269	243	218	221	188	180	171	190	184	180
Non-main-track collisions	98	110	105	92	95	94	89	101	93	112
Non-main-track derailments - 1-2 cars (a)*	587	567	467	446	395	444	387	416	425	520
Non-Main-Track Train Derailments - 3-5 cars (a)	117	104	138	101	89	86	90	77	89	91
Non-Main-Track Train Derailments - 6 or more cars (a)	54	32	36	42	25	24	26	29	25	34
Collisions/Derailments involving track units	19	17	30	27	50	34	33	24	41	34
Employee/Passenger accidents	8	16	18	12	12	9	11	7	8	10
Trespasser accidents	83	91	101	73	72	81	67	74	58	55
Fires/Explosions	17	25	25	12	20	30	23	17	11	35
Other accident types	20	25	27	37	37	23	42	33	65	44
<b>Reportable incidents</b>	<b>245</b>	<b>220</b>	<b>223</b>	<b>216</b>	<b>209</b>	<b>188</b>	<b>233</b>	<b>238</b>	<b>223</b>	<b>217</b>
Dangerous goods leaker**	123	82	88	64	78	68	79	93	94	63
Main-track switch in abnormal position	10	7	7	13	4	5	10	5	7	7
Movement exceeds limits of authority	91	101	106	111	106	101	118	120	98	128
Runaway rolling stock	16	12	13	16	13	5	16	13	13	10
Other reportable incidents	5	18	9	12	8	9	10	7	11	9
<b>Main-track accidents (b)</b>	<b>252</b>	<b>209</b>	<b>258</b>	<b>209</b>	<b>169</b>	<b>161</b>	<b>191</b>	<b>135</b>	<b>184</b>	<b>210</b>
<b>Million main-track train-miles (MMTIM) (c)</b>	<b>85.8</b>	<b>86.9</b>	<b>84.5</b>	<b>83.1</b>	<b>72.2</b>	<b>77.6</b>	<b>78.4</b>	<b>80.1</b>	<b>78.5</b>	<b>76.5</b>
<b>Main-track accidents/MMTIM</b>	<b>2.9</b>	<b>2.4</b>	<b>3.1</b>	<b>2.5</b>	<b>2.3</b>	<b>2.1</b>	<b>2.4</b>	<b>1.7</b>	<b>2.3</b>	<b>2.7</b>
<b>Accidents involving dangerous goods</b>	<b>212</b>	<b>185</b>	<b>191</b>	<b>153</b>	<b>133</b>	<b>141</b>	<b>119</b>	<b>119</b>	<b>145</b>	<b>174</b>
Main-track derailments	32	18	35	23	11	13	20	6	11	25
Crossing accidents	15	5	6	4	3	7	1	4	5	5
Non-main-track collisions	44	41	41	33	32	26	20	21	26	37
Non-main-track derailments	112	109	101	85	81	88	72	87	98	97
Other accident types	9	12	8	8	6	7	6	1	5	10
<b>Accidents with a dangerous goods release</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>7</b>	<b>5</b>
<b>Accidents Involving Runaway Rolling Stock</b>	<b>40</b>	<b>35</b>	<b>36</b>	<b>21</b>	<b>28</b>	<b>22</b>	<b>20</b>	<b>28</b>	<b>29</b>	<b>20</b>
<b>Fatalities for reportable occurrences</b>	<b>103</b>	<b>95</b>	<b>84</b>	<b>74</b>	<b>71</b>	<b>81</b>	<b>71</b>	<b>83</b>	<b>126</b>	<b>57</b>
Crossing accidents	37	28	25	26	19	24	25	30	30	21
Trespasser accidents	64	59	56	47	52	55	45	49	44	33
Other occurrence types (d)	2	8	3	1	0	2	1	4	52	3
<b>Serious injuries for reportable occurrences</b>	<b>78</b>	<b>71</b>	<b>59</b>	<b>65</b>	<b>50</b>	<b>62</b>	<b>52</b>	<b>72</b>	<b>39</b>	<b>49</b>
Crossing accidents	55	29	21	37	21	28	22	32	27	25
Trespasser accidents	17	28	27	20	16	19	21	21	10	21
Other occurrence types (d)	6	14	11	8	13	15	9	19	2	3

Data extracted February 13, 2015.

Federally regulated railway occurrences.

a. Data from 2005 to 2007 have been adjusted in light of clarifications to industry of TSB's reporting requirements.

b. Accidents which occurred on main-track or spurs, excluding crossing and trespasser accidents.

c. Main-track train-miles are estimated (Source: Transport Canada).

d. See Table 2 for details on occurrences by type.

\*New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements all derailments are reportable.

\*\*Under the new reporting requirements the minimum reporting threshold for incidents (200 litres) involving the release of low vapour pressure flammable liquids has been harmonized with Part 8 of the Transportation of Dangerous Goods Regulations.

**Table 2**  
**Fatalities and serious injuries (type of occurrence, person type)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Fatalities for reportable occurrences</b>	<b>103</b>	<b>95</b>	<b>84</b>	<b>74</b>	<b>71</b>	<b>81</b>	<b>71</b>	<b>83</b>	<b>126</b>	<b>57</b>
Main-track collisions	0	0	0	0	0	0	0	0	0	0
Main-track derailments	0	3	1	0	0	1	0	3	47	0
Crossing accidents	37	28	25	26	19	24	25	30	30	21
Non-main-track collisions	0	0	0	0	0	0	0	0	1	0
Non-main-track derailments	0	0	0	0	0	0	0	1	0	0
Collisions/Derailments involving track units	0	0	0	0	0	0	0	0	0	0
Employee/Passenger accidents	2	4	1	1	0	1	1	0	4	2
Trespasser accidents	64	59	56	47	52	55	45	49	44	33
Other accident types	0	0	1	0	0	0	0	0	0	1
Reportable incidents	0	1	0	0	0	0	0	0	0	0
<b>Serious injuries for reportable occurrences</b>	<b>78</b>	<b>71</b>	<b>59</b>	<b>65</b>	<b>50</b>	<b>62</b>	<b>52</b>	<b>72</b>	<b>39</b>	<b>49</b>
Main-track collisions	0	0	0	0	0	0	0	1	0	0
Main-track derailments	0	2	2	0	0	8	0	10	0	0
Crossing accidents	55	29	21	37	21	28	22	32	27	25
Non-main-track collisions	0	0	0	0	0	0	0	1	0	0
Non-main-track derailments	1	0	1	0	0	0	0	0	0	0
Collisions/Derailments involving track units	1	0	0	0	2	0	1	0	0	0
Employee/Passenger accidents	4	10	8	7	8	7	7	6	1	1
Trespasser accidents	17	28	27	20	16	19	21	21	10	21
Other accident types	0	0	0	0	3	0	1	0	0	0
Reportable incidents	0	2	0	1	0	0	0	1	1	2
<b>Fatalities by person type</b>	<b>103</b>	<b>95</b>	<b>84</b>	<b>74</b>	<b>71</b>	<b>81</b>	<b>71</b>	<b>83</b>	<b>126</b>	<b>57</b>
Employees	2	6	2	1	0	1	1	4	5	2
Passengers	0	2	0	1	0	1	0	0	0	1
Pedestrians	11	9	11	13	4	8	6	19	14	10
Vehicle occupants	28	16	17	14	17	15	22	17	17	12
Trespassers	62	60	54	43	49	55	42	43	43	31
Other person types	0	2	0	2	1	1	0	0	47	1
<b>Serious injuries by person type</b>	<b>78</b>	<b>71</b>	<b>59</b>	<b>65</b>	<b>50</b>	<b>62</b>	<b>52</b>	<b>72</b>	<b>39</b>	<b>49</b>
Employees	6	14	12	11	13	10	8	9	2	3
Passengers	1	1	0	1	1	7	0	14	1	1
Pedestrians	3	5	6	3	0	4	5	5	3	2
Vehicle occupants	51	25	17	31	22	22	18	23	23	21
Trespassers	17	25	24	19	14	19	21	21	10	22
Other person types	0	1	0	0	0	0	0	0	0	0

Data extracted February 13, 2015.  
 Federally regulated railway occurrences.

**Table 3**  
**Number of trains (rolling stock) involved in accidents by train type and accident type**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Freight trains</b>	<b>1077</b>	<b>1015</b>	<b>1052</b>	<b>1005</b>	<b>808</b>	<b>838</b>	<b>821</b>	<b>799</b>	<b>838</b>	<b>613</b>
Main-track collisions	6	2	12	9	8	6	4	8	7	7
Main-track derailments	189	134	155	119	64	74	100	61	79	92
Non-main-track collisions	88	115	99	98	82	95	95	94	86	47
Non-main-track derailments	485	445	482	491	405	420	401	382	425	248
Crossing accidents	220	198	178	186	148	137	132	159	144	138
Trespasser accidents	58	70	69	50	51	53	43	52	39	39
Other accident types	31	51	57	52	50	53	46	43	58	42
<b>Passenger trains</b>	<b>84</b>	<b>72</b>	<b>83</b>	<b>79</b>	<b>69</b>	<b>63</b>	<b>72</b>	<b>49</b>	<b>47</b>	<b>56</b>
Main-track collisions	0	0	0	2	0	0	0	0	0	0
Main-track derailments	5	3	0	3	0	3	2	2	3	4
Non-main-track collisions	4	1	4	3	1	1	5	1	0	1
Non-main-track derailments	10	10	8	17	11	8	5	5	4	3
Crossing accidents	37	34	28	24	26	21	20	14	17	18
Trespasser accidents	24	18	32	21	20	27	24	19	17	13
Other accident types	4	6	11	9	11	3	16	8	6	17
<b>Track units</b>	<b>40</b>	<b>41</b>	<b>50</b>	<b>48</b>	<b>82</b>	<b>63</b>	<b>59</b>	<b>40</b>	<b>76</b>	<b>55</b>
Main-track collisions	0	0	1	0	0	0	0	0	0	0
Main-track derailments	0	0	0	0	0	0	0	0	0	0
Non-main-track collisions	0	0	0	0	0	0	0	0	0	0
Non-main-track derailments	0	0	0	0	0	1	0	0	0	0
Crossing accidents	8	7	3	5	4	9	7	2	7	2
Trespasser accidents	0	1	0	0	0	0	0	0	0	0
Other accident types	32	33	46	43	78	53	52	38	69	53
<b>Single car/Cut of cars</b>	<b>96</b>	<b>143</b>	<b>150</b>	<b>108</b>	<b>141</b>	<b>117</b>	<b>102</b>	<b>124</b>	<b>114</b>	<b>442</b>
Main-track collisions	0	0	0	1	1	0	1	2	0	6
Main-track derailments	0	1	3	1	1	0	0	1	2	8
Non-main-track collisions	49	63	64	53	89	68	53	70	58	117
Non-main-track derailments	39	73	78	49	42	40	37	43	40	284
Crossing accidents	0	1	1	1	2	0	0	1	1	8
Trespasser accidents	0	0	0	0	0	0	0	0	0	1
Other accident types	8	5	4	3	6	9	11	7	13	18
<b>Other train/rolling stock types (a)</b>	<b>269</b>	<b>208</b>	<b>122</b>	<b>69</b>	<b>86</b>	<b>137</b>	<b>101</b>	<b>148</b>	<b>110</b>	<b>176</b>
Main-track collisions	1	0	1	0	0	1	0	1	0	0
Main-track derailments	5	1	5	6	2	3	2	3	1	1
Non-main-track collisions	12	13	10	8	8	20	15	27	13	29
Non-main-track derailments	240	182	86	42	61	97	64	96	72	116
Crossing accidents	4	5	10	8	8	13	12	14	15	14
Trespasser accidents	1	2	0	2	1	2	0	3	2	2
Other accident types	6	5	10	3	6	1	8	4	7	14

Data extracted February 13, 2015.

Federally regulated railway occurrences.

As some accidents may involve more than one train (rolling stock), the number of trains involved may differ from the total number of accidents.

a. Other train/rolling stock types include mainly locomotive. Note that from 2005 to 2007, the categories also include uncategorized data submitted in June 2007 as a result of clarification to industry of TSB reporting requirements. New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements all derailments are reportable.

**Table 4a****Main-track derailments (province, number of derailed cars)****2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Main-track derailments by province</b>	<b>198</b>	<b>139</b>	<b>160</b>	<b>129</b>	<b>67</b>	<b>80</b>	<b>102</b>	<b>67</b>	<b>84</b>	<b>102</b>
Newfoundland & Labrador	2	1	1	1	0	3	1	1	1	0
Nova Scotia	0	1	2	0	1	0	0	0	1	0
New Brunswick	3	0	6	1	1	0	0	0	1	3
Quebec	26	21	12	16	8	10	10	8	8	12
Ontario	60	41	39	35	21	19	24	8	19	21
Manitoba	10	9	12	13	4	6	11	8	3	9
Saskatchewan	24	12	18	14	9	14	11	4	13	10
Alberta	29	20	31	31	13	14	21	17	19	30
British Columbia	44	34	39	18	10	14	24	21	19	17
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Derailments per million main-track train-miles (a)</b>	<b>2.31</b>	<b>1.60</b>	<b>1.89</b>	<b>1.55</b>	<b>0.93</b>	<b>1.03</b>	<b>1.30</b>	<b>0.84</b>	<b>1.07</b>	<b>1.33</b>
<b>Derailments per billion gross ton-miles (b)</b>	<b>0.43</b>	<b>0.30</b>	<b>0.35</b>	<b>0.29</b>	<b>0.17</b>	<b>0.18</b>	<b>0.22</b>	<b>0.13</b>	<b>0.16</b>	
<b>Derailments by number of derailed cars</b>	<b>198</b>	<b>139</b>	<b>160</b>	<b>129</b>	<b>67</b>	<b>80</b>	<b>102</b>	<b>67</b>	<b>84</b>	<b>102</b>
1 car	87	66	62	55	29	29	35	29	47	30
2 cars	16	17	14	12	10	11	9	6	5	16
3 cars	9	3	11	6	3	2	6	4	5	4
4 cars	9	0	8	5	3	3	6	2	6	6
5 to 10 cars	40	23	27	24	12	18	26	15	7	23
11 cars or more	37	30	38	27	10	17	20	11	14	23

Data extracted February 13, 2015.

Federally regulated railway occurrences.

a. The source of the million main-track train-miles is Transport Canada. Data are estimated.

b. The source of the billion gross ton-miles is the Railway Association of Canada.

New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements all derailments are reportable.

**Table 4b**  
**Main-track derailments (assigned factors)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Total number of assigned factors</b>	<b>229</b>	<b>173</b>	<b>182</b>	<b>153</b>	<b>81</b>	<b>89</b>	<b>118</b>	<b>68</b>	<b>95</b>	<b>103</b>
Environmental	10	8	17	12	6	1	6	4	5	11
Equipment	84	54	61	42	23	26	45	19	33	25
Axle	21	5	14	11	5	7	9	6	8	3
Brakes	13	8	8	3	6	2	7	3	3	4
Draft system	10	5	10	4	4	4	4	4	2	5
Superstructure	7	6	8	5	0	2	3	2	7	3
Truck	8	8	5	5	1	5	6	2	5	5
Wheel	23	21	16	12	7	6	16	2	8	5
Track	87	67	59	62	34	32	40	27	30	43
Geometry	34	24	25	23	12	14	16	14	10	10
Object on track	4	2	1	1	1	2	2	0	2	1
Other track material	2	4	2	6	5	2	4	2	0	7
Rail	35	25	18	27	7	8	11	7	12	13
Roadbed	2	8	3	4	5	2	5	4	4	5
Switch	2	2	0	1	2	2	1	0	0	5
Turnouts	4	0	6	0	0	1	0	0	1	0
Actions	29	21	20	20	10	24	19	16	25	18
Failure to protect	4	3	4	8	3	2	5	5	5	4
Failure to secure	0	0	0	0	1	0	0	1	1	0
Failure to use equipment properly	11	6	6	6	5	10	7	2	9	6
Improper loading/lifting	1	2	3	1	1	3	0	2	2	3
Improper placement/position for task	5	1	2	1	0	4	2	2	6	3
Inadequate/Inappropriate maintenance of equipment	4	4	1	3	0	1	1	0	0	0
Operating at improper speed	2	5	1	1	0	3	3	2	2	2
Vandalism	0	0	2	0	0	0	0	1	0	0
Other actions	2	0	1	0	0	1	1	1	0	0
Other assigned factors	19	23	25	17	8	6	8	2	2	6
<b>Derailments by number of assigned factors</b>	<b>198</b>	<b>139</b>	<b>160</b>	<b>129</b>	<b>67</b>	<b>80</b>	<b>102</b>	<b>67</b>	<b>84</b>	<b>102</b>
One factor assigned	171	119	146	117	58	72	90	66	73	86
More than one factor assigned	24	18	12	12	9	7	12	1	10	7
No factor assigned	3	2	2	0	0	1	0	0	1	9

Data extracted February 13, 2015.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Equipment or Track), therefore the breakdowns may not sum up to the category total. New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements all derailments are reportable.

**Table 5a**  
**Non-main-track collisions (province, number of derailed cars)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Non-main-track collisions by province</b>	<b>98</b>	<b>110</b>	<b>105</b>	<b>92</b>	<b>95</b>	<b>94</b>	<b>89</b>	<b>101</b>	<b>93</b>	<b>112</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	1	0	0	0	0	0	0
New Brunswick	1	5	1	3	1	1	1	1	2	4
Quebec	17	19	11	5	6	11	12	8	10	5
Ontario	28	25	30	26	24	15	17	10	16	26
Manitoba	11	7	13	9	15	14	15	21	13	17
Saskatchewan	5	8	11	10	5	3	8	12	11	23
Alberta	20	24	23	27	25	29	16	34	28	20
British Columbia	16	21	15	11	19	21	20	15	13	17
Northwest Territories/Yukon	0	1	1	0	0	0	0	0	0	0
<b>Collisions by number of derailed cars</b>	<b>98</b>	<b>110</b>	<b>105</b>	<b>92</b>	<b>95</b>	<b>94</b>	<b>89</b>	<b>101</b>	<b>93</b>	<b>112</b>
No cars derailed	63	56	41	33	49	51	50	63	64	69
1 car	14	28	25	24	26	24	21	14	17	19
2 cars	12	10	15	11	8	7	8	10	7	13
3 cars	5	7	8	9	5	4	3	6	2	4
4 cars	1	4	9	8	3	4	5	5	0	3
5 to 10 cars	3	5	5	5	3	3	2	3	3	3
11 cars or more	0	0	2	2	1	1	0	0	0	1

Data extracted February 13, 2015.

Federally regulated railway occurrences.

**Table 5b**  
**Non-main-track collisions (assigned factors)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Total number of assigned factors</b>	<b>118</b>	<b>129</b>	<b>122</b>	<b>99</b>	<b>107</b>	<b>111</b>	<b>105</b>	<b>114</b>	<b>112</b>	<b>124</b>
Environmental	4	1	4	1	4	1	2	4	1	1
Equipment	1	1	4	1	2	1	3	4	5	5
Track	10	2	2	4	6	5	1	3	6	8
Actions	83	109	92	73	83	96	92	100	94	109
Failure to protect	52	64	61	49	55	64	64	63	54	67
Failure to secure	16	26	18	7	12	10	10	16	12	9
Failure to use equipment properly	4	6	5	10	11	9	9	10	14	18
Improper placement/position for task	1	1	0	0	0	2	0	0	2	0
Inadequate/Inappropriate communications	2	2	3	0	1	3	4	2	3	2
Inadequate/Inappropriate maintenance of equipment	0	1	0	0	0	0	0	0	0	0
Operating at improper speed	6	8	5	7	4	7	5	8	8	13
Vandalism	0	1	0	0	0	0	0	0	0	0
Other actions	2	0	0	0	0	1	0	1	1	0
Other assigned factors	20	16	20	20	12	8	7	3	6	1
<b>Collisions by number of assigned factors</b>	<b>98</b>	<b>110</b>	<b>105</b>	<b>92</b>	<b>95</b>	<b>94</b>	<b>89</b>	<b>101</b>	<b>93</b>	<b>112</b>
One factor assigned	78	92	92	87	83	77	73	88	72	100
More than one factor assigned	19	17	13	4	12	17	16	13	20	10
No factor assigned	1	1	0	1	0	0	0	0	1	2

Data extracted February 13, 2015.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Actions), therefore the breakdowns may not sum up to the category total.

**Table 6a**  
**Non-main-track derailments (province, number of derailed cars)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Non-main-track derailments by province</b>	<b>758</b>	<b>703</b>	<b>641</b>	<b>589</b>	<b>509</b>	<b>554</b>	<b>503</b>	<b>522</b>	<b>539</b>	<b>645</b>
Newfoundland & Labrador	1	1	0	0	2	0	0	1	1	0
Nova Scotia	13	14	6	3	5	4	3	4	2	4
New Brunswick	16	24	11	17	8	10	14	8	6	12
Quebec	133	117	70	71	52	60	64	75	55	60
Ontario	233	201	165	141	110	116	108	95	93	118
Manitoba	57	52	47	65	75	68	56	60	58	83
Saskatchewan	69	48	71	51	44	62	79	68	87	84
Alberta	126	143	149	117	130	151	103	144	145	177
British Columbia	109	103	121	124	81	83	74	67	91	105
Northwest Territories/Yukon	1	0	1	0	2	0	2	0	1	2
<b>Deraillments by number of derailed cars</b>	<b>758</b>	<b>703</b>	<b>641</b>	<b>589</b>	<b>509</b>	<b>554</b>	<b>503</b>	<b>522</b>	<b>539</b>	<b>645</b>
1 car	419	396	340	308	290	306	278	293	324	412
2 cars	168	171	127	138	105	138	109	123	101	108
3 cars	60	44	79	56	40	50	46	39	48	50
4 cars	34	40	39	24	32	16	29	22	26	23
5 to 10 cars	69	44	53	54	41	41	36	40	37	46
11 cars or more	8	8	3	9	1	3	5	5	3	6

Data extracted February 13, 2015.

Federally regulated railway occurrences.

New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements all derailments are reportable.

**Table 6b**  
**Non main-track derailments (assigned factors)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Total number of assigned factors</b>	<b>796</b>	<b>741</b>	<b>671</b>	<b>622</b>	<b>546</b>	<b>617</b>	<b>558</b>	<b>555</b>	<b>607</b>	<b>679</b>
Environmental	33	18	40	47	24	27	54	27	74	89
Equipment	74	52	54	41	50	52	56	50	39	48
Axle	1	1	3	1	0	0	0	1	0	0
Brakes	21	13	9	12	18	13	14	6	7	10
Draft system	12	8	11	9	15	16	11	10	5	10
Superstructure	11	9	10	7	5	4	11	8	7	9
Truck	13	11	7	4	4	9	6	16	14	11
Wheel	15	10	10	5	8	9	13	8	6	8
Track	292	282	243	238	209	223	165	205	201	218
Appurtenances	3	2	1	1	1	0	0	4	1	2
Geometry	112	97	102	90	95	97	66	79	72	85
Object on track	8	14	1	6	5	1	2	3	2	1
Other track material	21	25	14	8	11	14	7	6	5	3
Rail	24	32	30	31	26	22	18	30	36	31
Roadbed	13	6	8	9	5	15	24	13	10	9
Signals	0	0	1	1	0	0	0	0	1	0
Switch	51	48	37	58	37	51	32	53	57	64
Turnouts	54	48	33	27	25	19	13	12	12	20
Actions	349	329	286	264	224	289	250	253	266	304
Failure to protect	202	193	184	170	150	175	145	139	138	179
Failure to secure	22	7	9	9	3	7	3	11	6	7
Failure to use equipment properly	84	93	66	49	47	69	73	76	83	84
Improper loading/lifting	8	3	0	8	2	6	8	4	7	5
Improper placement/position for task	14	10	6	4	9	8	8	11	8	9
Inadequate/Inappropriate communications	4	4	1	6	2	3	2	2	3	4
Inadequate/Inappropriate maintenance of equipment	2	5	7	0	0	2	0	0	1	0
Operating at improper speed	4	6	5	11	6	14	4	3	10	14
Vandalism	6	7	5	5	4	5	6	3	5	1
Other actions	3	1	3	2	1	0	1	4	5	1
Other assigned factors	48	60	48	32	39	26	33	20	27	20
<b>Derailments by number of assigned factors</b>	<b>758</b>	<b>703</b>	<b>641</b>	<b>589</b>	<b>509</b>	<b>554</b>	<b>503</b>	<b>522</b>	<b>539</b>	<b>645</b>
One factor assigned	695	630	597	557	477	494	438	489	464	604
More than one factor assigned	49	51	36	31	32	60	60	33	70	35
No factor assigned	14	22	8	1	0	0	5	0	5	6

Data extracted February 13, 2015.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Equipment or Track), therefore the breakdowns may not sum up to the category total.

New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements all derailments are reportable.

**Table 7**  
**Crossing accidents by type and protection**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Crossing accidents</b>	<b>269</b>	<b>243</b>	<b>218</b>	<b>221</b>	<b>188</b>	<b>180</b>	<b>171</b>	<b>190</b>	<b>184</b>	<b>180</b>
Public crossings	231	197	184	177	157	154	148	168	172	152
Passive warnings	70	76	73	63	56	67	59	72	65	66
Automated warnings	161	121	111	114	101	87	89	96	107	86
Flashing lights & bells	105	77	65	73	55	56	52	48	56	47
Gates	53	36	37	39	44	30	36	48	44	38
Other automated warnings	3	8	9	2	2	1	1	0	7	1
Private crossings	33	44	28	38	30	24	15	18	10	24
Farm crossings	5	2	6	6	1	2	8	4	2	4
<b>Fatal accidents</b>	<b>34</b>	<b>25</b>	<b>22</b>	<b>24</b>	<b>17</b>	<b>19</b>	<b>24</b>	<b>26</b>	<b>22</b>	<b>20</b>
<b>Fatalities</b>	<b>37</b>	<b>28</b>	<b>25</b>	<b>26</b>	<b>19</b>	<b>24</b>	<b>25</b>	<b>30</b>	<b>30</b>	<b>21</b>
Public crossings	32	25	23	25	18	23	21	29	30	20
Passive warnings	7	8	5	5	6	5	5	12	3	2
Automated warnings	25	17	18	20	12	18	16	17	27	18
Flashing lights & bells	13	10	8	9	6	8	9	7	7	3
Gates	12	7	9	11	6	10	7	10	20	15
Other automated warnings	0	0	1	0	0	0	0	0	0	0
Private crossings	4	3	2	0	1	1	1	0	0	1
Farm crossings	1	0	0	1	0	0	3	1	0	0
<b>Serious injuries</b>	<b>55</b>	<b>29</b>	<b>21</b>	<b>37</b>	<b>21</b>	<b>28</b>	<b>22</b>	<b>32</b>	<b>27</b>	<b>25</b>
Public crossings	48	27	21	31	20	25	20	29	26	22
Passive warnings	9	8	13	13	9	14	3	15	7	11
Automated warnings	39	19	8	18	11	11	17	14	19	11
Flashing lights & bells	23	13	5	16	8	5	9	6	4	6
Gates	15	6	3	2	3	6	8	8	13	5
Other automated warnings	1	0	0	0	0	0	0	0	2	0
Private crossings	6	2	0	4	1	3	1	3	0	3
Farm crossings	1	0	0	2	0	0	1	0	1	0
<b>Number of public crossings (a)</b>	<b>18,216</b>	<b>18,553</b>	<b>17,450</b>	<b>n/a</b>	<b>17,425</b>	<b>16,718</b>	<b>16,413</b>	<b>16,229</b>	<b>16,113</b>	<b>15,950</b>
Passive warnings	12,060	12,138	11,439	n/a	11,722	11,112	10,826	10,628	10,548	10,397
Automated warnings	6,156	6,415	6,011	n/a	5,703	5,606	5,587	5,601	5,565	5,553
Flashing lights & bells	4,059	4,193	3,827	n/a	3,526	3,365	3,308	3,288	3,235	3,189
Gates	2,073	2,175	2,150	n/a	2,116	2,181	2,220	2,254	2,275	2,317
Other automated warnings	24	47	34	n/a	61	61	59	59	55	47

Data extracted February 13, 2015.

Federally regulated railway occurrences.

a. Source: Transport Canada IRIS database. The data for 2014 was provided on January 28, 2015. Figures for previous years are snapshots provided historically by Transport Canada.

**Table 8**  
**Crossing accidents by province**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Crossing accidents</b>	<b>269</b>	<b>243</b>	<b>218</b>	<b>221</b>	<b>188</b>	<b>180</b>	<b>171</b>	<b>190</b>	<b>184</b>	<b>180</b>
Newfoundland & Labrador	1	1	0	0	0	0	2	0	0	0
Nova Scotia	5	4	3	0	3	3	0	1	0	0
New Brunswick	3	2	2	2	4	5	6	3	2	5
Quebec	56	39	39	27	28	21	27	18	16	22
Ontario	92	66	52	66	48	52	39	40	40	44
Manitoba	18	20	20	13	18	20	7	26	19	16
Saskatchewan	19	26	23	28	24	24	23	32	37	33
Alberta	56	56	48	54	36	37	47	48	50	39
British Columbia	18	29	31	31	25	18	20	22	19	21
Northwest Territories/Yukon	1	0	0	0	2	0	0	0	1	0
<b>Crossing accidents on main-track (a)</b>	<b>259</b>	<b>233</b>	<b>211</b>	<b>212</b>	<b>180</b>	<b>174</b>	<b>167</b>	<b>180</b>	<b>171</b>	<b>170</b>
<b>Crossing accidents per million main-track train-miles (b)</b>	3.0	2.7	2.5	2.6	2.5	2.2	2.1	2.2	2.2	2.2
<b>Crossing accidents with derailment</b>	<b>12</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>9</b>
<b>Fatalities</b>	<b>37</b>	<b>28</b>	<b>25</b>	<b>26</b>	<b>19</b>	<b>24</b>	<b>25</b>	<b>30</b>	<b>30</b>	<b>21</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	1	1	0	0	0	0
New Brunswick	1	0	0	0	0	1	2	1	1	0
Quebec	7	7	1	6	1	1	4	1	2	9
Ontario	16	13	12	12	3	6	9	11	13	5
Manitoba	2	2	1	2	3	2	2	3	0	1
Saskatchewan	2	1	2	3	5	5	1	8	3	2
Alberta	6	4	5	2	3	6	5	4	7	2
British Columbia	3	1	4	1	3	2	2	2	4	2
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Serious injuries</b>	<b>55</b>	<b>29</b>	<b>21</b>	<b>37</b>	<b>21</b>	<b>28</b>	<b>22</b>	<b>32</b>	<b>27</b>	<b>25</b>
Newfoundland & Labrador	1	1	0	0	0	0	0	0	0	0
Nova Scotia	2	0	0	0	0	2	0	0	0	0
New Brunswick	0	0	1	1	0	0	0	0	0	0
Quebec	11	4	2	3	3	3	4	1	1	3
Ontario	21	9	7	11	3	5	7	8	15	3
Manitoba	1	4	2	4	3	5	1	7	0	3
Saskatchewan	4	2	4	5	4	2	2	6	5	7
Alberta	12	8	4	8	5	8	4	7	5	5
British Columbia	3	1	1	5	3	3	4	3	1	4
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Number of public crossings (c)</b>	<b>18,216</b>	<b>18,553</b>	<b>17,450</b>	<b>n/a</b>	<b>17,425</b>	<b>16,718</b>	<b>16,413</b>	<b>16,229</b>	<b>16,113</b>	<b>15,950</b>
Newfoundland & Labrador	7	7	5	n/a	5	5	5	5	5	5
Nova Scotia	119	160	119	n/a	180	180	180	180	182	182
New Brunswick	190	308	148	n/a	347	340	340	340	342	343
Quebec	1,660	1,767	1,662	n/a	1,958	1,964	1,966	1,968	1,967	1,921
Ontario	4,768	4,947	4,083	n/a	4,312	3,996	3,915	3,884	3,792	3,782
Manitoba	2,360	2,363	2,309	n/a	2,027	2,003	2,002	1,939	1,929	1,914
Saskatchewan	5,462	5,439	4,986	n/a	4,065	3,933	3,710	3,656	3,652	3,597
Alberta	2,791	2,655	2,854	n/a	3,009	2,786	2,783	2,777	2,767	2,731
British Columbia	840	888	1,265	n/a	1,507	1,485	1,486	1,454	1,451	1,449
Northwest Territories/Yukon	19	19	19	n/a	15	26	26	26	26	26

Data extracted February 13, 2015.

Federally regulated railway occurrences.

a. Includes crossing accidents on main-track or on spurs.

b. The source for million main-track train-miles is Transport Canada. Data is estimated.

c. Source: Transport Canada IRIS database. The data for 2014 was provided on January 28, 2015. Figures for previous years are snapshots provided historically by Transport Canada.

**Table 9**  
**Trespasser accidents by province**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Trespasser accidents</b>	<b>83</b>	<b>91</b>	<b>101</b>	<b>73</b>	<b>72</b>	<b>81</b>	<b>67</b>	<b>74</b>	<b>58</b>	<b>55</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	2	0	2	1	0	0	1	0	0	0
New Brunswick	2	1	4	2	3	1	2	1	1	0
Quebec	14	9	12	13	12	13	9	11	7	6
Ontario	43	43	47	37	35	35	32	33	31	22
Manitoba	6	5	7	4	1	3	1	2	2	2
Saskatchewan	0	2	0	3	4	3	2	6	2	2
Alberta	6	17	14	7	4	9	7	10	7	10
British Columbia	10	14	15	6	13	17	13	11	8	13
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Fatal accidents</b>	<b>64</b>	<b>58</b>	<b>56</b>	<b>47</b>	<b>52</b>	<b>53</b>	<b>44</b>	<b>47</b>	<b>44</b>	<b>32</b>
<b>Fatalities</b>	<b>64</b>	<b>59</b>	<b>56</b>	<b>47</b>	<b>52</b>	<b>55</b>	<b>45</b>	<b>49</b>	<b>44</b>	<b>33</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	1	0	1	0	0	0	0	0	0	0
New Brunswick	1	0	3	2	3	0	1	1	1	0
Quebec	12	6	7	10	7	10	8	8	4	2
Ontario	33	31	32	24	30	27	26	21	27	16
Manitoba	4	1	2	2	1	2	1	2	2	1
Saskatchewan	0	1	0	2	2	2	1	4	2	1
Alberta	5	11	7	4	3	6	2	8	4	5
British Columbia	8	9	4	3	6	8	6	5	4	8
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Serious injuries</b>	<b>17</b>	<b>28</b>	<b>27</b>	<b>20</b>	<b>16</b>	<b>19</b>	<b>21</b>	<b>21</b>	<b>10</b>	<b>21</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	1	0	0	1	0	0	0	0	0	0
New Brunswick	1	1	1	0	0	0	1	0	0	0
Quebec	2	3	3	0	3	4	2	2	3	4
Ontario	9	13	7	12	5	5	6	12	3	6
Manitoba	1	3	4	2	0	1	0	0	0	1
Saskatchewan	0	1	0	1	1	1	1	0	0	0
Alberta	1	3	4	2	1	3	4	2	1	4
British Columbia	2	4	8	2	6	5	7	5	3	6
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0

Data extracted February 13, 2015.

Federally regulated railway occurrences.

**Table 10**  
**Reportable incidents (incident type, assigned factors)**  
**2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Reportable incidents</b>	<b>245</b>	<b>220</b>	<b>223</b>	<b>216</b>	<b>209</b>	<b>188</b>	<b>233</b>	<b>238</b>	<b>223</b>	<b>217</b>
Dangerous goods leaker*	123	82	88	64	78	68	79	93	94	63
Main-track switch in abnormal position	10	7	7	13	4	5	10	5	7	7
Movement exceeds limits of authority	91	101	106	111	106	101	118	120	98	128
Runaway rolling stock	16	12	13	16	13	5	16	13	13	10
Signal less restrictive than required	1	6	0	3	1	4	3	1	1	2
Unprotected overlap of authorities	3	7	8	7	7	4	7	5	4	5
Crew member incapacitated	1	5	1	2	0	1	0	1	6	2
<b>Total assigned factors</b>	<b>257</b>	<b>217</b>	<b>173</b>	<b>225</b>	<b>214</b>	<b>195</b>	<b>240</b>	<b>245</b>	<b>228</b>	<b>229</b>
Dangerous goods leaker location/component	124	78	73	61	77	68	78	92	92	61
Equipment	1	1	0	5	2	2	1	2	4	2
Individual/Personal	17	13	4	3	0	0	0	1	4	1
Track	2	3	0	2	2	1	5	2	2	3
Actions	112	116	90	148	131	114	144	139	115	157
Failure to protect	35	31	38	55	34	35	55	38	33	37
Failure to secure	11	8	1	10	7	4	11	4	6	2
Failure to use equipment properly	2	5	1	3	4	3	5	1	9	9
Inadequate/Inappropriate communication	7	11	4	6	8	8	11	14	8	15
Lap of authority	50	55	41	65	72	59	59	75	54	83
Vandalism	4	0	3	1	3	1	2	5	1	3
Other actions	3	6	2	8	3	4	1	2	4	8
Other assigned factors	1	6	6	6	2	10	12	9	11	5
<b>Incidents by number of assigned factors</b>	<b>245</b>	<b>220</b>	<b>223</b>	<b>216</b>	<b>209</b>	<b>188</b>	<b>233</b>	<b>238</b>	<b>223</b>	<b>217</b>
One factor assigned	199	164	163	206	204	181	226	230	219	206
More than one factor assigned	28	24	5	9	5	7	7	7	4	11
No factor assigned	18	32	55	1	0	0	0	1	0	0

Data extracted February 13, 2015.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Actions), therefore the breakdowns may not sum up to the category total.

\*New TSB regulations came into effect on July 1, 2014. Under the new reporting requirements the minimum reporting threshold for incidents (200 litres) involving the release of low vapour pressure flammable liquids has been harmonized with Part 8 of the Transportation of Dangerous Goods Regulations.

## Appendix B: Definitions

The following definitions apply to railway occurrences that are required to be reported pursuant to the Canadian Transportation Accident Investigation and Safety Board Act and the associated regulations<sup>14</sup>.

### Railway occurrence

Any accident or incident associated with the operation of rolling stock on a railway, and

Any situation or condition that the Board has reasonable grounds to believe could, if left unattended, induce an accident or incident described below.

### Reportable railway accident

- (a) a person is killed or sustains a serious injury as a result of
  - (i) getting on or off or being on board the rolling stock, or
  - (ii) coming into contact with any part of the rolling stock or its contents;
- (b) the rolling stock or its contents
  - (i) are involved in a collision or derailment,
  - (ii) sustain damage that affects the safe operation of the rolling stock,
  - (iii) cause or sustain a fire or explosion, or
  - (iv) cause damage to the railway that poses a threat to the safe passage of rolling stock or to the safety of any person, property or the environment;

### Reportable railway incident

- (c) a risk of collision occurs between rolling stock;
- (d) an unprotected main track switch or subdivision track switch is left in an abnormal position;
- (e) a railway signal displays a less restrictive indication than that required for the intended movement of rolling stock;
- (f) rolling stock occupies a main track or subdivision track, or track work takes place, in contravention of the Rules or any regulations made under the [Railway Safety Act](#);
- (g) rolling stock passes a signal indicating stop in contravention of the Rules or any regulations made under the [Railway Safety Act](#);
- (h) there is an unplanned and uncontrolled movement of rolling stock;
- (i) a crew member whose duties are directly related to the safe operation of the rolling stock is unable to perform their duties as a result of a physical incapacitation which poses a threat to the safety of persons, property or the environment; or

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<sup>14</sup> In effect as of July 1, 2014.

(j) there is an accidental release on board or from a rolling stock consisting of a quantity of dangerous goods or an emission of radiation that is greater than the quantity or emission level specified in Part 8 of the [\*Transportation of Dangerous Goods Regulations\*](#).

### **Serious injury**

- (a) a fracture of any bone, except simple fractures of fingers, toes or the nose;
- (b) lacerations that cause severe hemorrhage or nerve, muscle or tendon damage;
- (c) an injury to an internal organ;
- (d) second or third degree burns, or any burns affecting more than 5% of the body surface;
- (e) a verified exposure to infectious substances or injurious radiation; or
- (f) an injury that is likely to require hospitalization.

### **Dangerous goods involvement**

“Dangerous goods” has the same meaning as in section 2 of the [\*Transportation of Dangerous Goods Act, 1992\*](#). An accident is considered to have dangerous goods involvement if any car in the consist carrying (or having last contained) a dangerous good derails, strikes or is struck by any other rolling stock or object. It does not mean that there was any release of any product. Also included are crossing accidents in which the motor vehicle involved (e.g., tanker truck) is carrying a dangerous good.

### **Derailment**

Any instance where one or more wheels of rolling stock have come off the normal running surface of the rail, including occurrences where there are no injuries and no damage to track or equipment.