Railway Association of Canada

RAIL TRENDS | 2018

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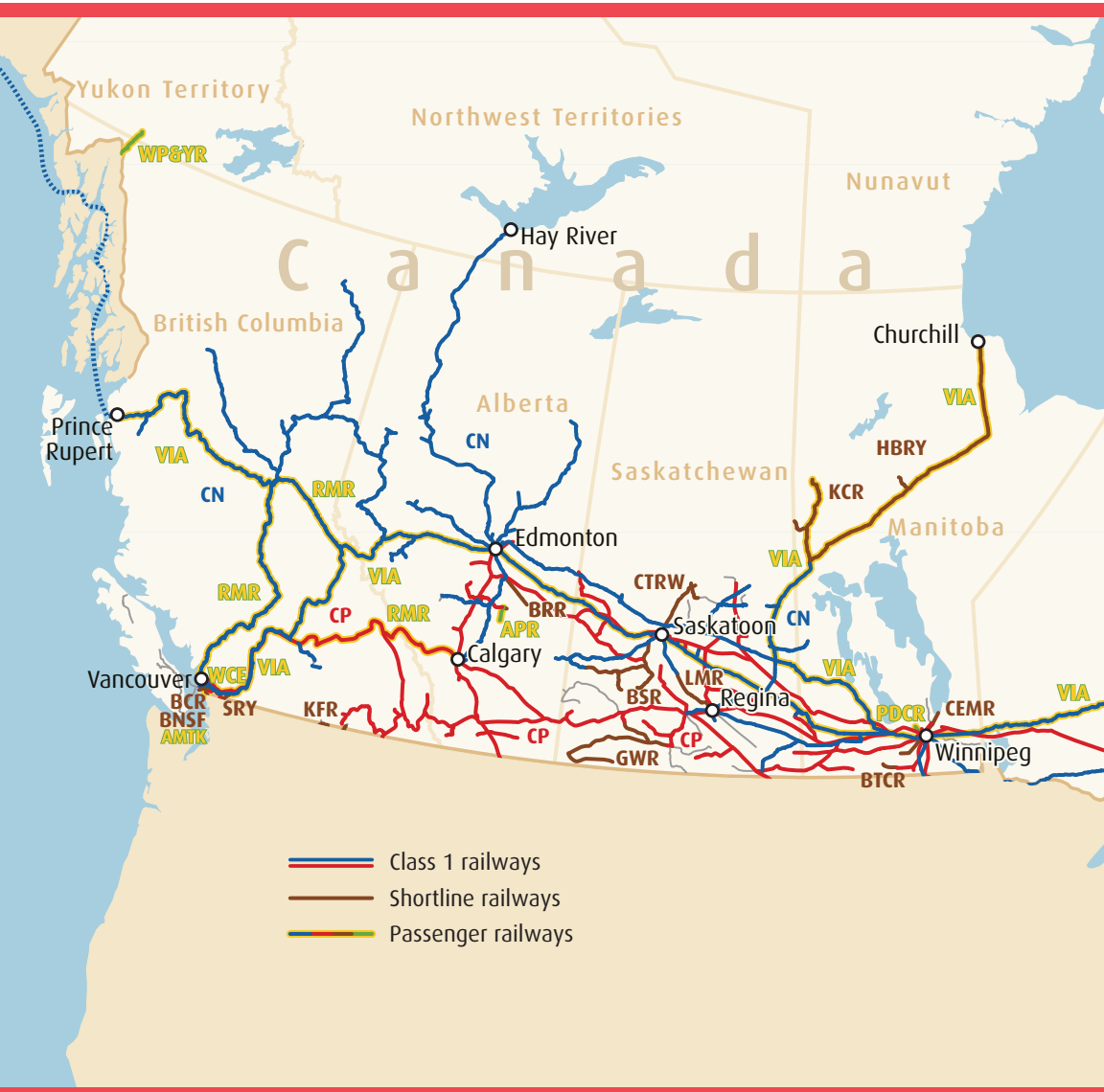

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BRR	Battle River Railway
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BSR	Big Sky Rail Corp
BNSF	BNSF
BTRC	Boundary Trail Railway
CBNS	Cape Breton & Central Nova Scotia Railway
CR	Capital Railway
CTRW	Carlton Trail Railway
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CFL	Compagnie du Chemin de Fer Lanaudière
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EMRC	Eastern Maine Railway
ETR	Essex Terminal Railway
EXO	Exo
GEXR	Goderich-Exeter Railway
RMR	Great Canadian Railtour Company
GWR	Great Western Railway
HCRY	Huron Central Railway
KRC	Keewatin Railway
KFR	Kettle Falls International Railway
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NCR	Nipissing Central Railway
NS	Norfolk Southern Railway
ONR	Ontario Northland Transportation Commission
OSR	Ontario Southland Railway
OBRY	Orangeville Brampton Railway
OVR	Ottawa Valley Railway
PRS	Prairie Rail Solutions
PDCR	Prairie Dog Central Railway — Vintage Locomotive Society
CFQG	Québec Gatineau Railway
QIO	Quebec Iron Ore Inc.
QNSL	Québec North Shore and Labrador Railway Company
RS	Roberval and Saguenay Railway Company
CFRR	Romaine River Railway Company
SCFG	Société du chemin de fer de la Gaspésie
SSR	South Simcoe Railway
SORR	Southern Ontario Railway
SRY	Southern Railway of British Columbia
SVI	Southern Railway of Vancouver Island
SLQ	St. Lawrence & Atlantic Railroad (Québec)
TTR	Toronto Terminals Railway Company
CFC	Train Touristique de Charlevoix
PCHR	Trillium Railway Co.
TSH	Tshiuetin Rail Transportation
UP	Union Pacific Railroad Company
VIA	VIA Rail Canada
WCE	West Coast Express
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FOREWORD

This is the 26th edition of *Rail Trends*, the Railway Association of Canada's (RAC) annual report on the performance of Canada's railway industry. This publication contains performance data from 2017 and a rolling 10-year review of financial and statistical results, reflecting multiple aspects of railway performance in Canada.[1]

The data in *Rail Trends* is reported by RAC members companies: Class 1 and shortline freight railways, as well as tourist, intercity and commuter passenger railways. Canadian-owned Class 1 freight railways account for the majority of freight rail activity in Canada. While RAC represents the vast majority of non-Class 1 railways in Canada, it does not represent the entire sector.

The data in *Rail Trends* is categorized into the following sections:

- Safety
- Freight traffic
- Passenger transportation
- Financial information, investments and taxes
- Employment
- Track and equipment

Data reflects performance in Canada only. Figures may not add up to totals due to rounding. A glossary of railway terms appears in Appendix A, conversion factors can be found in Appendix B and safety-specific definitions are provided in Appendix C.

A detailed profile of railway industry performance by province is available upon request.[2]

1 In some cases, relative variations reflect a change in the way certain members report data.

2 Contact Enrique Rosales (erosales@railcan.ca).

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EXECUTIVE SUMMARY

Canada's railways delivered record results in 2017 in a number of areas, reflecting the industry's commitment to performance and safety. For example, railways originated a record number of carloads – more than 5.2 million – and reduced freight rates for a second year in a row, enabling rail customers to compete in the global marketplace. Investments and taxes were also at record highs with more than $1.8 billion invested into the Canadian network and $1.7 billion in taxes paid.

The industry also experienced an increase in traffic of 7.4 per cent over 2016. It is noteworthy that the long-term overall traffic growth from 1988 to 2007 was some 2 per cent, with 2007 representing the peak year before the financial recession reduced freight traffic volumes in 2008 and 2009. In 2017 freight volumes reached a traffic level equal to what the industry would have achieved if traffic continued to grow at 2 per cent from 2007 levels, indicating that railways have made a full recovery from the effects of the recession.

In 2017 both freight and passenger railways experienced some of their lowest accident rates in the last decade, with the freight sector's accident rate and the rate of accidents involving dangerous goods at all-time lows. However, accidents related to roadway-railway crossings and trespassing continue to reflect a fifth of all railway-related accidents, with an increasing number of trespassing-related incidents occurring in 2017.

Canada's railways continue to deliver fuel efficiency by investing in fuel-efficient locomotives, and introducing innovative operating practices and technologies. Freight operators have increased fuel efficiency by 20.2 per cent since 2008.

Passenger carriers also played a key role in helping the industry contribute to Canada's environmental well-being by transporting a record-high number of people in 2017. By shifting more passengers to rail, the industry continues to play a key role in driving down transportation-related emissions and reducing road congestion.

The following table provides a statistical summary of rail industry performance in 2017, compared to the previous year and 10 years ago.

STATISTICAL SUMMARY

(year-over-year and 10-year comparisons)

	2008	2016	2017
Freight traffic			
Revenue ton-miles (billions)	237.3	275.5	**294.6**
Revenue tonne-kilometres (billions)	346.5	402.2	**430.1**
Gross ton-miles (billions)	449.9	523.1	**558.8**
Gross tonnes-kilometres (billions)	656.8	763.6	**815.7**
Freight train-miles (thousands)	71,712.0	61,584.4	**64,979.0**
Freight train-kilometres (thousands)	115,409.0	99,110.2	**104,573.4**
Carloads originated (thousands)	3,984.0	4,845.8	**5,224.6**
Tons originated (thousands)	318,688.0	373,107.7	**395,085.0**
Tonnes originated (thousands)	289,113.7	338,483.0	**358,420.7**
Tons per carload	80.0	77.0	**75.6**
Tonnes per carload	72.6	69.9	**68.6**
Total intermodal units (thousands)	2,497	3,139	**3,490**
Freight revenue per ton-mile (cents)	4.20	4.59	**4.62**
Freight revenue per tonne-km (cents)	2.87	3.15	**3.16**
Gallons of fuel consumed (millions)	480.7	440.6	**473.4**
Litres of fuel consumed (millions)	2,185.1	2,002.9	**2,152.2**
RTM per gallon of fuel consumed	520.0	668.0	**659.1**
RTK per gallon of fuel consumed	167.0	214.8	**211.6**
Passenger transportation			
Total passengers carried (thousands)	72,303	84,185	**84,440**
Financial information			
Operating expenses (millions)	9,167.0	9,640.5	**10,251.2**
Operating revenues (millions)	11,197.0	14,111.8	**15,219.1**
Operating income (millions)	2,030.0	4,471.3	**4,967.9**
Investments			
Total investments (millions)	1,391.0	1,499.9	**1,825.1**
Taxes			
Taxes paid (millions)	930.0	1,666.9	**1,698.8**
Employment			
Employees	35,208	31,103	**31,780**
Average wage per employee	74,790	93,896	**95,582**
Track and equipment			
Total miles of track operated	29,366	27,069	**26,444**
Total kilometres of track operated	47,258	43,562	**42,557**
Freight cars (thousands)	84	55	**55**
Locomotives	3,046	2,315	**2,842**

SAFETY

The safety data presented in *Rail Trends* is calculated by using statistics from the Transportation Safety Board of Canada (TSB) and RAC. It reflects the performance of RAC's federally and provincially regulated freight and passenger member railways. The TSB maintains a database of safety performance statistics on federally regulated railways, as well as provincially regulated railways that voluntarily report their data. The safety data found in *Rail Trends* is an aggregate of railway statistics from the TSB and information provided to RAC by provincially regulated member-companies that aren't required to report safety data to the TSB. Each organization uses the same safety definitions, and the data reflects railway operations in Canada only.

Excluding crossing and trespassing accidents, non-main-track collisions and derailments accounted for more than 70 per cent of total railway accidents in 2017. Most non-main-track accidents are minor and occur during switching operations at speeds of less than 10 miles per hour in localized environments such as rail yards. Main-track collisions and derailments represented less than 8 per cent of accidents in 2017.

Safety Summary (year-over-year and 10-year comparisons)

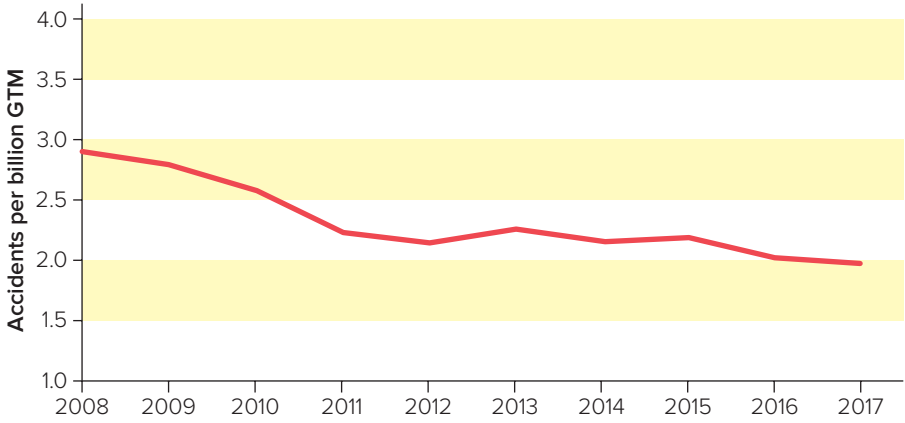
	2008	2016	2017
Main-track collisions	8	7	**3**
Main-track derailments	149	67	**83**
Crossing accidents	237	147	**147**
Non-main track collisions	100	74	**105**
Non-main track derailments	683	569	**570**
Collisions/derailments involving track units	28	40	**48**
Employee/passenger accidents	18	27	**26**
Trespassing accidents	77	73	**80**
Fires/explosions	21	41	**36**
Other accident types	54	78	**62**
Total Accidents	**1,375**	**1,123**	**1,160**

FREIGHT

In 2017, Canada's freight rail sector's accident rate decreased by 4.3 per cent from the previous year to a record-low 1.97 accidents per billion gross ton-miles.[3] This accident rate was 8.7 per cent lower than the 2012-2016 average of 2.15.

	Freight accidents	GTM (billions)	Accident Rate
2008	1,304	449.9	2.90
2009	1,104	397.3	2.78
2010	1,155	447.1	2.58
2011	1,057	473.3	2.23
2012	1,060	495.5	2.14
2013	1,149	509.9	2.25
2014	1,191	557.2	2.14
2015	1,187	544.8	2.18
2016	1,054	523.1	2.02
2017	**1,098**	**558.8**	**1.97**

Freight accident rate



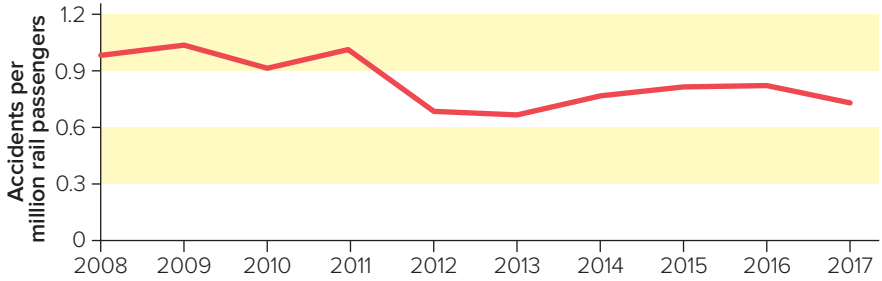
3 The freight rail sector's accident rate is calculated by dividing the number of reportable freight rail accidents by the freight sector's workload in billions of gross ton-miles.

PASSENGER

In 2017, the passenger rail sector's accident rate was 0.73 accidents per million passengers, down 10.4 per cent from 2016 and 1.8 per cent from the five-year average.[4] Passenger trains accounted for 5.3 per cent of all rail accidents in 2017.

	Accidents involving passenger trains	Passengers (thousands)	Accident rate
2008	71	72,303	0.98
2009	73	70,675	1.03
2010	67	73,261	0.91
2011	74	73,080	1.01
2012	52	75,982	0.68
2013	51	76,400	0.67
2014	61	80,366	0.76
2015	66	81,767	0.81
2016	69	84,185	0.82
2017	**62**	**84,440**	**0.73**

Passenger accident rate

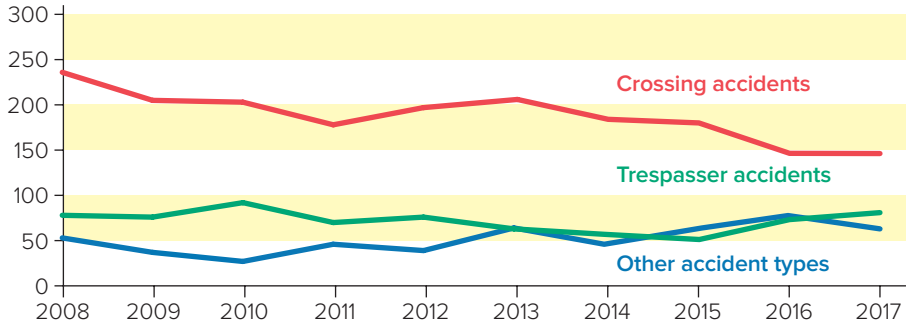


4 The passenger rail sector's accident rate is calculated by dividing the number of accidents involving passenger trains by the total number of intercity and tourist passengers and rail commuters.

CROSSING AND TRESPASSING

Each year, crossing and trespassing accidents account for roughly one fifth of total rail accidents in Canada. In 2017, there were 147 accidents at roadway-railway crossings. This is the same number as in the previous year and represents a 19.7 per cent decline from the 2012-2016 average. In addition, 80 accidents occurred as a result of illegal trespassing on railway property in 2017, up 9.6 per cent compared to 2016 and up 25.8 per cent versus the five-year average.

	Crossing accidents	Trespasser accidents	Other accident types
2008	237	77	54
2009	206	75	38
2010	204	91	28
2011	179	69	47
2012	198	75	40
2013	206	62	65
2014	184	56	47
2015	180	52	63
2016	147	73	78
2017	**147**	**80**	**62**

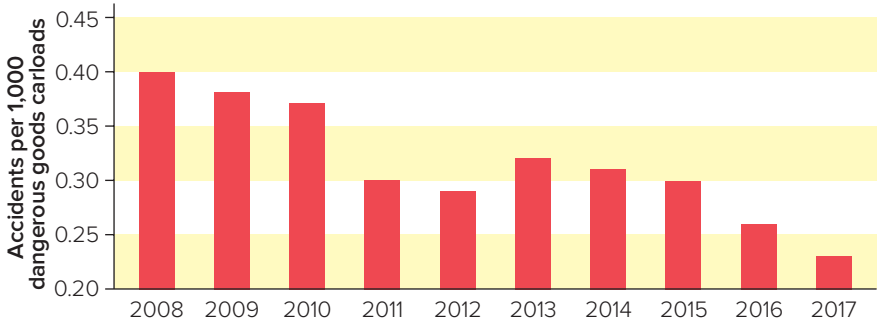


ACCIDENTS INVOLVING DANGEROUS GOODS

In 2017, the freight rail sector's accident rate involving dangerous goods decreased by 11 per cent from the previous year and 22.2 per cent from the 2012-2016 average, to a record-low 0.23 accidents per 1,000 dangerous goods carloads.[5]

	Accidents involving dangerous goods	Originated Dangerous Goods Carloads	Accident rate (accidents per 1,000 dangerous goods carloads)
2008	170	422,764	0.40
2009	145	379,650	0.38
2010	149	400,318	0.37
2011	129	425,124	0.30
2012	124	428,660	0.29
2013	157	493,360	0.32
2014	179	576,226	0.31
2015	147	491,802	0.30
2016	112	438,098	0.26
2017	**116**	**504,620**	**0.23**

Accidents involving dangerous goods



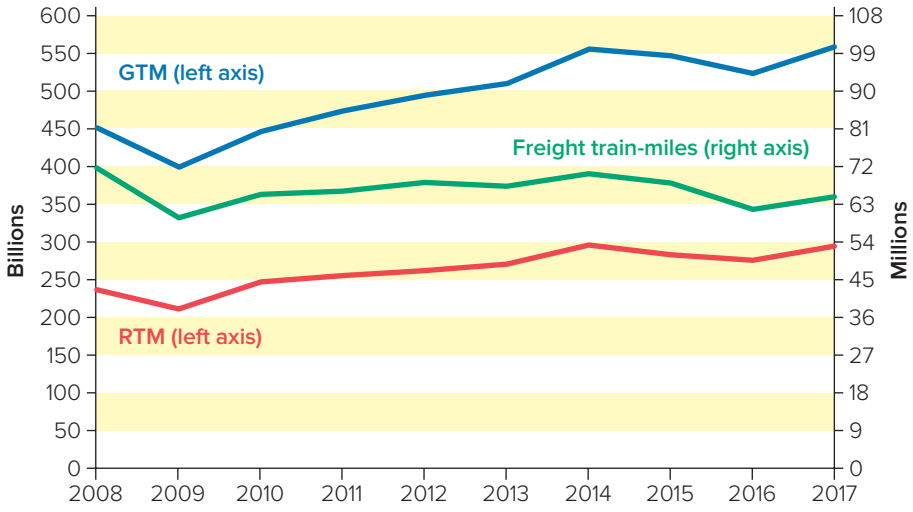
5 The freight rail sector's accident rate involving dangerous goods is calculated by dividing total accidents involving dangerous goods by the number of dangerous goods carloads in thousands moved by Canada's railways.

FREIGHT TRAFFIC

REVENUE TON-MILES, GROSS TON-MILES AND FREIGHT TRAIN-MILES

In 2017, freight rail traffic, measured by revenue ton-miles, increased by 6.9 per cent from 2016 and by 6.0 per cent compared to the 2012-2016 average. Year over year, the freight rail sector's workload, measured by gross ton-miles, increased by 6.8 per cent, and increased 5.9 per cent compared with the five-year average. The distance travelled by Canada's freight trains, measured by freight train-miles, increased by 5.5 per cent to 65.0 million in 2017 versus 2016.

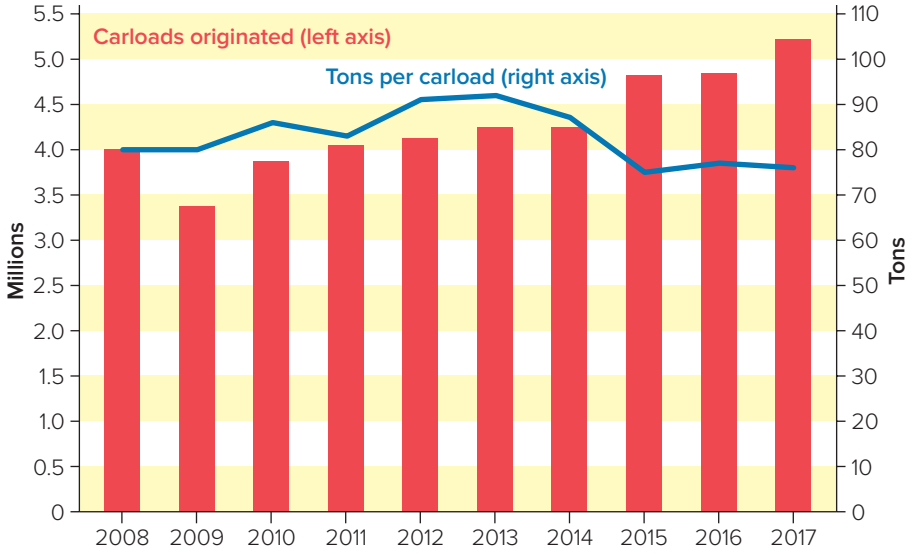
	RTM (millions)	RTK (millions)	GTM (millions)	GTK (millions)	Freight train miles (thousands)	Freight train kilometres (thousands)
2008	237,323	346,457	449,922	656,821	71,712	115,409
2009	210,898	307,880	397,293	579,990	59,576	95,877
2010	247,154	360,809	447,052	664,303	65,157	104,859
2011	246,759	360,232	473,312	690,960	66,082	106,348
2012	261,267	381,412	495,526	723,396	68,145	109,668
2013	271,542	396,412	509,862	744,324	67,207	108,160
2014	294,236	429,541	557,185	813,408	70,313	113,157
2015	283,188	413,414	544,791	795,315	68,044	109,506
2016	275,485	402,167	523,071	763,607	61,584	99,110
2017	**294,606**	**430,082**	**558,767**	**815,718**	**64,979**	**104,573**



CARLOADS

In 2017, the number of carloads that originated in Canada increased by 7.8 per cent to a record-high 5.2 million, and the growth was led by manufacturing and miscellaneous shipments. Meanwhile, the overall weight of goods transported by RAC members increased by 5.9 per cent, as railways carried more heavy commodities such as coal, minerals and metals. As a result, the tonnage per carload fell by 1.8 per cent from the previous year.[6] Compared to the 2012-2016 average, the number of carloads originated in Canada increased by 17.3 per cent in 2017, while tonnage increased by 5.8 per cent.

	Carloads originated (thousands)	Tons originated (thousands)	Tonnes originated (thousands)	Tons per carload	Tonnes per carload
2008	3,984	318,688	289,114	80	73
2009	3,367	269,028	244,062	80	73
2010	3,872	334,264	303,258	86	78
2011	4,044	337,074	305,793	83	76
2012	4,113	375,780	340,907	91	83
2013	4,234	388,621	352,557	92	83
2014	4,238	368,970	334,730	87	79
2015	4,831	361,342	327,809	75	68
2016	4,846	373,108	338,483	77	70
2017	**5,225**	**395,085**	**358,421**	**76**	**69**



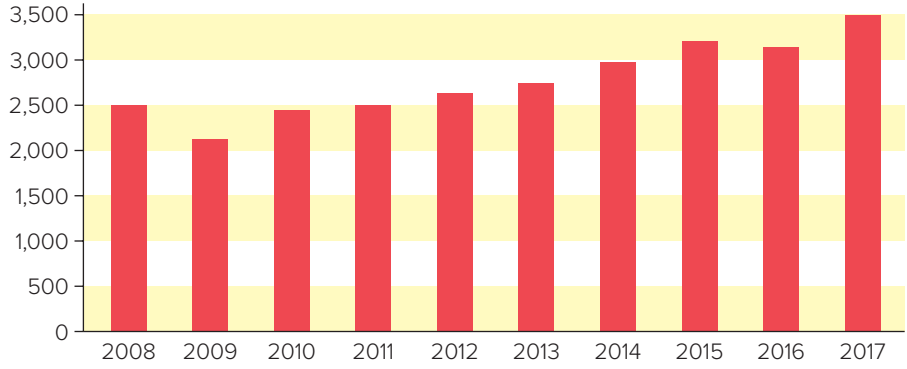
6 Tons (tonnes) per carload is calculated by dividing tons (tonnes) originated by carloads originated.

INTERMODAL TRAFFIC

In 2017, total intermodal traffic that originated in Canada increased by 11.2 per cent from 2016 as Canadian Class 1 railways transported a record number of trailers and containers.[7] The 2017 total was 18.7 per cent higher than the 2012-2016 average of 2.9 million intermodal units.

	Trailers (thousands)	Containers (thousands)	Total (thousands)
2008	101	2,396	2,497
2009	83	2,033	2,116
2010	81	2,361	2,442
2011	80	2,424	2,504
2012	98	2,540	2,638
2013	118	2,628	2,746
2014	93	2,883	2,978
2015	73	3,132	3,205
2016	55	3,084	3,139
2017	**59**	**3,431**	**3,490**

Intermodal units originated (thousands) (containers & trailers)



7 Total intermodal traffic originated in Canada reflects both the Canadian and U.S. operations of Canadian Class 1 railways. Intermodal units are actual counts of trailers and containers, regardless of size, and are not "twenty-foot equivalent units (TEUs)."

CARLOADS BY COMMODITY

RAC tracks 11 commodity groupings moved by freight railways in Canada. In 2017, intermodal goods, minerals, and fuels and chemicals were the largest groupings of carloads transported by Canada's railways, accounting for 65 per cent of all carloads. Based on the number of carloads moved, the largest increases among commodity groupings in 2017 (according to each grouping's year-over-year increase) were manufactured and miscellaneous (+17.1%), food products (+15.6%), and metals (+10.1%). The largest declines were reported in the machinery & automotive (-5.1%) and forest products (-2.5%) groupings.

Not all RAC member companies report carloads originated by commodity grouping. As a result, the total number of carloads originated by commodity grouping is lower than the total number of carloads originated (page 9). The intermodal total is estimated by multiplying the number of intermodal units by an average load factor to determine the equivalent number of carloads.

Statistics Canada provides monthly statistics of commodity movements in Canada in its Railway Carloadings dataset. This dataset offers a brief analysis, along with tables showing carloadings and tonnes carried for 63 commodity groupings.

Carloads originated by commodity grouping

	Agriculture	Coal	Minerals	Forest products	Metals	Machinery & automotive
2008	430,292	324,931	574,645	253,279	369,475	195,308
2009	474,980	277,048	368,631	182,395	273,800	148,123
2010	462,445	327,419	703,270	205,120	160,895	185,962
2011	466,305	348,556	790,520	228,448	160,827	186,522
2012	472,474	353,201	805,952	209,654	161,541	220,216
2013	465,340	383,013	810,750	215,254	150,906	199,068
2014	547,122	336,632	676,865	213,980	157,086	193,294
2015	537,013	303,932	854,186	235,169	150,273	178,429
2016	510,764	309,403	861,721	254,290	150,243	199,927
2017	**527,062**	**326,228**	**937,844**	**247,960**	**165,436**	**189,632**

	Fuel & chemicals	Paper products	Food products	Manufactured & miscellaneous	Intermodal	Total
2008	443,125	228,072	42,365	75,160	847,647	3,784,299
2009	401,141	175,693	42,232	79,445	741,807	3,165,295
2010	419,905	170,823	52,240	92,949	847,832	3,628,860
2011	432,657	157,780	54,948	94,935	890,168	3,811,666
2012	479,669	149,740	60,906	93,129	946,223	3,952,706
2013	539,566	150,029	56,405	103,605	987,186	4,061,122
2014	593,186	139,110	61,993	101,733	1,072,278	4,093,278
2015	579,131	131,571	64,512	112,194	1,683,988	4,830,398
2016	565,480	132,124	68,951	99,473	1,669,892	4,822,268
2017	**616,980**	**128,907**	**79,702**	**116,477**	**1,828,533**	**5,170,523**

FREIGHT REVENUE BY COMMODITY

In 2017, the freight rail sector's revenue increased by 5.8 per cent to $10.7 billion. Similar to the previous year, freight railways generated most of their revenue in 2017 from transporting intermodal goods, agricultural products, and fuels and chemicals. On a revenue basis, most commodity groupings (based on each grouping's year-over-year change) saw increases over 2016: manufacturing and miscellaneous (+20.2%), coal (+17.2%), and food products (+14.3%). Compared to 2016, railways only earned less revenue from transporting forest products (-3.9%), paper products (-1.8%), and machinery and automobiles (-1.6%).

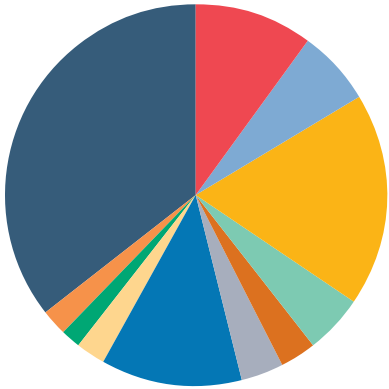
Not all RAC member companies record revenue from carloads originated by commodity grouping. The data in this section reflects reported freight revenue from originated carloads grouped by commodity grouping. As a result, total freight revenue from carloads originated by commodity grouping is lower than total freight operating revenue (page 20).

Revenue from carloads originated by commodity grouping ($ millions)

	Agriculture	Coal	Minerals	Forest products	Metals	Machinery & automotive
2008	1,161	706	833	646	531	443
2009	1,259	502	525	478	317	337
2010	1,221	598	772	500	381	394
2011	1,297	713	898	564	424	381
2012	1,374	749	926	611	455	508
2013	1,433	833	973	660	448	481
2014	1,725	760	1,030	702	501	481
2015	1,871	632	1,336	857	487	541
2016	1,730	628	1,062	951	428	567
2017	**1,865**	**695**	**1,101**	**917**	**478**	**552**

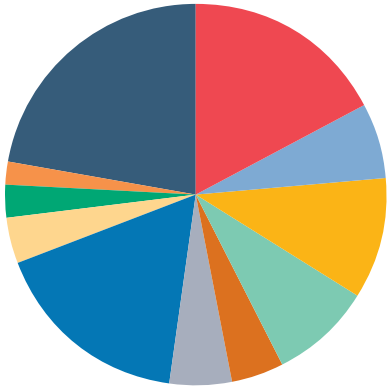
	Fuels & chemicals	Paper products	Food products	Manufactured & miscellaneous	Intermodal	Total
2008	902	531	89	126	2,702	8,672
2009	818	423	94	113	2,273	7,139
2010	853	437	128	130	2,592	8,006
2011	928	427	146	133	1,893	7,805
2012	1,155	411	161	153	1,997	8,499
2013	1,420	406	155	174	2,019	9,001
2014	1,756	393	181	177	2,162	9,869
2015	1,934	426	235	192	2,171	10,682
2016	1,719	423	258	181	2,135	10,083
2017	**1,823**	**424**	**295**	**220**	**2,354**	**10,760**

The chart below illustrates carloads originated by commodity groupings as a percentage of all commodity carloads in 2017.



- Agriculture (10%)
- Coal (6%)
- Minerals (18%)
- Forest products (5%)
- Metals (3%)
- Machinery & automotive (4%)
- Fuels & chemicals (12%)
- Paper products (2%)
- Food products (2%)
- Manufactured & miscellaneous (2%)
- Intermodal (35%)

The chart below illustrates revenues by commodity grouping as a percentage of all revenues in 2017.



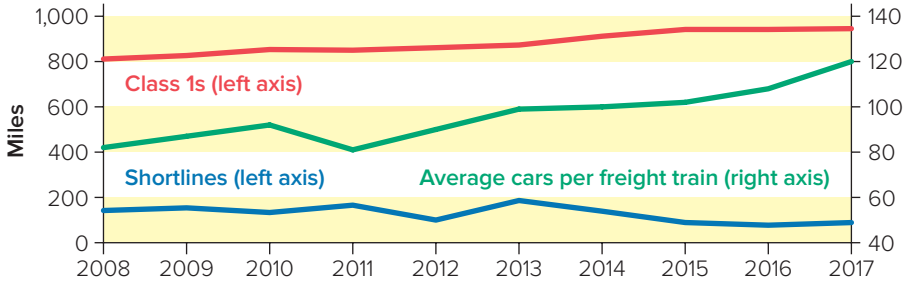
- Agriculture (17%)
- Coal (6%)
- Minerals (10%)
- Forest products (9%)
- Metals (4%)
- Machinery & automotive (5%)
- Fuels & chemicals (17%)
- Paper products (4%)
- Food products (3%)
- Manufactured & miscellaneous (2%)
- Intermodal (22%)

AVERAGE LENGTH OF HAUL AND AVERAGE CARS PER FREIGHT TRAIN

In 2017, each separate shipment transported by Canada's Class 1 railways (CN and CP) travelled an average distance of 946.7 miles (1,523.6 kilometres), a record high, and up 1 per cent from the average length of haul reported in 2016.[8] Shipments carried by Canada's shortline railways travelled an average distance of 90.4 miles (145.5 kilometres), up 13.3 per cent from the previous year. Freight sector-wide, the average number of railcars per train increased by 10.6 per cent to a record high of 120.[9]

	Average miles (kilometres) hauled by Class 1 railways (CN and CPR)		Average miles (kilometres) hauled by shortline railways		Average cars per freight train
	Miles	Kilometres	Miles	Kilometres	Cars
2008	818	1,316	146	235	82
2009	830	1,336	159	256	87
2010	850	1,368	138	163	92
2011	849	1,366	110	178	81
2012	868	1,396	99	159	90
2013	871	1,402	186	300	99
2014	908	1,462	140	226	100
2015	943	1,517	87	140	102
2016	937	1,508	80	128	108
2017	**947**	**1,524**	**90**	**145**	**120**

Average length of haul



8 Length of haul is calculated by dividing revenue ton-miles (revenue tonne-kilometres) by revenue tons (revenue tonnes).

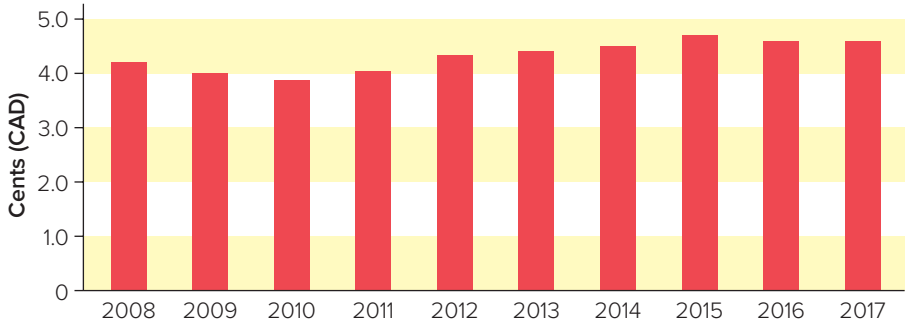
9 Average cars per freight train is calculated by dividing loaded and empty car-miles (car-kilometres) by train-miles (train-kilometres).

FREIGHT RATES

Freight revenue per ton-mile is often viewed as a proxy for railway rates because it shows the level of revenue collected by railways for moving goods over a certain distance.[10] In 2017, freight operating revenue increased by 7.5 per cent from 2016, while freight rail traffic increased by 6.9 per cent. As a result, freight revenue per ton-mile increased by 0.6 per cent to 4.62 cents. The increase was the first since 2015.

	Freight revenue (cents) per		Freight revenue per RTM index	Commodity price index
	RTM	RTK	2001 = 100	2001 = 100
2008	4.20	2.87	128.4	204.4
2009	4.00	2.74	122.3	137.3
2010	3.86	2.65	118.2	163.6
2011	4.18	2.86	127.7	186.9
2012	4.33	2.97	132.5	173.3
2013	4.43	3.04	135.6	171.3
2014	4.52	3.09	138.1	164.6
2015	4.68	3.21	143.2	104.2
2016	4.59	3.15	140.4	93.3
2017	**4.62**	**3.16**	**141.2**	**106.9**

Freight revenue per RTM



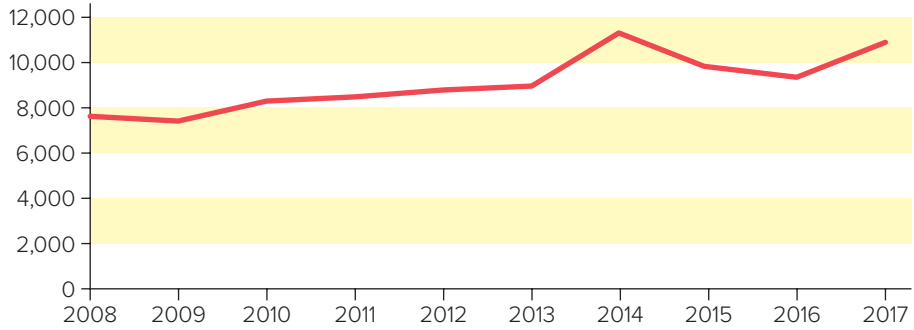
10 Freight revenue per ton-mile is calculated by dividing freight operating revenue by revenue ton-miles (revenue tonne-kilometres).

PRODUCTIVITY

The best measure of freight railway labour productivity is revenue ton-miles per employee.[11] By this measure, employee productivity increased by 16.5 per cent in 2017 from the previous year, as traffic increased significantly more than the freight railway workforce. Railway labour productivity in 2017 was up 13 per cent over the 2012-2016 average.

	RTM per employee (thousands)	RTK per employee (thousands)	Road miles per employee	Road kilometres per employee
2008	7,625	11,132	0.94	1.51
2009	7,404	10,809	0.98	1.58
2010	8,287	12,098	0.96	1.54
2011	8,221	12,001	0.90	1.46
2012	8,772	12,806	0.86	1.39
2013	8,960	13,081	0.91	1.47
2014	11,302	16,499	0.84	1.35
2015	9,839	14,363	0.83	1.34
2016	9,356	13,658	0.88	1.41
2017	**10,896**	**15,907**	**0.84**	**1.35**

RTM per employee (thousands)



11 Freight rail labour productivity is calculated by dividing the annual sum of revenue-producing tonnage by the average number of freight railway employees.

FUEL CONSUMPTION AND COST

In 2017, freight railways consumed 447.04 million gallons (2.0 billion litres) of fuel, up 7.4 per cent, while moving 6.9 per cent more traffic than the previous year. As a result, the freight railway sector's fuel efficiency decreased by 0.4 per cent to 659.1 revenue ton-miles per gallon of fuel consumed.[12] The cost of diesel fuel in 2017 increased by 14.4 per cent to $3.46 per gallon ($0.76 per litre), which was still 13.1 per cent lower that the 2012–2016 average.[13]

	Fuel consumed — freight operations		Total fuel consumed		RTM per gallon of fuel consumed	RTK per litre of fuel consumed	Cost of diesel fuel	
	Gallons (thousands)	Litres (thousands)	Gallons (thousands)	Litres (thousands)			per gallon ($)	per litre (cents)
2008	457,346	2,079,129	480,661	2,185,120	519	167	4.23	93.00
2009	387,856	1,763,222	411,612	1,871,221	544	175	2.94	64.80
2010	427,128	1,941,757	450,782	2,049,289	579	186	3.25	71.40
2011	436,558	1,984,492	436,558	1,984,178	565	182	4.25	93.46
2012	449,149	2,041,864	471,912	2,145,346	582	187	4.24	93.33
2013	442,985	2,013,842	464,275	2,110,651	613	197	4.44	97.63
2014	462,849	2,104,147	484,572	2,202,872	636	204	4.72	103.88
2015	445,630	2,025,866	469,855	2,135,996	635	204	3.46	76.01
2016	416,331	1,892,674	440,587	2,002,939	662	212	3.02	66.41
2017	**446,999**	**2,032,090**	**473,412**	**2,152,168**	**659**	**212**	**3.46**	**76.01**

12 Freight rail fuel efficiency is calculated by dividing total revenue ton-miles (revenue tonne-kilometres) by the total volume of fuel consumed during freight operations.

13 This total includes fuel expenses and gallons (litres) consumed by both freight and passenger railways.

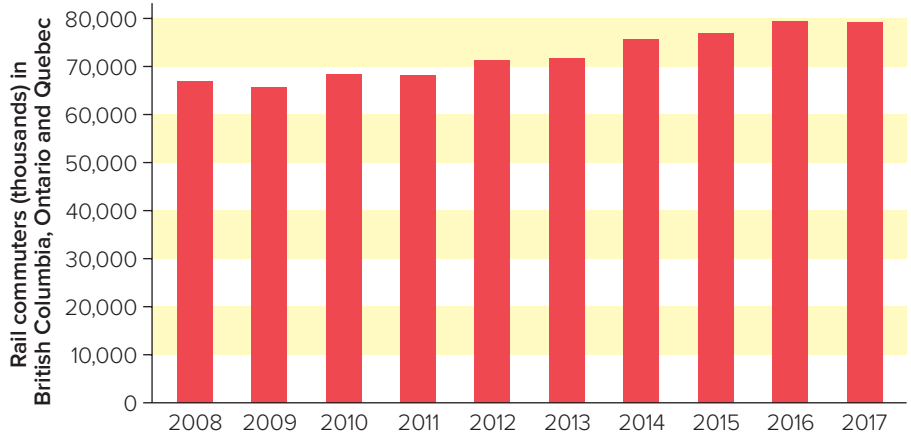
PASSENGER TRANSPORTATION

COMMUTER RAIL

In 2017, commuter railways in British Columbia, Ontario and Quebec transported a 79.4 million passengers, down 0.2 per cent from the previous year but up 5.6 per cent from the 2012-2016 average.

The average number of commuters per train in 2017 decreased by 10.7 per cent from the previous year.

	Commuter train			
	miles (thousands)	kilometres (thousands)	Average rail commuters per train	Rail commuters in BC, ON, and QC (thousands)
2008	2,832	4,558	340	67,052
2009	2,876	4,628	301	65,962
2010	3,008	4,841	310	68,562
2011	3,171	5,103	255	68,427
2012	4,356	7,011	342	71,522
2013	4,477	7,205	287	72,002
2014	4,610	7,419	276	75,901
2015	4,022	6,473	297	77,233
2016	4,448	7,159	298	79,626
2017	**4,633**	**7,456**	**266**	**79,438**



INTERCITY PASSENGER RAIL

In 2017, intercity passenger railways transported 4.7 million people, up 10.2 per cent from 2016 and 11.6 per cent above the average for 2012-2016.

In the intercity passenger rail sector, passenger-miles and passenger train-miles increased by 11.0 and 2.4 per cent, respectively, year over year. The average number of intercity passengers per train grew by 8.4 per cent to 138, while the average length of journey increased by 0.5 per cent to 217 miles (349.2 kilometres).

	Passenger cars in service	Number of passengers (thousands)	Passenger miles (millions)	Passenger kilometres (millions)
2008	540	4,899	986	1,588
2009	559	4,538	894	1,439
2010	545	4,477	877	1,412
2011	544	4,461	888	1,428
2012	542	4,246	871	1,402
2013	552	4,186	861	1,386
2014	552	4,094	834	1,343
2015	551	4,171	857	1,380
2016	527	4,241	876	1,409
2017	**512**	**4,673**	**972**	**1,564**

	Passenger train		Passenger car	
	miles (thousands)	kilometres (thousands)	miles (thousands)	kilometres (thousands)
2008	7,414	11,932	49,140	79,083
2009	7,334	11,803	47,290	76,106
2010	7,331	11,799	46,275	74,472
2011	7,273	11,705	48,239	77,633
2012	7,075	11,386	48,725	78,415
2013	6,809	10,958	43,673	70,285
2014	6,720	10,814	41,587	66,928
2015	6,781	10,913	43,843	70,559
2016	6,850	11,024	44,884	72,234
2017	**7,016**	**11,291**	**46,237**	**74,410**

	Average intercity passengers per train	Average length of journey		Average passenger load factor (%)	On-time performance (%)
		miles	kilometres		
2008	133	206	332	59	75
2009	122	203	327	57	83
2010	120	204	328	57	82
2011	122	204	328	55	84
2012	123	213	342	54	82
2013	126	214	344	56	82
2014	124	213	342	60	76
2015	126	213	343	56	71
2016	128	216	348	54	73
2017	**138**	**217**	**349**	**57**	**73**

FINANCIAL INFORMATION, INVESTMENTS AND TAXES

OPERATING EXPENSES, REVENUES AND INCOME

In 2017, Canada's railways' operating expenses increased by 6.3 per cent to $10.3 billion. Lower expenses for maintenance-of-way and structures, and general administration were outweighed by higher costs for transportation, fuel, and equipment maintenance.[14]

Year over year, operating revenues increased by 7.8 per cent to $15.2 billion, as freight, passenger and other revenues all increased.[15]

As a result, the total operating income of Canada's railways in 2017 was a record-high $5.0 billion.[16]

Operating income ($ millions) | **Operating revenues ($ millions)**

	Total operating revenues	Total operating expenses	Total operating income	Freight	Passenger	Other
2008	**11,197**	**9,167**	**2,030**	9,957	661	579
2009	**9,599**	**8,352**	**1,247**	8,433	627	539
2010	**10,768**	**9,171**	**1,598**	9,551	673	544
2011	**11,533**	**9,774**	**1,760**	10,305	668	561
2012	**12,633**	**10,575**	**2,058**	11,322	674	637
2013	**13,330**	**10,380**	**2,948**	12,040	668	622
2014	**14,653**	**11,431**	**3,218**	13,287	687	679
2015	**14,679**	**10,468**	**4,211**	13,265	727	680
2016	**14,112**	**9,641**	**4,471**	12,649	783	680
2017	**15,219**	**10,251**	**4,968**	**13,598**	**923**	**696**

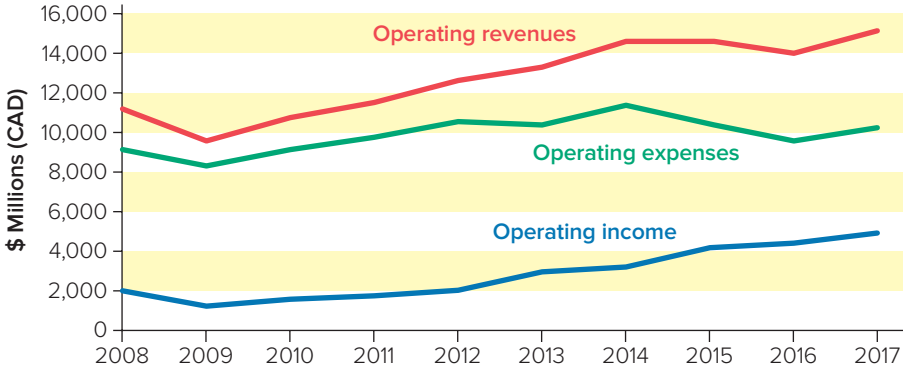
Operating expenses ($ millions)

	Transportation	Fuel	Maintenance of equipment	Maintenance-of-way and structures	General and administrative	Total
2008	2,376	2,032	1,564	1,718	1,477	9,167
2009	2,065	1,212	1,555	1,612	1,908	8,352
2010	2,195	1,464	1,452	1,766	2,294	9,171
2011	2,381	1,854	1,570	1,910	2,059	9,774
2012	2,534	2,002	1,549	1,873	2,617	10,575
2013	2,521	2,061	1,698	1,968	2,132	10,380
2014	2,976	2,340	1,876	2,109	2,131	11,431
2015	2,508	1,624	1,870	2,315	2,153	10,468
2016	2,591	1,330	1,958	2,013	1,749	9,641
2017	**2,903**	**1,636**	**2,077**	**1,999**	**1,683**	**10,251**

14 Transportation costs are expenses incurred through the movement of rolling stock (locomotives, railcars, etc.) that are not reported under other operating expense categories.

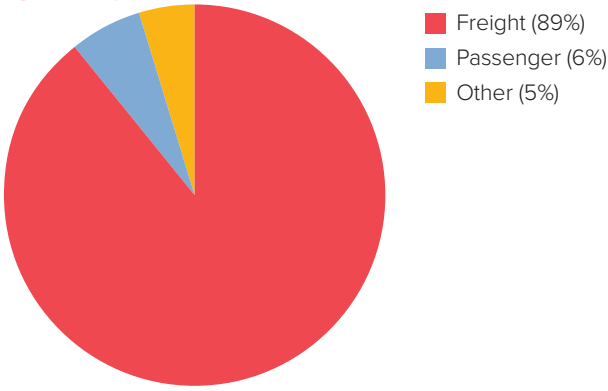
15 Federal, provincial and municipal funding of $435 million in 2009 for intercity passenger and commuter services is excluded.

16 Operating income reflects earnings before interest and taxes.

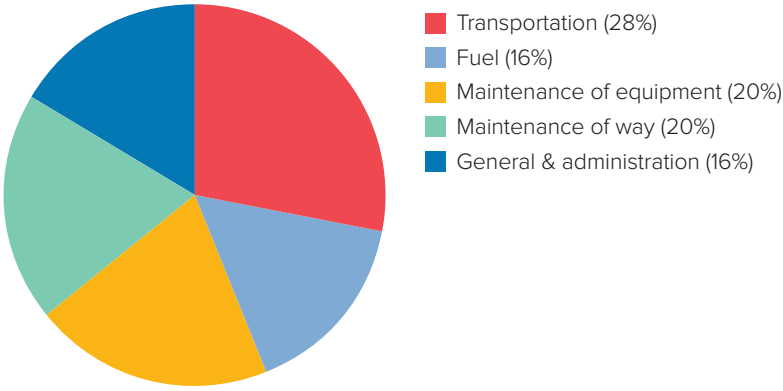


The charts below illustrate operating revenues and expenses by category as a percentage of RAC member railway totals in 2017.

Operating revenues



Operating expenses



INVESTMENTS

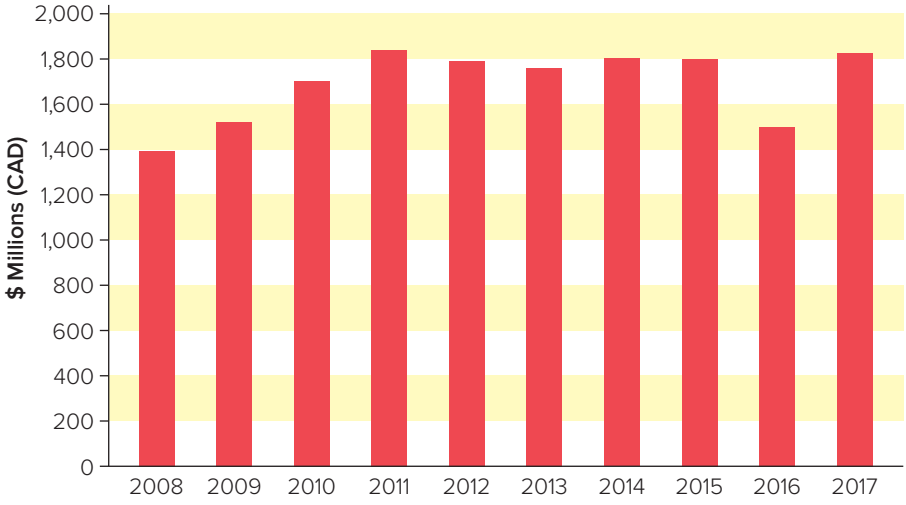
Canada's railways invested close to $1.83 billion into their Canadian networks in 2017, up 21.7 per cent from the previous year and 5.3 per cent from the 2012-2016 average. Track and roadway reflected the majority (53.8%) of capital expenditures in 2017.

Investments ($ millions)

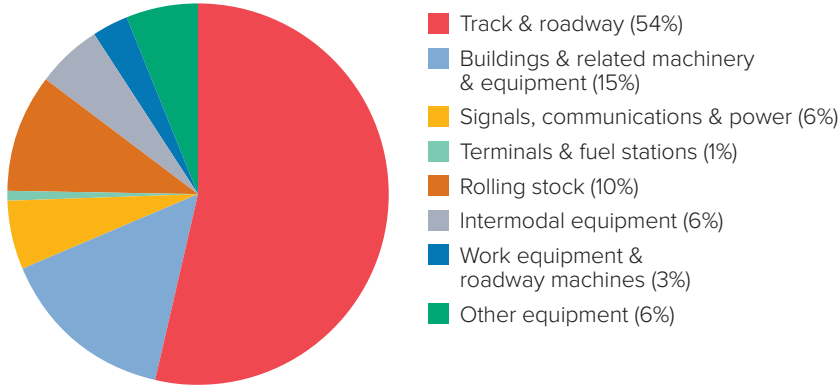
	Track & roadway	Buildings & related machinery & equipment	Signals, communications & power	Terminals & fuel stations
2008	688	189	79	26
2009	706	257	72	24
2010	804	231	109	16
2011	971	314	108	15
2012	961	269	122	41
2013	892	357	100	32
2014	982	287	93	10
2015	888	309	130	26
2016	771	298	102	8
2017	**981**	**275**	**104**	**15**

	Rolling stock	Intermodal equipment	Work equipment & roadway machines	Other equipment	Total investments
2008	290	29	68	22	1,391
2009	317	34	42	72	1,524
2010	427	15	49	55	1,706
2011	307	11	53	64	1,844
2012	255	22	49	77	1,795
2013	239	17	50	77	1,764
2014	230	53	48	102	1,806
2015	233	61	92	62	1,801
2016	145	53	55	70	1,500
2017	**182**	**102**	**57**	**109**	**1,825**

Investments



The chart below illustrates investments by category as a percentage of all investments made by RAC member railways in 2017.

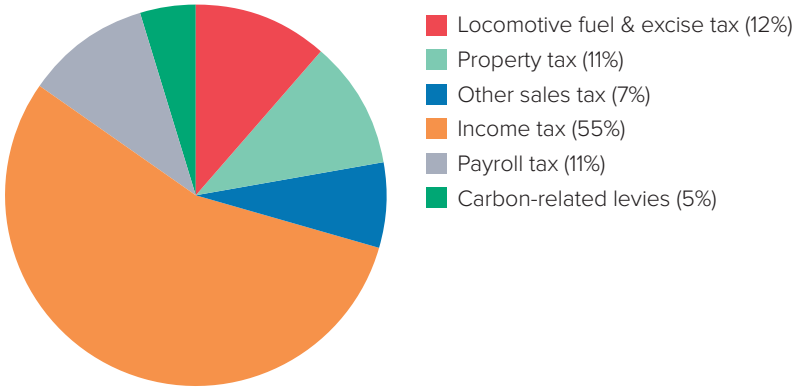


TAXES

In 2017, Canada's railways paid a record-high $1.7 billion in taxes, up 1.4 per cent from the previous year. The main contributor to this increase was an 82 per cent – $35 million – increase in carbon-related levies from the previous year.

Taxes by category ($ millions)

	Locomotive fuel & excise tax	Property tax	Other sales tax	Capital tax & customs duties	Income tax	Payroll taxes	Carbon related levies	Total
2008	187	152	99	14	323	155	0	930
2009	177	152	97	14	265	148	0	853
2010	195	150	96	14	185	147	0	787
2011	204	153	70	0	372	158	0	957
2012	220	158	70	0	159	170	0	777
2013	219	169	43	1	629	150	0	1,209
2014	186	179	65	1	462	154	44	1,091
2015	159	168	115	3	775	178	45	1,442
2016	187	180	114	1	976	167	43	1,667
2017	**196**	**184**	**122**	**0**	**938**	**181**	**78**	**1,699**



Payroll taxes ($ millions)

	Canada/Quebec Pension Plan	Unemployment insurance	Health taxes	Total
2008	77	33	45	155
2009	74	30	44	148
2010	73	31	43	147
2011	77	34	47	158
2012	84	37	49	170
2013	75	32	43	150
2014	77	37	40	154
2015	82	36	53	171
2016	79	37	50	167
2017	**92**	**36**	**52**	**180**

Taxes by jurisdiction ($ thousands)

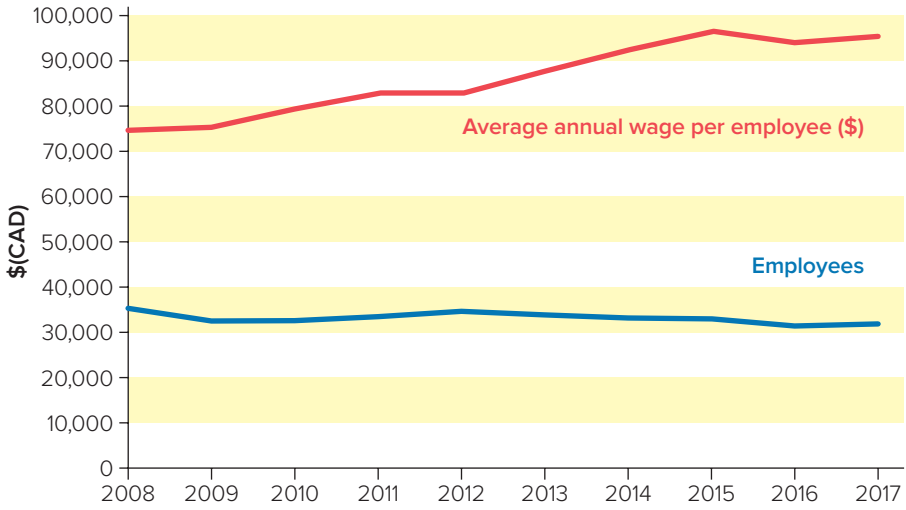
	Locomotive fuel & excise tax			Fuel tax per litre (cents)	Property tax		
	2015	**2016**	**2017**	**2017**	**17,769**	**19,020**	**19,702**
Alberta	6,944	17,827	18,689	5.5	43,947	46,610	49,448
British Columbia	15,425	15,393	15,668	11.95	15,549	15,407	15,831
Manitoba	11,421	10,046	10,360	6.3	33	145	68
Nfld. & Labrador	0	0	0	21.5	1,184	1,091	1,162
New Brunswick	1,252	1,279	1,273	4.3	3,017	3,021	2,902
Nova Scotia	0	0	0	15.4	30,162	32,327	32,098
Ontario	25,889	23,052	23,671	4.5	36,102	40,780	40,589
Quebec	6,706	3,296	2,620	3	20,655	21,537	21,887
Saskatchewan	40,442	38,976	40,847	15	80	79	122
Northwest Territories	22	16	17	11.4	0	0	0
Federal	50,769	76,685	82,547	4	168,497	180,016	183,809
Total	158,871	186,570	**195,691**		168,497	158,871	**180,016**

	Other sales tax			Capital tax & customs duties			Income tax		
	2015	**2016**	**2017**	**2015**	**2016**	**2017**	**2015**	**2016**	**2017**
Alberta	0	85	40	0	1	1	66,715	87,457	91,648
British Columbia	36,443	38,809	41,126	0	0	0	23,435	34,057	33,458
Manitoba	21,986	17,732	17,022	132	99	20	8,820	10,162	12,127
Nfld. & Labrador	143	143	149	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	412	470
Ontario	1,785	1,282	695	0	0	0	63,694	93,927	88,257
Quebec	16,573	17,599	18,373	0	10	20	28,428	31,910	31,376
Saskatchewan	11,261	9,081	12,944	65	77	71	16,466	19,419	22,948
Northwest Territories	0	0	0	0	0	0	0	0	0
Federal	26,723	28,936	31,921	2,422	1,016	0	567,329	698,681	657,886
Total	114,914	113,667	**122,270**	2,619	1,203	**112**	774,888	976,026	**938,170**

EMPLOYMENT

In 2017, the Canadian railway industry's workforce increased by 2.2 per cent year over year, while compensation increased by 4 per cent.[17] As a result, the average annual wage per employee increased by 1.8 per cent to $95,582.

	Total compensation ($ millions)	Average number of employees	Average annual wage per employee ($)
2008	2,633	35,208	74,790
2009	2,439	32,337	75,415
2010	2,584	32,565	79,346
2011	2,797	33,624	83,163
2012	2,870	34,629	82,883
2013	2,924	33,167	88,153
2014	3,023	32,681	92,491
2015	3,101	32,958	96,445
2016	2,920	31,103	93,896
2017	**3,038**	**31,780**	**95,582**



17 Compensation includes salaries and compensation paid, but excludes company paid benefits such as the Canada/Quebec Pension Plan, unemployment insurance and health taxes.

TRACK AND EQUIPMENT

In 2017, Canadian freight railways operated 26,413 miles (42,507 kilometres) of track, down 2.4 per cent from the previous year.[18] The decrease was due to less track mileage reported by RAC member railways. The industry's freight car fleet shrunk by 1.3 per cent in 2017, mainly due to railways owning fewer railcars. The number of locomotives in service increased by 10.5 per cent year over year.

	Miles	Kilometres	Index 2000 = 100	Freight cars in service	Locomotives in service
2008	29,366	47,258	101.4	83,984	3,046
2009	28,163	45,323	97.3	75,836	2,742
2010	27,654	44,501	95.5	71,788	2,954
2011	27,102	43,617	93.6	71,750	2,977
2012	26,923	43,328	93.0	64,485	3,063
2013	27,270	43,887	94.2	59,395	3,043
2014	27,304	43,942	94.3	58,577	2,696
2015	27,428	44,141	94.7	59,509	2,400
2016	27,069	43,562	93.5	55,230	2,315
2017	**26,444**	**42,552**	**91.3**	**55,357**	**2,842**

Track operated, by provinces and territories

	2015		2016		2017	
	Miles	Kilometres	Miles	Kilometres	Miles	Kilometres
Alberta	3,988	6,418	3,940	6,341	3,941	6,342
British Columbia	4,218	6,788	4,170	6,710	4,140	6,663
Manitoba	2,847	4,582	2,816	4,532	2,151	3,462
Nfld. & Labrador	175	282	175	282	175	282
New Brunswick	720	1,159	720	1,159	718	1,156
Nova Scotia	419	674	416	670	401	646
Ontario	6,271	10,092	6,222	10,013	6,332	10,190
Quebec	3,662	5,893	3,694	5,944	3,669	5,905
Saskatchewan	5,053	8,132	4,841	7,790	4,841	7,790
Northwest Territories	75	121	75	121	75	121
Total	27,428	44,141	27,069	43,562	**26,444**	**42,557**
Intercity passenger trains[19]	7,922	12,749	7,767	12,500	7,453	11,995
Commuter and tourist trains[20]	2,955	4,736	3,024	4,867	3,011	4,846
Segments terminating in the U.S.[21]	152	244	152	244	152	244
Grand total	38,457	61,870	38,012	61,174	**37,060**	**59,643**

18 Miles (kilometres) of track operated includes rail over which a railway has operating rights. Segments of track acquired by non-RAC-member railways would have the effect of reducing the total track mileage reported in *Rail Trends*.

19 Reflects intercity passenger railways' track and operating rights over track owned by other railways.

20 Reflects commuter and tourist railways' track and operating rights over track owned by other railways.

21 Reflects railway subdivisions that begin in Canada and terminate in the United States.

APPENDIX A
GLOSSARY

Class 1 railway: A railway with annual operating revenues exceeding $250 million for two consecutive years.

Container: A large, weatherproof box designed for shipping and/or transferring freight between rail, truck or marine modes. Specialized containers are equipped with heating and cooling capabilities for perishable products.

Dangerous goods: Explosives, gases, flammable and combustible liquids, flammable solids, oxidizing substances, organic peroxides, poisonous (toxic) and infectious substances, nuclear substances, corrosives, or miscellaneous products, substances or organisms considered by the Governor in Council to be dangerous to life, health, property or the environment when handled, offered for transport or transported.[22]

Fuel efficiency: The output one gets for a unit amount of fuel input, such as "revenue ton-miles per gallon" for rail.

Gross ton-miles: The movement of total train weight over a distance of one mile. Total train weight is comprised of the freight cars, their contents and any inactive locomotives. It excludes the weight of the locomotives pulling the trains.

Intermodal service: The movement of trailers or containers by rail and at least one other mode of transportation. Import and export containers generally are shipped via marine and rail. Domestic intermodal service usually involves truck and rail.

On-time performance: The ability to meet customer requirements as to pick-up and delivery schedules.

Passenger-mile: The movement of a passenger the distance of one mile. Passenger-miles are used to measure the volume of passenger traffic.

Revenue ton-miles: The movement of one revenue-producing ton of freight over a distance of one mile.

Shortline railway: A railway with annual operating revenues of less than $250 million for two consecutive years.

Track operated: The first main track over which a railway operates. This excludes second and other main track, passing tracks and crossovers, industrial tracks, spurs and yard tracks. Excludes track used by intercity passenger trains, commuter and tourist trains, and segments of track terminating in the U.S.

Train-mile: The movement of a train the distance of one mile.

22 Source: *Canadian Transportation of Dangerous Goods Regulations*, section 1.4..

APPENDIX B
CONVERSION FACTORS

Miles to kilometres	1.6093
Tons (short) to metric tonnes	0.9072
Gallons to litres	4.5461
Revenue ton-miles to revenue tonne-kilometres	1.4599
Kilometres to miles	0.6214
Metric tonnes to tons (short)	1.1023
Litres to gallons	0.2200
Revenue tonne-kilometres to revenue ton-miles	0.6850

APPENDIX C
SAFETY 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.

Reportable railway accident
An incident in which:

1. 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;
2. 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.

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 of a train's cars 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 product. Also included are crossing accidents in which the motor vehicle involved (e.g., tanker truck) is carrying a dangerous good.

Crossing accident
A crossing accident is when a locomotive or railcar is involved in a collision with a motor vehicle or pedestrian at a railway crossing, resulting in death, serious injury or property damage.

Trespassing accident
Trespassing accidents occur when people – primarily pedestrians who are not authorized to be on railway rights-of-way – are struck by locomotives or railway cars anywhere other than at railway crossings.

Other accident types
Other accident types include, but are not limited to, trespassing, collisions/derailments involving track units, rolling stock collisions with objects, or employee/passenger accidents.