



Railway Association  
of Canada

# RAIL TRENDS | 2016



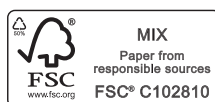


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# MEMBER COMPANIES

## 2015

	6970184 Canada	<b>HCRY</b>	Huron Central Railway
<b>AMT</b>	Agence métropolitaine de transport	<b>KRC</b>	Keewatin Railway
<b>APR</b>	Alberta Prairie Railway Excursions	<b>KFR</b>	Kettle Falls International Railway
<b>AMTK</b>	Amtrak	<b>KLTR</b>	Knob Lake and Timmins Railway
<b>AMIC</b>	ArcelorMittal Mines Canada	<b>LMR</b>	Last Mountain Railway
<b>BCRY</b>	Barrie-Collingwood Railway	<b>GO</b>	Metrolinx
<b>BRR</b>	Battle River Railway	<b>NBSR</b>	New Brunswick Southern Railway
<b>BCR</b>	British Columbia Railway	<b>NCR</b>	Nipissing Central Railway
<b>BS</b>	Big Sky Rail	<b>NS</b>	Norfolk Southern Railway
<b>BNSF</b>	BNSF Railway	<b>ONR</b>	Ontario Northland Railway
<b>CBNS</b>	Cape Breton & Central Nova Scotia Railway	<b>OSR</b>	Ontario Southland Railway
<b>CR</b>	Capital Railway	<b>OBRY</b>	Orangeville-Brampton Railway
<b>CTRW</b>	Carlton Trail Railway	<b>OVR</b>	Ottawa Valley Railway
<b>CMQ</b>	Central Maine & Québec Railway	<b>PDCR</b>	Prairie Dog Central Railway
<b>CEMR</b>	Central Manitoba Railway	<b>CFQG</b>	Quebec Gatineau Railway
<b>CFC</b>	Charlevoix Railway	<b>QNSL</b>	Quebec North Shore and Labrador Railway
<b>CFA</b>	Chemin de fer Arnaud	<b>CFRR</b>	Romaine River Railway
<b>CN</b>	CN	<b>SCFG</b>	Société du chemin de fer de la Gaspésie
<b>CFL</b>	Compagnie du chemin de fer Lanaudière	<b>SSR</b>	South Simcoe Railway
<b>CP</b>	Canadian Pacific	<b>SOR</b>	Southern Ontario Railway
<b>RS</b>	Compagnie du chemin de fer Roberval-Saguenay	<b>SRY</b>	Southern Railway of British Columbia
<b>CSX</b>	CSX Transportation	<b>SLQ</b>	St. Lawrence & Atlantic Railroad
<b>EMRY</b>	Eastern Maine Railway	<b>SSRY</b>	Stewart Southern Railway
<b>ETR</b>	Essex Terminal Railway	<b>SCR</b>	Sydney Coal Railway
<b>GEXR</b>	Goderich-Exeter Railway	<b>TTR</b>	Toronto Terminals Railway
<b>RMR</b>	Great Canadian Railtour Company	<b>TSH</b>	Tshietin Rail Transportation
<b>GSR</b>	Great Sandhills Railway	<b>VIA</b>	VIA Rail Canada
<b>GWR</b>	Great Western Railway	<b>WCE</b>	West Coast Express
<b>HBRY</b>	Hudson Bay Railway	<b>WP&amp;YR</b>	White Pass and Yukon Route Railroad

# ASSOCIATE MEMBERS

## 2015

Absopulse Electronics	Hewitt Equipement
Accuworx	IBI Group
Alexander Holburn Beaudin & Lang LLP	Kenneth Peel
Almita Piling	Loram
Amsted Rail	McCarthy Tétrault
Atlantic Industries Limited	Mecfor
Bayside Canadian Railway	Montréal Port Authority
BCIT	NARSTCO
Bombardier Transportation	Newalta Industrial Services
Canada Heavy Haul Railway	North American Rail Safety
United Technologies	Ontario Steel Haulers
Canadian Heartland Training Railway Services	PNR Railworks
Canadian Rail Research Laboratory	Quantum Murray LP
Canadian Urban Transit Association	Rail Cantech
Céjép Sept-Iles	Raildecks
CentrePort Canada	RailTerm
Consultants F. Drapeau	RB&C Maintenance of Way
Contrans Flatbed Group	Red Giant Oil Company
CPCS Transcom Limited	Red River College
Crescent Point Energy	Réparations ferroviaires K.L.N.
CSTP	Resolute Forest Products
Davanac	RTC Rail Solutions
Dominion Railway Services	Sandy Cooke Consulting
Drain-All	Secure Energy
Elbow River Marketing	SKF Lincoln Lubricators
Entretien Ferroviaire Boivin	Soulanges Railway Services
Envirotec Services Incorporated	Stantec
Ferus Natural Gas Fuels	Supco Canada Railway Supply Group
FLO Components	T-Rail Products
Forma-Train	TTX Railcar Canada
Gaz Propane Rainville	Vidal Street Industrial Park
Gestion AFM-Séma	Whiting Equipment Canada
HDR Engineering	X-Rail Signalisation

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# PRESIDENT'S MESSAGE



Canada's railways had some remarkable achievements across all areas of railroading in 2015. The performance data contained in *Rail Trends 2016* illustrates these accomplishments and more, but it doesn't tell the whole story.

In 2015, the industry launched a series of key safety improvements, especially in the areas of transparency, training and outreach. That year, Canada's railways held more than 50 safety-related public meetings

with mayors, city managers and First Nations chiefs from coast to coast, and shared information about the goods moving through 590 communities, to help first responders prepare and plan for a rail incident. In addition, the industry launched the **AskRail™** mobile app, aimed at providing emergency responders with real-time information about a train's railcar contents in the event of an emergency. Moreover, Canada's railways trained more than 6,000 first responders, railway employees and industrial plant workers on dangerous goods handling and emergency response. This is on top of the more than 160 first responders that the industry sponsored to receive rail-specific dangerous goods training in Pueblo, Colo. and at the Justice Institute of British Columbia.

In addition to these safety measures, our members continue to invest in technologies and initiatives to reduce fuel consumption and thus emit fewer greenhouse gases, and demonstrate that railways can be part of Canada's climate change solution.

Despite year-over-year declines in freight traffic in 2015, investment levels have remained high and rates have stayed low. These trends, combined with the industry's safety and sustainability initiatives, show that Canada's railways will continue to deliver exceptional service to their customers now and into the future.

Sincerely,

A stylized, handwritten signature in blue ink, appearing to read 'Michael Bourque'.

Michael Bourque  
President and Chief Executive Officer  
Railway Association of Canada

# FOREWORD

This is the 24<sup>th</sup> edition of *Rail Trends*, the Railway Association of Canada's (RAC) annual report on the performance of Canada's freight and passenger railways. This publication contains a rolling 10-year review of financial and statistical results, reflecting multiple aspects of railway performance in Canada.

The data in *Rail Trends* comes from RAC members-companies – Class 1 and shortline freight railways, as well as tourist, intercity and commuter passenger rail service providers. In some cases, relative variations reflect a change in the way certain members report data.

Canadian Class 1 freight railways (CN and CP) account for the majority of Canadian freight rail activity. For that reason, most of the data presented in *Rail Trends* reflects Class 1 carriers. While RAC represents the vast majority of non-Class 1 railways in Canada, it does not represent that entire sector.

Data reflects performance in Canada only. Figures may not add up to totals due to rounding. Definitions of railway terms appear in Appendix A, and safety-specific definitions are provided in Appendix C.

A detailed profile of railway industry performance by province is available at [www.railcan.ca](http://www.railcan.ca).

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

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

## Statistical summary (year-over-year and 10-year comparisons)

	2006	2014	2015
Revenue ton-miles (billions)	244	306	283
Revenue tonne-kilometres (billions)	356	447	413
Miles of rail operated <sup>1</sup>	29,978	27,304	27,428
Kilometres of rail operated	48,243	43,942	44,141
Locomotives	3,271	2,700	2,400
Freight cars (000)	100	59	60
Gallons of fuel (millions)	486	484	470
Litres of fuel (millions)	2,210	2,201	2,136
Employees	34,558	32,681	32,958
Annual wage per employee (\$)	73,356	92,491	96,445

<sup>1</sup> Miles (kilometres) of rail operated includes rail over which a railway has operating rights.



# SAFETY

Canada's railways are among the safest in North America. The industry has invested more than \$20 billion since 1999 to ensure the safety of its infrastructure—including investments in innovative safety technologies that have led to significantly lower accident rates. Between 2011 and 2015, Canada's freight rail accident rate declined by 2.4 per cent, while its passenger rail accident rate fell by 6.1 per cent.

Excluding crossing and trespassing accidents, non-main-track collisions and derailments accounted for more than three quarters of all railway accidents in 2015. Most non-main-track accidents are minor and occur during switching operations at speeds of less than 10 m.p.h.

**NOTE:** Rail Trends safety data reflects the performance of RAC's federally and provincially regulated freight and passenger member-railways. The data in this section comes from the Transportation Safety Board of Canada (TSB) and RAC. The TSB maintains a database of safety performance statistics on federally regulated railways, as well as provincially regulated railways that voluntarily report their data. RAC collects similar statistics for its member-railways. Each organization uses the same safety definitions, and the data reflects railway operations in Canada only.

## Safety summary (year-over-year and 10-year comparisons)

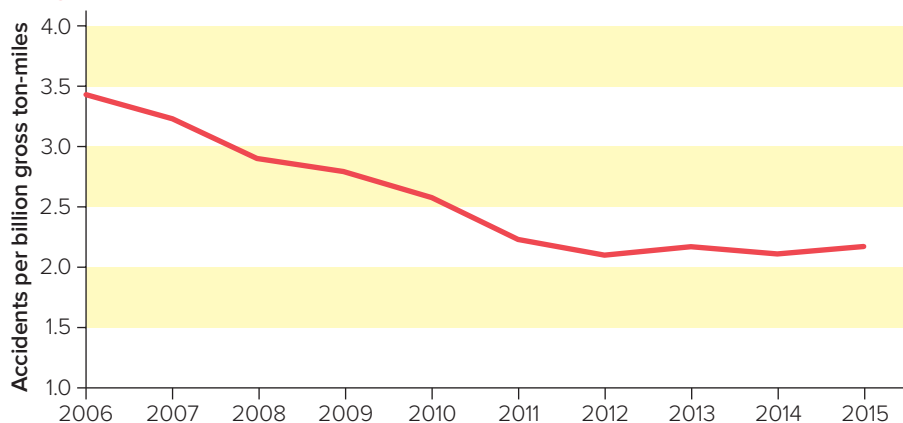
	2006	2014	2015
Main-track collisions	3	8	4
Main-track derailments	162	105	80
Crossing accidents	280	184	180
Non-main track collisions	110	114	95
Non-main track derailments	849	654	679
Collisions/derailments involving track units	23	34	53
Employee/passenger accidents	21	13	15
Trespassing accidents	122	56	52
Fires/explosions	26	37	32
Other accident types	46	47	63
<b>Total accidents</b>	<b>1642</b>	<b>1252</b>	<b>1253</b>

## FREIGHT

In 2015, the freight sector's accident rate<sup>2</sup> increased by 3.2 per cent to 2.18 accidents per billion gross ton-miles (BGTM) from the previous year. This accident rate was 2.7 per cent lower than the five-year average of 2.24. Since 2006, the freight sector's accident rate has fallen by 36.4 per cent, or an average of more than 4 per cent each year.

	Freight accidents	BGTM	Accident rate
2006	1578	459.63	3.43
2007	1497	463.36	3.23
2008	1304	449.92	2.90
2009	1104	397.29	2.78
2010	1155	447.05	2.58
2011	1057	473.31	2.23
2012	1060	503.88	2.10
2013	1149	529.38	2.17
2014	1191	564.31	2.11
<b>2015</b>	<b>1187</b>	<b>544.79</b>	<b>2.18</b>

### Freight accident rate



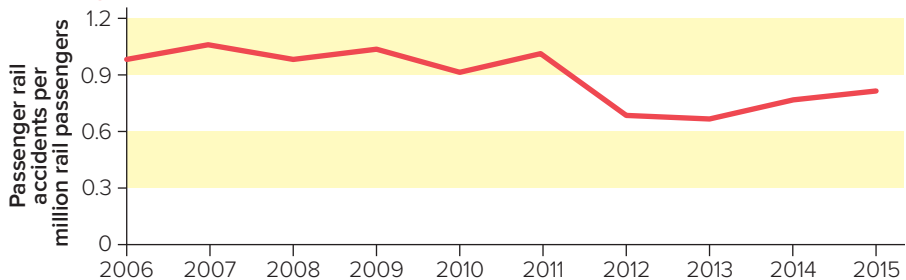
<sup>2</sup> Calculated by dividing the number of reportable freight rail accidents by the freight sector's workload in gross ton-miles.

## PASSENGER

In 2015, the passenger rail sector's accident rate<sup>3</sup> increased by 6.3 per cent from the previous year and was in line with the five-year average of 0.81 accidents per million rail passengers. Since 2006, the passenger sector's accident rate has fallen by 17.3 per cent.

	Total Accidents	Intercity passengers (000)	Commuter passengers (000)	Tourist passengers (000)	Total passengers (000)	Accident rate
2006	64	4,320	60,634	360	65,314	0.98
2007	72	4,478	63,393	378	68,249	1.05
2008	71	4,899	67,052	352	72,303	0.98
2009	73	4,538	65,962	175	70,675	1.03
2010	67	4,477	68,562	222	73,261	0.91
2011	74	4,461	68,427	192	73,080	1.01
2012	52	4,246	71,522	214	75,982	0.68
2013	51	4,250	72,002	215	76,467	0.67
2014	61	4,094	75,901	371	80,366	0.76
2015	66	4,171	77,233	363	81,767	0.81

### Passenger accident rate



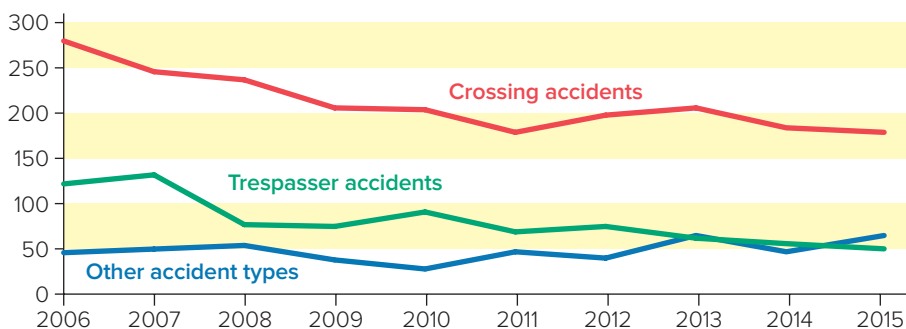
<sup>3</sup> Calculated by dividing the number of passenger rail accidents by the total number of intercity and tourist passengers and rail commuters.

## CROSSING AND TRESPASSING ACCIDENTS

Accidents at grade crossings and trespassing on railway property are the two most pressing public safety issues associated with rail operations in Canada. These accidents account for more than 85 per cent of rail-related deaths and serious injuries in Canada each year, have tragic consequences for all involved, and hinder the performance of our country's trade gateways.

In 2015, the number of crossing accidents decreased by 2.2 per cent from the previous year, and was down 7.3 per cent from the 2010-2014 average of 194. Trespassing accidents fell by 7.1 per cent, year over year, and dropped by 26.3 per cent from the five-year average of 71.

	Crossing accidents	Trespassing accidents	Other accident types
2006	280	122	46
2007	246	132	50
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
<b>2015</b>	<b>180</b>	<b>52</b>	<b>63</b>



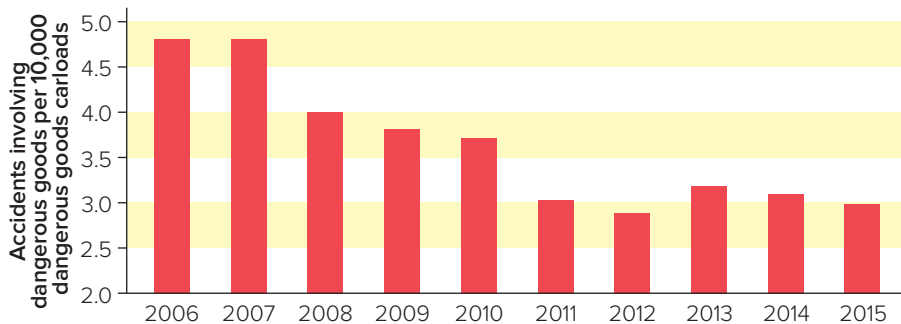
*Operation Lifesaver (OL) is an organization sponsored by Canada's railway industry and Transport Canada, which works to raise awareness about the hazards surrounding rail property and trains. In 2015, OL's network of 65 volunteers conducted more than 600 presentations and other activities across Canada about the importance of public-rail safety.*

## ACCIDENTS INVOLVING DANGEROUS GOODS

In 2015, the industry's accident rate involving dangerous goods<sup>4</sup> fell by 3.8 per cent from the previous year, and was 6.2 per cent lower than the 2010-2014 average.<sup>5</sup>

	Total accidents involving dangerous goods	Dangerous goods carloads	Accident rate (accidents per 1,000 dangerous goods carloads)
2006	196	406,425	0.48
2007	206	426,789	0.48
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
<b>2015</b>	<b>147</b>	<b>491,802</b>	<b>0.30</b>

### Accidents involving dangerous goods



*In 2015, RAC's Transportation of Dangerous Goods Team held 97 TRANSCAER® events to inform municipalities about the products being transported through their communities. Seven RAC member companies conducted the events, which drew more than 2,000 first responders.*

<sup>4</sup> "Dangerous goods" are defined in section 2 of the *Transportation of Dangerous Goods Act, 1992*.

<sup>5</sup> Calculated by dividing total accidents involving dangerous goods by the number of dangerous goods carloads moved by Canada's railways.

# FREIGHT TRAFFIC

Each year, Canada's freight railways transport more than \$280 billion worth of goods, including half of the country's exports by volume. Everything, from the food we eat to the cars we drive and the fuel we use to heat our homes, moves by rail.

Freight railway productivity is foundational to the Canadian economy. Businesses in many segments – including agriculture, minerals and consumer goods – rely on safe and efficient rail transportation in order to increase their productivity, remain competitive in global markets and provide well-paying jobs.

Velocity on the Canadian rail network – one of the largest in the world – allows railways to achieve productivity gains, which are passed down to customers in the form of lower rates. In fact, Canada has among the lowest freight rates in the world. Canada's railways have made significant investments in technology and rolling stock, allowing for longer, safer, lower-emitting trains to be operated, and thus more efficient railway movements.

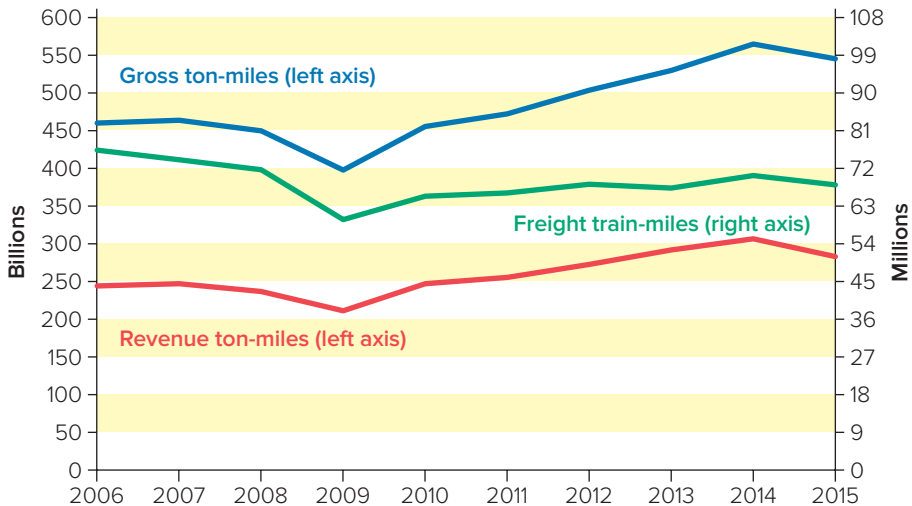




## REVENUE TON-MILES, GROSS TON-MILES AND FREIGHT TRAIN-MILES

In 2015, freight rail traffic, as measured by revenue ton-miles (RTM), declined by 7.5 per cent from the previous year and increased by 3.1 per cent from the 2010-2014 average of 274.6 billion RTM. Year over year, gross ton-miles and freight train-miles fell by 3.5 per cent and 3.2 per cent, respectively.

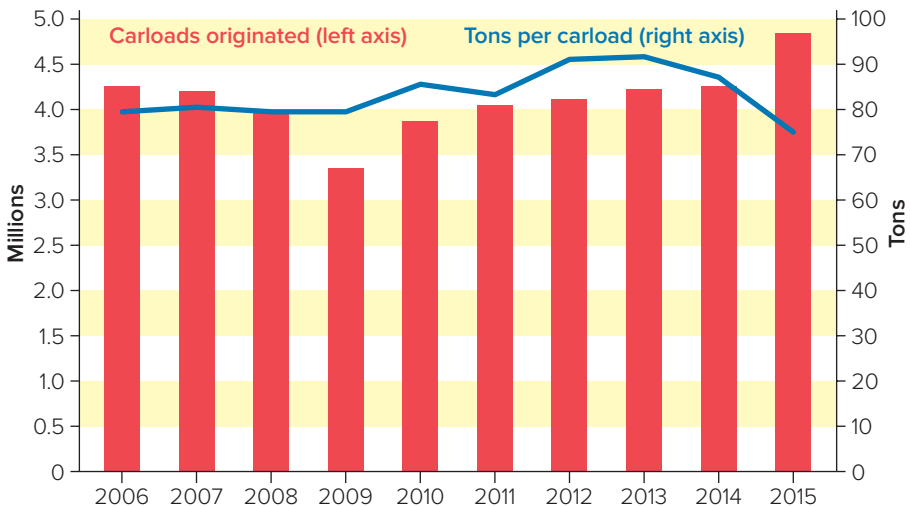
	Revenue ton-miles (millions)	Revenue tonne- kilometres (millions)	Gross ton-miles (millions)	Gross tonne- kilometres (millions)	Freight train miles (000)	Freight train kilometres (000)
2006	243,744	355,831	459,633	670,997	76,451	123,035
2007	247,709	361,619	463,356	676,433	74,100	119,253
2008	237,323	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	455,047	664,303	65,157	104,859
2011	255,001	372,264	473,312	690,960	66,082	106,348
2012	273,504	399,275	503,879	735,590	68,145	109,668
2013	291,172	425,069	529,379	772,816	67,207	108,160
2014	306,282	447,127	564,313	823,815	70,313	113,157
2015	283,188	413,414	544,791	795,315	68,044	109,506



## CARLOADS

The number of carloads originated in Canada grew by 14.0 per cent in 2015 from the previous year, led by intermodal goods. However, the overall weight of freight transported fell by 2.1 per cent, as railways carried fewer heavy commodities such as coal. As a result, the tonnage per carload fell by 14.1 per cent from the previous year. In 2015, the number of carloads was 17.8 per cent higher than the five-year average of 4.1 million carloads, while tonnage was 0.1 per cent higher than the five-year average of 360.9 million tons.

	Carloads originated (000)	Tons originated (000)	Tonnes originated (000)	Tons per carload <sup>6</sup>	Tonnes per carload
2006	4,260	339,394	307,897	80	73
2007	4,196	337,989	306,623	81	73
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



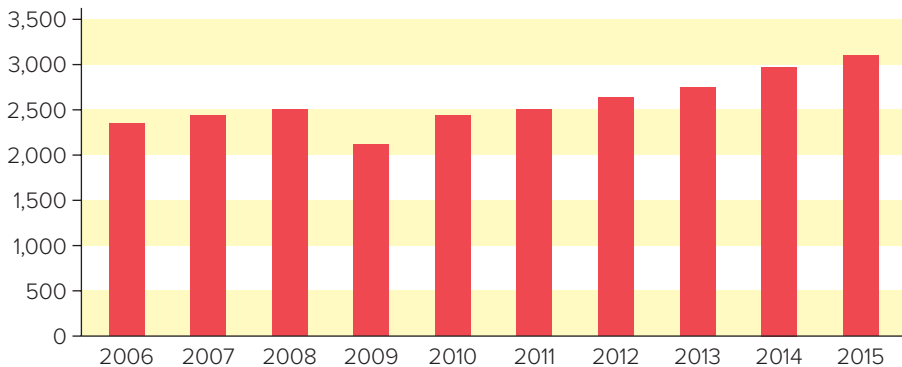
<sup>6</sup> Tons (tonnes) per carload is calculated by dividing tons (tonnes) originated by carloads originated.

## INTERMODAL TRAFFIC

In 2015, total intermodal traffic<sup>7</sup> originated in Canada – including container and trailer traffic – rose by 4.2 per cent from the previous year to a record high. The 2015 total was 16.6 per cent higher than the five-year average of 2.6 million intermodal units.

	Trailers (000)	Containers (000)	Total (000)
2006	106	2,251	2,357
2007	102	2,334	2,436
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
<b>2015</b>	<b>96</b>	<b>3,006</b>	<b>3,103</b>

### Intermodal units originated (000) (containers & trailers)



<sup>7</sup> 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.<sup>8</sup> Based on the number of carloads moved, the largest increases among commodity groupings in 2015 (according to each grouping's year-over-year increase) were intermodal goods (+57.0%), minerals (+26.2%), and manufactured and miscellaneous goods (+10.3%). The largest declines were reported in the coal (-9.7%) and machinery and automotive (-7.7%) groupings.

### Carloads originated by commodity grouping

	Agriculture	Coal	Minerals	Forest products	Metals	Machinery & auto
2006	453,151	321,266	600,823	388,035	362,000	244,395
2007	454,034	349,983	609,422	317,158	359,982	234,830
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
<b>2015</b>	<b>537,013</b>	<b>303,932</b>	<b>854,186</b>	<b>235,169</b>	<b>150,273</b>	<b>178,429</b>

	Fuels & chemicals	Paper products	Food products	Manufactured & miscellaneous	Intermodal	Total
2006	470,833	274,092	41,454	66,333	819,552	4,041,934
2007	470,876	252,150	41,822	65,923	832,663	3,988,843
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
<b>2015</b>	<b>579,131</b>	<b>131,571</b>	<b>64,512</b>	<b>112,194</b>	<b>1,683,988</b>	<b>4,830,398</b>

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

<sup>8</sup> 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 10). The intermodal total is estimated by multiplying the number of intermodal units by an average load factor to determine the equivalent number of carloads.

## FREIGHT REVENUE BY COMMODITY

The freight rail sector's revenue increased by 8.2 per cent to \$10.7 billion in 2015 from 2014.<sup>9</sup> On a revenue basis, the largest increases among commodity groupings (based on each grouping's year-over-year increase) were food products (+29.8%), minerals (+29.7%) and forest products (+22.0%). Year over year, revenues decreased in two groupings: coal (-16.8%) and metals (-2.8%).

### Revenue from carloads originated by commodity grouping (\$ millions)

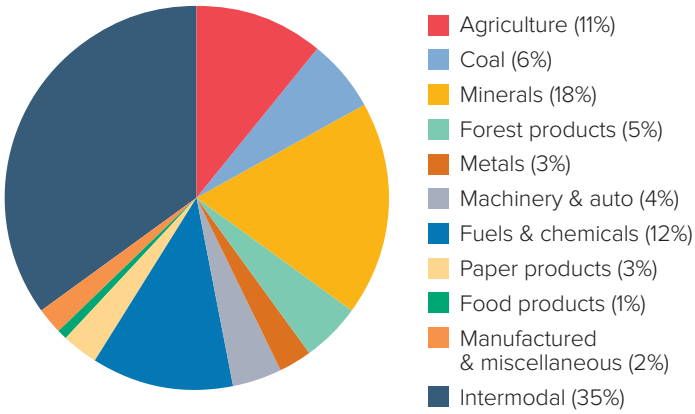
	Agriculture	Coal	Minerals	Forest products	Metals	Machinery & automotive
2006	1,125	676	764	928	489	433
2007	1,157	709	819	780	476	445
2008	1,161	706	833	646	531	443
2009	1,259	502	525	478	317	337
2010	1,221	598	772	500	381	394
2011	1,297	713	898	564	424	381
2012	1,374	749	926	611	455	508
2013	1,433	833	973	660	448	481
2014	1,725	760	1,030	702	501	481
<b>2015</b>	<b>1,871</b>	<b>632</b>	<b>1,336</b>	<b>857</b>	<b>487</b>	<b>541</b>

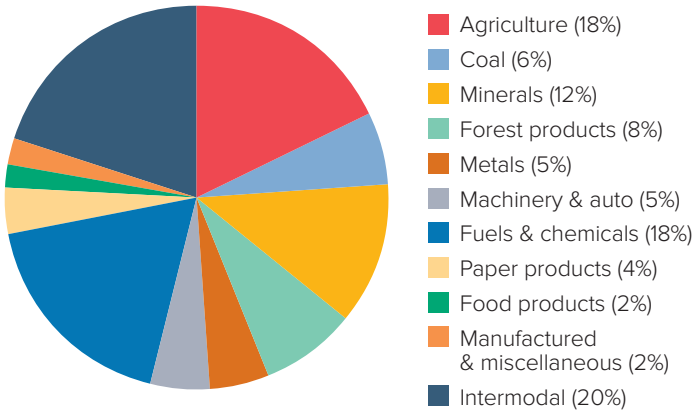
	Fuels & chemicals	Paper products	Food products	Manufactured & miscellaneous	Intermodal	Total
2006	836	582	81	114	2,377	8,405
2007	837	541	81	116	2,452	8,413
2008	902	531	89	126	2,702	8,672
2009	818	423	94	113	2,273	7,139
2010	853	437	128	130	2,592	8,006
2011	928	427	146	133	1,893	7,805
2012	1,155	411	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
<b>2015</b>	<b>1,934</b>	<b>426</b>	<b>235</b>	<b>192</b>	<b>2,171</b>	<b>10,682</b>

<sup>9</sup> 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 22).

The chart below illustrates carloads originated by commodity grouping as a per cent of all commodity carloads in 2015.



The chart below illustrates revenues by commodity grouping as a per cent of all revenues in 2015.





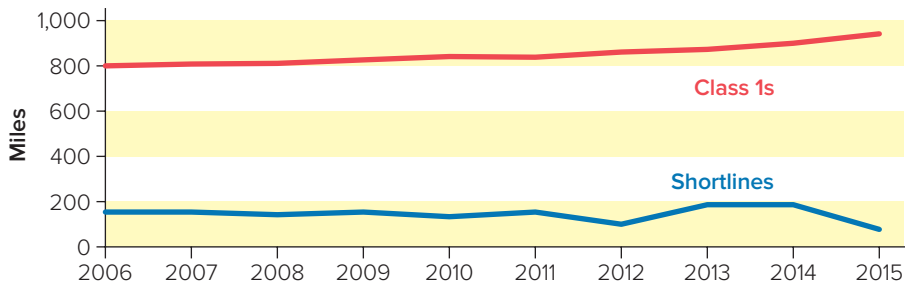
## AVERAGE CARS PER FREIGHT TRAIN AND AVERAGE LENGTH OF HAUL

In 2015, the average length of haul<sup>10</sup> by transcontinental railways (CN and CP) increased by 3.8 per cent to a record high, while the average length of haul by shortline railways fell by 54.3 per cent. The average number of railcars per freight train<sup>11</sup> edged up by 1.7 per cent to a record high of 102 cars.

	Average miles (kilometres) hailed by transcontinental railways (CN and CPR)		Average miles (kilometres) hailed by shortline railways		Average cars per freight train
	Miles	Kilometres	Miles	Kilometres	Cars
2006	803	1,292	159	256	79
2007	807	1,299	151	243	81
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	170	274	81
2012	868	1,396	99	159	90
2013	871	1,402	186	300	99
2014	908	1,462	190	306	100
2015	943	1,517	87	140	102

*Canada's 50-plus shortline railways transport roughly \$20 billion worth of freight — everything from metals, lumber, grain and manufactured goods — to and from continental rail networks, such as CN and CP's, each year. Shortlines invest roughly 12 per cent of their annual revenues into maintaining their own infrastructure, while their main competitor, the trucking sector, operates on publicly funded infrastructure (roads and highways).*

### Average length of haul



<sup>10</sup> Calculated by dividing revenue ton-miles (revenue tonne-kilometres) by revenue tons (revenue tonnes).

<sup>11</sup> Calculated by dividing loaded and empty car-miles (car-kilometres) by train-miles (train-kilometres).

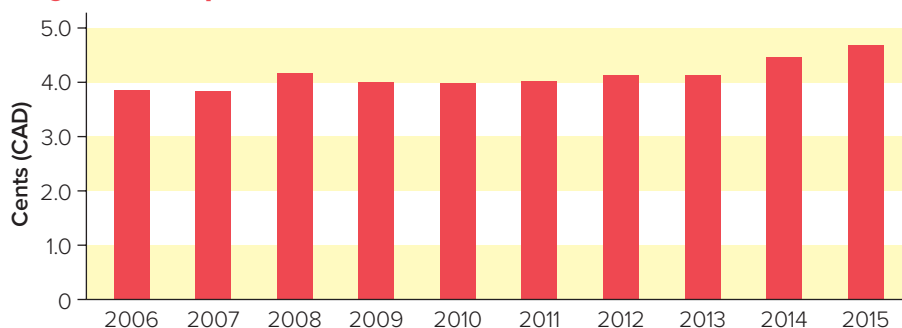
## RATES

Freight revenue per ton-mile<sup>12</sup> 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.

In 2015, freight operating revenue grew slightly from 2014, while freight rail traffic fell by 7.5 per cent. As a result, freight revenue per ton-mile grew by 5.2 per cent from the previous year. Between 2006 and 2015, freight revenue per ton-mile increased by an average of 2.3 per cent each year.

	Freight revenue (cents) per		Freight revenue per ton-mile index	Commodity price index <sup>13</sup>
	ton-mile	tonne-kilometre	2001 = 100	2001 = 100
2006	3.87	2.65	118.3	185.2
2007	3.84	2.63	117.4	197.6
2008	4.2	2.87	128.4	239.5
2009	4	2.74	122.3	160.8
2010	3.99	2.74	122.0	196.7
2011	4.04	2.77	123.5	231.7
2012	4.14	2.84	126.6	217.1
2013	4.13	2.83	126.5	217.2
2014	4.46	3.06	136.5	213.8
<b>2015</b>	<b>4.69</b>	<b>3.21</b>	<b>143.3</b>	<b>136.2</b>

### Freight revenue per ton-mile



<sup>12</sup> Calculated by dividing freight operating revenue by revenue ton-miles (revenue tonne-kilometres).

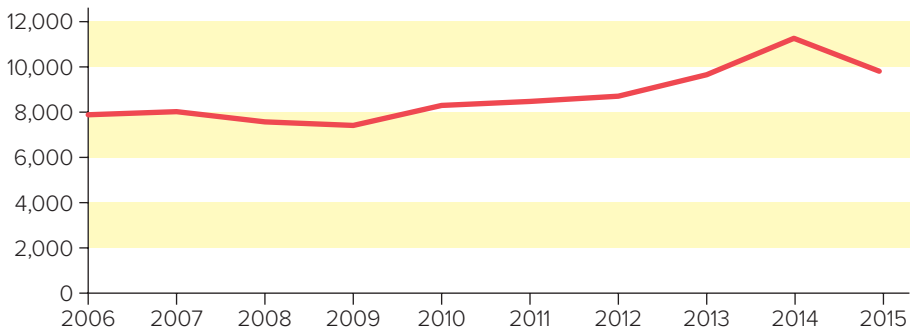
<sup>13</sup> Source: Bank of Canada data.

## PRODUCTIVITY

The best measure of freight railway labour productivity is the rate of revenue ton-miles per employee.<sup>14</sup> By this measure, employee productivity fell by 12.9 per cent in 2015 from a record high in 2014, as traffic decreased and the freight railway workforce grew slightly. Railway productivity in 2015 was up 5.9 per cent from the five-year average of 9.3 million RTM per employee.

	Revenue ton-miles per employee (000)	Revenue tonne-kilometres per employee (000)	Road miles per employee	Road kilometres per employee
2006	7,963	11,625	0.98	1.58
2007	8,045	11,745	0.96	1.54
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	8,496	12,402	0.90	1.46
2012	8,772	12,806	0.86	1.39
2013	9,608	14,026	0.91	1.47
2014	11,302	16,499	0.84	1.35
2015	9,839	14,363	0.83	1.34

### RTM per employee (000)



<sup>14</sup> Calculated by dividing the annual sum of revenue-producing tonnage by the average number of freight railway employees.

## FUEL CONSUMPTION AND COST

Canada's railways are highly efficient and low emitters of greenhouse gas (GHG) emissions. A train can move a tonne of freight more than 200 km on a single litre of fuel. In fact, railways are between four and five times more fuel efficient than trucks, and three times more fuel efficient than cars. Shifting just 15 per cent of freight from trucks to rail would reduce GHG emissions by close to 5.6 megatonnes of CO<sub>2</sub> equivalent.<sup>15</sup>

In 2015, freight railways consumed 469.9 million gallons of fuel, down 3 per cent from the previous year, while also moving less traffic. As a result, the freight railway sector's fuel efficiency<sup>16</sup> decreased by 3.8 per cent to 642 RTM per gallon. The cost of diesel fuel<sup>17</sup> dropped by 28.4 per cent to \$3.46 per gallon in 2015.

	Total fuel consumed		Revenue ton-miles per gallon of fuel consumed	Revenue tonne-kilometres per litre of fuel consumed	Gross ton-miles (millions)	Gross tonne-kilometres (millions)	Cost of diesel fuel	
	gallons (000)	litres (000)					per gallon (\$)	per litre (cents)
2006	486,218	2,210,384	527	169	459,633	670,997	2.81	61.8
2007	492,125	2,237,237	529	170	463,356	676,433	3.07	67.6
2008	480,661	2,185,120	520	167	449,922	656,821	4.23	93.0
2009	411,612	1,871,221	545	175	397,293	579,990	2.94	64.8
2010	450,782	2,049,289	562	182	455,047	664,303	3.25	71.4
2011	436,558	1,984,178	621	202	473,312	690,960	4.25	93.5
2012	471,912	2,145,346	615	198	503,879	735,590	4.24	93.3
2013	464,275	2,110,651	664	214	529,379	772,816	4.44	97.6
2014	484,572	2,202,872	667	215	564,313	823,815	4.83	106.2
<b>2015</b>	<b>469,855</b>	<b>2,135,996</b>	<b>642</b>	<b>206</b>	<b>544,791</b>	<b>795,315</b>	<b>3.46</b>	<b>76.0</b>

15 To learn more about how Canada's railways are part of the climate change solution, visit [http://www.railcan.ca/environment/thinking\\_green](http://www.railcan.ca/environment/thinking_green).

16 Calculated by dividing total revenue ton-miles (revenue tonne-kilometres) by the total volume of fuel consumed.

17 Includes fuel expenses and gallons (litres) consumed by both freight and passenger railways.

# PASSENGER TRANSPORTATION

Canadian railways offer a comfortable, affordable and environmentally friendly way to travel for more than 75 million passengers each year. Canada has commuter railways that serve its urban centres, an intercity passenger rail service that connects more than 400 communities from coast to coast and tourist railways that give visitors an unbeatable view of its landscape.

In 2015, overall passenger rail transportation increased as more commuter and intercity passengers travelled by rail.



*Photo: VIA Rail*

## COMMUTER RAIL

Within the commuter rail sector, the total number of railway commuters in British Columbia, Ontario and Quebec – the three provinces with commuter railway services – increased by 1.7 per cent in 2015 from the previous year. The average number of commuters per train in 2015 grew by 7.6 per cent from the previous year to its highest level since 2012. In addition, commuter passenger-miles rose by 22.5 per cent year over year.

	Commuter passenger <sup>18</sup>		Commuter train		Average rail commuters per train	Rail commuters (000) in British Columbia, Ontario and Quebec <sup>19</sup>
	miles (000)	kilometres (000)	miles (000)	kilometres (000)		
2006	237,781	382,672	2,730	4,394	300	60,634
2007	247,066	397,615	2,808	4,518	339	63,393
2008	256,123	412,190	2,832	4,558	340	67,052
2009	245,942	395,806	2,876	4,628	301	65,962
2010	256,134	412,209	3,008	4,841	310	68,562
2011	278,244	447,791	3,171	5,103	255	68,427
2012	288,161	463,752	4,356	7,011	342	71,522
2013	320,596	515,950	4,477	7,205	287	72,002
2014	326,969	526,206	4,610	7,419	276	75,901
<b>2015</b>	<b>400,666</b>	<b>644,810</b>	<b>4,022</b>	<b>6,473</b>	<b>297</b>	<b>77,233</b>



<sup>18</sup> Commuter passenger-miles (commuter passenger-kilometres) statistics before 2013 exclude GO Transit, which began reporting this data to RAC in 2013.

<sup>19</sup> Rail commuter totals from 2012-2014 have been revised.



## INTERCITY PASSENGER RAIL

In the intercity passenger rail sector, passenger-miles and passenger train-miles increased by 2.8 and 0.9 per cent, respectively, in 2015 from the previous year. The average number of intercity passengers per train<sup>20</sup> grew by 1.8 per cent, while the average length of journey increased by 0.2 per cent.

	Passenger cars in service	Number of passengers (000)	Passenger	
			miles (millions)	kilometres (millions)
2006	537	4,320	906	1,458
2007	538	4,478	912	1,468
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
<b>2015</b>	<b>551</b>	<b>4,171</b>	<b>857</b>	<b>1,380</b>

	Passenger train		Passenger car	
	miles (000)	kilometres (000)	miles (000)	kilometres (000)
2006	7,381	11,879	49,400	79,501
2007	7,330	11,796	48,708	78,388
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
<b>2015</b>	<b>6,781</b>	<b>10,913</b>	<b>43,843</b>	<b>70,559</b>

	Average intercity passengers per train	Average length of journey		Average passenger load factor (%)	On-time performance (%)
		miles	kilometres		
2006	123	214	344	54	84
2007	124	209	336	55	77
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
<b>2015</b>	<b>126</b>	<b>213</b>	<b>343</b>	<b>56</b>	<b>71</b>

20 Calculated by dividing the number of intercity passengers by the number of passenger trains.

# FINANCIAL INFORMATION, INVESTMENTS AND TAXES

## OPERATING EXPENSES, REVENUES AND INCOME

In 2015, operating expenses of RAC member-railways fell by 8.4 per cent to \$10.5 billion, mainly due to lower costs for fuel and transportation. Operating revenue edged up 0.2 per cent to \$14.7 billion, year over year. As a result, the operating income<sup>21</sup> of Canada's railways in 2015 was a record high of \$3.2 billion.

Operating income (\$ millions)			Operating revenues (\$ millions)		
Total operating revenues	Total operating expenses	Total operating income	Freight	Passenger <sup>22</sup>	Other
2006	10,613	8,211	2,164	9,430	622 561
2007	10,704	8,495	2,402	9,516	624 564
2008	11,197	9,167	2,209	9,957	661 579
2009	9,599	8,352	2,030	8,433	627 539
2010	10,768	9,171	1,247	9,551	673 544
2011	11,533	9,774	1,598	10,305	668 561
2012	12,633	10,575	1,760	11,322	674 637
2013	13,330	10,380	2,058	12,040	668 622
2014	14,653	11,431	2,948	13,287	687 679
2015	14,679	10,468	3,218	13,270	727 682

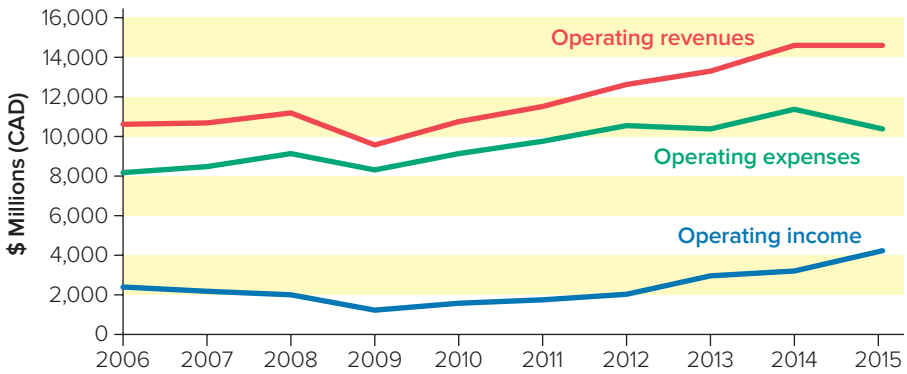
## Operating expenses (\$ millions)

	Transportation <sup>23</sup>	Fuel	Maintenance of equipment	Maintenance-of-way and structures	General and administrative	Total
2006	2,224	1,367	1,575	1,408	1,637	8,211
2007	2,337	1,513	1,634	1,549	1,462	8,495
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

21 Operating income reflects earnings before interest and taxes.

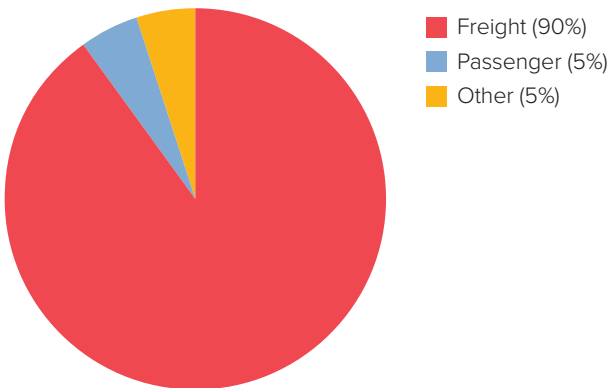
22 Federal, provincial and municipal funding of \$435 million in 2009 for intercity passenger and commuter services is excluded.

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

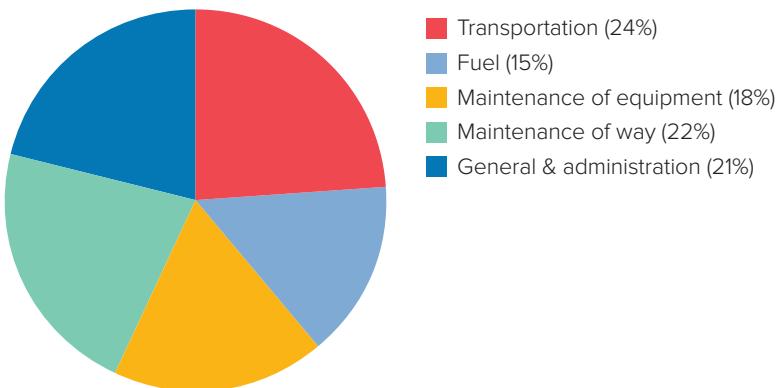


The charts below illustrate operating revenues and expenses by category as a percentage of RAC member railway totals in 2015.

### Operating revenues



### Operating expenses



## INVESTMENTS

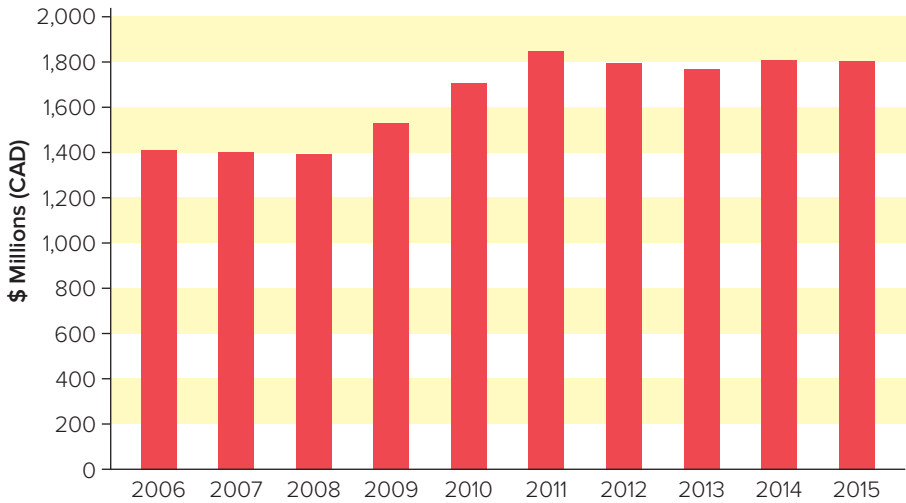
On a system-wide basis, railways invest roughly 20% of their revenues into their infrastructure each year — including investments to ensure safe, reliable and efficient service. Canada's railways invested \$1.80 billion into their Canadian networks in 2015, a 0.2 per cent decrease from the previous year, and a 1 per cent increase over the five-year average of \$1.78 billion. In particular, investment (based on year-over-year changes) increased for terminals and fuel stations (+160%), and work equipment and roadway machines (+91.7%). Track and roadway continues to reflect the majority of capital expenditures.

### Investments (\$ millions)

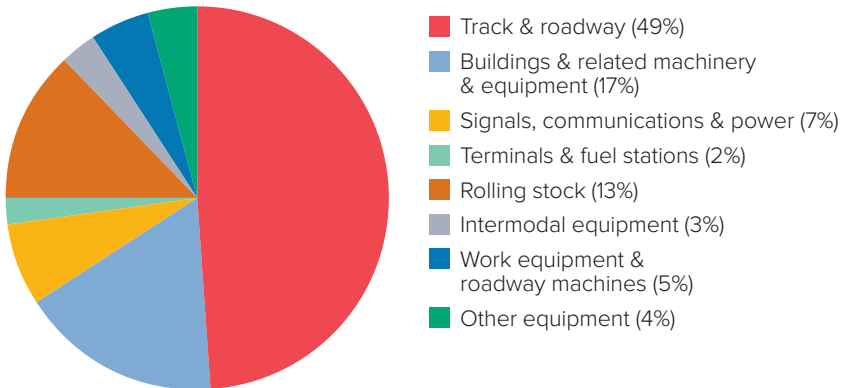
	Track & roadway	Buildings & related machinery & equipment	Signals, communications & power	Terminals & fuel stations
2006	613	212	74	37
2007	618	255	44	43
2008	688	189	79	26
2009	706	257	72	24
2010	804	231	109	16
2011	971	314	108	15
2012	961	269	122	41
2013	892	357	100	32
2014	982	287	93	10
<b>2015</b>	<b>888</b>	<b>309</b>	<b>130</b>	<b>26</b>

	Rolling stock	Intermodal equipment	Work equipment & roadway machines	Other equipment	Total investments
2006	352	48	44	28	1,408
2007	350	30	41	18	1,399
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
<b>2015</b>	<b>233</b>	<b>61</b>	<b>92</b>	<b>62</b>	<b>1,801</b>

### Investments



The chart below illustrates investments by category as a percentage of all investments made by RAC member-railways in 2015.

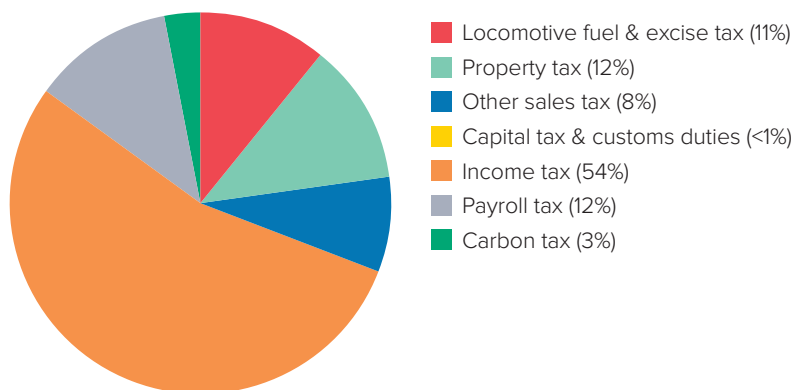


# TAXES

In 2015, Canada's railways paid a record high of \$1.4 billion in taxes – a 31.5 per cent increase from the previous year. The main contributor to this increase was a 67.7 per cent – or \$313 million – jump in the total income tax paid by railways 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 tax	Total
2006	188	155	102	21	471	147	n/a	1,084
2007	188	154	97	15	381	154	n/a	989
2008	187	152	99	14	323	155	n/a	930
2009	177	152	97	14	265	148	n/a	853
2010	195	150	96	14	185	147	n/a	787
2011	204	153	70	0	372	158	n/a	957
2012	220	158	70	0	159	170	n/a	777
2013	219	169	43	1	629	150	n/a	1,209
2014	186	179	65	1	462	154	44	1,091
<b>2015</b>	<b>159</b>	<b>168</b>	<b>115</b>	<b>3</b>	<b>775</b>	<b>171</b>	<b>45</b>	<b>1,435</b>





### Payroll taxes (\$ millions)

	Canada/Quebec Pension Plan	Unemployment insurance	Health taxes	Total
2006	72	32	43	147
2007	75	33	46	154
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
<b>2015</b>	<b>82</b>	<b>36</b>	<b>53</b>	<b>171</b>

### Taxes by jurisdiction (\$000)

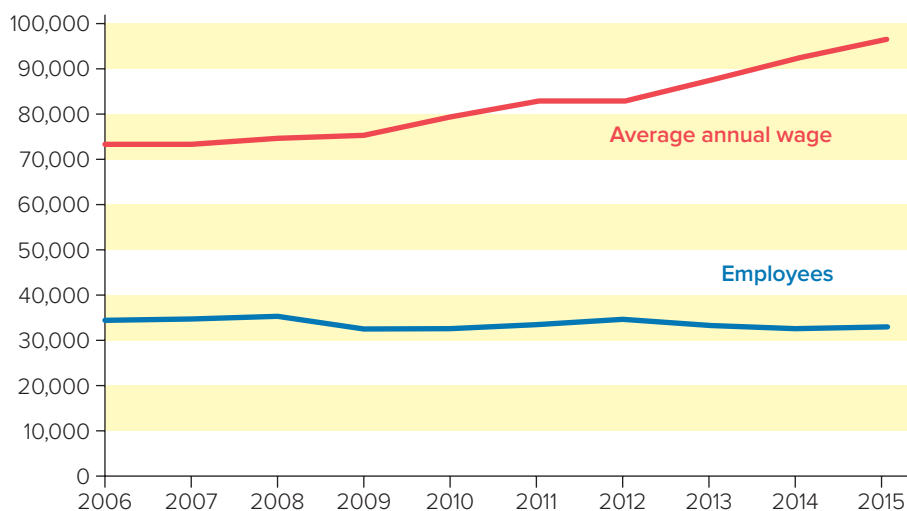
	Locomotive fuel & excise tax		Fuel tax per litre (cents)	Property tax	
	2014	2015	2015	2014	2015
Alberta	5,034	6,944	2	16,254	17,769
British Columbia	16,413	15,425	11	41,204	43,947
Manitoba	11,090	11,434	6	13,644	15,549
Nfld. & Labrador	0	0	22	33	33
New Brunswick	1,183	1,252	4	1,976	1,184
Nova Scotia	0	0	15	2,816	3,017
Ontario	26,212	25,889	5	43,671	30,162
Quebec	3,404	6,706	3	39,508	36,102
Saskatchewan	40,114	40,442	15	19,645	20,655
Northwest Territories	0	22	11	93	80
Federal	82,650	50,769	4	0	0
<b>Total</b>	<b>186,100</b>	<b>158,884</b>		<b>178,844</b>	<b>168,497</b>

	Other sales tax		Capital tax & customs duties		Income tax	
	2014	2015	2014	2015	2014	2015
Alberta	0	0	1,027	0	37,585	66,715
British Columbia	35,074	36,443	0	0	1,358	23,435
Manitoba	15,972	21,986	137	132	1,414	8,820
Nfld. & Labrador	0	143	0	0	0	0
New Brunswick	0	0	0	0	0	0
Nova Scotia	0	0	0	0	4	0
Ontario	2,154	1,785	118	0	48,514	63,694
Quebec	1,470	16,573	0	0	19,545	28,428
Saskatchewan	9,643	11,261	88	65	2,634	16,466
Northwest Territories	0	0	0	0	0	0
Federal	513	26,723	-375	2,422	351,343	567,329
<b>Total</b>	<b>64,826</b>	<b>114,914</b>	<b>995</b>	<b>2,619</b>	<b>462,396</b>	<b>774,888</b>

# EMPLOYMENT

The Canadian railway industry's workforce grew by 0.8 per cent in 2015, while the sector's compensation<sup>24</sup> grew by 2.6 per cent. As a result, the average annual wage per employee increased by 4.3 per cent in 2015, to \$96,445.

	Total compensation (\$ millions)	Average number of employees	Average annual wage per employee (\$)
2006	2,535	34,558	73,356
2007	2,566	34,938	73,440
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
<b>2015</b>	<b>3,101</b>	<b>32,958</b>	<b>96,445</b>



<sup>24</sup> 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

Canadian freight railways operated 27,428 miles (44,141 kilometres) of track in 2015, up 0.5 per cent from the previous year.<sup>25</sup> The increase was mainly due to track mileage reported by new RAC member-railways. The industry's freight car fleet grew by 1.6 per cent in 2015, mainly due to railways owning more of their own cars. The number of locomotives in service fell by 11.1 per cent, year over year.

	Miles	Kilometres	Index 2000 = 100	Freight cars in service	Locomotives in service
2006	29,978	48,243	104	99,946	3,271
2007	29,713	47,816	103	92,373	3,165
2008	29,366	47,258	101	83,984	3,046
2009	28,163	45,323	97	75,836	2,742
2010	27,654	44,501	96	71,788	2,954
2011	27,102	43,617	94	71,750	2,977
2012	26,923	43,328	93	64,485	3,063
2013	27,270	43,887	94	59,395	3,043
2014	27,304	43,942	94	58,577	2,696
<b>2015</b>	<b>27,428</b>	<b>44,141</b>	<b>95</b>	<b>59,509</b>	<b>2,400</b>

## Track operated, by provinces and territories

	2014		2015	
	Miles	Kilometres	Miles	Kilometres
Alberta	4,041	6,503	3,988	6,418
British Columbia	4,174	6,717	4,218	6,788
Manitoba	2,833	4,559	2,847	4,582
Nfld. & Labrador	162	261	175	282
New Brunswick	720	1,159	720	1,159
Nova Scotia	419	674	419	674
Ontario	6,265	10,082	6,271	10,092
Quebec	3,613	5,815	3,662	5,893
Saskatchewan	5,002	8,050	5,053	8,132
Northwest Territories	75	121	75	121
<b>Total</b>	<b>27,304</b>	<b>43,942</b>	<b>27,428</b>	<b>44,141</b>
Intercity passenger trains <sup>26</sup>	7,820	12,585	7,922	12,749
Commuter and tourist trains <sup>27</sup>	3,101	4,990	2,955	4,736
Segments terminating in the U.S. <sup>28</sup>	152	244	152	244
<b>Grand total</b>	<b>38,377</b>	<b>61,762</b>	<b>38,457</b>	<b>61,870</b>

25 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*.

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

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

28 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.

**Gross ton-miles (Gross tonne-kilometres):** 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:** A passenger-mile denotes one mile travelled by one passenger, and is used to measure the volume of passenger traffic.

**Revenue ton-miles (Revenue tonne-kilometres):** 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.

## 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 under the *Canadian Transportation Accident Investigation and Safety Board Act* and its 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**

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.