

Selected Railroad Statistics - unaudited

	2019	2018	2017
Financial measures			
Key financial performance indicators ⁽¹⁾			
Total revenues (\$ millions)	14,917	14,321	13,041
Freight revenues (\$ millions)	14,198	13,548	12,293
Operating income (\$ millions)	5,593	5,493	5,243
Adjusted operating income (\$ millions) ⁽²⁾	5,708	5,520	5,243
Net income (\$ millions)	4,216	4,328	5,484
Adjusted net income (\$ millions) ⁽²⁾	4,189	4,056	3,778
Diluted earnings per share (\$)	5.83	5.87	7.24
Adjusted diluted earnings per share (\$) ⁽²⁾	5.80	5.50	4.99
Free cash flow (\$ millions) ⁽³⁾	1,992	2,514	2,778
Gross property additions (\$ millions)	4,079	3,531	2,703
Share repurchases (\$ millions)	1,700	2,000	2,000
Dividends per share (\$)	2.15	1.82	1.65
Financial position ⁽¹⁾			
Total assets (\$ millions)	43,784	41,214	37,629
Total liabilities (\$ millions)	25,743	23,573	20,973
Shareholders' equity (\$ millions)	18,041	17,641	16,656
Financial ratios			
Operating ratio (%)	62.5	61.6	59.8
Adjusted operating ratio (%) ⁽²⁾	61.7	61.5	59.8
Adjusted debt-to-adjusted EBITDA (times) ⁽⁴⁾	2.02	1.94	1.75
Return on invested capital (ROIC) (%) ⁽⁵⁾	15.3	16.7	22.4
Adjusted ROIC (%) ⁽⁵⁾	15.1	15.7	15.9
Operational measures ⁽⁶⁾			
Statistical operating data			
Gross ton miles (GTMs) (millions)	482,890	490,414	469,200
Revenue ton miles (RTMs) (millions)	241,954	248,383	237,098
Carloads (thousands)	5,912	5,976	5,737
Route miles (includes Canada and the U.S.)	19,500	19,500	19,500
Employees (end of year)	25,975	25,720	23,945
Employees (average for the year)	26,733	25,423	23,074
Key operating measures			
Freight revenue per RTM (cents)	5.87	5.45	5.18
Freight revenue per carload (\$)	2,402	2,267	2,143
GTMs per average number of employees (thousands)	18,063	19,290	20,335
Operating expenses per GTM (cents)	1.93	1.80	1.66
Labor and fringe benefits expense per GTM (cents)	0.61	0.58	0.54
Diesel fuel consumed (US gallons in millions)	451.4	462.7	441.4
Average fuel price (\$/US gallon)	3.17	3.32	2.74
GTMs per US gallon of fuel consumed	1,070	1,060	1,063
Car velocity (car miles per day)	198	188	211
Through dwell (hours)	7.9	8.3	7.7
Through network train speed (miles per hour)	18.5	18.0	20.3
Locomotive utilization (trailing GTMs per total horsepower)	198	208	225
Safety indicators ⁽⁷⁾			
Injury frequency rate (per 200,000 person hours)	1.91	1.81	1.83
Accident rate (per million train miles)	2.11	2.02	1.83

(1) Amounts expressed in Canadian dollars and prepared in accordance with United States generally accepted accountable principles (GAAP), unless otherwise noted.

(2) See the section entitled Adjusted performance measures in the MD&A for an explanation of these non-GAAP measures.

(3) See the section entitled Liquidity and capital resources - Free cash flow in the MD&A for an explanation of this non-GAAP measure.

(4) See the section entitled Liquidity and capital resources - Adjusted debt-to-adjusted EBITDA multiple in the MD&A for an explanation of this non-GAAP measure.

(5) See the section entitled Return on invested capital (ROIC) and adjusted ROIC in the MD&A for an explanation of these non-GAAP measures.

(6) Statistical operating data, key operating measures and safety indicators are unaudited and based on estimated data available at such time and are subject to change as more complete information becomes available. Definitions of these indicators are provided on CN's website, www.cn.ca/glossary.

(7) Based on Federal Railroad Administration (FRA) reporting criteria.

Contents

Business profile	3
Corporate organization	3
Strategy overview	3
Forward-looking statements	7
Financial outlook	8
Financial highlights	8
2019 compared to 2018	8
Non-GAAP measures	9
Adjusted performance measures	9
Constant currency	10
Return on invested capital (ROIC) and adjusted ROIC	11
Revenues	12
Operating expenses	17
Other income and expenses	18
2018 compared to 2017	19
Summary of quarterly financial data	24
Summary of fourth quarter 2019	24
Financial position	25
Liquidity and capital resources	26
Off balance sheet arrangements	33
Outstanding share data	33
Financial instruments	34
Recent accounting pronouncements	36
Critical accounting estimates	37
Business risks	45
Controls and procedures	53

Management's Discussion and Analysis

This Management's Discussion and Analysis (MD&A) dated January 31, 2020, relates to the consolidated financial position and results of operations of Canadian National Railway Company, together with its wholly-owned subsidiaries, collectively "CN" or the "Company," and should be read in conjunction with the Company's 2019 Annual Consolidated Financial Statements and Notes thereto. All financial information reflected herein is expressed in Canadian dollars and prepared in accordance with United States generally accepted accounting principles (GAAP), unless otherwise noted.

CN's common shares are listed on the Toronto and New York stock exchanges. Additional information about CN filed with Canadian securities regulatory authorities and the United States Securities and Exchange Commission (SEC), including the Company's 2019 Annual Information Form and Form 40-F, may be found online on SEDAR at www.sedar.com, on the SEC's website at www.sec.gov through EDGAR, and on the Company's website at www.cn.ca in the Investors section. Printed copies of such documents may be obtained by contacting CN's Corporate Secretary's Office.

Business profile

CN is engaged in the rail and related transportation business. CN's network of approximately 20,000 route miles of track spans Canada and mid-America, uniquely connecting three coasts: the Atlantic, the Pacific and the Gulf of Mexico. CN's extensive network and efficient connections to all Class I railroads provide CN customers access to Canada, the United States (U.S.) and Mexico. A true backbone of the economy, CN handles over \$250 billion worth of goods annually and carries over 300 million tons of cargo, serving exporters, importers, retailers, farmers and manufacturers.

CN's freight revenues are derived from seven commodity groups representing a diversified and balanced portfolio of goods transported between a wide range of origins and destinations. This product and geographic diversity better positions the Company to face economic fluctuations and enhances its potential for growth opportunities. For the year ended December 31, 2019, CN's largest commodity group accounted for 25% of total revenues. From a geographic standpoint, 16% of revenues relate to U.S. domestic traffic, 34% transborder traffic, 17% Canadian domestic traffic and 33% overseas traffic. The Company is the originating carrier for over 85%, and the originating and terminating carrier for over 65%, of traffic moving along its network, which allows it both to capitalize on service advantages and build on opportunities to efficiently use assets.

Corporate organization

The Company manages its rail operations in Canada and the U.S. as one business segment. Financial information reported at this level, such as revenues, operating income and cash flow from operations, is used by the Company's corporate management in evaluating financial and operational performance and allocating resources across CN's network. The Company's strategic initiatives are developed and managed centrally by corporate management and are communicated to its regional activity centers (the Western Region and Eastern Region), whose role is to manage the day-to-day service requirements of their respective territories, control direct costs incurred locally, and execute the strategy and operating plan established by corporate management.

See Note 21 – *Segmented information* to the Company's 2019 Annual Consolidated Financial Statements for additional information on the Company's corporate organization, as well as selected financial information by geographic area.

Strategy overview

CN's business strategy is anchored on the continuous pursuit of *Operational and Service Excellence*, an unwavering commitment to safety and sustainability, and the development of a solid team of motivated and competent railroaders. CN's goal is to deliver valuable transportation services for its customers and to grow the business at low incremental cost. A clear strategic agenda, driven by a commitment to innovation, productivity, improving supply chains through collaboration, potential acquisitions and other opportunities, running trains safely, and minimizing environmental impact, drives the Company's efforts to create value for customers. CN thereby creates value for its shareholders by striving for sustainable financial performance through profitable top-line growth, adequate free cash flow and return on invested capital. CN is also focused on returning value to shareholders through dividend payments and share repurchases.

CN's success and long-term economic viability depend on the presence of a supportive regulatory and policy environment that drives investment and innovation. CN's success also depends on a stream of capital investments that supports its business strategy. These investments cover a wide range of areas, from track infrastructure and rolling stock, to information and operating technologies, and other

Management's Discussion and Analysis

equipment and assets that improve the safety, efficiency and reliability of CN's service offering. Investments in track infrastructure enhance the productivity and integrity of the plant, increase the capacity and the fluidity of the network, promote service excellence and support growth at low incremental cost. The acquisition of new locomotives and railcars generates several key benefits. New locomotives increase capacity, fuel productivity and efficiency, and improve the reliability of service. Locomotives equipped with distributed power allow for greater productivity of trains, particularly in cold weather, while improving train handling and safety. Targeted railcar acquisitions aim to tap growth opportunities, complementing the fleet of privately owned railcars that traverse CN's network. CN is also investing in, and deploying, advanced technology. CN pioneered scheduled railroading and its vision is to be the first railroad to take it to the next level, using advanced technology as a driver for safety, customer and shareholder value.

Balancing "Operational and Service Excellence"

The basic driver of the Company's business is demand for reliable, efficient, and cost effective transportation for customers. As such, the Company's focus is the pursuit of *Operational and Service Excellence*: striving to operate safely and efficiently while providing a high level of service to customers.

CN operates with a mindset that drives cost efficiency and asset utilization. That mindset flows naturally from CN's *Precision Railroading* model, which focuses on improving every process that affects delivery of customers' goods. It is a highly disciplined process whereby CN handles individual rail shipments according to a specific trip plan and manages all aspects of railroad operations to meet customer commitments efficiently and profitably. This calls for the relentless measurement of results and the use of such results to generate further execution improvements in the service provided to customers. The Company's continuous search for efficiency is best captured in its performance according to key operating metrics such as car velocity, through dwell, through network train speed and locomotive utilization. All are at the center of a highly productive and fluid railroad operation, requiring daily engagement in the field. The Company works hard to run more efficient trains, reduce dwell times at terminals and improve overall network velocity. The railroad is run based on a disciplined operating methodology, executing with a sense of urgency and accountability. This philosophy is a key contributor to CN's operating ratio, earnings growth and return on invested capital (ROIC).

CN understands the importance of balancing its drive for productivity with efforts to enhance customer service. The Company's efforts to deliver *Operational and Service Excellence* are anchored on an end-to-end supply chain mindset, working closely with customers and supply chain partners, as well as involving all relevant areas of the Company in the process. By fostering better end-to-end service performance and encouraging all supply-chain players to continuously improve daily engagement, information sharing, problem solving, and execution, CN aims to help customers achieve greater competitiveness in their own markets. Supply chain collaboration agreements with ports, terminal operators and customers leverage key performance metrics that drive efficiencies across the entire supply chain.

The Company is strengthening its commitment to *Operational and Service Excellence* through a wide range of innovations anchored on its continuous improvement philosophy. CN is building on its industry leadership in terms of fast and reliable hub-to-hub service by continuing to improve across the range of customer touch points. The Company's major push in first-mile/last-mile service is focused on improving the quality of customer interactions – developing a sharper outside-in perspective; better monitoring of traffic forecasts; higher and more responsive car order fulfillment; and proactive customer communication at the local level.

CN's broad-based service innovations benefit customers and support the Company's goal to drive top-line growth. CN understands the importance of being the best operator in the business, as well as being the best service innovator.

Delivering safely and responsibly

CN is committed to the safety of its employees, the communities in which it operates and the environment. Safety consciousness permeates every aspect of CN's operations. The Company's long-term safety improvement is driven by continued significant investments in infrastructure, rigorous safety processes and a focus on employee training and safety awareness. CN continues to strengthen its safety culture by investing significantly in training, coaching, recognition and employee involvement initiatives.

CN's Safety Management Plan is the framework for putting safety at the center of its day-to-day operations. This proactive plan is designed to minimize risk, drive continuous improvement in the reduction of injuries and accidents, and engage employees at all levels of the organization. CN believes that the rail industry can enhance safety by working more closely with communities. Under CN's structured Community Engagement program, the Company engages with municipal officers and their emergency responders in an effort to assist them in their emergency response planning. In many cases, this outreach includes face-to-face meetings, during which CN discusses its comprehensive safety programs; its safety performance; the nature, volume and economic importance of dangerous commodities it transports through their communities; a review of emergency response planning; and arranging for training sessions for emergency responders. The outreach builds on CN's involvement in the Transportation Community Awareness and Emergency Response (TRANSCAER®), through which the Company has been working for many years to help communities in Canada and the U.S. understand the movement of hazardous materials and what is required in the event of transportation incidents.

Management's Discussion and Analysis

CN has been deepening its commitment to a sustainable operation for many years, and has made sustainability an integral part of its business strategy. The best way in which CN can positively impact the environment is by continuously improving the efficiency of its operations, and reducing its carbon footprint. As part of the Company's comprehensive sustainability action plan and to comply with CN's environmental policy, the Company engages in a number of initiatives, including the use of fuel-efficient locomotives and trucks that reduce greenhouse gas emissions; increasing operational and building efficiencies; investing in energy-efficient data centers and recycling programs for information technology systems; reducing, recycling and reusing waste and scrap at its facilities and on its network; engaging in modal shift agreements that favor low emission transport services; and participating in the Carbon Disclosure Project (CDP) to gain a more comprehensive view of its carbon footprint. The Company combines its expert resources, environmental management procedures, training and audits for employees and contractors, and emergency preparedness response activities to help ensure that it conducts its operations and activities while protecting the natural environment. The Company's environmental activities include monitoring CN's environmental performance in Canada and the U.S., identifying environmental issues inside the Company, and managing them in accordance with CN's environmental policy, which is overseen by the Environment, Safety and Security Committee of the Board of Directors. Certain risk mitigation strategies, such as periodic audits, employee training programs and emergency plans and procedures, are in place to minimize the environmental risks to the Company.

The Company's CDP Report, CN's Sustainability Report entitled "Delivering Responsibly" and the Company's Corporate Governance Manual, which outlines the role and responsibilities of the Environment, Safety and Security Committee of the Board of Directors, are available on CN's website in the Delivering Responsibly section.

Building a solid team of railroaders

CN's ability to develop the best railroaders in the industry has been a key contributor to the Company's success. CN recognizes that without the right people - no matter how good a service plan or business model a company may have - it will not be able to fully execute. CN is taking steps to further align its business and talent strategies by placing a greater emphasis on the identification of specific roles across all functions that drive the greatest impact to the Company's business agenda, and ensuring the right talent are in these critical roles. The Company continues to focus on hiring the right people, onboarding them successfully, helping them build positive relationships with their colleagues, and supporting all employees to grow and develop, while deepening its commitment to develop talent and plan for the future. CN also recognizes the importance of diversity as it provides for a broad range of strengths, perspectives and experiences that makes CN better. It helps the Company attract and retain qualified talent, and it fosters innovation by bringing the best solutions to the table. As part of its strategy to build a solid team of railroaders, the Company leverages its state-of-the-art training facilities in preparing employees to be highly skilled, safety conscious and confident in their work environment. Curricula for technical training and leadership development has been designed to meet the learning needs of CN's railroaders - both current and future. These programs and initiatives provide a solid platform for the assessment and development of the Company's talent pool, and are tightly integrated with the Company's business strategy. Progress made in developing current and future leaders through the Company's leadership development programs is reviewed by the Human Resources and Compensation Committee of the Board of Directors.

2019 Highlights

The Company completed a record capital expenditure program, investing approximately \$3.9 billion in 2019, with increased spending on initiatives to increase capacity, particularly in the Company's Western Region, supporting the Company's ability to grow at low incremental cost.

Financial highlights - 2019 compared to 2018

- Net income decreased by \$112 million, or 3%, to \$4,216 million and diluted earnings per share decreased by 1% to \$5.83.
- Adjusted net income increased by \$133 million, or 3%, to \$4,189 million and adjusted diluted earnings per share increased by 5% to \$5.80. ⁽¹⁾
- Operating income increased by \$100 million, or 2%, to \$5,593 million and adjusted operating income increased by \$188 million, or 3%, to \$5,708 million. ⁽¹⁾
- Operating ratio of 62.5%, an increase of 0.9 points and adjusted operating ratio of 61.7%, an increase of 0.2 points. ⁽¹⁾
- Revenues increased by \$596 million, or 4%, to \$14,917 million.
- Operating expenses increased by \$496 million, or 6%, to \$9,324 million.
- ROIC of 15.3%, a decrease of 1.4 points and adjusted ROIC of 15.1%, a decrease of 0.6 points. ⁽²⁾
- The Company generated free cash flow of \$1,992 million, a 21% decrease. ⁽³⁾

⁽¹⁾ See the section of this MD&A entitled *Adjusted performance measures* for an explanation of these non-GAAP measures.

⁽²⁾ See the section of this MD&A entitled *Return on invested capital (ROIC) and adjusted ROIC* for an explanation of these non-GAAP measures.

⁽³⁾ See the section of this MD&A entitled *Liquidity and capital resources – Free cash flow* for an explanation of this non-GAAP measure.

Management's Discussion and Analysis

Reinvestment in the business

In 2019, CN spent approximately \$3.9 billion in its capital program, with \$1.6 billion invested to maintain the safety and integrity of the network, particularly track infrastructure. CN's capital spending also included \$1.2 billion on strategic initiatives to increase capacity, enable growth and improve network resiliency, including line capacity upgrades and information technology initiatives, \$0.9 billion on equipment capital expenditures, including the acquisition of 154 new high-horsepower locomotives and 560 new grain hopper cars, and \$0.2 billion on implementation of Positive Train Control (PTC), the safety technology system mandated by the U.S. Congress.

Acquisitions

On December 2, 2019, following satisfaction of all closing conditions, the Company acquired the intermodal temperature-controlled transportation division of the Alberta-based H&R Transport Limited ("H&R"). The acquisition positions CN to expand its presence in moving customer goods by offering more end to end rail supply chain solutions to a wider range of customers. H&R results of operations have been included in the Company's results of operations since the acquisition date, December 2, 2019. H&R revenues are included as freight revenues in the intermodal commodity group.

On August 29, 2019, the Company announced it had reached an agreement to acquire the Massena rail line from CSX Corporation, which represents more than 220 miles of track between Valleyfield, Quebec, and Woodard, New York. The acquisition will allow CN to continue to expand its network and foster additional supply chain solutions. The acquisition remains subject to regulatory review.

On March 20, 2019, following satisfaction of all closing conditions, the Company acquired the Manitoba-based TransX Group of Companies ("TransX"). TransX provides various transportation and logistics services, including intermodal, truckload, less than truckload and specialized services. The acquisition positions CN to strengthen its intermodal business, and allows the Company to expand capacity and foster additional supply chain solutions, to continue to create value for customers. TransX's results of operations have been included in the Company's results of operations, since the acquisition date, March 20, 2019. TransX's revenues are included as freight revenues in the intermodal commodity group. The inclusion of TransX's results of operations impacted the Company's Revenues and Operating expenses, in particular Purchased services and material and Labor and fringe benefits, for the year ended December 31, 2019 when compared to 2018. See the section of this MD&A entitled *Liquidity and capital resources - Investing activities* for additional information.

Shareholder returns

The Company repurchased 14.3 million of its common shares during the year, returning \$1.7 billion to its shareholders. CN also increased its quarterly dividend per share by 18% to \$0.5375 from \$0.4550 in 2018, effective for the first quarter of 2019, and paid \$1.5 billion in dividends in 2019.

Sustainability

The Company's sustainability practices once again earned it a place on the Dow Jones Sustainability World and North American Indices, for the 8th and 11th consecutive year, respectively. CN is the only Canadian company and the only North American railroad listed in the Transportation and Transportation Infrastructure sector World Index. In addition, CN also ranked among Corporate Knights' 2020 Global 100 Most Sustainable Corporations in the World.

2020 Business outlook and assumptions

For 2020, the Company expects growth across a range of commodities, particularly in petroleum crude, intermodal traffic, Canadian coal exports and refined petroleum products; as well as lower volumes of U.S. coal exports, U.S. grain, frac sand, and lumber and panels.

Underpinning the 2020 business outlook, the Company assumes that North American industrial production will increase in the range of 0.5 to one percent. For the 2019/2020 crop year, the grain crop in Canada was in line with its three-year average and the U.S. grain crop was below its three-year average. The Company assumes that the 2020/2021 grain crops in both Canada and the U.S. will be in line with their respective three-year averages.

Future value creation

Reinvestment in the business

In 2020, CN plans to invest approximately \$3.0 billion in its capital program, of which \$1.6 billion is targeted toward track and railway infrastructure maintenance to support safe and efficient operations. A further \$0.8 billion is expected to be spent on initiatives to increase capacity and enable growth, such as track infrastructure expansion; investments in yards and intermodal terminals; and on information technology to improve safety performance, operational efficiency and customer service. CN's equipment capital expenditures are targeted to reach \$0.4 billion in 2020, allowing the Company to tap growth opportunities and improve the quality of the fleet. In order to handle expected traffic increase and improve operational efficiency, CN expects to take delivery of 41 new high-horsepower locomotives and 240 new grain hopper cars. In 2020, the Company plans to invest \$0.2 billion associated with the U.S. federal government legislative PTC implementation.

Management's Discussion and Analysis

Shareholder returns

On January 28, 2020, the Company's Board of Directors approved a new Normal Course Issuer Bid (NCIB) that allows for the repurchase of up to 16 million common shares between February 1, 2020 and January 31, 2021. In addition, on that same day, the Company's Board of Directors approved an increase of 7% to the quarterly dividend to common shareholders, from \$0.5375 per share in 2019 to \$0.5750 per share in 2020, effective for the first quarter.

The forward-looking statements discussed in this section are subject to risks and uncertainties that could cause actual results or performance to differ materially from those expressed or implied in such statements and are based on certain factors and assumptions which the Company considers reasonable, about events, developments, prospects and opportunities that may not materialize or that may be offset entirely or partially by other events and developments. In addition to the assumptions and expectations discussed in this section, reference should be made to the section of this MD&A entitled *Forward-looking statements* for assumptions and risk factors affecting such statements.

Forward-looking statements

Certain statements included in this MD&A are "forward-looking statements" within the meaning of the *United States Private Securities Litigation Reform Act of 1995* and under Canadian securities laws. By their nature, forward-looking statements involve risks, uncertainties and assumptions. The Company cautions that its assumptions may not materialize and that current economic conditions render such assumptions, although reasonable at the time they were made, subject to greater uncertainty. Forward-looking statements may be identified by the use of terminology such as "believes," "expects," "anticipates," "assumes," "outlook," "plans," "targets" or other similar words.

Forward-looking statements include, but are not limited to, those set forth in the table below, which also presents key assumptions used in determining the forward-looking statements. See also the section of this MD&A entitled *Strategy overview - 2020 Business outlook and assumptions*.

Forward-looking statements	Key assumptions
Statements relating to revenue growth opportunities, including those referring to general economic and business conditions	<ul style="list-style-type: none">• North American and global economic growth• Long-term growth opportunities being less affected by current economic conditions
Statements relating to the Company's ability to meet debt repayments and future obligations in the foreseeable future, including income tax payments, and capital spending	<ul style="list-style-type: none">• North American and global economic growth• Adequate credit ratios• Investment-grade credit ratings• Access to capital markets• Adequate cash generated from operations and other sources of financing
Statements relating to pension contributions	<ul style="list-style-type: none">• Adequate cash generated from operations and other sources of financing• Adequate long-term return on investment on pension plan assets• Level of funding as determined by actuarial valuations, particularly influenced by discount rates for funding purposes

Forward-looking statements are not guarantees of future performance and involve risks, uncertainties and other factors which may cause the actual results or performance of the Company to be materially different from the outlook or any future results or performance implied by such statements. Accordingly, readers are advised not to place undue reliance on forward-looking statements. Important risk factors that could affect the forward-looking statements include, but are not limited to, the effects of general economic and business conditions; industry competition; inflation, currency and interest rate fluctuations; changes in fuel prices; legislative and/or regulatory developments; compliance with environmental laws and regulations; actions by regulators; increases in maintenance and operating costs; security threats; reliance on technology and related cybersecurity risk; trade restrictions or other changes to international trade arrangements; transportation of hazardous materials; various events which could disrupt operations, including natural events such as severe weather, droughts, fires, floods and earthquakes; climate change; labor negotiations and disruptions; environmental claims; uncertainties of investigations, proceedings or other types of claims and litigation; risks and liabilities arising from derailments; timing and completion of capital programs; and other risks detailed from time to time in reports filed by CN with securities regulators in Canada and the U.S., including its Annual Information Form and Form 40-F. See the section entitled *Business risks* of this MD&A for a description of major risk factors.

Forward-looking statements reflect information as of the date on which they are made. CN assumes no obligation to update or revise forward-looking statements to reflect future events, changes in circumstances, or changes in beliefs, unless required by applicable securities

Management's Discussion and Analysis

laws. In the event CN does update any forward-looking statement, no inference should be made that CN will make additional updates with respect to that statement, related matters, or any other forward-looking statement.

Financial outlook

During the year, the Company issued and updated its 2019 financial outlook. On December 3, 2019, following the impact of an 8-day conductor strike in late November, CN revised its 2019 financial outlook, remaining focused on continuing to realign its resources in light of the weaker demand. The 2019 actual results were in line with the Company's last 2019 financial outlook.

Financial highlights

<i>In millions, except percentage and per share data</i>	2019	2018	2017	Change	
				2019 vs 2018	2018 vs 2017
Revenues	\$ 14,917	\$ 14,321	\$ 13,041	4%	10%
Operating income	\$ 5,593	\$ 5,493	\$ 5,243	2%	5%
Adjusted operating income ⁽¹⁾	\$ 5,708	\$ 5,520	\$ 5,243	3%	5%
Net income	\$ 4,216	\$ 4,328	\$ 5,484	(3%)	(21%)
Adjusted net income ⁽¹⁾	\$ 4,189	\$ 4,056	\$ 3,778	3%	7%
Basic earnings per share	\$ 5.85	\$ 5.89	\$ 7.28	(1%)	(19%)
Adjusted basic earnings per share ⁽¹⁾	\$ 5.81	\$ 5.52	\$ 5.02	5%	10%
Diluted earnings per share	\$ 5.83	\$ 5.87	\$ 7.24	(1%)	(19%)
Adjusted diluted earnings per share ⁽¹⁾	\$ 5.80	\$ 5.50	\$ 4.99	5%	10%
Dividends declared per share	\$ 2.15	\$ 1.82	\$ 1.65	18%	10%
Total assets	\$ 43,784	\$ 41,214	\$ 37,629	6%	10%
Total long-term liabilities	\$ 21,456	\$ 20,073	\$ 16,990	(7%)	(18%)
Operating ratio	62.5%	61.6%	59.8%	(0.9)-pts	(1.8)-pts
Adjusted operating ratio ⁽¹⁾	61.7%	61.5%	59.8%	(0.2)-pts	(1.7)-pts
Free cash flow ⁽²⁾	\$ 1,992	\$ 2,514	\$ 2,778	(21%)	(10%)

(1) See the section of this MD&A entitled *Adjusted performance measures for an explanation of these non-GAAP measures*.

(2) See the section of this MD&A entitled *Liquidity and capital resources – Free cash flow for an explanation of this non-GAAP measure*.

2019 compared to 2018

Net income for the year ended December 31, 2019 was \$4,216 million, a decrease of \$112 million, or 3%, when compared to 2018, and diluted earnings per share decreased by 1% to \$5.83.

Operating income for the year ended December 31, 2019 increased by \$100 million, or 2%, to \$5,593 million. The increase mainly reflects increased petroleum and crude and intermodal revenues; partly offset by higher purchased services and material expense, as well as higher depreciation and amortization expense. The operating ratio, defined as operating expenses as a percentage of revenues, was 62.5% in 2019, compared to 61.6% in 2018.

Revenues for the year ended December 31, 2019 were \$14,917 million compared to \$14,321 million in 2018. The increase of \$596 million, or 4%, was mainly attributable to freight rate increases, the inclusion of TransX in the intermodal commodity group within the domestic market, the positive translation impact of a weaker Canadian dollar and higher volumes of petroleum crude, natural gas liquids and refined petroleum products in the first nine months. These factors were partly offset by lower volumes of a broad range of forest products, reduced U.S. thermal coal exports via the Gulf Coast and lower shipments of frac sand.

Operating expenses for the year ended December 31, 2019 were \$9,324 million compared to \$8,828 million in 2018. The increase of \$496 million, or 6%, was mainly due to increased purchased services and material expense, due to the inclusion of TransX, higher depreciation expense and the negative translation impact of a weaker Canadian dollar; partly offset by lower fuel prices.

Management's Discussion and Analysis

Non-GAAP measures

This MD&A makes reference to non-GAAP measures including adjusted performance measures, constant currency, ROIC and adjusted ROIC, free cash flow, and adjusted debt-to-adjusted EBITDA multiple that do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. From management's perspective, these non-GAAP measures are useful measures of performance and provide investors with supplementary information to assess the Company's results of operations and liquidity. These non-GAAP measures should not be considered in isolation or as a substitute for financial measures prepared in accordance with GAAP.

For further details of these non-GAAP measures, including a reconciliation to the most directly comparable GAAP financial measures, refer to the sections entitled *Adjusted performance measures*, *Constant currency*, *Return on invested capital (ROIC) and adjusted ROIC*, and *Liquidity and capital resources*.

Adjusted performance measures

Management believes that adjusted net income, adjusted earnings per share, adjusted operating income and adjusted operating ratio are useful measures of performance that can facilitate period-to-period comparisons, as they exclude items that do not necessarily arise as part of CN's normal day-to-day operations and could distort the analysis of trends in business performance. Management uses adjusted performance measures, which exclude certain income and expense items in its results that management believes are not reflective of CN's underlying business operations, to set performance goals and as a means to measure CN's performance. The exclusion of such income and expense items in these measures does not, however, imply that these items are necessarily non-recurring. These measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

For the year ended December 31, 2019, the Company reported adjusted net income of \$4,189 million, or \$5.80 per diluted share, which excludes employee termination benefits and severance costs related to a workforce reduction program of \$31 million, or \$23 million after-tax (\$0.03 per diluted share) in the fourth quarter; a deferred income tax recovery of \$112 million (\$0.15 per diluted share or \$0.16 per basic share) in the second quarter, resulting from the enactment of a lower provincial corporate income tax rate; and a depreciation expense of \$84 million, or \$62 million after-tax (\$0.09 per diluted share) in the first quarter, related to costs previously capitalized for a PTC back office system following the deployment of a replacement system.

For the year ended December 31, 2018, the Company reported adjusted net income of \$4,056 million, or \$5.50 per diluted share, which excludes employee termination benefits and severance costs related to a workforce reduction program of \$27 million, or \$20 million after-tax (\$0.03 per diluted share) in the fourth quarter and gains on disposal of property of \$338 million, or \$292 million after-tax (\$0.40 per diluted share), consisting of the following:

- in the fourth quarter, a gain previously deferred on the 2014 disposal of a segment of the Guelph subdivision located between Georgetown and Kitchener, Ontario, together with the rail fixtures and certain passenger agreements (the "Guelph"), of \$79 million, or \$70 million after-tax (\$0.10 per diluted share);
- in the third quarter, a gain on disposal of property located in Montreal, Quebec (the "Doney and St-Francois Spurs") of \$36 million, or \$32 million after-tax (\$0.04 per diluted share); and
- in the second quarter, a gain on transfer of the Company's finance lease in the passenger rail facilities in Montreal, Quebec, together with its interests in related railway operating agreements (the "Central Station Railway Lease"), of \$184 million, or \$156 million after-tax (\$0.21 per diluted share), and a gain on disposal of land located in Calgary, Alberta, excluding the rail fixtures (the "Calgary Industrial Lead"), of \$39 million, or \$34 million after-tax (\$0.05 per diluted share).

For the year ended December 31, 2017, the Company reported adjusted net income of \$3,778 million, or \$4.99 per diluted share, which excludes a net deferred income tax recovery of \$1,706 million (\$2.25 per diluted share or \$2.26 per basic share) consisting of the following:

- in the fourth quarter, a deferred income tax recovery of \$1,764 million (\$2.33 per diluted share or \$2.34 per basic share) resulting from the enactment of a lower U.S. federal corporate income tax rate due to the *Tax Cuts and Jobs Act* ("U.S. Tax Reform") and a deferred income tax expense of \$50 million (\$0.07 per diluted share) resulting from the enactment of higher provincial corporate income tax rates;
- in the third quarter, a deferred income tax expense of \$31 million (\$0.04 per diluted share) resulting from the enactment of a higher state corporate income tax rate;
- in the second quarter, a deferred income tax recovery of \$18 million (\$0.02 per diluted share) resulting from the enactment of a lower provincial corporate income tax rate; and
- in the first quarter, a deferred income tax recovery of \$5 million (\$0.01 per diluted share) resulting from the enactment of a lower provincial corporate income tax rate.

Management's Discussion and Analysis

The following table provides a reconciliation of net income and earnings per share, as reported for the years ended December 31, 2019, 2018 and 2017, to the adjusted performance measures presented herein:

<i>In millions, except per share data</i>	<i>Year ended December 31,</i>		
	2019	2018	2017
Net income	\$ 4,216	\$ 4,328	\$ 5,484
<i>Adjustments:</i>			
Operating expenses	115	27	—
Other income	—	(338)	—
Income tax expense (recovery) ⁽¹⁾	(142)	39	(1,706)
Adjusted net income	\$ 4,189	\$ 4,056	\$ 3,778
Basic earnings per share	\$ 5.85	\$ 5.89	\$ 7.28
<i>Impact of adjustments, per share</i>	(0.04)	(0.37)	(2.26)
Adjusted basic earnings per share	\$ 5.81	\$ 5.52	\$ 5.02
Diluted earnings per share	\$ 5.83	\$ 5.87	\$ 7.24
<i>Impact of adjustments, per share</i>	(0.03)	(0.37)	(2.25)
Adjusted diluted earnings per share	\$ 5.80	\$ 5.50	\$ 4.99

(1) The tax effect of adjustments reflects tax rates in the applicable jurisdiction and the nature of the item for tax purposes.

The following table provides a reconciliation of operating income and operating ratio, as reported for the years ended December 31, 2019, 2018 and 2017, to the adjusted performance measures presented herein:

<i>In millions, except percentage</i>	<i>Year ended December 31,</i>		
	2019	2018	2017
Operating income	\$ 5,593	\$ 5,493	\$ 5,243
<i>Adjustment: Operating expenses</i>	115	27	—
Adjusted operating income	\$ 5,708	\$ 5,520	\$ 5,243
Operating ratio ⁽¹⁾	62.5%	61.6%	59.8%
<i>Impact of adjustment</i>	(0.8)-pts	(0.1)-pts	—
Adjusted operating ratio	61.7%	61.5%	59.8%

(1) Operating ratio is defined as operating expenses as a percentage of revenues.

Constant currency

Financial results at constant currency allow results to be viewed without the impact of fluctuations in foreign currency exchange rates, thereby facilitating period-to-period comparisons in the analysis of trends in business performance. Measures at constant currency are considered non-GAAP measures and do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. Financial results at constant currency are obtained by translating the current period results denominated in US dollars at the foreign exchange rates of the comparable period of the prior year. The average foreign exchange rates were \$1.33 and \$1.30 per US\$1.00, for the years ended December 31, 2019 and 2018, respectively.

On a constant currency basis, the Company's net income for the year ended December 31, 2019 would have been lower by \$65 million (\$0.09 per diluted share).

Management's Discussion and Analysis

Return on invested capital (ROIC) and adjusted ROIC

Management believes ROIC and adjusted ROIC are useful measures of the efficiency in the use of capital funds. The Company calculates ROIC as return divided by average invested capital. Return is defined as net income plus interest expense after-tax, calculated using the Company's effective tax rate. Average invested capital is defined as the sum of total shareholders' equity, long-term debt and current portion of long-term debt less cash and cash equivalents, and restricted cash and cash equivalents, averaged between the beginning and ending balance over a twelve-month period. The Company calculates adjusted ROIC as adjusted return divided by average invested capital. Adjusted return is defined as adjusted net income plus interest expense after-tax, calculated using the Company's effective tax rate, excluding the tax effect of adjustments used to determine adjusted net income. ROIC and adjusted ROIC do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of net income and adjusted net income to return and adjusted return, respectively, as well as the calculation of average invested capital, which have been used to calculate ROIC and adjusted ROIC:

<i>In millions, except percentage</i>	<i>As at and for the year ended December 31,</i>		
	2019	2018	2017
Net income	\$ 4,216	\$ 4,328	\$ 5,484
Interest expense	538	489	481
Tax on interest expense ⁽¹⁾	(120)	(116)	(124)
Return	\$ 4,634	\$ 4,701	\$ 5,841
Average total shareholders' equity	\$ 17,841	\$ 17,149	\$ 15,749
Average long-term debt	11,626	10,067	9,098
Average current portion of long-term debt	1,557	1,632	1,785
Less: Average cash, cash equivalents, restricted cash and restricted cash equivalents	(674)	(656)	(613)
Average invested capital	\$ 30,350	\$ 28,192	\$ 26,019
ROIC	15.3%	16.7%	22.4%
Adjusted net income ⁽²⁾	\$ 4,189	\$ 4,056	\$ 3,778
Interest expense	538	489	481
Adjusted tax on interest expense ⁽³⁾	(131)	(120)	(124)
Adjusted return	\$ 4,596	\$ 4,425	\$ 4,135
Average invested capital	\$ 30,350	\$ 28,192	\$ 26,019
Adjusted ROIC	15.1%	15.7%	15.9%

(1) The effective tax rate for 2019 used to calculate the tax on interest expense was 22.3% (2018 - 23.8%; 2017 - 25.8%). Due to the negative effective tax rate reported by the Company in 2017, tax on interest expense for 2017 was calculated using an adjusted effective tax rate.

(2) See the section of this MD&A entitled Adjusted performance measures for an explanation of this non-GAAP measure.

(3) The adjusted effective tax rate for 2019 used to calculate the adjusted tax on interest expense was 24.4% (2018 - 24.5%; 2017 - 25.8%).

Management's Discussion and Analysis

Revenues

<i>In millions, unless otherwise indicated</i>	<i>Year ended December 31,</i>				<i>% Change</i>	<i>% Change at constant currency</i>
	2019	2018				
Freight revenues	\$ 14,198	\$ 13,548			5%	3%
Other revenues	719	773			(7%)	(8%)
Total revenues	\$ 14,917	\$ 14,321			4%	3%
Freight revenues						
Petroleum and chemicals	\$ 3,052	\$ 2,660			15%	13%
Metals and minerals	1,643	1,689			(3%)	(5%)
Forest products	1,808	1,886			(4%)	(6%)
Coal	658	661			—%	(2%)
Grain and fertilizers	2,392	2,357			1%	—%
Intermodal	3,787	3,465			9%	8%
Automotive	858	830			3%	1%
Total freight revenues	\$ 14,198	\$ 13,548			5%	3%
Revenue ton miles (RTMs) (<i>millions</i>)	241,954	248,383			(3%)	(3%)
Freight revenue/RTM (<i>cents</i>)	5.87	5.45			8%	6%
Carloads (<i>thousands</i>)	5,912	5,976			(1%)	(1%)
Freight revenue/carload (\$)	2,402	2,267			6%	4%

Revenues for the year ended December 31, 2019, totaled \$14,917 million compared to \$14,321 million in 2018. The increase of \$596 million, or 4%, was mainly attributable to freight rate increases, the inclusion of TransX in the intermodal commodity group within the domestic market, the positive translation impact of a weaker Canadian dollar and higher volumes of petroleum crude, natural gas liquids and refined petroleum products in the first nine months. These factors were partly offset by lower volumes of a broad range of forest products, reduced U.S. thermal coal exports via the Gulf Coast and lower shipments of frac sand. Fuel surcharge revenues decreased by \$31 million in 2019, as a result of lower applicable fuel surcharge rates, partly offset by the positive translation impact of a weaker Canadian dollar.

In 2019, RTMs, measuring the weight and distance of freight transported by the Company, declined by 3% relative to 2018. Freight revenue per RTM increased by 8% in 2019 when compared to 2018, mainly driven by freight rate increases, the inclusion of TransX in the intermodal commodity group and the positive translation impact of a weaker Canadian dollar.

Petroleum and chemicals

	<i>Year ended December 31,</i>				<i>% Change</i>	<i>% Change at constant currency</i>
	2019	2018				
Revenues (<i>millions</i>)	\$ 3,052	\$ 2,660			15%	13%
RTMs (<i>millions</i>)	53,989	50,722			6%	6%
Revenue/RTM (<i>cents</i>)	5.65	5.24			8%	6%
Carloads (<i>thousands</i>)	688	653			5%	5%

The petroleum and chemicals commodity group comprises a wide range of commodities, including chemicals and plastics, refined petroleum products, natural gas liquids, crude oil and sulfur. The primary markets for these commodities are within North America, and as such, the performance of this commodity group is closely correlated with the North American economy as well as oil and gas production. Most of the Company's petroleum and chemicals shipments originate in the Louisiana petrochemical corridor between New Orleans and Baton Rouge; in Western Canada, a key oil and gas development area and a major center for natural gas feedstock and world-scale petrochemicals and plastics; and in eastern Canadian regional plants.

For the year ended December 31, 2019, revenues for this commodity group increased by \$392 million, or 15%, when compared to 2018, mainly due to higher volumes of petroleum crude, natural gas liquids and refined petroleum products in the first nine months; freight rate increases and the positive translation impact of a weaker Canadian dollar.

Revenue per RTM increased by 8% in 2019 when compared to 2018, mainly due to freight rate increases and the positive translation impact of a weaker Canadian dollar.

Management's Discussion and Analysis

<i>Percentage of commodity group revenues</i>	2019	2018
Refined petroleum products	38%	36%
Chemicals and plastics	36%	39%
Crude and condensate	22%	21%
Sulfur	4%	4%

Metals and minerals

	<i>Year ended December 31,</i>	2019	2018	% Change	% Change at constant currency
Revenues (<i>millions</i>)	\$	1,643	\$ 1,689	(3%)	(5%)
RTMs (<i>millions</i>)		25,449	27,993	(9%)	(9%)
Revenue/RTM (<i>cents</i>)		6.46	6.03	7%	5%
Carloads (<i>thousands</i>)		1,008	1,030	(2%)	(2%)

The metals and minerals commodity group consists primarily of materials related to oil and gas development, steel, iron ore, non-ferrous base metals and ores, construction materials, machinery, railway equipment, and dimensional (large) loads. The Company provides unique rail access to base metals, iron ore and frac sand mining as well as aluminum and steel producing regions, which are among the most important in North America. This strong origin franchise, coupled with the Company's access to port facilities and the end markets for these commodities, has made CN a leader in the transportation of metals and minerals products. The key drivers for this market segment are oil and gas development, automotive production, and non-residential construction.

For the year ended December 31, 2019, revenues for this commodity group decreased by \$46 million, or 3%, when compared to 2018, mainly due to lower volumes of frac sand and a broad range of metal products; partly offset by freight rate increases and the positive translation impact of a weaker Canadian dollar.

Revenue per RTM increased by 7% in 2019 when compared to 2018, mainly due to a decrease in the average length of haul, freight rate increases and the positive translation impact of a weaker Canadian dollar.

<i>Percentage of commodity group revenues</i>	2019	2018
Metals	30%	30%
Minerals	27%	24%
Energy materials	26%	30%
Iron ore	17%	16%

Forest products

	<i>Year ended December 31,</i>	2019	2018	% Change	% Change at constant currency
Revenues (<i>millions</i>)	\$	1,808	\$ 1,886	(4%)	(6%)
RTMs (<i>millions</i>)		27,187	29,918	(9%)	(9%)
Revenue/RTM (<i>cents</i>)		6.65	6.30	6%	3%
Carloads (<i>thousands</i>)		375	418	(10%)	(10%)

The forest products commodity group includes various types of lumber, panels, paper, wood pulp and other fibers such as logs, recycled paper, wood chips, and wood pellets. The Company has extensive rail access to the western and eastern Canadian fiber-producing regions, which are among the largest fiber source areas in North America. In the U.S., the Company is strategically located to serve both the Midwest and southern U.S. corridors with interline connections to other Class I railroads. The key drivers for the various commodities are: for lumber and panels, housing starts and renovation activities primarily in the U.S.; for fibers (mainly wood pulp), the consumption of paper, pulpboard and tissue in North American and offshore markets; and for newsprint, advertising lineage, non-print media and overall economic conditions, primarily in the U.S.

For the year ended December 31, 2019, revenues for this commodity group decreased by \$78 million, or 4%, when compared to 2018, mainly due to lower volumes of a broad range of forest products, partly offset by freight rate increases and the positive translation impact of a weaker Canadian dollar.

Management's Discussion and Analysis

Revenue per RTM increased by 6% in 2019 when compared to 2018, mainly due to freight rate increases and the positive translation impact of a weaker Canadian dollar.

<i>Percentage of commodity group revenues</i>	2019	2018
Lumber	38%	40%
Pulp	30%	29%
Paper	18%	18%
Panels	14%	13%

Coal

	<i>Year ended December 31,</i>	2019	2018	% Change	% Change at constant currency
Revenues (<i>millions</i>)	\$	658	\$ 661	–%	(2%)
RTMs (<i>millions</i>)		17,653	17,927	(2%)	(2%)
Revenue/RTM (<i>cents</i>)		3.73	3.69	1%	–%
Carloads (<i>thousands</i>)		335	346	(3%)	(3%)

The coal commodity group consists of thermal grades of bituminous coal, metallurgical coal and petroleum coke. Canadian thermal and metallurgical coal are largely exported via terminals on the west coast of Canada to offshore markets. In the U.S., thermal coal is transported from mines served in southern Illinois, or from western U.S. mines via interchange with other railroads, to major utilities in the Midwest and Southeast U.S., as well as offshore markets via terminals on the U.S. Gulf Coast. Petroleum coke, a by-product of the oil refining process, is exported to offshore markets via terminals on the west coast of Canada and the U.S. Gulf Coast, as well as shipped to industrial users in domestic markets. The key drivers for this market segment are weather conditions, environmental regulations, global supply and demand conditions, and for U.S. domestic coal, the price of natural gas.

For the year ended December 31, 2019, revenues for this commodity group remained flat when compared to 2018, mainly due to lower U.S. thermal coal exports via the Gulf Coast; offset by higher metallurgical and thermal coal exports via west coast ports and freight rate increases.

Revenue per RTM increased by 1% in 2019 when compared to 2018, mainly due to freight rate increases.

<i>Percentage of commodity group revenues</i>	2019	2018
Canadian coal - export	40%	30%
Petroleum coke	22%	21%
U.S. coal - export	19%	33%
U.S. coal - domestic	19%	16%

Grains and fertilizers

	<i>Year ended December 31,</i>	2019	2018	% Change	% Change at constant currency
Revenues (<i>millions</i>)	\$	2,392	\$ 2,357	1%	–%
RTMs (<i>millions</i>)		55,597	57,819	(4%)	(4%)
Revenue/RTM (<i>cents</i>)		4.30	4.08	5%	4%
Carloads (<i>thousands</i>)		619	632	(2%)	(2%)

The grain and fertilizers commodity group depends primarily on crops grown and fertilizers processed in Western Canada and the U.S. Midwest. The grain segment consists of wheat, oats, barley, flaxseed, rye, peas, lentils, corn, ethanol, dried distillers grain, canola seed and canola products, soybeans and soybean products. Production of grain varies considerably from year to year, affected primarily by weather conditions, seeded and harvested acreage, the mix of grains produced and crop yields. Grain exports are sensitive to the size and quality of the crop produced, international market conditions and foreign government policy. The majority of grain produced in Western Canada and moved by CN is exported via the ports of Vancouver, Prince Rupert and Thunder Bay. These rail movements are subject to government regulation that establishes a maximum revenue entitlement that railways can earn. Although railway companies are free to set freight rates for western grain shipments, total revenue is limited based on a formula that takes into account tonnage, length of haul, and a specified price index. Shipments of grain that are exported to the U.S. are not regulated. Grain grown in the U.S. Midwest is exported as well as transported to domestic processing

Management's Discussion and Analysis

facilities and feed markets. The Company also serves major producers of potash in Canada, as well as producers of ammonium nitrate, urea and other fertilizers across Canada and the U.S. The key drivers for fertilizers are input prices, demand, government policies, and international competition.

For the year ended December 31, 2019, revenues for this commodity group increased by \$35 million, or 1%, when compared to 2018, mainly due to freight rate increases, the positive translation impact of a weaker Canadian dollar and higher U.S. soybean exports; partly offset by lower volumes of potash.

Revenue per RTM increased by 5% in 2019 when compared to 2018, mainly due to freight rate increases and the positive translation impact of a weaker Canadian dollar.

<i>Percentage of commodity group revenues</i>	2019	2018
Canadian grain - regulated	42%	40%
U.S. grain - domestic	19%	19%
Canadian grain - commercial	13%	14%
Fertilizers - potash	10%	13%
Fertilizers - other	10%	9%
U.S. grain - exports	6%	5%

Intermodal

	<i>Year ended December 31,</i>	2019	2018	% Change	% Change at constant currency
Revenues (<i>millions</i>)	\$	3,787	\$ 3,465	9%	8%
RTMs (<i>millions</i>)		58,344	60,120	(3%)	(3%)
Revenue/RTM (<i>cents</i>)		6.49	5.76	13%	12%
Carloads (<i>thousands</i>)		2,618	2,634	(1%)	(1%)

The intermodal commodity group includes rail and trucking services and is comprised of two markets: domestic intermodal and international intermodal. Domestic intermodal transports consumer products and manufactured goods, serving both retail and wholesale channels, within domestic Canada, domestic U.S., Mexico and transborder, while international intermodal handles import and export container traffic, serving the major ports of Vancouver, Prince Rupert, Montreal, Halifax, New Orleans and Mobile. CN's network of inland intermodal terminals are located near ports and large urban centers, which connects customers to major markets in North America and overseas. Domestic intermodal is driven by consumer markets, with growth generally tied to the economy. International intermodal is driven by North American economic and trade conditions. Revenues for TransX and H&R are included in this commodity group within the domestic market.

For the year ended December 31, 2019, revenues for this commodity group increased by \$322 million, or 9%, when compared to 2018, mainly due to the inclusion of TransX, higher international container traffic via the Port of Prince Rupert, freight rate increases and the positive translation impact of a weaker Canadian dollar; partly offset by lower international container traffic via the Port of Vancouver and reduced domestic retail volumes, as well as lower applicable fuel surcharge rates.

Revenue per RTM increased by 13% in 2019 when compared to 2018, mainly due to the inclusion of TransX, freight rate increases and the positive translation impact of a weaker Canadian dollar.

<i>Percentage of commodity group revenues</i>	2019	2018
International	68%	67%
Domestic	32%	33%

Management's Discussion and Analysis

Automotive

	Year ended December 31,	2019	2018	% Change	% Change at constant currency
Revenues (millions)	\$	858	\$ 830	3%	1%
RTMs (millions)		3,735	3,884	(4%)	(4%)
Revenue/RTM (cents)		22.97	21.37	7%	5%
Carloads (thousands)		269	263	2%	2%

The automotive commodity group moves both domestic finished vehicles and parts throughout North America, providing service to certain vehicle assembly plants in Ontario, Michigan and Mississippi. The Company also serves vehicle distribution facilities in Canada and the U.S., as well as parts production facilities in Michigan and Ontario. The Company serves shippers of finished vehicle imports via the ports of Halifax and Vancouver, and through interchange with other railroads. CN's broad network of auto compounds is used to facilitate distribution of vehicles throughout Canada and the U.S. Midwest. The primary drivers for this market are automotive production and sales in North America, which are driven by the average age of vehicles in North America and the price of fuel.

For the year ended December 31, 2019, revenues for this commodity group increased by \$28 million, or 3%, when compared to 2018, mainly due to higher volumes of domestic finished vehicles and vehicle parts in the first nine months, the positive translation impact of a weaker Canadian dollar and freight rate increases; partly offset by lower import volumes of finished vehicles via the Port of Halifax.

Revenue per RTM increased by 7% in 2019 when compared to 2018, mainly due to a decrease in the average length of haul, the positive translation impact of a weaker Canadian dollar and freight rate increases.

Percentage of commodity group revenues	2019	2018
Finished vehicles	93%	94%
Auto parts	7%	6%

Other revenues

	Year ended December 31,	2019	2018	% Change	% Change at constant currency
Revenues (millions)	\$	719	\$ 773	(7%)	(8%)

Other revenues are derived from non-rail logistics services that support the Company's rail business including vessels and docks, transloading and distribution, automotive logistics, and freight forwarding and transportation management.

For the year ended December 31, 2019, Other revenues decreased by \$54 million, or 7%, when compared to 2018, mainly due to lower revenues from vessels.

Percentage of other revenues	2019	2018
Vessels and docks	47%	50%
Other non-rail services	44%	42%
Other revenues	9%	8%

Management's Discussion and Analysis

Operating expenses

Operating expenses for the year ended December 31, 2019, amounted to \$9,324 million compared to \$8,828 million in 2018. The increase of \$496 million, or 6%, was mainly due to increased purchased services and material expense, due to the inclusion of TransX, higher depreciation expense and the negative translation impact of a weaker Canadian dollar; partly offset by lower fuel prices.

<i>In millions</i>	<i>Year ended December 31,</i>	2019	2018	% Change	% Change at constant currency
Labor and fringe benefits	\$	2,922	\$ 2,860	(2%)	(1%)
Purchased services and material		2,267	1,971	(15%)	(14%)
Fuel		1,637	1,732	5%	8%
Depreciation and amortization		1,562	1,329	(18%)	(16%)
Equipment rents		444	467	5%	7%
Casualty and other		492	469	(5%)	(3%)
<i>Total operating expenses</i>	\$	9,324	\$ 8,828	(6%)	(4%)

Labor and fringe benefits

Labor and fringe benefits expense includes wages, payroll taxes and employee benefits such as incentive compensation, including stock-based compensation, health and welfare, current service cost for pensions and postretirement benefits. Certain incentive and stock-based compensation plans are based on financial performance targets and the related expense is recorded in relation to the attainment of such targets.

Labor and fringe benefits expense increased by \$62 million, or 2%, in 2019 when compared to 2018. The increase was primarily due to the inclusion of TransX, general wage increases and the negative translation impact of a weaker Canadian dollar; partly offset by lower incentive compensation.

Purchased services and material

Purchased services and material expense includes the cost of services purchased from outside contractors; materials used in the maintenance of the Company's track, facilities and equipment; transportation and lodging for train crew employees; utility costs; and the net costs of operating facilities jointly used by the Company and other railroads.

Purchased services and material expense increased by \$296 million, or 15%, in 2019 when compared to 2018. The increase was mainly due to the inclusion of TransX, higher repairs, maintenance and materials costs, higher costs for services purchased from outside contractors and the negative translation impact of a weaker Canadian dollar.

Fuel

Fuel expense includes fuel consumed by assets, including locomotives, vessels, vehicles and other equipment as well as federal, provincial and state fuel taxes.

Fuel expense decreased by \$95 million, or 5%, in 2019 when compared to 2018. The decrease was primarily due to lower fuel prices, decreased volumes of traffic and increased fuel productivity; partly offset by the negative translation impact of a weaker Canadian dollar.

Depreciation and amortization

Depreciation and amortization expense includes the costs associated with the use of properties and intangible assets over their estimated service lives. Depreciation expense is affected by capital additions, railroad property retirements from disposal, sale and/or abandonment and other adjustments including asset impairments.

Depreciation and amortization expense increased by \$233 million, or 18%, in 2019 when compared to 2018. The increase was mainly due to a higher depreciable asset base resulting from increased capital expenditures in recent years, an expense related to costs previously capitalized for a PTC back office system following the deployment of a replacement system and the negative translation impact of a weaker Canadian dollar.

Management's Discussion and Analysis

Equipment rents

Equipment rents expense includes rental expense for the use of freight cars owned by other railroads (car hire) or private companies and for the lease of freight cars, locomotives and intermodal equipment, net of rental income from other railroads for the use of the Company's freight cars (car hire) and locomotives.

Equipment rents expense decreased by \$23 million, or 5%, in 2019 when compared to 2018. The decrease was primarily due to lower costs for leased locomotives, partly offset by higher car hire expense and the negative translation impact of a weaker Canadian dollar.

Casualty and other

Casualty and other expense includes expenses for personal injuries, environmental, freight and property damage, insurance, bad debt, operating taxes, and travel expenses.

Casualty and other expense increased by \$23 million, or 5%, in 2019 when compared to 2018. The increase was mainly due to higher incident costs and the negative translation impact of a weaker Canadian dollar; partly offset by lower legal provisions.

Other income and expenses

Interest expense

In 2019, Interest expense was \$538 million compared to \$489 million in 2018. The increase was mainly due to a higher average level of debt and the negative translation impact of a weaker Canadian dollar; partly offset by a lower average interest rate.

Other components of net periodic benefit income

In 2019, Other components of net periodic benefit income was \$321 million compared to \$302 million in 2018. The increase was mainly due to lower amortization of net actuarial loss, partly offset by higher interest cost.

Other income

In 2019, Other income was \$53 million compared to \$376 million in 2018. Included in Other income for 2018 was a gain previously deferred on the 2014 disposal of the Guelph of \$79 million, a gain on disposal of the Doney and St-Francois Spurs of \$36 million, a gain on the transfer of the Central Station Railway Lease of \$184 million, and a gain on disposal of the Calgary Industrial Lead of \$39 million.

Income tax recovery (expense)

On December 22, 2017, the President of the United States signed into law the U.S. Tax Reform, which reduced the U.S. federal corporate income tax rate from 35% to 21% effective as of January 1, 2018. The U.S. Tax Reform also allows for immediate capital expensing of new investments in certain qualified depreciable assets made after September 27, 2017, which will be phased down starting in year 2023. As a result of the U.S. Tax Reform, the Company's net deferred income tax liability decreased by \$1,764 million for the year ended December 31, 2017.

The U.S. Tax Reform introduced other important changes to U.S. corporate income tax laws including the creation of a new Base Erosion Anti-abuse Tax (BEAT) that subjects certain payments from U.S. corporations to foreign related parties to additional taxes and limitations to the deduction for net interest expense incurred by U.S. corporations. Since the enactment of the U.S. Tax Reform, U.S. authorities have issued various proposed and finalized regulations and guidance interpreting its provisions. These interpretations have been taken into account in calculating the Company's current year income tax provision and tax payments. The U.S. Tax Reform and these regulations are expected to impact the Company's income tax provisions and tax payments in future years.

In 2019, the Company recorded an income tax expense of \$1,213 million compared to an income tax expense of \$1,354 million in 2018. Included in the 2019 figure was a deferred income tax recovery of \$112 million recorded in the second quarter, resulting from the enactment of a lower provincial corporate income tax rate.

The effective tax rate for 2019 was 22.3% compared to 23.8% in 2018. Excluding the aforementioned deferred income tax recovery, the effective tax rate for 2019 was 24.4% compared to 23.8% in 2018. The increase in the effective tax rate was mainly attributable to lower gains on disposal of property in 2019, taxed at the lower capital gain inclusion rate.

For 2020, the Company anticipates the estimated annual effective tax rate to be in the range of 26.0%. The anticipated increase is due to the U.S. Tax Reform, and the related proposed and finalized regulations and interpretations issued as of December 2019.

Management's Discussion and Analysis

2018 compared to 2017

Net income for the year ended December 31, 2018 was \$4,328 million, a decrease of \$1,156 million, or 21%, when compared to 2017, and diluted earnings per share decreased by 19% to \$5.87. The decrease was primarily due to a deferred income tax recovery of \$1,764 million (\$2.33 per diluted share) resulting from the enactment of a lower U.S. federal corporate income tax rate due to the U.S. Tax Reform in 2017, partly offset by an increase in Operating income and Other income.

Operating income for the year ended December 31, 2018 increased by \$250 million, or 5%, to \$5,493 million. The increase mainly reflects increased revenues from freight rate increases, higher applicable fuel surcharge rates and higher volumes, partly offset by higher costs from higher fuel prices and higher labor costs. The operating ratio was 61.6% in 2018, compared to 59.8% in 2017.

Revenues for the year ended December 31, 2018 were \$14,321 million compared to \$13,041 million in 2017. The increase of \$1,280 million, or 10%, was mainly attributable to freight rate increases, higher applicable fuel surcharge rates and higher volumes of petroleum crude, refined petroleum products, coal, international container traffic and Canadian grain.

Operating expenses for the year ended December 31, 2018 were \$8,828 million compared to \$7,798 million in 2017. The increase of \$1,030 million, or 13%, was mainly due to higher fuel prices, higher costs as a result of increased volumes of traffic and operating performance below 2017 levels.

Constant currency

Financial results at constant currency allow results to be viewed without the impact of fluctuations in foreign currency exchange rates, thereby facilitating period-to-period comparisons in the analysis of trends in business performance. Measures at constant currency are considered non-GAAP measures and do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. Financial results at constant currency are obtained by translating the current period results denominated in US dollars at the foreign exchange rates of the comparable period of the prior year. The average foreign exchange rates were \$1.296 and \$1.298 per US\$1.00, for the years ended December 31, 2018 and 2017, respectively.

On a constant currency basis, the Company's net income for the year ended December 31, 2018 would have been higher by \$4 million (\$0.01 per diluted share).

Revenues

<i>In millions, unless otherwise indicated</i>	<i>Year ended December 31,</i>				<i>% Change</i>	<i>% Change at constant currency</i>
	2018	2017				
Freight revenues	\$ 13,548	\$ 12,293			10%	10%
Other revenues	773	748			3%	3%
Total revenues	\$ 14,321	\$ 13,041			10%	10%
Freight revenues						
Petroleum and chemicals	\$ 2,660	\$ 2,208			20%	20%
Metals and minerals	1,689	1,523			11%	11%
Forest products	1,886	1,788			5%	6%
Coal	661	535			24%	24%
Grain and fertilizers	2,357	2,214			6%	7%
Intermodal	3,465	3,200			8%	8%
Automotive	830	825			1%	1%
Total freight revenues	\$ 13,548	\$ 12,293			10%	10%
Revenue ton miles (RTMs) (millions)	248,383	237,098			5%	5%
Freight revenue/RTM (cents)	5.45	5.18			5%	5%
Carloads (thousands)	5,976	5,737			4%	4%
Freight revenue/carload (\$)	2,267	2,143			6%	6%

Revenues for the year ended December 31, 2018, totaled \$14,321 million compared to \$13,041 million in 2017. The increase of \$1,280 million, or 10%, was mainly attributable to freight rate increases, higher applicable fuel surcharge rates and higher volumes of petroleum crude, refined petroleum products, coal, international container traffic and Canadian grain. Fuel surcharge revenues increased by \$395 million in 2018, as a result of higher applicable fuel surcharge rates.

In 2018, RTMs increased by 5% relative to 2017. Freight revenue per RTM increased by 5% in 2018 when compared to 2017, mainly driven by freight rate increases and higher applicable fuel surcharge rates.

Management's Discussion and Analysis

Petroleum and chemicals

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	2,660	\$ 2,208	20%	20%
RTMs (millions)		50,722	44,375	14%	14%
Revenue/RTM (cents)		5.24	4.98	5%	5%
Carloads (thousands)		653	614	6%	6%

For the year ended December 31, 2018, revenues for this commodity group increased by \$452 million, or 20%, when compared to 2017, mainly due to higher volumes of petroleum crude due to limited pipeline capacity and increased volumes of refined petroleum products, freight rate increases, and higher applicable fuel surcharge rates; partly offset by lower volumes of condensate.

Revenue per RTM increased by 5% in 2018 when compared to 2017, mainly due to freight rate increases and higher applicable fuel surcharge rates; partly offset by an increase in the average length of haul.

Metals and minerals

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	1,689	\$ 1,523	11%	11%
RTMs (millions)		27,993	27,938	—%	—%
Revenue/RTM (cents)		6.03	5.45	11%	11%
Carloads (thousands)		1,030	995	4%	4%

For the year ended December 31, 2018, revenues for this commodity group increased by \$166 million, or 11%, when compared to 2017, mainly due to freight rate increases; higher volumes of semi-finished steel products, and increased shipments of industrial materials and iron ore; and higher applicable fuel surcharge rates; partly offset by lower volumes of frac sand.

Revenue per RTM increased by 11% in 2018 when compared to 2017, mainly due to freight rate increases and higher applicable fuel surcharge rates.

Forest products

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	1,886	\$ 1,788	5%	6%
RTMs (millions)		29,918	30,510	(2%)	(2%)
Revenue/RTM (cents)		6.30	5.86	8%	8%
Carloads (thousands)		418	424	(1%)	(1%)

For the year ended December 31, 2018, revenues for this commodity group increased by \$98 million, or 5%, when compared to 2017, mainly due to freight rate increases and higher applicable fuel surcharge rates, partly offset by decreased volumes of lumber and woodpulp.

Revenue per RTM increased by 8% in 2018 when compared to 2017, mainly due to freight rate increases and higher applicable fuel surcharge rates.

Management's Discussion and Analysis

Coal

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	661	\$ 535	24%	24%
RTMs (millions)		17,927	14,539	23%	23%
Revenue/RTM (cents)		3.69	3.68	—%	—%
Carloads (thousands)		346	303	14%	14%

For the year ended December 31, 2018, revenues for this commodity group increased by \$126 million, or 24%, when compared to 2017, mainly due to increased exports of U.S. thermal coal via the Gulf Coast, higher metallurgical coal exports via west coast ports, higher applicable fuel surcharge rates as well as freight rate increases.

Revenue per RTM remained flat in 2018 when compared to 2017, mainly due to higher applicable fuel surcharge rates and freight rate increases, offset by an increase in the average length of haul.

Grain and fertilizers

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	2,357	\$ 2,214	6%	7%
RTMs (millions)		57,819	56,123	3%	3%
Revenue/RTM (cents)		4.08	3.94	4%	4%
Carloads (thousands)		632	619	2%	2%

For the year ended December 31, 2018, revenues for this commodity group increased by \$143 million, or 6%, when compared to 2017, mainly due to freight rate increases, higher export volumes of Canadian wheat, peas and lentils, and higher applicable fuel surcharge rates; partly offset by reduced Canadian canola volumes, as well as lower export volumes of U.S. soybeans.

Revenue per RTM increased by 4% in 2018 when compared to 2017, mainly due to freight rate increases and higher applicable fuel surcharge rates.

Intermodal

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	3,465	\$ 3,200	8%	8%
RTMs (millions)		60,120	59,356	1%	1%
Revenue/RTM (cents)		5.76	5.39	7%	7%
Carloads (thousands)		2,634	2,514	5%	5%

For the year ended December 31, 2018, revenues for this commodity group increased by \$265 million, or 8%, when compared to 2017, mainly due to higher applicable fuel surcharge rates, increased international container traffic via the ports of Prince Rupert and Montreal, and freight rate increases; partly offset by lower international container traffic via the Port of Vancouver, as well as reduced domestic retail shipments.

Revenue per RTM increased by 7% in 2018 when compared to 2017, mainly due to higher applicable fuel surcharge rates and freight rate increases.

Management's Discussion and Analysis

Automotive

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	830	\$ 825	1%	1%
RTMs (millions)		3,884	4,257	(9%)	(9%)
Revenue/RTM (cents)		21.37	19.38	10%	11%
Carloads (thousands)		263	268	(2%)	(2%)

For the year ended December 31, 2018, revenues for this commodity group increased by \$5 million, or 1%, when compared to 2017, mainly due to higher applicable fuel surcharge rates and freight rate increases; partly offset by lower volumes of domestic finished vehicles.

Revenue per RTM increased by 10% in 2018 when compared to 2017, mainly due to a decrease in the average length of haul, higher applicable fuel surcharge rates and freight rate increases.

Other revenues

	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Revenues (millions)	\$	773	\$ 748	3%	3%

For the year ended December 31, 2018, Other revenues increased by \$25 million, or 3%, when compared to 2017, mainly due to higher revenues from freight forwarding and transportation management services, and vessels and docks.

Operating expenses

Operating expenses for the year ended December 31, 2018 amounted to \$8,828 million compared to \$7,798 million in 2017. The increase of \$1,030 million, or 13%, was mainly due to higher fuel prices, higher costs as a result of increased volumes of traffic and operating performance below 2017 levels.

In millions	Year ended December 31,	2018	2017	% Change	% Change at constant currency
Labor and fringe benefits	\$	2,860	\$ 2,536	(13%)	(13%)
Purchased services and material		1,971	1,769	(11%)	(11%)
Fuel		1,732	1,362	(27%)	(27%)
Depreciation and amortization		1,329	1,281	(4%)	(4%)
Equipment rents		467	418	(12%)	(12%)
Casualty and other		469	432	(9%)	(9%)
Total operating expenses	\$	8,828	\$ 7,798	(13%)	(13%)

Labor and fringe benefits

Labor and fringe benefits expense increased by \$324 million, or 13%, in 2018 when compared to 2017. The increase was primarily due to higher headcount, general wage increases, higher overtime costs and training costs for new employees, higher pension expense, and employee termination benefits and severance costs related to a workforce reduction program in the fourth quarter.

Purchased services and material

Purchased services and material expense increased by \$202 million, or 11%, in 2018 when compared to 2017. The increase was mainly due to higher costs of services purchased from outside contractors, higher trucking and transload costs, and higher repairs, maintenance and materials costs resulting mainly from increased volumes of traffic.

Fuel

Fuel expense increased by \$370 million, or 27%, in 2018 when compared to 2017. The increase was primarily due to higher fuel prices and increased volumes of traffic.

Management's Discussion and Analysis

Depreciation and amortization

Depreciation and amortization expense increased by \$48 million, or 4%, in 2018 when compared to 2017. The increase was mainly due to net asset additions, partly offset by the favorable impact of depreciation studies.

Equipment rents

Equipment rents expense increased by \$49 million, or 12%, in 2018 when compared to 2017. The increase was primarily due to higher costs for leased locomotives and higher car hire expense.

Casualty and other

Casualty and other expense increased by \$37 million, or 9%, in 2018 when compared to 2017. The increase was mainly due to higher incident costs and higher legal provisions.

Other income and expenses

Interest expense

In 2018, interest expense was \$489 million compared to \$481 million in 2017. The increase was mainly due to a higher average level of debt, partly offset by a lower average interest rate.

Other components of net periodic benefit income

In 2018, Other components of net periodic benefit income was \$302 million compared to \$315 million in 2017.

Other income

In 2018, Other income was \$376 million compared to \$12 million in 2017. Included in Other income for 2018 was a gain previously deferred on the 2014 disposal of the Guelph of \$79 million, a gain on disposal of the Doney and St-Francois Spurs of \$36 million, a gain on the transfer of the Central Station Railway Lease of \$184 million, and a gain on disposal of the Calgary Industrial Lead of \$39 million.

Income tax recovery (expense)

In 2018, the Company recorded an income tax expense of \$1,354 million compared to an income tax recovery of \$395 million in 2017. Included in the 2017 figure was a net deferred income tax recovery of \$1,706 million consisting of a deferred income tax recovery of \$1,764 million recorded in the fourth quarter, resulting from the enactment of the U.S. Tax Reform; deferred income tax expenses of \$50 million recorded in the fourth quarter and \$31 million recorded in the third quarter, resulting from the enactment of higher provincial corporate income tax rates and a higher state corporate income tax rate, respectively; and deferred income tax recoveries of \$18 million recorded in the second quarter and \$5 million recorded in the first quarter, both resulting from the enactment of lower provincial corporate income tax rates.

The effective tax rate for 2018 was 23.8% compared to (7.8)% in 2017. Excluding the aforementioned deferred income tax recoveries and expenses, the effective tax rate for 2018 was 23.8% compared to 25.8% in 2017. The decrease in the effective tax rate was mainly attributable to a lower U.S. Federal corporate tax rate and gains on disposal of property taxed at the lower capital gain inclusion rate.

Management's Discussion and Analysis

Summary of quarterly financial data

In millions, except per share data	2019 Quarters				2018 Quarters			
	Fourth	Third	Second	First	Fourth	Third	Second	First
Revenues	\$ 3,584	\$ 3,830	\$ 3,959	\$ 3,544	\$ 3,808	\$ 3,688	\$ 3,631	\$ 3,194
Operating income ⁽¹⁾	\$ 1,218	\$ 1,613	\$ 1,682	\$ 1,080	\$ 1,452	\$ 1,492	\$ 1,519	\$ 1,030
Net income ⁽¹⁾	\$ 873	\$ 1,195	\$ 1,362	\$ 786	\$ 1,143	\$ 1,134	\$ 1,310	\$ 741
Basic earnings per share	\$ 1.22	\$ 1.66	\$ 1.89	\$ 1.08	\$ 1.57	\$ 1.55	\$ 1.78	\$ 1.00
Diluted earnings per share	\$ 1.22	\$ 1.66	\$ 1.88	\$ 1.08	\$ 1.56	\$ 1.54	\$ 1.77	\$ 1.00
Dividends per share	\$ 0.5375	\$ 0.5375	\$ 0.5375	\$ 0.5375	\$ 0.4550	\$ 0.4550	\$ 0.4550	\$ 0.4550

(1) Certain quarters include items that management believes do not necessarily arise as part of CN's normal day-to-day operations and can distort the analysis of trends in business performance. See the section of this MD&A entitled *Adjusted performance measures* for additional information on these items.

Revenues generated by the Company during the year are influenced by seasonal weather conditions, general economic conditions, cyclical demand for rail transportation, and competitive forces in the transportation marketplace (see the section entitled *Business risks* of this MD&A). Operating expenses reflect the impact of freight volumes, seasonal weather conditions, labor costs, fuel prices, and the Company's productivity initiatives. Fluctuations in the Canadian dollar relative to the US dollar have also affected the conversion of the Company's US dollar-denominated revenues and expenses and resulted in fluctuations in net income in the rolling eight quarters presented above.

Summary of fourth quarter 2019

Fourth quarter 2019 net income was \$873 million, a decrease of \$270 million, or 24%, when compared to the same period in 2018, and diluted earnings per share decreased by 22% to \$1.22.

Operating income for the quarter ended December 31, 2019 decreased by \$234 million, or 16%, to \$1,218 million, when compared to the same period in 2018. The decrease mainly reflects lower revenues across all the commodity groups, other than intermodal. The operating ratio was 66.0% in the fourth quarter of 2019 compared to 61.9% in the fourth quarter of 2018.

Revenues for the fourth quarter of 2019 decreased by \$224 million, or 6%, to \$3,584 million, when compared to the same period in 2018. The decrease was mainly attributable to lower volumes, due to the weakening economic environment and the conductor strike in November; partly offset by the inclusion of TransX in the intermodal commodity group within the domestic market, freight rate increases and higher international container traffic via the Port of Prince Rupert. Fuel surcharge revenues decreased by \$64 million in the fourth quarter of 2019, mainly due to lower applicable fuel surcharge rates.

Operating expenses for the fourth quarter of 2019 remained flat when compared to the same period in 2018. The increases in purchased services and material expense, due to the inclusion of TransX, and depreciation expense; were offset by lower costs from decreased volumes of traffic and lower incentive compensation.

Management's Discussion and Analysis

Financial position

The following tables provide an analysis of the Company's balance sheet as at December 31, 2019 as compared to 2018. Assets and liabilities denominated in US dollars have been translated to Canadian dollars using the foreign exchange rate in effect at the balance sheet date. As at December 31, 2019 and 2018, the foreign exchange rates were \$1.2990 and \$1.3637 per US\$1.00, respectively.

<i>In millions</i>	<i>December 31,</i>	2019	2018	Foreign exchange impact	Variance excluding foreign exchange	Explanation of variance, other than foreign exchange impact
Total assets		\$ 43,784	\$ 41,214	\$ (968)	\$ 3,538	
Variance mainly due to:						
Properties		39,669	37,773	(884)	2,780	See the section of this MD&A entitled <i>Liquidity and capital resources - Investing activities</i> , property additions of \$4,079 million, partly offset by depreciation of \$1,559 million.
Operating lease right-of-use assets		520	—	—	520	Increase due to Adoption of ASU 2016-02: Leases and related amendments (Topic 842).
Pension asset		336	446	—	(110)	Decrease primarily due to the reduction in the year-end discount rate from 3.77% in 2018 to 3.10% in 2019, partly offset by higher actual returns.
Total liabilities		\$ 25,743	\$ 23,573	\$ (723)	\$ 2,893	
Variance mainly due to:						
Deferred income taxes		7,844	7,480	(184)	548	Increase due to deferred income tax expense of \$569 million recorded in Net income, partly offset by a deferred income tax recovery of \$21 million recorded in Other comprehensive income (loss), mostly attributable to new temporary differences generated during the year.
Pension and other postretirement benefits		733	707	(9)	35	Increase primarily due to the reduction in the year-end discount rate from 3.77% in 2018 to 3.10% in 2019, partly offset by higher actual returns.
Total long-term debt, including the current portion		13,796	12,569	(501)	1,728	See the section entitled <i>Liquidity and capital resources - Financing activities</i> for debt financing activities in 2019, as well as issuance of finance leases of \$214 million.
Operating lease liabilities, including the current portion		501	—	(16)	517	Increase due to Adoption of ASU 2016-02: Leases and related amendments (Topic 842).
Total shareholders' equity		\$ 18,041	\$ 17,641		\$ 400	
Variance mainly due to:						
Accumulated other comprehensive loss		(3,483)	(2,849)		(634)	Increase in Other comprehensive loss due to after-tax amounts of \$308 million from net foreign exchange losses and \$326 million resulting from net actuarial losses on defined benefit pension and post-retirement benefit plans, net of amortization.
Retained earnings		17,634	16,623		1,011	Increase primarily due to current year net income of \$4,216 million, partly offset by share repurchases of \$1,627 million and dividends paid of \$1,544 million.

Management's Discussion and Analysis

Liquidity and capital resources

The Company's principal source of liquidity is cash generated from operations, which is supplemented by borrowings in the money markets and capital markets. To meet its short-term liquidity needs, the Company has access to various financing sources, including an unsecured revolving credit facility, commercial paper programs, and an accounts receivable securitization program. In addition to these sources, the Company can issue debt securities to meet its longer-term liquidity needs. The strong focus on cash generation from all sources gives the Company increased flexibility in terms of meeting its financing requirements.

The Company's primary uses of funds are for working capital requirements, including income tax installments, pension contributions, and contractual obligations; capital expenditures relating to track infrastructure and other; acquisitions; dividends; and share repurchases. The Company sets priorities on its uses of available funds based on short-term operational requirements, expenditures to continue to operate a safe railway and pursue strategic initiatives, while also considering its long-term contractual obligations and returning value to its shareholders; and as part of its financing strategy, the Company regularly reviews its capital structure, cost of capital, and the need for additional debt financing.

The Company has a working capital deficit, which is common in the capital-intensive rail industry, and is not an indication of a lack of liquidity. The Company maintains adequate resources to meet daily cash requirements, and has sufficient financial capacity to manage its day-to-day cash requirements and current obligations. As at December 31, 2019 and 2018, the Company had Cash and cash equivalents of \$64 million and \$266 million, respectively; Restricted cash and cash equivalents of \$524 million and \$493 million, respectively; and a working capital deficit of \$1,457 million and \$772 million, respectively. The cash and cash equivalents pledged as collateral for a minimum term of one month pursuant to the Company's bilateral letter of credit facilities are recorded as Restricted cash and cash equivalents. There are currently no specific requirements relating to working capital other than in the normal course of business as discussed herein.

The Company's U.S. and other foreign subsidiaries maintain sufficient cash to meet their respective operational requirements. If the Company should require more liquidity in Canada than is generated by its domestic operations, the Company could decide to repatriate funds associated with undistributed earnings of its foreign operations, including its U.S. and other foreign subsidiaries. The impact on liquidity resulting from the repatriation of funds held outside Canada would not be significant as such repatriation of funds would not cause significant tax implications to the Company under the tax laws of Canada and the U.S. and other foreign tax jurisdictions, and the tax treaties currently in effect between them.

The Company expects cash from operations and its various sources of financing to be sufficient to meet its ongoing obligations. The Company is not aware of any trends or expected fluctuations in its liquidity that would impact its ongoing operations or financial condition as of the date of this MD&A.

The Company adopted Accounting Standards Update (ASU) 2016-02: Leases and related amendments (Topic 842) in the first quarter of 2019 using a modified retrospective approach with no restatement of comparative period financial information. Comparative balances previously referred to as capital leases are now referred to as finance leases. See the section of this MD&A entitled *Recent accounting pronouncements* for additional information.

Available financing sources

Shelf prospectus and registration statement

During 2019, under its current shelf prospectus and registration statement, the Company issued a total of \$1.25 billion of debt securities in the Canadian capital markets. The Company's shelf prospectus and registration statement, under which CN may issue debt securities in the Canadian and U.S. capital markets until March 13, 2020, has remaining capacity of \$3.1 billion.

The Company's access to long-term funds in the capital markets depends on its credit ratings and market conditions. The Company believes that it continues to have access to the capital markets. If the Company were unable to borrow funds at acceptable rates in the capital markets, the Company could borrow under its credit facilities, draw down on its accounts receivable securitization program, raise cash by disposing of surplus properties or otherwise monetizing assets, reduce discretionary spending or take a combination of these measures to assure that it has adequate funding for its business.

Revolving credit facility

On March 15, 2019, the Company's revolving credit facility agreement was amended, which extended the term of the credit facility by one year and increased the credit facility from \$1.8 billion to \$2.0 billion, effective May 5, 2019. The increase in capacity provides the Company with additional financial flexibility. The amended credit facility of \$2.0 billion consists of a \$1.0 billion tranche maturing on May 5, 2022 and a \$1.0 billion tranche maturing on May 5, 2024. The accordion feature included in the credit facility agreement, which provides for an additional \$500 million subject to the consent of individual lenders, remains unchanged. The credit facility is available for general corporate purposes, including backstopping the Company's commercial paper programs.

As at December 31, 2019 and December 31, 2018, the Company had no outstanding borrowings under its revolving credit facility and there were no draws during the years ended 2019 and 2018.

Management's Discussion and Analysis

Non-revolving credit facility

On July 25, 2019, the Company entered into an agreement for a non-revolving term loan credit facility in the principal amount of up to US\$300 million, secured by rolling stock, which may be drawn upon during the period from July 25, 2019 to March 31, 2020. Term loans made under the facility have a tenor of 20 years, bear interest at a variable rate, and are prepayable at any time without penalty. The credit facility is available for financing or refinancing the purchase of equipment. As at December 31, 2019, the Company had no outstanding borrowings under its non-revolving credit facility and there were no draws during the year ended December 31, 2019. On January 24, 2020, the Company requested a borrowing of US\$300 million under its non-revolving credit facility. The funds are expected to be received on February 3, 2020.

Commercial paper

The Company has a commercial paper program in Canada and in the U.S. Both programs are backstopped by the Company's revolving credit facility. As of May 5, 2019, the maximum aggregate principal amount of commercial paper that could be issued increased from \$1.8 billion to \$2.0 billion, or the US dollar equivalent, on a combined basis. The commercial paper programs, which are subject to market rates in effect at the time of financing, provide the Company with a flexible financing alternative, and can be used for general corporate purposes. The cost of commercial paper and access to the commercial paper market in Canada and the U.S. are dependent on credit ratings and market conditions. If the Company were to lose access to its commercial paper program for an extended period of time, the Company could rely on its \$2.0 billion revolving credit facility to meet its short-term liquidity needs.

As at December 31, 2019 and 2018, the Company had total commercial paper borrowings of US\$983 million (\$1,277 million) and US\$862 million (\$1,175 million), respectively, presented in Current portion of long-term debt on the Consolidated Balance Sheets.

Accounts receivable securitization program

The Company has an agreement, expiring on February 1, 2021, to sell an undivided co-ownership interest in a revolving pool of accounts receivable to unrelated trusts for maximum cash proceeds of \$450 million. The trusts are multi-seller trusts and the Company is not the primary beneficiary. Funding for the acquisition of these assets is customarily through the issuance of asset-backed commercial paper notes by the unrelated trusts.

The Company has retained the responsibility for servicing, administering and collecting the receivables sold. The average servicing period is approximately one month and is renewed at market rates then in effect. Subject to customary indemnifications, each trust's recourse is limited to the accounts receivable transferred.

The accounts receivable securitization program provides the Company with readily available short-term financing for general corporate use. In the event the program is terminated before its scheduled maturity, the Company expects to meet its future payment obligations through its various sources of financing including its revolving credit facility and commercial paper program, and/or access to capital markets.

As at December 31, 2019, the Company had accounts receivable securitization borrowings of \$200 million, secured by and limited to \$224 million of accounts receivable, presented in Current portion of long-term debt on the Consolidated Balance Sheet. As at December 31, 2018, the Company had no proceeds received under the accounts receivable securitization program.

Bilateral letter of credit facilities

The Company has a series of committed and uncommitted bilateral letter of credit facility agreements. On March 15, 2019, the Company extended the maturity date of the committed bilateral letter of credit facility agreements to April 28, 2022. The agreements are held with various banks to support the Company's requirements to post letters of credit in the ordinary course of business. Under the agreements, the Company has the option from time to time to pledge collateral in the form of cash or cash equivalents, for a minimum term of one month, equal to at least the face value of the letters of credit issued.

As at December 31, 2019, the Company had outstanding letters of credit of \$424 million (2018 - \$410 million) under the committed facilities from a total available amount of \$459 million (2018 - \$447 million) and \$149 million (2018 - \$137 million) under the uncommitted facilities.

As at December 31, 2019, included in Restricted cash and cash equivalents was \$429 million (2018 - \$408 million) and \$90 million (2018 - \$80 million) pledged as collateral under the committed and uncommitted bilateral letter of credit facilities, respectively.

Additional information relating to the Company's financing sources is provided in *Note 13 – Debt* to the Company's 2019 Annual Consolidated Financial Statements.

Credit ratings

The Company's ability to access funding in the debt capital markets and the cost and amount of funding available depends in part on its credit ratings. Rating downgrades could limit the Company's access to the capital markets, or increase its borrowing costs.

Management's Discussion and Analysis

The following table provides the credit ratings that CN has received from credit rating agencies as of the date of this MD&A:

	Long-term debt rating	Commercial paper rating
Dominion Bond Rating Service	A	R-1 (low)
Moody's Investors Service	A2	P-1
Standard & Poor's	A	A-1

These credit ratings are not recommendations to purchase, hold, or sell the securities referred to above. Ratings may be revised or withdrawn at any time by the credit rating agencies. Each credit rating should be evaluated independently of any other credit rating.

Cash flows

<i>In millions</i>	<i>Year ended December 31,</i>	2019	2018	Variance
Net cash provided by operating activities	\$	5,923	\$ 5,918	\$ 5
Net cash used in investing activities		(4,190)	(3,404)	(786)
Net cash used in financing activities		(1,903)	(2,308)	405
Effect of foreign exchange fluctuations on cash, cash equivalents, restricted cash, and restricted cash equivalents		(1)	—	(1)
<i>Net increase (decrease) in cash, cash equivalents, restricted cash, and restricted cash equivalents</i>	\$	(171)	\$ 206	\$ (377)
Cash, cash equivalents, restricted cash, and restricted cash equivalents, beginning of year		759	553	206
<i>Cash, cash equivalents, restricted cash, and restricted cash equivalents, end of year</i>	\$	588	\$ 759	\$ (171)

Operating activities

Net cash provided by operating activities increased by \$5 million in 2019 due to higher cash earnings and advance consideration received related to a long-term rail freight contract; partly offset by unfavorable changes in working capital.

Pension contributions

The Company's contributions to its various defined benefit pension plans are made in accordance with the applicable legislation in Canada and the U.S. and such contributions follow minimum and maximum thresholds as determined by actuarial valuations. Pension contributions for the years ended December 31, 2019 and 2018 of \$128 million and \$92 million, respectively, primarily represent contributions to the CN Pension Plan, for the current service cost as determined under the Company's current actuarial valuations for funding purposes. The increase in pension contributions was mainly due to the Company reducing its current service cost contributions in 2018 for the CN Pension Plan as permitted based on the prevailing actuarial valuations filed for those respective years. The Company expects to make total cash contributions of approximately \$135 million for all pension plans in 2020.

See the section of this MD&A entitled *Critical accounting estimates – Pensions and other postretirement benefits* for additional information pertaining to the funding of the Company's pension plans. Additional information relating to the pension plans is provided in *Note 15 – Pensions and other postretirement benefits* to the Company's 2019 Annual Consolidated Financial Statements.

Income tax payments

The Company is required to make scheduled installment payments as prescribed by the tax authorities. In Canada, the Company's domestic jurisdiction, tax installments in a given year are generally based on the prior year's taxable income whereas in the U.S., the Company's predominant foreign jurisdiction, they are based on forecasted taxable income of the current year.

In 2019, net income tax payments were \$822 million (2018 - \$776 million). The increase was mainly due to higher required installment payments in both Canada and the U.S.

For 2020, the Company's net income tax payments are expected to be approximately \$750 million, and include the impacts of the U.S. Tax Reform, and the related proposed and finalized regulations and interpretations issued as of December 2019. The decrease is primarily due to lower required installment payments in Canada in 2020.

Investing activities

Net cash used in investing activities increased by \$786 million in 2019, mainly as a result of higher property additions, primarily locomotives, the acquisitions of TransX and H&R and lower proceeds received from the disposal of property in the current year.

Management's Discussion and Analysis

Property additions

In millions	Year ended December 31,	2019	2018
Track and roadway ⁽¹⁾	\$	2,262	\$ 2,341
Rolling stock		999	433
Buildings		87	95
Information technology		421	459
Other		310	203
Gross property additions		4,079	3,531
Less: Finance leases ⁽²⁾		214	—
Property additions ⁽³⁾	\$	3,865	\$ 3,531

(1) In 2019, approximately 65% (2018 - 65%) of the Track and roadway property additions were incurred to renew basic infrastructure. Costs relating to normal repairs and maintenance of Track and roadway properties are expensed as incurred, and amounted to approximately 11% of the Company's total operating expenses in 2019 (2018 - 10%).

(2) Includes re-measurement of finance leases.

(3) Includes \$227 million associated with the U.S. federal government legislative PTC implementation in 2019 (2018 - \$419 million).

Disposal of property

In 2019, there were no significant disposals of property. In 2018, cash flows from investing activities included cash proceeds of \$194 million, before transaction costs, from the disposals of the Doney and St-Francois spurs, Central Station Railway lease, and Calgary Industrial Lead. Additional information relating to disposals of property is provided in Note 5 – Other income to the Company's 2019 Annual Consolidated Financial Statements.

Acquisitions

On December 2, 2019, the Company acquired H&R for a total purchase price of \$105 million, of which \$95 million was paid on the closing date and \$10 million, mostly related to funds withheld for the indemnification of claims, will be paid within twenty months of the acquisition date.

The preliminary allocation of the purchase price to the assets acquired and liabilities assumed was performed on the basis of their respective fair values. The Company used a third party to assist in establishing the fair values of the assets acquired and liabilities assumed which resulted in the recognition of identifiable net assets of \$93 million and goodwill of \$12 million. The goodwill acquired through the business combination is mainly attributable to the premium of an established business operation. The Company's purchase price allocation is preliminary and subject to change over the measurement period, which may be up to one year from the acquisition date.

The Company's Consolidated Balance Sheet includes the assets and liabilities of H&R as of December 2, 2019, the acquisition date. Since the acquisition date, H&R's results of operations have been included in the Company's results of operations. The Company has not provided pro forma information relating to the pre-acquisition period as it was not material.

On March 20, 2019, the Company acquired TransX. The total purchase price of \$192 million included an initial cash payment of \$170 million, additional consideration of \$25 million paid on August 27, 2019 upon achievement of targets, less an adjustment of \$3 million in the fourth quarter of 2019 to reflect the settlement of working capital.

The preliminary allocation of the purchase price to the assets acquired and liabilities assumed was performed on the basis of their respective fair values. The Company used a third party to assist in establishing the fair values of the assets acquired and liabilities assumed which resulted in the recognition of identifiable net assets of \$127 million and goodwill of \$65 million. The goodwill acquired through the business combination is mainly attributable to the premium of an established business operation. The Company's purchase price allocation is preliminary and subject to change over the measurement period, which may be up to one year from the acquisition date.

The Company's Consolidated Balance Sheet includes the assets and liabilities of TransX as of March 20, 2019, the acquisition date. Since the acquisition date, TransX's results of operations have been included in the Company's results of operations. The Company has not provided pro forma information relating to the pre-acquisition period as it was not material.

Additional information relating to the acquisitions is provided in Note 3 - Business combinations to the Company's 2019 Annual Consolidated Financial Statements.

Management's Discussion and Analysis

2020 Capital expenditure program

In 2020, the Company expects to invest approximately \$3.0 billion in its capital program, which will be financed with cash generated from operations or with cash from financing activities as required, as outlined below:

- \$1.6 billion on track and railway infrastructure maintenance to support safe and efficient operations, including the replacement of rail and ties, bridge improvements, as well as other general track maintenance;
- \$0.8 billion on initiatives to increase capacity and enable growth, such as track infrastructure expansion, investments in yards and intermodal terminals, and on information technology to improve safety performance, operational efficiency and customer service;
- \$0.4 billion on equipment capital expenditures, allowing the Company to tap growth opportunities and improve the quality of the fleet, and in order to handle expected traffic increase and improve operational efficiency, CN expects to take delivery of 41 new high-horsepower locomotives and 240 new grain hopper cars; and
- \$0.2 billion associated with the U.S. federal government legislative PTC implementation.

Financing activities

Net cash used in financing activities decreased by \$405 million in 2019, primarily driven by lower net repayment of debt and lower repurchases of common shares; partly offset by higher dividends paid.

Debt financing activities

Debt financing activities in 2019 included the following:

- On November 1, 2019, issuance of \$450 million 3.05% Notes due 2050 in the Canadian capital markets, which resulted in net proceeds of \$443 million;
- On February 8, 2019, issuance of \$350 million 3.00% Notes due 2029 and \$450 million 3.60% Notes due 2049 in the Canadian capital markets, which resulted in total net proceeds of \$790 million;
- Net issuance of commercial paper of \$141 million;
- Proceeds from the accounts receivable securitization program of \$420 million;
- Repayment of accounts receivable securitization borrowings of \$220 million; and
- Repayment of finance leases of \$162 million.

Debt financing activities in 2018 included the following:

- On November 7, 2018, issuance of US\$650 million (\$854 million) 4.45% Notes due 2049 in the U.S. capital markets, which resulted in net proceeds of \$845 million;
- On August 30, 2018, early redemption of US\$550 million 5.55% Notes due 2019 for US\$558 million (\$720 million), which resulted in a loss of US\$8 million (\$10 million) that was recorded in Other income;
- On July 31, 2018, issuance of \$350 million 3.20% Notes due 2028 and \$450 million 3.60% Notes due 2048 in the Canadian capital markets, which resulted in total net proceeds of \$787 million;
- On July 15, 2018, repayment of US\$200 million (\$264 million) 6.80% Notes due 2018 upon maturity;
- On May 15, 2018, repayment of US\$325 million (\$415 million) 5.55% Notes due 2018 upon maturity;
- On February 6, 2018, issuance of US\$300 million (\$374 million) 2.40% Notes due 2020 and US\$600 million (\$749 million) 3.65% Notes due 2048 in the U.S. capital markets, which resulted in total net proceeds of \$1,106 million;
- Net issuance of commercial paper of \$99 million;
- Proceeds from the accounts receivable securitization program of \$530 million;
- Repayment of accounts receivable securitization borrowings of \$950 million; and
- Repayment of finance leases of \$44 million.

Cash obtained from the issuance of debt was used for general corporate purposes, including the redemption and refinancing of outstanding indebtedness, share repurchases, acquisitions and other business opportunities. Additional information relating to the Company's outstanding debt securities is provided in *Note 13 – Debt* to the Company's 2019 Annual Consolidated Financial Statements.

Repurchase of common shares

The Company may repurchase its common shares pursuant to a NCIB at prevailing market prices plus brokerage fees, or such other prices as may be permitted by the TSX. The Company repurchased 14.1 million common shares under its NCIB effective between February 1, 2019 and January 31, 2020, which allowed for the repurchase of up to 22.0 million common shares.

Previous NCIBs allowed for the repurchase of up to 5.5 million common shares between October 30, 2018 and January 31, 2019, and up to 31.0 million common shares between October 30, 2017 and October 29, 2018.

Management's Discussion and Analysis

The following table provides the information related to the share repurchases for the years ended December 31, 2019, 2018 and 2017:

<i>In millions, except per share data</i>	<i>Year ended December 31,</i>				Total NCIB
	2019	2018	2017		
February 2019 - January 2020 NCIB					
Number of common shares	12.8	N/A	N/A		12.8
Weighted-average price per share	\$ 120.03	N/A	N/A	\$	120.03
Amount of repurchase	\$ 1,547	N/A	N/A	\$	1,547
October 2018 - January 2019 NCIB					
Number of common shares	1.5	2.6	N/A		4.1
Weighted-average price per share	\$ 106.78	\$ 109.92	N/A	\$	108.82
Amount of repurchase	\$ 153	\$ 293	N/A	\$	446
October 2017 - October 2018 NCIB					
Number of common shares	N/A	16.4	2.9		19.3
Weighted-average price per share	N/A	\$ 104.19	\$ 102.40	\$	103.92
Amount of repurchase	N/A	\$ 1,707	\$ 293	\$	2,000
Total for the year					
Number of common shares	14.3	19.0	20.4	⁽¹⁾	
Weighted-average price per share	\$ 118.70	\$ 104.99	\$ 98.27	⁽¹⁾	
Amount of repurchase	\$ 1,700	\$ 2,000	\$ 2,000	⁽¹⁾	

(1) Includes 2017 repurchases from the October 2016 - October 2017 NCIB, which consisted of 17.5 million common shares, a weighted-average price per share of \$97.60 and an amount of repurchase of \$1,707 million. Includes repurchases in the first and second quarters of 2017, pursuant to private agreements between the Company and arm's-length third-party sellers.

On January 28, 2020, the Board of Directors of the Company approved a new NCIB, which allows for the repurchase of up to 16 million common shares between February 1, 2020 and January 31, 2021.

The Company's NCIB notices may be found online on SEDAR at www.sedar.com and on the SEC's website at www.sec.gov through EDGAR. Printed copies may be obtained by contacting the Corporate Secretary's Office.

Share Trusts

The Company's Employee Benefit Plan Trusts ("Share Trusts") purchase CN's common shares on the open market, which are used to deliver common shares under the Share Units Plan and, beginning in 2019, the Employee Share Investment Plan (ESIP). Shares purchased by the Share Trusts are retained until the Company instructs the trustee to transfer shares to participants of the Share Units Plan or the ESIP. Additional information relating to Share Trusts is provided in *Note 16 – Share capital* to the Company's 2019 Annual Consolidated Financial Statements.

The following table provides the information related to the share purchases and settlements by Share Trusts under the Share Units Plan for the years ended December 31, 2019, 2018 and 2017:

<i>In millions, except per share data</i>	<i>Year ended December 31,</i>				
	2019	2018	2017		
Share purchases by Share Units Plan Share Trusts					
Number of common shares	–	0.4	0.5		
Weighted-average price per share	\$ –	\$ 104.87	\$ 102.17	\$	
Amount of purchase	\$ –	\$ 38	\$ 55	\$	
Share settlements by Share Units Plan Share Trusts					
Number of common shares	0.5	0.4	0.3		
Weighted-average price per share	\$ 88.23	\$ 84.53	\$ 77.99	\$	
Amount of settlement	\$ 45	\$ 31	\$ 24	\$	

For the year ended December 31, 2019, the ESIP Share Trusts purchased 0.3 million common shares for \$33 million at a weighted-average price of \$118.83 per share.

Dividends paid

During 2019, the Company paid quarterly dividends of \$0.5375 per share amounting to \$1,544 million, compared to \$1,333 million, at the rate of \$0.4550 per share, in 2018. For 2020, the Company's Board of Directors approved an increase of 7% to the quarterly dividend to common shareholders, from \$0.5375 per share in 2019 to \$0.5750 per share in 2020.

Management's Discussion and Analysis

Contractual obligations

In the normal course of business, the Company incurs contractual obligations. The following table sets forth the Company's contractual obligations for the following items as at December 31, 2019:

<i>In millions</i>	Total	2020	2021	2022	2023	2024	2025 & thereafter
Debt obligations ⁽¹⁾	\$ 13,662	\$ 1,871	\$ 761	\$ 317	\$ 187	\$ 447	\$ 10,079
Interest on debt obligations	9,884	509	504	485	471	463	7,452
Finance lease obligations ⁽²⁾	138	62	72	1	—	—	3
Operating lease obligations ⁽³⁾	560	135	108	73	51	37	156
Purchase obligations ⁽⁴⁾	1,621	1,136	201	120	86	40	38
Other long-term liabilities ⁽⁵⁾	701	104	56	47	46	34	414
Total contractual obligations	\$ 26,566	\$ 3,817	\$ 1,702	\$ 1,043	\$ 841	\$ 1,021	\$ 18,142

(1) Presented net of unamortized discounts and debt issuance costs and excludes finance lease obligations.

(2) Includes \$4 million of imputed interest.

(3) Includes \$70 million related to renewal options reasonably certain to be exercised and \$59 million of imputed interest.

(4) Includes fixed and variable commitments for rail, information technology services and licenses, locomotives, wheels, engineering services, railroad ties, rail cars, as well as other equipment and services. Costs of variable commitments were estimated using forecasted prices and volumes.

(5) Includes expected payments for workers' compensation, postretirement benefits other than pensions, net unrecognized tax benefits, environmental liabilities and pension obligations that have been classified as contractual settlement agreements.

Free cash flow

Management believes that free cash flow is a useful measure of liquidity as it demonstrates the Company's ability to generate cash for debt obligations and for discretionary uses such as payment of dividends, share repurchases and strategic opportunities. The Company defines its free cash flow measure as the difference between net cash provided by operating activities and net cash used in investing activities, adjusted for the impact of business acquisitions, if any. Free cash flow does not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of net cash provided by operating activities, as reported for the years ended December 31, 2019, 2018 and 2017, to free cash flow:

<i>In millions</i>	<i>Year ended December 31,</i>		
	2019	2018	2017
Net cash provided by operating activities	\$ 5,923	\$ 5,918	\$ 5,516
Net cash used in investing activities	(4,190)	(3,404)	(2,738)
Net cash provided before financing activities	1,733	2,514	2,778
Adjustment: Acquisitions, net of cash acquired ⁽¹⁾	259	—	—
Free cash flow	\$ 1,992	\$ 2,514	\$ 2,778

(1) Relates to the acquisitions of H&R Transport Limited ("H&R") and the TransX Group of Companies ("TransX"). See the section of this MD&A entitled Liquidity and capital resources - Investing activities for additional information.

Management's Discussion and Analysis

Adjusted debt-to-adjusted EBITDA multiple

Management believes that the adjusted debt-to-adjusted earnings before interest, income taxes, depreciation and amortization (EBITDA) multiple is a useful credit measure because it reflects the Company's ability to service its debt and other long-term obligations. The Company calculates the adjusted debt-to-adjusted EBITDA multiple as adjusted debt divided by adjusted EBITDA. These measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of debt and net income to the adjusted measures presented below, which have been used to calculate the adjusted debt-to-adjusted EBITDA multiple:

<i>In millions, unless otherwise indicated</i>	<i>As at and for the year ended December 31,</i>	2019	2018	2017
Debt	\$	13,796	\$ 12,569	\$ 10,828
<i>Adjustments:</i>				
Operating lease liabilities, including current portion ⁽¹⁾		501	579	478
Pension plans in deficiency		521	477	455
<i>Adjusted debt</i>	\$	14,818	\$ 13,625	\$ 11,761
Net income	\$	4,216	\$ 4,328	\$ 5,484
Interest expense		538	489	481
Income tax expense (recovery)		1,213	1,354	(395)
Depreciation and amortization		1,562	1,329	1,281
<i>EBITDA</i>		7,529	7,500	6,851
<i>Adjustments:</i>				
Other income		(53)	(376)	(12)
Other components of net periodic benefit income		(321)	(302)	(315)
Operating lease cost ⁽¹⁾		171	218	191
<i>Adjusted EBITDA</i>	\$	7,326	\$ 7,040	\$ 6,715
<i>Adjusted debt-to-adjusted EBITDA multiple (times)</i>		2.02	1.94	1.75

(1) The Company adopted Accounting Standards Update (ASU) 2016-02: Leases and related amendments (Topic 842) in the first quarter of 2019. The Company now includes operating lease liabilities, as defined by Topic 842, in adjusted debt and excludes operating lease cost, as defined by Topic 842, in adjusted EBITDA. Comparative balances previously referred to as present value of operating lease commitments and operating lease expense have not been adjusted and are now referred to as operating lease liabilities and operating lease cost, respectively. See the section of this MD&A entitled Recent accounting pronouncements for additional information.

All forward-looking statements discussed in this section are subject to risks and uncertainties and are based on assumptions about events and developments that may not materialize or that may be offset entirely or partially by other events and developments. See the section of this MD&A entitled *Forward-looking statements* for a discussion of assumptions and risk factors affecting such forward-looking statements.

Off balance sheet arrangements

Guarantees and indemnifications

In the normal course of business, the Company enters into agreements that may involve providing guarantees or indemnifications to third parties and others, which may extend beyond the term of the agreements. These include, but are not limited to, standby letters of credit, surety and other bonds, and indemnifications that are customary for the type of transaction or for the railway business. As at December 31, 2019, the Company has not recorded a liability with respect to guarantees and indemnifications. Additional information relating to guarantees and indemnifications is provided in *Note 19 – Major commitments and contingencies* to the Company's 2019 Annual Consolidated Financial Statements.

Outstanding share data

As at January 31, 2020, the Company had 711.2 million common shares and 3.6 million stock options outstanding.

Financial instruments

Risk management

In the normal course of business, the Company is exposed to various risks from its use of financial instruments. To manage these risks, the Company follows a financial risk management framework, which is monitored and approved by the Company's Finance Committee, with a goal of maintaining a strong balance sheet, optimizing earnings per share and free cash flow, financing its operations at an optimal cost of capital and preserving its liquidity. The Company has limited involvement with derivative financial instruments in the management of its risks and does not hold or issue them for trading or speculative purposes.

Credit risk

Credit risk arises from cash and temporary investments, accounts receivable and derivative financial instruments. To manage credit risk associated with cash and temporary investments, the Company places these financial assets with governments, major financial institutions, or other creditworthy counterparties, and performs ongoing reviews of these entities. To manage credit risk associated with accounts receivable, the Company reviews the credit history of each new customer, monitors the financial condition and credit limits of its customers, and keeps the average daily sales outstanding within an acceptable range. The Company works with customers to ensure timely payments, and in certain cases, requires financial security, including letters of credit. CN also obtains credit insurance for certain high risk customers. Although the Company believes there are no significant concentrations of customer credit risk, economic conditions can affect the Company's customers and can result in an increase to the Company's credit risk and exposure to business failures of its customers. A widespread deterioration of customer credit and business failures of customers could have a material adverse effect on the Company's results of operations, financial position or liquidity. The Company considers the risk due to the possible non-performance by its customers to be remote.

The Company has limited involvement with derivative financial instruments, however from time to time, it may enter into derivative financial instruments to manage its exposure to interest rates or foreign currency exchange rates. To manage the counterparty risk associated with the use of derivative financial instruments, the Company enters into contracts with major financial institutions that have been accorded investment grade ratings. Though the Company is exposed to potential credit losses due to non-performance of these counterparties, the Company considers this risk to be remote.

Liquidity risk

Liquidity risk is the risk that sufficient funds will not be available to satisfy financial obligations as they come due. In addition to cash generated from operations, which represents its principal source of liquidity, the Company manages liquidity risk by aligning other external sources of funds which can be obtained upon short notice, such as a revolving credit facility, commercial paper programs, and an accounts receivable securitization program. As well, the Company can issue debt securities in the Canadian and U.S. capital markets under its shelf prospectus and registration statement. The Company's access to long-term funds in the debt capital markets depends on its credit ratings and market conditions. The Company believes that its investment grade credit ratings contribute to reasonable access to capital markets. See the section of this MD&A entitled *Liquidity and capital resources* for additional information relating to the Company's available financing sources and its credit ratings.

Foreign currency risk

The Company conducts its business in both Canada and the U.S. and as a result, is affected by currency fluctuations. Changes in the exchange rate between the Canadian dollar and the US dollar affect the Company's revenues and expenses. To manage foreign currency risk, the Company designates US dollar-denominated debt of the parent company as a foreign currency hedge of its net investment in foreign operations. As a result, from the dates of designation, foreign exchange gains and losses on translation of the Company's US dollar-denominated debt are recorded in Accumulated other comprehensive loss, which minimizes volatility of earnings resulting from the conversion of US dollar-denominated debt into the Canadian dollar.

The Company also enters into foreign exchange forward contracts to manage its exposure to foreign currency risk. As at December 31, 2019, the Company had outstanding foreign exchange forward contracts with a notional value of US\$1,088 million (2018 - US\$1,465 million). Changes in the fair value of foreign exchange forward contracts, resulting from changes in foreign exchange rates, are recognized in Other income in the Consolidated Statements of Income as they occur. For the year ended December 31, 2019, the Company recorded a loss of \$75 million (2018 - gain of \$157 million; 2017 - loss of \$72 million), related to foreign exchange forward contracts. These gains or losses were largely offset by the re-measurement of US dollar-denominated monetary assets and liabilities recognized in Other income. As at December 31, 2019, the fair value of outstanding foreign exchange forward contracts included in Other current assets and Accounts payable and other was \$nil and \$24 million, respectively (2018 - \$67 million and \$nil, respectively).

The estimated annual impact on net income of a one-cent change in the Canadian dollar relative to the US dollar is approximately \$35 million.

Management's Discussion and Analysis

Interest rate risk

The Company is exposed to interest rate risk, which is the risk that the fair value or future cash flows of a financial instrument will vary as a result of changes in market interest rates. Such risk exists in relation to the Company's debt. The Company mainly issues fixed-rate debt, which exposes the Company to variability in the fair value of the debt. The Company also issues debt with variable interest rates, which exposes the Company to variability in interest expense.

To manage interest rate risk, the Company manages its borrowings in line with liquidity needs, maturity schedule, and currency and interest rate profile. In anticipation of future debt issuances, the Company may use derivative instruments such as forward rate agreements. The Company does not currently hold any significant derivative instruments to manage its interest rate risk.

The estimated annual impact on net income of a one-percent change in the interest rate on floating rate debt is approximately \$10 million.

Commodity price risk

The Company is exposed to commodity price risk related to purchases of fuel and the potential reduction in net income due to increases in the price of diesel. Fuel prices are impacted by geopolitical events, changes in the economy or supply disruptions. Fuel shortages can occur due to refinery disruptions, production quota restrictions, climate, and labor and political instability.

The Company manages fuel price risk by offsetting the impact of rising fuel prices with the Company's fuel surcharge program. The surcharge applied to customers is determined in the second calendar month prior to the month in which it is applied, and is generally calculated using the average monthly price of On-Highway Diesel, and, to a lesser extent, West-Texas Intermediate crude oil.

While the Company's fuel surcharge program provides effective coverage, residual exposure remains given that fuel price risk cannot be completely managed due to timing and given the volatility in the market. As such, the Company may enter into derivative instruments to manage such risk when considered appropriate.

Fair value of financial instruments

The financial instruments that the Company measures at fair value on a recurring basis in periods subsequent to initial recognition are categorized into the following levels of the fair value hierarchy based on the degree to which inputs are observable:

- Level 1: Inputs are quoted prices for identical instruments in active markets
- Level 2: Significant inputs (other than quoted prices included in Level 1) are observable
- Level 3: Significant inputs are unobservable

The carrying amounts of Cash and cash equivalents and Restricted cash and cash equivalents approximate fair value. These financial instruments include highly liquid investments purchased three months or less from maturity, for which the fair value is determined by reference to quoted prices in active markets.

The carrying amounts of Accounts receivable, Other current assets, and Accounts payable and other approximate fair value. The fair value of these financial instruments is not determined using quoted prices, but rather from market observable information. The fair value of derivative financial instruments, classified as Level 2, used to manage the Company's exposure to foreign currency risk and included in Other current assets and Accounts payable and other is measured by discounting future cash flows using a discount rate derived from market data for financial instruments subject to similar risks and maturities.

The carrying amount of the Company's debt does not approximate fair value. The fair value is estimated based on quoted market prices for the same or similar debt instruments, as well as discounted cash flows using current interest rates for debt with similar terms, company rating, and remaining maturity. The Company classifies debt as Level 2. As at December 31, 2019, the Company's debt, excluding finance leases, had a carrying amount of \$13,662 million (2018 - \$12,540 million) and a fair value of \$15,667 million (2018 - \$13,287 million).

Management's Discussion and Analysis

Recent accounting pronouncements

The following recent ASUs issued by the Financial Accounting Standards Board (FASB) were adopted by the Company during the current year:

ASU 2016-02 Leases and related amendments (Topic 842)

The ASU requires a lessee to recognize a right-of-use asset and a lease liability on the balance sheet for all leases greater than twelve months and requires additional qualitative and quantitative disclosures. The lessor accounting model under the new standard is substantially unchanged. The guidance must be applied using a modified retrospective approach. Entities may elect to apply the guidance to each prior period presented with a cumulative-effect adjustment to retained earnings recognized at the beginning of the earliest period presented or to apply the guidance with a cumulative-effect adjustment to retained earnings recognized at the beginning of the period of adoption.

The new standard provides a number of practical expedients and accounting policy elections upon transition. On January 1, 2019, the Company did not elect the package of three practical expedients that permits the Company not to reassess prior conclusions about lease qualification, classification and initial direct costs. Upon adoption, the Company elected the following practical expedients:

- the use-of-hindsight practical expedient to reassess the lease term and the likelihood that a purchase option will be exercised;
- the land easement practical expedient to not evaluate land easements that were not previously accounted for as leases under Topic 840;
- the short-term lease exemption for all asset classes that permits entities not to recognize right-of-use assets and lease liabilities onto the balance sheet for leases with terms of twelve months or less; and
- the practical expedient to not separate lease and non-lease components for the freight car asset category.

The Company adopted this standard in the first quarter of 2019 with an effective date of January 1, 2019 using a modified retrospective approach with a cumulative-effect adjustment to Retained earnings recognized on January 1, 2019, with no restatement of comparative period financial information. As at January 1, 2019, the cumulative-effect adjustment to adopt the new standard increased the balance of Retained earnings by \$29 million, relating to a deferred gain on a sale-leaseback transaction of a real estate property. The initial adoption transition adjustment to record right-of-use assets and lease liabilities for leases over twelve months on the Company's Consolidated Balance Sheet was \$756 million to each balance. The initial adoption transition adjustment is comprised of finance and operating leases of \$215 million and \$541 million, respectively. New finance lease right-of-use assets and finance lease liabilities are a result of the reassessment of leases with purchase options that are reasonably certain to be exercised by the Company under the transition to Topic 842, previously accounted for as operating leases.

ASU 2017-04 Intangibles - Goodwill and other (Topic 350): Simplifying the test for goodwill impairment

The ASU simplifies the goodwill impairment test by removing the requirement to compare the implied fair value of goodwill with its carrying amount. Under the new standard, goodwill impairment tests are performed by comparing the fair value of a reporting unit with its carrying amount, recognizing an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, up to the value of goodwill.

The guidance must be applied prospectively. The ASU is effective for annual and any interim impairment tests for periods beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017.

The Company adopted this standard in the first quarter of 2019 with an effective date of January 1, 2019. The adoption of this standard did not have an impact on the Company's Consolidated Financial Statements.

The following recent ASUs issued by FASB have an effective date after December 31, 2019 and have not been adopted by the Company:

ASU 2019-12 Income taxes (Topic 740): Simplifying the accounting for income taxes

The ASU adds new guidance to simplify accounting for income taxes, changes the accounting for certain income tax transactions and makes minor improvements to the codification. The ASU introduces new guidance that provides a policy election to not allocate consolidated income taxes when a member of a consolidated tax return is not subject to income tax, and provides guidance to evaluate whether a step-up in tax basis of goodwill relates to a business combination in which book goodwill was recognized or a separate transaction. In addition, the ASU changes the current guidance by making an intraperiod allocation if there is a loss in continuing operations and gains outside of continuing operations; by determining when a deferred tax liability is recognized after an investor in a foreign entity transitions to or from the equity method of accounting; by accounting for tax law changes and year-to-date losses in interim periods; and by determining how to apply the income tax guidance to franchise taxes and other taxes that are partially based on income.

The ASU is effective for annual and any interim period beginning after December 15, 2020. Early adoption is permitted.

The Company is evaluating the effects that the adoption of the ASU will have on its Consolidated Financial Statements; no significant impact is expected.

Management's Discussion and Analysis

ASU 2016-13 Financial instruments - Credit losses (Topic 326): Measurement of credit losses on financial instruments

The ASU requires financial assets measured at amortized cost to be presented at the net amount expected to be collected. The new standard replaces the current incurred loss impairment methodology with one that reflects expected credit losses. The adoption of the ASU is not expected to have a significant impact on the Company's Consolidated Financial Statements. CN will adopt the requirements of the ASU effective January 1, 2020.

Other recently issued ASUs required to be applied for periods beginning on or after January 1, 2020 have been evaluated by the Company and will not have a significant impact on the Company's Consolidated Financial Statements.

Critical accounting estimates

The preparation of financial statements in accordance with GAAP requires management to make estimates, judgments and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent assets and liabilities at the date of the financial statements. On an ongoing basis, management reviews its estimates based upon available information. Actual results could differ from these estimates. The Company's policies for income taxes, capital expenditures, depreciation, pensions and other postretirement benefits, personal injury and other claims and environmental matters, require management's more significant judgments and estimates in the preparation of the Company's consolidated financial statements and, as such, are considered to be critical. The following information should be read in conjunction with the Company's 2019 Annual Consolidated Financial Statements and Notes thereto.

Management discusses the development and selection of the Company's critical accounting policies, including the underlying estimates and assumptions, with the Audit Committee of the Company's Board of Directors. The Audit Committee has reviewed the Company's related disclosures.

Income taxes

The Company follows the asset and liability method of accounting for income taxes. Under the asset and liability method, the change in the net deferred income tax asset or liability is included in the computation of Net income or Other comprehensive income (loss). Deferred income tax assets and liabilities are measured using enacted income tax rates expected to apply to taxable income in the years in which temporary differences are expected to be recovered or settled. As a result, a projection of taxable income is required for those years, as well as an assumption of the ultimate recovery/settlement period for temporary differences. The projection of future taxable income is based on management's best estimate and may vary from actual taxable income.

On an annual basis, the Company assesses the need to establish a valuation allowance for its deferred income tax assets, and if it is deemed more likely than not that its deferred income tax assets will not be realized, a valuation allowance is recorded. The ultimate realization of deferred income tax assets is dependent upon the generation of sufficient future taxable income, of the necessary character, during the periods in which those temporary differences become deductible. Management considers the scheduled reversals of deferred income tax liabilities, the available carryback and carryforward periods, and projected future taxable income in making this assessment. As at December 31, 2019, in order to fully realize all of the deferred income tax assets, the Company will need to generate future taxable income of approximately \$3.0 billion, and, based upon the level of historical taxable income, projections of future taxable income of the necessary character over the periods in which the deferred income tax assets are deductible, and the reversal of taxable temporary differences, management believes, following an assessment of the current economic environment, it is more likely than not that the Company will realize the benefits of these deductible differences. See the section of this MD&A entitled *Other income and expenses - Income tax recovery (expense)* for information about the U.S. Tax Reform.

In addition, Canadian, or domestic, tax rules and regulations, as well as those relating to foreign jurisdictions, are subject to interpretation and require judgment by the Company that may be challenged by the taxation authorities upon audit of the filed income tax returns. Tax benefits are recognized if it is more likely than not that the tax position will be sustained on examination by the taxation authorities. As at December 31, 2019, the total amount of gross unrecognized tax benefits was \$62 million, before considering tax treaties and other arrangements between taxation authorities. The amount of net unrecognized tax benefits as at December 31, 2019 was \$60 million. If recognized, \$7 million of the net unrecognized tax benefits as at December 31, 2019 would affect the effective tax rate. The Company believes that it is reasonably possible that \$23 million of the net unrecognized tax benefits as at December 31, 2019 related to Canadian federal and provincial income tax matters, may be recognized over the next twelve months as a result of settlements and a lapse of the applicable statute of limitations, and will not affect the effective tax rate as they relate to temporary differences.

The Company's deferred income tax assets are mainly composed of temporary differences related to net operating losses and tax credit carryforwards, the pension liability, lease liabilities, accruals for personal injury and other claims, other postretirement benefits liability, and compensation reserves. The Company's deferred income tax liabilities are mainly composed of temporary differences related to properties,

Management's Discussion and Analysis

operating lease right-of-use assets, and the pension asset. These deferred income tax assets and liabilities are recorded at the enacted tax rates of the periods in which the related temporary differences are expected to reverse. As a result, fiscal budget changes and/or changes in income tax laws that affect a change in the timing, the amount, and/or the income tax rate at which the temporary difference components will reverse, could materially affect deferred income tax expense as recorded in the Company's results of operations. The reversal of temporary differences is expected at future-enacted income tax rates which could change due to fiscal budget changes and/or changes in income tax laws. As a result, a change in the timing and/or the income tax rate at which the components will reverse, could materially affect deferred income tax expense as recorded in the Company's results of operations. From time to time, the federal, provincial, and state governments enact new corporate income tax rates resulting in either lower or higher tax liabilities. A one-percentage-point change in the Canadian and U.S. statutory federal tax rate would have the effect of changing the deferred income tax expense by \$160 million and \$140 million in 2019, respectively.

For the year ended December 31, 2019, the Company recorded an income tax expense of \$1,213 million, of which \$569 million was a deferred income tax expense. The deferred income tax expense included a recovery of \$112 million resulting from the enactment of a lower provincial corporate income tax rate. For the year ended December 31, 2018, the Company recorded an income tax expense of \$1,354 million, of which \$527 million was a deferred income tax expense. For the year ended December 31, 2017, the Company recorded total income tax recovery of \$395 million, of which \$1,195 million was a deferred income tax recovery. The deferred income tax recovery included a net recovery of \$1,706 million resulting from the enactment of the U.S. Tax Reform, and changes to provincial and state corporate income tax rates. The Company's net deferred income tax liability as at December 31, 2019 was \$7,844 million (2018 - \$7,480 million). Additional disclosures are provided in *Note 6 – Income taxes* to the Company's 2019 Annual Consolidated Financial Statements.

Depreciation

Properties are carried at cost less accumulated depreciation including asset impairment write-downs. The Company has a process in place to determine whether or not costs qualify for capitalization, which requires judgment. The cost of properties, including those under finance leases, net of asset impairment write-downs, is depreciated on a straight-line basis over their estimated service lives, measured in years, except for rail and ballast whose services lives are measured in millions of gross tons. The Company follows the group method of depreciation whereby a single composite depreciation rate is applied to the gross investment in a class of similar assets, despite small differences in the service life or salvage value of individual property units within the same asset class. The Company uses approximately 40 different depreciable asset classes.

For all depreciable assets, the depreciation rate is based on the estimated service lives of the assets. Assessing the reasonableness of the estimated service lives of properties requires judgment and is based on currently available information, including periodic depreciation studies conducted by the Company. The Company's U.S. properties are subject to comprehensive depreciation studies as required by the Surface Transportation Board (STB) and are conducted by external experts. Depreciation studies for Canadian properties are not required by regulation and are conducted internally. Studies are performed on specific asset groups on a periodic basis. Changes in the estimated service lives of the assets and their related composite depreciation rates are implemented prospectively.

The studies consider, among other factors, the analysis of historical retirement data using recognized life analysis techniques, and the forecasting of asset life characteristics. Changes in circumstances, such as technological advances, changes to the Company's business strategy, changes in the Company's capital strategy or changes in regulations can result in the actual service lives differing from the Company's estimates.

A change in the remaining service life of a group of assets, or their estimated net salvage value, will affect the depreciation rate used to amortize the group of assets and thus affect depreciation expense as reported in the Company's results of operations. A change of one year in the composite service life of the Company's fixed asset base would impact annual depreciation expense by approximately \$56 million.

Depreciation studies are a means of ensuring that the assumptions used to estimate the service lives of particular asset groups are still valid and where they are not, they serve as the basis to establish the new depreciation rates to be used on a prospective basis. In 2019, the Company completed depreciation studies for track properties and as a result, the Company changed the estimated service lives for various types of track assets and their related composite depreciation rates. The results of these depreciation studies did not materially affect the Company's annual depreciation expense.

Given the nature of the railroad and the composition of its network which is made up of homogeneous long-lived assets, it is impractical to maintain records of specific properties at their lowest unit of property.

Retirements of assets occur through the replacement of an asset in the normal course of business, the sale of an asset or the abandonment of a section of track. For retirements in the normal course of business, generally the life of the retired asset is within a reasonable range of the expected useful life, as determined in the depreciation studies, and, as such, no gain or loss is recognized under the group method. The asset's cost is removed from the asset account and the difference between its cost and estimated related accumulated depreciation (net of salvage proceeds), if any, is recorded as an adjustment to accumulated depreciation and no gain or loss is recognized. The historical cost of the retired asset is estimated by using deflation factors or indices that closely correlate to the properties comprising the asset classes in combination with the estimated age of the retired asset using a first-in, first-out approach, and applying it to the replacement value of the asset.

Management's Discussion and Analysis

In each depreciation study, an estimate is made of any excess or deficiency in accumulated depreciation for all corresponding asset classes to ensure that the depreciation rates remain appropriate. The excess or deficiency in accumulated depreciation is amortized over the remaining life of the asset class.

For retirements of depreciable properties that do not occur in the normal course of business, the historical cost, net of salvage proceeds, is recorded as a gain or loss in income. A retirement is considered not to be in the normal course of business if it meets the following criteria: (i) it is unusual, (ii) it is significant in amount, and (iii) it varies significantly from the retirement pattern identified through depreciation studies. A gain or loss is recognized in Other income for the sale of land or disposal of assets that are not part of railroad operations.

For the year ended December 31, 2019, the Company recorded total depreciation expense of \$1,559 million (2018 - \$1,327 million; 2017 - \$1,279 million). As at December 31, 2019, the Company had Properties of \$39,669 million, net of accumulated depreciation of \$13,912 million (2018 - \$37,773 million, net of accumulated depreciation of \$13,305 million). Additional disclosures are provided in *Note 9 – Properties* to the Company's 2019 Annual Consolidated Financial Statements.

GAAP requires the use of historical cost as the basis of reporting in financial statements. As a result, the cumulative effect of inflation, which has significantly increased asset replacement costs for capital-intensive companies such as CN, is not reflected in operating expenses. Depreciation charges on an inflation-adjusted basis, assuming that all operating assets are replaced at current price levels, would be substantially greater than historically reported amounts.

Pensions and other postretirement benefits

The Company's plans have a measurement date of December 31. The following table provides the Company's pension asset, pension liability and other postretirement benefits liability as at December 31, 2019, and 2018:

<i>In millions</i>	<i>December 31,</i>		2019	2018
Pension asset	\$	336	\$	446
Pension liability	\$	521	\$	477
Other postretirement benefits liability	\$	227	\$	247

The descriptions in the following paragraphs pertaining to pensions relate generally to the Company's main pension plan, the CN Pension Plan, unless otherwise specified.

Calculation of net periodic benefit cost (income)

In accounting for pensions and other postretirement benefits, assumptions are required for, among other things, the discount rate, the expected long-term rate of return on plan assets, the rate of compensation increase, health care cost trend rates, mortality rates, employee early retirements, terminations and disability. Changes in these assumptions result in actuarial gains or losses, which are recognized in Other comprehensive income (loss). The Company generally amortizes these gains or losses into net periodic benefit cost (income) over the expected average remaining service life of the employee group covered by the plans only to the extent that the unrecognized net actuarial gains and losses are in excess of the corridor threshold, which is calculated as 10% of the greater of the beginning-of-year balances of the projected benefit obligation or market-related value of plan assets. The Company's net periodic benefit cost (income) for future periods is dependent on demographic experience, economic conditions and investment performance. Recent demographic experience has revealed no material net gains or losses on termination, retirement, disability and mortality. Experience with respect to economic conditions and investment performance is further discussed herein.

For the years ended December 31, 2019, 2018 and 2017, the consolidated net periodic benefit cost (income) for pensions and other postretirement benefits were as follows:

<i>In millions</i>	<i>Year ended December 31,</i>		2019	2018	2017	
Net periodic benefit income for pensions	\$	(183)	\$	(139)	\$	(190)
Net periodic benefit cost for other postretirement benefits	\$	7	\$	9	\$	7

As at December 31, 2019 and 2018, the projected pension benefit obligation and accumulated other postretirement benefit obligation were as follows:

<i>In millions</i>	<i>December 31,</i>		2019	2018
Projected pension benefit obligation	\$	18,609	\$	17,275
Accumulated other postretirement benefit obligation	\$	227	\$	247

Management's Discussion and Analysis

Discount rate assumption

The Company's discount rate assumption, which is set annually at the end of each year, is determined by management with the aid of third-party actuaries. The discount rate is used to measure the single amount that, if invested at the measurement date in a portfolio of high-quality debt instruments with a rating of AA or better, would provide the necessary cash flows to pay for pension benefits as they become due. For the Canadian pension and other postretirement benefit plans, future expected benefit payments are discounted using spot rates based on a derived AA corporate bond yield curve for each maturity year. A year-end discount rate of 3.10% based on bond yields prevailing at December 31, 2019 (2018 - 3.77%) was considered appropriate by the Company.

The Company uses the spot rate approach to measure current service cost and interest cost for all defined benefit pension and other postretirement benefit plans. Under the spot rate approach, individual spot discount rates along the same yield curve used in the determination of the projected benefit obligation are applied to the relevant projected cash flows for current service cost at the relevant maturity. More specifically, current service cost is measured using the cash flows related to benefits expected to be accrued in the following year by active members of a plan and interest cost is measured using the projected cash flows making up the projected benefit obligation multiplied by the corresponding spot discount rate at each maturity.

As at December 31, 2019, a 0.25% decrease in the 3.10% discount rate used to determine the projected benefit obligation would have resulted in a decrease of approximately \$570 million to the funded status for pensions and would result in a decrease of approximately \$25 million to the 2020 projected net periodic benefit income. A 0.25% increase in the discount rate would have resulted in an increase of approximately \$540 million to the funded status for pensions and would result in an increase of approximately \$25 million to the 2020 projected net periodic benefit income.

Expected long-term rate of return assumption

The expected long-term rate of return is determined based on expected future performance for each asset class and is weighted based on the investment policy. Consideration is taken of the historical performance, the premium return generated from an actively managed portfolio, as well as current target asset allocations, published market return expectations, economic developments, inflation rates and administrative expenses. Based on these factors, the rate is determined by the Company. For 2019, the Company used a long-term rate of return assumption of 7.00% on the market-related value of plan assets to compute net periodic benefit cost (income). The Company has elected to use a market-related value of assets, whereby realized and unrealized gains/losses and appreciation/depreciation in the value of the investments are recognized over a period of five years, while investment income is recognized immediately. In 2020, the Company will maintain the expected long-term rate of return on plan assets at 7.00% to reflect management's current view of long-term investment returns.

The assets of the Company's various plans are primarily held in separate trust funds ("Trusts") which are diversified by asset type, country, sector and investment strategy. Each year, the CN Board of Directors reviews and confirms or amends the Statement of Investment Policies and Procedures ("SIPP") which includes the plans' long-term target asset allocation ("Policy") and related benchmark indices. This Policy is based on the long-term expectations of the economy and financial market returns and considers the dynamics of the plans' benefit obligations. In 2019, the Policy was amended to affect a target asset allocation change to bonds and mortgages, emerging market debt, private debt, absolute return, and investment-related liabilities. These changes were taken into account in the determination of the Company's expected long-term rate of return assumption. In 2019, the Policy was: 3% cash and short-term investments, 35% bonds and mortgages, 1.5% emerging market debt, 1.5% private debt, 40% equities, 4% real estate, 7% oil and gas, 4% infrastructure investments, 10% absolute return investments and negative 6% for investment-related liabilities.

Annually, the CN Investment Division ("Investment Manager"), a division of the Company created to invest and administer the assets of the plans, can also implement an investment strategy ("Strategy") which can lead the Plan's actual asset allocation to deviate from the Policy due to changing market risks and opportunities. The Pension and Investment Committee of the Board of Directors ("Committee") regularly compares the actual plan asset allocation to the Policy and Strategy and compares the actual performance of the Company's pension plan assets to the performance of the benchmark indices.

The Committee's approval is required for all major investments in illiquid securities. The SIPP allows for the use of derivative financial instruments to implement strategies, hedge and adjust existing or anticipated exposures. The SIPP prohibits investments in securities of the Company or its subsidiaries.

The actual, market-related value and expected rates of return on plan assets for the last five years were as follows:

	2019	2018	2017	2016	2015
Actual	12.2%	(2.4%)	9.2%	4.4%	5.5%
Market-related value	6.1%	5.7%	9.1%	8.2%	7.0%
Expected	7.00%	7.00%	7.00%	7.00%	7.00%

Management's Discussion and Analysis

The Company's expected long-term rate of return on plan assets reflects management's view of long-term investment returns and the effect of a 1% variation in such rate of return would result in a change to the net periodic benefit cost (income) of approximately \$100 million. Management's assumption of the expected long-term rate of return is subject to risks and uncertainties that could cause the actual rate of return to differ materially from management's assumption. There can be no assurance that the plan assets will be able to earn the expected long-term rate of return on plan assets.

Net periodic benefit income for pensions for 2020

In 2020, the Company expects net periodic benefit income to be \$117 million (2019 - \$183 million) for all its defined benefit pension plans.

Plan asset allocation

Based on the fair value of the assets held as at December 31, 2019, the assets of the Company's various plans are comprised of 3% in cash and short-term investments, 36% in bonds and mortgages, 3% in emerging market debt, 3% in private debt, 37% in equities, 2% in real estate, 5% in oil and gas, 3% in infrastructure, 10% in absolute return investments, 1% in risk-factor allocation investments and negative 3% in investment-related liabilities. See *Note 15 - Pensions and other postretirement benefits* to the Company's 2019 Annual Consolidated Financial Statements for information on the fair value measurements of such assets.

A significant portion of the plans' assets are invested in publicly traded equity securities whose return is primarily driven by stock market performance. Debt securities also account for a significant portion of the plans' investments and provide a partial offset to the variation in the pension benefit obligation that is driven by changes in the discount rate. The funded status of the plan fluctuates with market conditions and impacts funding requirements. The Company will continue to make contributions to the pension plans that as a minimum meet pension legislative requirements.

Rate of compensation increase

The rate of compensation increase is determined by the Company based upon its long-term plans for such increases. For 2019, a basic rate of compensation increase of 2.75% was used to determine the projected benefit obligation and the net periodic benefit cost (income).

Mortality

The Canadian Institute of Actuaries (CIA) published in 2014 a report on Canadian Pensioners' Mortality ("Report"). The Report contained Canadian pensioners' mortality tables and improvement scales based on experience studies conducted by the CIA. The CIA's conclusions were taken into account in selecting management's best estimate mortality assumption used to calculate the projected benefit obligation as at December 31, 2019, 2018 and 2017.

Funding of pension plans

The Company's main Canadian defined benefit pension plan, the CN Pension Plan, accounts for 93% of the Company's pension obligation and can produce significant volatility in pension funding requirements, given the pension fund's size, the many factors that drive the plan's funded status, and Canadian statutory pension funding requirements. Adverse changes to the assumptions used to calculate the plan's funding status, particularly the discount rate used for funding purposes, as well as changes to existing federal pension legislation, regulation and guidance could significantly impact the Company's future contributions.

For accounting purposes, the funded status is calculated under generally accepted accounting principles for all pension plans. For funding purposes, the funded status is also calculated under going concern and solvency scenarios as prescribed under pension legislation and subject to guidance issued by the CIA and the Office of the Superintendent of Financial Institutions (OSFI) for all registered Canadian defined benefit pension plans. The Company's funding requirements are determined upon completion of actuarial valuations. Actuarial valuations are generally required on an annual basis for all Canadian defined benefit pension plans, or when deemed appropriate by the OSFI. Actuarial valuations are also required annually for the Company's U.S. qualified defined benefit pension plans.

The Company's most recently filed actuarial valuations for funding purposes for its Canadian registered defined pension plans conducted as at December 31, 2018 indicated a funding excess on a going concern basis of approximately \$3.3 billion and a funding excess on a solvency basis of approximately \$0.5 billion, calculated using the three-year average of the plans' hypothetical wind-up ratio in accordance with the *Pension Benefit Standards Regulations, 1985*. The federal pension legislation requires funding deficits, if any, to be paid over a number of years, as calculated under current pension regulations. Alternatively, a letter of credit can be subscribed to fulfill required solvency deficit payments. The OSFI proposed revisions to its Instruction guide for the Preparation of Actuarial Reports for defined benefit pension plans. If these proposed revisions become final, they would affect the December 31, 2020 actuarial valuations by reducing the solvency status of the Company's defined benefit pension plans, and may negatively impact the Company's pension funding requirements starting in year 2021.

Management's Discussion and Analysis

The Company's next actuarial valuations for funding purposes for its Canadian registered defined benefit pension plans required as at December 31, 2019 will be performed in 2020. These actuarial valuations are expected to identify a funding excess on a going concern basis of approximately \$3.5 billion, while on a solvency basis a funding excess of approximately \$0.5 billion is expected.

Based on the anticipated results of these valuations, the Company expects to make total cash contributions of approximately \$135 million for all of the Company's pension plans in 2020. The Company expects cash from operations and its other sources of financing to be sufficient to meet its 2020 funding obligations.

Information disclosed by major pension plan

The following table provides the Company's plan assets by category, projected benefit obligation at end of year, as well as Company and employee contributions by major defined benefit pension plan:

<i>In millions</i>	<i>December 31, 2019</i>	CN Pension Plan	BC Rail Pension Plan	U.S. and other plans	Total
Plan assets by category					
Cash and short-term investments	\$	480	\$ 16	\$ 6	\$ 502
Bonds		6,140	316	165	6,621
Mortgages		51	1	—	52
Emerging market debt		490	8	2	500
Private debt		469	10	2	481
Public equities		6,333	161	115	6,609
Private equities		210	4	1	215
Real estate		424	9	2	435
Oil and gas		879	18	4	901
Infrastructure		603	12	4	619
Absolute return		1,729	28	8	1,765
Risk-factor allocation		283	4	1	288
<i>Investments</i>		18,091	587	310	18,988
Investment-related liabilities ⁽¹⁾		(554)	(9)	(2)	(565)
Other ⁽²⁾		(14)	1	14	1
Total plan assets	\$	17,523	\$ 579	\$ 322	\$ 18,424
Projected benefit obligation at end of year	\$	17,252	\$ 515	\$ 842	\$ 18,609
Company contributions in 2019	\$	81	\$ —	\$ 24	\$ 105
Employee contributions in 2019	\$	64	\$ —	\$ —	\$ 64

(1) Investment-related liabilities include securities sold under repurchase agreements.

(2) Other consists of operating assets of \$108 million and liabilities of \$107 million required to administer the Trusts' investment assets and the plans' benefit and funding activities.

Additional disclosures are provided in Note 15 – Pensions and other postretirement benefits to the Company's 2019 Annual Consolidated Financial Statements.

Personal injury and other claims

In the normal course of business, the Company becomes involved in various legal actions seeking compensatory and occasionally punitive damages, including actions brought on behalf of various purported classes of claimants and claims relating to employee and third-party personal injuries, occupational disease and property damage, arising out of harm to individuals or property allegedly caused by, but not limited to, derailments or other accidents.

Canada

Employee injuries are governed by the workers' compensation legislation in each province whereby employees may be awarded either a lump sum or a future stream of payments depending on the nature and severity of the injury. As such, the provision for employee injury claims is discounted. In the provinces where the Company is self-insured, costs related to employee work-related injuries are accounted for based on actuarially developed estimates of the ultimate cost associated with such injuries, including compensation, health care and third-party administration costs. An actuarial study is generally performed at least on a triennial basis. For all other legal actions, the Company maintains, and regularly updates on a case-by-case basis, provisions for such items when the expected loss is both probable and can be reasonably estimated based on currently available information.

Management's Discussion and Analysis

In 2019, 2018 and 2017 the Company recorded a decrease of \$7 million, and an increase of \$4 million and \$2 million, respectively, to its provision for personal injuries in Canada as a result of actuarial valuations for employee injury claims.

As at December 31, 2019, 2018 and 2017, the Company's provision for personal injury and other claims in Canada was as follows:

<i>In millions</i>	2019	2018	2017
Beginning of year	\$ 207	\$ 183	\$ 183
Accruals and other	29	52	38
Payments	(29)	(28)	(38)
End of year	\$ 207	\$ 207	\$ 183
Current portion - End of year	\$ 55	\$ 60	\$ 40

The assumptions used in estimating the ultimate costs for Canadian employee injury claims include, among other factors, the discount rate, the rate of inflation, wage increases and health care costs. The Company periodically reviews its assumptions to reflect currently available information. Over the past three years, the Company has not had to significantly change any of these assumptions. Changes in any of these assumptions could materially affect Casualty and other expense as reported in the Company's results of operations.

For all other legal claims in Canada, estimates are based on the specifics of the case, trends and judgment.

United States

Personal injury claims by the Company's employees, including claims alleging occupational disease and work-related injuries, are subject to the provisions of the *Federal Employers' Liability Act* (FELA). Employees are compensated under FELA for damages assessed based on a finding of fault through the U.S. jury system or through individual settlements. As such, the provision is undiscounted. With limited exceptions where claims are evaluated on a case-by-case basis, the Company follows an actuarial-based approach and accrues the expected cost for personal injury, including asserted and unasserted occupational disease claims, and property damage claims, based on actuarial estimates of their ultimate cost. An actuarial study is performed annually.

For employee work-related injuries, including asserted occupational disease claims, and third-party claims, including grade crossing, trespasser and property damage claims, the actuarial valuation considers, among other factors, the Company's historical patterns of claims filings and payments. For unasserted occupational disease claims, the actuarial valuation includes the projection of the Company's experience into the future considering the potentially exposed population. The Company adjusts its liability based upon management's assessment and the results of the study. On an ongoing basis, management reviews and compares the assumptions inherent in the latest actuarial valuation with the current claim experience and, if required, adjustments to the liability are recorded.

Due to the inherent uncertainty involved in projecting future events, including events related to occupational diseases, which include but are not limited to, the timing and number of actual claims, the average cost per claim and the legislative and judicial environment, the Company's future payments may differ from current amounts recorded.

In 2019, the Company recorded an increase of \$2 million to its provision for U.S. personal injury and other claims attributable to third-party claims, occupational disease claims and non-occupational disease claims pursuant to the 2019 actuarial valuation. In 2018 and 2017, actuarial valuations resulted in an increase of \$13 million and \$15 million, respectively. The prior years' adjustments from the actuarial valuations were mainly attributable to non-occupational disease claims, third-party claims and occupational disease claims reflecting changes in the Company's estimates of unasserted claims and costs related to asserted claims. The Company has an ongoing risk mitigation strategy focused on reducing the frequency and severity of claims through injury prevention and containment; mitigation of claims; and lower settlements of existing claims.

As at December 31, 2019, 2018 and 2017, the Company's provision for personal injury and other claims in the U.S. was as follows:

<i>In millions</i>	2019	2018	2017
Beginning of year	\$ 139	\$ 116	\$ 118
Accruals and other	44	41	46
Payments	(31)	(28)	(41)
Foreign exchange	(7)	10	(7)
End of year	\$ 145	\$ 139	\$ 116
Current portion - End of year	\$ 36	\$ 37	\$ 25

For the U.S. personal injury and other claims liability, historical claim data is used to formulate assumptions relating to the expected number of claims and average cost per claim for each year. Changes in any one of these assumptions could materially affect Casualty and other expense

Management's Discussion and Analysis

as reported in the Company's results of operations. A 5% change in the asbestos average claim cost or a 1% change in the inflation trend rate for all injury types would result in an increase or decrease in the liability recorded of approximately \$2 million.

Environmental matters

Known existing environmental concerns

The Company is or may be liable for remediation costs at individual sites, in some cases along with other potentially responsible parties, associated with actual or alleged contamination. The ultimate cost of addressing these known contaminated sites cannot be definitively established given that the estimated environmental liability for any given site may vary depending on the nature and extent of the contamination; the nature of anticipated response actions, taking into account the available clean-up techniques; evolving regulatory standards governing environmental liability; and the number of potentially responsible parties and their financial viability. As a result, liabilities are recorded based on the results of a four-phase assessment conducted on a site-by-site basis. A liability is initially recorded when environmental assessments occur, remedial efforts are probable, and when the costs, based on a specific plan of action in terms of the technology to be used and the extent of the corrective action required, can be reasonably estimated. The Company estimates the costs related to a particular site using cost scenarios established by external consultants based on the extent of contamination and expected costs for remedial efforts. In the case of multiple parties, the Company accrues its allocable share of liability taking into account the Company's alleged responsibility, the number of potentially responsible parties and their ability to pay their respective share of the liability. Adjustments to initial estimates are recorded as additional information becomes available.

The Company's provision for specific environmental sites is undiscounted and includes costs for remediation and restoration of sites, as well as monitoring costs. Environmental expenses, which are classified as Casualty and other in the Consolidated Statements of Income, include amounts for newly identified sites or contaminants as well as adjustments to initial estimates. Recoveries of environmental remediation costs from other parties are recorded as assets when their receipt is deemed probable.

As at December 31, 2019, 2018 and 2017, the Company's provision for specific environmental sites was as follows:

<i>In millions</i>		2019		2018		2017
Beginning of year	\$	61	\$	78	\$	86
Accruals and other		31		16		16
Payments		(34)		(34)		(23)
Foreign exchange		(1)		1		(1)
<i>End of year</i>	\$	57	\$	61	\$	78
Current portion - End of year	\$	38	\$	39	\$	57

The Company anticipates that the majority of the liability at December 31, 2019 will be paid out over the next five years. Based on the information currently available, the Company considers its provisions to be adequate.

Unknown existing environmental concerns

While the Company believes that it has identified the costs likely to be incurred for environmental matters based on known information, the discovery of new facts, future changes in laws, the possibility of releases of hazardous materials into the environment and the Company's ongoing efforts to identify potential environmental liabilities that may be associated with its properties may result in the identification of additional environmental liabilities and related costs. The magnitude of such additional liabilities and the costs of complying with future environmental laws and containing or remediating contamination cannot be reasonably estimated due to many factors, including:

- the lack of specific technical information available with respect to many sites;
- the absence of any government authority, third-party orders, or claims with respect to particular sites;
- the potential for new or changed laws and regulations and for development of new remediation technologies and uncertainty regarding the timing of the work with respect to particular sites; and
- the determination of the Company's liability in proportion to other potentially responsible parties and the ability to recover costs from any third parties with respect to particular sites.

Therefore, the likelihood of any such costs being incurred or whether such costs would be material to the Company cannot be determined at this time. There can thus be no assurance that liabilities or costs related to environmental matters will not be incurred in the future, or will not have a material adverse effect on the Company's financial position or results of operations in a particular quarter or fiscal year, or that the Company's liquidity will not be adversely impacted by such liabilities or costs, although management believes, based on current information, that the costs to address environmental matters will not have a material adverse effect on the Company's financial position or liquidity. Costs related to any unknown existing or future contamination will be accrued in the period in which they become probable and reasonably estimable.

Management's Discussion and Analysis

Future occurrences

In railroad and related transportation operations, it is possible that derailments or other accidents, including spills and releases of hazardous materials, may occur that could cause harm to human health or to the environment. As a result, the Company may incur costs in the future, which may be material, to address any such harm, compliance with laws and other risks, including costs relating to the performance of clean-ups, payment of environmental penalties and remediation obligations, and damages relating to harm to individuals or property.

Regulatory compliance

The Company may incur significant capital and operating costs associated with environmental regulatory compliance and clean-up requirements, in its railroad operations and relating to its past and present ownership, operation or control of real property. Environmental expenditures that relate to current operations are expensed unless they relate to an improvement to the property. Expenditures that relate to an existing condition caused by past operations and which are not expected to contribute to current or future operations are expensed. Operating expenses related to regulatory compliance activities for environmental matters for the year ended December 31, 2019 amounted to \$25 million (2018 - \$22 million; 2017 - \$20 million). For 2020, the Company expects to incur operating expenses relating to environmental matters in the same range as 2019. In addition, based on the results of its operations and maintenance programs, as well as ongoing environmental audits and other factors, the Company plans for specific capital improvements on an annual basis. Certain of these improvements help ensure facilities, such as fueling stations, waste water and storm water treatment systems, comply with environmental standards and include new construction and the updating of existing systems and/or processes. Other capital expenditures relate to assessing and remediating certain impaired properties. The Company's environmental capital expenditures for the year ended December 31, 2019 amounted to \$25 million (2018 - \$19 million; 2017 - \$21 million). For 2020, the Company expects to incur capital expenditures relating to environmental matters in the same range as 2019.

Business risks

In the normal course of business, the Company is exposed to various business risks and uncertainties that can have an effect on the Company's results of operations, financial position, or liquidity. While some exposures may be reduced by the Company's risk management strategies, many risks are driven by external factors beyond the Company's control or are of a nature which cannot be eliminated. The key areas of business risks and uncertainties described in this section are not the only ones that can affect the Company. Additional risks and uncertainties not currently known to management or that may currently not be considered material by management, could nevertheless also have an adverse effect on the Company's business.

Competition

The Company faces significant competition, including from rail carriers and other modes of transportation, and is also affected by its customers' flexibility to select among various origins and destinations, including ports, in getting their products to market. Specifically, the Company faces competition from Canadian Pacific Railway Company (CP), which operates the other major rail system in Canada and services most of the same industrial areas, commodity resources and population centers as the Company; major U.S. railroads and other Canadian and U.S. railroads; long-distance trucking companies, transportation via the St. Lawrence-Great Lakes Seaway and the Mississippi River and transportation via pipelines. In addition, while railroads must build or acquire and maintain their rail systems, motor carriers and barges are able to use public rights-of-way that are built and maintained by public entities without paying fees covering the entire costs of their usage.

Competition is generally based on the quality and the reliability of the service provided, access to markets, as well as price. Factors affecting the competitive position of customers, including exchange rates and energy cost, could materially adversely affect the demand for goods supplied by the sources served by the Company and, therefore, the Company's volumes, revenues and profit margins. Factors affecting the general market conditions for the Company's customers can result in an imbalance of transportation capacity relative to demand. An extended period of supply/demand imbalance could negatively impact market rate levels for all transportation services, and more specifically the Company's ability to maintain or increase rates. This, in turn, could materially and adversely affect the Company's business, results of operations or financial position.

The level of consolidation of rail systems in the U.S. has resulted in larger rail systems that are in a position to compete effectively with the Company in numerous markets.

There can be no assurance that the Company will be able to compete effectively against current and future competitors in the transportation industry, or that further consolidation within the transportation industry and legislation allowing for more leniency in size and weight for motor carriers will not adversely affect the Company's competitive position. No assurance can be given that competitive pressures will not lead to reduced revenues, profit margins or both.

Management's Discussion and Analysis

Environmental matters

The Company's operations are subject to numerous federal, provincial, state, municipal and local environmental laws and regulations in Canada and the U.S. concerning, among other things, emissions into the air; discharges into waters; the generation, handling, storage, transportation, treatment and disposal of waste, hazardous substances and other materials; decommissioning of underground and aboveground storage tanks; and soil and groundwater contamination. A risk of environmental liability is inherent in railroad and related transportation operations; real estate ownership, operation or control; and other commercial activities of the Company with respect to both current and past operations. As a result, the Company incurs significant operating and capital costs, on an ongoing basis, associated with environmental regulatory compliance and clean-up requirements in its railroad operations and relating to its past and present ownership, operation or control of real property.

While the Company believes that it has identified the costs likely to be incurred for environmental matters in the next several years based on known information, the discovery of new facts, future changes in laws, the possibility of releases of hazardous materials into the environment and the Company's ongoing efforts to identify potential environmental liabilities that may be associated with its properties may result in the identification of additional environmental liabilities and related costs.

In railroad and related transportation operations, it is possible that derailments or other accidents, including spills and releases of hazardous materials, may occur that could cause harm to human health or to the environment. In addition, the Company is also exposed to potential catastrophic liability risk, faced by the railroad industry generally, in connection with the transportation of toxic inhalation hazard materials such as chlorine and anhydrous ammonia, or other dangerous commodities such as crude oil and propane that the Company may be required to transport as a result of its common carrier obligations. Therefore, the Company may incur costs in the future, which may be material, to address any such harm, compliance with laws or other risks, including costs relating to the performance of clean-ups, payment of environmental penalties and remediation obligations, and damages relating to harm to individuals or property.

The environmental liability for any given contaminated site varies depending on the nature and extent of the contamination; the available clean-up techniques; evolving regulatory standards governing environmental liability; and the number of potentially responsible parties and their financial viability. As such, the ultimate cost of addressing known contaminated sites cannot be definitively established. Also, additional contaminated sites yet unknown may be discovered or future operations may result in accidental releases.

While some exposures may be reduced by the Company's risk mitigation strategies (including periodic audits, employee training programs, emergency plans and procedures, and insurance), many environmental risks are driven by external factors beyond the Company's control or are of a nature which cannot be completely eliminated. Therefore, there can be no assurance, notwithstanding the Company's mitigation strategies, that liabilities or costs related to environmental matters will not be incurred in the future or that environmental matters will not have a material adverse effect on the Company's results of operations, financial position or liquidity, or reputation.

Personal injury and other claims

In the normal course of business, the Company becomes involved in various legal actions seeking compensatory and occasionally punitive damages, including actions brought on behalf of various purported classes of claimants and claims relating to employee and third-party personal injuries, occupational disease, and property damage, arising out of harm to individuals or property allegedly caused by, but not limited to, derailments or other accidents. The Company maintains provisions for such items, which it considers to be adequate for all of its outstanding or pending claims and benefits from insurance coverage for occurrences in excess of certain amounts. The final outcome with respect to actions outstanding or pending at December 31, 2019, or with respect to future claims, cannot be predicted with certainty, and therefore there can be no assurance that their resolution will not have a material adverse effect on the Company's results of operations, financial position or liquidity, in a particular quarter or fiscal year.

Labor negotiations

As at December 31, 2019, CN employed a total of 18,726 employees in Canada, of which 13,447, or 72%, were unionized employees and 7,249 employees in the U.S., of which 6,111, or 84%, were unionized employees. The Company's relationships with its unionized workforce are governed by, amongst other items, collective agreements which are negotiated from time to time. Disputes relating to the renewal of collective agreements could potentially result in strikes, slowdowns and loss of business. Future labor agreements or renegotiated agreements could increase labor and fringe benefits and related expenses. There can be no assurance that the Company will be able to renew and have its collective agreements ratified without any strikes or lockouts or that the resolution of these collective bargaining negotiations will not have a material adverse effect on the Company's results of operations or financial position.

Canadian workforce

On February 5, 2019, the collective agreement with the United Steelworkers governing track and bridge workers was ratified by its members, renewing the collective agreement for a five-year term expiring on December 31, 2023.

On March 22, 2019, CN received notice to commence collective bargaining with the Teamsters Canada Rail Conference (TCRC) to renew the collective agreements covering conductors and yard service employees. On June 26, 2019, the Minister of Labour appointed conciliators to

Management's Discussion and Analysis

assist the parties in their negotiations. On August 23, 2019, the parties agreed to extend the conciliation period. On November 19, 2019, the TCRC initiated strike action and on November 26, 2019 a tentative agreement was reached to renew the collective agreements. On January 31, 2020, the collective agreements were ratified by its members, renewing the collective agreements for a three-year term, retroactive from July 23, 2019.

On May 10, 2019, the collective agreements with Unifor for three bargaining units covering clerical and intermodal employees, and other classifications, were ratified by its members, renewing the collective agreements for a 45-month term expiring on December 31, 2022.

On October 2, 2019, subsequent to the tentative agreement reached with Unifor to renew the collective agreement governing owner-operator truck drivers which was rejected by the membership on May 10, 2019, a revised agreement was ratified by its members, renewing that collective agreement through December 31, 2023.

On June 14, 2019, the collective agreement with the TCRC governing rail traffic controllers was ratified by its members, renewing the collective agreements for a four-year term expiring on December 31, 2022.

The Company's collective agreements remain in effect until the bargaining process outlined under the *Canada Labour Code* has been exhausted.

U.S. workforce

As of January 31, 2020, collective agreements covering all non-operating and operating craft employees at Grand Trunk Western Railroad Company (GTW), companies owned by Illinois Central Corporation (ICC), companies owned by Wisconsin Central Ltd. (WC) and Bessemer & Lake Erie Railroad Company (BLE), and all employees at Pittsburgh and Conneaut Dock Company (PCD) were ratified. The tentative agreement covering the laborers represented by the United Steelworkers at PCD was reached on December 23, 2019 and was ratified by its members on December 27, 2019. Agreements in place have various moratorium provisions, which preserve the status quo in respect of the given collective agreement during the terms of such moratoriums. Where negotiations are ongoing, the terms and conditions of existing agreements generally continue to apply until new agreements are reached or the processes of the *Railway Labor Act* have been exhausted.

The general approach to labor negotiations by U.S. Class I railroads is to bargain on a collective national basis with the industry, which GTW, ICC, WC and BLE currently participate in, for collective agreements covering all non-operating and operating employees. The next national bargaining round has commenced.

Regulation

Economic regulation – Canada

The Company's rail operations in Canada are subject to economic regulation by the Canadian Transportation Agency under the *Canada Transportation Act*, which provides rate and service remedies, including final offer arbitration, long-haul interswitching rates and mandatory interswitching. It also regulates the maximum revenue entitlement for the movement of regulated grain, charges for railway ancillary services and noise-related disputes. In addition, various Company business transactions must gain prior regulatory approval, with attendant risks and uncertainties, and the Company is subject to government oversight with respect to rate, service and business practice issues.

No assurance can be given that any current or future regulatory or legislative initiatives by the Canadian federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Economic regulation – U.S.

The Company's U.S. rail operations are subject to economic regulation by the STB. The STB serves as both an adjudicatory and regulatory body and has jurisdiction over certain railroad rate and service issues and rail restructuring transactions such as mergers, line sales, line construction and line abandonments. As such, various Company business transactions must gain prior regulatory approval and aspects of its pricing and service practices may be subject to challenge, with attendant risks and uncertainties. Recent proceedings undertaken by the STB in a number of significant matters remain pending.

The rail industry had previously challenged as unconstitutional Congress' delegation in the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) to Amtrak and the Federal Railroad Administration (FRA) of joint authority to promulgate the PRIIA performance standards. On March 23, 2017, the U.S. District Court for the District of Columbia concluded that Section 207 of PRIIA was void and unconstitutional and vacated the performance standards. The Government defendants challenged this decision in the U.S. Court of Appeals for the District of Columbia. On July 20, 2018, the U.S. Court of Appeals for the District of Columbia Circuit reversed the judgment of the District Court and held that the constitutional defect could be appropriately remedied by severing the arbitration provision in Section 207(d). The U.S. Court of Appeals noted that the aspect of the District Court's decision that vacated the performance standards is final because the Government defendants did not challenge it on appeal. On October 24, 2018, the U.S. Court of Appeals denied the rail industry's petition for rehearing. On June 3, 2019, the U.S. Supreme Court denied the rail industry's petition for review. As part of PRIIA, U.S. Congress authorized the STB to investigate any railroad

Management's Discussion and Analysis

over whose track Amtrak operates that fails to meet heightened performance standards preference to Amtrak, the STB is authorized to assess damages against the host railroad.

On August 8, 2019, the STB issued interim findings and guidance to National Railroad Passenger Corporation (Amtrak) and the Company regarding the terms and conditions for Amtrak's use of the Company's lines. The STB ordered Board-sponsored mediation.

In 2019, the STB proposed rules and policy statements and received comments related to the reporting of rail service data, the agency's methodology for determining the rail industry's cost of capital, and rate reasonableness standards, in addition to issuing proposals concerning demurrage and accessorial charges. The STB held a hearing to receive comments on a report concerning revenue adequacy and received additional comments in the proceeding relating to the STB's prior notice of proposed rulemaking to revoke previously granted exemptions of five commodities from regulatory oversight.

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the U.S. federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Safety regulation – Canada

The Company's rail operations in Canada are subject to safety regulation by the Minister under the *Railway Safety Act* as well as the rail portions of other safety-related statutes, which are administered by Transport Canada. The Company may be required to transport toxic inhalation hazard materials as a result of its common carrier obligations and, as such, is exposed to additional regulatory oversight in Canada. The *Transportation of Dangerous Goods Act*, also administered by Transport Canada, establishes the safety requirements for the transportation of goods classified as dangerous and enables the adoption of regulations for security training and screening of personnel working with dangerous goods, as well as the development of a program to require a transportation security clearance for dangerous goods, the tracking of dangerous goods during transport and the development of an emergency response plan.

In 2014, Transport Canada's new *Grade Crossings Regulations* under the *Railway Safety Act* came into force, which establish specific standards for new grade crossings and requirements that existing crossings be upgraded to basic safety standards by November 2021, as well as safety related data that must be provided by railway companies on an annual basis. The Company has complied with the information requirements by providing road authorities with specific information respecting public grade crossings. The Company has also initiated the work required to have grade crossings on its network to meet the new standards.

On April 26, 2017, the Minister initiated the review of the *Railway Safety Act*, which was initially scheduled for 2018, and a panel of three persons was appointed to proceed with the review. On May 31, 2018, the Minister tabled in the House of Commons the report of the three-person panel. The Minister has not indicated how and when he will answer to the panel's report.

Transport Canada's new regulations aimed at lowering the risk of terrorism on the Canadian rail system, entitled *Transportation of Dangerous Goods by Rail Security Regulations* were adopted on May 6, 2019 but are coming into force in sequence. The provisions under which rail carriers have to conduct security inspections of certain railway vehicles containing dangerous goods, report potential security threats and concerns to the Canadian Transport Emergency Centre, and employ a rail security coordinator are in force since August 6, 2019. The requirements that all rail carriers proactively engage in security planning processes and manage security risks, by introducing security awareness training for employees, security plans that include measures to address assessed risks, and security plan training for employees with duties related to the security plan or security sensitive dangerous goods will come into force on February 6, 2020.

Bill C-49, which came into force on May 23, 2018, contains provisions that amend the *Railway Safety Act* to prohibit a railway company from operating railway equipment unless the equipment is fitted with prescribed recording instruments and prescribed information is recorded using those instruments, collected and preserved. These changes are not yet in force as regulations detailing their conditions must first be enacted by Transport Canada. On May 24, 2019, Transport Canada published the proposed *Locomotive Voice and Video Recorder Regulations* ("LVVR") and invited interested parties to comment by July 24, 2019. The LVVR draft regulations, to be adopted pursuant to the *Transportation Modernization Act* (Bill C-49), will require railway companies to procure and install LVVR equipment within two years after their coming into force. The LVVR regulations set out the technical specifications of the equipment, deal with record keeping, provide for privacy protection and detail how railway companies can access the information on a random basis. LVVR technology will assist in preventing accidents and facilitate investigations to better understand the circumstances of accidents. On July 24, 2019, CN provided its submission. Transport Canada is expected to issue a revised version of the proposed regulations when all comments have been reviewed.

On December 20, 2018, the Minister issued an order requesting Canadian railway companies to revise the *Work/Rest Rules* under the *Railway Safety Act* to reflect the latest fatigue science and fatigue management practices and address a series of related elements.

On April 13, 2019, Transport Canada published proposed new *Passenger Rail Security Regulations*, these regulations would require passenger railway and host companies to effectively manage their security risks by implementing risk-based security practices, including security awareness training, security risk assessments, security plans, security plan training, the designation of a rail security coordinator, security inspections, security exercises and security incident reporting.

Management's Discussion and Analysis

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the Canadian federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Safety regulation – U.S.

The Company's U.S. rail operations are subject to safety regulation by the FRA under the *Federal Railroad Safety Act* as well as rail portions of other safety statutes, with the transportation of certain hazardous commodities also governed by regulations promulgated by the Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA requires carriers operating in the U.S. to report annually the volume and route-specific data for cars containing these commodities; conduct a safety and security risk analysis for each used route; identify a commercially practicable alternative route for each used route; and select for use the practical route posing the least safety and security risk. In addition, the Transportation Security Administration (TSA) requires rail carriers to provide upon request, within five minutes for a single car and 30 minutes for multiple cars, location and shipping information on cars on their networks containing toxic inhalation hazard materials and certain radioactive or explosive materials; and ensure the secure, attended transfer of all such cars to and from shippers, receivers and other carriers that will move from, to, or through designated high-threat urban areas.

On October 16, 2008, the U.S. Congress enacted the *Rail Safety Improvement Act of 2008*, which required all Class I railroads and intercity passenger and commuter railroads to implement a PTC system by December 31, 2015 on mainline track where intercity passenger railroads and commuter railroads operate and where toxic inhalation hazard materials of certain thresholds are transported. PTC is a collision avoidance technology designed to override locomotive controls and prevent train-to-train collisions, overspeed derailments, misaligned switch derailments, and unauthorized incursions onto established work zones. Pursuant to the *Positive Train Control Enforcement and Implementation Act of 2015* and the *FAST Act of 2015*, Congress extended the PTC installation deadline until December 31, 2018, with the option for a railroad carrier to complete full implementation by no later than December 31, 2020, provided certain milestones were met by the end of 2018. In 2018, the Company completed the milestones required for the extension and the FRA has approved the extension for the Company to complete full implementation by December 31, 2020. CN has received conditional FRA approval to conduct PTC revenue operation, which enables interoperability testing with other railroads. The FRA is reviewing CN's PTC Safety Plan. In 2019, CN initiated PTC revenue operation on its remaining subdivisions where PTC is required and began interoperability testing with tenant railroads. Noncompliance with these or other laws and regulations may subject the Company to fines, penalties and/or service interruptions. The implementation of PTC will result in additional capital expenditures and operating costs. In order to implement PTC, the Company has invested in various information technology applications, including back office systems, aimed to enhance the reliability of PTC operations. The Company continues to evaluate the technical and operational merits of its information technology applications. In the event that such evaluations lead to the identification of better or more reliable technology, the Company may consider implementing such technology, which may result in additional costs. PTC may result in reduced operational efficiency and service levels.

On February 28, 2019, in coordination with the FRA, PHMSA issued a final rule for oil spill response plans and information sharing for high-hazard flammable trains for the purpose of improving oil spill response readiness and mitigating the effects of oil-related rail incidents. On March 29, 2019, the Association of American Railroads sought reconsideration from PHMSA of certain aspects of the final rule. On May 29, 2019, PHMSA denied the request for reconsideration.

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the U.S. federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Regulation – Vessels

The Company's vessel operations are subject to regulation by the U.S. Coast Guard and the Department of Transportation, Maritime Administration, which regulate the ownership and operation of vessels operating on the Great Lakes and in U.S. coastal waters. In addition, the Environmental Protection Agency has authority to regulate air emissions from these vessels.

Management's Discussion and Analysis

Security

The Company is subject to statutory and regulatory directives in the U.S. addressing homeland security concerns. In the U.S., safety matters related to security are overseen by the TSA, which is part of the U.S. Department of Homeland Security (DHS) and PHMSA, which, like the FRA, is part of the U.S. Department of Transportation. Border security falls under the jurisdiction of U.S. Customs and Border Protection (CBP), which is part of the DHS. In Canada, the Company is subject to regulation by the Canada Border Services Agency (CBSA). Matters related to agriculture-related shipments crossing the Canada/U.S. border also fall under the jurisdiction of the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA) in the U.S. and the Canadian Food Inspection Agency (CFIA) in Canada. More specifically, the Company is subject to:

- border security arrangements, pursuant to an agreement the Company and CP entered into with the CBP and the CBSA;
- the CBP's Customs-Trade Partnership Against Terrorism (C-TPAT) program and designation as a low-risk carrier under CBSA's Customs Self-Assessment (CSA) program;
- regulations imposed by the CBP requiring advance notification by all modes of transportation for all shipments into the U.S. The CBSA is also working on similar requirements for Canada-bound traffic;
- inspection for imported fruits and vegetables grown in Canada and the agricultural quarantine and inspection (AQI) user fee for all traffic entering the U.S. from Canada; and
- gamma ray screening of cargo entering the U.S. from Canada, and potential security and agricultural inspections at the Canada/U.S. border.

The Company has worked with the AAR to develop and put in place an extensive industry-wide security plan to address terrorism and security-driven efforts by state and local governments seeking to restrict the routings of certain hazardous materials. If such state and local routing restrictions were to go into force, they would be likely to add to security concerns by foreclosing the Company's most optimal and secure transportation routes, leading to increased yard handling, longer hauls, and the transfer of traffic to lines less suitable for moving hazardous materials, while also infringing upon the exclusive and uniform federal oversight over railroad security matters.

While the Company will continue to work closely with the CBSA, CBP, and other Canadian and U.S. agencies, as described above, no assurance can be given that these and future decisions by the U.S., Canadian, provincial, state, or local governments on homeland security matters, legislation on security matters enacted by the U.S. Congress or Parliament, or joint decisions by the industry in response to threats to the North American rail network, will not materially adversely affect the Company's results of operations, or its competitive and financial position.

Transportation of hazardous materials

As a result of its common carrier obligations, the Company is legally required to transport toxic inhalation hazard materials regardless of risk or potential exposure or loss. A train accident involving the transport of these commodities could result in significant costs and claims for personal injury, property damage, and environmental penalties and remediation in excess of insurance coverage for these risks, which may materially adversely affect the Company's results of operations, or its competitive and financial position.

Economic conditions

The Company is susceptible to changes in the economic conditions of the industries and geographic areas that produce and consume the freight it transports or the supplies it requires to operate. In addition, many of the goods and commodities carried by the Company experience cyclicity in demand. For example, the volatility in domestic and global energy markets could impact the demand for transportation services as well as impact the Company's fuel costs and surcharges. In addition, the volatility in other commodity markets such as coal and iron ore could have an impact on volumes. Many of the bulk commodities the Company transports move offshore and are affected more by global rather than North American economic conditions. Adverse North American and global economic conditions, or economic or industrial restructuring, that affect the producers and consumers of the commodities carried by the Company, including customer insolvency, may have a material adverse effect on the volume of rail shipments and/or revenues from commodities carried by the Company, and thus materially and negatively affect its results of operations, financial position, or liquidity.

Management's Discussion and Analysis

Pension funding volatility

The Company's funding requirements for its defined benefit pension plans are determined using actuarial valuations. See the section of this MD&A entitled *Critical accounting estimates – Pensions and other postretirement benefits* for information relating to the funding of the Company's defined benefit pension plans. Adverse changes with respect to pension plan returns and the level of interest rates as well as changes to existing federal pension legislation and regulation may significantly impact future pension contributions and have a material adverse effect on the funding status of the plans and the Company's results of operations. The OSFI proposed revisions to its Instruction guide for the Preparation of Actuarial Reports for defined benefit pension plans. This will affect the December 31, 2020 actuarial valuations by reducing the solvency status of the Company's defined benefit pension plans, and may negatively impact the Company's pension funding requirements starting in year 2021.

There can be no assurance that the Company's pension expense and funding of its defined benefit pension plans will not increase in the future and thereby negatively impact earnings and/or cash flow.

Reliance on technology and related cybersecurity risk

The Company relies on information technology in all aspects of its business. While the Company has business continuity and disaster recovery plans, as well as other security and mitigation programs in place to protect its operations, information and technology assets, a cybersecurity attack and significant disruption or failure of its information technology and communications systems could result in service interruptions, safety failures, security violations, regulatory compliance failures or other operational difficulties, leading to possible litigation and regulatory oversight. Security threats are evolving, and can come from nation states, organized criminals, hacktivists and others with malicious intent. A security incident could compromise corporate information and assets, as well as operations. If the Company is unable to restore service or to acquire or implement any needed new technology, it may suffer a competitive disadvantage, which could also have an adverse effect on the Company's results of operations, financial position or liquidity. The Company is investing to meet evolving network and data security expectations and regulations, in an effort to mitigate the impact a security incident might have on the Company's results of operations, financial position or liquidity. The final outcome of a potential security incident cannot be predicted with certainty, and therefore there can be no assurance that its resolution will not have a material adverse effect on the Company's reputation, goodwill, results of operations, financial position or liquidity, in a particular quarter or fiscal year.

Trade restrictions

Global as well as North American trade conditions, including trade barriers on certain commodities, may interfere with the free circulation of goods across Canada and the U.S. or the cost associated therewith. Following the expiration of the Softwood Lumber Agreement (SLA) between Canada and the U.S., including the expiration of the one year moratorium period preventing the U.S. from launching any trade action against Canadian producers, on January 3, 2018, based on affirmative final determinations by both the U.S. Department of Commerce and the U.S. International Trade Commission, antidumping and countervailing duty orders were imposed on imports of Canadian softwood lumber to the U.S., which Canada responded to the imposition by the U.S. of antidumping and countervailing duties, in connection with lumber and other commodities, by filing a complaint with the World Trade Organization (WTO). In June 2019, Canada appealed the WTO panel ruling of April 2019 that allowed the U.S. to continue to use their current methodology to calculate anti-dumping tariffs on lumber.

On November 30, 2018, the U.S., Canada and Mexico signed the United States-Mexico-Canada Agreement (USMCA), a new trade agreement to replace the North American Free Trade Agreement, which was subject to ratification by the legislature of Canada and the U.S., with Mexico having ratified it on June 19, 2019. On May 17, 2019, Canada and the U.S. reached an understanding on tariffs of steel and aluminum to eliminate all tariffs the U.S. imposed on Canadian imports of steel and aluminum, and all tariffs Canada imposed in retaliation for the action taken by the U.S. On December 10, 2019, Canada, U.S. and Mexico announced that an agreement had been reached on the remaining provisions to implement the USMCA. The revised USMCA is still subject to the remaining ratification of the legislature of Canada.

It remains too early to assess the potential outcome of other ongoing various trade actions taken by governments and agencies. As such, there can be no assurance that trade actions will not materially adversely affect the volume of rail shipments and/or revenues from commodities carried by the Company, and thus materially and negatively impact earnings and/or cash flow.

Terrorism and international conflicts

Potential terrorist actions can have a direct or indirect impact on the transportation infrastructure, including railway infrastructure in North America, and can interfere with the free flow of goods. Rail lines, facilities and equipment could be directly targeted or become indirect casualties, which could interfere with the free flow of goods. International conflicts can also have an impact on the Company's markets. Government response to such events could adversely affect the Company's operations. Insurance premiums could also increase significantly or coverage could become unavailable.

Management's Discussion and Analysis

Customer credit risk

In the normal course of business, the Company monitors the financial condition and credit limits of its customers and reviews the credit history of each new customer. Although the Company believes there are no significant concentrations of credit risk, economic conditions can affect the Company's customers and can result in an increase to the Company's credit risk and exposure to the business failures of its customers. A widespread deterioration of customer credit and/or business failures of customers could have a material adverse effect on the Company's results of operations, financial position or liquidity.

Liquidity

Disruptions in financial markets or deterioration of the Company's credit ratings could hinder the Company's access to external sources of funding to meet its liquidity needs. There can be no assurance that changes in the financial markets will not have a negative effect on the Company's liquidity and its access to capital at acceptable terms and rates.

Supplier concentration

The Company operates in a capital-intensive industry where the complexity of rail equipment limits the number of suppliers available. The supply market could be disrupted if changes in the economy caused any of the Company's suppliers to cease production or to experience capacity or supply shortages. The supply market could become further concentrated and could result in changes to the product or service offerings by suppliers. This could also result in cost increases to the Company and difficulty in obtaining and maintaining the Company's rail equipment and materials. Since the Company also has foreign suppliers, international relations, trade restrictions and global economic and other conditions may potentially interfere with the Company's ability to procure necessary equipment and materials. Widespread business failures of, or restrictions on suppliers, could have a material adverse effect on the Company's results of operations or financial position.

Availability of qualified personnel

The Company may experience demographic challenges in the employment levels of its workforce. Changes in employee demographics, training requirements and the availability of qualified personnel, particularly locomotive engineers and conductors, could negatively impact the Company's ability to meet demand for rail service. The Company monitors employment levels and seeks to ensure that there is an adequate supply of personnel to meet rail service requirements. However, the Company's efforts to attract and retain qualified personnel may be hindered by specific conditions in the job market. No assurance can be given that demographic or other challenges will not materially adversely affect the Company's results of operations or its financial position.

Fuel costs

The Company is susceptible to the volatility of fuel prices due to changes in the economy or supply disruptions. Fuel shortages can occur due to refinery disruptions, production quota restrictions, climate, and labor and political instability. Increases in fuel prices or supply disruptions may materially adversely affect the Company's results of operations, financial position or liquidity.

Foreign exchange

The Company conducts its business in both Canada and the U.S. and as a result, is affected by currency fluctuations. Changes in the exchange rate between the Canadian dollar and other currencies (including the US dollar) make the goods transported by the Company more or less competitive in the world marketplace and thereby may adversely affect the Company's revenues and expenses.

Interest rates

The Company is exposed to interest rate risk relating to the Company's debt. The Company mainly issues fixed-rate debt, which exposes the Company to variability in the fair value of the debt. The Company also issues debt with variable interest rates, which exposes the Company to variability in interest expense. Adverse changes to market interest rates may significantly impact the fair value or future cash flows of the Company's financial instruments. There can be no assurance that changes in the market interest rates will not have a negative effect on the Company's results of operations or liquidity.

Transportation network disruptions

Due to the integrated nature of the North American freight transportation infrastructure, the Company's operations may be negatively affected by service disruptions of other transportation links such as ports and other railroads which interchange with the Company. A significant prolonged service disruption of one or more of these entities could have an adverse effect on the Company's results of operations, financial position or liquidity. Furthermore, deterioration in the cooperative relationships with the Company's connecting carriers could directly affect the Company's operations.

Management's Discussion and Analysis

Severe weather

The Company's success is dependent on its ability to operate its railroad efficiently. Severe weather and natural disasters, such as extreme cold or heat, flooding, droughts, fires, hurricanes and earthquakes, can disrupt operations and service for the railroad, affect the performance of locomotives and rolling stock, as well as disrupt operations for both the Company and its customers. Business interruptions resulting from severe weather could result in increased costs, increased liabilities and lower revenues, which could have a material adverse effect on the Company's results of operations, financial condition or liquidity.

Climate change

Climate change, including the impacts of global warming, has the potential physical risks of increasing the frequency of adverse weather events, which can disrupt the Company's operations and damage its infrastructure or properties. It could also affect the markets for, or the volume of, the goods the Company carries or otherwise have a material adverse effect on the Company's results of operations, financial position or liquidity. Government action or inaction to address climate change could also affect CN. The Company is currently subject to climate change and other emissions-related laws and regulations that have been proposed and, in some cases adopted, on the federal, provincial and state levels. While CN is continually focused on efficiency improvements and reducing its carbon footprint, cap and trade systems, carbon taxes, or other controls on emissions of greenhouse gasses imposed by various government bodies could increase the Company's capital and operating costs. The Company may not be able to offset such impacts, including, for example, through higher freight rates. Climate change legislation and regulation could also affect CN's customers; make it difficult for CN's customers to produce products in a cost-competitive manner due to increased energy costs; and increase legal costs related to defending and resolving legal claims and other litigation related to climate change.

Controls and procedures

The Company's Chief Executive Officer and its Chief Financial Officer, after evaluating the effectiveness of the Company's disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of December 31, 2019, have concluded that the Company's disclosure controls and procedures were effective.

During the fourth quarter ended December 31, 2019, there was no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

As of December 31, 2019, management has assessed the effectiveness of the Company's internal control over financial reporting using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control – Integrated Framework* (2013). Based on this assessment, management has determined that the Company's internal control over financial reporting was effective as of December 31, 2019, and issued Management's Report on Internal Control over Financial Reporting dated January 31, 2020 to that effect.