

NORFOLK SOUTHERN CORP
Form 10-K
February 08, 2019

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549
FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the fiscal year ended DECEMBER 31, 2018

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the transition period from _____ to _____
Commission file number 1-8339

NORFOLK SOUTHERN CORPORATION
(Exact name of registrant as specified in its charter)
Virginia 52-1188014
(State or other jurisdiction of incorporation or organization) (IRS Employer Identification No.)
Three Commercial Place 23510-2191
Norfolk, Virginia (Zip Code)
(Address of principal executive offices)
Registrant's telephone number, including area code: (757) 629-2680

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Norfolk Southern Corporation Common Stock (Par Value \$1.00)	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes (X) No ()

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes () No (X)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes (X) No ()

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes (X) No ()

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Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. (X)

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer (X) Accelerated filer () Non-accelerated filer () Smaller reporting company ()

Emerging growth company ()

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. []

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes () No (X)

The aggregate market value of the voting common equity held by non-affiliates at June 30, 2018 was \$42,224,842,213 (based on the closing price as quoted on the New York Stock Exchange on June 29, 2018).

The number of shares outstanding of each of the registrant's classes of common stock, at January 31, 2019: 267,455,326 (excluding 20,320,777 shares held by the registrant's consolidated subsidiaries).

DOCUMENTS INCORPORATED BY REFERENCE: Portions of the Registrant's definitive proxy statement to be filed electronically pursuant to Regulation 14A not later than 120 days after the end of the fiscal year, are incorporated herein by reference in Part III.

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PART I

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 1. Business and Item 2. Properties

GENERAL – Our company, Norfolk Southern Corporation (Norfolk Southern), is a Norfolk, Virginia-based company that owns a major freight railroad, Norfolk Southern Railway Company (NSR). We were incorporated on July 23, 1980, under the laws of the Commonwealth of Virginia. Our common stock (Common Stock) is listed on the New York Stock Exchange (NYSE) under the symbol “NSC.”

Unless indicated otherwise, Norfolk Southern Corporation and its subsidiaries, including NSR, are referred to collectively as NS, we, us, and our.

We are primarily engaged in the rail transportation of raw materials, intermediate products, and finished goods primarily in the Southeast, East, and Midwest and, via interchange with rail carriers, to and from the rest of the United States. We also transport overseas freight through several Atlantic and Gulf Coast ports. We offer the most extensive intermodal network in the eastern half of the United States.

We make available free of charge through our website, www.norfolksouthern.com, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the U.S. Securities and Exchange Commission (SEC). In addition, the following documents are available on our website and in print to any shareholder who requests them:

- Corporate Governance Guidelines
- Charters of the Committees of the Board of Directors
- The Thoroughbred Code of Ethics
- Code of Ethical Conduct for Senior Financial Officers
- Categorical Independence Standards for Directors
- Norfolk Southern Corporation Bylaws

RAILROAD OPERATIONS – At December 31, 2018, our railroad operated approximately 19,500 route miles in 22 states and the District of Columbia.

Our system reaches many manufacturing plants, electric generating facilities, mines, distribution centers, transload facilities, and other businesses located in our service area.

Corridors with heaviest freight volume:

• New York City area to Chicago (via Allentown and Pittsburgh)

• Chicago to Macon (via Cincinnati, Chattanooga, and Atlanta)

• Central Ohio to Norfolk (via Columbus and Roanoke)

• Birmingham to Meridian

• Cleveland to Kansas City

• Memphis to Chattanooga

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The miles operated, which include major leased lines between Cincinnati, Ohio, and Chattanooga, Tennessee, and an exclusive operating agreement for trackage rights over property owned by North Carolina Railroad Company, were as follows:

	Mileage Operated at December 31, 2018				
	Route Miles	Second and Other Main Track	Passing Track, Crossovers and Turnouts	Way and Yard Switching	Total
Owned	14,664	2,755	1,949	8,319	27,687
Operated under lease, contract or trackage rights	4,756	1,943	398	834	7,931
Total	19,420	4,698	2,347	9,153	35,618

We operate freight service over lines with significant ongoing Amtrak and commuter passenger operations, and conduct freight operations over trackage owned or leased by Amtrak, New Jersey Transit, Southeastern Pennsylvania Transportation Authority, Metro-North Commuter Railroad Company, Maryland Department of Transportation, and Michigan Department of Transportation.

The following table sets forth certain statistics relating to our railroads' operations for the past five years:

	Years ended December 31,				
	2018	2017	2016	2015	2014
Revenue ton miles (billions)	207	201	191	200	205
Revenue per thousand revenue ton miles	\$55.25	\$52.38	\$51.91	\$52.63	\$56.70
Revenue ton miles (thousands) per railroad employee	7,822	7,474	6,838	6,645	7,054
Ratio of railway operating expenses to railway operating revenues (Railway operating ratio)	65.4%	66.6% ²	69.6% ²	72.8% ²	69.4% ²
Railway operating ratio, excluding the effects of the 2017 tax adjustments (non-GAAP)	65.4%	68.1% ^{1,2}	69.6% ²	72.8% ²	69.4% ²

¹ See reconciliation to U.S. Generally Accepted Accounting Principles (GAAP) in Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations."

² We adopted Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) 2017-07 on January 1, 2018. The retrospective application resulted in an increase in "Railway operating expenses" and therefore an increase to the "Railway operating ratio" for all years presented prior to 2018. See additional details in Item 8 "Financial Statements and Supplementary Data" in Note 1.

RAILWAY OPERATING REVENUES – Total railway operating revenues were \$11.5 billion in 2018. Following is an overview of our three major commodity groups. See the discussion of merchandise revenues by commodity group, intermodal revenues, and coal revenues and tonnage in Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations."

MERCHANDISE – Our merchandise commodity group is composed of five groupings:

• **Chemicals** includes sulfur and related chemicals, petroleum products (including crude oil), chlorine and bleaching compounds, plastics, rubber, industrial chemicals, and chemical wastes.

• **Agriculture, consumer products, and government** includes soybeans, wheat, corn, fertilizer, livestock and poultry feed, food oils, flour, beverages, canned goods, sweeteners, consumer products, ethanol, transportation equipment, and items for the U.S. military.

• **Metals and construction** includes steel, aluminum products, machinery, scrap metals, cement, aggregates, sand, and minerals.

• **Automotive** includes finished motor vehicles and automotive parts.

• **Paper, clay and forest products** includes lumber and wood products, pulp board and paper products, wood fibers, wood pulp, scrap paper, and clay.

Merchandise carloads handled in 2018 were 2.5 million, the revenues from which accounted for 59% of our total railway operating revenues.

INTERMODAL – Our intermodal commodity group consists of shipments moving in domestic and international containers and trailers. These shipments are handled on behalf of intermodal marketing companies, international steamship lines, truckers, and other shippers. Intermodal units handled in 2018 were 4.4 million, the revenues from which accounted for 25% of our total railway operating revenues.

COAL – Revenues from coal accounted for 16% of our total railway operating revenues in 2018. We handled 115 million tons, or 1.0 million carloads, in 2018, most of which originated on our lines from major eastern coal basins, with the balance from major western coal basins received via the Memphis and Chicago gateways. Our coal franchise supports the electric generation market, serving approximately 70 coal generation plants, as well as the export, domestic metallurgical and industrial markets, primarily through direct rail and river, lake, and coastal facilities, including various terminals on the Ohio River, Lamberts Point in Norfolk, Virginia, the Port of Baltimore, and Lake Erie.

FREIGHT RATES – Our predominant pricing mechanisms, private contracts and exempt price quotes, are not subject to regulation. In general, market forces are the primary determinant of rail service prices.

RAILWAY PROPERTY

Our railroad infrastructure makes us capital intensive with net property of approximately \$31 billion on a historical cost basis.

Property Additions – Property additions for the past five years were as follows:

	2018	2017	2016	2015	2014
	(\$ in millions)				
Road and other property	\$1,276	\$1,210	\$1,292	\$1,514	\$1,406
Equipment	675	513	595	658	712
Delaware & Hudson acquisition	—	—	—	213	—
Total	\$1,951	\$1,723	\$1,887	\$2,385	\$2,118

Our capital spending and replacement programs are and have been designed to assure the ability to provide safe, efficient, and reliable rail transportation services.

Equipment – At December 31, 2018, we owned or leased the following units of equipment:

	Owned	Leased	Total	Capacity of Equipment (Horsepower)
Locomotives:				
Multiple purpose	3,900	76	3,976	15,229,400
Auxiliary units	178	—	178	—
Switching	43	—	43	64,050
Total locomotives	4,121	76	4,197	15,293,450

				(Tons)
Freight cars:				
Gondola	24,768	4,048	28,816	3,205,609
Hopper	11,001	—	11,001	1,244,016
Covered hopper	8,323	85	8,408	932,767
Box	7,125	1,251	8,376	726,694
Flat	1,685	1,608	3,293	312,537
Other	1,597	4	1,601	73,203
Total freight cars	54,499	6,996	61,495	6,494,826

Other:				
Chassis	33,865	—	33,865	
Containers	17,664	—	17,664	
Work equipment	7,117	258	7,375	
Vehicles	3,591	133	3,724	
Miscellaneous	2,381	—	2,381	
Total other	64,618	391	65,009	

The following table indicates the number and year built for locomotives and freight cars owned at December 31, 2018:

	2018	2017	2016	2015	2014	2009- 2013	2004- 2008	2003 & Before	Total
Locomotives:									
No. of units	15	55	66	8	83	242	564	3,088	4,121
% of fleet	%	1	% 2	%	% 2	% 6	% 14	% 75	% 100
Freight cars:									
No. of units	—	470	775	2,091	897	6,464	4,080	39,722	54,499
% of fleet	%	1	% 1	% 4	% 2	% 12	% 7	% 73	% 100

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The following table shows the average age of our owned locomotive and freight car fleets at December 31, 2018, and information regarding 2018 retirements:

	Locomotives	Freight Cars
Average age – in service	25.2 years	28.7 years
Retirements	37 units	2,748 units
Average age – retired	42.9 years	44.7 years

Track Maintenance – Of the approximately 35,600 total miles of track on which we operate, we are responsible for maintaining approximately 28,400 miles, with the remainder being operated under trackage rights from other parties responsible for maintenance.

Over 83% of the main line trackage (including first, second, third, and branch main tracks, all excluding rail operated pursuant to trackage rights) has rail ranging from 131 to 155 pounds per yard with the standard installation currently at 136 pounds per yard. Approximately 47% of our lines, excluding rail operated pursuant to trackage rights, carried 20 million or more gross tons per track mile during 2018.

The following table summarizes several measurements regarding our track roadway additions and replacements during the past five years:

	2018	2017	2016	2015	2014
Track miles of rail installed	416	466	518	523	507
Miles of track surfaced	4,594	5,368	4,984	5,074	5,248
Crossties installed (millions)	2.2	2.5	2.3	2.4	2.7

Traffic Control – Of the approximately 16,400 route miles we dispatch, about 11,300 miles are signalized, including 8,500 miles of centralized traffic control (CTC) and 2,800 miles of automatic block signals. Of the 8,500 miles of CTC, approximately 7,600 miles are controlled by data radio originating at 355 base station radio sites.

ENVIRONMENTAL MATTERS – Compliance with federal, state, and local laws and regulations relating to the protection of the environment is one of our principal goals. To date, such compliance has not had a material effect on our financial position, results of operations, liquidity, or competitive position. See Note 17 to the Consolidated Financial Statements.

EMPLOYEES – The following table shows the average number of employees and the average cost per employee for wages and benefits:

	2018	2017	2016	2015	2014
Average number of employees	26,662	27,110	28,044	30,456	29,482
Average wage cost per employee	\$83,000	\$79,000	\$76,000	\$77,000	\$76,000
Average benefit cost per employee	\$39,000	\$42,000	\$35,000	\$32,000	\$35,000

Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. See the discussion of “Labor Agreements” in Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

GOVERNMENT REGULATION – In addition to environmental, safety, securities, and other regulations generally applicable to all business, our railroads are subject to regulation by the U.S. Surface Transportation Board (STB). The STB has jurisdiction to varying extents over rates, routes, customer access provisions, fuel surcharges, conditions of service, and the extension or abandonment of rail lines. The STB has jurisdiction to determine whether we are “revenue adequate” on an annual basis based on the results of the prior year. A railroad is “revenue adequate” on an annual basis under the applicable law when its return on net investment exceeds the rail industry’s composite cost of capital. This determination is made pursuant to a statutory requirement. The STB also has jurisdiction over the consolidation, merger, or acquisition of control of and by rail common carriers.

The relaxation of economic regulation of railroads, following the Staggers Rail Act of 1980, included exemption from STB regulation of the rates and most service terms for intermodal business (trailer-on-flat-car, container-on-flat-car), rail boxcar shipments, lumber, manufactured steel, automobiles, and certain bulk commodities such as sand, gravel, pulpwood, and wood chips for paper manufacturing. Further, all shipments that we have under contract are effectively removed from commercial regulation for the duration of the contract. Approximately 90% of our revenues comes from either exempt shipments or shipments moving under transportation contracts; the remainder comes from shipments moving under public tariff rates.

Efforts have been made over the past several years to increase federal economic regulation of the rail industry, and such efforts are expected to continue in 2019. The Staggers Rail Act of 1980 substantially balanced the interests of shippers and rail carriers, and encouraged and enabled rail carriers to innovate, invest in their infrastructure, and compete for business, thereby contributing to the economic health of the nation and to the revitalization of the industry. Accordingly, we will continue to oppose efforts to reimpose increased economic regulation.

Government regulations are discussed within Item 1A “Risk Factors” and the safety and security of our railroads are discussed within the “Security of Operations” section contained herein.

COMPETITION – There is continuing strong competition among rail, water, and highway carriers. Price is usually only one factor of importance as shippers and receivers choose a transport mode and specific hauling company. Inventory carrying costs, service reliability, ease of handling, and the desire to avoid loss and damage during transit are also important considerations, especially for higher-valued finished goods, machinery, and consumer products. Even for raw materials, semi-finished goods, and work-in-progress, users are increasingly sensitive to transport arrangements that minimize problems at successive production stages.

Our primary rail competitor is CSX Corporation (CSX); both NS and CSX operate throughout much of the same territory. Other railroads also operate in parts of the territory. We also compete with motor carriers, water carriers, and with shippers who have the additional options of handling their own goods in private carriage, sourcing products from different geographic areas, and using substitute products.

Certain marketing strategies to expand reach and shipping options among railroads and between railroads and motor carriers enable railroads to compete more effectively in specific markets.

SECURITY OF OPERATIONS – We continue to enhance the security of our rail system. Our comprehensive security plan is modeled on and was developed in conjunction with the security plan prepared by the Association of American Railroads (AAR) post September 11, 2001. The AAR Security Plan defines four Alert Levels and details the actions and countermeasures that are being applied across the railroad industry as a terrorist threat increases or decreases. The Alert Level actions include countermeasures that will be applied in three general areas: (1) operations (including transportation, engineering, and mechanical); (2) information technology and communications; and, (3) railroad police. All of our Operations Division employees are advised by their supervisors or train dispatchers, as appropriate, of any change in Alert Level and any additional responsibilities they may incur due to such change.

Our plan also complies with U.S. Department of Transportation (DOT) security regulations pertaining to training and security plans with respect to the transportation of hazardous materials. As part of the plan, security awareness

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training is given to all railroad employees who directly affect hazardous material transportation safety, and is integrated into hazardous material training programs. Additionally, location-specific security plans are in place for certain metropolitan areas and each of the six facilities we operate that are under U.S. Coast Guard (USCG) Maritime Security Regulations. With respect to these facilities, each facility's security plan has been approved by the applicable Captain of the Port and remains subject to inspection by the USCG.

Additionally, we continue to engage in close and regular coordination with numerous federal and state agencies, including the U.S. Department of Homeland Security (DHS), the Transportation Security Administration, the Federal Bureau of Investigation, the Federal Railroad Administration (FRA), the USCG, U.S. Customs and Border Protection, the Department of Defense, and various state Homeland Security offices. Similarly, we follow guidance from DHS and DOT regarding rail corridors in High Threat Urban Areas (HTUA). Particular attention is aimed at reducing risk in HTUA by: (1) the establishment of secure storage areas for rail cars carrying toxic-by-inhalation (TIH) materials; (2) the expedited movement of trains transporting rail cars carrying TIH materials; (3) substantially reducing the number of unattended loaded tank cars carrying TIH materials; and (4) cooperation with federal, state, local, and tribal governments to identify those locations where security risks are the highest.

In 2018, through participation in the Transportation Community Awareness and Emergency Response Program, we provided rail accident response training to approximately 6,300 emergency responders, such as local police and fire personnel. Our other training efforts throughout 2018 included participation in drills for local, state, and federal agencies. We also have ongoing programs to sponsor local emergency responders at the Security and Emergency Response Training Course conducted at the AAR Transportation Technology Center in Pueblo, Colorado.

We also continually evaluate ourselves for appropriate business continuity and disaster recovery planning, with test scenarios that include cybersecurity attacks. Our risk-based information security program helps ensure our defenses and resources are aligned to address the most likely and most damaging potential attacks, to provide support for our organizational mission and operational objectives, and to keep us in the best position to detect, mitigate, and recover from a wide variety of potential attacks in a timely fashion.

Item 1A. Risk Factors

The risks set forth in the following risk factors could have a materially adverse effect on our financial position, results of operations, or liquidity in a particular year or quarter, and could cause those results to differ materially from those expressed or implied in our forward-looking statements. The information set forth in this Item 1A "Risk Factors" should be read in conjunction with the rest of the information included in this annual report, including Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 8 "Financial Statements and Supplementary Data."

Significant governmental legislation and regulation over commercial, operating and environmental matters could affect us, our customers, and the markets we serve. Congress can enact laws that could increase economic regulation of the industry. Railroads presently are subject to commercial regulation by the STB, which has jurisdiction to varying extents over rates, routes, customer access provisions, fuel surcharges, conditions of service, and the extension or abandonment of rail lines. The STB also has jurisdiction over the consolidation, merger, or acquisition of control of and by rail common carriers. Additional economic regulation of the rail industry by Congress or the STB, whether under new or existing laws, could have a significant negative impact on our ability to negotiate prices for rail services, on railway operating revenues, and on the efficiency of our operations. This potential material adverse effect could also result in reduced capital spending on our rail network or abandonment of lines.

Railroads are also subject to the enactment of laws by Congress and regulation by the DOT and the DHS (which regulate most aspects of our operations) related to safety and security. The Rail Safety Improvement Act of 2008, the Surface Transportation Extension Act of 2015, and the implementing regulations promulgated by the FRA

(collectively “the PTC laws and regulations”) require us (and each other Class I railroad) to implement, on certain mainline track where intercity and commuter passenger railroads operate and where TIH hazardous materials are

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transported, an interoperable positive train control system (PTC). PTC is a set of highly advanced technologies designed to prevent train-to-train collisions, speed-related derailments, and certain other accidents caused by human error, but PTC will not prevent all types of train accidents or incidents. We have met the December 31, 2018 deadline under the PTC laws and regulations to install all hardware and to implement PTC on some of those rail lines. The PTC laws and regulations also require us to fully implement PTC on the remainder of those rail lines by December 31, 2020. In addition, other railroads' implementation schedules could impose additional interoperability requirements and accelerated timelines on us, which could impact our operations over other railroads if not met.

Full implementation of PTC will result in additional operating costs and capital expenditures, and PTC implementation may result in reduced operational efficiency and service levels, as well as increased compensation and benefits expenses, and increased claims and litigation costs.

Our operations are subject to extensive federal and state environmental laws and regulations concerning, among other things, emissions to the air; discharges to waterways or groundwater supplies; handling, storage, transportation, and disposal of waste and other materials; and the cleanup of hazardous material or petroleum releases. The risk of incurring environmental liability, for acts and omissions, past, present, and future, is inherent in the railroad business. This risk includes property owned by us, whether currently or in the past, that is or has been subject to a variety of uses, including our railroad operations and other industrial activity by past owners or our past and present tenants.

Environmental problems that are latent or undisclosed may exist on these properties, and we could incur environmental liabilities or costs, the amount and materiality of which cannot be estimated reliably at this time, with respect to one or more of these properties. Moreover, lawsuits and claims involving other unidentified environmental sites and matters are likely to arise from time to time.

Concern over climate change has led to significant federal, state, and international legislative and regulatory efforts to limit greenhouse gas (GHG) emissions. Restrictions, caps, taxes, or other controls on GHG emissions, including diesel exhaust, could significantly increase our operating costs, decrease the amount of traffic handled, and decrease the value of coal reserves we own.

In addition, legislation and regulation related to GHGs could negatively affect the markets we serve and our customers. Even without legislation or regulation, government incentives and adverse publicity relating to GHGs could negatively affect the markets for certain of the commodities we carry and our customers that (1) use commodities that we carry to produce energy, including coal, (2) use significant amounts of energy in producing or delivering the commodities we carry, or (3) manufacture or produce goods that consume significant amounts of energy.

As a common carrier by rail, we must offer to transport hazardous materials, regardless of risk. Transportation of certain hazardous materials could create catastrophic losses in terms of personal injury and property (including environmental) damage, and compromise critical parts of our rail network. The cost of a catastrophic rail accident involving hazardous materials could exceed our insurance coverage. We have obtained insurance for potential losses for third-party liability and first-party property damages (see Note 17 to the Consolidated Financial Statements); however, insurance is available from a limited number of insurers and may not continue to be available or, if available, may not be obtainable on terms acceptable to us.

We may be affected by general economic conditions. Prolonged negative changes in domestic and global economic conditions could affect the producers and consumers of the commodities we carry. Economic conditions could also result in bankruptcies of one or more large customers.

Significant increases in demand for rail services could result in the unavailability of qualified personnel and locomotives. In addition, workforce demographics and training requirements, particularly for engineers and

conductors, could have a negative impact on our ability to meet short-term demand for rail service. Unpredicted increases in demand for rail services may exacerbate such risks.

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We may be affected by energy prices. Volatility in energy prices could have a significant effect on a variety of items including, but not limited to: the economy; demand for transportation services; business related to the energy sector, including crude oil, natural gas, and coal; fuel prices; and fuel surcharges.

We face competition from other transportation providers. We are subject to competition from motor carriers, railroads and, to a lesser extent, ships, barges, and pipelines, on the basis of transit time, pricing, and quality and reliability of service. While we have used primarily internal resources to build or acquire and maintain our rail system, trucks and barges have been able to use public rights-of-way maintained by public entities. Any future improvements, expenditures, legislation, or regulation materially increasing the quality or reducing the cost of alternative modes of transportation in the regions in which we operate (such as granting materially greater latitude for motor carriers with respect to size or weight limitations or adoption of autonomous commercial vehicles) could have a material adverse effect on our operations.

The operations of carriers with which we interchange may adversely affect our operations. Our ability to provide rail service to customers in the U.S. and Canada depends in large part upon our ability to maintain collaborative relationships with connecting carriers (including shortlines and regional railroads) with respect to, among other matters, freight rates, revenue division, car supply and locomotive availability, data exchange and communications, reciprocal switching, interchange, and trackage rights. Deterioration in the operations of or service provided by connecting carriers, or in our relationship with those connecting carriers, could result in our inability to meet our customers' demands or require us to use alternate train routes, which could result in significant additional costs and network inefficiencies. Additionally, any significant consolidations, mergers or operational changes among other railroads may significantly redefine our market access and reach.

We rely on technology and technology improvements in our business operations. If we experience significant disruption or failure of one or more of our information technology systems, including computer hardware, software, and communications equipment, we could experience a service interruption, a security breach, or other operational difficulties. We also face cybersecurity threats which may result in breaches of systems, or compromises of sensitive data, which may result in an inability to access or operate systems necessary for conducting operations and providing customer service, thereby impacting our efficiency and/or damaging our corporate reputation. Additionally, if we do not have sufficient capital to acquire new technology or we are unable to implement new technology, we may suffer a competitive disadvantage within the rail industry and with companies providing other modes of transportation service.

The vast majority of our employees belong to labor unions, and labor agreements, strikes, or work stoppages could adversely affect our operations. Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. If unionized workers were to engage in a strike, work stoppage, or other slowdown, we could experience a significant disruption of our operations. Additionally, future national labor agreements, or renegotiation of labor agreements or provisions of labor agreements, could significantly increase our costs for health care, wages, and other benefits.

We may be subject to various claims and lawsuits that could result in significant expenditures. The nature of our business exposes us to the potential for various claims and litigation related to labor and employment, personal injury, commercial disputes, freight loss and other property damage, and other matters. Job-related personal injury and occupational claims are subject to the Federal Employer's Liability Act (FELA), which is applicable only to railroads. FELA's fault-based tort system produces results that are unpredictable and inconsistent as compared with a no-fault worker's compensation system. The variability inherent in this system could result in actual costs being different from the liability recorded.

Any material changes to current litigation trends or a catastrophic rail accident involving any or all of freight loss, property damage, personal injury, and environmental liability could have a material adverse effect on us to the extent

not covered by insurance. We have obtained insurance for potential losses for third-party liability and first-

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party property damages; however, insurance is available from a limited number of insurers and may not continue to be available or, if available, may not be obtainable on terms acceptable to us.

Severe weather could result in significant business interruptions and expenditures. Severe weather conditions and other natural phenomena, including hurricanes, floods, fires, and earthquakes, may cause significant business interruptions and result in increased costs, increased liabilities, and decreased revenues.

We may be affected by terrorism or war. Any terrorist attack, or other similar event, any government response thereto, and war or risk of war could cause significant business interruption. Because we play a critical role in the nation's transportation system, we could become the target of such an attack or have a significant role in the government's preemptive approach or response to an attack or war.

Although we currently maintain insurance coverage for third-party liability arising out of war and acts of terrorism, we maintain only limited insurance coverage for first-party property damage and damage to property in our care, custody, or control caused by certain acts of terrorism. In addition, premiums for some or all of our current insurance programs covering these losses could increase dramatically, or insurance coverage for certain losses could be unavailable to us in the future.

We may be affected by supply constraints resulting from disruptions in the fuel markets or the nature of some of our supplier markets. We consumed approximately 472 million gallons of diesel fuel in 2018. Fuel availability could be affected by any limitation in the fuel supply or by any imposition of mandatory allocation or rationing regulations. A severe fuel supply shortage arising from production curtailments, increased demand in existing or emerging foreign markets, disruption of oil imports, disruption of domestic refinery production, damage to refinery or pipeline infrastructure, political unrest, war or other factors could impact us as well as our customers and other transportation companies.

Due to the capital intensive nature, as well as the industry-specific requirements of the rail industry, high barriers of entry exist for potential new suppliers of core railroad items, such as locomotives and rolling stock equipment. Additionally, we compete with other industries for available capacity and raw materials used in the production of locomotives and certain track and rolling stock materials. Changes in the competitive landscapes of these limited supplier markets could result in increased prices or significant shortages of materials.

The state of capital markets could adversely affect our liquidity. We rely on the capital markets to provide some of our capital requirements, including the issuance of debt instruments, as well as the sale of certain receivables. Significant instability or disruptions of the capital markets, including the credit markets, or deterioration of our financial position due to internal or external factors could restrict or eliminate our access to, and/or significantly increase the cost of, various financing sources, including bank credit facilities and issuance of corporate bonds. Instability or disruptions of the capital markets and deterioration of our financial position, alone or in combination, could also result in a reduction in our credit rating to below investment grade, which could prohibit or restrict us from accessing external sources of short- and long-term debt financing and/or significantly increase the associated costs.

Item 1B. Unresolved Staff Comments

None.

Item 3. Legal Proceedings

In 2007, various antitrust class actions filed against us and other Class I railroads in various Federal district courts regarding fuel surcharges were consolidated in the District of Columbia by the Judicial Panel on Multidistrict Litigation. In 2012, the court certified the case as a class action. The defendant railroads appealed this certification, and the Court of Appeals for the District of Columbia vacated the District Court's decision and remanded the case for further consideration. On October 10, 2017, the District Court denied class certification; the findings are subject to appeal. We believe the allegations in the complaints are without merit and intend to vigorously defend the cases. We do not believe the outcome of these proceedings will have a material effect on our financial position, results of operations, or liquidity.

Item 4. Mine Safety Disclosures

Not applicable.

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Executive Officers of the Registrant

Our executive officers generally are elected and designated annually by the Board of Directors at its first meeting held after the annual meeting of stockholders, and they hold office until their successors are elected. Executive officers also may be elected and designated throughout the year as the Board of Directors considers appropriate. There are no family relationships among our officers, nor any arrangement or understanding between any officer and any other person pursuant to which the officer was selected. The following table sets forth certain information, at February 1, 2019, relating to our officers.

Name, Age, Present Position	Business Experience During Past Five Years
James A. Squires, 57, Chairman, President and Chief Executive Officer	Present position since October 1, 2015. Served as CEO since June 1, 2015. Served as President since June 1, 2013.
Cynthia C. Earhart, 57, Executive Vice President – Finance and Chief Financial Officer	Present position since August 15, 2017. Served as Executive Vice President – Administration and Chief Information Officer from October 1, 2015 to August 15, 2017. Served as Executive Vice President – Administration from June 1, 2013 to October 1, 2015.
John M. Scheib, 47, Executive Vice President – Law and Administration and Chief Legal Officer	Present position since March 1, 2018. Served as Senior Vice President Law and Corporate Relations from October 1, 2017, to March 1, 2018. Served as Vice President Law from December 1, 2016, to October 1, 2017. Served as General Counsel from August 16, 2010, to December 1, 2016.
Alan H. Shaw, 51, Executive Vice President and Chief Marketing Officer	Present position since May 16, 2015. Served as Vice President Intermodal Operations from November 1, 2013 to May 16, 2015.
Michael J. Wheeler, 56, Executive Vice President and Chief Operating Officer	Present position since February 1, 2016. Served as Senior Vice President Operations from October 1, 2015 to February 1, 2016. Served as Vice President Engineering from November 1, 2012 to October 1, 2015.
Jason A. Zampi, 44, Vice President and Controller	Present position since December 16, 2018. Served as Assistant Vice President Corporate Accounting from April 1, 2016 to December 16, 2018. Served as Director Accounting Research and Analysis from May 1, 2014 to April 1, 2016. Served as Director Forecast and Performance Measures from March 16, 2011 to May 1, 2014.

PART II

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

STOCK INFORMATION

Common Stock is owned by 24,475 stockholders of record as of December 31, 2018, and is traded on the New York Stock Exchange under the symbol "NSC."

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares (or Units) Purchased ⁽¹⁾	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs ⁽²⁾ ⁽³⁾	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that may yet be Purchased under the Plans or Programs ⁽³⁾
October 1-31, 2018	874,580	\$ 171.45	874,580	42,783,417
November 1-30, 2018	1,145,256	168.48	1,145,256	41,638,161
December 1-31, 2018	2,271,418	166.72	2,270,242	39,367,919
Total	4,291,254		4,290,078	

⁽¹⁾ Of this amount, 1,176 represents shares tendered by employees in connection with the exercise of stock options under the stockholder-approved Long-Term Incentive Plan.

⁽²⁾ Total number of shares purchased as part of publicly announced plans or programs includes 1.3 million shares purchased under the accelerated stock repurchase program (ASR) (see Note 15).

On September 26, 2017, our Board of Directors authorized the repurchase of up to an additional 50 million shares

⁽³⁾ of Common Stock through December 31, 2022. As of December 31, 2018, 39.4 million shares remain authorized for repurchase.

Item 6. Selected Financial Data
FIVE-YEAR FINANCIAL REVIEW

	2018	2017	2016	2015	2014
	(\$ in millions, except per share amounts)				
RESULTS OF OPERATIONS					
Railway operating revenues	\$11,458	\$10,551	\$9,888	\$10,511	\$11,624
Railway operating expenses	7,499	7,029	6,879	7,656	8,066
Income from railway operations	3,959	3,522	3,009	2,855	3,558
Other income – net	67	156	136	132	121
Interest expense on debt	557	550	563	545	545
Income before income taxes	3,469	3,128	2,582	2,442	3,134
Income taxes	803	(2,276)	914	886	1,134
Net income	\$2,666	\$5,404	\$1,668	\$1,556	\$2,000
PER SHARE DATA					
Basic earnings per share	\$9.58	\$18.76	\$5.66	\$5.13	\$6.44
Diluted earnings per share	9.51	18.61	5.62	5.10	6.39
Dividends	3.04	2.44	2.36	2.36	2.22
Stockholders' equity at year end	57.30	57.57	42.73	40.93	40.26
FINANCIAL POSITION					
Total assets	\$36,239	\$35,711	\$34,892	\$34,139	\$33,033
Total debt	11,145	9,836	10,212	10,093	8,985
Stockholders' equity	15,362	16,359	12,409	12,188	12,408
OTHER					
Property additions	\$1,951	\$1,723	\$1,887	\$2,385	\$2,118
Average number of shares outstanding (thousands)	277,708	287,861	293,943	301,873	309,367
Number of stockholders at year end	24,475	25,737	27,288	28,443	29,575
Average number of employees:					
Rail	26,512	26,955	27,856	30,057	29,063
Nonrail	150	155	188	399	419
Total	26,662	27,110	28,044	30,456	29,482

Note 1: In 2017, as a result of the enactment of tax reform, "Railway operating expenses" included a \$151 million benefit and "Income taxes" included a \$3,331 million benefit, which added \$3,482 million to "Net income" and \$12.00 to "Diluted earnings per share."

Note 2: The retrospective application of FASB ASU 2017-07 resulted in an increase to "Compensation and benefits" expense within "Railway operating expenses" and an offsetting increase to "Other income – net" of \$64 million, \$65 million, \$29 million, and \$17 million for the years ended 2017, 2016, 2015, and 2014, respectively, with no impact on "Net income." See additional details in Item 8 "Financial Statements and Supplementary Data" in Note 1. See accompanying consolidated financial statements and notes thereto.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

Norfolk Southern Corporation and Subsidiaries

The following discussion and analysis should be read in conjunction with the Consolidated Financial Statements and Notes.

OVERVIEW

We are one of the nation’s premier transportation companies. Our Norfolk Southern Railway Company subsidiary operates approximately 19,500 route miles in 22 states and the District of Columbia, serves every major container port in the eastern United States, and provides efficient connections to other rail carriers. Norfolk Southern is a major transporter of industrial products, including chemicals, agriculture, and metals and construction materials. In addition, the railroad operates the most extensive intermodal network in the East and is a principal carrier of coal, automobiles, and automotive parts.

We achieved records for income from railway operations and railway operating ratio (a measure of the amount of operating revenues consumed by operating expenses) for the year, the result of significant revenue growth, partially offset by increased operating expenses. Progress on our strategic initiatives established in 2015 has created a sustainable platform positioning us for the continued execution of transformational changes that will provide greater long-term value for our shareholders.

SUMMARIZED RESULTS OF OPERATIONS

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
	(\$ in millions, except per share amounts)			(% change)	
Income from railway operations	\$3,959	\$3,522	\$3,009	12 %	17 %
Net income	\$2,666	\$5,404	\$1,668	(51 %)	224 %
Diluted earnings per share	\$9.51	\$18.61	\$5.62	(49 %)	231 %
Railway operating ratio	65.4	66.6	69.6	(2 %)	(4 %)

On December 22, 2017, the Tax Cuts and Jobs Act (“tax reform”) was signed into law. As a result of the enactment of this law, in 2017, “Purchased services and rents” included a \$151 million benefit and “Income taxes” included a \$3,331 million benefit, which added \$3,482 million to “Net income” and \$12.00 to “Diluted earnings per share.” The 2017 operating ratio was favorably impacted by 1.5 percentage points. For more information on the impact of tax reform, see Note 4.

The following table adjusts our 2017 GAAP financial results to exclude the effects of tax reform, specifically, the effects of remeasurement of net deferred tax liabilities related to the reduction of the federal tax rate from 35% to 21% (the “2017 tax adjustments”). We use these non-GAAP financial measures internally and believe this information provides useful supplemental information to investors to facilitate making period-to-period comparisons by excluding the 2017 tax adjustments. While we believe that these non-GAAP financial measures are useful in evaluating our business, this information should be considered as supplemental in nature and is not meant to be considered in isolation or as a substitute for the related financial information prepared in accordance with GAAP. In addition, these non-GAAP financial measures may not be the same as similar measures presented by other companies.

DETAILED RESULTS OF OPERATIONS

Railway Operating Revenues

The following tables present a three-year comparison of revenues, volumes (units), and average revenue per unit by commodity group.

	Revenues			2018 2017	
	2018	2017	2016	vs. 2017	vs. 2016
	(\$ in millions)			(% change)	
Merchandise:					
Chemicals	\$1,808	\$1,668	\$1,648	8 %	1 %
Agr./consumer/gov't	1,674	1,547	1,548	8 %	—
Metals/construction	1,462	1,426	1,267	3 %	13 %
Automotive	991	955	975	4 %	(2 %)
Paper/clay/forest	809	761	744	6 %	2 %
Merchandise	6,744	6,357	6,182	6 %	3 %
Intermodal	2,893	2,452	2,218	18 %	11 %
Coal	1,821	1,742	1,488	5 %	17 %
Total	\$11,458	\$10,551	\$9,888	9 %	7 %

	Units			2018 2017	
	2018	2017	2016	vs. 2017	vs. 2016
	(in thousands)			(% change)	
Merchandise:					
Chemicals	498.0	467.2	475.7	7 %	(2 %)
Agr./consumer/gov't	614.4	589.0	601.2	4 %	(2 %)
Metals/construction	715.7	727.5	685.8	(2 %)	6 %
Automotive	403.9	423.1	440.5	(5 %)	(4 %)
Paper/clay/forest	287.1	284.6	284.0	1 %	—
Merchandise	2,519.1	2,491.4	2,487.2	1 %	—
Intermodal	4,375.7	4,074.1	3,870.4	7 %	5 %
Coal	1,033.5	1,046.0	902.1	(1 %)	16 %
Total	7,928.3	7,611.5	7,259.7	4 %	5 %

	Revenue per Unit			2018 2017	
	2018	2017	2016	vs. 2017	vs. 2016
	(\$ per unit)			(% change)	
Merchandise:					
Chemicals	\$3,631	\$3,571	\$3,465	2 %	3 %
Agr./consumer/gov't	2,724	2,627	2,575	4 %	2 %
Metals/construction	2,042	1,960	1,847	4 %	6 %
Automotive	2,453	2,257	2,213	9 %	2 %
Paper/clay/forest	2,819	2,673	2,620	5 %	2 %
Merchandise	2,677	2,552	2,486	5 %	3 %
Intermodal	661	602	573	10 %	5 %
Coal	1,762	1,665	1,650	6 %	1 %
Total	1,445	1,386	1,362	4 %	2 %

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Revenues increased \$907 million and \$663 million in 2018 and 2017, respectively, compared to the prior years. As reflected in the table below, higher 2018 revenues were the result of higher average revenue per unit, driven by pricing gains and higher fuel surcharge revenue, partially offset by the mix-related impacts of increased intermodal volume and decreased coal volume. In addition, overall volume also increased. The rise in 2017 was largely the result of increased volume, particularly in our coal and intermodal markets, coupled with pricing gains. The table below reflects the components of the revenue change by major commodity group.

	2018 vs. 2017			2017 vs. 2016		
	Increase (Decrease)			Increase		
	(\$ in millions)					
	Merchandise	Intermodal	Coal	Merchandise	Intermodal	Coal
Volume	\$71	\$ 182	\$(21)	\$10	\$ 117	\$237
Fuel surcharge revenue	119	159	20	35	78	10
Rate, mix and other	197	100	80	130	39	7
Total	\$387	\$ 441	\$79	\$175	\$ 234	\$254

Most of our contracts include negotiated fuel surcharges, typically tied to either On-Highway Diesel (OHD) or West Texas Intermediate Crude Oil. Approximately 90% of our revenue base is covered by these negotiated fuel surcharges, with almost 75% tied to OHD. For both 2018 and 2017, contracts tied to OHD accounted for about 90% of our fuel surcharge revenue. Revenues associated with fuel surcharges totaled \$657 million, \$359 million, and \$236 million in 2018, 2017, and 2016, respectively.

MERCHANDISE revenues increased in both 2018 and 2017 compared with the prior years. In 2018, revenues grew due to higher average revenue per unit, driven by pricing gains and higher fuel surcharge revenue, as well as higher volumes. Volume gains in chemicals, agriculture, and paper, clay, and forest products were partially offset by declines in automotive and metals and construction traffic. Revenue growth in 2017 was a result of higher average revenue per unit, the result of price improvements. Volume was relatively flat compared to the prior year, as gains in the metals and construction group were offset by declines in automotive, agriculture, and chemicals traffic.

For 2019, merchandise revenues are expected to increase, primarily the result of pricing gains.

Chemicals revenues rose in 2018 compared to a modest increase in 2017. In 2018 the rise was the result of higher volume and higher average revenue per unit, due to pricing gains and higher fuel surcharge revenue. Volumes grew due to increased shipments of crude oil, liquefied petroleum gas, and plastics, partially offset by a decrease in coal ash shipments. The increase in 2017 was due to higher average revenue per unit, a result of favorable mix and price improvements, which outweighed declines in volume. Volume declines were the result of fewer shipments of crude oil from the Bakken oil fields, lower shipments of coal ash, partially offset by an increase in shipments of plastics.

For 2019, chemicals revenues are anticipated to increase, as average revenue per unit is expected to be higher, the effect of overall pricing gains. We expect carloads to be relatively flat year-over-year, as declines in liquefied petroleum gas are expected to be offset by gains in crude oil.

Agriculture, consumer products, and government revenues increased in 2018 and were flat in 2017 compared to the prior years. Growth in 2018 was due to higher volume and higher average revenue per unit, a result of pricing gains and higher fuel surcharge revenues. Higher ethanol and fertilizer shipments more than offset declines in soybean and corn shipments. In 2017, lower traffic volume was offset by higher revenue per unit, driven by pricing gains. Volume

declines in ethanol and soybeans, reflecting reduced market demand, more than offset increases in fertilizer.

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For 2019, agriculture, consumer products, and government revenues are expected to increase, driven by increased average revenue per unit, primarily a result of pricing gains. We expect volumes to decrease due to lower fertilizer shipments.

Metals and construction revenues grew in both periods, more significantly so in 2017. In 2018, higher average revenue per unit, the result of pricing gains and higher fuel surcharge revenue, more than offset volume declines. Volume declines in aggregates, cement, aluminum, and iron and steel were partially offset by increases in frac sand shipments for use in natural gas drilling in the Marcellus and Utica regions. In 2017, higher volume and average revenue per unit contributed to the rise in revenues. Volume growth was a result of more frac sand shipments for use in natural gas drilling in the Marcellus and Utica regions and more iron and steel shipments driven by continued improvement in construction activity. These increases were partially offset by a decline in coil steel traffic due to customer sourcing changes. Revenue per unit growth in 2017 was driven by favorable changes in traffic mix.

For 2019, metals and construction revenues are expected to rise, a result of increased revenue per unit driven by pricing gains, and volume growth is expected in aggregates and coil steel traffic.

Automotive revenues rose in 2018, but declined in 2017 compared to the prior years. In 2018, higher average revenue per unit, driven by price increases and higher fuel surcharge revenues, more than offset volume declines. Traffic declines were the result of shortages of availability of multilevel equipment and scheduled automotive plant downtime. The drop in volume in 2017 was driven mainly by decreases in U.S. light vehicle production, as well as temporary shutdowns for retooling of several NS-served facilities. Average revenue per unit increased for the year, primarily the result of higher fuel surcharge revenue.

For 2019, automotive revenues are expected to increase as a result of higher volumes, reflecting increased demand at NS-served plants, and higher average revenue per unit driven by price increases.

Paper, clay and forest products revenues rose in both 2018 and 2017 compared to the prior years. In 2018, higher average revenue per unit, the result of pricing gains and higher fuel surcharge revenue, and volume gains drove the increase. Gains in pulpboard and municipal waste shipments, a result of tightened truck capacity and growth with existing customers, respectively, were partially offset by decreases in pulp, woodchip, and graphic paper traffic. The increase in 2017 was due to higher average revenue per unit, a result of pricing gains and changes in the traffic mix. Traffic was flat for the year as increases in waste and pulp shipments were offset by losses in woodchip volume due to customer sourcing changes.

For 2019, paper, clay, and forest products revenues are anticipated to increase, reflecting pricing gains. We expect volume to decline slightly, as gains in lumber traffic are expected to be offset by declines in wood chips and graphic paper.

INTERMODAL revenues increased considerably in both 2018 and 2017 compared to the prior years. The rise in 2018 was driven by higher average revenue per unit, a result of increased fuel surcharge revenue and pricing gains, and higher volume. Growth in 2017 was the result of higher volume and higher average revenue per unit, due to higher fuel surcharge revenue and pricing gains.

For 2019, we expect intermodal revenues to rise, the result of increased domestic volumes and higher average revenue per unit, driven by rate increases.

Intermodal units by market were as follows:

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
(units in thousands)				(% change)	(% change)
Domestic	2,801.1	2,585.0	2,416.2	8%	7%
International	1,574.6	1,489.1	1,454.2	6%	2%
Total	4,375.7	4,074.1	3,870.4	7%	5%

Domestic volume increased in both periods. The rise in 2018 benefited from continued highway conversions due to tighter capacity in the truck market, higher truckload pricing, and growth from existing accounts. In 2017, continued highway conversions and growth from existing accounts drove the increase.

For 2019, we expect higher domestic volumes driven by continued highway conversions and growth from existing accounts.

International volume increased in both years reflecting increased demand from existing customers.

For 2019, we expect continued growth in our international volume largely driven by more traffic from existing customers.

COAL revenues increased in 2018 and significantly so in 2017 compared with the prior years. Revenue growth in 2018 was the result of higher average revenue per unit, largely the result of pricing gains, which more than offset volume declines. The increase in 2017 was a result of higher volume, primarily in the export market, and higher revenue per unit, driven by higher fuel surcharge revenue and pricing gains.

For 2019, coal revenues are expected to remain relatively flat year-over-year. Higher export and domestic metallurgical volumes are expected to be offset by lower revenue per unit, primarily the result of lower pricing in our export market.

As shown in the following table, total tonnage decreased slightly in 2018, but increased in 2017.

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
(tons in thousands)				(% change)	(% change)
Utility	65,688	67,899	65,033	(3%)	4%
Export	28,046	26,460	14,608	6%	81%
Domestic metallurgical	15,500	15,675	13,884	(1%)	13%
Industrial	5,410	5,545	6,152	(2%)	(10%)
Total	114,644	115,579	99,677	(1%)	16%

Utility coal tonnage declined in 2018, driven by lower network velocity, decreased coal supply, inclement weather in the first quarter, and plant outages. Tonnage rose in 2017, driven by market share gains, partially offset by limited coal burn due to milder weather. Both periods were negatively impacted by sustained lower natural gas prices.

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For 2019, we expect utility tonnage to be relatively flat year-over-year, the result of continued pressure from natural gas prices and continued expected growth in renewable and natural gas capacity.

Export coal tonnage increased in both periods due to strong seaborne pricing that resulted in higher demand for U.S. coal. Volume through Norfolk was up 2.3 million tons, or 15%, in 2018 and 5.5 million tons, or 57%, in 2017. Volume through Baltimore declined 0.8 million tons, or 7%, in 2018, but rose 6.4 million tons, or 129%, in 2017.

For 2019, we expect export coal tonnage to rise due to continued demand for U.S. coal.

Domestic metallurgical coal tonnage was down slightly in 2018, but up in 2017. The decline in 2018 was a reflection of customer sourcing changes. In 2017, the increase was a result of market share gains.

For 2019, domestic metallurgical coal tonnage is expected to grow due to increased demand in domestic steel production.

Industrial coal tonnage decreased in both years. In 2018, the decrease reflected customer sourcing changes and pressure from natural gas conversions. The drop in 2017 was a result of plant outages, natural gas conversions, and decreased coal burn.

For 2019, industrial coal tonnage is expected to decrease as a result of continued pressure from natural gas conversions and customer sourcing changes.

Railway Operating Expenses

Railway operating expenses summarized by major classifications were as follows:

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
	(\$ in millions)			(% change)	
Compensation and benefits	\$2,925	\$2,979	\$2,808	(2 %)	6 %
Purchased services and rents	1,730	1,414	1,548	22 %	(9 %)
Fuel	1,087	840	698	29 %	20 %
Depreciation	1,102	1,055	1,026	4 %	3 %
Materials and other	655	741	799	(12 %)	(7 %)
Total	\$7,499	\$7,029	\$6,879	7 %	2 %

In 2018, expenses rose due to higher fuel prices as well as volume-related increases and costs associated with overall lower network velocity, partially offset by higher property sales. In 2017, we experienced an overall increase in expense compared to the prior year, reflecting higher fuel expense, incentive compensation, inflationary increases, and volume-related costs, partially offset by improved productivity and increased equity in earnings of certain investees as a result of the enactment of tax reform.

Compensation and benefits decreased in 2018, reflecting changes in:

- employment levels (down \$61 million),
- health and welfare benefit rates for agreement employees (down \$34 million),
- employment tax refund (\$31 million benefit),
- incentive and stock-based compensation (down \$7 million),
- pay rates (up \$34 million), and
- overtime and reworks (up \$58 million).

In 2017, compensation and benefits increased, a result of changes in:

- incentive and stock-based compensation (up \$125 million),
- higher health and welfare benefit rates for agreement employees (up \$62 million),
- pay rates (up \$43 million),
- increased overtime (up \$24 million), and
- employment levels (down \$81 million).

Our employment averaged 26,662 in 2018, compared with 27,110 in 2017, and 28,044 in 2016.

Purchased services and rents includes the costs of services purchased from outside contractors, including the net costs of operating joint (or leased) facilities with other railroads and the net cost of equipment rentals. As previously discussed, in 2017, this line item includes a \$151 million benefit from the 2017 tax adjustments (\$36 million in purchased services and \$115 million in equipment rents) in the form of higher income of certain equity investees.

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
	(\$ in millions)			(% change)	
Purchased services	\$1,367	\$1,233	\$1,242	11 %	(1 %)
Equipment rents	363	181	306	101 %	(41 %)
Total	\$1,730	\$1,414	\$1,548	22 %	(9 %)

The increase in purchased services in 2018 was largely the result of the absence of the benefit from the 2017 tax adjustments, higher intermodal volume-related costs, additional transportation and engineering activities as well as higher technology costs. In addition to the tax reform impacts discussed above, the remaining increase in purchased services expense in 2017 was a result of higher intermodal volume-related costs.

Equipment rents, which includes our cost of using equipment (mostly freight cars) owned by other railroads or private owners less the rent paid to us for the use of our equipment, increased in 2018, but decreased in 2017. In 2018, the rise was due to the absence of the benefits from the 2017 tax adjustments, the impact of slower network velocity, the cost of additional short-term locomotive resources as well as growth in volume. In 2017, in addition to the benefit from the 2017 tax adjustments, the decline was a result of lower automotive volume.

Fuel expense, which includes the cost of locomotive fuel as well as other fuel used in railway operations, increased in both periods. The change in both years was principally due to locomotive fuel prices (up 25% in 2018 and up 22% in 2017) which increased expenses \$208 million and \$143 million, respectively. Locomotive fuel consumption increased 3% in 2018, but declined 1% in 2017. We consumed approximately 472 million gallons of diesel fuel in 2018, compared with 458 million gallons in 2017 and 462 million gallons in 2016.

Depreciation expense increased in both periods, a reflection of growth in our roadway and equipment capital base as we continue to invest in our infrastructure and rolling stock.

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Materials and other expenses decreased in both periods as shown in the following table.

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
	(\$ in millions)			(% change)	
Materials	\$362	\$348	\$364	4 %	(4 %)
Casualties and other claims	176	145	150	21 %	(3 %)
Other	117	248	285	(53%)	(13%)
Total	\$655	\$741	\$799	(12%)	(7 %)

Materials expense increased in 2018, due primarily to higher locomotive repair costs. In 2017, the decline was a result of lower freight car repairs.

Casualties and other claims expenses include the estimates of costs related to personal injury, property damage, and environmental matters. The 2018 expense increased, primarily the result of higher derailment-related costs. The decrease in 2017 was the result of lower loss and damage, offset in part by unfavorable developments in personal injury cases.

Other expense decreased in both periods, largely a result of higher gains from sales of operating properties, up \$79 million and \$42 million in 2018 and 2017, respectively, compared to the prior periods. In 2018, the decline was additionally impacted by the inclusion of net rental income from operating property previously included in “Other income – net” of \$78 million, partially offset by increased costs as a result of the relocation of our train dispatchers to Atlanta, Georgia.

Other income – net

Other income – net decreased in 2018, following an increase in 2017. The decline was driven by the absence of net rental income as discussed above and unfavorable returns from corporate-owned life insurance (COLI) investments. In 2017, the rise was mainly the result of favorable returns on COLI investments.

Income Taxes

The effective income tax rate was 23.1% in 2018, compared with negative 72.8% in 2017 and 35.4% in 2016. Income taxes in 2018 benefited from the effects of the enactment of tax reform in late 2017 that lowered the federal corporate income tax rate. Income taxes in 2017 included a benefit of \$3,331 million related to the effects of the enactment of tax reform from the reduction in our net deferred tax liabilities driven by the change in the federal rate. All three years benefited from favorable tax benefits associated with stock-based compensation. Both 2018 and 2016 benefited from favorable reductions in deferred taxes for state tax law changes and certain business tax credits, while 2017 and 2016 benefited from higher returns from corporate-owned life insurance.

The statute of limitations on Internal Revenue Service (IRS) examinations has expired for all years prior to 2015. Our consolidated federal income tax return for 2015 is currently being audited by the IRS. We do not expect that the resolution of the examination will have a material effect on our financial position, results of operations, or liquidity.

FINANCIAL CONDITION, LIQUIDITY, AND CAPITAL RESOURCES

Cash provided by operating activities, our principal source of liquidity, was \$3.7 billion in 2018, \$3.3 billion in 2017, and \$3.0 billion in 2016. The increases in both 2018 and 2017 were primarily the result of improved

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operating results. We had working capital deficits of \$729 million and \$396 million at December 31, 2018, and 2017, respectively. Cash, cash equivalents, and restricted cash totaled \$446 million and \$690 million at December 31, 2018, and 2017, respectively. We expect cash on hand combined with cash provided by operating activities will be sufficient to meet our ongoing obligations.

Contractual obligations at December 31, 2018, were comprised of interest on fixed-rate long-term debt, long-term debt (Note 9), unconditional purchase obligations (Note 17), operating leases (Note 10), long-term advances from Conrail, agreements with Consolidated Rail Corporation (CRC) (Note 6), and unrecognized tax benefits (Note 4):

	Total	2019	2020 - 2021	2022 - 2023	2024 and Subsequent	Other
	(\$ in millions)					
Interest on fixed-rate long-term debt	\$13,742	\$545	\$1,001	\$907	\$11,289	\$—
Long-term debt principal	11,984	585	898	1,200	9,301	—
Unconditional purchase obligations	1,206	611	408	187	—	—
Operating leases	695	101	183	144	267	—
Long-term advances from Conrail	280	—	—	—	280	—
Agreements with CRC	206	38	76	76	16	—
Unrecognized tax benefits*	21	—	—	—	—	21
Total	\$28,134	\$1,880	\$2,566	\$2,514	\$21,153	\$21

* This amount is shown in the Other column because the year of settlement cannot be reasonably estimated.

Off balance sheet arrangements consist of obligations related to operating leases, which are included in the table of contractual obligations above and disclosed in Note 10.

Cash used in investing activities was \$1.7 billion in 2018, compared with \$1.5 billion in 2017, and \$1.8 billion in 2016. In 2018, higher property additions drove the increase. The decline in 2017 was a reflection of lower cash outflows for property additions and a drop in corporate-owned life insurance investments.

Capital spending and track and equipment statistics can be found within the “Railway Property” section of Part I of this report on Form 10-K. For 2019, we expect capital spending to approximate 16% to 18% of revenues.

Cash used in financing activities was \$2.3 billion in 2018, compared with \$2.0 billion in 2017, and \$1.3 billion in 2016. Both year-over-year comparisons reflect increased repurchases of common stock and higher debt repayments. In 2018, the increase was also impacted by higher dividend payments, but tempered by increased proceeds from borrowings. In 2017, lower proceeds from borrowings also contributed to the rise.

Share repurchases totaled \$2.8 billion in 2018, \$1.0 billion in 2017, and \$803 million in 2016 for the purchase and retirement of 17.1 million (including 7.0 million shares repurchased for \$1.2 billion under the ASR program, see Note 15), 8.2 million, and 9.2 million shares, respectively. As of December 31, 2018, 39.4 million shares remain authorized by our Board of Directors for repurchase. The timing and volume of future share repurchases will be guided by our assessment of market conditions and other pertinent factors. Any near-term purchases under the program are expected to be made with internally generated cash, cash on hand, or proceeds from borrowings.

In February of 2018, we issued \$500 million of 4.15% senior notes due 2048. In August of 2018, we issued \$300 million of 3.65% senior notes due 2025, \$400 million of 3.80% senior notes due 2028, \$200 million of 4.15% senior notes due 2048, and \$600 million of 5.10% senior notes due 2118 (see Note 9).

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We discuss our credit agreement and our accounts receivable securitization program in Note 9, and we have authority from our Board of Directors to issue an additional \$1.2 billion of debt or equity securities through public or private sale, all of which provide for access to additional liquidity should the need arise. Our debt-to-total capitalization ratio was 42.0% at December 31, 2018, compared with 37.5% at December 31, 2017.

Upcoming annual debt maturities are disclosed in Note 9. Overall, our goal is to maintain a capital structure with appropriate leverage to support our business strategy and provide flexibility through business cycles.

APPLICATION OF CRITICAL ACCOUNTING POLICIES

The preparation of financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the reporting period. These estimates and assumptions may require judgment about matters that are inherently uncertain, and future events are likely to occur that may require us to make changes to these estimates and assumptions. Accordingly, we regularly review these estimates and assumptions based on historical experience, changes in the business environment, and other factors we believe to be reasonable under the circumstances. The following critical accounting policies are a subset of our significant accounting policies described in Note 1.

Pensions and Other Postretirement Benefits

Accounting for pensions and other postretirement benefit plans requires us to make several estimates and assumptions (Note 12). These include the expected rate of return from investment of the plans' assets and the expected retirement age of employees as well as their projected earnings and mortality. In addition, the amounts recorded are affected by changes in the interest rate environment because the associated liabilities are discounted to their present value. We make these estimates based on our historical experience and other information that we deem pertinent under the circumstances (for example, expectations of future stock market performance). We utilize an independent actuarial consulting firm's studies to assist us in selecting appropriate actuarial assumptions and valuing related liabilities.

In recording our net pension benefit, we assumed a long-term investment rate of return of 8.25%, which was supported by the long-term total rate of return on plan assets since inception, as well as our expectation of future returns. A one-percentage point change to this rate of return assumption would result in a \$22 million change in pension expense. We review assumptions related to our defined benefit plans annually, and while changes are likely to occur in assumptions concerning retirement age, projected earnings, and mortality, they are not expected to have a material effect on our net pension expense or net pension liability in the future. The net pension liability is recorded at net present value using discount rates that are based on the current interest rate environment in light of the timing of expected benefit payments. We utilize analyses in which the projected annual cash flows from the pension and postretirement benefit plans are matched with yield curves based on an appropriate universe of high-quality corporate bonds. We use the results of the yield curve analyses to select the discount rates that match the payment streams of the benefits in these plans.

Properties and Depreciation

Most of our assets are long-lived railway properties (Note 7). As disclosed in Note 1, the primary depreciation method for our asset base is group life. See Note 1 for a more detailed discussion of the assumptions and estimates in this area.

Depreciation expense for 2018 totaled \$1.1 billion. Our composite depreciation rates for 2018 are disclosed in Note 7; a one year increase (or decrease) in the estimated average useful lives of depreciable assets would have resulted in an approximate \$40 million decrease (or increase) to depreciation expense.

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Personal Injury

Casualties and other claims expense, included in “Materials and other” in the Consolidated Statements of Income, includes our accrual for personal injury liabilities.

To aid in valuing our personal injury liability and determining the amount to accrue with respect to such claims during the year, we utilize studies prepared by an independent consulting actuarial firm. The actuarial firm studies our historical patterns of reserving for claims and subsequent settlements, taking into account relevant outside influences. We adjust the liability quarterly based upon our assessment and the results of the study. Our estimate is subject to inherent limitation given the difficulty of predicting future events and as such the ultimate loss sustained may vary from the estimated liability recorded.

For a more detailed discussion of the assumptions and estimates in accounting for personal injury see Note 17.

Income Taxes

Our net deferred tax liability totaled \$6.5 billion at December 31, 2018 (Note 4). This liability is estimated based on the expected future tax consequences of items recognized in the financial statements. After application of the federal statutory tax rate to book income, judgment is required with respect to the timing and deductibility of expenses in our income tax returns. For state income and other taxes, judgment is also required with respect to the apportionment among the various jurisdictions. A valuation allowance is recorded if we expect that it is more likely than not that deferred tax assets will not be realized. We have a \$50 million valuation allowance on \$425 million of deferred tax assets as of December 31, 2018, reflecting the expectation that almost all of these assets will be realized.

OTHER MATTERS

Labor Agreements

Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. Pursuant to the Railway Labor Act, these agreements remain in effect until new agreements are reached, or until the bargaining procedures mandated by the Railway Labor Act are completed. We largely bargain nationally in concert with other major railroads, represented by the National Carriers Conference Committee. Moratorium provisions in the labor agreements govern when the railroads and unions may propose changes to the agreements.

The 2015 bargaining round is now complete with finalized agreements in place with all employees. All of the newly negotiated agreements have moratorium provisions that will reopen the agreements for negotiation beginning January 1, 2020.

Market Risks

At December 31, 2018, we had no outstanding debt subject to interest rate fluctuations. Market risk for fixed-rate debt is estimated as the potential increase in fair value resulting from a one percentage point decrease in interest rates as of December 31, 2018, and amounts to an increase of approximately \$1.4 billion to the fair value of our debt at December 31, 2018. We consider it unlikely that interest rate fluctuations applicable to these instruments will result in a material adverse effect on our financial position, results of operations, or liquidity.

New Accounting Pronouncements

For a detailed discussion of new accounting pronouncements, see Note 1.

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Inflation

In preparing financial statements, GAAP requires the use of historical cost that disregards the effects of inflation on the replacement cost of property. As a capital-intensive company, we have most of our capital invested in long-lived assets. The replacement cost of these assets, as well as the related depreciation expense, would be substantially greater than the amounts reported on the basis of historical cost.

FORWARD-LOOKING STATEMENTS

Certain statements in Management's Discussion and Analysis of Financial Condition and Results of Operations are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, levels of activity, performance, or our achievements or those of our industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements can be identified by terminology such as "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "project," "consider," "potential," "feel," or other comparable terminology. We have based these forward-looking statements on our current expectations, assumptions, estimates, beliefs, and projections. While we believe these expectations, assumptions, estimates, beliefs, and projections are reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond our control. These and other important factors, including those discussed in Item 1A "Risk Factors," may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, we disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise. Copies of our press releases and additional information about us is available at www.norfolksouthern.com, or you can contact our Investor Relations Department by calling 757-629-2861.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The information required by this item is included in Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" under the heading "Market Risks."

Item 8. Financial Statements and Supplementary Data

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Report of Management

February 8, 2019

To the Stockholders
Norfolk Southern Corporation

Management is responsible for establishing and maintaining adequate internal control over financial reporting. In order to ensure that Norfolk Southern Corporation's internal control over financial reporting is effective, management regularly assesses such controls and did so most recently as of December 31, 2018. This assessment was based on criteria for effective internal control over financial reporting described in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management has concluded that the Corporation maintained effective internal control over financial reporting as of December 31, 2018.

KPMG LLP, independent registered public accounting firm, has audited the Corporation's financial statements and issued an attestation report on the Corporation's internal control over financial reporting as of December 31, 2018.

/s/ James A. Squires	/s/ Cynthia C. Earhart	/s/ Jason A. Zampi
James A. Squires	Cynthia C. Earhart	Jason A. Zampi
Chairman, President and Chief Executive Officer	Executive Vice President Finance and Chief Financial Officer	Vice President and Controller

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders
Norfolk Southern Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Norfolk Southern Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, cash flows, and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2018, and the related notes and financial statement schedule of valuation and qualifying accounts as listed in Item 15(A)2 (collectively, the consolidated financial statements), and our report dated February 8, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Report of Management. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use,

or disposition of the company's assets that could have a material effect on the financial statements.

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Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP
KPMG LLP
Norfolk, Virginia
February 8, 2019

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders
Norfolk Southern Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Norfolk Southern Corporation and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, cash flows, and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2018, and the related notes and financial statement schedule of valuation and qualifying accounts as listed in Item 15(A)2 (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 8, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP
KPMG LLP

We have served as the Company's auditor since 1982.

Norfolk, Virginia
February 8, 2019

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Income

	Years ended December 31,		
	2018	2017	2016
	(\$ in millions, except per share amounts)		
Railway operating revenues	\$11,458	\$10,551	\$9,888
Railway operating expenses:			
Compensation and benefits	2,925	2,979	2,808
Purchased services and rents	1,730	1,414	1,548
Fuel	1,087	840	698
Depreciation	1,102	1,055	1,026
Materials and other	655	741	799
Total railway operating expenses	7,499	7,029	6,879
Income from railway operations	3,959	3,522	3,009
Other income – net	67	156	136
Interest expense on debt	557	550	563
Income before income taxes	3,469	3,128	2,582
Income taxes	803	(2,276)	914
Net income	\$2,666	\$5,404	\$1,668
Earnings per share:			
Basic	\$9.58	\$18.76	\$5.66
Diluted	9.51	18.61	5.62

See accompanying notes to consolidated financial statements.

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Norfolk Southern Corporation and Subsidiaries
 Consolidated Statements of Comprehensive Income

	Years ended December		
	31,		
	2018	2017	2016
	(\$ in millions)		
Net income	\$2,666	\$5,404	\$1,668
Other comprehensive income (loss), before tax:			
Pension and other postretirement benefits	(148)	155	(74)
Other comprehensive income (loss) of equity investees	(9)	19	5
Other comprehensive income (loss), before tax	(157)	174	(69)
Income tax benefit (expense) related to items of other comprehensive income (loss)	38	(43)	27
Other comprehensive income (loss), net of tax	(119)	131	(42)
Total comprehensive income	\$2,547	\$5,535	\$1,626

See accompanying notes to consolidated financial statements.

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Norfolk Southern Corporation and Subsidiaries
Consolidated Balance Sheets

	At December 31,	
	2018	2017
	(\$ in millions)	
Assets		
Current assets:		
Cash and cash equivalents	\$358	\$690
Accounts receivable – net	1,009	955
Materials and supplies	207	222
Other current assets	288	282
Total current assets	1,862	2,149
Investments	3,109	2,981
Properties less accumulated depreciation of \$12,374 and \$11,909, respectively	31,091	30,330
Other assets	177	251
Total assets	\$36,239	\$35,711
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$1,505	\$1,401
Short-term debt	—	100
Income and other taxes	255	211
Other current liabilities	246	233
Current maturities of long-term debt	585	600
Total current liabilities	2,591	2,545
Long-term debt	10,560	9,136
Other liabilities	1,266	1,347
Deferred income taxes	6,460	6,324
Total liabilities	20,877	19,352
Stockholders' equity:		
Common Stock \$1.00 per share par value, 1,350,000,000 shares authorized; outstanding 268,098,472 and 284,157,187 shares, respectively, net of treasury shares	269	285
Additional paid-in capital	2,216	2,254
Accumulated other comprehensive loss	(563)	(356)
Retained income	13,440	14,176
Total stockholders' equity	15,362	16,359
Total liabilities and stockholders' equity	\$36,239	\$35,711

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Cash Flows

	Years ended December 31,		
	2018	2017	2016
	(\$ in millions)		
Cash flows from operating activities:			
Net income	\$2,666	\$5,404	\$1,668
Reconciliation of net income to net cash provided by operating activities:			
Depreciation	1,104	1,059	1,030
Deferred income taxes	173	(2,859)	227
Gains and losses on properties	(171)	(92)	(46)
Changes in assets and liabilities affecting operations:			
Accounts receivable	(70)	(41)	23
Materials and supplies	15	35	42
Other current assets	(46)	(71)	82
Current liabilities other than debt	223	135	158
Other – net	(168)	(317)	(150)
Net cash provided by operating activities	3,726	3,253	3,034
Cash flows from investing activities:			
Property additions	(1,951)	(1,723)	(1,887)
Property sales and other transactions	204	202	130
Investment purchases	(10)	(7)	(123)
Investment sales and other transactions	99	47	48
Net cash used in investing activities	(1,658)	(1,481)	(1,832)
Cash flows from financing activities:			
Dividends	(844)	(703)	(695)
Common Stock transactions	40	89	57
Purchase and retirement of Common Stock	(2,781)	(1,012)	(803)
Proceeds from borrowings – net of issuance costs	2,023	290	694
Debt repayments	(750)	(702)	(600)
Net cash used in financing activities	(2,312)	(2,038)	(1,347)
Net decrease in cash, cash equivalents, and restricted cash	(244)	(266)	(145)
Cash, cash equivalents, and restricted cash:			
At beginning of year	690	956	1,101
At end of year	\$446	\$690	\$956
Supplemental disclosures of cash flow information:			
Cash paid during the year for:			
Interest (net of amounts capitalized)	\$496	\$528	\$543
Income taxes (net of refunds)	519	705	593

See accompanying notes to consolidated financial statements.
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Norfolk Southern Corporation and Subsidiaries

Consolidated Statements of Changes in Stockholders' Equity

	Common Stock	Additional Paid-in Capital	Accum. Other Comprehensive Loss	Retained Income	Total
(\$ in millions, except per share amounts)					
Balance at December 31, 2015	\$299	\$2,143	\$ (445)	\$10,191	\$12,188
Comprehensive income:					
Net income				1,668	1,668
Other comprehensive loss			(42)		(42)
Total comprehensive income					1,626
Dividends on Common Stock, \$2.36 per share				(695)	(695)
Share repurchases	(9)	(63)		(731)	(803)
Stock-based compensation	2	99		(6)	95
Other				(2)	(2)
Balance at December 31, 2016	292	2,179	(487)	10,425	12,409
Comprehensive income:					
Net income				5,404	5,404
Other comprehensive income			131		131
Total comprehensive income					5,535
Dividends on Common Stock, \$2.44 per share				(703)	(703)
Share repurchases	(8)	(59)		(945)	(1,012)
Stock-based compensation	1	134		(5)	130
Balance at December 31, 2017	285	2,254	(356)	14,176	16,359
Comprehensive income:					
Net income				2,666	2,666
Other comprehensive loss			(119)		(119)
Total comprehensive income					2,547
Dividends on Common Stock, \$3.04 per share				(844)	(844)
Share repurchases	(17)	(125)		(2,639)	(2,781)
Stock-based compensation	1	87		(7)	81
Reclassification of stranded tax effects			(88)	88	—
Balance at December 31, 2018	\$269	\$2,216	\$ (563)	\$13,440	\$15,362

See accompanying notes to consolidated financial statements.

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Norfolk Southern Corporation and Subsidiaries
Notes to Consolidated Financial Statements

The following Notes are an integral part of the Consolidated Financial Statements.

1. Summary of Significant Accounting Policies

Description of Business

Norfolk Southern Corporation is a Virginia-based holding company engaged principally in the rail transportation business, operating approximately 19,500 route miles primarily in the East and Midwest. These consolidated financial statements include Norfolk Southern and its majority-owned and controlled subsidiaries (collectively, NS, we, us, and our). Norfolk Southern's major subsidiary is NSR. All significant intercompany balances and transactions have been eliminated in consolidation.

NSR and its railroad subsidiaries transport raw materials, intermediate products, and finished goods classified in the following commodity groups (percent of total railway operating revenues in 2018): intermodal (25%); coal (16%); chemicals (16%); agriculture, consumer products, and government (14%); metals and construction (13%); automotive (9%); and, paper, clay, and forest products (7%). Although most of our customers are domestic, ultimate points of origination or destination for some of the products transported (particularly coal bound for export and some intermodal containers) may be outside the U.S. Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions.

Use of Estimates

The preparation of financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. We periodically review our estimates, including those related to the recoverability and useful lives of assets, as well as liabilities for litigation, environmental remediation, casualty claims, income taxes and pension and other postretirement benefits. Changes in facts and circumstances may result in revised estimates.

Revenue Recognition

Transportation revenue is recognized proportionally as a shipment moves from origin to destination, and related expenses are recognized as incurred. Certain of our contract refunds (which are primarily volume-based incentives) are recorded as a reduction to revenues on the basis of management's best estimate of projected liability, which is based on historical activity, current shipment counts and expectation of future activity. Switching, demurrage and other incidental service revenues are recognized at a point in time when the services are performed or as contractual obligations are met.

Cash Equivalents

"Cash equivalents" are highly liquid investments purchased three months or less from maturity.

Allowance for Doubtful Accounts

Our allowance for doubtful accounts was \$7 million at both December 31, 2018 and 2017. To determine our allowance for doubtful accounts, we evaluate historical loss experience (which has not been significant), the characteristics of current accounts, and general economic conditions and trends.

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Materials and Supplies

“Materials and supplies,” consisting mainly of items for maintenance of property and equipment, are stated at the lower of average cost or net realizable value. The cost of materials and supplies expected to be used in property additions or improvements is included in “Properties.”

Investments

Investments in entities over which we have the ability to exercise significant influence but do not control the entity are accounted for using the equity method, whereby the investment is carried at the cost of the acquisition plus our equity in undistributed earnings or losses since acquisition.

Properties

“Properties” are stated principally at cost and are depreciated using the group method whereby assets with similar characteristics, use, and expected lives are grouped together in asset classes and depreciated using a composite depreciation rate. This methodology treats each asset class as a pool of resources, not as singular items. We use approximately 75 depreciable asset classes. “Depreciation” in the Consolidated Statements of Cash Flows includes both depreciation and depletion on operating and nonoperating properties.

Depreciation expense is based on our assumptions concerning expected service lives of our properties as well as the expected net salvage that will be received upon their retirement. In developing these assumptions, we utilize periodic depreciation studies that are performed by an independent outside firm of consulting engineers and approved by the STB. Our depreciation studies are conducted about every three years for equipment and every six years for track assets and other roadway property. The frequency of these studies is consistent with guidelines established by the STB. We adjust our rates based on the results of these studies and implement the changes prospectively. The studies may also indicate that the recorded amount of accumulated depreciation is deficient (or in excess) of the amount indicated by the study. Any such deficiency (or excess) is amortized as a component of depreciation expense over the remaining service lives of the affected class of property, as determined by the study.

Key factors that are considered in developing average service life and salvage estimates include:

- statistical analysis of historical retirement data and surviving asset records;
- review of historical salvage received and current market rates;
- review of our operations including expected changes in technology, customer demand, maintenance practices and asset management strategies;
- review of accounting policies and assumptions; and
- industry review and analysis.

The composite depreciation rate for rail in high density corridors is derived based on consideration of annual gross tons as compared to the total or ultimate capacity of rail in these corridors. Our experience has shown that traffic density is a leading factor in the determination of the expected service life of rail in high density corridors. In developing the respective depreciation rate, consideration is also given to several rail characteristics including age, weight, condition (new or second-hand) and type (curved or straight).

We capitalize interest on major projects during the period of their construction. Expenditures, including those on leased assets, that extend an asset’s useful life or increase its utility are capitalized. Expenditures capitalized include those that are directly related to a capital project and may include materials, labor and equipment, in addition to an allocable portion of indirect costs that relate to a capital project. A significant portion of annual capital spending relates to the replacement of self-constructed assets. Removal activities occur in conjunction with replacement and are estimated based on the average percentage of time employees replacing assets spend on removal functions. Costs

related to repairs and maintenance activities that do not extend an asset's useful life or increase its utility are expensed when such repairs are performed.

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When depreciable operating road and equipment assets are sold or retired in the ordinary course of business, the cost of the assets, net of sale proceeds or salvage, is charged to accumulated depreciation, and no gain or loss is recognized in earnings. Actual historical cost values are retired when available, such as with most equipment assets. The use of estimates in recording the retirement of certain roadway assets is necessary based on the impracticality of tracking individual asset costs. When retiring rail, ties and ballast, we use statistical curves that indicate the relative distribution of the age of the assets retired. The historical cost of other roadway assets is estimated using a combination of inflation indices specific to the rail industry and those published by the U.S. Bureau of Labor Statistics. The indices are applied to the replacement value based on the age of the retired assets. These indices are used because they closely correlate with the costs of roadway assets. Gains and losses on disposal of operating land are included in "Materials and other" expenses. Gains and losses on disposal of nonoperating land and nonrail assets are included in "Other income – net" since such income is not a product of our railroad operations.

A retirement is considered abnormal if it does not occur in the ordinary course of business, if it relates to disposition of a large segment of an asset class and if the retirement varies significantly from the retirement profile identified through our depreciation studies, which inherently consider the impact of normal retirements on expected service lives and depreciation rates. Gains or losses from abnormal retirements would be recognized in income from railway operations.

We review the carrying amount of properties whenever events or changes in circumstances indicate that such carrying amount may not be recoverable based on future undiscounted cash flows. Assets that are deemed impaired as a result of such review are recorded at the lower of carrying amount or fair value.

New Accounting Pronouncements

The FASB issued ASU 2014-09, "Revenue from Contracts with Customers," and related amendments, which are jointly referred to as Accounting Standards Codification (ASC) Topic 606. This standard replaced most existing revenue recognition guidance in GAAP and requires entities to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. A performance obligation is defined as a promise in a contract to transfer a distinct good or service to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. We adopted the provisions of this standard on January 1, 2018, using the modified retrospective method. There was no cumulative effect of initially applying the standard, nor is there any material difference in revenue for the year ended December 31, 2018, as compared with GAAP that was in effect prior to January 1, 2018.

In March 2017, the FASB issued ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." This update requires segregation of net benefit costs between operating and nonoperating expenses and requires retrospective application. We adopted the standard on January 1, 2018. Under the new standard, only the service cost component of defined benefit pension cost and postretirement benefit cost are reported within "Compensation and benefits" and all other components of net benefit cost are presented in "Other income – net" on the Consolidated Statements of Income, whereas under the previous standard all components were included in "Compensation and benefits." The retrospective application resulted in an increase to "Compensation and benefits" expense and an offsetting increase to "Other income – net" on the Consolidated Statements of Income of \$64 million and \$65 million for the years ended December 31, 2017 and December 31, 2016, respectively, with no impact on "Net income."

In February 2018, the FASB issued ASU 2018-02, "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." This update is intended to reclassify the stranded tax effects resulting from tax reform from accumulated other comprehensive income (AOCI) to retained earnings. The amount of the reclassification is the difference between the amount initially charged or credited directly to other comprehensive income at the previously enacted U.S. federal corporate income tax rate that remains in AOCI and the amount that would have been charged or

credited directly to other comprehensive income using the newly enacted U.S. federal corporate income tax rate. In the first quarter of 2018, we adopted the provisions of ASU 2018-02 resulting in an increase to

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“Accumulated other comprehensive loss” of \$88 million and a corresponding increase to “Retained income,” with no impact on “Total stockholders’ equity.”

In February 2016, the FASB issued ASU 2016-02, “Leases (Topic 842),” and subsequent amendments, which replaced existing lease guidance in GAAP and requires lessees to recognize right-of-use (ROU) assets and lease liabilities on the balance sheet for leases greater than twelve months and disclose key information about leasing arrangements. We adopted the standard on January 1, 2019 using the modified retrospective method and used the effective date as our date of initial application. Financial information will not be updated and the disclosures required under the new standard will not be provided for dates and periods before January 1, 2019.

The new standard provides a number of optional practical expedients for transition. We elected the package of practical expedients under the transition guidance which permits us not to reassess under the new standards our prior conclusions for lease identification and lease classification on expired or existing contracts and whether initial direct costs previously capitalized would qualify for capitalization under ASC 842. We also elected the practical expedient related to land easements, allowing us to not reassess our current accounting treatment for existing agreements on land easements, which are not accounted for as leases. We did not elect the hindsight practical expedient to determine the reasonably certain lease term for existing leases.

The new standard also provides practical expedients and recognition exemptions for an entity’s ongoing accounting policy elections. We elected the short-term lease recognition exemption for all leases that qualify. This means, for those leases that qualify, we will not recognize ROU assets or lease liabilities. We also elected the practical expedient not to separate lease and non-lease components for all of our leases.

We expect that adoption of the standard will result in recognition of lease liabilities of approximately \$600 million as of January 1, 2019, with corresponding ROU assets of the same amount based on the present value of the remaining minimum rental payments under current leasing standards for existing operating leases. There will be no adjustment to “Retained income” on adoption.

In June 2016, the FASB issued ASU 2016-13, “Credit Losses - Measurement of Credit Losses on Financial Instruments,” which replaces the current incurred loss impairment method with a method that reflects expected credit losses. The new standard is effective as of January 1, 2020, and early adoption is permitted as of January 1, 2019.

Because credit losses associated from our trade receivables have historically been insignificant, we do not expect this standard to have a material effect on our financial statements. We will not adopt the standard early.

2. Railway Operating Revenues

The following table disaggregates our revenues by commodity group:

	2018 (\$ in millions)
Merchandise:	
Chemicals	\$ 1,808
Agriculture, consumer products, and government	1,674
Metals and construction	1,462
Automotive	991
Paper, clay, and forest products	809
Merchandise	6,744
Intermodal	2,893
Coal	1,821
Total	\$ 11,458

A performance obligation is created when a customer under a transportation contract or public tariff submits a bill of lading to NS for the transport of goods. These performance obligations are satisfied as the shipments move from origin to destination. As such, transportation revenue is recognized proportionally as a shipment moves, and related expenses are recognized as incurred. These performance obligations are generally short-term in nature with transit days averaging approximately one week or less for each commodity group. The customer has an unconditional obligation to pay for the service once the service has been completed. Estimated revenue associated with in-process shipments at period-end is recorded based on the estimated percentage of service completed to total transit days. We had no material remaining performance obligations as of December 31, 2018.

Under the typical payment terms of our freight contracts, payment for services is due within fifteen days of billing the customer, thus there are no significant financing components. “Accounts receivable – net” on the Consolidated Balance Sheets includes both customer and non-customer receivables as follows:

	December 31, 2018 2017 (\$ in millions)	
Customer	\$740	\$703
Non-customer	269	252
Accounts receivable – net	\$1,009	\$955

Non-customer receivables include non-revenue-related amounts due from other railroads, governmental entities, and others. “Other assets” on the Consolidated Balance Sheets includes non-current customer receivables of \$55 million and \$39 million at December 31, 2018 and December 31, 2017, respectively. We do not have any material contract assets or liabilities.

Certain of our contracts contain refunds (which are primarily volume-based incentives) that are recorded as a reduction to revenue. Refunds are recorded on the basis of management’s best estimate of projected liability, which is based on historical activity, current shipment counts and expectation of future activity.

Certain accessorial services may be provided to customers under their transportation contracts such as switching, demurrage and other incidental service revenues. These are distinct performance obligations that are recognized at a point in time when the services are performed or as contractual obligations are met. This revenue is included within each of the commodity groups and represents approximately 4% of total “Railway operating revenues” on the Consolidated Statements of Income.

3. Other Income – Net

	2018	2017	2016
	(\$ in millions)		
Net pension and other postretirement benefit cost (Note 12)	\$61	\$64	\$65
Rental income	5	87	93
External advisor costs	—	—	(20)
Other	1	5	(2)
Total	\$67	\$156	\$136

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4. Income Taxes

Tax reform, enacted in 2017, lowered the Federal corporate tax rate from 35% to 21% and made numerous other tax law changes. GAAP requires companies to recognize the effect of tax law changes in the period of enactment. As a result, in 2017, "Purchased services and rents" included a \$151 million benefit for earnings generated from reductions to net deferred tax liabilities at certain equity investees and "Income taxes" included a \$3,331 million benefit primarily due to the remeasurement of our net deferred tax liabilities to reflect the lower rate. In 2017, reasonable estimates were made based on our analysis of tax reform that could have required provisional amounts to be adjusted when additional information was obtained. No material adjustments to our provisional amounts were made in 2018.

	2018	2017	2016
	(\$ in millions)		
Current:			
Federal	\$499	\$500	\$612
State	131	83	75
Total current taxes	630	583	687
Deferred:			
Federal	156	(2,924)	206
State	17	65	21
Total deferred taxes	173	(2,859)	227
Income taxes	\$803	\$(2,276)	\$914

Reconciliation of Statutory Rate to Effective Rate

"Income taxes" on the Consolidated Statements of Income differs from the amounts computed by applying the statutory federal corporate tax rate as follows:

	2018		2017		2016	
	Amount	%	Amount	%	Amount	%
	(\$ in millions)					
Federal income tax at statutory rate	\$728	21.0	\$1,095	35.0	\$904	35.0
State income taxes, net of federal tax effect	120	3.5	88	2.8	70	2.8
Equity in earnings related to tax reform	—	—	(38)	(1.2)	—	—
Tax reform	—	—	(3,331)	(106.5)	—	—
Excess tax benefits on stock-based compensation	(22)	(0.7)	(39)	(1.2)	(17)	(0.7)
Other, net	(23)	(0.7)	(51)	(1.7)	(43)	(1.7)
Income taxes	\$803	23.1	\$(2,276)	(72.8)	\$914	35.4

Deferred Tax Assets and Liabilities

Certain items are reported in different periods for financial reporting and income tax purposes. Deferred tax assets and liabilities are recorded in recognition of these differences. The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are as follows:

	December 31,	
	2018	2017
	(\$ in millions)	
Deferred tax assets:		
Compensation and benefits, including postretirement benefits	\$284	\$235
Accruals, including casualty and other claims	69	64
Other	72	67
Total gross deferred tax assets	425	366
Less valuation allowance	(50)	(44)
Net deferred tax assets	375	322
Deferred tax liabilities:		
Property	(6,422)	(6,212)
Other	(413)	(434)
Total deferred tax liabilities	(6,835)	(6,646)
Deferred income taxes	\$(6,460)	\$(6,324)

Except for amounts for which a valuation allowance has been provided, we believe that it is more likely than not that the results of future operations will generate sufficient taxable income to realize the deferred tax assets. The valuation allowance at the end of each year primarily relates to subsidiary state income tax net operating losses and state investment tax credits that may not be utilized prior to their expiration. The total valuation allowance increased by \$6 million in 2018, \$5 million in 2017, and \$4 million in 2016.

Uncertain Tax Positions

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	December	
	31,	
	2018	2017
	(\$ in millions)	
Balance at beginning of year	\$17	\$27
Additions based on tax positions related to the current year	5	4
Additions for tax positions of prior years	—	2
Reductions for tax positions of prior years	—	(2)
Settlements with taxing authorities	—	(11)
Lapse of statutes of limitations	(1)	(3)
Balance at end of year	\$21	\$17

Included in the balance of unrecognized tax benefits at December 31, 2018 are potential benefits of \$17 million that would affect the effective tax rate if recognized. Unrecognized tax benefits are adjusted in the period in which new information about a tax position becomes available or the final outcome differs from the amount recorded.

The statute of limitations on IRS examinations has expired for all years prior to 2015. We have amended our 2012 income tax return to request a refund of \$46 million, which is not included in the above balance of unrecognized tax benefits. State income tax returns generally are subject to examination for a period of three to four years after filing of the return. In addition, we are generally obligated to report changes in taxable income arising from federal income tax examinations to the states within a period of up to two years from the date the federal examination is final. We have various state income tax returns either under examination, administrative appeal, or litigation.

5. Fair Value Measurements

FASB ASC 820-10, "Fair Value Measurements," established a framework for measuring fair value and a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels, as follows:

Level 1 Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that we have the ability to access.

Level 2 Inputs to the valuation methodology include:

- quoted prices for similar assets or liabilities in active markets;
- quoted prices for identical or similar assets or liabilities in inactive markets;
- inputs other than quoted prices that are observable for the asset or liability;
- inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3 Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

The asset's or liability's fair value measurement level within the hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

Fair Values of Financial Instruments

The fair values of "Cash and cash equivalents," "Accounts receivable – net," "Accounts payable," and "Short-term debt" approximate carrying values because of the short maturity of these financial instruments. The carrying value of corporate-owned life insurance is recorded at cash surrender value and, accordingly, approximates fair value. There are no other assets or liabilities measured at fair value on a recurring basis at December 31, 2018 or 2017. The carrying amounts and estimated fair values, based on Level 1 inputs, of long-term debt consisted of the following at December 31:

2018		2017	
Carrying Amount	Fair Value	Carrying Amount	Fair Value
(\$ in millions)			

Long-term debt, including current maturities	\$ (11,145)	\$ (12,203)	\$ (9,736)	\$ (11,771)
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6. Investments

	December 31,	
	2018	2017
	(\$ in millions)	
Long-term investments:		
Equity method investments:		
Conrail Inc.	\$1,337	\$1,293
TTX Company	692	629
Meridian Speedway LLC	271	272
Pan Am Southern LLC	155	154
Other	77	77
Total equity method investments	2,532	2,425
Corporate-owned life insurance at net cash surrender value	556	530
Other investments	21	26
Total long-term investments	\$3,109	\$2,981

Investment in Conrail

Through a limited liability company, we and CSX jointly own Conrail, whose primary subsidiary is CRC. We have a 58% economic and 50% voting interest in the jointly owned entity, and CSX has the remainder of the economic and voting interests. We are amortizing the excess of the purchase price over Conrail's net equity using the principles of purchase accounting, based primarily on the estimated useful lives of Conrail's depreciable property and equipment, including the related deferred tax effect of the differences in book and tax accounting bases for such assets, as all of the purchase price at acquisition was allocable to Conrail's tangible assets and liabilities.

At December 31, 2018, based on the funded status of Conrail's pension plans, we decreased our proportional investment in Conrail by \$11 million. This resulted in a loss of \$10 million recorded to "Other comprehensive loss" and a combined federal and state deferred tax asset of \$1 million.

At December 31, 2017, based on the funded status of Conrail's pension plans, we increased our proportional investment in Conrail by \$19 million. This resulted in income of \$17 million recorded to "Other comprehensive income" and a combined federal and state deferred tax liability of \$2 million.

At December 31, 2018, the difference between our investment in Conrail and our share of Conrail's underlying net equity was \$511 million. Our equity in the earnings of Conrail, net of amortization, included in "Purchased services and rents" was \$55 million for 2018, \$75 million for 2017 (including \$33 million related to the enactment of tax reform – see Note 4), and \$47 million for 2016. Equity in earnings are included in the "Other – net" line item within operating activities in the Consolidated Statements of Cash Flows.

CRC owns and operates certain properties (the Shared Assets Areas) for the joint and exclusive benefit of NSR and CSX Transportation, Inc. (CSXT). The costs of operating the Shared Assets Areas are borne by NSR and CSXT based on usage. In addition, NSR and CSXT pay CRC a fee for access to the Shared Assets Areas. "Purchased services and rents" and "Fuel" include expenses payable to CRC for operation of the Shared Assets Areas totaling \$150 million in 2018, \$141 million in 2017, and \$151 million in 2016. Future payments for access fees due to CRC under the Shared Assets Areas agreements are as follows: \$38 million in each of 2019 through 2023 and \$16 million thereafter. We provide certain general and administrative support functions to Conrail, the fees for which are billed in accordance with several service-provider arrangements and approximate \$7 million annually.

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“Accounts payable” includes \$202 million at December 31, 2018, and \$146 million at December 31, 2017, due to Conrail for the operation of the Shared Assets Areas. “Other liabilities” includes \$280 million at both December 31, 2018 and 2017 for long-term advances from Conrail, maturing in 2044, that bear interest at an average rate of 2.9%.

Investment in TTX

NS and eight other North American railroads jointly own TTX Company (TTX). NS has a 19.65% ownership interest in TTX, a railcar pooling company that provides its owner-railroads with standardized fleets of intermodal, automotive, and general use railcars at stated rates.

Amounts paid to TTX for use of equipment are included in “Purchased services and rents.” This amounted to \$262 million, \$237 million, and \$229 million of expense, respectively, for the years ended December 31, 2018, 2017 and 2016. Our equity in the earnings of TTX, also included in “Purchased services and rents,” totaled \$61 million for 2018, \$158 million (including \$115 million related to the enactment of tax reform – see Note 4) for 2017, and \$26 million for 2016.

7. Properties

December 31, 2018	Cost	Accumulated Depreciation	Net Book Value	Depreciation Rate ⁽¹⁾	
	(\$ in millions)				
Land	\$2,337	\$ —	\$2,337	—	
Roadway:					
Rail and other track material	6,888	(1,951	) 4,937	2.29	%
Ties	5,346	(1,448	) 3,898	3.36	%
Ballast	2,759	(676	) 2,083	2.70	%
Construction in process	442	—	442	—	
Other roadway	14,072	(3,737	) 10,335	2.64	%
Total roadway	29,507	(7,812	) 21,695		
Equipment:					
Locomotives	5,870	(2,262	) 3,608	3.77	%
Freight cars	3,183	(1,288	) 1,895	2.47	%
Computers and software	623	(365	) 258	10.65	%
Construction in process	437	—	437	—	
Other equipment	1,071	(380	) 691	4.94	%
Total equipment	11,184	(4,295	) 6,889		
Other property	437	(267	) 170	0.78	%
Total properties	\$43,465	\$ (12,374	) \$31,091		

December 31, 2017	Cost	Accumulated Depreciation	Net Book Value	Depreciation Rate ⁽¹⁾	
	(\$ in millions)				
Land	\$2,342	\$ —	\$2,342	—	
Roadway:					
Rail and other track material	6,730	(1,961	) 4,769	2.28	%
Ties	5,181	(1,374	) 3,807	3.37	%
Ballast	2,654	(624	) 2,030	2.71	%
Construction in process	447	—	447	—	
Other roadway	13,636	(3,523	) 10,113	2.59	%
Total roadway	28,648	(7,482	) 21,166		
Equipment:					
Locomotives	5,658	(2,158	) 3,500	3.77	%
Freight cars	3,256	(1,286	) 1,970	2.48	%
Computers and software	610	(334	) 276	10.61	%
Construction in process	247	—	247	—	
Other equipment	1,004	(366	) 638	5.06	%
Total equipment	10,775	(4,144	) 6,631		
Other property	474	(283	) 191	0.77	%
Total properties	\$42,239	\$ (11,909	) \$30,330		

⁽¹⁾ Composite annual depreciation rate for the underlying assets, excluding the effects of the amortization of any deficiency (or excess) that resulted from our depreciation studies.

Other property includes the costs of obtaining rights to natural resources of \$336 million at both December 31, 2018 and 2017, with accumulated depletion of \$200 million at both dates.

Capitalized Interest

Total interest cost incurred on debt was \$574 million in 2018, \$570 million in 2017, and \$583 million in 2016, of which \$17 million in 2018 and \$20 million in both 2017 and 2016 was capitalized.

8. Current Liabilities

	December 31,	
	2018	2017
	(\$ in millions)	
Accounts payable:		
Accounts and wages payable	\$828	\$822
Casualty and other claims (Note 17)	213	187
Due to Conrail (Note 6)	202	146
Vacation liability	140	133
Other	122	113
Total	\$1,505	\$1,401
Other current liabilities:		
Interest payable	\$139	\$115
Pension benefit obligations (Note 12)	18	17
Other	89	101
Total	\$246	\$233

9. Debt

Debt with weighted average interest rates and maturities is presented below:

	December 31,	
	2018	2017
	(\$ in millions)	
Notes and debentures:		
4.68% maturing to 2023	\$2,682	\$3,282
4.57% maturing 2024 to 2031	3,065	2,365
4.49% maturing 2037 to 2052	5,104	4,404
5.90% maturing 2097 to 2118	1,131	531
Securitization borrowings and capital leases	2	102
Discounts, premiums, and debt issuance costs	(839)	(848)
Total debt	11,145	9,836
Less current maturities and short-term debt	(585)	(700)
Long-term debt excluding current maturities and short-term debt	\$10,560	\$9,136

Long-term debt maturities subsequent to 2019 are as follows:

2020	\$ 314
2021	584
2022	600
2023	600
2024 and subsequent years	8,462
Total	\$ 10,560

In February of 2018, we issued \$500 million of 4.15% senior notes due 2048.

In August of 2018, we issued \$300 million of 3.65% senior notes due 2025, \$400 million of 3.80% senior notes due 2028, \$200 million of 4.15% senior notes due 2048, and \$600 million of 5.10% senior notes due 2118.

In June of 2018, we renewed our accounts receivable securitization program for a 364-day term expiring in May 2019. We also increased the program's capacity from \$350 million to \$400 million. Under this facility NSR sells substantially all of its eligible third-party receivables to a subsidiary, which in turn may transfer beneficial interests in the receivables to various commercial paper vehicles. Amounts received under the facility are accounted for as borrowings. Under this facility, we received \$50 million in 2018, and paid \$150 million and \$100 million during 2018 and 2017, respectively. We had no amounts outstanding under this program at December 31, 2018 and \$100 million (at an average variable interest rate of 3.21%) at December 31, 2017, which is included within "Short-term debt." At December 31, 2018 and 2017, the receivables included in "Accounts receivable – net" serving as collateral for these borrowings totaled \$793 million and \$751 million, respectively. Borrowings under this program are supported by our \$750 million credit agreement.

The "Cash, cash equivalents, and restricted cash" line item in the Consolidated Statements of Cash Flows includes restricted cash of \$88 million at December 31, 2018 which reflects deposits held by a third-party bond agent as collateral for certain debt obligations maturing in 2019. The restricted cash balance is included as part of "Other current assets" on the Consolidated Balance Sheets.

Credit Agreement and Debt Covenants

We have in place and available a \$750 million, five-year credit agreement which expires in May 2021 and provides for borrowings at prevailing rates and includes covenants. We had no amounts outstanding under this facility at December 31, 2018 and 2017, and we are in compliance with all of its covenants.

10. Lease Commitments

We are committed under long-term lease agreements for equipment, lines of road and other property. Future minimum lease payments and operating lease expense are as follows:

Future Minimum Lease Payments

	Operating Leases (\$ in millions)
2019	\$ 101
2020	95
2021	88
2022	75
2023	69
2024 and subsequent years	267
Total	\$ 695

Operating Lease Expense

	2018	2017	2016
	(\$ in millions)		
Minimum rents	\$102	\$96	\$97
Contingent rents	102	54	51
Total	\$204	\$150	\$148

Contingent rents are primarily comprised of usage-based payments for equipment under service contracts.

11. Other Liabilities

	December 31,	
	2018	2017
	(\$ in millions)	
Net other postretirement benefit obligations (Note 12)	\$308	\$309
Long-term advances from Conrail (Note 6)	280	280
Net pension benefit obligations (Note 12)	278	296
Casualty and other claims (Note 17)	158	179
Deferred compensation	106	113
Other	136	170
Total	\$1,266	\$1,347

12. Pensions and Other Postretirement Benefits

We have both funded and unfunded defined benefit pension plans covering principally salaried employees. We also provide specified health care and life insurance benefits to eligible retired employees; these plans can be amended or terminated at our option. Under our self-insured retiree health care plan, for those participants who are not Medicare-eligible, a defined percentage of health care expenses is covered for retired employees and their dependents, reduced by any deductibles, coinsurance, and, in some cases, coverage provided under other group insurance policies. Those participants who are Medicare-eligible are not covered under the self-insured retiree health care plan, but instead are provided with an employer-funded health reimbursement account which can be used for reimbursement of health insurance premiums or eligible out-of-pocket medical expenses.

Pension and Other Postretirement Benefit Obligations and Plan Assets

	Pension Benefits		Other Postretirement Benefits	
	2018	2017	2018	2017
	(\$ in millions)			
Change in benefit obligations:				
Benefit obligation at beginning of year	\$2,541	\$2,420	\$510	\$528
Service cost	39	38	7	7
Interest cost	83	80	15	15
Actuarial losses (gains)	(149)	143	(24)	6
Benefits paid	(143)	(140)	(42)	(46)
Benefit obligation at end of year	2,371	2,541	466	510
Change in plan assets:				
Fair value of plan assets at beginning of year	2,373	2,073	201	182
Actual return on plan assets	(143)	423	(19)	40
Employer contribution	18	17	18	25
Benefits paid	(143)	(140)	(42)	(46)
Fair value of plan assets at end of year	2,105	2,373	158	201
Funded status at end of year	\$(266)	\$(168)	\$(308)	\$(309)
Amounts recognized in the Consolidated Balance Sheets:				
Noncurrent assets	\$30	\$145	\$—	\$—
Current liabilities	(18)	(17)	—	—
Noncurrent liabilities	(278)	(296)	(308)	(309)
Net amount recognized	\$(266)	\$(168)	\$(308)	\$(309)
Amounts included in accumulated other comprehensive loss (before tax):				
Net loss	\$895	\$781	\$21	\$11
Prior service cost (benefit)	2	2	(259)	(283)

Our accumulated benefit obligation for our defined benefit pension plans is \$2.2 billion and \$2.3 billion at December 31, 2018 and December 31, 2017, respectively. Our unfunded pension plans, included above, which in all cases have no assets, had projected benefit obligations of \$296 million and \$313 million at December 31, 2018 and December 31, 2017, respectively, and had accumulated benefit obligations of \$263 million and \$267 million at December 31, 2018 and December 31, 2017, respectively.

Pension and Other Postretirement Benefit Cost Components

	2018	2017	2016
	(\$ in millions)		
Pension benefits:			
Service cost	\$39	\$38	\$36
Interest cost	83	80	82
Expected return on plan assets	(177)	(172)	(173)
Amortization of net losses	57	51	51
Amortization of prior service cost	—	1	—
Net cost (benefit)	\$2	\$(2)	\$(4)
Other postretirement benefits:			
Service cost	\$7	\$7	\$7
Interest cost	15	15	16
Expected return on plan assets	(15)	(15)	(17)
Amortization of prior service benefit	(24)	(24)	(24)
Net benefit	\$(17)	\$(17)	\$(18)

Other Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income

	2018	
	Pension Benefits	Other Postretirement Benefits
	(\$ in millions)	
Net loss arising during the year	\$171	\$ 10
Amortization of net losses	(57)	—
Amortization of prior service benefit	—	24
Total recognized in other comprehensive income	\$114	\$ 34
Total recognized in net periodic cost and other comprehensive income	\$116	\$ 17

Net actuarial losses arising during the year for pension and other postretirement benefits were due primarily to lower actual returns on plan assets, partially offset by an increase in discount rates.

The estimated net losses for the pension plans that will be amortized from accumulated other comprehensive loss into net periodic cost over the next year are \$44 million. The estimated prior service benefit for the other postretirement benefit plans that will be amortized from accumulated other comprehensive loss into net periodic benefit over the next year is \$24 million.

Pension and Other Postretirement Benefits Assumptions

Costs for pension and other postretirement benefits are determined based on actuarial valuations that reflect appropriate assumptions as of the measurement date, ordinarily the beginning of each year. The funded status of the plans is determined using appropriate assumptions as of each year end. A summary of the major assumptions follows:

	2018	2017	2016
Pension funded status:			
Discount rate	4.33 %	3.74 %	4.05 %
Future salary increases	4.21 %	4.21 %	4.21 %
Other postretirement benefits funded status:			
Discount rate	4.18 %	3.57 %	3.83 %
Pension cost:			
Discount rate - service cost	4.01 %	4.31 %	4.64 %
Discount rate - interest cost	3.33 %	3.43 %	3.51 %
Return on assets in plans	8.25 %	8.25 %	8.25 %
Future salary increases	4.21 %	4.21 %	4.50 %
Other postretirement benefits cost:			
Discount rate - service cost	3.83 %	4.17 %	4.36 %
Discount rate - interest cost	3.13 %	3.14 %	3.15 %
Return on assets in plans	8.00 %	8.00 %	8.00 %
Health care trend rate	6.30 %	6.56 %	6.30 %

To determine the discount rates used to measure our benefit obligations, we utilize analyses in which the projected annual cash flows from the pension and other postretirement benefit plans were matched with yield curves based on an appropriate universe of high-quality corporate bonds. We use the results of the yield curve analyses to select the discount rates that match the payment streams of the benefits in these plans.

We use a spot rate approach to estimate the service cost and interest cost components of net periodic benefit cost for our pension and other postretirement benefit plans.

Health Care Cost Trend Assumptions

For measurement purposes at December 31, 2018, increases in the per capita cost of pre-Medicare covered health care benefits were assumed to be 6.5% for 2019. It is assumed the rate will decrease gradually to an ultimate rate of 5.0% for 2025 and remain at that level thereafter.

Assumed health care cost trend rates affect the amounts reported in the consolidated financial statements. To illustrate, a one-percentage point change in the assumed health care cost trend would have the following effects:

	One-percentage point IncreaseDecrease (\$ in millions)	
Increase (decrease) in:		
Total service and interest cost components	\$ 1	\$ (1)
Postretirement benefit obligation	9	(8)

Asset Management

Eleven investment firms manage our defined benefit pension plans' assets under investment guidelines approved by our Benefits Investment Committee that is comprised of members of our management. Investments are restricted to domestic and international equity securities, domestic and international fixed income securities, and unleveraged exchange-traded options and financial futures. Limitations restrict investment concentration and use of certain derivative investments. The target asset allocation for equity is 75% of the pension plans' assets. Fixed income investments must consist predominantly of securities rated investment grade or higher. Equity investments must be in liquid securities listed on national exchanges. No investment is permitted in our securities (except through commingled pension trust funds).

Our pension plans' weighted average asset allocations, by asset category, were as follows:

	Percentage of plan assets at December 31, 2018 2017	
Domestic equity securities	49 %	49 %
International equity securities	23 %	25 %
Debt securities	25 %	24 %
Cash and cash equivalents	3 %	2 %
Total	100 %	100 %

The other postretirement benefit plan assets consist primarily of trust-owned variable life insurance policies with an asset allocation at December 31, 2018 of 64% in equity securities and 36% in debt securities compared with 67% in equity securities and 33% in debt securities at December 31, 2017. The target asset allocation for equity is between 50% and 75% of the plan's assets.

The plans' assumed future returns are based principally on the asset allocations and historical returns for the plans' asset classes determined from both actual plan returns and, over longer time periods, expected market returns for those asset classes. For 2019, we assume an 8.25% return on pension plan assets.

Fair Value of Plan Assets

Following is a description of the valuation methodologies used for pension plan assets measured at fair value.

Common stock: Shares held by the plan at year end are valued at the official closing price as defined by the exchange or at the most recent trade price of a security at the close of the active market.

Common collective trusts: The readily determinable fair value is based on the published fair value per unit of the trusts. The common collective trusts hold equity securities, fixed income securities and cash and cash equivalents.

Fixed income securities: Valued based on quotes received from independent pricing services or at an estimated price at which a dealer would pay for a security at year end using observable market-based inputs.

Commingled funds: The readily determinable fair value is based on the published fair value per unit of the funds. The commingled funds hold equity securities.

Cash and cash equivalents: Short-term bills or notes are valued at an estimated price at which a dealer would pay for the security at year end using observable market-based inputs; money market funds are valued at the closing price reported on the active market on which the funds are traded.

The following table sets forth the pension plans' assets by valuation technique level, within the fair value hierarchy (there were no level 3 valued assets).

	December 31, 2018		
	Level 1	Level 2	Total
	(\$ in millions)		
Common stock	\$1,106	\$—	\$1,106
Common collective trusts:			
International equity securities	—	314	314
Debt securities	—	287	287
Fixed income securities:			
Corporate bonds	—	83	83
Government and agencies securities	—	89	89
Mortgage and other asset-backed securities	—	62	62
Commingled funds	—	92	92
Cash and cash equivalents	72	—	72
Total investments	\$1,178	\$927	\$2,105

	December 31, 2017		
	Level 1	Level 2	Total
	(\$ in millions)		
Common stock	\$1,154	\$—	\$1,154
Common collective trusts:			
International equity securities	—	397	397
Debt securities	—	562	562
Fixed income securities:			
Government and agencies securities	—	4	4
Commingled funds	—	233	233
Cash and cash equivalents	23	—	23
 Total investments	 \$1,177	 \$1,196	 \$2,373

Following is a description of the valuation methodologies used for other postretirement benefit plan assets measured at fair value.

Trust-owned life insurance: Valued at our share of the net assets of trust-owned life insurance issued by a major insurance company. The underlying investments of that trust consist of a U.S. stock account and a U.S. bond account but may retain cash at times as well. The U.S. stock account and U.S. bond account are valued based on readily determinable fair values.

The other postretirement benefit plan assets consisted of trust-owned life insurance with fair values of \$158 million and \$201 million at December 31, 2018 and December 31, 2017, respectively, and are valued under level 2 of the fair value hierarchy. There were no level 1 or level 3 valued assets.

Contributions and Estimated Future Benefit Payments

In 2019, we expect to contribute approximately \$18 million to our unfunded pension plans for payments to pensioners and approximately \$41 million to our other postretirement benefit plans for retiree health and death benefits. We do not expect to contribute to our funded pension plan in 2019.

Benefit payments, which reflect expected future service, as appropriate, are expected to be paid as follows:

	Pension Benefits	Other Postretirement Benefits
	(\$ in millions)	
2019	\$142	\$ 41
2020	143	40
2021	144	38
2022	145	37
2023	146	36
Years 2024 – 2028	733	165

Other Postretirement Coverage

Under collective bargaining agreements, Norfolk Southern and certain subsidiaries participate in a multi-employer benefit plan, which provides certain postretirement health care and life insurance benefits to eligible union employees. Premiums under this plan are expensed as incurred and totaled \$35 million in 2018, \$44 million in 2017, and \$37 million in 2016.

Section 401(k) Plans

Norfolk Southern and certain subsidiaries provide Section 401(k) savings plans for employees. Under the plans, we match a portion of employee contributions, subject to applicable limitations. Our matching contributions, recorded as an expense, under these plans were \$23 million in both 2018 and 2017 and \$21 million in 2016.

13. Stock-Based Compensation

Under the stockholder-approved Long-Term Incentive Plan (LTIP), the Compensation Committee (Committee), which is made up of nonemployee members of the Board of Directors, or the Chief Executive Officer (when delegated authority by such Committee), may grant stock options, stock appreciation rights (SARs), restricted stock units (RSUs), restricted shares, performance share units (PSUs), and performance shares, up to a maximum of 104,125,000 shares of our Common Stock, of which 8,644,108 remain available for future grants as of December 31, 2018.

The number of shares remaining for issuance under the LTIP is reduced (i) by 1 for each award granted as a stock option or stock-settled SAR, or (ii) by 1.61 for an award made in the form other than a stock option or stock-settled SAR. Under the Board-approved Thoroughbred Stock Option Plan (TSOP), the Committee may grant stock options up to a maximum of 6,000,000 shares of Common Stock. We use newly issued shares to satisfy any exercises and awards under the LTIP and the TSOP.

The LTIP also permits the payment, on a current or a deferred basis and in cash or in stock, of dividend equivalents on shares of Common Stock covered by stock options, RSUs, or PSUs in an amount commensurate with regular quarterly dividends paid on Common Stock. With respect to stock options, if employment of the participant is terminated for any reason, including retirement, disability, or death, we have no further obligation to make any dividend equivalent payments. Regarding RSUs, we have no further obligation to make any dividend equivalent payments unless employment of the participant is terminated as a result of qualifying retirement or disability. Should an employee terminate employment, they are not required to forfeit dividend equivalent payments already received. Outstanding PSUs do not receive dividend equivalent payments.

The Committee granted stock options, RSUs and PSUs pursuant to the LTIP and granted stock options pursuant to the TSOP for the last three years as follows:

	2018	2017		2016	
	Weighted Average Granted-Date Fair Value	Granted	Weighted Average Grant-Date Fair Value	Granted	Weighted Average Grant-Date Fair Value
Stock options:					
LTIP	40,960	341,120	\$ 37.73	694,290	\$ 19.92
TSOP	—	144,440	31.33	302,320	14.75
Total	40,960	485,560		996,610	
RSUs	214,290	83,330	120.16	136,250	70.44

PSUs ~~92,360~~ 300,334 88.56 1,042,628 52.75

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Beginning in 2018, recipients of certain RSUs and PSUs pursuant to the LTIP who retire prior to October 1st will forfeit awards received in the current year. Receipt of certain LTIP awards is contingent on the recipient having executed a non-compete agreement with the company.

We account for our grants of stock options, RSUs, PSUs, and dividend equivalent payments in accordance with FASB ASC 718, "Compensation - Stock Compensation." Accordingly, all awards result in charges to net income while dividend equivalent payments, which are all related to equity classified awards, are charged to retained income. Compensation cost for the awards is recognized on a straight-line basis over the requisite service period for the entire award. Related compensation costs and tax benefits during the year were:

	2018	2017	2016
	(\$ in millions)		
Stock-based compensation expense	\$47	\$ 45	\$ 42
Total tax benefit	33	54	31

Stock Options

Option exercise prices will be at least the higher of (i) the average of the high and low prices at which Common Stock is traded on the grant date, or (ii) the closing price of Common Stock on the grant date. All options are subject to a vesting period of at least one year, and the term of the option will not exceed ten years. Holders of the options granted under the LTIP who remain actively employed receive cash dividend equivalent payments for four years in an amount equal to the regular quarterly dividends paid on Common Stock. Dividend equivalent payments are not made on the TSOP options.

For all years, options granted under the LTIP and the TSOP may not be exercised prior to the fourth and third anniversaries of the date of grant, respectively, or if the optionee retires or dies before that anniversary date, may not be exercised before the later of one year after the grant date or the date of the optionee's retirement or death.

The fair value of each option awarded in 2018 was measured on the date of grant using the Black-Scholes valuation model. The fair value of each option awarded in 2017 and 2016 was measured on the date of grant using a binomial lattice-based option valuation model. Expected volatility is based on implied volatility from traded options on, and historical volatility of, Common Stock. Historical data is used to estimate option exercises and employee terminations within the valuation model. For the 2018 grant year, historical exercise data is used to estimate the average expected option term. For the 2017 and 2016 grant years, the average expected option term is derived from the output of the valuation model and represents the period of time that all options granted are expected to be outstanding, including the branches of the model that result in options expiring unexercised. The average risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant. A dividend yield of zero was used for the LTIP options during the vesting period. For 2018, 2017, and 2016, a dividend yield of 1.94%, 2.04%, and 3.37%, respectively, was used for all vested LTIP options and all TSOP options.

The assumptions for the LTIP and TSOP grants for the last three years are shown in the following table:

	2018	2017	2016	
Average expected volatility	24	% 26	% 27	%
Average risk-free interest rate	2.55	% 2.51	% 2.00	%
Average expected option term LTIP	7.2 years	8.6 years	8.9 years	
Average expected option term TSOP	—	8.3 years	8.6 years	

A summary of changes in stock options is presented below:

	Stock Options	Weighted Avg. Exercise Price
Outstanding at December 31, 2017	4,234,067	\$ 83.17
Granted	40,960	149.58
Exercised	(840,175)	72.08
Forfeited	(15,208)	89.57
Outstanding at December 31, 2018	3,419,644	86.66

The aggregate intrinsic value of options outstanding at December 31, 2018 was \$215 million with a weighted average remaining contractual term of 5.7 years. Of these options outstanding, 1,908,864 were exercisable and had an aggregate intrinsic value of \$175 million with a weighted average exercise price of \$57.81 and a weighted average remaining contractual term of 3.0 years.

The following table provides information related to options exercised for the last three years:

	2018	2017	2016
	(\$ in millions)		
Options exercised	840,175	589,939	1,466,721
Total intrinsic value	\$ 72	\$ 114	\$ 60
Cash received upon exercise	58	104	74
Related tax benefits realized	16	35	13

At December 31, 2018, total unrecognized compensation related to options granted under the LTIP and the TSOP was \$5 million, and is expected to be recognized over a weighted-average period of approximately 1.6 years.

Restricted Stock Units

RSUs granted in 2018 primarily have a four-year ratable restriction period and will be settled through the issuance of shares of Common Stock. RSUs granted in 2017 and 2016 have a five-year restriction period and will also be settled through the issuance of shares of Common Stock. Certain RSU grants include cash dividend equivalent payments during the restriction period in an amount equal to regular quarterly dividends paid on Common Stock.

	2018	2017	2016
	(\$ in millions)		
RSUs vested	160,200	200,200	175,500
Common Stock issued net of tax withholding	99,968	318	103,936
Related tax benefit realized	\$ 3	\$ 3	\$ 1

A summary of changes in RSUs is presented below:

	RSUs	Weighted-Average Grant-Date Fair Value
Nonvested at December 31, 2017	588,405	\$ 87.40
Granted	217,290	148.37
Vested	(160,200)	69.83
Forfeited	(8,460)	143.24
Nonvested at December 31, 2018	637,035	111.87

At December 31, 2018, total unrecognized compensation related to RSUs was \$17 million, and is expected to be recognized over a weighted-average period of approximately 2.9 years.

Performance Share Units

PSUs provide for awards based on the achievement of certain predetermined corporate performance goals at the end of a three-year cycle and are settled through the issuance of shares of Common Stock. All PSUs will earn out based on the achievement of performance conditions and some will also earn out based on a market condition. The market condition fair value was measured on the date of grant using a Monte Carlo simulation model.

	2018	2017	2016
	(\$ in millions)		
PSUs earned	154,178	1080	406,038
Common Stock issued net of tax withholding	94,399	805	241,757
Related tax benefit realized	\$ 3	\$ 1	\$ 3

A summary of changes in PSUs is presented below:

	PSUs	Weighted-Average Grant-Date Fair Value
Balance at December 31, 2017	1,748,752	\$ 63.36
Granted	92,314	91.60
Earned	(154,189)	46.08
Unearned	(256,981)	87.01
Forfeited	(3,070)	77.26
Balance at December 31, 2018	1,426,826	62.77

At December 31, 2018, total unrecognized compensation related to PSUs granted under the LTIP was \$5 million, and is expected to be recognized over a weighted-average period of approximately 1.5 years.

Shares Available and Issued

Shares of Common Stock available for future grants and issued in connection with all features of the LTIP and the TSOP at December 31, were as follows:

	2018	2017	2016
Available for future grants:			
LTIP	8,644,108	8,774,768	9,385,674
TSOP	422,973	410,895	544,217
Issued:			
LTIP	820,746	1,679,547	1,511,645
TSOP	213,796	291,515	300,769

14. Stockholders' Equity

Common Stock

Common Stock is reported net of shares held by our consolidated subsidiaries (Treasury Shares). Treasury Shares at December 31, 2018 and 2017 amounted to 20,320,777, with a cost of \$19 million at both dates.

Accumulated Other Comprehensive Loss

The components of “Other comprehensive income (loss)” reported in the Consolidated Statements of Comprehensive Income and changes in the cumulative balances of “Accumulated other comprehensive loss” reported in the Consolidated Balance Sheets consisted of the following:

	Balance at Beginning of Year (\$ in millions)	Net Income (Loss)	Reclassification of Stranded Effects	Tax	Reclassification Adjustments	Balance at End of Year
Year ended December 31, 2018						
Pensions and other postretirement liabilities	\$ (300)	\$ (136)	\$ (86)		\$ 25	\$ (497)
Other comprehensive loss of equity investees	(56)	(8)	(2)		—	(66)
Accumulated other comprehensive loss	\$ (356)	\$ (144)	\$ (88)		\$ 25	\$ (563)
Year ended December 31, 2017						
Pensions and other postretirement liabilities	\$ (414)	\$ 95	\$ —		\$ 19	\$ (300)
Other comprehensive income of equity investees	(73)	17	—		—	(56)
Accumulated other comprehensive loss	\$ (487)	\$ 112	\$ —		\$ 19	\$ (356)

The adoption of FASB ASU 2018-02 (see Note 1) resulted in an increase to “Accumulated other comprehensive loss” of \$88 million and a corresponding increase to “Retained income,” with no impact on “Total stockholders’ equity.”

Other Comprehensive Income (Loss)

“Other comprehensive income (loss)” reported in the Consolidated Statements of Comprehensive Income consisted of the following:

	Pretax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
	(\$ in millions)		
Year ended December 31, 2018			
Net gain (loss) arising during the year:			
Pensions and other postretirement benefits	\$(181)	\$ 45	\$ (136)
Reclassification adjustments for costs included in net income	33	(8)	25
Subtotal	(148)	37	(111)
Other comprehensive loss of equity investees	(9)	1	(8)
Other comprehensive loss	\$(157)	\$ 38	\$ (119)
Year ended December 31, 2017			
Net gain arising during the year:			
Pensions and other postretirement benefits	\$127	\$ (32)	\$ 95
Reclassification adjustments for costs included in net income	28	(9)	19
Subtotal	155	(41)	114
Other comprehensive income of equity investees	19	(2)	17
Other comprehensive income	\$174	\$ (43)	\$ 131
Year ended December 31, 2016			
Net gain (loss) arising during the year:			
Pensions and other postretirement benefits	\$(101)	\$ 37	\$ (64)
Reclassification adjustments for costs included in net income	27	(10)	17
Subtotal	(74)	27	(47)
Other comprehensive income of equity investees	5	—	5
Other comprehensive loss	\$(69)	\$ 27	\$ (42)

15. Stock Repurchase Programs

We repurchased and retired 17.1 million (7.0 million shares under the ASR and 10.1 million shares under our ongoing open-market program), 8.2 million, and 9.2 million shares of Common Stock under our stock repurchase programs in 2018, 2017, and 2016, respectively, at a cost of \$2.8 billion, \$1.0 billion, and \$803 million, respectively. We entered into an ASR on August 2, 2018 with two financial institutions to repurchase Common Stock, at which time we made a payment of \$1.2 billion to the financial institutions and received an initial delivery of 5.7 million shares valued at \$960 million. In December 2018, the remaining balance was settled through the receipt of 1.3 million additional shares.

On September 26, 2017, our Board of Directors authorized the repurchase of up to an additional 50 million shares of Common Stock through December 31, 2022. As of December 31, 2018, 39.4 million shares remain authorized for repurchase. Since the beginning of 2006, we have repurchased and retired 185.6 million shares at a total cost of \$14.1 billion.

16. Earnings Per Share

The following table sets forth the calculation of basic and diluted earnings per share:

	Basic			Diluted		
	2018	2017	2016	2018	2017	2016
	(\$ in millions except per share amounts, shares in millions)					
Net income	\$2,666	\$5,404	\$1,668	\$2,666	\$5,404	\$1,668
Dividend equivalent payments	(6)	(4)	(5)	(1)	(2)	(4)
Income available to common stockholders	\$2,660	\$5,400	\$1,663	\$2,665	\$5,402	\$1,664
Weighted-average shares outstanding	277.7	287.9	293.9	277.7	287.9	293.9
Dilutive effect of outstanding options and share-settled awards				2.5	2.4	2.1
Adjusted weighted-average shares outstanding				280.2	290.3	296.0
Earnings per share	\$9.58	\$18.76	\$5.66	\$9.51	\$18.61	\$5.62

In each year, dividend equivalent payments were made to holders of stock options and RSUs. For purposes of computing basic earnings per share, dividend equivalent payments made to holders of stock options and RSUs were deducted from net income to determine income available to common stockholders. For purposes of computing diluted earnings per share, we evaluate on a grant-by-grant basis those stock options and RSUs receiving dividend equivalent payments under the two-class and treasury stock methods to determine which method is more dilutive for each grant. For those grants for which the two-class method was more dilutive, net income was reduced by dividend equivalent payments to determine income available to common stockholders. The dilution calculations exclude options having exercise prices exceeding the average market price of Common Stock of zero, 0.2 million, and 1.3 million for the years ended December 31, 2018, 2017 and 2016, respectively.

17. Commitments and Contingencies

Lawsuits

We and/or certain subsidiaries are defendants in numerous lawsuits and other claims relating principally to railroad operations. When we conclude that it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated, it is accrued through a charge to earnings. While the ultimate amount of liability incurred in any of these lawsuits and claims is dependent on future developments, in our opinion, the recorded liability is adequate to cover the future payment of such liability and claims. However, the final outcome of any of these lawsuits and claims cannot be predicted with certainty, and unfavorable or unexpected outcomes could result in additional accruals that could be significant to results of operations in a particular year or quarter. Any adjustments to the recorded liability will be reflected in earnings in the periods in which such adjustments become known.

In 2007, various antitrust class actions filed against us and other Class I railroads in various Federal district courts regarding fuel surcharges were consolidated in the District of Columbia by the Judicial Panel on Multidistrict Litigation. In 2012, the court certified the case as a class action. The defendant railroads appealed this certification, and the Court of Appeals for the District of Columbia vacated the District Court's decision and remanded the case for further consideration. On October 10, 2017, the District Court denied class certification; the findings are subject to appeal. We believe the allegations in the complaints are without merit and intend to vigorously defend the cases. We do not believe the outcome of these proceedings will have a material effect on our financial position, results of operations, or liquidity.

Casualty Claims

Casualty claims include employee personal injury and occupational claims as well as third-party claims, all exclusive of legal costs. To aid in valuing our personal injury liability and determining the amount to accrue with respect to such claims during the year, we utilize studies prepared by an independent consulting actuarial firm. Job-related personal injury and occupational claims are subject to FELA, which is applicable only to railroads. FELA's fault-based tort system produces results that are unpredictable and inconsistent as compared with a no-fault workers' compensation system. The variability inherent in this system could result in actual costs being different from the liability recorded. While the ultimate amount of claims incurred is dependent on future developments, in our opinion, the recorded liability is adequate to cover the future payments of claims and is supported by the most recent actuarial study. In all cases, we record a liability when the expected loss for the claim is both probable and reasonably estimable.

Employee personal injury claims – The largest component of casualties and other claims expense is employee personal injury costs. The independent actuarial firm engaged by us provides quarterly studies to aid in valuing our employee personal injury liability and estimating personal injury expense. The actuarial firm studies our historical patterns of reserving for claims and subsequent settlements, taking into account relevant outside influences. The actuarial firm uses the results of these analyses to estimate the ultimate amount of liability. We adjust the liability quarterly based upon our assessment and the results of the study. Our estimate of the liability is subject to inherent limitation given the difficulty of predicting future events such as jury decisions, court interpretations, or legislative changes. As a result, actual claim settlements may vary from the estimated liability recorded.

Occupational claims – Occupational claims include injuries and illnesses alleged to be caused by exposures which occur over time as opposed to injuries or illnesses caused by a specific accident or event. Types of occupational claims commonly seen allege exposure to asbestos and other claimed toxic substances resulting in respiratory diseases or cancer, exposure to repetitive motion resulting in various musculoskeletal disorders, and exposure to excessive noise resulting in hearing loss. Many such claims are being asserted by former or retired employees, some of whom have not been employed in the rail industry for decades. The independent actuarial firm provides an estimate of the

occupational claims liability based upon our history of claim filings, severity, payments, and other pertinent facts. The liability is dependent upon judgments we make as to the specific case reserves as well as

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judgments of the actuarial firm in the quarterly studies. The actuarial firm's estimate of ultimate loss includes a provision for those claims that have been incurred but not reported. This provision is derived by analyzing industry data and projecting our experience. We adjust the liability quarterly based upon our assessment and the results of the study. However, it is possible that the recorded liability may not be adequate to cover the future payment of claims. Adjustments to the recorded liability are reflected in operating expenses in the periods in which such adjustments become known.

Third-party claims – We record a liability for third-party claims including those for highway crossing accidents, trespasser and other injuries, automobile liability, property damage, and lading damage. The actuarial firm assists us with the calculation of potential liability for third-party claims, except lading damage, based upon our experience including the number and timing of incidents, amount of payments, settlement rates, number of open claims, and legal defenses. We adjust the liability quarterly based upon our assessment and the results of the study. Given the inherent uncertainty in regard to the ultimate outcome of third-party claims, it is possible that the actual loss may differ from the estimated liability recorded.

Environmental Matters

We are subject to various jurisdictions' environmental laws and regulations. We record a liability where such liability or loss is probable and reasonably estimable. Environmental specialists regularly participate in ongoing evaluations of all known sites and in determining any necessary adjustments to liability estimates.

Our Consolidated Balance Sheets include liabilities for environmental exposures of \$55 million at December 31, 2018, and \$58 million at December 31, 2017, of which \$15 million is classified as a current liability at the end of both 2018 and 2017. At December 31, 2018, the liability represents our estimates of the probable cleanup, investigation, and remediation costs based on available information at 114 known locations and projects compared with 127 locations and projects at December 31, 2017. At December 31, 2018, fifteen sites accounted for \$37 million of the liability, and no individual site was considered to be material. We anticipate that much of this liability will be paid out over five years; however, some costs will be paid out over a longer period.

At eleven locations, one or more of our subsidiaries in conjunction with a number of other parties have been identified as potentially responsible parties under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 or comparable state statutes that impose joint and several liability for cleanup costs. We calculate our estimated liability for these sites based on facts and legal defenses applicable to each site and not solely on the basis of the potential for joint liability.

With respect to known environmental sites (whether identified by us or by the Environmental Protection Agency or comparable state authorities), estimates of our ultimate potential financial exposure for a given site or in the aggregate for all such sites can change over time because of the widely varying costs of currently available cleanup techniques, unpredictable contaminant recovery and reduction rates associated with available cleanup technologies, the likely development of new cleanup technologies, the difficulty of determining in advance the nature and full extent of contamination and each potential participant's share of any estimated loss (and that participant's ability to bear it), and evolving statutory and regulatory standards governing liability.

The risk of incurring environmental liability for acts and omissions, past, present, and future, is inherent in the railroad business. Some of the commodities we transport, particularly those classified as hazardous materials, pose special risks that we work diligently to reduce. In addition, several of our subsidiaries own, or have owned, land used as operating property, or which is leased and operated by others, or held for sale. Because environmental problems that are latent or undisclosed may exist on these properties, there can be no assurance that we will not incur environmental liabilities or costs with respect to one or more of them, the amount and materiality of which cannot be estimated reliably at this time. Moreover, lawsuits and claims involving these and potentially other unidentified environmental

sites and matters are likely to arise from time to time. The resulting liabilities could have a significant effect on financial position, results of operations, or liquidity in a particular year or quarter.

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Based on our assessment of the facts and circumstances now known, we believe we have recorded the probable and reasonably estimable costs for dealing with those environmental matters of which we are aware. Further, we believe that it is unlikely that any known matters, either individually or in the aggregate, will have a material adverse effect on our financial position, results of operations, or liquidity.

Insurance

We obtain on behalf of ourself and our subsidiaries insurance for potential losses for third-party liability and first-party property damages. We are currently self-insured up to \$50 million and above \$1.1 billion (\$1.5 billion for specific perils) per occurrence and/or policy year for bodily injury and property damage to third parties and up to \$25 million and above \$200 million per occurrence and/or policy year for property owned by us or in our care, custody, or control.

Purchase Commitments

At December 31, 2018, we had outstanding purchase commitments totaling approximately \$1.2 billion for locomotives, track material, long-term service contracts, track and yard expansion projects in connection with our capital programs as well as freight cars and containers through 2023.

Change-In-Control Arrangements

We have compensation agreements with certain officers and key employees that become operative only upon a change in control of Norfolk Southern, as defined in those agreements. The agreements provide generally for payments based on compensation at the time of a covered individual's involuntary or other specified termination and for certain other benefits.

Indemnifications

In a number of instances, we have agreed to indemnify lenders for additional costs they may bear as a result of certain changes in laws or regulations applicable to their loans. Such changes may include impositions or modifications with respect to taxes, duties, reserves, liquidity, capital adequacy, special deposits, and similar requirements relating to extensions of credit by, deposits with, or the assets or liabilities of such lenders. The nature and timing of changes in laws or regulations applicable to our financings are inherently unpredictable, and therefore our exposure in connection with the foregoing indemnifications cannot be quantified. No liability has been recorded related to these indemnifications.

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES
 QUARTERLY FINANCIAL DATA
 (Unaudited)

	Three Months Ended			
	March 31	June 30	September 30	December 31
	(\$ in millions, except per share amounts)			
2018				
Railway operating revenues	\$2,717	\$2,898	\$ 2,947	\$ 2,896
Income from railway operations	835	1,026	1,020	1,078
Net income	552	710	702	702
Earnings per share:				
Basic	1.94	2.52	2.54	2.59
Diluted	1.93	2.50	2.52	2.57
2017				
Railway operating revenues	\$2,575	\$2,637	\$ 2,670	\$ 2,669
Income from railway operations	757	872	895	998
Net income	433	497	506	3,968
Earnings per share:				
Basic	1.49	1.72	1.76	13.91
Diluted	1.48	1.71	1.75	13.79

Note 1: In the fourth quarter of 2017, as a result of the enactment of tax reform, "Income from railway operations" included a \$151 million benefit and income taxes included a \$3,331 million benefit, which added \$3,482 million to "Net income," \$12.21 to "Earnings per share – basic," and \$12.10 to "Earnings per share – diluted."

Note 2: The retrospective application of FASB ASU 2017-07 resulted in an increase to "Compensation and benefits" expense within "Railway operating expenses" and an offsetting increase to "Other income – net" of \$16 million in each of the quarters of 2017. This resulted in a decrease to "Income from railway operations" as presented for each of the quarters of 2017.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Our Chief Executive Officer and Chief Financial Officer, with the assistance of management, evaluated the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (Exchange Act)) at December 31, 2018. Based on such evaluation, our officers have concluded that, at December 31, 2018, our disclosure controls and procedures were effective to ensure that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized, and reported, within the time period specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including the Chief Executive Officer and the Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

We are responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting includes those policies and procedures that pertain to our ability to record, process, summarize, and report reliable financial data. We recognize that there are inherent limitations in the effectiveness of any internal control over financial reporting, including the possibility of human error and the circumvention or overriding of internal control. Accordingly, even effective internal control over financial reporting can provide only reasonable assurance with respect to financial statement preparation. Further, because of changes in conditions, the effectiveness of internal control over financial reporting may vary over time.

Our Board of Directors, acting through its Audit Committee, is responsible for the oversight of our accounting policies, financial reporting, and internal control. The Audit Committee of our Board of Directors is comprised of outside directors who are independent of management. The independent registered public accounting firm and our internal auditors have full and unlimited access to the Audit Committee, with or without management, to discuss the adequacy of internal control over financial reporting, and any other matters which they believe should be brought to the attention of the Audit Committee.

We have issued a report of our assessment of internal control over financial reporting, and our independent registered public accounting firm has issued an attestation report on our internal control over financial reporting at December 31, 2018. These reports appear in Item 8 of this report on Form 10-K.

Changes in Internal Control Over Financial Reporting

During the fourth quarter of 2018, we have not identified any changes in internal control over financial reporting that have materially affected, or are reasonably likely to materially effect, our internal control over financial reporting.

Item 9B. Other Information

None.

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PART III

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 10. Directors, Executive Officers and Corporate Governance

In accordance with General Instruction G(3), information called for by Part III, Item 10, is incorporated herein by reference from the information appearing under the caption “Election of Directors,” under the caption “Section 16(a) Beneficial Ownership Reporting Compliance,” under the caption “Corporate Governance and the Board,” under the caption “Committees of the Board,” under the caption “Shareholder Recommendations and Nominations,” and under the caption “The Thoroughbred Code of Ethics” in our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A. The information regarding executive officers called for by Item 401 of Regulation S-K is included in Part I hereof beginning under “Executive Officers of the Registrant.”

Item 11. Executive Compensation

In accordance with General Instruction G(3), information called for by Part III, Item 11, is incorporated herein by reference from the information:

under the caption “Corporate Governance and the Board”, including “Compensation of Directors” and “Non-Employee Director Compensation;”

appearing under the caption “Executive Compensation” for executives, including the “Compensation Discussion and Analysis,” the information appearing in the “Summary Compensation Table” and the “2018 Grants of Plan-Based Awards” table, including the narrative to such tables, the “Outstanding Equity Awards at Fiscal Year-End 2018” and “Option Exercises and Stock Vested in 2018” tables, and the tabular and narrative information appearing under the subcaptions “Retirement Benefits,” “Deferred Compensation,” and “Potential Payments Upon a Change in Control or Other Termination of Employment;” and

appearing under the captions “Compensation Committee Interlocks and Insider Participation,” “Compensation Policy Risk Assessment,” and “Compensation Committee Report,”

in each case included in our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

In accordance with General Instruction G(3), information on security ownership of certain beneficial owners and management called for by Part III, Item 12, is incorporated herein by reference from the information appearing under the caption “Beneficial Ownership of Stock” in our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

Equity Compensation Plan Information (at December 31, 2018)

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans ⁽¹⁾ (c)
Equity compensation plans approved by securities holders ⁽²⁾	5,048,649 ⁽⁴⁾	\$ 85.10	8,644,108 ⁽⁵⁾
Equity compensation plans not approved by securities holders	733,502 ⁽³⁾	84.23	422,973 ⁽⁶⁾
Total	5,782,151		9,067,081

(1) Excludes securities reflected in column (a).

(2) LTIP.

(3) TSOP and the Directors’ Restricted Stock Plan.

(4) Includes options, RSUs and PSUs granted under LTIP that will be settled in shares of stock.

(5) Calculated without regard to 2,362,507 outstanding RSUs and PSUs at December 31, 2018.

(6) Reflects shares remaining available for grant under TSOP.

Norfolk Southern Corporation Long-Term Incentive Plan (LTIP)

Established on June 28, 1983, and approved by our stockholders at their Annual Meeting held on May 10, 1984, LTIP was adopted to promote the success of our company by providing an opportunity for non-employee Directors, officers, and other key employees to acquire a proprietary interest in the Corporation. The Board of Directors amended LTIP on January 23, 2015, which amendment was approved by shareholders on May 14, 2015, to include the reservation for issuance of an additional 8,000,000 shares of authorized but unissued Common Stock.

The amended LTIP adopted a fungible share reserve ratio so that, for awards granted after May 13, 2010, the number of shares remaining for issuance under the amended LTIP will be reduced (i) by 1 for each award granted as an option or stock-settled stock appreciation right, or (ii) by 1.61 for an award made in the form other than an option or stock-settled stock appreciation right. Any shares of Common Stock subject to options, PSUs, restricted shares, or RSUs which are not issued as Common Stock will again be available for award under LTIP after the expiration or forfeiture of an award.

Non-employee Directors, officers, and other key employees residing in the United States of America or Canada are eligible for selection to receive LTIP awards. Under LTIP, the Committee, or the Corporation's chief executive

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officer to the extent the Committee delegates award-making authority pursuant to LTIP, may grant incentive stock options, nonqualified stock options, stock appreciation rights, RSUs, restricted shares, PSUs, and performance shares. In addition, dividend equivalent payments may be awarded for options, RSUs, and PSUs. Awards under LTIP may be made subject to forfeiture under certain circumstances and the Committee may establish such other terms and conditions for the awards as provided in LTIP.

For options granted after May 13, 2010, the option price will be at least the higher of (i) the average of the high and low prices at which Common Stock is traded on the date of grant, or (ii) the closing price of Common Stock on the date of the grant. All options are subject to a vesting period of at least one year, and the term of the option will not exceed ten years. LTIP specifically prohibits option repricing without stockholder approval, except that adjustments may be made in the event of changes in our capital structure or Common Stock.

PSUs entitle a recipient to receive performance-based compensation at the end of a three-year cycle based on our performance during that period. For the 2018 PSU awards, corporate performance will be based directly on return on average capital invested, with total return to stockholders serving as a modifier, and will be settled in shares of Common Stock. In 2016, the Committee also granted an “accelerated turnaround incentive” award in the form of a PSU with a three-year performance that was based on equally weighted standards established by the Committee for operating ratio and earnings per share. We did not meet the performance criteria for operating ratio and therefore no payout for the accelerated turnaround incentive award was achieved.

RSUs are payable in cash or in shares of Common Stock at the end of a restriction period. During the restriction period, the holder of the RSUs has no beneficial ownership interest in the Common Stock represented by the RSUs and has no right to vote the shares represented by the units or to receive dividends (except for dividend equivalent payment rights that may be awarded with respect to the RSUs). The Committee at its discretion may waive the restriction period, but settlement of any RSUs will occur on the same settlement date as would have applied absent a waiver of restrictions, if no performance goals were imposed. For the 2018 RSU awards, RSUs will be settled in shares of Common Stock.

Norfolk Southern Corporation Thoroughbred Stock Option Plan (TSOP)

Our Board of Directors adopted TSOP on January 26, 1999, to promote the success of our company by providing an opportunity for nonagreement employees to acquire a proprietary interest in our company and thereby to provide an additional incentive to nonagreement employees to devote their maximum efforts and skills to the advancement, betterment, and prosperity of our company and our stockholders. Under TSOP there were 6,000,000 shares of authorized but unissued Common Stock reserved for issuance. TSOP has not been and is not required to have been approved by our stockholders.

Active full-time nonagreement employees residing in the United States of America or Canada are eligible for selection to receive TSOP awards. Under TSOP, the Committee, or the Corporation’s chief executive officer to the extent the Committee delegates award-making authority pursuant to TSOP, may grant nonqualified stock options subject to such terms and conditions as provided in TSOP.

The option price may not be less than the average of the high and low prices at which Common Stock is traded on the date of the grant. All options are subject to a vesting period of at least one year, and the term of the option will not exceed ten years. TSOP specifically prohibits repricing without stockholder approval, except for capital adjustments.

Norfolk Southern Corporation Directors' Restricted Stock Plan (Plan)

The Plan was adopted on January 1, 1994, and was designed to increase ownership of Common Stock by our non-employee Directors so as to further align their ownership interest in our company with that of our stockholders. The Plan has not been and is not required to have been approved by our stockholders.

Effective January 23, 2015, the Board amended the Plan to provide that no additional awards will be made under the Plan. Prior to that amendment, only non-employee Directors who are not and never have been employees of our company were eligible to participate in the Plan. Upon becoming a Director, each eligible Director received a one-time grant of 3,000 restricted shares of Common Stock. No additional shares may be granted under the Plan. No individual member of the Board exercised discretion concerning the eligibility of any Director or the number of shares granted.

The restriction period applicable to restricted shares granted under the Plan begins on the date of the grant and ends on the earlier of the recipient's death or the day after the recipient ceases to be a Director by reason of disability or retirement. During the restriction period, shares may not be sold, pledged, or otherwise encumbered. Directors forfeit the restricted shares if they cease to serve as a Director of our company for reasons other than their disability, retirement, or death.

Item 13. Certain Relationships and Related Transactions, and Director Independence

In accordance with General Instruction G(3), information called for by Part III, Item 13, is incorporated herein by reference from the information appearing under the caption "Related Persons Transactions" and under the caption "Director Independence" in our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

Item 14. Principal Accounting Fees and Services

In accordance with General Instruction G(3), information called for by Part III, Item 14, is incorporated herein by reference from the information appearing under the caption "Ratification of Appointment of Independent Registered Public Accounting Firm" in our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

PART IV

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 15. Exhibits, Financial Statement Schedules

		Page
(A)	The following documents are filed as part of this report:	
	1. <u>Index to Financial Statements</u>	
	<u>Report of Management</u>	K 32
	<u>Reports of Independent Registered Public Accounting Firm</u>	K 33
	<u>Consolidated Statements of Income, Years ended December 31, 2018, 2017, and 2016</u>	K 36
	<u>Consolidated Statements of Comprehensive Income, Years ended December 31, 2018, 2017, and 2016</u>	K 37
	<u>Consolidated Balance Sheets at December 31, 2018 and 2017</u>	K 38
	<u>Consolidated Statements of Cash Flows, Years ended December 31, 2018, 2017, and 2016</u>	K 39
	<u>Consolidated Statements of Changes in Stockholders' Equity, Years ended December 31, 2018, 2017 and 2016</u>	K 40
	<u>Notes to Consolidated Financial Statements</u>	K 41

2. Financial Statement Schedule:

The following consolidated financial statement schedule should be read in connection with the consolidated financial statements:

Index to Consolidated Financial Statement Schedule

<u>Schedule II – Valuation and Qualifying Accounts</u>	K 91
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Schedules other than the one listed above are omitted either because they are not required or are inapplicable, or because the information is included in the consolidated financial statements or related notes.

3. Exhibits

Exhibit Number	Description
2.1	<u>Distribution Agreement, dated as of July 26, 2004, by and among CSX Corporation, CSX Transportation, Inc., CSX Rail Holding Corporation, CSX Northeast Holdings Corporation, Norfolk Southern Corporation, Norfolk Southern Railway Company, CRR Holdings LLC, Green Acquisition Corp., Conrail Inc., Consolidated Rail Corporation, New York Central Lines LLC, Pennsylvania Lines LLC, NYC Newco, Inc., and PRR Newco, Inc., is incorporated by reference to Exhibit 2.1 to Norfolk Southern Corporation's Form 8-K filed on September 2, 2004. (SEC File No. 001-08339)</u>

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3 Articles of Incorporation and Bylaws –

- (i)(a) The Restated Articles of Incorporation of Norfolk Southern Corporation are incorporated by reference to Exhibit 3(i) to Norfolk Southern Corporation’s 10-K filed on March 5, 2001. (SEC File No. 001-08339)
- (i)(b) An amendment to the Articles of Incorporation of Norfolk Southern Corporation is incorporated by reference to Exhibit 3(i) to Norfolk Southern Corporation’s Form 8-K filed on May 18, 2010. (SEC File No. 001-08339)
- (ii) The Bylaws of Norfolk Southern Corporation, as amended February 6, 2019, are incorporated by reference to Exhibit 3(ii) to Norfolk Southern Corporation’s Form 8-K filed on February 8, 2019. (SEC File No. 001-08339)
- (iii) The Bylaws of Norfolk Southern Corporation, as amended January 23, 2019, effective February 10, 2019, are incorporated by reference to Exhibit 3(iii) to Norfolk Southern Corporation’s Form 8-K filed on January 25, 2019. (SEC File No. 001-08339)

4 Instruments Defining the Rights of Security Holders, Including Indentures:

- (a) Indenture, dated as of January 15, 1991, from Norfolk Southern Corporation to First Trust of New York, National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation’s Registration Statement on Form S-3 (SEC File No. 33-38595).

- (b) First Supplemental Indenture, dated May 19, 1997, between Norfolk Southern Corporation and First Trust of New York, National Association, as Trustee, related to the issuance of notes in the principal amount of \$4.3 billion, is incorporated by reference to Exhibit 1.1(d) to Norfolk Southern Corporation’s Form 8-K filed on May 21, 1997. (SEC File No. 001-08339)

- (c) Fourth Supplemental Indenture, dated as of February 6, 2001, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$1 billion, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation’s Form 8-K filed on February 7, 2001. (SEC File No. 001-08339)

- (d) Indenture, dated August 27, 2004, among PRR Newco, Inc., as Issuer, and Norfolk Southern Railway Company, as Guarantor, and The Bank of New York, as Trustee, is incorporated by reference to Exhibit 4(1) to Norfolk Southern Corporation’s Form 10-Q filed on October 28, 2004. (SEC File No. 001-08339)

- (e) First Supplemental Indenture, dated August 27, 2004, among PRR Newco, Inc., as Issuer, and Norfolk Southern Railway Company, as Guarantor, and The Bank of New York, as Trustee, related to the issuance of notes in the principal amount of approximately \$451.8 million, is incorporated by reference to Exhibit 4(m) to Norfolk Southern Corporation’s Form 10-Q filed on October 28, 2004. (SEC File No. 001-08339)

- (f) Ninth Supplemental Indenture, dated as of March 11, 2005, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$300 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation’s Form 8-K filed on March 15, 2005. (SEC File No. 001-08339)

- (g) Tenth Supplemental Indenture, dated as of May 17, 2005, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$366.6 million, is incorporated by reference to Exhibit 99.1 to Norfolk Southern Corporation’s Form 8-K filed on May 18, 2005. (SEC File No. 001-08339)

- (h) Eleventh Supplemental Indenture, dated as of May 17, 2005, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$350

million, is incorporated by reference to Exhibit 99.2 to Norfolk Southern Corporation's Form 8-K filed on May 18, 2005. (SEC File No. 001-08339)

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- (i) Twelfth Supplemental Indenture, dated as of August 26, 2010, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$250 million, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on August 26, 2010. (SEC File No. 001-08339)
- (j) Indenture, dated as of June 1, 2009, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on June 1, 2009. (SEC File No. 001-08339)
- (k) First Supplemental Indenture, dated as of June 1, 2009, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$500 million, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on June 1, 2009. (SEC File No. 001-08339)
- (l) Second Supplemental Indenture, dated as of May 23, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$400 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on May 23, 2011. (SEC File No. 001-08339)
- (m) Indenture, dated as of September 14, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$595,504,000, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on September 15, 2011. (SEC File No. 001-08339)
- (n) Third Supplemental Indenture, dated as of September 14, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$4,492,000, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on September 15, 2011. (SEC File No. 001-08339)
- (o) Fourth Supplemental Indenture, dated as of November 17, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of two series of notes, one in the principal amount of \$500 million and one in the principal amount of \$100 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on November 17, 2011. (SEC File No. 001-08339)
- (p) Indenture, dated as of March 15, 2012, between the Registrant and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on March 15, 2012. (SEC File No. 001-08339)
- (q) First Supplemental Indenture, dated as of March 15, 2012, between the Registrant and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on March 15, 2012. (SEC File No. 001-08339)
- (r) Indenture, dated as of August 20, 2012, between the Registrant and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on August 21, 2012. (SEC File No. 001-08339)
- (s) Second Supplemental Indenture, dated as of September 7, 2012, between the Registrant and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on September 7, 2012. (SEC File No. 001-08339)

(t) Third Supplemental Indenture, dated as of August 13, 2013, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$500,000,000, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on August 13, 2013. (SEC File No. 001-08339)

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- (u) Fourth Supplemental Indenture, dated as of November 21, 2013, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of \$400,000,000, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on November 21, 2013. (SEC File No. 001-08339)
- (v) Indenture, dated as of June 2, 2015, between Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on June 2, 2015. (SEC File No. 001-08339)
- (w) First Supplemental Indenture, dated as of June 2, 2015, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on June 2, 2015. (SEC File No. 001-08339)
- (x) Second Supplemental Indenture, dated as of November 3, 2015, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on November 3, 2015. (SEC File No. 001-08339)
- (y) Third Supplemental Indenture, dated as of June 3, 2016, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on June 3, 2016. (SEC File No. 001-08339)
- (z) Fourth Supplemental Indenture, dated as of May 31, 2017, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to the Corporation's Form 8-K filed May 31, 2017. (SEC File No. 001-08339)
- (aa) Indenture, dated as of August 15, 2017, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed August 15, 2017. (SEC File No. 001-08339)
- (bb) Indenture, dated as of November 16, 2017, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed November 16, 2017. (SEC File No. 001-08339)
- (cc) Indenture, dated as of February 28, 2018 between the Registrant and U.S. Bank National Association, as Trustee. The Indenture is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed February 28, 2018. (SEC File No. 001-08339)
- (dd) First Supplemental Indenture, dated as of February 28, 2018, between the Registrant and U.S. Bank National Association, as Trustee. The Indenture is incorporated by reference herein to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed February 28, 2018. (SEC File No. 001-08339)
- (ee) Second Supplemental Indenture, dated as of August 2, 2018, between the Registrant and U.S. Bank National Association, as Trustee. The Indenture is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed August 2, 2018. (SEC File No. 001-08339)

In accordance with Item 601(b)(4)(iii) of Regulation S-K, copies of other instruments of Norfolk Southern Corporation and its subsidiaries with respect to the rights of holders of long-term debt are not filed herewith, or incorporated by reference, but will be furnished to the Commission upon request.

- (a) The Transaction Agreement, dated as of June 10, 1997, by and among CSX and CSX Transportation, Inc., Registrant, Norfolk Southern Railway Company, Conrail Inc., Consolidated Rail Corporation, and CRR Holdings LLC, with certain schedules thereto, previously filed, is incorporated by reference to Exhibit 10(a) to Norfolk Southern Corporation's Form 10-K filed on February 24, 2003. (SEC File No. 001-08339)

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Amendment No. 1 dated as of August 22, 1998, to the Transaction Agreement, dated as of June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference from Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

Amendment No. 2 dated as of June 1, 1999, to the Transaction Agreement, dated June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference from Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

Amendment No. 3 dated as of June 1, 1999, and executed in April 2004, to the Transaction Agreement, dated June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference from Exhibit 10(dd) to Norfolk Southern Corporation's Form 10-Q filed on July 30, 2004. (SEC File No. 001-08339)

Amendment No. 5 to the Transaction Agreement, dated as of August 27, 2004, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on September 2, 2004. (SEC File No. 001-08339)

Amendment No. 6 dated as of April 1, 2007, to the Transaction Agreement, dated June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference to Exhibit 10.5 to Norfolk Southern Corporation's Form 10-Q filed on July 27, 2007. (SEC File No. 001-08339)

Shared Assets Area Operating Agreement for North Jersey, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibit thereto, is incorporated by reference from Exhibit 10.4 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

Shared Assets Area Operating Agreement for Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibit thereto, is incorporated by reference from Exhibit 10.6 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

Shared Assets Area Operating Agreement for South Jersey/Philadelphia, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibit thereto, is incorporated by reference from Exhibit 10.5 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

Amendment No. 1, dated as of June 1, 2000, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 10(h) to Norfolk Southern Corporation's Form 10-K filed on March 5, 2001. (SEC File No. 001-08339)

Amendment No. 2, dated as of January 1, 2001, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail

Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 10(j) to Norfolk Southern Corporation's Form 10-K filed on February 21, 2002. (SEC File No. 001-08339)

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(l) Amendment No. 3, dated as of June 1, 2001, and executed in May of 2002, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 10(k) to Norfolk Southern Corporation's Form 10-K filed on February 24, 2003. (SEC File No. 001-08339)

(m) Amendment No. 4, dated as of June 1, 2005, and executed in late June 2005, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on July 1, 2005. (SEC File No. 001-08339)

(n) Monongahela Usage Agreement, dated as of June 1, 1999, by and among CSX Transportation, Inc., Norfolk Southern Railway Company, Pennsylvania Lines LLC, and New York Central Lines LLC, with exhibit thereto, is incorporated by reference from -Exhibit 10.7 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(o) The Agreement, entered into as of July 27, 1999, between North Carolina Railroad Company and Norfolk Southern Railway Company, is incorporated by reference from Exhibit 10(i) to Norfolk Southern Corporation's Form 10-K filed on March 6, 2000. (SEC File No. 001-08339)

(p) Second Amendment, dated December 28, 2009, to the Master Agreement dated July 27, 1999, by and between North Carolina Railroad Company and Norfolk Southern Railway Company, is incorporated by reference to Exhibit 10(q) to Norfolk Southern Corporation's Form 10-K filed on February 17, 2010 (Exhibits, annexes and schedules omitted. The Registrant will furnish supplementary copies of such materials to the SEC upon request). (SEC File No. 001-08339)

(q) The Supplementary Agreement, entered into as of January 1, 1987, between the Trustees of the Cincinnati Southern Railway and The Cincinnati, New Orleans and Texas Pacific Railway Company (the latter a wholly owned subsidiary of Norfolk Southern Railway Company) – extending and amending a Lease, dated as of October 11, 1881 – is incorporated by reference to Exhibit 10(k) to Norfolk Southern Corporation's Form 10-K filed on March 5, 2001. (SEC File No. 001-08339)

(r)* Norfolk Southern Corporation Executive Management Incentive Plan, as approved by shareholders May 14, 2015, and as amended effective March 27, 2018, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on April 25, 2018. (SEC File No. 001-08339)

(s)* The Norfolk Southern Corporation Officers' Deferred Compensation Plan, as amended effective September 26, 2000, is incorporated by reference to Exhibit 10(n) to Norfolk Southern Corporation's Form 10-K filed on March 5, 2001. (SEC File No. 001-08339)

(t)* The Norfolk Southern Corporation Directors' Restricted Stock Plan, adopted January 1, 1994, and amended and restated effective as of January 23, 2015, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on October 25, 2017. (SEC File No. 001-08339)

(u)* Supplemental Benefit Plan of Norfolk Southern Corporation and Participating Subsidiary Companies, adopted June 1, 1982, as amended and restated effective as of June 26, 2015, is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on October 25, 2017. (SEC File No. 001-08339)

(v)*

Retirement Plan of Norfolk Southern Corporation and Participating Subsidiary Companies effective June 1, 1982, as amended and restated effective January 1, 2016, is incorporated by reference to Exhibit 10(hh) to Norfolk Southern Corporation's Form 10-K filed on February 6, 2017. (SEC File No. 001-08339)

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- (w)* The Norfolk Southern Corporation Directors' Charitable Award Program, as amended effective July 2007, is incorporated by reference to Exhibit 10.6 to Norfolk Southern Corporation's Form 10-Q filed on July 27, 2007. (SEC File No. 001-08339)
- (x) The Norfolk Southern Corporation Thoroughbred Stock Option Plan, as amended effective July 22, 2013, is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on July 24, 2013. (SEC File No. 001-08339)
- (y)*, ** The Norfolk Southern Corporation Executive Life Insurance Plan, as amended and restated effective December 1, 2018.
- (z)* The description of Norfolk Southern Corporation's executive physical reimbursement for non-employee directors and certain executives is incorporated by reference to Norfolk Southern Corporation's Form 8-K filed on July 28, 2005; but no reimbursements will be made for physical examinations performed for non-employee directors after July 30, 2016. (SEC File No. 001-08339)
- (aa)*, ** The Norfolk Southern Corporation Long-Term Incentive Plan, as approved by shareholders May 14, 2015, and as amended July 29, 2016, November 29, 2016, November 28, 2017, and November 27, 2018.
- (bb) The Transaction Agreement, dated as of December 1, 2005, by and among Norfolk Southern Corporation, The Alabama Great Southern Railroad Company, Kansas City Southern, and The Kansas City Southern Railway Company, is incorporated by reference to Exhibit 10(II) to Norfolk Southern Corporation's Form 10-K filed on February 23, 2006 (Exhibits, annexes, and schedules omitted. The Registrant will furnish supplementary copies of such materials to the SEC upon request). (SEC File No. 001-08339)
- (cc) Amendment No. 1, dated as of January 17, 2006, by and among Norfolk Southern Corporation, The Alabama Great Southern Railroad Company, Kansas City Southern, and The Kansas City Southern Railroad, is incorporated by reference to Exhibit 10(mm) to Norfolk Southern Corporation's Form 10-K filed on February 23, 2006. (SEC File No. 001-08339)
- (dd) Amendment No. 2, dated as of May 1, 2006, to the Transaction Agreement, dated as of December 1, 2005, by and among Norfolk Southern Corporation, The Alabama Great Southern Railroad Company, Kansas City Southern, and The Kansas City Southern Railway Company is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on May 4, 2006. (SEC File No. 001-08339)
- (ee) Limited Liability Agreement of Meridian Speedway, LLC, dated as of May 1, 2006, by and among the Alabama Great Southern Railroad Company and Kansas City Southern, is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 8-K filed on May 4, 2006. (SEC File No. 001-08339)
- (ff) Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on November 14, 2007. (SEC File No. 001-08339)
- (gg) Amendment No. 1 to Transfer and Administration Agreement dated as of November 8, 2007, and effective as of October 22, 2008, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on October 23, 2008. (SEC File No. 001-08339)
- (hh) Amendment No. 2, dated as of May 19, 2009, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on July 31, 2009. (SEC File No. 001-08339)

- (ii) Amendment No. 3, dated as of August 21, 2009, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on October 30, 2009. (SEC File No. 001-08339)

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- (jj) Amendment No. 4, dated as of October 22, 2009, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on October 22, 2009. (SEC File No. 001-08339)
- (kk) Amendment No. 5, dated as of January 5, 2010, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 10(xx) to Norfolk Southern Corporation's Form 10-K filed on February 17, 2010. (SEC File No. 001-08339)
- (ll) Amendment No. 6, dated as of August 30, 2010, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on October 29, 2010. (SEC File No. 001-08339)
- (mm) Amendment No. 7, dated as of October 21, 2010, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on October 22, 2010. (SEC File No. 001-08339)
- (nn) Amendment No. 8, dated as of October 20, 2011, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on October 20, 2011. (SEC File No. 001-08339)
- (oo) Amendment No. 9, dated as of October 18, 2012, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on October 22, 2012. (SEC File No. 001-08339)
- (pp) Amendment No. 10, dated as of October 17, 2013, to Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on October 18, 2013. (SEC File No. 001-08339)
- (qq) Amendment No. 11 to Transfer and Administration Agreement dated as of October 16, 2014, is hereby incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on October 17, 2014. (SEC File No. 001-08339)
- (rr) Amendment No. 12 to Transfer and Administration Agreement dated as of June 3, 2016 (Schedules III and IV omitted. The Registrant will furnish supplementary copies of such materials to the SEC upon request), is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on June 6, 2016. (SEC File No. 001-08339)
- (ss) Omnibus Amendment, dated as of March 18, 2008, to the Transfer and Administration Agreement dated as of November 8, 2007, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on April 23, 2008. (SEC File No. 001-08339)
- (tt) Transaction Agreement (Pan Am Transaction Agreement), dated May 15, 2008, by and among Norfolk Southern Railway Company, Pan Am Railways, Inc., Boston and Maine Corporation, and Springfield Terminal Railway Company, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on July 24, 2008 (Exhibits, annexes and schedules omitted. The Registrant will furnish supplementary copies of such materials to the SEC upon request). (SEC File No. 001-08339)
- (uu) Letter Agreement, dated October 21, 2008, by and among Norfolk Southern Railway Company, Pan Am Railways, Inc., Boston and Maine Corporation, and Springfield Terminal Railway Company amending certain terms of the Pan Am Transaction Agreement, is incorporated by reference to Exhibit 10(rrr) to Norfolk

- (vv)* Directors' Deferred Fee Plan of Norfolk Southern Corporation, adopted June 1, 1982 and as amended and restated effective October 3, 2014, is incorporated by reference to Exhibit 10 to Norfolk Southern Corporation's Form 10-Q filed on October 22, 2014. (SEC File No. 001-08339)
- (ww)*, ** Norfolk Southern Corporation Executives' Deferred Compensation Plan, as amended and restated effective January 1, 2019.
- (xx)* Amendment to Norfolk Southern Corporation Officers' Deferred Compensation Plan, effective January 1, 2008, is incorporated by reference to Exhibit 10.03 to Norfolk Southern Corporation's Form 8-K filed on July 24, 2008. (SEC File No. 001-08339)
- (yy)* Stock Unit Plan of Norfolk Southern Corporation dated as of July 24, 2001, as amended on August 21, 2008, with an effective date of January 1, 2009, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on October 24, 2008. (SEC File No. 001-08339)
- (zz)* Form of Amended and Restated Change in Control Agreement between Norfolk Southern Corporation and certain executive officers (including "named executive officers" identified in the Corporation's Proxy Statement for the 2019 annual Meeting of Stockholders who entered into change in control agreements before 2016), is incorporated by reference to Exhibit 10(aaaa) to Norfolk Southern Corporation's Form 10-K filed on February 18, 2009. (SEC File No. 001-08339)
- (aaa) Limited Liability Company Agreement of Pan Am Southern LLC, dated as of April 9, 2009, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on April 9, 2009 (exhibits, annexes, and schedules omitted – the Registrant will furnish supplementary copies of such materials to the SEC upon request). (SEC File No. 001-08339)
- (bbb)* Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Outside Directors as approved by the Compensation Committee on November 28, 2016, is incorporated by reference to Exhibit 10(ggg) to Norfolk Southern Corporation's Form 10-K filed on February 6, 2017. (SEC File No. 001-08339)
- (ccc)* Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for performance share units approved by the Compensation Committee on November 27, 2017, is incorporated by reference to Exhibit 10(ddd) to Norfolk Southern Corporation's Form 10-K filed on February 5, 2018. (SEC File No. 001-08339)
- (ddd)* Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for non-qualified stock options approved by the Compensation Committee on November 27, 2017, is incorporated by reference to Exhibit 10(eee) to Norfolk Southern Corporation's Form 10-K filed on February 5, 2018. (SEC File No. 001-08339)
- (eee)* Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for restricted stock units approved by the Compensation Committee on November 27, 2017, is incorporated by reference to Exhibit 10(fff) to Norfolk Southern Corporation's Form 10-K filed on February 5, 2018. (SEC File No. 001-08339)
- (fff)* Form of Norfolk Southern Corporation Long-Term Incentive Plan, Non-Compete Agreement Associated with Award Agreement, approved by the Compensation Committee on November 28, 2016, is incorporated by reference to Exhibit 10(kkk) to Norfolk Southern Corporation's 10-K filed on February 6, 2017. (SEC

File No. 001-08339

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(ggg) Performance Criteria for bonuses payable in 2020 for the 2019 incentive year. On November 26, 2018, the Compensation Committee of the Norfolk Southern Corporation Board of Directors adopted the following performance criteria for determining bonuses payable in 2020 for the 2019 incentive year under the Norfolk Southern Corporation Executive Management Incentive Plan: 60% based on operating income, and 40% based on operating ratio.

(hhh) Omnibus Amendment, dated as of January 17, 2011, to Pan Am Transaction Agreement dated as of May 15, 2008, and Limited Liability Company Agreement of Pan Am Southern LLC dated as of April 9, 2009, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on April 27, 2012. (SEC File No. 001-08339)

(iii)* Form of Amendment to Amended and Restated Change in Control Agreements between Norfolk Southern Corporation and the Corporation's Chairman, President and Chief Executive Officer, and each of the Corporation's Executive Vice Presidents, to eliminate the excise tax gross-up provision in the Agreements, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on January 23, 2013. (SEC File No. 001-08339)

(jjj)* Form of Change in Control Agreement between Norfolk Southern Corporation and executive officers who did not enter into a change in control agreement before 2016, is incorporated by reference to Exhibit 10(ooo) to Norfolk Southern Corporation's Form 10-K filed on February 8, 2016. (SEC File No. 001-08339)

(kkk) Credit Agreement dated as of May 26, 2016, establishing a 5-year, \$750 million, unsecured revolving credit facility of the Registrant, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on May 27, 2016. (SEC File No. 001-08339)

21** Subsidiaries of the Registrant.

23** Consent of Independent Registered Public Accounting Firm.

31-A** Rule 13a-14(a)/15d-014(a) CEO Certification.

31-B** Rule 13a-14(a)/15d-014(a) CFO Certification.

32** Section 1350 Certifications.

99** Annual CEO Certification pursuant to NYSE Rule 303A.12(a).

101** The following financial information from Norfolk Southern Corporation's Annual Report on Form 10-K for the year ended December 31, 2018, formatted in Extensible Business Reporting Language (XBRL) includes: (i) the Consolidated Statements of Income of each of the years ended December 31, 2018, 2017, and 2016; (ii) the Consolidated Statements of Comprehensive Income for each of the years ended December 31, 2018, 2017, and 2016; (iii) the Consolidated Balance Sheets at December 31, 2018 and 2017; (iv) the Consolidated Statements of Cash Flows for each of the years ended December 31, 2018, 2017, and 2016; (v) the Consolidated Statements of Changes in Stockholders' Equity for each of the years ended December 31, 2018, 2017, and 2016; and (vi) the Notes to Consolidated Financial Statements.

* Management contract or compensatory arrangement.

** Filed herewith.

(B) Exhibits.

The Exhibits required by Item 601 of Regulation S-K as listed in Item 15(A)3 are filed herewith or incorporated by reference.

(C) Financial Statement Schedules.

Financial statement schedules and separate financial statements specified by this Item are included in Item 15(A)2 or are otherwise not required or are not applicable.

Exhibits 23, 31, 32, and 99 are included in copies assembled for public dissemination. All exhibits are included in the 2018 Form 10-K posted on our website at www.norfolksouthern.com under “Invest in NS” and “SEC Filings” or you may request copies by writing to:

Office of Corporate Secretary
Norfolk Southern Corporation
Three Commercial Place
Norfolk, Virginia 23510-9219

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Item 16. Form 10-K Summary

Not applicable.

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POWER OF ATTORNEY

Each person whose signature appears on the next page under SIGNATURES hereby authorizes John M. Scheib and Cynthia C. Earhart, or any one of them, to execute in the name of each such person, and to file, any amendments to this report, and hereby appoints John M. Scheib and Cynthia C. Earhart, or any one of them, as attorneys-in-fact to sign on his or her behalf, individually and in each capacity stated below, and to file, any and all amendments to this report.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Norfolk Southern Corporation has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 8th day of February, 2019.

/s/ James A. Squires

By: James A. Squires

(Chairman, President and Chief Executive Officer)

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Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on this 8th day of February, 2019, by the following persons on behalf of Norfolk Southern Corporation and in the capacities indicated.

Signature	Title
/s/ James A. Squires (James A. Squires)	Chairman, President and Chief Executive Officer and Director (Principal Executive Officer)
/s/ Cynthia C. Earhart (Cynthia C. Earhart)	Executive Vice President Finance and Chief Financial Officer (Principal Financial Officer)
/s/ Jason A. Zampi (Jason A. Zampi)	Vice President and Controller (Principal Accounting Officer)
/s/ Thomas D. Bell, Jr. (Thomas D. Bell, Jr.)	Director
/s/ Daniel A. Carp (Daniel A. Carp)	Director
/s/ Mitchell E. Daniels, Jr. (Mitchell E. Daniels, Jr.)	Director
/s/ Marcela E. Donadio (Marcela E. Donadio)	Director
/s/ Thomas C. Kelleher (Thomas C. Kelleher)	Director
/s/ Steven F. Leer (Steven F. Leer)	Director
/s/ Michael D. Lockhart (Michael D. Lockhart)	Director
/s/ Amy E. Miles (Amy E. Miles)	Director
/s/ Martin H. Nesbitt (Martin H. Nesbitt)	Director
/s/ Jennifer F. Scanlon (Jennifer F. Scanlon)	Director
/s/ John R. Thompson (John R. Thompson)	Director

Schedule II

Norfolk Southern Corporation and Subsidiaries

Valuation and Qualifying Accounts

Years ended December 31, 2018, 2017, and 2016

(\$ in millions)

	Beginning Balance	Additions charged to:		Deductions	Ending Balance
		Expenses	Other Accounts		
Year ended December 31, 2018					
Current portion of casualty and other claims included in accounts payable	\$ 187	\$32	\$ 145	(2) \$ 151	(4) \$ 213
Casualty and other claims included in other liabilities	179	85 (1)	—	106	(3) 158
Year ended December 31, 2017					
Current portion of casualty and other claims included in accounts payable	\$ 192	\$17	\$ 124	(2) \$ 146	(4) \$ 187
Casualty and other claims included in other liabilities	178	83 (1)	—	82	(3) 179
Year ended December 31, 2016					
Current portion of casualty and other claims included in accounts payable	\$ 174	\$25	\$ 101	(2) \$ 108	(4) \$ 192
Casualty and other claims included in other liabilities	191	68 (1)	—	81	(3) 178

(1) Includes adjustments for changes in estimates for prior years' claims.

(2) Includes revenue refunds and overcharges provided through deductions from operating revenues and transfers from other accounts.

(3) Payments and reclassifications to/from accounts payable.

(4) Payments and reclassifications to/from other liabilities.

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