NORFOLK SOUTHERN CORP
Form 10-K
February 06, 2017

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

(X) ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the fiscal year ended DECEMBER 31, 2016

( ) 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)	(IRS Employer Identification No.)
Three Commercial Place Norfolk, Virginia (Address of principal executive offices)	23510-2191 Zip Code
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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulations S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes (X) No ( )

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 the 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, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.
Large accelerated filer (X) Accelerated filer ( ) Non-accelerated filer ( ) Smaller reporting company ( )

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, 2016, was $24,959,609,647 (based on the closing price as quoted on the New York Stock Exchange on that date).

The number of shares outstanding of each of the registrant's classes of common stock, at January 31, 2017: 290,553,713 (excluding 20,320,777 shares held by the registrant's consolidated subsidiaries).

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of the Registrant's definitive proxy statements 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, 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.nscorp.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, 2016, our railroad operated approximately 19,500 miles of road 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)
- Cleveland to Kansas City
- Birmingham to Meridian
- Memphis to Chattanooga

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, 2016				
	Miles of Road	Second and Other Main Track	Passing Track, Crossovers and Turnouts	Way and Yard Switching	Total
Owned	14,713	2,735	1,950	8,311	27,709
Operated under lease, contract or trackage rights	4,756	1,916	398	836	7,906
Total	19,469	4,651	2,348	9,147	35,615

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

	Years ended December 31,				
	2016	2015	2014	2013	2012
Revenue ton miles (billions)	191	200	205	194	186
Revenue per thousand revenue ton miles	$51.91	$52.63	$56.70	$58.10	$59.47
Revenue ton miles (thousands) per employee	6,838	6,645	7,054	6,517	6,078
Ratio of railway operating expenses to railway operating revenues	68.9%	72.6%	69.2%	71.0%	71.7%

RAILWAY OPERATING REVENUES – Total railway operating revenues were $9.9 billion in 2016. Following is an overview of our three major market groups. See the discussion of merchandise revenues by commodity group, intermodal revenues, and coal revenues and tonnage in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

MERCHANDISE – Our merchandise market group is composed of five major commodity 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 vehicles for BMW, FCA, Ford, General Motors, Honda, Hyundai, Mercedes-Benz, Mitsubishi, Subaru, Toyota, and Volkswagen, and auto parts for BMW, FCA, Ford, General Motors, Honda, Hyundai, Mercedes-Benz, Nissan, Tesla, and Toyota.
- 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 2016 were 2.5 million, the revenues from which accounted for 63% of our total railway operating revenues.

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INTERMODAL – Our intermodal market group consists of shipments moving in trailers, domestic and international containers, and RoadRailer® equipment. These shipments are handled on behalf of intermodal marketing companies, international steamship lines, truckers, and other shippers. Intermodal units handled in 2016 were 3.9 million, the revenues from which accounted for 22% of our total railway operating revenues.

COAL – Revenues from coal accounted for about 15% of our total railway operating revenues in 2016. We handled 100 million tons, or 0.9 million carloads, in 2016, 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 78 coal generation plants, as well as the export, 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.

In 2016, our railroad was found by the U.S. Surface Transportation Board (STB), the regulatory board that has broad jurisdiction over railroad practices, to not be “revenue adequate” on an annual basis based on results for the year 2015. The STB has not made its revenue adequacy determination for the year 2016. 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.

PASSENGER OPERATIONS – Amtrak operates regularly scheduled passenger trains on our lines between the following locations:

- Alexandria and Lynchburg, Virginia
- Alexandria, Virginia and New Orleans, Louisiana
- Alexandria and Orange, Virginia
- Petersburg and Norfolk, Virginia
- Raleigh and Charlotte, North Carolina
- Selma and Charlotte, North Carolina
- Chicago, Illinois, and Porter, Indiana
- Chicago, Illinois, and Cleveland, Ohio
- Chicago, Illinois, and Pittsburgh, Pennsylvania
- Pittsburgh and Harrisburg, Pennsylvania

A consortium of two transportation commissions of the Commonwealth of Virginia operate commuter trains on our line between Manassas and Alexandria.

We lease the Chicago to Manhattan, Illinois, line to the Commuter Rail Division of the Regional Transportation Authority of Northeast Illinois (METRA).

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
- Michigan Department of Transportation

Amtrak and various commuter agencies conduct passenger operations over trackage owned by Conrail Inc. (Conrail) in the Shared Assets Areas (Note 5 to the Consolidated Financial Statements).

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NONCARRIER OPERATIONS – Our noncarrier subsidiaries engage principally in the leasing or sale of rail property and equipment; the development of commercial real estate; telecommunications; and the acquisition, leasing, and management of coal, oil, gas and minerals. In 2016, no such noncarrier subsidiary or industry segment grouping of noncarrier subsidiaries met the requirements for a reportable business segment under relevant authoritative accounting guidance.

RAILWAY PROPERTY

Our railroad infrastructure makes us capital intensive with net property of approximately $30 billion on a historical cost basis.

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

	2016	2015	2014	2013	2012
	($ in millions)				
Road and other property	$1,292	$1,514	$1,406	$1,421	$1,465
Equipment	595	658	712	550	776
Delaware & Hudson acquisition	—	213	—	—	—
Total	$1,887	$2,385	$2,118	$1,971	$2,241

Our capital spending and replacement programs are and have been designed to assure the ability to provide safe, efficient, and reliable rail transportation services. For 2017, we have budgeted $1.9 billion of property additions. See further discussion of our planned capital spending and replacement programs in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” under the subheading “Financial Condition, Liquidity, and Capital Resources.”

Equipment – At December 31, 2016, we owned or leased the following units of equipment:

	Owned	Leased	Total	Capacity of Equipment
Locomotives:				(Horsepower)
Multiple purpose	4,041	—	4,041	15,215,400
Auxiliary units	172	—	172	—
Switching	55	—	55	82,050
Total locomotives	4,268	—	4,268	15,297,450
Freight cars:				(Tons)
Gondola	27,964	2,653	30,617	3,353,749
Hopper	12,042	—	12,042	1,352,882
Covered hopper	10,065	85	10,150	1,122,115
Box	9,997	1,362	11,359	964,680
Flat	1,900	1,485	3,385	325,861
Other	1,718	12	1,730	80,050
Total freight cars	63,686	5,597	69,283	7,199,337
Other:				
Chassis	28,710	—	28,710	
Containers	19,210	1,738	20,948	
Work equipment	5,824	258	6,082	
Vehicles	3,842	—	3,842	
Miscellaneous	2,418	27	2,445	
Total other	60,004	2,023	62,027	

The following table indicates the number and year built for locomotives and freight cars owned at December 31, 2016:

	2016	2015	2014	2013	2012	2007-2011	2002-2006	2001 & Before	Total
Locomotives:									
No. of units	66	8	83	50	60	259	536	3,206	4,268
% of fleet	2 %	1 %	2 %	1 %	1 %	6 %	12 %	75 %	100 %
Freight cars:									
No. of units	776	2,093	900	—	2,017	8,109	468	49,323	63,686
% of fleet	1 %	3 %	1 %	—%	3 %	13 %	1 %	78 %	100 %

The following table shows the average age of our owned locomotive and freight car fleets at December 31, 2016, and information regarding 2016 retirements:

	Locomotives	Freight Cars
Average age – in service	24.1 years	28.6 years
Retirements	130 units	7,894 units
Average age – retired	37.2 years	37.3 years

Track Maintenance – Of the approximately 35,600 total miles of track on which we operate, we are responsible for maintaining approximately 28,500 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 43% of our lines, excluding rail operated pursuant to trackage rights, carried 20 million or more gross tons per track mile during 2016.

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

	2016	2015	2014	2013	2012
Track miles of rail installed	518	523	507	549	509
Miles of track surfaced	4,984	5,074	5,248	5,475	5,642
New crossties installed (millions)	2.3	2.4	2.7	2.5	2.6

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 “Personal Injury, Environmental, and Legal Liabilities” in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations;” and Note 16 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:

	2016	2015	2014	2013	2012
Average number of employees	28,044	30,456	29,482	30,103	30,943
Average wage cost per employee	$76,000	$77,000	$76,000	$72,000	$69,000
Average benefit cost per employee	$35,000	$32,000	$35,000	$40,000	$38,000

Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. See the discussion of "Labor Agreements" in Part II, 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 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 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 2017. 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 railroads 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 take measures 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

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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 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 port facilities we serve. With respect to the ports, each facility's security plan has been approved by the applicable Captain of the Port and remains subject to inspection by the U.S. Coast Guard (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, 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 2016, through participation in the Transportation Community Awareness and Emergency Response (TRANSCAER) Program, we provided rail accident response training to approximately 5,573 emergency responders, such as local police and fire personnel. Our other training efforts throughout 2016 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.

Item 1A. Risk Factors

The risks set forth in the following risk factors could have a materially adverse effect on our financial condition, 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 determine prices for rail services 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 (RSIA), the Surface Transportation Extension Act of 2015, and the implementing regulations promulgated by the FRA require us and each other Class I railroad to implement an interoperable positive train control system (PTC) on certain of our respective lines by December 31, 2018.

Full implementation of PTC in compliance with RSIA 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 could negatively affect the markets we serve and our customers, including those related to GHGs. 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 16 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 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. Accordingly, 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 healthcare, 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 very 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-party property damages (see Note 16 to the Consolidated Financial Statements); however, insurance is available

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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 462 million gallons of diesel fuel in 2016. 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. From time-to-time we rely on the capital markets to provide some of our capital requirements, including the issuance of long-term debt instruments and commercial paper, 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 condition 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 condition, 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

On November 6, 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. On June 21, 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. 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.

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, 2017, relating to our officers.

Name, Age, Present Position	Business Experience During Past Five Years
James A. Squires, 55, 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. Served as Executive Vice President – Administration from August 1, 2012 to June 1, 2013. Served as Executive Vice President – Finance and Chief Financial Officer from July 1, 2007 to August 1, 2012.
Cynthia C. Earhart, 55, Executive Vice President – Administration and Chief Information Officer	Present position since October 1, 2015. Served as Executive Vice President - Administration since June 1, 2013. Served as Vice President Human Resources from March 1, 2007 to June 1, 2013.
Alan H. Shaw, 49 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 15, 2015. Served as Group Vice President Industrial Products from November 16, 2009 to October 31, 2013.
Marta R. Stewart, 59, Executive Vice President – Finance and Chief Financial Officer	Present position since November 1, 2013. Served as Vice President and Treasurer from April 1, 2009 to November 1, 2013.
Michael J. Wheeler, 54, Executive Vice President and Chief Operating Officer	Present position since February 1, 2016. Served as Senior Vice President Operations October 1, 2015 to January 31, 2016. Served as Vice President Engineering November 1, 2012 to September 30, 2015. Served as Vice President Transportation February 1, 2009 to October 31, 2012.
William A. Galanko, 60, Senior Vice President – Law and Corporate Communications	Present position since December 1, 2016. Served as Vice President Law from April 1, 2006 to November 30, 2016.
Thomas E. Hurlbut, 52, Vice President and Controller	Present position since November 1, 2013. Served as Vice President Audit and Compliance from February 1, 2010 to November 1, 2013.

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 PRICE AND DIVIDEND INFORMATION

Common Stock is owned by 27,288 stockholders of record as of December 31, 2016, and is traded on the New York Stock Exchange under the symbol "NSC." The following table shows the high and low sales prices as reported by Bloomberg L.P. on its internet-based service and dividends per share, by quarter, for 2016 and 2015.

	Quarter			
2016	1st	2nd	3rd	4th
Market Price				
High	$85.37	$93.15	$96.83	$110.52
Low	66.41	78.93	83.89	90.77
Dividends per share	0.59	0.59	0.59	0.59
2015	1st	2nd	3rd	4th
Market Price				
High	$111.63	$106.47	$88.03	$97.07
Low	100.14	87.24	73.57	77.19
Dividends per share	0.59	0.59	0.59	0.59

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]	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that may yet be Purchased under the Plans or Programs[2]
October 1-31, 2016	680,891	$ 94.73	680,891	16,007,556
November 1-30, 2016	680,714	100.05	677,148	15,330,408
December 1-31, 2016	625,893	108.24	625,893	14,704,515
Total	1,987,498		1,983,932	

(1) Of this amount, 3,566 represents shares tendered by employees in connection with the exercise of stock options under the stockholder-approved Long-Term Incentive Plan.

(2)

Our Board of Directors authorized a share repurchase program, pursuant to which up to 50 million shares of Common Stock through December 31, 2017.

Item 6. Selected Financial Data

FIVE-YEAR FINANCIAL REVIEW

	2016	2015	2014	2013	2012
	($ in millions, except per share amounts)				
RESULTS OF OPERATIONS					
Railway operating revenues	$9,888	$10,511	$11,624	$11,245	$11,040
Railway operating expenses	6,814	7,627	8,049	7,988	7,916
Income from railway operations	3,074	2,884	3,575	3,257	3,124
Other income – net	71	103	104	233	129
Interest expense on debt	563	545	545	525	495
Income before income taxes	2,582	2,442	3,134	2,965	2,758
Provision for income taxes	914	886	1,134	1,055	1,009
Net income	$1,668	$1,556	$2,000	$1,910	$1,749
PER SHARE DATA					
Net income – basic	$5.66	$5.13	$6.44	$6.10	$5.42
– diluted	5.62	5.10	6.39	6.04	5.37
Dividends	2.36	2.36	2.22	2.04	1.94
Stockholders' equity at year end	42.73	40.93	40.26	36.55	31.08
FINANCIAL POSITION					
Total assets	$34,892	$34,139	$33,033	$32,259	$30,135
Total debt	10,212	10,093	8,985	9,404	8,642
Stockholders' equity	12,409	12,188	12,408	11,289	9,760
OTHER					
Property additions	$1,887	$2,385	$2,118	$1,971	$2,241
Average number of shares outstanding (thousands)	293,943	301,873	309,367	311,916	320,864
Number of stockholders at year end	27,288	28,443	29,575	30,990	32,347
Average number of employees:					
Rail	27,856	30,057	29,063	29,698	30,543
Nonrail	188	399	419	405	400
Total	28,044	30,456	29,482	30,103	30,943

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 miles of road 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. We operate the most extensive intermodal network in the East and are a major transporter of coal, automotive and industrial products.

Our 2016 results reflect our progress and commitment to achieving the goals set forth in our strategic plan. Through a disciplined cost-control focus, we achieved a record-setting railway operating ratio (a measure of the amount of operating revenues consumed by operating expenses) of 68.9% and delivered approximately $250 million of productivity savings, despite the economic challenges that continue to affect our industry. Operational improvements allowed us to maintain near all-time best service levels and achieve high levels of network fluidity, which improved train performance and asset utilization. In addition to these improvements, the implementation of multiple cost-control initiatives drove savings in operating expenses across all categories.

In 2017, we expect to maintain high levels of service and see continued improvement in our operating ratio. Railway operating revenues are expected to increase, driven by volume growth in our coal and intermodal markets, in addition to higher average revenue per unit, a result of pricing gains and fuel surcharge revenue increases largely driven by higher expected fuel prices. Railway operating expenses are expected to increase next year, driven in large part by medical and wage inflation as well as volume-related expenses, offset in part by the continuation of targeted expense reductions as we balance resources with the demand for our high-quality rail service. We continue to focus on executing our strategic plan and remain committed to maintaining our strong levels of rail service, generating higher returns on capital, and increasing the efficiency of our resources.

SUMMARIZED RESULTS OF OPERATIONS

	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
	$ in millions, except per share amounts			% change	
Income from railway operations	$3,074	$2,884	$3,575	7 %	(19%)
Net income	$1,668	$1,556	$2,000	7 %	(22%)
Diluted earnings per share	$5.62	$5.10	$6.39	10%	(20%)
Railway operating ratio	68.9	72.6	69.2	(5 %)	5 %

The increase in net income for 2016, compared to 2015, was driven by higher income from railway operations, as railway operating expense decreases (down $813 million, or 11%) more than offset declines in railway operating revenues (down $623 million, or 6%). The decrease in net income for 2015, compared to 2014, reflected lower income from railway operations, driven by a sharp decline in railway operating revenues (down $1.1 billion, or 10%) offset in part by lower railway operating expenses (down $422 million, or 5%). The 2015 results include $93 million of costs associated with the restructuring of our Triple Crown Services (TCS) subsidiary and the closure of our Roanoke, Virginia corporate office, which reduced net income by $58 million, or $0.19 per diluted share.

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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 market group.

	Revenues			2016 vs. 2015	2015 vs. 2014
	2016	2015	2014		
	$ in millions			% change	
Merchandise:					
Chemicals	$1,648	$1,760	$1,863	(6 %)	(6 %)
Agr./consumer/gov't	1,548	1,516	1,498	2 %	1 %
Metals/construction	1,267	1,263	1,521	—	(17%)
Automotive	975	969	1,004	1 %	(3 %)
Paper/clay/forest	744	771	794	(4 %)	(3 %)
Merchandise	6,182	6,279	6,680	(2 %)	(6 %)
Intermodal	2,218	2,409	2,562	(8 %)	(6 %)
Coal	1,488	1,823	2,382	(18%)	(23%)
Total	$9,888	$10,511	$11,624	(6 %)	(10%)

	Units			2016 vs. 2015	2015 vs. 2014
	2016	2015	2014		
	in thousands			% change	
Merchandise:					
Chemicals	475.7	527.6	502.6	(10%)	5 %
Agr./consumer/gov't	601.2	609.0	603.8	(1 %)	1 %
Metals/construction	685.8	672.4	725.6	2 %	(7 %)
Automotive	440.5	429.3	410.1	3 %	5 %
Paper/clay/forest	284.0	299.9	303.2	(5 %)	(1 %)
Merchandise	2,487.2	2,538.2	2,545.3	(2 %)	—
Intermodal	3,870.4	3,861.0	3,845.2	—	—
Coal	902.1	1,079.7	1,284.4	(16%)	(16%)
Total	7,259.7	7,478.9	7,674.9	(3 %)	(3 %)

	Revenue per Unit			2016 vs. 2015	2015 vs. 2014
	2016	2015	2014		
	$ per unit			% change	
Merchandise:					
Chemicals	$3,465	$3,335	$3,707	4 %	(10%)
Agr./consumer/gov't	2,575	2,489	2,481	3 %	—
Metals/construction	1,847	1,879	2,096	(2%)	(10%)
Automotive	2,213	2,258	2,447	(2%)	(8 %)
Paper/clay/forest	2,620	2,573	2,619	2 %	(2 %)
Merchandise	2,486	2,474	2,624	—	(6 %)
Intermodal	573	624	666	(8%)	(6 %)
Coal	1,650	1,688	1,855	(2%)	(9 %)
Total	1,362	1,405	1,515	(3%)	(7 %)

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Revenues decreased $623 million in 2016 and $1.1 billion in 2015. As reflected in the table below, both declines resulted from lower average revenue per unit and reduced volume. In 2016, the effects of reduced fuel surcharges and changes in traffic mix more than offset price increases. Volume decreases were primarily driven by reductions in energy-related markets and the restructuring of our TCS subsidiary. For 2015, a large drop in fuel surcharge revenues more than offset pricing gains to drive average revenue per unit lower. The volume decline was driven by continued weakness in the coal markets.

	Revenue Variance Analysis (Decrease)	
	2016 vs. 2015	2015 vs. 2014
	$ in millions	
Revenue per unit	$(315)	$(816)
Volume (units)	(308)	(297)
Total	$(623)	$(1,113)
Fuel surcharge revenues	$(241)	$(852)

Most of our contracts include negotiated fuel surcharges, typically tied to either West Texas Intermediate Crude Oil (WTI) or On-Highway Diesel (OHD). Approximately 90% of our revenue base is covered by these negotiated fuel surcharges, with more than half tied to OHD. For 2016, contracts tied to OHD accounted for about 90% of our fuel surcharge revenue, as price levels were below most of our surcharge trigger points in contracts tied to WTI. Revenues associated with fuel surcharges totaled $236 million, $477 million, and $1,329 million in 2016, 2015, and 2014, respectively.

MERCHANDISE revenues decreased for both 2016 and 2015, compared with the years before. In 2016, the effects of lower volume were offset in part by a slight increase in average revenue per unit. Price increases were tempered by reduced fuel surcharge revenues (which lowered average revenue per unit by $31) and unfavorable changes in traffic mix. The 2015 decline reflected lower average revenue per unit, the result of lower fuel surcharge revenues (which reduced average revenue per unit by $185) that offset the effects of higher rates. Volume was relatively flat in 2015 compared to 2014.

For 2017, merchandise revenues are expected to increase, primarily the result of pricing gains and higher fuel surcharge revenues.

Chemicals revenues were lower year-over-year in 2016 and 2015. The 2016 decline was due to lower traffic volume, reflecting fewer shipments of crude oil originated from the Bakken oil fields, in addition to lower chlor-alkali and rock salt traffic, the result of market consolidations and softened demand. These declines were offset in part by higher average revenue per unit due to favorable mix, as increased volumes of higher-rated plastics more than offset reduced fuel surcharge revenues.

In 2015, the decline was the result of lower average revenue per unit, driven by reduced fuel surcharge revenues and negative mix resulting from increased shipments of lower-rated liquefied petroleum gas, which more than offset the effect of higher rates. Volumes increased for the year, largely driven by liquefied petroleum gas volume gains as well as strong demand for shipments of polypropylene due to lower feedstock prices. These volume increases were partially offset by fewer shipments of crude oil from the Bakken oil fields.

For 2017, chemicals revenues are anticipated to increase, as average revenue per unit is expected to be higher, largely the effect of favorable mix, driven by increased volumes of higher-rated plastics, and pricing gains. However, we expect these gains to be mitigated by lower shipments of crude oil from the Bakken oil fields and liquefied petroleum gas in the Utica Shale region.

One of our chemical customers, Sunbelt Chlor Alkali Partnership (Sunbelt), filed a rate reasonableness complaint before the STB alleging that our tariff rates for transportation of regulated movements are unreasonable. Since April 1, 2011, we have been billing and collecting amounts based on the challenged tariff rates. In 2014, the STB resolved this rate reasonableness complaint in our favor. In June 2016, the STB resolved petitions for reconsideration. The matter remains decided in our favor; however, the findings are still subject to appeal. We believe the estimate of any reasonably possible loss will not have a material effect on our financial position, results of operations, or liquidity. With regard to rate cases, we record adjustments to revenues in the periods if and when such adjustments are probable and reasonably estimable.

Agriculture, consumer products, and government revenues increased for both years, compared with the years before. The improvement in 2016 was driven by higher average revenue per unit primarily the result of pricing gains, offset in part by lower fuel surcharge revenues. Volumes decreased for the year driven by weaker demand for feed shipments and the effects of customer sourcing changes on corn volumes, offset in part by an increase in soybean export shipments and higher food oil volumes driven by service improvements.

The increase in 2015 was the result of more ethanol shipments due to higher gasoline consumption, offset in part by lower fuel surcharge revenues and fewer revenue shipments of empty rail cars as part of the conclusion of a hopper re-body program.

For 2017, agriculture, consumer products, and government revenues are expected to increase, driven by more shipments of corn and feed products, and by increased average revenue per unit, primarily a result of pricing gains.

Metals and construction revenues were up slightly in 2016 after falling in 2015, compared with the prior years. The increase in 2016 was driven by higher demand for aggregates and iron and steel shipments, and more coil steel traffic due to customer sourcing changes. These increases were offset in part by lower demand for materials used in natural gas and oil drilling as a result of depressed commodity prices. Average revenue per unit declined for the year, driven by lower fuel surcharge revenues and changes in traffic mix.

In 2015, the decline was driven by a drop in average revenue per unit, largely the result of lower fuel surcharge revenues partially offset by pricing gains, and a decrease in carloads. The volume decline was the result of lower demand for materials used in the construction of pipe for drilling activity, fewer shipments of fractionating sand and ceramic proppant used in natural gas drilling, and declines in scrap metal and coil shipments, resulting from declines in steel production due to global over-supply. These decreases were offset in part by increased shipments of aggregates as a result of higher demand in the Southeast for project work and strong highway and construction related markets.

For 2017, metals and construction revenues are expected to increase, as average revenue per unit is expected to be higher, primarily due to changes in the mix of traffic. We also expect volumes to increase next year, driven by growth in steel related products, in addition to higher cement shipments driven by increased construction activity.

Automotive revenues rose in 2016 after falling in 2015, compared with the prior years. For 2016, volumes increased as a result of higher automotive parts shipments and growth in the production of North American light vehicles. Average revenue per unit declined for the year, driven by lower fuel surcharge revenues offset in part by pricing gains.

The decline in 2015 reflected a drop in average revenue per unit primarily due to lower fuel surcharge revenues, offset in part by pricing gains. Volumes increased for the year, driven by gains in production of North American light vehicles.

For 2017, automotive revenues are expected to decrease as a result of volume declines related to extended retooling at several NS-served assembly plants and expected decreases in U.S. vehicle production, offset in part by higher average

revenue per unit driven by pricing gains and higher fuel surcharge revenues.

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Paper, clay and forest products revenues were down in both 2016 and 2015, compared to the prior years. The decline in 2016 reflected volume decreases in our pulpboard and woodchip markets due to customer sourcing changes, in addition to lower paper shipments as a result of decreased demand and further contraction of the paper market. Average revenue per unit increased for the year driven by pricing gains, offset in part by lower fuel surcharge revenues.

In 2015, both average revenue per unit and volumes decreased. The decline in average revenue per unit was driven primarily by lower fuel surcharge revenues and negative mix (fewer higher-rated kaolin shipments) offset by pricing gains. Volume changes reflected lower waste, kaolin, woodchip, and graphic paper volumes as a result of customer sourcing changes, softened demand, and mill closures, offset by higher carloads of pulpboard, lumber, and pulp due to continued recovery of the housing market.

For 2017, paper, clay, and forest products revenues are anticipated to increase, as we expect average revenue per unit to be higher, largely due to pricing gains. Additionally, we expect volume to increase next year, driven by growth in our miscellaneous waste and lumber markets as a result of higher construction activity, and increased pulp volumes driven by growth in consumer demand. These volume increases will be partially offset by lower pulpboard shipments due to customer sourcing changes, weaker export demand for kaolin shipments, and further contraction of the paper market.

INTERMODAL revenues decreased in both years, a result of lower average revenue per unit that more than offset small volume increases. In 2016, reduced fuel surcharge revenues and the effects of the TCS subsidiary restructuring (which together lowered average revenue per unit $57) offset the effects of price increases. Volume was up slightly for the year as growth in our domestic and international business offset the losses from the restructuring of our TCS subsidiary. In 2015, lower average revenue per unit was the result of lower fuel surcharges (which decreased average revenue per unit by $51). Volume gains in international shipments were almost fully offset by declines in domestic shipments.

For 2017, we expect higher intermodal revenues due to increased volumes and average revenue per unit, primarily driven by higher fuel surcharge revenues and pricing gains.

Intermodal units by market were as follows:

	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
	units in thousands			% change	
Domestic (excluding Triple Crown)	2,348.7	2,250.4	2,277.7	4 %	(1 %)
Triple Crown	67.5	250.0	288.5	(73%)	(13%)
Total Domestic	2,416.2	2,500.4	2,566.2	(3 %)	(3 %)
International	1,454.2	1,360.6	1,279.0	7 %	6 %
Total	3,870.4	3,861.0	3,845.2	—	—

Total domestic volume decreased in both years, driven by the restructuring of our TCS subsidiary. In 2016, domestic volumes excluding TCS increased due to growth from new and existing accounts that exceeded the negative effects of increased trucking capacity. In 2015, volumes were also affected by ongoing service challenges during the first three quarters of the year, an increase in available trucking capacity, and weaker overall demand, all partially offset by growth from continued highway conversions.

For 2017, we expect higher domestic volumes driven from continued highway conversions and growth associated with new and existing customers.

International volume increased in both years reflecting increased demand from existing customers and market share gains.

For 2017, we expect continued growth in our international volume largely driven by more traffic from both new and existing customers.

COAL revenues decreased in each of 2016 and 2015, compared with the prior years. Both declines reflected lower carload volumes and decreased average revenue per unit, primarily due to reduced fuel surcharge revenues, which lowered average revenue per unit by $34 in 2016 and $134 in 2015.

For 2017, coal revenues are expected to increase driven largely by higher utility and export volumes, in addition to an improved average revenue per unit, primarily the result of pricing gains in our export market and higher fuel surcharges.

As shown in the following table, tonnage decreased in all markets both years.

	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
	tons in thousands			% change	
Utility	65,033	81,137	93,884	(20%)	(14%)
Export	14,608	16,193	23,218	(10%)	(30%)
Domestic metallurgical	13,884	14,450	16,130	(4 %)	(10%)
Industrial	6,152	8,201	8,599	(25%)	(5 %)
Total	99,677	119,981	141,831	(17%)	(15%)

Utility coal tonnage in 2016 reflected residual stockpile overhang and limited coal burn due to milder weather and sustained lower natural gas prices. For 2015, the decline was driven by reduced coal burn as significantly lower natural gas prices caused utilities to shift away from coal generation. In addition, volumes were adversely affected by coal plant retirements and mild weather during the last half of 2015.

For 2017, we expect utility tonnage to increase driven by higher natural gas prices and weather-related normalization, in addition to market share gains.

Export coal tonnage also decreased both years, a result of strong competition faced by U.S. coal suppliers as excess coal supply, weak seaborne coal prices, and a strong U.S. dollar reduced demand for export coal. Volume through Norfolk was down 1.7 million tons, or 15%, in 2016, following a drop of 5.5 million tons, or 33%, in 2015. Volume through Baltimore was up slightly in 2016 but was down 1.5 million tons, or 23%, in 2015.

For 2017, we expect export coal tonnage to increase, as higher prices from a tightening of the international coal supply, a continued trend from the last quarter of 2016, is expected to drive incremental production increases.

Domestic metallurgical coal tonnage was down in both years, compared with the prior periods. The 2016 decline was largely driven by softness in the metallurgical market, offset in part by customer-specific gains. The 2015 decrease reflected volume losses related to plant curtailments and sourcing shifts resulting from steel producers looking for opportunities to reduce costs that were offset in part by market share gains.

For 2017, domestic metallurgical coal tonnage is expected to remain relatively flat as customer-specific gains will offset losses from sourcing shifts and supply issues driven by increased demand in export markets.

Industrial coal tonnage dropped in both years, compared with the prior periods. Both years reflected volume losses related to natural gas conversions and decreased coal burn, both of which accelerated in 2016. In addition, 2016 volumes were further affected by a partial plant closure that took place in the first half of the year.

For 2017, industrial coal tonnage is expected to decrease driven by continued pressure from natural gas conversions and customer sourcing changes.

Railway Operating Expenses

Railway operating expenses summarized by major classifications were as follows:

	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
	$ in millions			% change	
Compensation and benefits	$2,743	$2,911	$2,897	(6 %)	—
Purchased services and rents	1,548	1,752	1,687	(12%)	4 %
Fuel	698	934	1,574	(25%)	(41%)
Depreciation	1,026	1,054	951	(3 %)	11 %
Materials and other	799	976	940	(18%)	4 %
Total	$6,814	$7,627	$8,049	(11%)	(5 %)

In 2016, we experienced decreases across all categories driven largely from cost-control initiatives, lower fuel expense, the absence of restructuring costs incurred in 2015, and service improvements. In 2015, decreases in fuel costs and incentive compensation were offset in part by costs associated with the TCS restructuring and closure of our Roanoke, Virginia corporate office, in addition to higher wage rates.

Compensation and benefits decreased in 2016, compared to 2015, reflecting changes in:

- employee levels, including decreased overtime and trainees (down $184 million),
- pension costs (down $38 million)
- payroll taxes (down $27 million),
- labor agreement payments in 2015 ($24 million),
- pay rates (up $34 million),
- health and welfare benefit costs for agreement employees (up $35 million), which reflected higher rates, offset in part by favorability from reduced headcount, and
- bonus accruals (up $59 million).

In 2015, compensation and benefits increased slightly, a result of changes in:

- pay rates (up $83 million),
- payroll taxes (up $37 million),
- labor agreement payments ($24 million),
- employee levels, including overtime and increased trainees (up $21 million), and
- incentive compensation (down $151 million).

Our employment averaged 28,044 in 2016, compared with 30,456 in 2015, and 29,482 in 2014. Looking forward to 2017, we expect higher compensation and benefit expenses, a result of wage increases, medical cost inflation and higher levels of incentive compensation. We anticipate that cost-control initiatives will keep employment levels flat notwithstanding expected volume increases.

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.

	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
	$ in millions			% change	
Purchased services	$1,242	$1,433	$1,394	(13%)	3 %
Equipment rents	306	319	293	(4 %)	9 %
Total	$1,548	$1,752	$1,687	(12%)	4 %

The 2016 decrease in purchased services expense reflected lower TCS operational costs, reduced repair and maintenance expenses, and decreased transportation activity costs, offset in part by higher volume-related costs in intermodal operations. The increase in 2015 reflected higher costs associated with intermodal operations, information technology, maintenance and repair, and the Roanoke, Virginia corporate office closure, partially offset by TCS restructuring-related savings.

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, decreased in 2016 largely from improved network velocity, offset in part by higher rates and conventional intermodal volumes. The 2015 increase was principally due to higher automotive and intermodal rates and volumes.

Fuel expense, which includes the cost of locomotive fuel as well as other fuel used in railway operations, decreased in both 2016 and 2015 compared with the prior years. Both declines were principally the result of lower locomotive fuel prices (down 18% in 2016 and 40% in 2015). Locomotive fuel consumption decreased 5% in 2016 and 1% in 2015.

We consumed approximately 462 million gallons of diesel fuel in 2016, compared with 487 million gallons in 2015 and 494 million gallons in 2014.

Depreciation expense decreased in 2016, but increased in 2015, compared to prior years, a result of the effects of the TCS restructuring. In 2015 we recognized $63 million in accelerated depreciation on TCS assets as a result of the restructuring. Both periods also reflect growth in our roadway and equipment capital base as we continue to invest in our infrastructure and rolling stock.

Materials and other expenses decreased in 2016 but increased in 2015, as shown in the following table.

	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
	$ in millions			% change	
Materials	$364	$469	$470	(22%)	—
Casualties and other claims	150	137	135	9 %	1 %
Other	285	370	335	(23%)	10 %
Total	$799	$976	$940	(18%)	4 %

In 2016, lower materials and other expenses more than offset higher costs for casualties and other claims. Material usage costs declined for the year primarily driven by lower locomotive, roadway and freight car repair costs associated with cost-control initiatives and improved asset utilization.

Casualties and other claims expenses include the estimates of costs related to personal injury, property damage, and environmental matters. The increase in 2016 was primarily driven by higher derailment expenses. The small rise in 2015 reflected less favorable personal injury reserve adjustments for prior years' claim amounts, offset in part by reduced environmental remediation costs as a result of less unfavorable development for our environmental liability.

Other expense this year reflected $37 million of gains from the sale of operating land. Both year-over-year variances were affected by higher than normal expenses in 2015 relocating employees in connection with the closure of our Roanoke, Virginia office. The 2015 increase also included higher travel costs for train service employees and higher property taxes.

Income Taxes

The effective income tax rate was 35.4% in 2016, compared with 36.3% in 2015 and 36.2% in 2014. The decrease in 2016 reflects favorable tax benefits associated with stock-based compensation and higher returns from corporate-owned life insurance. All three years benefited from favorable reductions in deferred taxes for state tax law changes and certain business tax credits.

Internal Revenue Service (IRS) examinations have been completed for all years prior to 2013. We are not currently under audit by the IRS.

FINANCIAL CONDITION, LIQUIDITY, AND CAPITAL RESOURCES

Cash provided by operating activities, our principal source of liquidity, was $3.0 billion in 2016 and $2.9 billion in both 2015 and 2014. The increase in 2016 was primarily the result of improved operating results. Lower cash from operations in 2015 compared with 2014 was offset by reduced tax payments. We had a working capital deficit of $48 million at December 31, 2016, compared with working capital of $281 million at December 31, 2015. Cash and cash equivalents totaled $1.0 billion and $1.1 billion at December 31, 2016 and 2015, respectively, and were invested in accordance with our corporate investment policy. The portfolio contains securities that are subject to market risk. There are no limits or restrictions on our access to these assets. 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, 2016, were comprised of interest on fixed-rate long-term debt, long-term debt (Note 8), unconditional purchase obligations (Note 16), operating leases (Note 9), long-term advances from Conrail and agreements with Consolidated Rail Corporation (CRC) (Note 5), and unrecognized tax benefits (Note 3):

	Total	2017	2018 - 2019	2020 - 2021	2022 and Subsequent	Other
	$ in millions					
Interest on fixed-rate long-term debt	$13,403	$533	$955	$832	$ 11,083	$ —
Long-term debt principal	10,598	550	1,185	898	7,965	—
Unconditional purchase obligations	1,283	519	349	281	134	—
Operating leases	614	78	127	104	305	—
Long-term advances from Conrail	280	—	—	—	280	—
Agreements with CRC	276	37	74	74	91	—
Unrecognized tax benefits*	27	—	—	—	—	27
Total	$26,481	$1,717	$2,690	$2,189	$ 19,858	$ 27

* 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 9.

Cash used in investing activities was $1.8 billion in 2016, compared with $2.1 billion in 2015, and $2.0 billion in 2014. Both year-over-year comparisons reflected higher cash outflows for property additions in 2015, including approximately $215 million for the acquisition of the Delaware and Hudson Railway Co. line. In addition, 2015 included higher proceeds from 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 2017, we have budgeted $1.9 billion for property additions. The anticipated spending includes $930 million for the normalized replacement of rail, ties, and ballast, the improvement or replacement of bridges and other maintenance of way items. Planned equipment spending of $340 million includes new and rebuilt locomotives, mill gondolas, automobile multilevel recertifications, and covered hoppers. Investments in facilities and terminals are anticipated to be $170 million and include terminals and equipment to add capacity to our intermodal network, expanded bulk transfer facilities, improvements to vehicle distribution facilities, and upgrades and expansions of our mechanical service shops. For 2017, we have budgeted $240 million for the continued implementation of PTC and expect post-2017 PTC-related property additions to total approximately $300 million. Technology and other

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investments of $110 million are planned for new or upgraded systems and computers. We also expect to spend $80 million on infrastructure improvements to increase mainline capacity and to accommodate business growth.

Cash used in financing activities was $1.3 billion in 2016, compared with $693 million in 2015, and $1.4 billion in 2014. The increase in 2016 was driven primarily by higher debt repayments and lower proceeds from borrowing, partially offset by lower share repurchase activity. The decrease in 2015 was driven primarily by higher proceeds from borrowings and lower debt repayments, partially offset by higher share repurchase activity.

Share repurchases totaled $803 million in 2016, $1.1 billion in 2015, and $318 million in 2014 for the purchase and retirement of 9.2 million, 11.3 million, and 3.1 million shares, respectively. On August 1, 2012, our Board of Directors authorized the repurchase of up to an additional 50 million shares of Common Stock through December 31, 2017, and 14.7 million shares remain under this authority as of December 31, 2016. 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.

We discuss our credit agreement and our accounts receivable securitization program in Note 8 of our Notes to Consolidated Financial Statements, 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 45.1% at December 31, 2016, compared with 45.3% at December 31, 2015.

Upcoming annual debt maturities are relatively modest (Note 8). 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 ESTIMATES

The preparation of financial statements in accordance with U.S. Generally Accepted Accounting Principles (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 significant 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. We regularly discuss the development, selection, and disclosures concerning critical accounting estimates with the Audit Committee of the Board of Directors.

Pensions and Other Postretirement Benefits

Accounting for pensions and other postretirement benefit plans requires us to make several estimates and assumptions (Note 11). 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 $21 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

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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 6). As disclosed in Note 1, the primary depreciation method for our asset base is group life. Units of production is the principal method of depreciation for rail in high density corridors. Remaining properties are depreciated generally using the straight-line method over the lesser of estimated service or lease lives. See Note 1 for a more detailed discussion of the assumptions and estimates in this area.

Depreciation expense for 2016 totaled $1.0 billion. Our composite depreciation rates for 2016 are disclosed in Note 6; a one-tenth percentage point increase (or decrease) in these rates would have resulted in a $39 million increase (or decrease) to depreciation expense. For 2016, roadway depreciation rates ranged from 0.83% to 14.86% and equipment depreciation rates ranged from 1.38% to 30.18%.

Personal Injury, Environmental, and Legal Liabilities

Casualties and other claims expense, included in “Materials and other” in the Consolidated Statements of Income, consists primarily of our accrual for personal injury liabilities and environmental remediation costs.

To aid in valuing our personal injury liability and determining the amount to accrue during each period, 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.

We are subject to various jurisdictions’ environmental laws and regulations. We record a liability where such liability or loss is probable and its amount can be estimated reasonably. Environmental engineers regularly participate in ongoing evaluations of all known sites and in determining any necessary adjustments to liability estimates. Additionally, our Environmental Policy Council (composed of senior managers) oversees and interprets our environmental policy.

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.

For a more detailed discussion of the assumptions and estimates in accounting for personal injury and environmental matters see Note 16.

Income Taxes

Our net deferred tax liability totaled $9.1 billion at December 31, 2016 (Note 3). 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 $39 million valuation allowance on $628 million of deferred tax assets as of December 31, 2016, 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 Act are completed. We largely bargain nationally in concert with other major railroads, represented by the National Carriers Conference Committee (NCCC). Moratorium provisions in the labor agreements govern when the railroads and unions may propose changes to the agreements.

Beginning in late 2014, the NCCC and the various unions exchanged new proposals to begin the current round of national negotiations. The unions have formed three separate bargaining coalitions and negotiations with each are ongoing with the assistance of mediators from the National Mediation Board. Separately, in January 2015 we reached an agreement covering wages and work rules through 2019 with the Brotherhood of Locomotive Engineers and Trainmen (BLET), which represents approximately 20% of our union workforce. Changes to the BLET benefit plan will be bargained nationally through the NCCC.

Market Risks

We manage overall exposure to fluctuations in interest rates by issuing both fixed- and floating-rate debt instruments. At December 31, 2016, debt subject to interest rate fluctuations totaled $200 million. A one-percentage point increase in interest rates would increase total annual interest expense related to all variable debt by approximately $2 million. 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.

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,” “consider,” “predict,” “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 Part II, 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 Norfolk Southern Corporation 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 Part II, 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 6, 2017

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, 2016. 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, 2016.

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, 2016.

/s/ James A. Squires	/s/ Marta R. Stewart	/s/ Thomas E. Hurlbut
James A. Squires	Marta R. Stewart	Thomas E. Hurlbut
Chairman, President and Chief Executive Officer	Executive Vice President Finance and Chief Financial Officer	Vice President and Controller

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Norfolk Southern Corporation:

We have audited Norfolk Southern Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Norfolk Southern Corporation'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 conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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 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.

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.

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.

In our opinion, Norfolk Southern Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, 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), the consolidated balance sheets of Norfolk Southern Corporation and subsidiaries as of December 31, 2016 and 2015, and 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, 2016, and our report dated February 6, 2017 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP
KPMG LLP

Norfolk, Virginia
February 6, 2017

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Norfolk Southern Corporation:

We have audited the accompanying consolidated balance sheets of Norfolk Southern Corporation and subsidiaries as of December 31, 2016 and 2015, and 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, 2016. In connection with our audits of the consolidated financial statements, we also have audited the financial statement schedule of valuation and qualifying accounts as listed in Item 15(A)2. These consolidated financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Norfolk Southern Corporation and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the related financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Norfolk Southern Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 6, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP
KPMG LLP
Norfolk, Virginia
February 6, 2017

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Income

	Years ended December 31,		
	2016	2015	2014
	($ in millions, except per share amounts)		
Railway operating revenues	$9,888	$10,511	$11,624
Railway operating expenses:			
Compensation and benefits	2,743	2,911	2,897
Purchased services and rents	1,548	1,752	1,687
Fuel	698	934	1,574
Depreciation	1,026	1,054	951
Materials and other	799	976	940
Total railway operating expenses	6,814	7,627	8,049
Income from railway operations	3,074	2,884	3,575
Other income – net	71	103	104
Interest expense on debt	563	545	545
Income before income taxes	2,582	2,442	3,134
Provision for income taxes	914	886	1,134
Net income	$1,668	$1,556	$2,000
Per share amounts:			
Net income			
Basic	$5.66	$5.13	$6.44
Diluted	5.62	5.10	6.39

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Comprehensive Income

	Years ended December 31,		
	2016	2015	2014
	($ in millions)		
Net income	$1,668	$1,556	$2,000
Other comprehensive loss, before tax:			
Pension and other postretirement benefits	(74)	(76)	(15)
Other comprehensive income (loss) of equity investees	5	—	(8)
Other comprehensive loss, before tax	(69)	(76)	(23)
Income tax benefit related to items of other comprehensive loss	27	29	6
Other comprehensive loss, net of tax	(42)	(47)	(17)
Total comprehensive income	$1,626	$1,509	$1,983

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Balance Sheets

	At December 31,	
	2016	2015
	($ in millions)	
Assets		
Current assets:		
Cash and cash equivalents	$956	$1,101
Accounts receivable – net	945	946
Materials and supplies	257	271
Other current assets	133	194
Total current assets	2,291	2,512
Investments	2,777	2,572
Properties less accumulated depreciation of $11,737 and $11,478, respectively	29,751	28,992
Other assets	73	63
Total assets	$34,892	$34,139
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$1,215	$1,091
Short-term debt	100	200
Income and other taxes	245	203
Other current liabilities	229	237
Current maturities of long-term debt	550	500
Total current liabilities	2,339	2,231
Long-term debt	9,562	9,393
Other liabilities	1,442	1,385
Deferred income taxes	9,140	8,942
Total liabilities	22,483	21,951
Stockholders' equity:		
Common Stock $1.00 per share par value, 1,350,000,000 shares authorized; outstanding 290,417,610 and 297,795,016 shares, respectively, net of treasury shares	292	299
Additional paid-in capital	2,179	2,143
Accumulated other comprehensive loss	(487)	(445)
Retained income	10,425	10,191
Total stockholders' equity	12,409	12,188
Total liabilities and stockholders' equity	$34,892	$34,139

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Cash Flows

	Years ended December 31,		
	2016	2015	2014
	($ in millions)		
Cash flows from operating activities:			
Net income	$1,668	$1,556	$2,000
Reconciliation of net income to net cash provided by operating activities:			
Depreciation	1,030	1,059	956
Deferred income taxes	227	320	294
Gains and losses on properties and investments	(46)	(30)	(13)
Changes in assets and liabilities affecting operations:			
Accounts receivable	23	109	(31)
Materials and supplies	42	(35)	(13)
Other current assets	82	192	(260)
Current liabilities other than debt	158	(152)	116
Other – net	(150)	(111)	(134)
Net cash provided by operating activities	3,034	2,908	2,915
Cash flows from investing activities:			
Property additions	(1,887)	(2,385)	(2,118)
Property sales and other transactions	130	63	114
Investment purchases	(123)	(5)	(104)
Investment sales and other transactions	48	240	106
Net cash used in investing activities	(1,832)	(2,087)	(2,002)
Cash flows from financing activities:			
Dividends	(695)	(713)	(687)
Common Stock transactions	57	12	67
Purchase and retirement of Common Stock	(803)	(1,075)	(318)
Proceeds from borrowings – net	694	1,185	200
Debt repayments	(600)	(102)	(645)
Net cash used in financing activities	(1,347)	(693)	(1,383)
Net increase (decrease) in cash and cash equivalents	(145)	128	(470)
Cash and cash equivalents:			
At beginning of year	1,101	973	1,443
At end of year	$956	$1,101	$973
Supplemental disclosures of cash flow information:			
Cash paid during the year for:			
Interest (net of amounts capitalized)	$543	$518	$522
Income taxes (net of refunds)	593	386	1,102

See accompanying notes to consolidated financial statements.

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, 2013	$310	$ 2,021	$ (381)	$9,339	$11,289
Comprehensive income:					
Net income				2,000	2,000
Other comprehensive loss			(17)		(17)
Total comprehensive income					1,983
Dividends on Common Stock, $2.22 per share				(687)	(687)
Share repurchases	(3)	(20)		(295)	(318)
Stock-based compensation, including tax benefit of $37	3	147		(6)	144
Other				(3)	(3)
Balance at December 31, 2014	310	2,148	(398)	10,348	12,408
Comprehensive income:					
Net income				1,556	1,556
Other comprehensive loss			(47)		(47)
Total comprehensive income					1,509
Dividends on Common Stock, $2.36 per share				(713)	(713)
Share repurchases	(11)	(75)		(989)	(1,075)
Stock-based compensation, including tax benefit of $14		70		(8)	62
Other				(3)	(3)
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

See accompanying notes to consolidated financial statements.

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 (Norfolk Southern) is a Virginia-based holding company engaged principally in the rail transportation business, operating approximately 19,500 miles of road 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 2016): intermodal (22%); chemicals (17%); agriculture/consumer products/government (16%); coal (15%); metals/construction (13%); automotive (10%); and, paper/clay/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 U.S. 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. 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 the expectation of future activity. We regularly monitor our contract refund liability and, historically, the estimates have not differed significantly from the amounts ultimately refunded. Switching, demurrage and other incidental service revenues are recognized when the services are performed.

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 $4 million at December 31, 2016 and $3 million at December 31, 2015. 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.

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 market. The cost of materials and supplies expected to be used in property additions or improvements is included in "Properties."

Investments

Investments where we have the ability to exercise significant influence over 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. The primary depreciation method for our asset base is group life. Units of production is the principal method of depreciation for rail in high density corridors. Remaining properties are depreciated generally using the straight-line method over the lesser of estimated service or lease lives. "Depreciation" in the Consolidated Statements of Cash Flows includes both depreciation and depletion.

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 units of production depreciation rate for rail in high density corridors is derived based on consideration of annual gross ton miles 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 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 (curve or straight). As a result, a composite depreciation rate is developed which is applied to the depreciable base.

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 an 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.

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" (Note 2) 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.

Required Accounting Changes

In March 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2016-09, "Improvements to Employee Share-Based Payment Accounting." We adopted the provisions of this ASU during the first quarter of 2016. This update principally affected the recognition of excess tax benefits and deficiencies and the cash flow classification of share-based compensation-related transactions. The requirement to recognize excess tax benefits and deficiencies as income tax expense or benefit in the income statement was applied prospectively, with a benefit of $17 million recognized in the "Provision for income taxes" line item for the year ended December 31, 2016. The classification requirements on the Consolidated Statements of Cash Flows for the adoption of ASU 2016-09 resulted in a $34 million increase in operating activities and a corresponding decrease in financing activities for the year ended December 31, 2016. We retrospectively presented the Consolidated Statements of Cash Flows for the years ended December 31, 2015 and December 31, 2014 to reflect $31 million and $63 million, respectively, increases in operating activities and corresponding decreases in financing activities.

In November 2015, the FASB issued ASU No. 2015-17, "Balance Sheet Classification of Deferred Taxes." This update requires that deferred tax liabilities and assets be classified as noncurrent on the balance sheet rather than as separate current and noncurrent amounts. We retrospectively adopted the provisions of this ASU during the first quarter of 2016 and presented the December 31, 2015, Consolidated Balance Sheet to reflect the reclassification of $121 million of deferred income tax assets from current assets to "Deferred income taxes" in the long-term liabilities section of the balance sheet.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers." This update will replace most existing revenue recognition guidance in GAAP and require an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The new standard will be

effective for our annual and interim reporting periods beginning January 1, 2018. ASU 2014-09 permits the use of either the retrospective or cumulative effect transition method. We are still evaluating the effects

of ASU 2014-09, but we do not currently expect that adoption of the standard will have a material effect on our consolidated financial statements. There will be no change to our pattern of revenue recognition related to transportation revenue, which will continue to be recognized proportionally as a shipment moves from origin to destination. Certain additional financial statement disclosure requirements are mandated by the new standard including disclosure of contract assets and contract liabilities as well as a disaggregated view of revenue, which we expect to be similar to our current disclosure within the “Railway Operating Revenues” section of Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” We do not plan to adopt the standard early and we have not yet determined which transition method we will use.

In February 2016, the FASB issued ASU 2016-02, “Leases.” This update, effective for our annual and interim reporting periods beginning January 1, 2019, will replace existing lease guidance in GAAP and will require lessees to recognize lease assets and lease liabilities on the balance sheet for all leases greater than twelve months and disclose key information about leasing arrangements. When implemented, lessees and lessors will be required to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach. We are currently evaluating the effects ASU 2016-02 will have on our consolidated financial statements and related disclosures. We currently disclose approximately $614 million in operating lease obligations in our lease commitments footnote (Note 9) and we will evaluate those contracts as well as other existing arrangements to determine if they qualify for lease accounting under the new standard. We do not plan to adopt the standard early.

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.

2. Other Income – Net

"Other income – net" includes income and costs not part of rail operations and the income generated by the activities of our noncarrier subsidiaries as well as the costs incurred by those subsidiaries in their operations.

	2016	2015	2014
	($ in millions)		
Rental income	$93	$80	$75
Corporate-owned life insurance – net	20	(1)	24
Royalties from coal	10	19	33
Interest income	10	8	9
Gains and losses from sale of properties (including joint venture sales)	9	55	13
Nonoperating depletion and depreciation	(4)	(5)	(5)
Other interest expense – net	(6)	(4)	(12)
Charitable contributions	(9)	(9)	(9)
Taxes on nonoperating property	(11)	(10)	(9)
External advisor costs	(20)	(8)	—
Other	(21)	(22)	(15)
Total	$71	$103	$104

3. Income Taxes

Provisions for Income Taxes

	2016	2015	2014
	($ in millions)		
Current:			
Federal	$612	$505	$729
State	75	61	111
Total current taxes	687	566	840
Deferred:			
Federal	206	292	299
State	21	28	(5)
Total deferred taxes	227	320	294
Provision for income taxes	$914	$886	$1,134

Reconciliation of Statutory Rate to Effective Rate

The "Provision for income taxes" in the Consolidated Statements of Income differs from the amounts computed by applying the statutory federal corporate tax rate as follows:

	2016		2015		2014	
	Amount	%	Amount	%	Amount	%
	($ in millions)					
Federal income tax at statutory rate	$904	35.0	$855	35.0	$1,097	35.0
State income taxes, net of federal tax effect	70	2.8	72	3.0	88	2.8
Excess tax benefits associated with stock-based compensation, net of federal tax effect	(17)	(0.7)	—	—	—	—
State tax law changes, net of federal tax effect	(7)	(0.3)	(14)	(0.6)	(20)	(0.6)
Other, net	(36)	(1.4)	(27)	(1.1)	(31)	(1.0)
Provision for income taxes	$914	35.4	$886	36.3	$1,134	36.2

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,	
	2016	2015
	($ in millions)	
Deferred tax assets:		
Compensation and benefits, including postretirement benefits	$464	$430
Accruals, including casualty and other claims	102	108
Other	62	65
Total gross deferred tax assets	628	603
Less valuation allowance	(39)	(35)
Net deferred tax assets	589	568
Deferred tax liabilities:		
Property	(9,301)	(9,072)
Other	(428)	(438)
Total deferred tax liabilities	(9,729)	(9,510)
Deferred income taxes	$(9,140)	$(8,942)

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 $4 million in 2016 and $2 million in 2015.

Uncertain Tax Positions

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

	December 31,	
	2016	2015
	($ in millions)	
Balance at beginning of year	$25	$61
Additions based on tax positions related to the current year	3	4
Reductions for tax positions of prior years	—	(34)
Settlements with taxing authorities	—	(5)
Lapse of statutes of limitations	(1)	(1)
Balance at end of year	$27	$25

Included in the balance of unrecognized tax benefits at December 31, 2016, are potential benefits of $19 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.

IRS examinations have been completed for all years prior to 2013. We are not currently under audit by the IRS. 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.

4. Fair Value

Fair Value Measurements

FASB Accounting Standards Codification (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. Other than those assets and liabilities described below that approximate fair value, there were no assets or liabilities measured at fair value on a recurring basis at December 31, 2016 or 2015.

Fair Values of Financial Instruments

We have evaluated the fair values of financial instruments and methods used to determine those fair values. The fair values of “Cash and cash equivalents,” “Accounts receivable,” “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. The carrying amounts and estimated fair values for the remaining financial instruments, excluding investments accounted for under the equity method, consisted of the following at December 31:

	2016		2015	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	($ in millions)			
Long-term investments	$ 186	$ 211	$ 162	$ 190
Long-term debt, including current maturities	(10,112)	(11,626)	(9,893)	(11,124)

Underlying net assets and future discounted cash flows were used to estimate the fair value of investments. The fair values of long-term debt were estimated based on quoted market prices or discounted cash flows using current interest rates for debt with similar terms, company rating, and remaining maturity.

The following tables set forth the fair value of long-term investment and long-term debt balances disclosed above by valuation technique level, within the fair value hierarchy (there were no level 3 valued assets or liabilities).

	December 31, 2016		
	Level 1	Level 2	Total
	($ in millions)		
Long-term investments	$74	$137	$211
Long-term debt, including current maturities	(11,427)	(199)	(11,626)

	December 31, 2015		
	Level 1	Level 2	Total
	($ in millions)		
Long-term investments	$49	$141	$190
Long-term debt, including current maturities	(11,022)	(102)	(11,124)

5. Investments

	December 31,	
	2016	2015
	($ in millions)	
Long-term investments:		
Equity method investments:		
Conrail Inc.	$1,199	$1,147
TTX Company	471	445
Meridian Speedway LLC	274	274
Pan Am Southern LLC	155	153
Other	77	83
Total equity method investments	2,176	2,102
Company-owned life insurance at net cash surrender value	415	308
Other investments	186	162
Total long-term investments	$2,777	$2,572

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, 2016, based on the funded status of Conrail's pension plans, we increased our proportional investment in Conrail by $5 million. This resulted in income of $5 million recorded to "Other comprehensive loss" and a combined federal and state deferred tax liability of less than $1 million.

At December 31, 2015, based on the funded status of Conrail's pension plans, we increased our proportional investment in Conrail by $3 million. This resulted in income of $3 million recorded to "Other comprehensive loss" and a combined federal and state deferred tax liability of less than $1 million.

At December 31, 2016, the difference between our investment in Conrail and our share of Conrail's underlying net equity was $524 million. Our equity in the earnings of Conrail, net of amortization, included in "Purchased services and rents" was $47 million for 2016, $42 million for 2015, and $39 million for 2014.

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 $151 million in 2016, $154 million in 2015, and $144 million in 2014. Future minimum lease payments due to CRC under the Shared Assets Areas agreements are as follows: $37 million in each of 2017 through 2021 and $91 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 $8 million annually.

"Accounts payable" includes $129 million at December 31, 2016, and $71 million at December 31, 2015, due to Conrail for the operation of the Shared Assets Areas. "Other liabilities" includes $280 million at both December 31, 2016 and 2015 for long-term advances from Conrail, maturing 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 $229 million, $219 million, and $200 million of expense, respectively, for the years ended December 31, 2016, 2015 and 2014. Our equity in the earnings of TTX, also included in "Purchased services and rents," totaled $26 million for 2016, $21 million for 2015, and $19 million for 2014.

6. Properties

December 31, 2016	Cost	Accumulated Depreciation	Net Book Value	Depreciation Rate [1]
	($ in millions)			
Land	$2,330	$ —	$2,330	—
Roadway:				
Rail and other track material	6,632	(1,997)	4,635	2.46 %
Ties	5,011	(1,314)	3,697	3.25 %
Ballast	2,559	(584)	1,975	2.64 %
Construction in process	664	—	664	—
Other roadway	13,096	(3,361)	9,735	2.51 %
Total roadway	27,962	(7,256)	20,706	
Equipment:				
Locomotives	5,525	(2,199)	3,326	3.65 %
Freight cars	3,377	(1,345)	2,032	2.51 %
Computers and software	552	(329)	223	10.40 %
Construction in process	295	—	295	—
Other equipment	972	(329)	643	4.71 %
Total equipment	10,721	(4,202)	6,519	
Other property	475	(279)	196	0.83 %
Total properties	$41,488	$ (11,737)	$29,751	

December 31, 2015	Cost	Accumulated Depreciation	Net Book Value	Depreciation Rate [1]
	($ in millions)			
Land	$2,327	$ —	$2,327	—
Roadway:				
Rail and other track material	6,467	(1,944)	4,523	2.46 %
Ties	4,846	(1,229)	3,617	3.26 %
Ballast	2,468	(539)	1,929	2.64 %
Construction in process	686	—	686	—
Other roadway	12,662	(3,225)	9,437	2.54 %
Total roadway	27,129	(6,937)	20,192	
Equipment:				
Locomotives	5,291	(2,126)	3,165	3.31 %
Freight cars	3,437	(1,422)	2,015	2.87 %
Computers and software	500	(296)	204	11.25 %
Construction in process	237	—	237	—
Other equipment	1,074	(421)	653	6.09 %
Total equipment	10,539	(4,265)	6,274	
Other property	475	(276)	199	0.95 %
Total properties	$40,470	$ (11,478)	$28,992	

(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, 2016 and December 31, 2015, with accumulated depletion of $199 million and $198 million, respectively.

Capitalized Interest

Total interest cost incurred on debt was $583 million in 2016, $566 million in 2015, and $564 million in 2014, of which $20 million, $21 million, and $19 million, respectively, was capitalized.

7. Current Liabilities

	December 31,	
	2016	2015
	($ in millions)	
Accounts payable:		
Accounts and wages payable	$650	$602
Casualty and other claims (Note 16)	192	174
Vacation liability	134	135
Due to Conrail (Note 5)	129	71
Other	110	109
Total	$1,215	$1,091
Other current liabilities:		
Interest payable	$119	$123
Pension benefit obligations (Note 11)	16	16
Other	94	98
Total	$229	$237

8. Debt

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

	December 31,	
	2016	2015
	($ in millions)	
Notes and debentures:		
6.34% maturing to 2021	$2,632	$3,132
4.36% maturing 2022 to 2031	3,346	2,746
4.88% maturing 2037 to 2046	3,190	3,190
6.39% maturing 2097 to 2111	1,328	1,328
Securitization borrowings and capital leases	202	202
Discounts, premiums, and debt issuance costs	(486)	(505)
Total debt	10,212	10,093
Less current maturities and short-term debt	(650)	(700)
Long-term debt excluding current maturities and short-term debt	$9,562	$9,393

Long-term debt maturities subsequent to 2017 are as follows:	
2018	$600
2019	585
2020	314
2021	584
2022 and subsequent years	7,479
Total	$9,562

During the second quarter of 2016, we issued $600 million of 2.9% senior notes due 2026.

We have in place a $350 million receivables securitization facility under which 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 $100 million and repaid $100 million in both 2016 and 2015. The facility was renewed and amended in June 2016, extending it until June 2018.

At December 31, 2016, the amount outstanding under the receivables securitization facility was $200 million (at an average variable interest rate of 2.47%). Our intent is to refinance $100 million of these borrowings on a long-term basis, which is supported by our $750 million credit agreement (see below). Accordingly, $100 million of the outstanding amount is included within “Long-term debt” and the remaining $100 million outstanding is included in “Short-term debt.” At December 31, 2015, the amount outstanding was $200 million (at an average variable interest rate of 1.48%) included in “Short-term debt” in the Consolidated Balance Sheets. At December 31, 2016 and 2015, the receivables included in “Accounts receivable – net” serving as collateral for these borrowings totaled $704 million and $653 million, respectively.

Credit Agreement and Debt Covenants

We have in place and available a $750 million, five-year credit agreement which provides for borrowings at prevailing rates and includes covenants. In May 2016, we renewed our agreement, extending the facility until May 2021. We had no amounts outstanding under this facility at December 31, 2016 and 2015, and we are in compliance with all of its covenants.

9. Lease Commitments

We are committed under long-term lease agreements, which expire on various dates through 2067, for equipment, lines of road and other property. The following amounts do not include payments to CRC under the Shared Assets Areas agreements (Note 5). Future minimum lease payments and operating lease expense are as follows:

Future Minimum Lease Payments

	Operating Leases ($ in millions)
2017	$ 78
2018	71
2019	56
2020	54
2021	50
2022 and subsequent years	305
Total	$ 614

Operating Lease Expense

	2016	2015	2014
	($ in millions)		
Minimum rents	$98	$111	$109
Contingent rents	73	84	92
Total	$171	$195	$201

Contingent rents are primarily comprised of usage-based rent paid to other railroads for joint facility operations.

10. Other Liabilities

	December 31,	
	2016	2015
	($ in millions)	
Net other postretirement benefit obligations (Note 11)	$346	$347
Net pension benefit obligations (Note 11)	333	318
Long-term advances from Conrail (Note 5)	280	280
Casualty and other claims (Note 16)	178	191
Deferred compensation	112	117
Other	193	132
Total	$1,442	$1,385

11. 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	
	2016	2015	2016	2015
	($ in millions)			
Change in benefit obligations:				
Benefit obligation at beginning of year	$2,372	$2,429	$536	$571
Service cost	36	41	7	7
Interest cost	82	93	16	21
Actuarial losses (gains)	66	(64)	14	(7)
Plan amendments	—	—	—	(8)
Benefits paid	(136)	(127)	(45)	(48)
Benefit obligation at end of year	2,420	2,372	528	536
Change in plan assets:				
Fair value of plan assets at beginning of year	2,040	2,167	189	262
Actual return on plan assets	152	(14)	17	2
Employer contribution (reimbursement)[1]	17	14	21	(27)
Benefits paid	(136)	(127)	(45)	(48)
Fair value of plan assets at end of year	2,073	2,040	182	189
Funded status at end of year	$(347)	$(332)	$(346)	$(347)
Amounts recognized in the Consolidated Balance Sheets:				
Noncurrent assets	$2	$2	$—	$—
Current liabilities	(16)	(16)	—	—
Noncurrent liabilities	(333)	(318)	(346)	(347)
Net amount recognized	$(347)	$(332)	$(346)	$(347)
Amounts included in accumulated other comprehensive loss (before tax):				
Net loss	$940	$904	$30	$16
Prior service cost (benefit)	3	3	(307)	(331)

[1]Norfolk Southern is eligible to receive reimbursement from the Norfolk Southern Corporation Post-Retirement Benefits Trust (Trust), and the Trust had an outstanding liability to Norfolk Southern of $13 million as of December 31, 2016 and $30 million at December 31, 2015.

Our accumulated benefit obligation for our defined benefit pension plans is $2.2 billion at both December 31, 2016 and December 31, 2015. Our unfunded pension plans, included above, which in all cases have no assets and therefore have an accumulated benefit obligation in excess of plan assets, had projected benefit obligations of $286 million at December 31, 2016 and $274 million at December 31, 2015, and had accumulated benefit obligations of $252 million at both December 31, 2016 and December 31, 2015.

Pension and Other Postretirement Benefit Cost Components

	2016	2015	2014
	($ in millions)		
Pension benefits:			
Service cost	$36	$41	$34
Interest cost	82	93	93
Expected return on plan assets	(173)	(165)	(151)
Amortization of net losses	51	65	54
Amortization of prior service cost	—	—	1
Net cost (benefit)	$(4)	$34	$31
Other postretirement benefits:			
Service cost	$7	$7	$7
Interest cost	16	21	24
Expected return on plan assets	(17)	(19)	(18)
Amortization of prior service benefit	(24)	(24)	(20)
Net benefit	$(18)	$(15)	$(7)

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

	2016	
	Pension Benefits	Other Postretirement Benefits
	($ in millions)	
Net loss arising during the year	$87	$ 14
Amortization of net losses	(51)	—
Amortization of prior service benefit	—	24
Total recognized in other comprehensive loss	$36	$ 38
Total recognized in net periodic cost and other comprehensive loss	$32	$ 20

Net actuarial losses arising during the year for pension and other postretirement benefits were due primarily to a decrease in our discount rate.

The estimated net losses for the pension benefit plans that will be amortized from accumulated other comprehensive loss into net periodic cost over the next year are $52 million. The estimated prior service cost for the pension benefit plans and the 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 are $1 million and $24 million, respectively.

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:

	2016	2015	2014
Pension funded status:			
Discount rate	4.05%	4.30%	3.95%
Future salary increases	4.21%	4.50%	4.50%
Other postretirement benefits funded status:			
Discount rate	3.83%	4.02%	3.70%
Pension cost:			
Discount rate - service cost	4.64%	3.95%	4.60%
Discount rate - interest cost	3.51%	3.95%	4.60%
Return on assets in plans	8.25%	8.25%	8.25%
Future salary increases	4.50%	4.50%	4.50%
Other postretirement benefits cost:			
Discount rate[1] - service cost	4.36%	3.70%	3.90%
Discount rate[1]- interest cost	3.15%	3.70%	3.90%
Return on assets in plans	8.00%	8.00%	8.00%
Health care trend rate	6.30%	6.56%	6.94%

[1] 2014 other postretirement benefits cost was based on a discount rate of 4.65% prior to our retiree medical plan amendment in the first quarter of 2014, and 3.90% after the plan amendment.

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.

Effective January 1, 2016, we began using a spot rate approach to estimate the service cost and interest cost components of net periodic benefit cost for our pension and other postretirement benefits plans rather than a single weighted-average discount rate. This change in estimate did not affect the measurement of our total benefit obligations, but it did result in a total reduction in service and interest cost of $25 million for the year ended December 31, 2016.

Health Care Cost Trend Assumptions

For measurement purposes at December 31, 2016, increases in the per capita cost of pre-Medicare covered health care benefits were assumed to be 6.56% for 2017. It is assumed the rate will decrease gradually to an ultimate rate of 5.0% for 2023 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	
	Increase	Decrease
	($ in millions)	
Increase (decrease) in:		
Total service and interest cost components	$ 1	$ (1)
Postretirement benefit obligation	11	(10)

Asset Management

Ten 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. The fixed income portfolio is invested in the BlackRock Government/Credit Bond Index Fund. Equity investments must be in liquid securities listed on national exchanges. No investment is permitted in our securities (except through commingled pension trust funds). Investment managers' returns are expected to meet or exceed selected market indices by prescribed margins.

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

	Percentage of plan assets at December 31,	
	2016	2015
Domestic equity securities	51 %	50 %
International equity securities	24 %	23 %
Debt securities	23 %	25 %

Cash and cash equivalents	2 %	2 %
Total	100%	100%

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The other postretirement benefit plan assets consist primarily of trust-owned variable life insurance policies with an asset allocation at both December 31, 2016 and December 31, 2015 of 67% in equity securities and 33% in debt securities. 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 2017, 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: Valued at the net asset value (NAV) of shares held by the plan at year end. The readily determinable fair value is based on the quoted market prices of the underlying assets of the trusts. The common collective trusts hold equity securities, fixed income securities and cash and cash equivalents.

Commingled funds: Valued at the NAV of shares held by the plan at year end. The readily determinable fair value is based on the quoted market prices of the underlying assets of the funds. The commingled funds hold equity securities.

Interest bearing cash: 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.

U.S. government and agencies securities: Valued at an estimated price at which a dealer would pay for a security at year end using observable market-based inputs. Inflation adjusted instruments utilize the appropriate index factor.

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, 2016		
	Level 1	Level 2	Total
	($ in millions)		
Common stock	$1,142	$—	$1,142
Common collective trusts:			
Debt securities	—	481	481
International equity securities	—	324	324
Commingled funds	—	79	79
Interest bearing cash	43	—	43
U.S. government and agencies securities	—	4	4
Total investments	$1,185	$888	$2,073

	December 31, 2015		
	Level 1	Level 2	Total
	($ in millions)		
Common stock	$1,119	$—	$1,119
Common collective trusts:			
Debt securities	—	505	505
International equity securities	—	301	301
Commingled funds	—	77	77
Interest bearing cash	34	—	34
U.S. government and agencies securities	—	4	4
Total investments	$1,153	$887	$2,040

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 upon the aggregate market values of the underlying investments.

The other postretirement benefit plan assets consisted of trust-owned life insurance with fair values of $182 million and $189 million at December 31, 2016 and 2015 respectively, and are valued under level 2 of the fair value hierarchy. There were no level 1 or level 3 valued assets.

The methods used to value pension and other postretirement benefit plan assets may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while we believe our valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Contributions and Estimated Future Benefit Payments

In 2017, we expect to contribute approximately $16 million to our unfunded pension plans for payments to pensioners and approximately $44 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 2017.

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

	Pension Benefits	Other Postretirement Benefits
	($ in millions)	
2017	$139	$ 44
2018	141	43
2019	142	42
2020	142	41
2021	143	40
Years 2022 – 2026	723	180

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 $37 million in 2016, $32 million in 2015, and $36 million in 2014.

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 $21 million in both 2016 and 2015, and $20 million in 2014.

12. 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.

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, if employment of the participant is terminated for any reason

other than retirement, disability, or death, we have no further obligation to make any dividend equivalent payments. Should an employee terminate employment, they are not required to forfeit dividend equivalent payments already received. Outstanding PSUs do not currently receive dividend equivalent payments.

During 2016, the Committee granted stock options, RSUs and PSUs pursuant to the LTIP and granted stock options pursuant to the TSOP. Receipt of an award under the LTIP was made contingent upon the awardee's execution of a non-compete agreement, and all awards under the LTIP were made subject to forfeiture in the event the awardee "engages in competing employment" for a period of time following retirement.

Accounting Method

We account for our grants of stock options, RSUs, PSUs, and dividend equivalent payments in accordance with 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. Related compensation costs were $42 million in both 2016 and 2015, and $44 million in 2014. The total tax effects recognized in income in relation to stock-based compensation expense were net benefits of $31 million (including $17 million of excess tax benefits) in 2016, $13 million in 2015, and $14 million in 2014.

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.

The options granted under the LTIP and TSOP for the last three years are shown in the following table:

	2016		2015		2014	
	Options Granted	Weighted Avg. Exercise Price	Options Granted	Weighted Avg. Exercise Price	Options Granted	Weighted Avg. Exercise Price
LTIP	694,290	$ 70.40	643,890	$ 101.86	515,240	$ 94.17
TSOP	302,320	70.32	181,320	104.23	181,070	94.17
Total	996,610	70.38	825,210	102.38	696,310	94.17

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 2016, 2015, and 2014 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. The average expected option life 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 2016, 2015, and 2014, a dividend yield of 3.37%, 2.27%, and 2.29%, 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:

	2016	2015	2014
Average expected volatility	27 %	25 %	25 %
Average risk-free interest rate	2.00 %	1.83 %	2.79 %
Average expected option term LTIP	8.9 years	9.3 years	8.9 years
Per-share grant-date fair value LTIP	$19.92	$30.35	$29.87
Average expected option term TSOP	8.6 years	9.1 years	8.8 years
Per-share grant-date fair value TSOP	$14.75	$24.71	$24.38

A summary of the status of changes in stock options is presented below:

	Stock Options	Weighted Avg. Exercise Price
Outstanding at December 31, 2015	6,048,736	$ 67.90
Granted	996,610	70.38
Exercised	(1,466,721)	51.65
Forfeited	(24,571)	82.74
Outstanding at December 31, 2016	5,554,054	72.57

The aggregate intrinsic value of options outstanding at December 31, 2016, was $197 million with a weighted average remaining contractual term of 6.0 years. Of these options outstanding, 3,195,174 were exercisable and had an aggregate intrinsic value of $136 million with a weighted average exercise price of $65.50 and a weighted average remaining contractual term of 4.4 years.

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

	2016	2015	2014
	($ in millions)		
Options exercised	1,466,721	579,081	2,009,461
Total intrinsic value	$60	$ 27	$ 106
Cash received upon exercise	74	29	93
Related tax benefits realized	13	7	26

At December 31, 2016, total unrecognized compensation related to options granted under the LTIP and the TSOP was $10 million, and is expected to be recognized over a weighted-average period of approximately 2.2 years. Tax benefits realized in 2016 are recognized in the “Provision for income taxes.” Tax benefits realized in 2015 and 2014 were recognized as “Additional paid-in capital.”

Restricted Stock Units

RSU grants and grant-date fair values were 136,250 and $70.44 in 2016; 101,470 and $104.23 in 2015; and 113,505 and $94.17 in 2014. RSUs granted in all three years have a five-year restriction period and will be settled through the issuance of shares of Common Stock. The RSU grants include cash dividend equivalent payments during the restriction period in an amount equal to regular quarterly dividends paid on Common Stock. During 2016, 175,500 of the RSUs granted in 2011 vested, with 103,936 shares of Common Stock issued net of minimum withholding taxes. A summary of the status of and changes in RSUs is presented below:

	RSUs	Weighted-Average Grant-Date Fair Value
Nonvested at December 31, 2015	688,725	$ 78.14
Granted	136,250	70.44
Vested	(175,500)	62.75
Forfeited	(3,830)	82.20
Nonvested at December 31, 2016	645,645	80.68

At December 31, 2016, total unrecognized compensation related to RSUs was $7 million, and is expected to be recognized over a weighted-average period of approximately 3.1 years. The total related tax benefits realized in 2016 were $1 million and were recognized in the "Provision for income taxes." The total related tax benefits realized in 2015 and 2014 were $4 million and $6 million, respectively, and were recognized as "Additional paid-in capital."

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. PSU grants were 1,042,628 in 2016 with a weighted average grant-date fair value of $52.75. PSU grants were 413,770 and 399,530 in 2015 and 2014, respectively; with weighted-average grant-date fair values of $71.66 and $72.24, respectively. 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. During 2016, 406,038 of the PSUs granted in 2013 were earned, with 241,757 shares of Common Stock issued net of minimum withholding taxes. A summary of the status of and changes in PSUs is presented below:

	PSUs	Weighted-Average Grant-Date Fair Value
Balance at December 31, 2015	1,361,050	$ 71.09
Granted	1,042,628	52.75
Earned	(406,038)	69.83
Unearned	(142,662)	69.83
Forfeited	(5,970)	56.62
Balance at December 31, 2016	1,849,008	61.17

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At December 31, 2016, total unrecognized compensation related to PSUs granted under the LTIP was $4 million, and is expected to be recognized over a weighted-average period of approximately 1.8 years. The total related tax benefits realized were $3 million in 2016 which were recognized in the "Provision for income taxes." The total related tax benefits were $3 million in 2015 and $5 million in 2014 which were recognized as "Additional paid-in capital."

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:

	2016	2015	2014
Available for future grants:			
LTIP	9,385,674	11,769,796	4,899,428
TSOP	544,217	832,676	998,896
Issued:			
LTIP	1,511,645	708,059	2,168,641
TSOP	300,769	121,745	252,042

13. Stockholders' Equity

Common Stock

Common Stock is reported net of shares held by our consolidated subsidiaries (Treasury Shares). Treasury Shares at December 31, 2016 and 2015 amounted to 20,320,777, with a cost of $19 million at both dates.

Accumulated Other Comprehensive Loss

The components of "Other comprehensive 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	Net Income (Loss)	Reclassification Adjustments	Balance at End of Year
	($ in millions)			
Year ended December 31, 2016				
Pensions and other postretirement liabilities	$(367)	$ (64)	$ 17 [(1)]	$ (414)
Other comprehensive income (loss) of equity investees	(78)	5	—	(73)
Accumulated other comprehensive loss	$(445)	$ (59)	$ 17	$ (487)
Year ended December 31, 2015				
Pensions and other postretirement liabilities	$(320)	$ (72)	$ 25 [(1)]	$ (367)
Other comprehensive loss of equity investees	(78)	—	—	(78)
Accumulated other comprehensive loss	$(398)	$ (72)	$ 25	$ (445)

(1) These items are included in the computation of net periodic pension and postretirement benefit costs. See Note 11, "Pensions and Other Postretirement Benefits," for additional information.

Other Comprehensive Loss

"Other comprehensive 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, 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)
Year ended December 31, 2015			
Net gain (loss) arising during the year:			
Pensions and other postretirement benefits	$(117)	$ 45	$ (72)
Reclassification adjustments for costs included in net income	41	(16)	25
Other comprehensive loss	$(76)	$ 29	$ (47)
Year ended December 31, 2014			
Net gain (loss) arising during the year:			
Pensions and other postretirement benefits	$(50)	$ 19	$ (31)
Reclassification adjustments for costs included in net income	35	(14)	21
Subtotal	(15)	5	(10)
Other comprehensive loss of equity investees	(8)	1	(7)
Other comprehensive loss	$(23)	$ 6	$ (17)

14. Stock Repurchase Program

We repurchased and retired 9.2 million, 11.3 million, and 3.1 million shares of Common Stock under our stock repurchase program in 2016, 2015, and 2014, respectively, at a cost of $803 million, $1.1 billion, and $318 million, respectively. On August 1, 2012, our Board of Directors authorized the repurchase of up to an additional 50 million shares of Common Stock through December 31, 2017, and 14.7 million shares remain under this authority as of December 31, 2016. The timing and volume of purchases is guided by our assessment of market conditions and other pertinent factors. Any near-term share repurchases are expected to be made with internally generated cash, cash on hand, or proceeds from borrowings. Since the beginning of 2006, we have repurchased and retired 160.3 million shares at a total cost of $10.3 billion.

15. Earnings Per Share

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

	Basic			Diluted		
	2016	2015	2014	2016	2015	2014
	($ in millions except per share amounts, shares in millions)					
Net income	$1,668	$1,556	$2,000	$1,668	$1,556	$2,000
Dividend equivalent payments	(5)	(6)	(6)	(4)	(5)	(4)
Income available to common stockholders	$1,663	$1,550	$1,994	$1,664	$1,551	$1,996
Weighted-average shares outstanding	293.9	301.9	309.4	293.9	301.9	309.4
Dilutive effect of outstanding options and share-settled awards				2.1	2.5	3.1
Adjusted weighted-average shares outstanding				296.0	304.4	312.5
Earnings per share	$5.66	$5.13	$6.44	$5.62	$5.10	$6.39

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 the 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 as follows:

Period	2016	2015	2014
	(in millions)		
1st Quarter	1.5	—	0.7
2nd Quarter	1.5	0.7	—
3rd Quarter	1.5	1.5	—
4th Quarter	0.7	1.5	—

16. 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.

One of our chemical customers, Sunbelt, filed a rate reasonableness complaint before the STB alleging that our tariff rates for transportation of regulated movements are unreasonable. Since April 1, 2011, we have been billing and collecting amounts based on the challenged tariff rates. In 2014, the STB resolved this rate reasonableness complaint in our favor. In June 2016, the STB resolved petitions for reconsideration. The matter remains decided in our favor; however, the findings are still subject to appeal. We believe the estimate of any reasonably possible loss will not have a material effect on our financial position, results of operations, or liquidity. With regard to rate cases, we record adjustments to revenues in the periods if and when such adjustments are probable and reasonably estimable.

On November 6, 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. On June 21, 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. 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 accidental injury and occupational claims are subject to the FELA, which is applicable only to railroads. FELA's fault-based 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.

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Occupational claims – Occupational claims (including asbestosis and other respiratory diseases, as well as conditions allegedly related to repetitive motion) are often not caused by a specific accident or event but rather allegedly result from a claimed exposure over time. 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 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 its amount can be reasonably estimated. Environmental engineers regularly participate in ongoing evaluations of all known sites and in determining any necessary adjustments to liability estimates. We have an Environmental Policy Council, composed of senior managers, to oversee and interpret our environmental policy.

Our Consolidated Balance Sheets include liabilities for environmental exposures of $67 million at December 31, 2016, and $69 million at December 31, 2015 (of which $15 million is classified as a current liability at the end of both 2016 and 2015). At December 31, 2016, the liability represents our estimates of the probable cleanup, investigation, and remediation costs based on available information at 134 known locations and projects compared with 145 locations and projects at December 31, 2015. At December 31, 2016, 18 sites accounted for $46 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. Operating expenses for environmental matters totaled $31 million in 2016, $40 million in 2015, and $45 million in 2014 and are included in "Materials and other" and "Purchased services and rents."

At 10 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.

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, 2016, we had outstanding purchase commitments totaling approximately $1.3 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 2022.

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.

Guarantees

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)			
2016				
Railway operating revenues	$2,420	$2,454	$ 2,524	$ 2,490
Income from railway operations	723	770	820	761
Net income	387	405	460	416
Earnings per share:				
Basic	1.30	1.37	1.56	1.43
Diluted	1.29	1.36	1.55	1.42
2015				
Railway operating revenues	$2,567	$2,713	$ 2,713	$ 2,518
Income from railway operations	606	814	822	642
Net income	310	433	452	361
Earnings per share:				
Basic	1.01	1.43	1.50	1.21
Diluted	1.00	1.41	1.49	1.20

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

None.

Item 9A. Controls and Procedures

Evaluation of 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, 2016. Based on such evaluation, our officers have concluded that, at December 31, 2016, 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.

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.

In order to ensure that our internal control over financial reporting is effective, we regularly assess such controls and did so most recently as of December 31, 2016. This assessment was based on criteria for effective internal control over financial reporting set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013). Based on our assessment, we have concluded that we maintained effective internal control over financial reporting at December 31, 2016.

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 entirely 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, 2016. These reports appear in Part II, Item 8 of this report on Form 10-K.

During the fourth quarter of 2016, 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.

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 2016 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 "2016 Grants of Plan-Based Awards" table, including the narrative to such tables, the "Outstanding Equity Awards at Fiscal Year-End 2016" and "Option Exercises and Stock Vested in 2016" 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 2016 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 Item 403 of Regulation S-K, 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 2017 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, 2016)

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]	7,241,217 [4]	$ 71.77 [5]	9,385,674
Equity compensation plans not approved by securities holders[3]	1,117,069	75.75	553,217 [6]
Total	8,358,286		9,938,891

[1] Excludes securities reflected in column (a).
[2] LTIP.
[3] TSOP and the Director’s 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 2,804,732 outstanding RSUs and PSUs at December 31, 2016.
[6] Of the shares remaining available for grant under plans not approved by stockholders, 9,000 are available for grant as restricted stock under the Directors’ Restricted Stock Plan.

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 or Canada are eligible for selection to receive LTIP awards. Under LTIP, the Compensation Committee (Committee), or the Corporation’s chief executive 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 regular 2016 PSU awards, corporate performance will be measured using two equally weighted standards established by the Committee: (1) three-year average return on average capital invested and (2) total return to stockholders measured at the end of the three-year period. For the 2016 PSU awards, PSUs 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 is based on equally weighted standards established by the Committee for operating ratio and earnings per share.

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 2016 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 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 is 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. A maximum of 66,000 shares of Common Stock may be granted under the Plan. To make grants eligible to Directors, we purchase, through one or more subsidiary companies, the number of shares required in open-market transactions at prevailing market prices, or make such grants from Common Stock already owned by one or more of our subsidiary companies.

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 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 2017 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 2017 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 and Financial Statement Schedules

(A) The following documents are filed as part of this report:

1. Index to Consolidated Financial Statements

	Page
Report of Management	K 34
Reports of Independent Registered Public Accounting Firm	K 35
Consolidated Statements of Income, Years ended December 31, 2016, 2015, and 2014	K 37
Consolidated Statements of Comprehensive Income, Years ended December 31, 2016, 2015, and 2014	K 38
Consolidated Balance Sheets at December 31, 2016 and 2015	K 39
Consolidated Statements of Cash Flows, Years ended December 31, 2016, 2015, and 2014	K 40
Consolidated Statements of Changes in Stockholders' Equity, Years ended December 31, 2016, 2015, and 2014	K 41
Notes to Consolidated Financial Statements	K 42

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

Schedule II – Valuation and Qualifying Accounts	K 96

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
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.
(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.
(ii)	The Bylaws of Norfolk Southern Corporation, as amended November 28, 2016, are incorporated by reference to Exhibit 3(iii) to Norfolk Southern Corporation's Form 8-K filed on November 29, 2016.

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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 (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.

(c) Second Supplemental Indenture, dated April 26, 1999, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 1.1(c) to Norfolk Southern Corporation's Form 8-K filed on April 30, 1999.

(d) 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.

(e) 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.

(f) 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.

(g) 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.

(h) 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.

(i) 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.

(j) 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.

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(k) Indenture, dated as of April 4, 2008, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $600 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on April 9, 2008.

(l) Indenture, dated as of January 15, 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 4.1 to Norfolk Southern Corporation's Form 8-K filed on January 20, 2009.

(m) 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.

(n) 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.

(o) 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.

(p) 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.

(q) 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.

(r) 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.

(s) 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.

(t) 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.

(u) 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.

(v) 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.

(w) 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.

(x) 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.

(y) Indenture dated as of June 2, 2015, between 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 June 2, 2015.

(z) First Supplemental Indenture, dated as of June 2, 2015, 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 June 2, 2015.

(aa) Second Supplemental Indenture, dated as of November 3, 2015, 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 November 3, 2015.

(bb) 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.
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.

10 Material Contracts -

(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.

(b) 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.

(c) 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.

(d) 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.

(e) 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.

(f) 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.

(g) 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.

(h) 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.

(i) 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.

(j) 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.

(k) 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.

(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.

(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.

(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.

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(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.

(p) First Amendment, dated March 19, 2007, 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 10.3 to Norfolk Southern Corporation's Form 10-Q filed on July 27, 2007.

(q) 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).

(r) 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.

(s)* Norfolk Southern Corporation Executive Management Incentive Plan, as approved by shareholders May 14, 2015, is incorporated by reference to Exhibit 10-A to Norfolk Southern Corporation's Form 10-Q filed on July 27, 2015.

(t)* 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.

(u)* The Norfolk Southern Corporation Directors' Restricted Stock Plan, adopted January 1, 1994, and amended and restated effective as of January 23, 2014.

(v)* Supplemental Benefit Plan of Norfolk Southern Corporation and Participating Subsidiary Companies, adopted June 1, 1982, and as amended and restated effective as of September 30, 2014.

(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.

(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.

(y)* The Norfolk Southern Corporation Executive Life Insurance Plan, as amended and restated effective November 1, 2009, is incorporated by reference to Exhibit 10(cc) to Norfolk Southern Corporation's Form 10-K filed on February 17, 2010.

(z) 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.

(aa) Tax Agreement, dated as of August 27, 2004, by and among Green Acquisition Corp., Conrail Inc., Consolidated Rail Corporation, New York Central Lines LLC, and Pennsylvania Lines LLC, is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 8-K filed on September 2, 2004.

(bb)* 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.

(cc)*, ** The Norfolk Southern Corporation Long-Term Incentive Plan, as approved by shareholders May 14, 2015, and as amended July 29, 2016 and November 29, 2016.

(dd) 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).

(ee) 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.

(ff) 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.

(gg) 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.

(hh)*,** Retirement Plan of Norfolk Southern Corporation and Participating Subsidiary Companies effective June 1, 1982, as amended and restated effective January 1, 2016.

(ii) 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.

(jj) 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.

(kk) 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.

(ll) 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.

(mm) Amendment No. 5, dated as of December 23, 2009, 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.

(nn) 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.

(oo) 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.

(pp) 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.

(qq) 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.

(rr) 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.

(ss) Dealer Agreement dated as of January 23, 2008, between the Registrant and J. P. Morgan Securities Inc. is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on January 25, 2008.

(tt) Dealer Agreement dated as of January 23, 2008, between the Registrant and Goldman, Sachs & Co. is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 8-K filed on January 25, 2008.

(uu) 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.

(vv) 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).

(ww) 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 Southern Corporation's Form 10-K filed on February 18, 2009.

(xx)* 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.

(yy)* Norfolk Southern Corporation Executives' Deferred Compensation Plan, as amended effective June 26, 2013, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on July 24, 2013.

(zz)* 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.

(aaa)*	Norfolk Southern Corporation Restricted Stock Unit Plan, as amended effective January 1, 2009, is incorporated by reference to Exhibit 10.05 to Norfolk Southern Corporation's Form 8-K filed on July 24, 2008.
(bbb)	Amendment No. 1 to Transfer and Administration Agreement dated as of October 22, 2008, and effective as of October 23, 2008, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on October 23, 2006.
(ccc)*	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.
(ddd)*	Form of Amended and Restated Change in Control Agreement between Norfolk Southern Corporation and certain executive officers (including those defined as "named executive officers" and identified in the Corporation's Proxy Statement for the 2016 annual Meeting of Stockholders), is incorporated by reference to Exhibit 10(aaaa) to Norfolk Southern Corporation's Form 10-K filed on February 18, 2009.
(eee)	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).
(fff)	Credit Agreement dated as of December 14, 2011, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on December 15, 2011.
(ggg)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Outside Directors as approved by the Compensation Committee on November 28, 2016.
(hhh)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for performance share units approved by the Compensation Committee on November 28, 2016.
(iii)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for non-qualified stock options approved by the Compensation Committee on November 28, 2016.
(jjj)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for restricted stock units approved by the Compensation Committee on November 28, 2016.
(kkk)*,**	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.
(lll)	Performance Criteria for bonuses payable in 2018 for the 2017 incentive year. On November 29, 2016, the Compensation Committee of the Norfolk Southern Corporation Board of Directors adopted the following performance criteria for determining bonuses payable in 2018 for the 2017 incentive year under the Norfolk Southern Corporation Executive Management Incentive Plan: 50% based on operating income; 35% based on operating ratio; and 15% based on a composite of three transportation service measures, consisting of adherence to operating plan, connection performance, and train performance.
(mmm)	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.

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(nnn)*	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.
(ooo)*	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.
(ppp)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Performance Share Unit Incentive for Accelerated Five-Year Plan approved by the Compensation Committee on November 28, 2016.
(qqq)	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.
(rrr)	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.
(sss)	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.
(ttt)*	Restricted Stock Unit Award for Marta R. Stewart, granted on January 23, 2017, is incorporated herein by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on January 27, 2017.
12**	Statement re: Computation of Ratio of Earnings to Fixed Charges.
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, 2016, formatted in Extensible Business Reporting Language (XBRL) includes: (i) the Consolidated Statements of Income of each of the years ended December 31, 2016, 2015, and 2014; (ii) the Consolidated Statements of Comprehensive Income for each of the years ended December 31, 2016, 2015, and 2014; (iii) the Consolidated Balance Sheets at December 31, 2016 and 2015; (iv) the Consolidated Statements of Cash Flows for the years ended December 31, 2016, 2015, and 2014; (v) the Consolidated Statements of Changes in Stockholders' Equity for each of the three years ended December 31, 2016, 2015, and 2014; 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 2016 Form 10-K posted on our website at www.nscorp.com under “Investors” 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

POWER OF ATTORNEY

Each person whose signature appears on the next page under SIGNATURES hereby authorizes William A. Galanko and Marta R. Stewart, 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 William A. Galanko and Marta R. Stewart, 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 6th day of February, 2017.

/s/ James A. Squires
By: James A. Squires
(Chairman, President and Chief Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on this 6th day of February, 2017, 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/ Marta R. Stewart (Marta R. Stewart)	Executive Vice President Finance and Chief Financial Officer (Principal Financial Officer)
/s/ Thomas E. Hurlbut (Thomas E. Hurlbut)	Vice President and Controller (Principal Accounting Officer)
/s/ Thomas D. Bell, Jr. (Thomas D. Bell, Jr.)	Director
/s/ Erskine B. Bowles (Erskine B. Bowles)	Director
/s/ Robert A. Bradway (Robert A. Bradway)	Director
/s/ Wesley G. Bush (Wesley G. Bush)	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/ 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/ John R. Thompson (John R. Thompson)	Director

Schedule II
Norfolk Southern Corporation and Subsidiaries
Valuation and Qualifying Accounts
Years ended December 31, 2014, 2015, and 2016
($ in millions)

	Beginning Balance	Additions charged to: Expenses	Additions charged to: Other Accounts	Deductions	Ending Balance
Year ended December 31, 2014					
Valuation allowance (included net in deferred tax liability) for deferred tax assets	$ 32	$ 1	$ —	$ —	$ 33
Casualty and other claims included in other liabilities	214	71 [1]	—	86 [3]	199
Current portion of casualty and other claims included in accounts payable	166	19	132 [2]	130 [4]	187
Year ended December 31, 2015					
Valuation allowance (included net in deferred tax liability) for deferred tax assets	$ 33	$ 2	$ —	$ —	$ 35
Casualty and other claims included in other liabilities	199	66 [1]	—	74 [3]	191
Current portion of casualty and other claims included in accounts payable	187	19	119 [2]	151 [4]	174
Year ended December 31, 2016					
Valuation allowance (included net in deferred tax liability) for deferred tax assets	$ 35	$ 4	$ —	$ —	$ 39
Casualty and other claims included in other liabilities	191	68 [1]	—	81 [3]	178
Current portion of casualty and other claims included in accounts payable	174	25	101 [2]	108 [4]	192

[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.