UNION PACIFIC CORP
Form 10-K
February 03, 2017

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

[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

OR

[ ] 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 1-6075

UNION PACIFIC CORPORATION

(Exact name of registrant as specified in its charter)

	UTAH (State or other jurisdiction of incorporation or organization)	13-2626465 (I.R.S. Employer Identification No.)

1400 DOUGLAS STREET, OMAHA, NEBRASKA

(Address of principal executive offices)

68179

(Zip Code)

(402) 544-5000

(Registrant's telephone number, including area code)

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

Title of each Class	Name of each exchange on which registered
Common Stock (Par Value $2.50 per share)	New York Stock Exchange, Inc.

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

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

§ 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 No

§ Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).
Yes 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 the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

§ 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 the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer 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

As of June 30, 2016, the aggregate market value of the registrant's Common Stock held by non-affiliates (using the New York Stock Exchange closing price) was $72.7 billion.

The number of shares outstanding of the registrant's Common Stock as of January 27, 2017 was 813,795,240.

Documents Incorporated by Reference – Portions of the registrant's definitive Proxy Statement for the Annual Meeting of Shareholders to be held on May 11, 2017, are incorporated by reference into Part III of this report. The registrant's Proxy Statement will be filed with the Securities and Exchange Commission pursuant to Regulation 14A.

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February 3, 2017

Fellow Shareholders:

2016 was the second consecutive year of significant volume declines and business mix shifts at our company. However, even with these challenges, the Union Pacific team remained focused on the things which were in our control, enabling us to deliver solid results in a difficult environment. We generated earnings of $5.07 per share, compared with last year's $5.49 per share, and our operating ratio was 63.5, just 0.4 points worse than last year's record best 63.1 percent.

Market factors such as soft energy prices, the impact of the strong U.S. dollar on exports and a sluggish domestic consumer economy were the major drivers of a 7 percent decline in total volume last year. Carloadings were down in four of our six commodity groups, including a 20 percent decrease in coal traffic alone. On the positive side, a large U.S. grain harvest, along with strong global demand, drove a significant increase in our grain shipments, especially in the latter part of the year.

Throughout the year, the men and women of Union Pacific worked through these challenges by implementing the six Value Tracks that encompass our strategy for creating long-term value at our company.

The first of these Tracks is World Class Safety, and I am pleased to report that 2016 was an outstanding year for employee safety performance. Our reportable personal injury rate of 0.75 declined 14 percent from last year to an all-time record low. As we move forward, we continue to follow our safety strategy to yield record results on our way toward achieving our ultimate goal of an incident free environment. We have an unrelenting focus on risk reduction through internal programs such as Courage to Care and Total Safety Culture, so that every employee returns home safely at the end of each day.

As volumes decreased from 2015 levels, our Engaged Team, across the company, was successful in aligning our resources to meet demand while safely and efficiently serving our customers. Our operating metrics showed a step function improvement throughout last year. Average system velocity, as reported to the AAR, increased 5 percent and average terminal dwell improved 4 percent when compared to 2015. Through Innovation and the implementation of our "Grow to 55 and Zero" initiatives, we generated significant Resource Productivity, and have turbocharged our efforts toward further productivity in the future.

Our robust capital program helps ensure that we have the necessary resources and network capacity to provide an Excellent Customer Experience. It enables us to handle current volumes safely and efficiently, improve network fluidity, and prepare for future profitable growth. We invested about $3.5 billion in 2016, including about $1.8 billion in replacement capital to harden our infrastructure, and to improve the safety and resiliency of our network, as well as about $370 million toward completing the federally mandated Positive Train Control project. The largest driver of the $800 million reduction to this year's program was lower spending for locomotives and other equipment.

Targeted capital investment combined with a thoughtful approach to both existing markets and new business development all work to ensure that we continue to Maximize our Franchise value. A key reflection of increased value for our shareholders is in total shareholder return, which increased 36% in 2016, compared with 12% for the S&P 500. While return on invested capital* of 12.7 percent fell short of last year's 14.3 percent, Union Pacific was able to increase our quarterly declared dividend per share by 10 percent, with dividends paid in 2016 totaling $1.9 billion. We also repurchased 35 million Union Pacific shares, which was 4 percent of total shares outstanding. Between dividends and share repurchases, Union Pacific returned $5 billion to our shareholders in 2016.

Looking to 2017, we are gaining optimism about some of the macro-economic indicators which drive our core business. Higher energy prices, favorable agricultural markets, and improving demand for U.S. consumer products all give us confidence we can return to year-over-year positive volume growth. The strength and diversity of the Union

Pacific franchise have us well-positioned to safely and efficiently leverage stronger volumes as our markets rebound and we continue to execute on our Strategic Value Tracks to generate strong returns for our shareholders.

Chairman, President and Chief Executive Officer

*See Item 7 of this report for reconciliations to U.S. GAAP.

DIRECTORS AND SENIOR MANAGEMENT

BOARD OF DIRECTORS

Andrew H. Card, Jr.
Former White House
Chief of Staff
Board Committees: Audit,
Compensation and Benefits

Erroll B. Davis, Jr.
Former Chairman,
President & CEO
Alliant Energy Corporation
Board Committees: Compensation
and Benefits (Chair), Corporate
Governance and Nominating

David B. Dillon
Former Chairman
The Kroger Company
Board Committees: Audit (Chair),
Compensation and Benefits

Lance M. Fritz
Chairman, President and
Chief Executive Officer
Union Pacific Corporation and
Union Pacific Railroad Company

Deborah C. Hopkins
Former Chief Executive Officer
Citi Ventures
Former Chief Innovation Officer
Citi
Board Committees: Corporate
Governance and Nominating, Finance

Charles C. Krulak
General, USMC, Ret.
Board Committees: Audit, Finance

Jane H. Lute
Former Chief Executive Officer
Center for Internet Security
Board Committees: Audit, Corporate
Governance and Nominating

Michael R. McCarthy
Chairman
McCarthy Group, LLC
Lead Independent Director
Board Committees: Corporate
Governance and Nominating (Chair),
Finance

Michael W. McConnell
General Partner and
Former Managing Partner
Brown Brothers Harriman & Co.
Board Committees: Audit, Finance

Thomas F. McLarty III
President
McLarty Associates
Board Committees: Finance (Chair),
Corporate Governance and
Nominating

Steven R. Rogel
Former Chairman
Weyerhaeuser Company
Board Committees: Compensation
and Benefits, Corporate Governance
and Nominating

Jose H. Villarreal
Advisor
Akin, Gump, Strauss, Hauer &
Feld, LLP
Board Committees: Audit,
Compensation and Benefits

SENIOR MANAGEMENT

Lance M. Fritz
Chairman, President and
Chief Executive Officer
Union Pacific Corporation and
Union Pacific Railroad Company

Eric L. Butler
Executive Vice President,
Chief Administrative Officer, and
Corporate Secretary

Robert M. Knight, Jr.
Executive Vice President
and Chief Financial Officer
Union Pacific Corporation

Scott D. Moore
Senior Vice President–
Corporate Relations
Union Pacific Corporation

Todd M. Rynaski
Vice President and Controller
Union Pacific Corporation

Cameron A. Scott
Executive Vice President and
Chief Operating Officer
Union Pacific Railroad Company

Lynden L. Tennison

Union Pacific Corporation

Diane K. Duren
Senior Vice President
Union Pacific Corporation

Rhonda S. Ferguson
Executive Vice President and
Chief Legal Officer
Union Pacific Corporation

Mary Sanders Jones
Vice President and Treasurer
Union Pacific Corporation

D. Lynn Kelley
Senior Vice President-Supply and
Continuous Improvement
Union Pacific Railroad Company

Joseph E. O'Connor, Jr.
Vice President–Labor Relations
Union Pacific Railroad Company

Patrick J. O'Malley
Vice President–Taxes and General
Tax Counsel
Union Pacific Corporation

Michael A. Rock
Vice President-External Relations
Union Pacific Corporation

Senior Vice President and
Chief Information Officer
Union Pacific Corporation

Elizabeth F. Whited
Executive Vice President and
Chief Marketing Officer
Union Pacific Railroad Company

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PART I

Item 1. Business

GENERAL

Union Pacific Railroad Company is the principal operating company of Union Pacific Corporation. One of America's most recognized companies, Union Pacific Railroad Company links 23 states in the western two-thirds of the country by rail, providing a critical link in the global supply chain. The Railroad's diversified business mix includes Agricultural Products, Automotive, Chemicals, Coal, Industrial Products and Intermodal. Union Pacific serves many of the fastest-growing U.S. population centers, operates from all major West Coast and Gulf Coast ports to eastern gateways, connects with Canada's rail systems and is the only railroad serving all six major Mexico gateways. Union Pacific provides value to its roughly 10,000 customers by delivering products in a safe, reliable, fuel-efficient and environmentally responsible manner.

Union Pacific Corporation was incorporated in Utah in 1969 and maintains its principal executive offices at 1400 Douglas Street, Omaha, NE 68179. The telephone number at that address is (402) 544-5000. The common stock of Union Pacific Corporation is listed on the New York Stock Exchange (NYSE) under the symbol "UNP".

For purposes of this report, unless the context otherwise requires, all references herein to "UPC", "Corporation", "Company", "we", "us", and "our" shall mean Union Pacific Corporation and its subsidiaries, including Union Pacific Railroad Company, which we separately refer to as "UPRR" or the "Railroad".

Available Information – Our Internet website is www.up.com. We make available free of charge on our website (under the "Investors" caption link) our Annual Reports on Form 10-K; our Quarterly Reports on Form 10-Q; eXtensible Business Reporting Language (XBRL) documents; our current reports on Form 8-K; our proxy statements; Forms 3, 4, and 5, filed on behalf of our directors and certain executive officers; and amendments to such reports filed or furnished pursuant to the Securities Exchange Act of 1934, as amended (the Exchange Act). We provide these reports and statements as soon as reasonably practicable after such material is electronically filed with, or furnished to, the Securities and Exchange Commission (SEC). We also make available on our website previously filed SEC reports and exhibits via a link to EDGAR on the SEC's Internet site at www.sec.gov. Additionally, our corporate governance materials, including By-Laws, Board Committee charters, governance guidelines and policies, and codes of conduct and ethics for directors, officers, and employees are available on our website. From time to time, the corporate governance materials on our website may be updated as necessary to comply with rules issued by the SEC and the NYSE or as desirable to promote the effective and efficient governance of our Company. Any security holder wishing to receive, without charge, a copy of any of our SEC filings or corporate governance materials should send a written request to: Secretary, Union Pacific Corporation, 1400 Douglas Street, Omaha, NE 68179.

We have included the Chief Executive Officer (CEO) and Chief Financial Officer (CFO) certifications regarding our public disclosure required by Section 302 of the Sarbanes-Oxley Act of 2002 as Exhibits 31(a) and (b) to this report.

References to our website address in this report, including references in Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7, are provided as a convenience and do not constitute, and should not be deemed, an incorporation by reference of the information contained on, or available through, the website. Therefore, such information should not be considered part of this report.

OPERATIONS

The Railroad, along with its subsidiaries and rail affiliates, is our one reportable operating segment. Although we provide revenue by commodity group, we analyze the net financial results of the Railroad as one segment due to the integrated nature of our rail network. Additional information regarding our business and operations, including revenue and financial information and data and other information regarding environmental matters, is presented in Risk Factors, Item 1A; Legal Proceedings, Item 3; Selected Financial Data, Item 6; Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7; and the Financial Statements and Supplementary Data, Item 8 (which include information regarding revenues, statements of income, and total assets).

Operations – UPRR is a Class I railroad operating in the U.S. We have 32,070 route miles, linking Pacific Coast and Gulf Coast ports with the Midwest and eastern U.S. gateways and providing several corridors to key Mexican gateways. We serve the Western two-thirds of the country and maintain coordinated schedules with other rail carriers to move freight to and from the Atlantic Coast, the Pacific Coast, the Southeast, the Southwest, Canada, and Mexico. Export and import traffic moves through Gulf Coast and Pacific Coast ports and across the Mexican and Canadian borders. Our freight traffic consists of bulk, manifest, and premium business. Bulk traffic primarily consists of coal, grain, soda ash, ethanol, rock and crude oil shipped in unit trains – trains transporting a single commodity from one origin to one destination. Manifest traffic includes individual carload or less than train-load business involving commodities such as lumber, steel, paper, food and chemicals. The transportation of finished vehicles, auto parts, intermodal containers and truck trailers are included as part of our premium business. In 2016, we generated freight revenues totaling $18.6 billion from the following six commodity groups:

2016 Freight Revenue

Agricultural Products – Transportation of grains, commodities produced from these grains, and food and beverage products generated 19% of the Railroad’s 2016 freight revenue. We access most major grain markets, linking the Midwest and Western U.S. producing areas to export terminals in the Pacific Northwest and Gulf Coast ports, as well as Mexico. We also serve significant domestic markets, including grain processors, animal feeders and ethanol producers in the Midwest, West, South and Rocky Mountain states. Unit trains, which transport a single commodity between producers and export terminals or domestic markets, represent approximately 41% of our agricultural shipments.

Automotive – We are the largest automotive carrier west of the Mississippi River and operate or access over 40 vehicle distribution centers. The Railroad’s extensive franchise serves five vehicle assembly plants and connects to West Coast ports, all six major Mexico gateways, and the Port of Houston to accommodate both import and export shipments. In addition to transporting finished vehicles, UPRR provides expedited handling of automotive parts in both boxcars and intermodal containers destined for Mexico, the U.S. and Canada. The automotive group generated 11% of Union Pacific’s freight revenue in 2016.

Chemicals – Transporting chemicals generated 19% of our freight revenue in 2016. The Railroad’s unique franchise serves the chemical producing areas along the Gulf Coast, where roughly 58% of the Company’s chemical business originates, travels through, or terminates. Our chemical franchise also accesses chemical producers in the Rocky Mountains and on the West Coast. The Company’s chemical shipments include six categories: industrial chemicals, plastics, fertilizer, petroleum and liquid petroleum gases, crude oil and soda ash. Currently, these products move primarily to and from the Gulf Coast region. Fertilizer movements originate in the Gulf Coast region, the western U.S. and Canada (through interline access) for delivery to major agricultural users in the Midwest, western U.S., as well as abroad. Soda ash originates in southwestern Wyoming and California, destined for chemical and glass producing markets in North America and abroad.

Coal – Shipments of coal, petroleum coke, and biomass accounted for 13% of our freight revenue in 2016. The Railroad’s network supports the transportation of coal, petroleum coke, and biomass to independent and regulated power companies and industrial facilities throughout the U.S. Through interchange gateways and ports, UPRR’s reach extends to eastern U.S. utilities, as well as to Mexico and other international destinations. Coal traffic originating in the Powder River Basin (PRB) area of Wyoming is the largest segment of the Railroad’s coal business.

Industrial Products – Our extensive network facilitates the movement of numerous commodities between thousands of origin and destination points throughout North America. The Industrial Products group consists of several categories, including construction products, minerals, consumer goods, metals, lumber, paper, and other miscellaneous products. In 2016, this group generated 18% of our total freight revenue. Commercial, residential and governmental infrastructure investments drive shipments of steel, aggregates (cement components), cement and wood products. Oil and gas drilling generates demand for raw steel, finished pipe, frac sand, stone and drilling fluid commodities. Industrial and light manufacturing plants receive steel, nonferrous materials, minerals and other raw materials. Paper and packaging commodities, as well as appliances, move to major metropolitan areas for consumers. Lumber shipments originate primarily in the Pacific Northwest and western Canada and move throughout the U.S. for use in new home construction and repair and remodeling.

Intermodal – Our Intermodal business includes two segments: international and domestic. International business consists of import and export container traffic that mainly passes through West Coast ports served by UPRR's extensive terminal network. Domestic business includes container and trailer traffic picked up and delivered within North America for intermodal marketing companies (primarily shipper agents and logistics companies), as well as truckload carriers. Less-than-truckload and package carriers with time-sensitive business requirements are also an important part of domestic shipments. Together, our international and domestic Intermodal business generated 20% of our 2016 freight revenue.

Seasonality – Some of the commodities we carry have peak shipping seasons, reflecting either or both the nature of the commodity and the demand cycle for the commodity (such as certain agricultural and food products that have specific growing and harvesting seasons). The peak shipping seasons for these commodities can vary considerably each year depending upon various factors, including the strength of domestic and international economies and currencies and the strength of harvests and market prices for agricultural products.

Working Capital – At December 31, 2016, we had a working capital deficit, which does not indicate a lack of liquidity. We maintain adequate resources and, when necessary, have adequate access to capital markets to meet any foreseeable cash requirements, in addition to sufficient financial capacity to satisfy our current liabilities. The decrease at 2016 year-end was primarily due to a decrease in other current assets related to a tax receivable for the late extension of bonus depreciation at December 31, 2015, along with an increase at December 31, 2016, in accounts payable and upcoming debt maturities. At December 31, 2015, we had a working capital surplus.

Competition – We are subject to competition from other railroads, motor carriers, ship and barge operators, and pipelines. Our main railroad competitor is Burlington Northern Santa Fe LLC. Its primary subsidiary, BNSF Railway Company (BNSF), operates parallel routes in many of our main traffic corridors. In addition, we operate in corridors served by other railroads and motor carriers. Motor carrier competition exists for five of our six commodity groups (excluding most coal shipments). Because of the proximity of our routes to major inland and Gulf Coast waterways, barges can be particularly competitive, especially for grain and bulk commodities in certain areas where we operate. In addition to price competition, we face competition with respect to transit times, quality and reliability of service from motor carriers and other railroads. Motor carriers in particular can have an advantage over railroads with respect to transit times and timeliness of service. However, railroads are much more fuel-efficient than trucks, which reduces the impact of transporting goods on the environment and public infrastructure, and we have been making efforts to convert certain truck traffic to rail. Additionally, we must build or acquire and maintain our rail system; trucks and barges are able to use public rights-of-way maintained by public entities. Any of the following could also affect the competitiveness of our transportation services for some or all of our commodities: (i) improvements or expenditures materially increasing the quality or reducing the costs of these alternative modes of transportation, (ii) legislation that eliminates or significantly reduces the size or weight limitations applied to motor carriers, or (iii) legislation or regulatory changes that impose operating restrictions on railroads or that adversely affect the profitability of some or all railroad traffic. Finally, many movements face product or geographic competition where our customers can use different products (e.g. natural gas instead of coal, sorghum instead of corn) or commodities from different locations (e.g. grain from states or countries that we do not serve, crude oil from different regions). Sourcing different commodities or different locations allows shippers to substitute different carriers and such competition may reduce our volume or constrain prices. For more information regarding risks we face from competition, see the Risk Factors in Item 1A of this report.

Key Suppliers – We depend on two key domestic suppliers of high horsepower locomotives. Due to the capital intensive nature of the locomotive manufacturing business and sophistication of this equipment, potential new suppliers face high barriers of entry into this industry. Therefore, if one of these domestic suppliers discontinues manufacturing locomotives for any reason, including insolvency or bankruptcy, we could experience a significant cost increase and risk reduced availability of the locomotives that are necessary to our operations. Additionally, for a high percentage of our rail purchases, we utilize two steel producers (one domestic and one international) that meet our specifications. Rail is critical for maintenance, replacement, improvement, and expansion of our network and facilities. Rail manufacturing also has high barriers of entry, and, if one of those suppliers discontinues operations for any reason, including insolvency or bankruptcy, we could experience cost increases and difficulty obtaining rail.

Employees – Approximately 84% of our 42,919 full-time-equivalent employees are represented by 14 major rail unions. On January 1, 2015, current labor agreements became subject to modification and we began the current round of negotiations with the unions. Existing agreements remain in effect until new agreements are reached or the Railway Labor Act's (RLA) procedures (which include mediation, cooling-off periods, and the possibility of Presidential Emergency Boards and Congressional intervention) are exhausted. The railroad industry is currently in mediation with all bargaining coalitions. Under the Railway Labor Act, the National Mediation Board controls timing and location of mediation conferences and when to terminate mediation, moving the parties to the next stages of the RLA process. Contract negotiations historically continue for an extended period of time and we rarely experience work stoppages while negotiations are pending.

Railroad Security – Our security efforts consist of a wide variety of measures including employee training, engagement with our customers, training of emergency responders, and partnerships with numerous federal, state, and local government agencies. While federal law requires us to protect the confidentiality of our security plans designed to safeguard against terrorism and other security incidents, the following provides a general overview of our security initiatives.

UPRR Security Measures – We maintain a comprehensive security plan designed to both deter and respond to any potential or actual threats as they arise. The plan includes four levels of alert status, each with its own set of countermeasures. We employ our own police force, consisting of more than 250 commissioned and highly-trained officers. Our employees also undergo recurrent security and preparedness training, as well as federally-mandated hazardous materials and security training. We regularly review the sufficiency of our employee training programs. We maintain the capability to move critical operations to back-up facilities in different locations.

We operate an emergency response management center 24 hours a day. The center receives reports of emergencies, dangerous or potentially dangerous conditions, and other safety and security issues from our employees, the public, law enforcement and other government officials. In cooperation with government officials, we monitor both threats and public events, and, as necessary, we may alter rail traffic flow at times of concern to minimize risk to communities and our operations. We comply with the hazardous materials routing rules and other requirements imposed by federal law. We also design our operating plan to expedite the movement of hazardous material shipments to minimize the time rail cars remain idle at yards and terminals located in or near major population centers. Additionally, in compliance with Transportation Security Agency regulations, we deployed information systems and instructed employees in tracking and documenting the handoff of Rail Security Sensitive Materials with customers and interchange partners.

We also have established a number of our own innovative safety and security-oriented initiatives ranging from various investments in technology to The Officer on the Train program, which provides local law enforcement officers with the opportunity to ride with train crews to enhance their understanding of railroad operations and risks. Our staff of information security professionals continually assesses cyber security risks and implements mitigation programs that evolve with the changing technology threat environment. To date, we have not experienced any material disruption of our operations due to a cyber threat or attack directed at us.

Cooperation with Federal, State, and Local Government Agencies – We work closely on physical and cyber security initiatives with government agencies, including the U.S. Department of Transportation (DOT) and the Department of Homeland Security (DHS) as well as local police departments, fire departments, and other first responders. In conjunction with the Association of American Railroads (AAR), we sponsor Ask Rail, a mobile application which provides first responders with secure links to electronic information, including commodity and emergency response information required by emergency personnel to respond to accidents and other situations. We also participate in the National Joint Terrorism Task Force, a multi-agency effort established by the U.S. Department of Justice and the Federal Bureau of Investigation to combat and prevent terrorism.

We work with the Coast Guard, U.S. Customs and Border Protection (CBP), and the Military Transport Management Command, which monitor shipments entering the UPRR rail network at U.S. border crossings and ports. We were the first railroad in the U.S. to be named a partner in CBP's Customs-

Trade Partnership Against Terrorism, a partnership designed to develop, enhance, and maintain effective security processes throughout the global supply chain.

Cooperation with Customers and Trade Associations – Through TransCAER (Transportation Community Awareness and Emergency Response) we work with the AAR, the American Chemistry Council, the American Petroleum Institute, and other chemical trade groups to provide communities with preparedness tools, including the training of emergency responders. In cooperation with the Federal Railroad Administration (FRA) and other interested groups, we are also working to develop additional improvements to tank car design that will further limit the risk of releases of hazardous materials.

GOVERNMENTAL AND ENVIRONMENTAL REGULATION

Governmental Regulation – Our operations are subject to a variety of federal, state, and local regulations, generally applicable to all businesses. (See also the discussion of certain regulatory proceedings in Legal Proceedings, Item 3.)

The operations of the Railroad are also subject to the regulatory jurisdiction of the STB. The STB has jurisdiction over rates charged on certain regulated rail traffic; common carrier service of regulated traffic; freight car compensation; transfer, extension, or abandonment of rail lines; and acquisition of control of rail common carriers. In 2016, the STB continued its efforts to explore expanding rail regulation and is reviewing proposed rulemaking in various areas, including reciprocal switching, commodity exemptions, and expanding and easing procedures for smaller rate complaints. The STB also continues to develop a methodology for determining railroad revenue adequacy and the possible use of a revenue adequacy constraint in regulating railroad rates.

The Surface Transportation Board Reauthorization Act of 2015 became law on December 18, 2015. The legislation increased the number of STB board members from three to five, requires the STB to post quarterly reports on rate reasonableness cases and maintain a database on service complaints, and grants the STB authority to initiate investigations, among other things.

The operations of the Railroad also are subject to the regulations of the FRA and other federal and state agencies. In 2010, the FRA issued initial rules governing installation of Positive Train Control (PTC) by the end of 2015. On October 29, 2015, Congress extended the December 31, 2015, PTC implementation deadline until December 31, 2018. The PTC implementation deadline may be extended to December 31, 2020, provided certain other criteria are satisfied. We submitted our required PTC safety plan to the FRA in the first half of 2016. PTC is a collision avoidance technology intended to override engineer controlled locomotives and stop train-to-train and overspeed accidents, misaligned switch derailments, and unauthorized entry to work zones. Through 2016, we have invested approximately $2.3 billion in the ongoing development of PTC.

On May 1, 2015, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued final rules governing the transportation of flammable liquids. The final rule included provisions for improved tank car standards, braking system requirements, community notification, and operating restrictions for certain trains carrying flammable liquids. Subsequently, Congress enacted the Fixing America's Surface Transportation Act, which requires the Government Accountability Office (GAO) to conduct an independent study on the rule's proposed braking system requirements. In October, 2016, GAO released the results of its study, concluding that the proposed rule suffered from limited data; that the modeling DOT used in the rule was not replicable; and that DOT had a lack of transparency in parts of its rulemaking process. The study recommended DOT conduct additional evaluation and analysis of its ECP braking system requirement.

DOT, the Occupational Safety and Health Administration, PHMSA and DHS, along with other federal agencies, have jurisdiction over certain aspects of safety, movement of hazardous materials and hazardous waste, emissions requirements, and equipment standards. Additionally, various state and local agencies have jurisdiction over disposal of hazardous waste and seek to regulate movement of hazardous materials in ways not preempted by federal law.

Environmental Regulation – We are subject to extensive federal and state environmental statutes and regulations pertaining to public health and the environment. The statutes and regulations are administered and monitored by the Environmental Protection Agency (EPA) and by various state environmental agencies. The primary laws affecting our operations are the Resource Conservation and Recovery Act, regulating the management and disposal of solid and hazardous wastes; the

Comprehensive Environmental Response, Compensation, and Liability Act, regulating the cleanup of contaminated properties; the Clean Air Act, regulating air emissions; and the Clean Water Act, regulating waste water discharges.

Information concerning environmental claims and contingencies and estimated remediation costs is set forth in Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies – Environmental, Item 7 and Note 18 to the Consolidated Financial Statements in Item 8, Financial Statements and Supplementary Data.

Item 1A. Risk Factors

The information set forth in this Item 1A should be read in conjunction with the rest of the information included in this report, including Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7, and Financial Statements and Supplementary Data, Item 8.

We Must Manage Fluctuating Demand for Our Services and Network Capacity – If there are significant reductions in demand for rail services with respect to one or more commodities or changes in consumer preferences that affect the businesses of our customers, we may experience increased costs associated with resizing our operations, including higher unit operating costs and costs for the storage of locomotives, rail cars, and other equipment; work-force adjustments; and other related activities, which could have a material adverse effect on our results of operations, financial condition, and liquidity. If there is significant demand for our services that exceeds the designed capacity of our network, we may experience network difficulties, including congestion and reduced velocity, that could compromise the level of service we provide to our customers. This level of demand may also compound the impact of weather and weather-related events on our operations and velocity. Although we continue to improve our transportation plan, add capacity, improve operations at our yards and other facilities, and improve our ability to address surges in demand for any reason with adequate resources, we cannot be sure that these measures will fully or adequately address any service shortcomings resulting from demand exceeding our planned capacity. We may experience other operational or service difficulties related to network capacity, dramatic and unplanned fluctuations in our customers' demand for rail service with respect to one or more commodities or operating regions, or other events that could negatively impact our operational efficiency, any of which could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Transport Hazardous Materials – We transport certain hazardous materials and other materials, including crude oil, ethanol, and toxic inhalation hazard (TIH) materials, such as chlorine, that pose certain risks in the event of a release or combustion. Additionally, U.S. laws impose common carrier obligations on railroads that require us to transport certain hazardous materials regardless of risk or potential exposure to loss. A rail accident or other incident or accident on our network, at our facilities, or at the facilities of our customers involving the release or combustion of hazardous materials could involve significant costs and claims for personal injury, property damage, and environmental penalties and remediation in excess of our insurance coverage for these risks, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Are Subject to Significant Governmental Regulation – We are subject to governmental regulation by a significant number of federal, state, and local authorities covering a variety of health, safety, labor, environmental, economic (as discussed below), and other matters. Many laws and regulations require us to obtain and maintain various licenses, permits, and other authorizations, and we cannot guarantee that we will continue to be able to do so. Our failure to comply with applicable laws and regulations could have a material adverse effect on us. Governments or regulators may change the legislative or regulatory frameworks within which we operate without providing us any recourse to address any adverse effects on our business, including, without limitation, regulatory determinations or rules regarding dispute resolution, increasing the amount of our traffic subject to common carrier regulation, business relationships with other railroads, calculation of our cost of capital or other inputs relevant to computing our revenue adequacy, the prices we charge, and costs and expenses. Significant legislative activity in Congress or regulatory activity by the STB could expand regulation of railroad operations and prices for rail services, which could reduce capital spending on our rail network, facilities and equipment and have a material adverse effect on our results of operations, financial condition, and liquidity. As part of the Rail Safety Improvement Act of 2008, rail carriers were to implement PTC by the end of 2015 (the Rail Safety Improvement Act). The Surface Transportation Extension Act of 2015 amended the Rail Safety Improvement Act to require implementation of PTC by the end of 2018, which deadline may be extended to December 31, 2020, provided certain other criteria are satisfied. This implementation could have a material adverse effect on our ability to make other capital investments. Additionally, one or more consolidations of Class I railroads could also lead to increased regulation of the rail industry.

We May Be Affected by General Economic Conditions – Prolonged severe adverse domestic and global economic conditions or disruptions of financial and credit markets may affect the producers and consumers of the commodities we carry and may have a material adverse effect on our access to liquidity and our results of operations and financial condition.

We Face Competition from Other Railroads and Other Transportation Providers – We face competition from other railroads, motor carriers, ships, barges, and pipelines. In addition to price competition, we face competition with respect to transit times and quality and reliability of service. We must build or acquire and maintain our rail system, while trucks, barges and maritime operators are able to use public rights-of-way maintained by public entities. Any future improvements or expenditures materially increasing the quality or reducing the cost of alternative modes of transportation, or legislation that eliminates or significantly reduces the burden of the size or weight limitations currently applicable to motor carriers, could have a material adverse effect on our results of operations, financial condition, and liquidity. Additionally, any future consolidation of the rail industry could materially affect the competitive environment in which we operate.

We Rely on Technology and Technology Improvements in Our Business Operations – We rely on information technology in all aspects of our business. If we do not have sufficient capital to acquire new technology or if we are unable to develop or implement new technology such as PTC or the latest version of our transportation control systems, we may suffer a competitive disadvantage within the rail industry and with companies providing other modes of transportation service, which could have a material adverse effect on our results of operations, financial condition, and liquidity. Additionally, if a cyber attack or other event causes significant disruption or failure of one or more of our information technology systems, including computer hardware, software, and communications equipment, we could suffer a significant service interruption, safety failure, security breach, or other operational difficulties, which could have a material adverse impact on our results of operations, financial condition, and liquidity.

We May Be Subject to Various Claims and Lawsuits That Could Result in Significant Expenditures – As a railroad with operations in densely populated urban areas and other cities and a vast rail network, we are exposed to the potential for various claims and litigation related to labor and employment, personal injury, property damage, environmental liability, and other matters. Any material changes to litigation trends or a catastrophic rail accident or series of accidents involving any or all of property damage, personal injury, and environmental liability that exceed our insurance coverage for such risks could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Are Subject to Significant Environmental Laws and Regulations – Due to the nature of the railroad business, our operations are subject to extensive federal, state, and local environmental laws and regulations concerning, among other things, emissions to the air; discharges to waters; handling, storage, transportation, disposal of waste and other materials; and hazardous material or petroleum releases. We generate and transport hazardous and non-hazardous waste in our operations, and we did so in our former operations. Environmental liability can extend to previously owned or operated properties, leased properties, and properties owned by third parties, as well as to properties we currently own. Environmental liabilities have arisen and may also arise from claims asserted by adjacent landowners or other third parties in toxic tort litigation. We have been and may be subject to allegations or findings that we have violated, or are strictly liable under, these laws or regulations. We currently have certain obligations at existing sites for investigation, remediation and monitoring, and we likely will have obligations at other sites in the future. Liabilities for these obligations affect our estimate based on our experience and, as necessary, the advice and assistance of our consultants. However, actual costs may vary from our estimates due to any or all of several factors, including changes to environmental laws or interpretations of such laws, technological changes affecting investigations and remediation, the participation and financial viability of other parties responsible for any such liability and the corrective action or change to corrective actions required to remediate any existing or future sites. We could incur significant costs as a result of any of the foregoing, and we may be required to incur significant expenses to investigate and remediate known, unknown, or future environmental contamination, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

We May Be Affected by Climate Change and Market or Regulatory Responses to Climate Change – Climate change, including the impact of global warming, could have a material adverse effect on our results of operations, financial condition, and liquidity. Restrictions, caps, taxes, or other controls on emissions of greenhouse gasses, including diesel exhaust, could significantly increase our operating costs. Restrictions on emissions could also affect our customers that (a) use commodities that we carry to produce energy, (b) use significant amounts of energy in producing or delivering the commodities we carry, or (c) manufacture or produce goods that consume significant amounts of energy or burn fossil fuels, including chemical producers, farmers and food producers, and automakers and other manufacturers. Significant cost increases, government regulation, or changes of consumer preferences for goods or services relating to alternative sources of energy or emissions reductions could materially affect the markets for the commodities we carry, which in turn could have a material adverse effect on our results of operations, financial condition, and liquidity. Government incentives encouraging the use of alternative sources of energy could also affect certain of our customers and the markets for certain of the commodities we carry in an unpredictable manner that could alter our traffic patterns, including, for example, increasing royalties charged to producers of PRB coal by the U.S. Department of Interior and the impacts of ethanol incentives on farming and ethanol producers. Finally, we could face increased costs related to defending and resolving legal claims and other litigation related to climate change and the alleged impact of our operations on climate change. Any of these factors, individually or in operation with one or more of the other factors, or other unforeseen impacts of climate change could reduce the amount of traffic we handle and have a material adverse effect on our results of operations, financial condition, and liquidity.

Severe Weather Could Result in Significant Business Interruptions and Expenditures – As a railroad with a vast network, we are exposed to severe weather conditions and other natural phenomena, including earthquakes, hurricanes, fires, floods, mudslides or landslides, extreme temperatures, and significant precipitation. Line outages and other interruptions caused by these conditions can adversely affect our entire rail network and can adversely affect revenue, costs, and liabilities, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

Strikes or Work Stoppages Could Adversely Affect Our Operations – The U.S. Class I railroads are party to collective bargaining agreements with various labor unions. The majority of our employees belong to labor unions and are subject to these agreements. Disputes with regard to the terms of these agreements or our potential inability to negotiate acceptable contracts with these unions could result in, among other things, strikes, work stoppages, slowdowns, or lockouts, which could cause a significant disruption of our operations and have a material adverse effect on our results of operations, financial condition, and liquidity. Additionally, future national labor agreements, or renegotiation of labor agreements or provisions of labor agreements, could compromise our service reliability or significantly increase our costs for health care, wages, and other benefits, which could have a material adverse impact on our results of operations, financial condition, and liquidity. Labor disputes, work stoppages, slowdowns or lockouts at loading/unloading facilities, ports or other transport access points could compromise our service reliability and have a material adverse impact on our results of operations, financial condition, and liquidity. Labor disputes, work stoppages, slowdowns or lockouts by employees of our customers or our suppliers could compromise our service reliability and have a material adverse impact on our results of operations, financial condition, and liquidity.

The Availability of Qualified Personnel Could Adversely Affect Our Operations – Changes in demographics, training requirements, and the availability of qualified personnel could negatively affect our ability to meet demand for rail service. Unpredictable increases in demand for rail services and a lack of network fluidity may exacerbate such risks, which could have a negative impact on our operational efficiency and otherwise have a material adverse effect on our results of operations, financial condition, and liquidity.

We May Be Affected By Fluctuating Fuel Prices – Fuel costs constitute a significant portion of our transportation expenses. Diesel fuel prices can be subject to dramatic fluctuations, and significant price increases could have a material adverse effect on our operating results. Although we currently are able to recover a significant amount of our fuel expenses from our customers through revenue from fuel surcharges, we cannot be certain that we will always be able to mitigate rising or elevated fuel costs through our fuel surcharges. Additionally, future market conditions or legislative or regulatory activities could adversely affect our ability to apply fuel surcharges or adequately recover increased fuel costs through fuel surcharges. As fuel prices fluctuate, our fuel surcharge programs trail such fluctuations in fuel price by approximately two months, and may be a significant source of quarter-over-quarter and year-over-year volatility, particularly in periods of rapidly changing prices. International, political, and economic factors, events and conditions affect the volatility of fuel prices and supplies. Weather can also affect fuel supplies and limit domestic refining capacity. A severe shortage of, or disruption to, domestic fuel supplies could have a material adverse effect on our results of operations, financial condition, and liquidity. Alternatively, lower fuel prices could have a positive impact on the economy by increasing consumer discretionary spending that potentially could increase demand for various consumer products we transport. However, lower fuel prices could have a negative impact on other commodities we transport, such as coal and domestic drilling-related shipments, which could have a material adverse affect on our results of operations, financial condition, and liquidity.

We Utilize Capital Markets – Due to the significant capital expenditures required to operate and maintain a safe and efficient railroad, we rely on the capital markets to provide some of our capital requirements. We utilize long-term debt instruments, bank financing and commercial paper from time-to-time, and we pledge certain of our 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 prohibit our access to, and significantly increase the cost of, commercial paper and other financing sources, including bank credit facilities and the issuance of long-term debt, including corporate bonds. A significant deterioration of our financial condition could result in a reduction of our credit rating to below investment grade, which could restrict, or at certain credit levels below investment grade may prohibit us, from utilizing our current receivables securitization facility. This may also limit our access to external sources of capital and significantly increase the costs of short and long-term debt financing.

A Significant Portion of Our Revenue Involves Transportation of Commodities to and from International Markets – Although revenues from our operations are attributable to transportation services provided in the U.S., a significant portion of our revenues involves the transportation of commodities to and from international markets, including Mexico and Southeast Asia, by various carriers and, at times, various modes of transportation. Significant and sustained interruptions of trade with Mexico or countries in Southeast Asia, including China, could adversely affect customers and other entities that, directly or indirectly, purchase or rely on rail transportation services in the U.S. as part of their operations, and any such interruptions could have a material adverse effect on our results of operations, financial condition and liquidity. Any one or more of the following could cause a significant and sustained interruption of trade with Mexico or countries in Southeast Asia: (a) a deterioration of security for international trade and businesses; (b) the adverse impact of new laws, rules and regulations or the interpretation of laws, rules and regulations by government entities, courts or regulatory bodies, including taxing authorities, that affect our customers doing business in foreign countries; (c) any significant adverse economic developments, such as extended periods of high inflation, material disruptions in the banking sector or in the capital markets of these foreign countries, and significant changes in the valuation of the currencies of these foreign countries that could materially affect the cost or value of imports or exports; (d) shifts in patterns of international trade that adversely affect import and export markets; and (e) a material reduction in foreign direct investment in these countries.

We Are Subject to Legislative, Regulatory, and Legal Developments Involving Taxes – Taxes are a significant part of our expenses. We are subject to U.S. federal, state, and foreign income, payroll, property, sales and use, fuel, and other types of taxes. Changes in tax rates, enactment of new tax laws, revisions of tax regulations, and claims or litigation with taxing authorities could result in substantially higher taxes and, therefore, could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Are Dependent on Certain Key Suppliers of Locomotives and Rail – Due to the capital intensive nature and sophistication of locomotive equipment, potential new suppliers face high barriers to entry. Therefore, if one of the domestic suppliers of high horsepower locomotives discontinues manufacturing locomotives for any reason, including bankruptcy or insolvency, we could experience significant cost increases and reduced availability of the locomotives that are necessary for our operations. Additionally, for a high percentage of our rail purchases, we utilize two steel producers (one domestic and one international) that meet our specifications. Rail is critical to our operations for rail replacement programs, maintenance, and for adding additional network capacity, new rail and storage yards, and expansions of existing facilities. This industry similarly has high barriers to entry, and if one of these suppliers discontinues operations for any reason, including bankruptcy or insolvency, we could experience both significant cost increases for rail purchases and difficulty obtaining sufficient rail for maintenance and other projects.

We May Be Affected by Acts of Terrorism, War, or Risk of War – Our rail lines, facilities, and equipment, including rail cars carrying hazardous materials, could be direct targets or indirect casualties of terrorist attacks. Terrorist attacks, or other similar events, any government response thereto, and war or risk of war may adversely affect our results of operations, financial condition, and liquidity. In addition, insurance premiums for some or all of our current coverages could increase dramatically, or certain coverages may not be available to us in the future.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We employ a variety of assets in the management and operation of our rail business. Our rail network covers 23 states in the western two-thirds of the U.S.

TRACK

Our rail network includes 32,070 route miles. We own 26,053 miles and operate on the remainder pursuant to trackage rights or leases. The following table describes track miles at December 31, 2016, and 2015:

	2016	2015
Route	32,070	32,084
Other main line	7,070	7,012
Passing lines and turnouts	3,245	3,235
Switching and classification yard lines	9,115	9,108
Total miles	51,500	51,439

HEADQUARTERS BUILDING

We own our headquarters building in Omaha, Nebraska. The facility has 1.2 million square feet of space for approximately 4,000 employees.

HARRIMAN DISPATCHING CENTER

The Harriman Dispatching Center (HDC), located in Omaha, Nebraska, is our primary dispatching facility. It is linked to regional dispatching and locomotive management facilities at various locations along our network. HDC employees coordinate moves of locomotives and trains, manage traffic and train crews on our network, and coordinate interchanges with other railroads. Approximately 900 employees currently work on-site in the facility. In the event of a disruption of operations at HDC due to a cyber attack, flooding or severe weather or other event, we maintain the capability to conduct critical operations at back-up facilities in different locations.

RAIL FACILITIES

In addition to our track structure, we operate numerous facilities, including terminals for intermodal and other freight; rail yards for building trains (classification yards), switching, storage-in-transit (the temporary storage of customer goods in rail cars prior to shipment) and other activities; offices to administer and manage our operations; dispatching centers to direct traffic on our rail network; crew quarters to house train crews along our network; and shops and other facilities for fueling, maintenance, and repair of locomotives and repair and maintenance of rail cars and other equipment. The following table includes the major yards and terminals on our system:

Major Classification Yards	Major Intermodal Terminals
North Platte, Nebraska	Joliet (Global 4), Illinois
North Little Rock, Arkansas	East Los Angeles, California
Englewood (Houston), Texas	ICTF (Los Angeles), California
Fort Worth, Texas	Global I (Chicago), Illinois
Livonia, Louisiana	DIT (Dallas), Texas
Proviso (Chicago), Illinois	Mesquite, Texas
Roseville, California	City of Industry, California
West Colton, California	Global II (Chicago), Illinois
Pine Bluff, Arkansas	Marion (Memphis), Tennessee
Neff (Kansas City), Missouri	Lathrop, California

RAIL EQUIPMENT

Our equipment includes owned and leased locomotives and rail cars; heavy maintenance equipment and machinery; other equipment and tools in our shops, offices, and facilities; and vehicles for maintenance, transportation of crews, and other activities. As of December 31, 2016, we owned or leased the following units of equipment:

Locomotives	Owned	Leased	Total	Average Age (yrs.)
Multiple purpose	6,247	1,958	8,205	19.2
Switching	214	12	226	34.5
Other	51	57	108	37.5
Total locomotives	6,512	2,027	8,539	N/A

Freight cars	Owned	Leased	Total	Average Age (yrs.)
Covered hoppers	13,382	13,736	27,118	20.6
Open hoppers	7,183	2,624	9,807	30.1
Gondolas	6,007	2,778	8,785	25.8
Boxcars	3,007	6,740	9,747	35.0
Refrigerated cars	2,657	3,485	6,142	24.4
Flat cars	2,596	1,384	3,980	30.4
Other	1	351	352	21.1
Total freight cars	34,833	31,098	65,931	N/A

Highway revenue equipment	Owned	Leased	Total	Average Age (yrs.)
Containers	33,574	21,631	55,205	8.4
Chassis	22,071	23,509	45,580	10.3
Total highway revenue equipment	55,645	45,140	100,785	N/A

CAPITAL EXPENDITURES

Our rail network requires significant annual capital investments for replacement, improvement, and expansion. These investments enhance safety, support the transportation needs of our customers, and improve our operational efficiency. Additionally, we add new locomotives and freight cars to our fleet to replace older, less efficient equipment, to support growth and customer demand, and to reduce our impact on the environment through the acquisition of more fuel-efficient and low-emission locomotives.

2016 Capital Program – During 2016, our capital program totaled approximately $3.5 billion. (See the cash capital expenditures table in Management’s Discussion and Analysis of Financial Condition and Results of Operations – Liquidity and Capital Resources, Item 7.)

2017 Capital Plan – In 2017, we expect our capital plan to be approximately $3.1 billion, which will include expenditures for PTC of approximately $300 million and may include non-cash investments. We may revise our 2017 capital plan if business conditions warrant or if new laws or regulations affect our ability to generate sufficient returns on these investments. (See discussion of our 2017 capital plan in Management’s Discussion and Analysis of Financial Condition and Results of Operations – 2017 Outlook, Item 7.)

OTHER

Equipment Encumbrances – Equipment with a carrying value of approximately $2.3 billion and $2.6 billion at December 31, 2016, and 2015, respectively served as collateral for capital leases and other types of equipment obligations in accordance with the secured financing arrangements utilized to acquire or refinance such railroad equipment.

As a result of the merger of Missouri Pacific Railroad Company (MPRR) with and into UPRR on January 1, 1997, and pursuant to the underlying indentures for the MPRR mortgage bonds, UPRR must maintain the same value of assets after the merger in order to comply with the security requirements of the mortgage bonds. As of the merger date, the value of the MPRR assets that secured the mortgage bonds was approximately $6.0 billion. In accordance with the terms of the indentures, this collateral value must be maintained during the entire term of the mortgage bonds irrespective of the outstanding balance of such bonds.

Environmental Matters – Certain of our properties are subject to federal, state, and local laws and regulations governing the protection of the environment. (See discussion of environmental issues in Business – Governmental and Environmental Regulation, Item 1, and Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies – Environmental, Item 7.)

Item 3. Legal Proceedings

From time to time, we are involved in legal proceedings, claims, and litigation that occur in connection with our business. We routinely assess our liabilities and contingencies in connection with these matters based upon the latest available information and, when necessary, we seek input from our third-party advisors when making these assessments. Consistent with SEC rules and requirements, we describe below material pending legal proceedings (other than ordinary routine litigation incidental to our business), material proceedings known to be contemplated by governmental authorities, other proceedings arising under federal, state, or local environmental laws and regulations (including governmental proceedings involving potential fines, penalties, or other monetary sanctions in excess of $100,000), and such other pending matters that we may determine to be appropriate.

ENVIRONMENTAL MATTERS

We receive notices from the EPA and state environmental agencies alleging that we are or may be liable under federal or state environmental laws for remediation costs at various sites throughout the U.S., including sites on the Superfund National Priorities List or state superfund lists. We cannot predict the ultimate impact of these proceedings and suits because of the number of potentially responsible parties involved, the degree of contamination by various wastes, the scarcity and quality of volumetric data related to many of the sites, and the speculative nature of remediation costs.

Information concerning environmental claims and contingencies and estimated remediation costs is set forth in Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies – Environmental, Item 7.

OTHER MATTERS

Antitrust Litigation - As we reported in our Quarterly Report on Form 10-Q for the quarter ended June 30, 2007, 20 rail shippers (many of whom are represented by the same law firms) filed virtually identical antitrust lawsuits in various federal district courts against us and four other Class I railroads in the U.S. Currently, UPRR and three other Class I railroads are the named defendants in the lawsuit. The original plaintiff filed the first of these claims in the U.S. District Court in New Jersey on May 14, 2007. The number of complaints reached a total of 30. These suits allege that the named railroads engaged in price-fixing by establishing common fuel surcharges for certain rail traffic.

In addition to suits filed by direct purchasers of rail transportation services, a few of the suits involved plaintiffs alleging that they are or were indirect purchasers of rail transportation and sought to represent a purported class of indirect purchasers of rail transportation services that paid fuel surcharges. These complaints added allegations under state antitrust and consumer protection laws. On November 6, 2007, the Judicial Panel on Multidistrict Litigation ordered that all of the rail fuel surcharge cases be transferred to Judge Paul Friedman of the U.S. District Court in the

District of Columbia for coordinated or consolidated pretrial proceedings. Following numerous hearings and rulings, Judge Friedman dismissed the complaints of the indirect purchasers, which the indirect purchasers appealed. On April 16, 2010, the U.S. Court of Appeals for the District of Columbia affirmed Judge Friedman's ruling dismissing the indirect purchasers' claims based on various state laws.

On June 21, 2012, Judge Friedman issued a decision that certified a class of plaintiffs with eight named plaintiff representatives. The decision included in the class all shippers that paid a rate-based fuel surcharge to any one of the defendant railroads for rate-unregulated rail transportation from July 1, 2003, through December 31, 2008. This was a procedural ruling, which did not affirm any of the claims asserted by the plaintiffs and does not address the ability of the railroad defendants to disprove the allegations made by the plaintiffs. On July 5, 2012, the defendant railroads filed a petition with the U.S. Court of Appeals for the District of Columbia requesting that the court review the class certification ruling. On August 28, 2012, a panel of the Circuit Court of the District of Columbia referred the petition to a merits panel of the court to address the issues in the petition and to address whether the district court properly granted class certification. The Circuit Court heard oral arguments on May 3, 2013. On August 9, 2013, the Circuit Court vacated the class certification decision and remanded the case to the district court to reconsider the class certification decision in light of a recent Supreme Court case and incomplete consideration of errors in the expert report of the plaintiffs. On October 31, 2013, Judge Friedman approved a schedule agreed to by all parties for consideration of the class certification issue on remand.

On October 2, 2014, the plaintiffs informed Judge Friedman that their economic expert had a previously undisclosed conflict of interest. Judge Friedman ruled on November 26, 2014, that the plaintiffs had until April 1, 2015, to file a supplemental expert report to support their motion for class certification. The plaintiffs filed their supplemental expert report on April 1, 2015. Judge Friedman issued a scheduling order on June 19, 2015, scheduling a class certification hearing for November 2, 2015. Judge Friedman then vacated the hearing date in an Order on September 28, 2015 because of the potential impact resulting from the decision of the U.S. Supreme Court case, Tyson Foods v. Bouaphakeo, related to class action certification and damages. The U.S. Supreme Court issued a decision in that case on March 22, 2016. After reviewing the Supreme Court's decision and related briefings from the parties, Judge Friedman issued an order scheduling the class certification hearing for the week of September 26, 2016, which was conducted as scheduled. The parties are awaiting the results of that hearing.

As we reported in our Current Report on Form 8-K, filed on June 10, 2011, the Railroad received a complaint filed in the U.S. District Court for the District of Columbia on June 7, 2011, by Oxbow Carbon & Minerals LLC and related entities (Oxbow). The complaint named the Railroad and one other U.S. Class I Railroad as defendants and alleged that the named railroads engaged in price-fixing and monopolistic practices in connection with fuel surcharge programs and pricing of shipments of certain commodities, including coal and petroleum coke. The complaint sought injunctive relief and payment of damages of over $30 million, and other unspecified damages, including treble damages. Some of the allegations in the complaint were addressed in the existing fuel surcharge litigation referenced above. The complaint also included additional unrelated allegations regarding alleged limitations on competition for shipments of Oxbow's commodities. Judge Friedman, who presides over the fuel surcharge matter described above, also presides over this matter. On February 26, 2013, Judge Friedman granted the defendants' motion to dismiss Oxbow's complaint for failure to properly state a claim under the antitrust laws. However, the dismissal was without prejudice to refile the complaint. Judge Friedman approved a schedule that allowed Oxbow to file a revised complaint, which Oxbow filed on May 1, 2013. The amended complaint alleges that UPRR and one other Class I railroad violated Sections 1 and 2 of the Sherman Antitrust Act and that UPRR also breached a tolling agreement between Oxbow and UPRR. Oxbow claims that it paid more than $50 million in wrongfully imposed fuel surcharges. UPRR and the other railroad filed separate motions to dismiss the Oxbow revised complaint on July 1, 2013. Judge Friedman heard oral arguments on the motions to dismiss filed by UPRR and the other railroad on January 8, 2015. Judge Friedman denied the motions to dismiss on February 24, 2015. This was a procedural ruling, which did not affirm any of the claims asserted by Oxbow and does not affect the ability of the railroad defendants to disprove the allegations made by Oxbow. UPRR filed its answer to Oxbow's complaint on March 24, 2015, and the parties continue to conduct discovery.

We deny the allegations that our fuel surcharge programs violate the antitrust laws or any other laws. We believe that these lawsuits are without merit, and we will vigorously defend our actions. Therefore, we currently believe that these matters will not have a material adverse effect on any of our results of operations, financial condition, and liquidity.

Item 4. Mine Safety Disclosures

Not applicable.

Executive Officers of the Registrant and Principal Executive Officers of Subsidiaries

The Board of Directors typically elects and designates our executive officers on an annual basis at the board meeting held in conjunction with the Annual Meeting of Shareholders, 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 the officers, nor is there 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 current as of February 3, 2017, relating to the executive officers.

Name	Position	Age	Business Experience During Past Five Years
Lance M. Fritz	Chairman, President and Chief Executive Officer of UPC and the Railroad	54	[1]
Robert M. Knight, Jr.	Executive Vice President and Chief Financial Officer of UPC and the Railroad	59	Current Position
Eric L. Butler	Executive Vice President – Chief Administrative Officer and Corporate Secretary of UPC and the Railroad	56	[2]
Rhonda S. Ferguson	Executive Vice President and Chief Legal Officer of UPC and the Railroad	47	[3]
Todd M. Rynaski	Vice President and Controller of UPC and Chief Accounting Officer and Controller of the Railroad	46	[4]
Cameron A. Scott	Executive Vice President and Chief Operating Officer of the Railroad	54	[5]
Elizabeth F. Whited	Executive Vice President and Chief Marketing Officer of the Railroad	51	[6]

[1] On July 30, 2015, Mr. Fritz was named Chairman of the Board of UPC and the Railroad effective October 1, 2015. Mr. Fritz was elected President and Chief Executive Officer of UPC and the Railroad effective February 5, 2015. Previously, Mr. Fritz was President and Chief Operating Officer of the Railroad effective February 6, 2014, Executive Vice President – Operations of the Railroad effective September 1, 2010, and Vice President – Operations of the Railroad effective January 1, 2010.

[2] Mr. Butler was elected Chief Administrative Officer effective December 1, 2016 and Corporate Secretary effective February 3, 2017. He previously was Executive Vice President and Chief Marketing Officer effective March 15, 2012. He previously was Vice President and General Manager - Industrial Products effective April 14, 2005.

[3] Ms. Ferguson was elected Executive Vice President and Chief Legal officer of UPC and the Railroad effective July 11, 2016. She previously was Vice President, Corporate Secretary and Chief Ethics Officer of FirstEnergy Corp. since 2007.

[4] Mr. Rynaski was elected Vice President and Controller of UPC and Chief Accounting Officer and Controller of the Railroad effective September 1, 2015. He previously was Assistant Vice President – Accounting of the Railroad effective January 1, 2014, and Assistant Vice President – Financial Reporting and Analysis effective April 1, 2011, and General Director – Information Technologies effective September 1, 2008.

[5] Mr. Scott was elected to his current position effective February 6, 2014. He previously was Vice President Network Planning and Operations effective June 30, 2012, Regional Vice President – Western Region effective April 1, 2012, and Assistant Vice President Operations – Western Region effective February 16, 2009.

[6] Ms. Whited was elected Executive Vice President and Chief Marketing Officer effective December 1, 2016. She previously was Vice President and General Manager – Chemicals effective October 1, 2012. She previously was Vice President of the Railroad's National Customer Service Center effective April 19, 2011.

PART II

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

Our common stock is traded on the New York Stock Exchange (NYSE) under the symbol "UNP". The following table presents the dividends declared and the high and low prices of our common stock for each of the indicated quarters.

2016 - Dollars Per Share	Q1	Q2	Q3	Q4
Dividends	$ 0.55	$ 0.55	$ 0.55	$ 0.605
Common stock price:				
High	85.30	90.14	98.00	106.62
Low	67.06	77.29	86.01	87.06

2015 - Dollars Per Share	Q1	Q2	Q3	Q4
Dividends	$ 0.55	$ 0.55	$ 0.55	$ 0.55
Common stock price:				
High	124.52	112.44	99.71	98.28
Low	106.75	94.91	79.31	74.78

At January 27, 2017, there were 813,795,240 shares of common stock outstanding and 31,601 common shareholders of record. On that date, the closing price of the common stock on the NYSE was $109.20. We paid dividends to our common shareholders during each of the past 117 years. We declared dividends totaling $1,879 million in 2016 and $1,906 million in 2015. We are subject to certain restrictions regarding retained earnings with respect to the payment of cash dividends to our shareholders. The amount of retained earnings available for dividends decreased to $12.4 billion at December 31, 2016, from $13.6 billion at December 31, 2015. (See discussion of this restriction in Management's Discussion and Analysis of Financial Condition and Results of Operations – Liquidity and Capital Resources, Item 7.) We do not believe the restriction on retained earnings will affect our ability to pay dividends, and we currently expect to pay dividends in 2017.

Comparison Over One- and Three-Year Periods – The following table presents the cumulative total shareholder returns, assuming reinvestment of dividends, over one- and three-year periods for the Corporation (UNP), a peer group index (comprised of CSX Corporation and Norfolk Southern Corporation), the Dow Jones Transportation Index (DJ Trans), and the Standard & Poor's 500 Stock Index (S&P 500).

Period	UNP		Peer Group		DJ Trans		S&P 500	
1 Year (2016)	36.0	%	36.8	%	22.3	%	12.0	%
3 Year (2014 - 2016)	31.9		29.7		27.4		29.0	

Five-Year Performance Comparison – The following graph provides an indicator of cumulative total shareholder returns for the Corporation as compared to the peer group index (described above), the DJ Trans, and the S&P 500. The graph assumes that $100 was invested in the common stock of Union Pacific Corporation and each index on December 31, 2011 and that all dividends were reinvested. The information below is historical in nature and is not necessarily indicative of future performance.

Purchases of Equity Securities – During 2016, we repurchased 35,686,529 shares of our common stock at an average price of $88.36. The following table presents common stock repurchases during each month for the fourth quarter of 2016:

Period	Total Number of Shares Purchased [a]	Average Price Paid Per Share	Total Number of Shares Purchased as Part of a Publicly Announced Plan or Program [b]	Maximum Number of Shares Remaining Under the Plan or Program [b]
Oct. 1 through Oct. 31	3,501,308	$ 92.89	3,452,500	23,769,426
Nov. 1 through Nov. 30	2,901,167	95.68	2,876,067	20,893,359
Dec. 1 through Dec. 31	3,296,652	104.30	3,296,100	17,597,259
Total	9,699,127	$ 97.60	9,624,667	N/A

[a] Total number of shares purchased during the quarter includes approximately 74,460 shares delivered or attested to UPC by employees to pay stock option exercise prices, satisfy excess tax withholding obligations for stock option exercises or vesting of retention units, and pay withholding obligations for vesting of retention shares.

[b] Effective January 1, 2014, our Board of Directors authorized the repurchase of up to 120 million shares of our common stock by December 31, 2017. These repurchases may be made on the open market or through other transactions. Our management has sole discretion with respect to determining the timing and amount of these transactions. On November 17, 2016, our Board of Directors approved the early renewal of the share repurchase program, authorizing the repurchase of up to 120 million shares of our common stock by December 31, 2020. The new authorization was effective January 1, 2017, and replaces the previous authorization, which expired on December 31, 2016.

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Item 6. Selected Financial Data

The following table presents as of, and for the years ended, December 31, our selected financial data for each of the last five years. The selected financial data should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7, and with the Financial Statements and Supplementary Data, Item 8. The information below is historical in nature and is not necessarily indicative of future financial condition or results of operations.

Millions, Except per Share Amounts, Carloads, Employee Statistics, and Ratios	2016	2015	2014	2013	2012
For the Year Ended December 31					
Operating revenues [a]	$ 19,941	$ 21,813	$ 23,988	$ 21,963	$ 20,926
Operating income	7,272	8,052	8,753	7,446	6,745
Net income	4,233	4,772	5,180	4,388	3,943
Earnings per share - basic [b]	5.09	5.51	5.77	4.74	4.17
Earnings per share - diluted [b]	5.07	5.49	5.75	4.71	4.14
Dividends declared per share	2.255	2.20	1.91	1.48	1.245

[b]										
Cash provided by operating activities		7,525		7,344		7,385		6,823		6,161
Cash used in investing activities		(3,393)		(4,476)		(4,249)		(3,405)		(3,633)
Cash used in financing activities		(4,246)		(3,063)		(2,982)		(3,049)		(2,682)
Cash used for common share repurchases		(3,105)		(3,465)		(3,225)		(2,218)		(1,474)
At December 31										
Total assets	$	55,718	$	54,600	$	52,372	$	49,410	$	46,842
Long-term obligations [c]		32,146		30,692		27,419		24,395		23,847
Debt due after one year		14,249		13,607		10,952		8,820		8,754
Common shareholders' equity		19,932		20,702		21,189		21,225		19,877
Additional Data										
Freight revenues [a]	$	18,601	$	20,397	$	22,560	$	20,684	$	19,686
Revenue carloads (units) (000)		8,442		9,062		9,625		9,022		9,048
Operating ratio (%) [d]		63.5		63.1		63.5		66.1		67.8
Average employees (000)		42.9		47.5		47.2		46.4		45.9

Financial Ratios (%)					
Debt to capital [e]	43.0	40.7	35.0	31.0	31.0
Return on average common shareholders' equity [f]	20.8	22.8	24.4	21.4	20.5

[a] Includes fuel surcharge revenue of $560 million, $1.3 billion, $2.8 billion, $2.6 billion, and $2.6 billion for 2016, 2015, 2014, 2013, and 2012, respectively, which partially offsets increased operating expenses for fuel. (See further discussion in Management's Discussion and Analysis of Financial Condition and Results of Operations – Results of Operations – Operating Revenues, Item 7.)

[b] Earnings per share and dividends declared per share are retroactively adjusted to reflect the June 6, 2014 stock split.

[c] Long-term obligations is determined as follows: total liabilities less current liabilities.

[d] Operating ratio is defined as operating expenses divided by operating revenues.

[e] Debt to capital is determined as follows: total debt divided by total debt plus common shareholders' equity.

[f] Return on average common shareholders' equity is determined as follows: Net income divided by average common shareholders' equity.

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

The following discussion should be read in conjunction with the Consolidated Financial Statements and applicable notes to the Financial Statements and Supplementary Data, Item 8, and other information in this report, including Risk Factors set forth in Item 1A and Critical Accounting Policies and Cautionary Information at the end of this Item 7.

The Railroad, along with its subsidiaries and rail affiliates, is our one reportable business segment. Although revenue is analyzed by commodity, we analyze the net financial results of the Railroad as one segment due to the integrated nature of the rail network.

EXECUTIVE SUMMARY

2016 Results

· Safety – During 2016, we continued our focus on safety to reduce risk and eliminate incidents for our employees, our customers and the public. We achieved our best ever reportable personal injury incidents per 200,000 employee-hours of 0.75. In addition, we finished 2016 with a 3% improvement in our reportable derailment incident rate per million train miles compared to the prior year. These results demonstrate our employees’ dedication to our safety initiatives and our efforts to further engage the workforce through programs such as Courage to Care, Total Safety Culture, and UP Way (our continuous improvement culture).

· Financial Performance – In 2016, we generated operating income of $7.3 billion, a 10% decrease compared to 2015. Despite a 7% decrease in carloads, resulting in our second lowest volume levels since 1998, 2016 was our third-best earnings performance. Core pricing gains, productivity initiatives, and efficient network operations partially offset lower volumes. Our operating ratio for 2016 was 63.5%, increasing 0.4 points from last year’s record operating ratio of 63.1%, but matching our second best record from 2014. Net income of $4.2 billion translated into earnings of $5.07 per diluted share for 2016.

· Freight Revenues – Our freight revenues declined 9% year-over-year to $18.6 billion as a result of lower volume levels in four of our six commodity groups and lower fuel surcharge revenue, partially offset by core pricing gains. Volume declines in coal, intermodal, frac sand, crude oil, finished vehicles, and metals shipments more than offset volume growth in grain, automotive parts, and industrial chemicals shipments.

· Network Operations – Continued improvements were made in our operating and service metrics, as our average train speed, as reported to the AAR, increased 5% in 2016 compared to 2015, and our average terminal dwell time decreased 4%, both reflecting the impact of lower volumes and improved network fluidity.

- Fuel Prices – Our average price per gallon of diesel fuel in 2016 decreased 20% from the average price in 2015, as both crude oil and the conversion spreads between crude oil and diesel declined in 2016. The lower price decreased operating expenses by $347 million (excluding any impact from year-over-year volume declines). Gross-ton miles decreased 8%, which also decreased fuel expense. In addition, our fuel consumption rate, computed as gallons of fuel consumed divided by gross ton-miles in thousands, improved 1%.

- Free Cash Flow – Cash generated by operating activities totaled $7.5 billion, yielding free cash flow of $2.3 billion after reductions of $3.4 billion for cash used in investing activities and a 10% increase in our quarterly dividend from $0.55 to $0.605 declared and paid in the fourth quarter of 2016. Free cash flow is defined as cash provided by operating activities less cash used in investing activities and dividends paid.

Free cash flow is not considered a financial measure under accounting principles generally accepted in the U.S. (GAAP) by SEC Regulation G and Item 10 of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe free cash flow is important to management and investors in evaluating our financial performance and measures our ability to generate cash without additional external financings. Free cash flow should be considered in addition to, rather than as a substitute for, cash provided by operating activities. The following table reconciles cash provided by operating activities (GAAP measure) to free cash flow (non-GAAP measure):

Millions	2016	2015	2014
Cash provided by operating activities	$ 7,525	$ 7,344	$ 7,385
Cash used in investing activities	(3,393)	(4,476)	(4,249)
Dividends paid	(1,879)	(2,344)	(1,632)
Free cash flow	$ 2,253	$ 524	$ 1,504

2017 Outlook

· Safety – Operating a safe railroad benefits all our constituents: our employees, customers, shareholders and the communities we serve. We will continue using a multi-faceted approach to safety, utilizing technology, risk assessment, training and employee engagement, quality control, and targeted capital investments. We will continue using and expanding the deployment of Total Safety Culture and Courage to Care throughout our operations, which allows us to identify and implement best practices for employee and operational safety. We will continue our efforts to increase detection of rail defects; improve or close crossings; and educate the public and law enforcement agencies about crossing safety through a combination of our own programs (including risk assessment strategies), industry programs and local community activities across our network.

· Network Operations – In 2017, we will continue to align resources with customer demand, maintain an efficient network, and ensure surge capability with our assets.

· Fuel Prices – Fuel price projections for crude oil and natural gas continue to fluctuate in the current environment. We again could see volatile fuel prices during the year, as they are sensitive to global and U.S. domestic demand, refining capacity, geopolitical events, weather conditions and other factors. As prices fluctuate, there will be a timing impact on earnings, as our fuel surcharge programs trail increases or decreases in fuel price by approximately two months.

Continuing lower fuel prices could have a positive impact on the economy by increasing consumer discretionary spending that potentially could increase demand for various consumer products that we transport. Alternatively, lower fuel prices could likely have a negative impact on other commodities such as coal and domestic drilling-related shipments.

· Capital Plan – In 2017, we expect our capital plan to be approximately $3.1 billion, including expenditures for PTC, approximately 60 locomotives scheduled to be delivered, and intermodal containers and chassis, and freight cars. The capital plan may be revised if business conditions warrant or if new laws or regulations affect our ability to generate sufficient returns on these investments. (See further discussion in this Item 7 under Liquidity and Capital Resources – Capital Plan.)

· Financial Expectations – Economic conditions in many of our market sectors continue to drive uncertainty with respect to our volume levels. We expect volume to grow in the low single digit range in 2017 compared to 2016, but it will depend on the overall economy and market conditions. One of the more significant uncertainties is the outlook for energy markets, which will bring both challenges and opportunities. In the current environment, we expect continued margin improvement driven by continued pricing opportunities, ongoing productivity initiatives, and the ability to leverage our resources and strengthen our franchise. Over the longer term, we expect the overall U.S. economy to continue to improve at a modest pace, with some markets outperforming others.

RESULTS OF OPERATIONS

Operating Revenues

Millions	2016	2015	2014	% Change 2016 v 2015	% Change 2015 v 2014
Freight revenues	$ 18,601	$ 20,397	$ 22,560	(9) %	(10) %
Other revenues	1,340	1,416	1,428	(5) %	(1) %
Total	$ 19,941	$ 21,813	$ 23,988	(9) %	(9) %

We generate freight revenues by transporting freight or other materials from our six commodity groups. Freight revenues vary with volume (carloads) and average revenue per car (ARC). Changes in price, traffic mix and fuel surcharges drive ARC. We provide some of our customers with contractual incentives for meeting or exceeding specified cumulative volumes or shipping to and from specific locations, which we record as reductions to freight revenues based on the actual or projected future shipments. We recognize freight revenues as shipments move from origin to destination. We allocate freight revenues between reporting periods based on the relative transit time in each reporting period and recognize expenses as we incur them.

Other revenues include revenues earned by our subsidiaries, revenues from commuter rail operations that we manage, accessorial revenues, which we earn when customers retain equipment owned or controlled by us or when we perform additional services such as switching or storage, and miscellaneous contract revenue. We recognize other revenues as we perform services or meet contractual obligations.

Freight revenues decreased 9% in 2016 compared to 2015 due to a 7% decline in carloadings, and lower fuel surcharge revenue, partially offset by core pricing gains. Volume declines in coal, intermodal, frac sand, crude oil, finished vehicles, and metals shipments more than offset volume growth in grain, automotive parts, and industrial chemicals shipments.

Freight revenues from five of our six commodity groups decreased in 2015 compared to 2014 due to a 6% decline in carloadings and lower fuel surcharge revenue, partially offset by core pricing gains. Volume declines in coal, international intermodal, frac sand, metals, crude oil, and grain shipments more than offset volume growth in domestic intermodal, finished vehicles, automotive parts, industrial chemicals and plastics shipments.

Our fuel surcharge programs generated freight revenues of $560 million, $1.3 billion, and $2.8 billion in 2016, 2015, and 2014, respectively. Fuel surcharge revenue in 2016 decreased $740 million as a result of a 20% decrease in fuel price, a 7% reduction in carloadings, and the lag impact on fuel surcharge recovery (it can generally take up to two months for changing fuel prices to affect fuel surcharge recoveries). Fuel surcharge revenue in 2015 decreased $1.5 billion as a result of a 38% decrease in fuel price and a 6% reduction in carloadings.

In 2016, other revenue decreased from 2015 due to lower revenues at our subsidiaries, primarily those that broker intermodal and automotive services, and lower intermodal accessorial revenue and demurrage fees.

In 2015, other revenue decreased from 2014 due to lower revenues at our subsidiaries, primarily those that broker intermodal and automotive services, partially offset by higher accessorial revenue driven by increased revenue for container usage and demurrage fees.

The following tables summarize the year-over-year changes in freight revenues, revenue carloads, and ARC by commodity type:

Freight Revenues Millions	2016	2015	2014	% Change 2016 v 2015	% Change 2015 v 2014
Agricultural Products	$ 3,625	$ 3,581	$ 3,777	1 %	(5) %
Automotive	2,000	2,154	2,103	(7)	2
Chemicals	3,474	3,543	3,664	(2)	(3)
Coal	2,440	3,237	4,127	(25)	(22)
Industrial Products	3,348	3,808	4,400	(12)	(13)
Intermodal	3,714	4,074	4,489	(9)	(9)
Total	$ 18,601	$ 20,397	$ 22,560	(9) %	(10) %

Revenue Carloads Thousands	2016	2015	2014	% Change 2016 v 2015	% Change 2015 v 2014
Agricultural Products	980	941	973	4 %	(3) %
Automotive	863	863	809	-	7
Chemicals	1,074	1,098	1,116	(2)	(2)
Coal	1,166	1,459	1,768	(20)	(17)
Industrial Products	1,097	1,213	1,368	(10)	(11)
Intermodal [a]	3,262	3,488	3,591	(6)	(3)
Total	8,442	9,062	9,625	(7) %	(6) %

Average Revenue per Car	2016	2015	2014	% Change 2016 v 2015	% Change 2015 v 2014
Agricultural Products	$ 3,702	$ 3,805	$ 3,881	(3) %	(2) %
Automotive	2,317	2,498	2,602	(7)	(4)
Chemicals	3,234	3,227	3,282	-	(2)
Coal	2,092	2,218	2,334	(6)	(5)

Industrial Products	3,051	3,139	3,217	(3)	(2)
Intermodal [a]	1,138	1,168	1,250	(3)	(7)
Average	$ 2,203	$ 2,251	$ 2,344	(2) %	(4) %

[a] Each intermodal container or trailer equals one carload.

Agricultural Products – Freight revenue from agricultural products increased compared to 2015 driven by volume growth and core pricing gains, partially offset by lower fuel surcharge revenue and mix of traffic. Grain shipments increased 11% in 2016 compared to 2015 due to strong export demand in the second half of the year. Market conditions in South America and ample supply of U.S. grains led to competitive U.S. pricing relative to the global market.

2016 Agricultural Products Carloads

Lower fuel surcharge revenue and volume declines, partially offset by core pricing gains, decreased freight revenue from agricultural shipments in 2015 compared to 2014. Grain shipments decreased 11% in 2015 compared to 2014. The strength of the U.S. dollar, lower grain commodity prices, and higher worldwide inventories contributed to the reduction in overall demand.

Automotive – Freight revenue from automotive shipments decreased compared to 2015 as a result of lower fuel surcharge revenue and mix of traffic, partially offset by core pricing gains. Volume was flat compared to 2015 as a 7% growth in automotive parts from truck-to-rail conversions was offset by a 5% decrease in finished vehicles resulting from a partial contract loss during the year. Overall U.S. vehicle production was flat compared to 2015.

2016 Automotive Carloads

Freight revenue from automotive shipments increased in 2015 compared to 2014 driven by volume growth and core pricing gains, which were partially offset by lower fuel surcharge revenue. Higher automotive production and record sales levels drove the volume growth.

Chemicals – Freight revenue from chemical shipments declined in 2016 versus 2015 due to volume declines and lower fuel surcharge revenue, which were partially offset by core pricing gains. Crude oil shipments declined significantly resulting from continued low crude oil prices, regional pricing differences and available pipeline capacity. Fertilizer shipments also declined due to weak world-wide demand for potash in the first half of the year and the strong U.S. dollar. These decreases were partially offset by growth in industrial chemical and liquid petroleum gas shipments.

2016 Chemicals Carloads

Freight revenue from chemical shipments declined in 2015 versus 2014 due to lower fuel surcharge revenue and volume declines, which more than offset core price improvements. Crude oil shipments declined as a result of the drop in crude oil prices and production declines from various shale formations, which impacted the regional pricing differences for crude oil. Lower fertilizer shipments also decreased freight revenue in 2015. Strength in export plastics markets and industrial chemical shipments helped offset the decline in crude oil and fertilizer shipments.

Coal – Lower volume, lower fuel surcharge revenue, and mix of traffic resulted in a decline in freight revenue from coal shipments in 2016 compared to 2015. Shipments out of the Powder River Basin (PRB) declined 24% in 2016 due to high inventory levels at utilities and competitive natural gas prices. Shipments out of Colorado and Utah declined 15% compared to 2015 due to the same drivers, combined with lower international demand.

2016 Coal Carloads

Lower volume and fuel surcharge revenue, partially offset by core pricing gains, drove the decline in freight revenue from coal shipments in 2015 compared to 2014. Shipments out of the PRB declined 15% in 2015 as a result of depressed coal markets due to low natural gas prices and high inventory levels. Shipments out of the PRB also were negatively impacted as heavy rains in June 2015 flooded coal mines and washed out tracks in some areas, impacting both second and third quarter shipments. Shipments out of Colorado and Utah declined 33% in 2015 primarily due to lower domestic demand for Colorado and Utah coal. This lower demand was a result of several utilities switching to other fuel sources due to lower natural gas prices. In addition, coal exports declined due to a soft global market.

Industrial Products – Freight revenue from industrial products shipments decreased in 2016 compared to 2015 due to volume declines, lower fuel surcharge revenue, and mix of traffic partially offset by core pricing gains. Declines in shale drilling activity, due to lower oil prices, negatively impacted non-metallic mineral (frac sand) shipments compared to 2015. Rock shipments also decreased as weather events and flooding in the Southern Region during the second and third quarters limited construction activity, thus limiting demand for transportation of materials. In addition, steel shipments declined as a result of reductions in shale drilling activity and strong import levels associated with the strength of the U.S. dollar.

2016 Industrial Products Carloads

Freight revenue from industrial products shipments decreased in 2015 compared to 2014 due to volume declines, lower fuel surcharge revenue, and lower ARC due to the mix of traffic, partially offset by core price improvements. Declines in shale drilling activity due to lower oil prices decreased non-metallic mineral shipments (primarily frac sand carloadings). Steel shipments also declined as a result of reductions in shale drilling activity, low commodity prices, and increased imports associated with the strength of the U.S. dollar. Low commodity prices for lumber and the strong U.S. dollar resulted in reduced lumber shipments.

Intermodal – Freight revenue from intermodal shipments decreased in 2016 compared to 2015 due to lower volume and lower fuel surcharge revenue, which were partially offset by core pricing gains. Volume levels from international and domestic traffic decreased 11% and 2%, respectively, compared to last year due to weaker global trade activity, softer domestic sales, high retail inventories, and a customer bankruptcy.

2016 Intermodal Carloads

Lower fuel surcharge revenue and volume declines, partially offset by core pricing gains, resulted in a decline in freight revenue from intermodal shipments in 2015 compared to 2014. International shipments declined 8% resulting from the supply chain disruptions stemming from the West Coast port work disruptions and historically high retail inventories. Domestic volume increased 3% driven by continued conversions from trucks and new premium services, more than offsetting the impact of high retail inventory levels and modest retail sales activity.

Mexico Business – Each of our commodity groups includes revenue from shipments to and from Mexico. Freight revenue from Mexico business was $2.2 billion, flat with 2015. Lower fuel surcharge revenue and mix of traffic offset the 4% of volume growth and core pricing gains. Volume growth was driven by Agricultural Products, Coal, and automotive parts shipments.

Revenue from Mexico business decreased 4% to $2.2 billion in 2015 compared to 2014 primarily due to lower fuel surcharge revenue. Volume levels were flat compared to 2014 as lower shipments of Intermodal, Agricultural Products, and Industrial Products were offset by growth in Automotive, Coal, and Chemical shipments.

Operating Expenses

Millions	2016	2015	2014	% Change 2016 v 2015	% Change 2015 v 2014
Compensation and benefits	$ 4,750	$ 5,161	$ 5,076	(8) %	2 %
Purchased services and materials	2,258	2,421	2,558	(7)	(5)
Depreciation	2,038	2,012	1,904	1	6
Fuel	1,489	2,013	3,539	(26)	(43)
Equipment and other rents	1,137	1,230	1,234	(8)	-
Other	997	924	924	8	-
Total	$ 12,669	$ 13,761	$ 15,235	(8) %	(10) %

2016 Operating Expenses

Operating expenses decreased $1.1 billion compared to 2015 driven by lower fuel prices, volume-related savings, productivity gains and lower locomotive and freight car maintenance expense. These cost reductions were partially offset by inflation, depreciation, and higher environmental and other costs.

Operating expenses decreased nearly $1.5 billion in 2015 compared to 2014 driven by significantly lower fuel prices and volume-related cost savings. Productivity gains in the second half of 2015 also drove expenses lower. These decreases were partially offset by wage inflation, higher depreciation, and property taxes. In addition, we incurred approximately $35 million of weather-related costs in 2014.

Compensation and Benefits – Compensation and benefits include wages, payroll taxes, health and welfare costs, pension costs, other postretirement benefits, and incentive costs. In 2016, expenses decreased 8% compared to 2015, driven by lower volume-related costs, productivity gains, and lower training expense. General wage and benefit inflation partially offset these decreases.

In 2015, lower volume-related costs and second half productivity gains were more than offset by general wage inflation and increased hiring and training expenses related to a larger workforce in the first half of the year.

Purchased Services and Materials – Expense for purchased services and materials includes the costs of services purchased from outside contractors and other service providers (including equipment maintenance and contract expenses incurred by our subsidiaries for external transportation services); materials used to maintain the Railroad's lines, structures, and equipment; costs of operating facilities jointly used by UPRR and other railroads; transportation and lodging for train crew employees; trucking and contracting costs for intermodal containers; leased automobile maintenance expenses; and tools and supplies. Purchased services and materials decreased 7% compared to 2015 primarily due to lower volume-related costs and lower locomotive and freight car repair and maintenance expenses.

Purchased services and materials in 2015 decreased $137 million compared to 2014 primarily due to lower volume-related costs, including a decrease in external transportation expenses incurred by our logistics subsidiaries. Expenses also decreased due to lower locomotive and freight car repair and maintenance expenses.

Fuel – Fuel includes locomotive fuel and gasoline for highway and non-highway vehicles and heavy equipment. Locomotive diesel fuel prices, which averaged $1.48 per gallon (including taxes and transportation costs) in 2016, compared to $1.84 per gallon in 2015, reduced expenses $347 million. In addition, fuel costs were lower as gross-ton miles decreased 8%. The fuel consumption rate (c-rate), computed as gallons of fuel consumed divided by gross ton-miles in thousands, improved 1% compared to 2015.

Locomotive diesel fuel prices, which averaged $1.84 per gallon (including taxes and transportation costs) in 2015, compared to $2.97 per gallon in 2014, reduced expenses $1.2 billion in 2015. In addition, fuel costs in 2015 were lower as gross-ton miles decreased 9%. The fuel consumption rate (c-rate), computed as gallons of fuel consumed divided by gross ton-miles in thousands, increased 1% in 2015 compared to 2014. Decreases in heavier, more fuel-efficient shipments, decreased gross-ton miles and increased the c-rate.

Depreciation – The majority of depreciation relates to road property, including rail, ties, ballast, and other track material. A larger depreciable asset base, reflecting higher capital spending in recent years, increased depreciation expense in 2016 compared to 2015. This increase was partially offset by our recent depreciation studies that resulted in lower depreciation rates for some asset classes.

A higher depreciable asset base, reflecting higher capital spending in recent years, increased depreciation expense in 2015 compared to 2014. This increase was partially offset by our recent depreciation studies that resulted in lower depreciation rates for some asset classes.

Equipment and Other Rents – Equipment and other rents expense primarily includes rental expense that the Railroad pays for freight cars owned by other railroads or private companies; freight car, intermodal, and locomotive leases; and office and other rent expenses. Equipment and other rents expense decreased $93 million compared to 2015 as lower volume levels drove a reduction in car hire and locomotive lease expenses.

Equipment and other rents expense decreased $4 million in 2015 compared to 2014 primarily from a decrease in manifest and intermodal shipments, partially offset by growth in finished vehicle shipments.

Other – Other expenses include state and local taxes, freight, equipment and property damage, utilities, insurance, personal injury, environmental, employee travel, telephone and cellular, computer software, bad debt, and other general expenses. Other expenses increased 8% in 2016 compared to 2015 as a result of higher environmental costs, state and local taxes, bad debt expense (customer bankruptcy), and the write-off of certain in-progress capital projects that were cancelled. These cost increases were partially offset by lower expenses for damaged freight, property, and equipment not owned by the Company.

Other expenses were flat in 2015 compared to 2014 as higher property taxes were offset by lower costs in other areas.

Non-Operating Items

Millions	2016	2015	2014	% Change 2016 v 2015	% Change 2015 v 2014
Other income	$ 192	$ 226	$ 151	(15) %	50 %
Interest expense	(698)	(622)	(561)	12	11
Income taxes	(2,533)	(2,884)	(3,163)	(12) %	(9) %

Other Income – Other income decreased in 2016 compared to 2015 primarily due to large real estate transactions: a $113 million gain from a real estate sale in 2015, partially offset by $67 million of gains from two real estate sales in 2016.

Other income increased in 2015 compared to 2014 primarily due to a $113 million gain from a real estate sale in the second quarter of 2015, partially offset by a gain from the sale of a permanent easement in 2014.

Interest Expense – Interest expense increased in 2016 compared to 2015 due to an increased weighted-average debt level of $15.0 billion in 2016 from $13.0 billion in 2015, partially offset by the impact of a lower effective interest rate of 4.7% in 2016 compared to 4.8% in 2015.

Interest expense increased in 2015 compared to 2014 due to an increased weighted-average debt level of $13.0 billion in 2015 from $10.7 billion in 2014, partially offset by the impact of a lower effective interest rate of 4.8% in 2015 compared to 5.3% in 2014.

Income Taxes – Lower pre-tax income decreased income taxes in 2016 compared to 2015. Our effective tax rate for 2016 was 37.4% compared to 37.7% in 2015.

Lower pre-tax income decreased income taxes in 2015 compared to 2014. Our effective tax rate for 2015 was 37.7% compared to 37.9% in 2014.

OTHER OPERATING/PERFORMANCE AND FINANCIAL STATISTICS

We report a number of key performance measures weekly to the Association of American Railroads. We provide this data on our website at www.up.com/investor/aar-stb_reports/index.htm.

Operating/Performance Statistics

Railroad performance measures are included in the table below:

	2016	2015	2014	% Change 2016 v 2015		% Change 2015 v 2014	
Average train speed (miles per hour)	26.6	25.4	24.0	5	%	6	%
Average terminal dwell time (hours)	28.1	29.3	30.3	(4)	%	(3)	%
Gross ton-miles (billions)	856.9	927.7	1,014.9	(8)	%	(9)	%
Revenue ton-miles (billions)	440.1	485.0	549.6	(9)	%	(12)	%
Operating ratio	63.5	63.1	63.5	0.4	pts	(0.4)	pts

Employees (average)	42,919	47,457	47,201	(10)%	1 %

Average Train Speed – Average train speed is calculated by dividing train miles by hours operated on our main lines between terminals. Average train speed, as reported to the Association of American Railroads, improved 5% in 2016 compared to 2015. Velocity gains resulted from lower volumes, improved network fluidity and a strong resource position.

Average train speed improved 6% in 2015 compared to 2014. Velocity gains resulted from lower volumes, improved network fluidity and a strong resource position. More favorable weather conditions in the first quarter of 2015 also contributed to the improvement in our average train speed.

Average Terminal Dwell Time – Average terminal dwell time is the average time that a rail car spends at our terminals. Lower average terminal dwell time improves asset utilization and service. Average terminal dwell time improved 4% in 2016 compared to 2015, reflecting the impact of lower volume and improved network operations.

Average terminal dwell time improved 3% in 2015 compared to 2014, reflecting the impact of lower volume and improved network operations.

Gross and Revenue Ton-Miles – Gross ton-miles are calculated by multiplying the weight of loaded and empty freight cars by the number of miles hauled. Revenue ton-miles are calculated by multiplying the weight of freight by the number of tariff miles. Gross ton-miles and revenue ton-miles decreased 8% and 9%, respectively in 2016 compared to 2015, resulting from a 7% decrease in carloads. Changes in commodity mix drove the variances in year-over-year declines between gross ton-miles, revenue ton-miles and carloads.

Gross ton-miles and revenue ton-miles decreased 9% and 12%, respectively in 2015 compared to 2014, resulting from a 6% decrease in carloads. Changes in commodity mix drove the variances in year-over-year declines between gross ton-miles, revenue ton-miles and carloads.

Operating Ratio – Operating ratio is our operating expenses reflected as a percentage of operating revenue. Our operating ratio increased 0.4 points to 63.5% in 2016 compared to 2015. Core price improvements, network efficiencies, and productivity gains were more than offset by the impact of lower volume, inflation, and other costs.

Our operating ratio improved 0.4 points to a new record low of 63.1% in 2015 compared to 2014. Core pricing gains, the impact of lower fuel prices, resource realignments, network efficiencies and productivity gains more than offset the impact of lower volume and inflation.

Employees – Employee levels decreased 10% in 2016 compared to 2015, driven by lower volume levels, productivity gains, a smaller capital workforce, and fewer transportation employees in training.

Employee levels increased 1% in 2015 compared to 2014, driven by more employees in training and an increase in capital project work. More employees were in training as a result of the number of transportation employees hired during the last half of 2014 and early 2015 to handle expected volume increases, and who continued receiving training in 2015, most of which occurred in the first nine months of the year.

Return on Average Common Shareholders' Equity

Millions, Except Percentages	2016	2015	2014
Net income	$ 4,233	$ 4,772	$ 5,180
Average equity	$ 20,317	$ 20,946	$ 21,207
Return on average common shareholders' equity	20.8%	22.8%	24.4%

Return on Invested Capital as Adjusted (ROIC)

Millions, Except Percentages	2016	2015	2014
Net income	$ 4,233	$ 4,772	$ 5,180
Interest expense	698	622	561
Interest on present value of operating leases	121	135	158
Taxes on interest	(306)	(285)	(273)
Net operating profit after taxes as adjusted (a)	$ 4,746	$ 5,244	$ 5,626
Average equity	$ 20,317	$ 20,946	$ 21,207
Average debt	14,604	12,807	10,469
Average present value of operating leases	2,581	2,814	2,980
Average invested capital as adjusted (b)	$ 37,502	$ 36,567	$ 34,656
Return on invested capital as adjusted (a/b)	12.7%	14.3%	16.2%

ROIC is considered a non-GAAP financial measure by SEC Regulation G and Item 10 of SEC Regulation S-K, and may not be defined and calculated by other companies in the same manner. We believe this measure is important to management and investors in evaluating the efficiency and effectiveness of our long-term capital investments. In addition, we currently use ROIC as a performance criteria in determining certain elements of equity compensation for our executives. ROIC should be considered in addition to, rather than as a substitute for, other information provided in accordance with GAAP. The most comparable GAAP measure is Return on Average Common Shareholders' Equity. The tables above provide reconciliations from return on average common shareholders' equity to ROIC. Our 2016 ROIC decreased 1.6 points compared to 2015, primarily as a result of lower earnings and a higher invested capital base.

Debt to Capital

Millions, Except Percentages	2016	2015
Debt (a)	$ 15,007	$ 14,201
Equity	19,932	20,702
Capital (b)	$ 34,939	$ 34,903
Debt to capital (a/b)	43.0%	40.7%

Adjusted Debt to Capital

Millions, Except Percentages	2016	2015
Debt	$ 15,007	$ 14,201
Net present value of operating leases	2,435	2,726
Unfunded pension and OPEB, net of taxes of $261 and $280	436	463
Adjusted debt (a)	$ 17,878	$ 17,390
Equity	19,932	20,702
Adjusted capital (b)	$ 37,810	$ 38,092
Adjusted debt to capital (a/b)	47.3%	45.7%

Adjusted debt to capital is a non-GAAP financial measure under SEC Regulation G and Item 10 of SEC Regulation S-K, and may not be defined and calculated by other companies in the same manner. We believe this measure is important to management and investors in evaluating the total amount of leverage in our capital structure, including off-balance sheet lease obligations, which we generally incur in connection with financing the acquisition of locomotives and freight cars and certain facilities. Operating leases were discounted using 4.7% and 4.8% at December 31, 2016, and 2015, respectively. The discount rate reflects our effective interest rate. We monitor the ratio of adjusted debt to capital as we manage our capital structure to balance cost-effective and efficient access to the capital markets with our overall cost of capital. Adjusted debt to capital should be considered in addition to, rather than as a substitute for, debt to capital. The tables above provide reconciliations from debt to capital to adjusted debt to capital. Our December 31, 2016 debt to capital ratios increased as a result of an $800 million increase in debt from December 31, 2015.

LIQUIDITY AND CAPITAL RESOURCES

As of December 31, 2016, our principal sources of liquidity included cash, cash equivalents, our receivables securitization facility, and our revolving credit facility, as well as the availability of commercial paper and other sources of financing through the capital markets. We had $1.7 billion of committed credit available under our credit facility, with no borrowings outstanding as of December 31, 2016. We did not make any borrowings under this facility during 2016. The value of the outstanding undivided interest held by investors under the $650 million capacity receivables securitization facility was $0 as of December 31, 2016. Our access to this receivables securitization facility may be reduced or restricted if our bond ratings fall to certain levels below investment grade. If our bond rating were to deteriorate, it could have an adverse impact on our liquidity. Access to commercial paper as well as other capital market financings is dependent on market conditions. Deterioration of our operating results or financial condition due to internal or external factors could negatively impact our ability to access capital markets as a source of liquidity. Access to liquidity through the capital markets is also dependent on our financial stability. We expect that we will continue to have access to liquidity through any or all of the following sources or activities: (i) increasing the size or utilization of our receivables securitization, (ii) issuing commercial paper, (iii) entering into bank loans, outside of our revolving credit facility, or (iv) issuing bonds or other debt securities to public or private investors based on our assessment of the current condition of the credit markets. The Company’s $1.7 billion revolving credit facility is intended to support the issuance of commercial paper by UPC and also serves as an emergency source of liquidity. The Company currently does not intend to make any borrowings under this facility.

At December 31, 2016, we had a working capital deficit, which does not indicate a lack of liquidity. We maintain adequate resources and, when necessary, have adequate access to capital markets to meet any foreseeable cash requirements, in addition to sufficient financial capacity to satisfy our current liabilities. The decrease at 2016 year-end was primarily due to a decrease in other current assets related to a tax receivable for the late extension of bonus depreciation at December 31, 2015, along with an increase at December 31, 2016, in accounts payable and upcoming debt maturities. At December 31, 2015, we had a working capital surplus.

Cash Flows

Millions	2016	2015	2014
Cash provided by operating activities	$ 7,525	$ 7,344	$ 7,385
Cash used in investing activities	(3,393)	(4,476)	(4,249)
Cash used in financing activities	(4,246)	(3,063)	(2,982)
Net change in cash and cash equivalents	$ (114)	$ (195)	$ 154

Operating Activities

Cash provided by operating activities increased in 2016 compared to 2015. The timing of tax payments primarily related to bonus depreciation and changes in working capital more than offset lower net income.

Cash provided by operating activities decreased in 2015 compared to 2014 due to lower net income and changes in working capital, partially offset by the timing of tax payments.

In December of 2014, Congress extended 50% bonus depreciation for 2014; however the related benefit was realized in 2015, rather than 2014. Similarly, in December of 2015, Congress extended bonus depreciation through 2019, which delayed the benefit of 2015 bonus depreciation into 2016. Bonus depreciation will be at a rate of 50% for 2016 and 2017, 40% for 2018 and 30% for 2019.

Investing Activities

Lower capital investments, partially offset by short-term investment purchases, decreased cash used in investing activities in 2016 compared to 2015.

Higher capital investments in locomotives and freight cars, including $327 million in early lease buyouts, which we exercised due to favorable economic terms and market conditions, drove the increase in cash used in investing activities in 2015 compared to 2014.

The following tables detail cash capital investments and track statistics for the years ended December 31, 2016, 2015, and 2014:

Millions	2016	2015	2014
Rail and other track material	$ 628	$ 734	$ 749
Ties	494	455	415
Ballast	235	233	204
Other [a]	480	438	378
Total road infrastructure replacements	1,837	1,860	1,746
Line expansion and other capacity projects	153	457	515
Commercial facilities	152	227	217
Total capacity and commercial facilities	305	684	732
Locomotives and freight cars [b]	854	1,436	1,067
Positive train control	371	381	384
Technology and other [c]	138	289	417
Total cash capital investments	$ 3,505	$ 4,650	$ 4,346

[a] Other includes bridges and tunnels, signals, other road assets, and road work equipment.
[b] Locomotives and freight cars include early lease buyouts of $90 million in 2016, $327 million in 2015, and $75 million in 2014.
[c] Technology and other includes the $261 million early buyout of our headquarters building operating lease in 2014.

	2016	2015	2014
Track miles of rail replaced	791	767	912
Track miles of rail capacity expansion	52	103	119
New ties installed (thousands)	4,482	4,178	4,076
Miles of track surfaced	11,764	10,076	10,791

Capital Plan – In 2017, we expect our capital plan to be approximately $3.1 billion, which may be revised if business conditions or the regulatory environment affect our ability to generate sufficient returns on these investments. While asset replacements will fluctuate as part of our renewal strategy, we expect to use 65% to 75% of our capital investments to renew and improve existing capital assets. We will continue to invest in our network and terminals where appropriate, balancing terminal capacity with mainline capacity. Significant investments in technology improvements are planned, including approximately $300 million for PTC. We also will continue commercial investments in rail facilities and equipment, including approximately 60 locomotives, intermodal containers and chassis, and freight cars.

We expect to fund our 2017 cash capital plan by using some or all of the following: cash generated from operations, proceeds from the sale or lease of various operating and non-operating properties, proceeds from the issuance of long-term debt, and cash on hand. Our annual capital plan is a critical component of our long-term strategic plan. We expect our plan will enhance the long-term value of the Company for our shareholders by providing sufficient resources to (i) replace and improve our existing track infrastructure to provide safe and fluid operations, (ii) increase network efficiency by adding or improving facilities and track, and (iii) make investments that meet customer demand and take advantage of opportunities for long-term growth.

Financing Activities

Cash used in financing activities increased in 2016 compared to 2015. An increase of $457 million in debt repaid and a decrease of $1,345 million in debt issued more than offset a decrease of $465 million in dividends paid. The decrease in dividends paid was a result of adjusting the dividend payable dates in 2015 to align with the timing of the quarterly dividend declaration and payment dates within the same quarter. Aligning the quarterly dividend declaration and payment resulted in two payments in the first quarter of 2015: the fourth quarter 2014 dividend of $438 million, which was paid on January 2, 2015, as well as the first quarter 2015 dividend of $484 million, which was paid on March 30, 2015. The second quarter 2015 dividend of $479 million was paid on June 30, 2015, the third quarter 2015 dividend of $476 million was paid on September 30, 2015, and the fourth quarter 2015 dividend of $467 million was paid on December 31, 2015.

Cash used in financing activities increased in 2015 compared to 2014. An increase of $712 million in dividends paid and $240 million for the repurchase of shares under our common stock repurchase program more than offset an increase of $740 million in debt issued and a decrease of $154 million in debt repaid. The higher dividend payments primarily were a result of adjusting the dividend payable dates to align with the timing of the quarterly dividend declaration and payment within the same quarter as mentioned above. Higher dividends per share also contributed to the increase in dividends paid.

See Note 15 of the Consolidated Financial Statements for a description of all our outstanding financing arrangements and significant new borrowings.

Ratio of Earnings to Fixed Charges

For each of the years ended December 31, 2016, 2015, and 2014, our ratio of earnings to fixed charges was 9.6, 11.6, and 13.5, respectively. The ratio of earnings to fixed charges was computed on a consolidated basis. Earnings represent income from continuing operations, less equity earnings net of distributions, plus fixed charges and income taxes. Fixed charges represent interest charges, amortization of debt discount, and the estimated amount representing the interest portion of rental charges. (See Exhibit 12 to this report for the calculation of the ratio of earnings to fixed charges.)

Common Shareholders' Equity

Dividend Restrictions – Our revolving credit facility includes a debt-to-net worth covenant (discussed in the Credit Facilities section above) that, under certain circumstances, restricts the payment of cash dividends to our shareholders. The amount of retained earnings available for dividends was $12.4 billion and $13.6 billion at December 31, 2016, and 2015, respectively.

Share Repurchase Program

Effective January 1, 2014, our Board of Directors authorized the repurchase of up to 120 million shares of our common stock by December 31, 2017, replacing our previous repurchase program. As of December 31, 2016, we repurchased a total of $19.1 billion of our common stock since the commencement of our repurchase programs in 2007. The table below represents shares repurchased under this repurchase program.

	Number of Shares Purchased		Average Price Paid	
	2016	2015	2016	2015
First quarter	9,315,807	6,881,455	$ 76.49	$ 117.28
Second quarter	7,026,100	7,975,100	85.66	104.62
Third quarter	9,088,613	13,800,700	93.63	89.65
Fourth quarter	9,624,667	6,646,899	97.60	88.19
Total	35,055,187	35,304,154	$ 88.57	$ 98.14

On November 17, 2016, our Board of Directors approved the early renewal of the share repurchase program, authorizing the repurchase of up to 120 million shares of our common stock by December 31, 2020. The new authorization was effective January 1, 2017, and replaces the previous authorization, which expired on December 31, 2016.

Management's assessments of market conditions and other pertinent facts guide the timing and volume of all repurchases. We expect to fund any share repurchases under this program through cash generated from operations, the sale or lease of various operating and non-operating properties, debt issuances, and cash on hand. Repurchased shares are recorded in treasury stock at cost, which includes any applicable commissions and fees.

From January 1, 2017, through February 2, 2017, we repurchased 2.75 million shares at an aggregate cost of approximately $291 million.

Contractual Obligations and Commercial Commitments

As described in the notes to the Consolidated Financial Statements and as referenced in the tables below, we have contractual obligations and commercial commitments that may affect our financial condition. Based on our assessment of the underlying provisions and circumstances of our contractual obligations and commercial commitments, including material sources of off-balance sheet and structured finance arrangements, other than the risks that we and other similarly situated companies face with respect to the condition of the capital markets (as described in Item 1A of Part II of this report), there is no known trend, demand, commitment, event, or uncertainty that is reasonably likely to occur that would have a material adverse effect on our consolidated results of operations, financial condition, or liquidity. In addition, our commercial obligations, financings, and commitments are customary transactions that are similar to those of other comparable corporations, particularly within the transportation industry.

The following tables identify material obligations and commitments as of December 31, 2016:

		Payments Due by December 31,						
Contractual Obligations Millions	Total	2017	2018	2019	2020	2021	After 2021	Other
Debt [a]	$ 25,292	$ 1,195	$ 998	$ 1,040	$ 1,399	$ 1,024	$ 19,636	$ -
Operating leases [b]	3,043	461	390	348	285	245	1,314	-
Capital lease obligations [c]	1,355	221	193	179	187	158	417	-
Purchase obligations [d]	3,515	1,874	897	275	215	160	62	32
Other post retirement benefits [e]	465	47	47	47	47	47	230	-
Income tax contingencies [f]	125	-	-	-	-	-	-	125
Total contractual obligations	$ 33,795	$ 3,798	$ 2,525	$ 1,889	$ 2,133	$ 1,634	$ 21,659	$ 157

[a] Excludes capital lease obligations of $1,105 million, as well as unamortized discount and deferred issuance costs of $(894) million. Includes an interest component of $10,496 million.

[b] Includes leases for locomotives, freight cars, other equipment, and real estate.

[c] Represents total obligations, including interest component of $250 million.

[d] Purchase obligations include locomotive maintenance contracts; purchase commitments for fuel purchases, locomotives, ties, ballast, and rail; and agreements to purchase other goods and services. For amounts where we cannot reasonably estimate the year of settlement, they are reflected in the Other column.

[e] Includes estimated other post retirement, medical, and life insurance payments, payments made under the unfunded pension plan for the next ten years.

[f] Future cash flows for income tax contingencies reflect the recorded liabilities and assets for unrecognized tax benefits, including interest and penalties, as of December 31, 2016. For amounts where the year of settlement is uncertain, they are reflected in the Other column.

Amount of Commitment Expiration per Period

Other Commercial Commitments Millions	Total	2017	2018	2019	2020	2021	After 2021
Credit facilities [a]	$ 1,700	$ -	$ -	$ 1,700	$ -	$ -	$ -
Receivables securitization facility [b]	650	-	-	650	-	-	-
Guarantees [c]	43	10	11	7	5	5	5
Standby letters of credit [d]	19	17	2	-	-	-	-
Total commercial commitments	$ 2,412	$ 27	$ 13	$ 2,357	$ 5	$ 5	$ 5

[a] None of the credit facility was used as of December 31, 2016.
[b] None of the receivables securitization facility was utilized as of December 31, 2016. The full program matures in July 2019.
[c] Includes guaranteed obligations related to our affiliated operations.
[d] None of the letters of credit were drawn upon as of December 31, 2016.

Off-Balance Sheet Arrangements

Guarantees – At December 31, 2016, and 2015, we were contingently liable for $43 million and $53 million in guarantees. The fair value of these obligations as of both December 31, 2016, and 2015, was $0. We entered into these contingent guarantees in the normal course of business, and they include guaranteed obligations related to our affiliated operations. The final guarantee expires in 2022. We are not aware of any existing event of default that would require us to satisfy these guarantees. We do not expect that these guarantees will have a material adverse effect on our consolidated financial condition, results of operations, or liquidity.

OTHER MATTERS

Labor Agreements – Approximately 84% of our 42,919 full-time-equivalent employees are represented by 14 major rail unions. On January 1, 2015, current labor agreements became subject to modification and we began the current round of negotiations with the unions. Existing agreements remain in effect until new agreements are reached or the Railway Labor Act's (RLA) procedures (which include mediation, cooling-off periods, and the possibility of Presidential Emergency Boards and Congressional intervention) are exhausted. The railroad industry is currently in mediation with all bargaining coalitions. Under the Railway Labor Act, the National Mediation Board controls timing and location of mediation conferences and when to terminate mediation, moving the parties to the next stages of the RLA process. Contract negotiations historically continue for an extended period of time and we rarely experience work stoppages while negotiations are pending.

Inflation – Long periods of inflation significantly increase asset replacement costs for capital-intensive companies. As a result, assuming that we replace all operating assets at current price levels, depreciation charges (on an inflation-adjusted basis) would be substantially greater than historically reported amounts.

Sensitivity Analyses – The sensitivity analyses that follow illustrate the economic effect that hypothetical changes in interest rates could have on our results of operations and financial condition. These hypothetical changes do not consider other factors that could impact actual results.

At December 31, 2016, we had variable-rate debt representing approximately 0.7% of our total debt. If variable interest rates average one percentage point higher in 2017 than our December 31, 2016 variable rate, which was approximately 1.7%, our interest expense would increase by approximately $1 million. This amount was determined by considering the impact of the hypothetical interest rate on the balances of our variable-rate debt at December 31, 2016.

Market risk for fixed-rate debt is estimated as the potential increase in fair value resulting from a hypothetical one percentage point decrease in interest rates as of December 31, 2016, and amounts to an increase of approximately $1.9 billion to the fair value of our debt at December 31, 2016. We estimated the fair values of our fixed-rate debt by considering the impact of the hypothetical interest rates on quoted market prices and current borrowing rates.

Accounting Pronouncements – See Note 3 to the Consolidated Financial Statements.

Asserted and Unasserted Claims – Various claims and lawsuits are pending against us and certain of our subsidiaries. We cannot fully determine the effect of all asserted and unasserted claims on our consolidated results of operations, financial condition, or liquidity. To the extent possible, we have recorded a liability where asserted and unasserted claims are considered probable and where such claims can be reasonably estimated. We do not expect that any known lawsuits, claims, environmental costs, commitments, contingent liabilities, or guarantees will have a material adverse effect on our consolidated results of operations, financial condition, or liquidity after taking into account liabilities and insurance recoveries previously recorded for these matters.

Indemnities – Our maximum potential exposure under indemnification arrangements, including certain tax indemnifications, can range from a specified dollar amount to an unlimited amount, depending on the nature of the transactions and the agreements. Due to uncertainty as to whether claims will be made or how they will be resolved, we cannot reasonably determine the probability of an adverse claim or reasonably estimate any adverse liability or the total maximum exposure under these indemnification arrangements. We do not have any reason to believe that we will be required to make any material payments under these indemnity provisions.

Climate Change – Although climate change could have an adverse impact on our operations and financial performance in the future (see Risk Factors under Item 1A of this report), we are currently unable to predict the manner or severity of such impact. However, we continue to take steps and explore opportunities to reduce the impact of our operations on the environment, including investments in new technologies, using training programs to reduce fuel consumption, and changing our operations to increase fuel efficiency.

CRITICAL ACCOUNTING POLICIES

Our Consolidated Financial Statements have been prepared in accordance with GAAP. The preparation of these financial statements requires estimation and judgment that affect the reported amounts of revenues, expenses, assets, and liabilities. We base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. The following critical accounting policies are a subset of our significant accounting policies described in Note 2 to the Financial Statements and Supplementary Data, Item 8. These critical accounting policies affect significant areas of our financial statements and involve judgment and estimates. If these estimates differ significantly from actual results, the impact on our Consolidated Financial Statements may be material.

Personal Injury – The cost of personal injuries to employees and others related to our activities is charged to expense based on estimates of the ultimate cost and number of incidents each year. We use an actuarial analysis to measure the expense and liability, including unasserted claims. The Federal

Employers' Liability Act (FELA) governs compensation for work-related accidents. Under FELA, damages are assessed based on a finding of fault through litigation or out-of-court settlements. We offer a comprehensive variety of services and rehabilitation programs for employees who are injured at work.

Our personal injury liability is not discounted to present value due to the uncertainty surrounding the timing of future payments. Approximately 94% of the recorded liability is related to asserted claims and approximately 6% is related to unasserted claims at December 31, 2016. Because of the uncertainty surrounding the ultimate outcome of personal injury claims, it is reasonably possible that future costs to settle these claims may range from approximately $290 million to $317 million. We record an accrual at the low end of the range as no amount of loss within the range is more probable than any other. Estimates can vary over time due to evolving trends in litigation.

Our personal injury liability activity was as follows:

Millions	2016	2015	2014
Beginning balance	$ 318	$ 335	$ 294
Current year accruals	75	89	96
Changes in estimates for prior years	(29)	(3)	9
Payments	(74)	(103)	(64)
Ending balance at December 31	$ 290	$ 318	$ 335
Current portion, ending balance at December 31	$ 62	$ 63	$ 111

Our personal injury claims activity was as follows:

	2016	2015	2014
Open claims, beginning balance	2,404	2,618	2,605
New claims	2,453	2,573	2,773
Settled or dismissed claims	(2,700)	(2,787)	(2,760)
Open claims, ending balance at December 31	2,157	2,404	2,618

In conjunction with the liability update performed in 2016, we also reassessed our estimated insurance recoveries. We have recognized an asset for estimated insurance recoveries at December 31, 2016, and 2015. Any changes to recorded insurance recoveries are included in the above table in the Changes in estimates for prior years category.

Asbestos – We are a defendant in a number of lawsuits in which current and former employees and other parties allege exposure to asbestos. We assess our potential liability using a statistical analysis of resolution costs for asbestos-related claims. This liability is updated annually and excludes future defense and processing costs. The liability for resolving both asserted and unasserted claims was based on the following assumptions:

- The ratio of future claims by alleged disease would be consistent with historical averages adjusted for inflation.
- The number of claims filed against us will decline each year.
- The average settlement values for asserted and unasserted claims will be equivalent to historical averages.
- The percentage of claims dismissed in the future will be equivalent to historical averages.

Our liability for asbestos-related claims is not discounted to present value due to the uncertainty surrounding the timing of future payments. Approximately 20% of the recorded liability related to asserted claims and approximately 80% related to unasserted claims at December 31, 2016. Because of the uncertainty surrounding the ultimate outcome of asbestos-related claims, it is reasonably possible that future costs to settle these claims may range from approximately $111 million to $118 million. We record an accrual at the low end of the range as no amount of loss within the range is more probable than any other.

Our asbestos-related liability activity was as follows:

Millions	2016	2015	2014
Beginning balance	$ 120	$ 126	$ 131
Accruals/(Credits)	12	-	1
Payments	(21)	(6)	(6)
Ending balance at December 31	$ 111	$ 120	$ 126
Current portion, ending balance at December 31	$ 8	$ 6	$ 8

Our asbestos-related claims activity was as follows:

	2016	2015	2014
Open claims, beginning balance	1,089	1,065	1,140
New claims	164	193	183
Settled or dismissed claims	(310)	(169)	(258)
Open claims, ending balance at December 31	943	1,089	1,065

In conjunction with the liability update performed in 2016, we also reassessed our estimated insurance recoveries. We have recognized an asset for estimated insurance recoveries at December 31, 2016, and 2015. The amounts recorded for asbestos-related liabilities and related insurance recoveries were based on currently known facts. However, future events, such as the number of new claims filed each year, average settlement costs, and insurance coverage issues, could cause the actual costs and insurance recoveries to be higher or lower than the projected amounts. Estimates also may vary in the future if strategies, activities, and outcomes of asbestos litigation materially change; federal and state laws governing asbestos litigation increase or decrease the probability or amount of compensation of claimants; and there are material changes with respect to payments made to claimants by other defendants.

Environmental Costs – We are subject to federal, state, and local environmental laws and regulations. We have identified 292 sites at which we are or may be liable for remediation costs associated with alleged contamination or for violations of environmental requirements. This includes 33 sites that are the subject of actions taken by the U.S. government, 21 of which are currently on the Superfund National Priorities List. Certain federal legislation imposes joint and several liability for the remediation of identified sites; consequently, our ultimate environmental liability may include costs relating to activities of other parties, in addition to costs relating to our own activities at each site.

When we identify an environmental issue with respect to property owned, leased, or otherwise used in our business, we perform, with assistance of our consultants, environmental assessments on the property. We expense the cost of the assessments as incurred. We accrue the cost of remediation where our obligation is probable and such costs can be reasonably estimated. Our environmental liability is not discounted to present value due to the uncertainty surrounding the timing of future payments.

Our environmental liability activity was as follows:

Millions	2016	2015	2014
Beginning balance	$ 190	$ 182	$ 171
Accruals	84	61	56
Payments	(62)	(53)	(45)
Ending balance at December 31	$ 212	$ 190	$ 182
Current portion, ending balance at December 31	$ 55	$ 52	$ 60

Our environmental site activity was as follows:

	2016	2015	2014
Open sites, beginning balance	290	270	268
New sites	85	66	55
Closed sites	(83)	(46)	(53)
Open sites, ending balance at December 31	292	290	270

The environmental liability includes future costs for remediation and restoration of sites, as well as ongoing monitoring costs, but excludes any anticipated recoveries from third parties. Cost estimates are based on information available for each site, financial viability of other potentially responsible parties, and existing technology, laws, and regulations. The ultimate liability for remediation is difficult to determine because of the number of potentially responsible parties, site-specific cost sharing arrangements with other potentially responsible parties, the degree of contamination by various wastes, the scarcity and quality of volumetric data related to many of the sites, and the speculative nature of remediation costs. Estimates of liability may vary over time due to changes in federal, state, and local laws governing environmental remediation. Current obligations are not expected to have a material adverse effect on our consolidated results of operations, financial condition, or liquidity.

Property and Depreciation – Our railroad operations are highly capital intensive, and our large base of homogeneous, network-type assets turns over on a continuous basis. Each year we develop a capital program for the replacement of assets and for the acquisition or construction of assets that enable us to enhance our operations or provide new service offerings to customers. Assets purchased or constructed throughout the year are capitalized if they meet applicable minimum units of property criteria. Properties and equipment are carried at cost and are depreciated on a straight-line basis over their estimated service lives, which are measured in years, except for rail in high-density traffic corridors (i.e., all rail lines except for those subject to abandonment, yard and switching tracks, and electronic yards) for which lives are measured in millions of gross tons per mile of track. We use the group method of depreciation in which all items with similar characteristics, use, and expected lives are grouped together in asset classes, and are depreciated using composite depreciation rates. The group method of depreciation treats each asset class as a pool of resources, not as singular items. We currently have more than 60 depreciable asset classes, and we may increase or decrease the number of asset classes due to changes in technology, asset strategies, or other factors.

We determine the estimated service lives of depreciable railroad property by means of depreciation studies. We perform depreciation studies at least every three years for equipment and every six years for track assets (i.e., rail and other track material, ties, and ballast) and other road property. Our depreciation studies take into account the following factors:

- Statistical analysis of historical patterns of use and retirements of each of our asset classes;
- Evaluation of any expected changes in current operations and the outlook for continued use of the assets;

· Evaluation of technological advances and changes to maintenance practices; and
· Expected salvage to be received upon retirement.

For rail in high-density traffic corridors, we measure estimated service lives in millions of gross tons per mile of track. It has been our experience that the lives of rail in high-density traffic corridors are closely correlated to usage (i.e., the amount of weight carried over the rail). The service lives also vary based on rail weight, rail condition (e.g., new or secondhand), and rail type (e.g., straight or curve). Our depreciation studies for rail in high-density traffic corridors consider each of these factors in determining the estimated service lives. For rail in high-density traffic corridors, we calculate depreciation rates annually by dividing the number of gross ton-miles carried over the rail (i.e., the weight of loaded and empty freight cars, locomotives and maintenance of way equipment transported over the rail) by the estimated service lives of the rail measured in millions of gross tons per mile. Rail in high-density traffic corridors accounts for approximately 70 percent of the historical cost of rail and other track material. Based on the number of gross ton-miles carried over our rail in high density traffic corridors during 2016, the estimated service lives of the majority of this rail ranged from approximately 20 years to approximately 42 years. For all other depreciable assets, we compute depreciation based on the estimated service lives of our assets as determined from the analysis of our depreciation studies. Changes in the estimated service lives of our assets and their related depreciation rates are implemented prospectively.

Estimated service lives of depreciable railroad property may vary over time due to changes in physical use, technology, asset strategies, and other factors that will have an impact on the retirement profiles of our assets. We are not aware of any specific factors that are reasonably likely to significantly change the estimated service lives of our assets. Actual use and retirement of our assets may vary from our current estimates, which would impact the amount of depreciation expense recognized in future periods.

Changes in estimated useful lives of our assets due to the results of our depreciation studies could significantly impact future periods' depreciation expense and have a material impact on our Consolidated Financial Statements. If the estimated useful lives of all depreciable assets were increased by one year, annual depreciation expense would decrease by approximately $65 million. If the estimated useful lives of all depreciable assets were decreased by one year, annual depreciation expense would increase by approximately $70 million. Our recent depreciation studies have resulted in lower depreciation rates for some asset classes. These lower rates will partially offset the impact of a projected higher depreciable asset base, resulting in an increase in total depreciation expense by approximately 3% to 4% in 2017 versus 2016.

Under group depreciation, the historical cost (net of salvage) of depreciable property that is retired or replaced in the ordinary course of business is charged to accumulated depreciation and no gain or loss is recognized. The historical cost of certain track assets is estimated using (i) inflation indices published by the Bureau of Labor Statistics and (ii) the estimated useful lives of the assets as determined by our depreciation studies. The indices were selected because they closely correlate with the major costs of the properties comprising the applicable track asset classes. Because of the number of estimates inherent in the depreciation and retirement processes and because it is impossible to precisely estimate each of these variables until a group of property is completely retired, we continually monitor the estimated service lives of our assets and the accumulated depreciation associated with each asset class to ensure our depreciation rates are appropriate. In addition, we determine if the recorded amount of accumulated depreciation is deficient (or in excess) of the amount indicated by our depreciation studies. Any deficiency (or excess) is amortized as a component of depreciation expense over the remaining service lives of the applicable classes of assets.

For retirements of depreciable railroad properties that do not occur in the normal course of business, a gain or loss may be recognized if the retirement meets each of the following three conditions: (i) it is unusual, (ii) it is material in amount, and (iii) it varies significantly from the retirement profile identified through our depreciation studies. During the last three fiscal years, no gains or losses were recognized due to the retirement of depreciable railroad properties. A gain or loss is recognized in other income when we sell land or dispose of assets that are not part of our railroad operations.

Income Taxes – We account for income taxes by recording taxes payable or refundable for the current year and deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in our financial statements or tax returns. These expected future tax consequences are measured based on current tax law; the effects of future tax legislation are not anticipated. Future tax legislation, such as a change in the corporate tax rate, could have a material impact on our financial condition, results of operations, or liquidity. For example, a permanent 1% increase in future income tax rates would increase our deferred tax liability by approximately $410 million. Similarly, a permanent 1% decrease in future income tax rates would decrease our deferred tax liability by approximately $410 million.

When appropriate, we record a valuation allowance against deferred tax assets to reflect that these tax assets may not be realized. In determining whether a valuation allowance is appropriate, we consider whether it is more likely than not that all or some portion of our deferred tax assets will not be realized, based on management's judgments using available evidence for purposes of estimating whether future taxable income will be sufficient to realize a deferred tax asset. In 2017 and 2016, there were no valuation allowances.

We recognize tax benefits that are more likely than not to be sustained upon examination by tax authorities. The amount recognized is measured as the largest amount of benefit that is greater than 50 percent likely to be realized upon settlement. A liability for "unrecognized tax benefits" is recorded for any tax benefits claimed in our tax returns that do not meet these recognition and measurement standards.

Pension and Other Postretirement Benefits – We use an actuarial analysis to measure the liabilities and expenses associated with providing pension and medical and life insurance benefits (OPEB) to eligible employees. In order to use actuarial methods to value the liabilities and expenses, we must make several assumptions. The critical assumptions used to measure pension obligations and expenses are the discount rates and expected rate of return on pension assets. For OPEB, the critical assumptions are the discount rates and health care cost trend rate.

We evaluate our critical assumptions at least annually, and selected assumptions are based on the following factors:

- Beginning in 2016, we measure the service cost and interest cost components of our net periodic benefit cost by using individual spot rates matched with separate cash flows for each future year. Discount rates are based on a Mercer yield curve of high quality corporate bonds (rated AA by a recognized rating agency).
- Expected return on plan assets is based on our asset allocation mix and our historical return, taking into consideration current and expected market conditions.
- Health care cost trend rate is based on our historical rates of inflation and expected market conditions.

The following tables present the key assumptions used to measure net periodic pension and OPEB cost/(benefit) for 2017 and the estimated impact on 2017 net periodic pension and OPEB cost/(benefit) relative to a change in those assumptions:

Assumptions	Pension	OPEB
Discount rate for benefit obligations	4.37%	4.13%
Discount rate for interest on benefit obligations	3.65%	3.34%
Discount rate for service cost	4.69%	4.59%
Discount rate for interest on service cost	4.55%	4.44%
Expected return on plan assets	7.50%	N/A
Compensation increase	4.20%	N/A
Health care cost trend rate:		
Pre-65 current	N/A	6.52%
Pre-65 level in 2038	N/A	4.50%

Sensitivities	Increase in Expense	
Millions	Pension	OPEB
0.25% decrease in discount rates	$ 11	$ -
0.25% increase in compensation scale	$ 8	N/A
0.25% decrease in expected return on plan assets	$ 9	N/A
1% increase in health care cost trend rate	N/A	$ 2

The following table presents the net periodic pension and OPEB cost for the years ended December 31:

Millions	Est. 2017	2016	2015	2014
Net periodic pension cost	$ 45	$ 43	$ 120	$ 69
Net periodic OPEB cost	23	13	19	15

Our net periodic pension cost is expected to increase to approximately $45 million in 2017 from $43 million in 2016. Our net periodic OPEB expense is expected to increase to approximately $23 million in 2017 from $13 million in 2016.

CAUTIONARY INFORMATION

Certain statements in this report, and statements in other reports or information filed or to be filed with the SEC (as well as information included in oral statements or other written statements made or to be made by us), are, or will be, forward-looking statements as defined by the Securities Act of 1933 and the Securities Exchange Act of 1934. These forward-looking statements and information include, without limitation, (A) statements in the Chairman’s letter preceding Part I; statements regarding planned capital expenditures under the caption “2017 Capital Plan” in Item 2 of Part I; statements regarding dividends in Item 5 of Part II; and statements and information set forth under the captions “2017 Outlook”; “Liquidity and Capital Resources”; and “Pension and Other Postretirement Benefits” in this Item 7 of Part II, and (B) any other statements or information in this report (including information incorporated herein by reference) regarding: expectations as to financial performance, revenue growth and cost savings; the time by which goals, targets, or objectives will be achieved; projections, predictions, expectations, estimates, or forecasts as to our business, financial and operational results, future economic performance, and general economic conditions; expectations as to operational or service performance or improvements; expectations as to the effectiveness of steps taken or to be taken to improve operations and/or service, including capital expenditures for infrastructure improvements and equipment acquisitions, any strategic business acquisitions, and modifications to our transportation plans; expectations as to existing or proposed new products and services; expectations as to the impact of any new regulatory activities or legislation on our operations or financial results; estimates of costs relating to environmental remediation and restoration; estimates and expectations regarding tax matters; expectations that claims, litigation, environmental costs, commitments, contingent liabilities, labor negotiations or agreements, or other matters will not have a material adverse effect on our consolidated results of operations, financial condition, or liquidity and any other similar expressions concerning matters that are not historical facts. Forward-looking statements may be identified by their use of forward-looking terminology, such as “believes,” “expects,” “may,” “should,” “would,” “will,” “intends,” “plans,” “esti “anticipates,” “projects” and similar words, phrases or expressions.

Forward-looking statements should not be read as a guarantee of future performance or results, and will not necessarily be accurate indications of the times that, or by which, such performance or results will be achieved. Forward-looking statements and information are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in the statements and information. Forward-looking statements and information reflect the good faith consideration by management of currently available information, and may be based on underlying assumptions believed to be reasonable under the circumstances. However, such information and assumptions (and, therefore, such forward-looking statements and information) are or may be subject to variables or unknown or unforeseeable events or circumstances over which management has little or no influence or control. The Risk Factors in Item 1A of this report could affect our future results and could cause those results or other outcomes to differ materially from those expressed or implied in any forward-looking statements or information. To the extent circumstances require or we deem it otherwise necessary, we will update or amend these risk factors in a Form 10-Q, Form 8-K or subsequent Form 10-K. All forward-looking statements are qualified by, and should be read in conjunction with, these Risk Factors.

Forward-looking statements speak only as of the date the statement was made. We assume no obligation to update forward-looking information to reflect actual results, changes in assumptions or changes in other factors affecting forward-looking information. If we do update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect thereto or with respect to other forward-looking statements.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Information concerning market risk sensitive instruments is set forth under Management’s Discussion and Analysis of Financial Condition and Results of Operations – Other Matters, Item 7.

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Item 8. Financial Statements and Supplementary Data

Index to Consolidated Financial Statements	Page

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Union Pacific Corporation

Omaha, Nebraska

We have audited the accompanying consolidated statements of financial position of Union Pacific Corporation and Subsidiary Companies (the "Corporation") as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, changes in common shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2016. Our audits also included the financial statement schedule listed in the Table of Contents at Part IV, Item 15. These financial statements and financial statement schedule are the responsibility of the Corporation’s management. Our responsibility is to express an opinion on the 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, such consolidated financial statements present fairly, in all material respects, the financial position of Union Pacific Corporation and Subsidiary Companies as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, such 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 have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Corporation's internal control over financial reporting as of December 31, 2016, based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 3, 2017 expressed an unqualified opinion on the Corporation’s internal control over financial reporting.

Omaha, Nebraska

February 3, 2017

CONSOLIDATED STATEMENTS OF INCOME

Union Pacific Corporation and Subsidiary Companies

Millions, Except Per Share Amounts, for the Years Ended December 31,	2016	2015	2014
Operating revenues:			
Freight revenues	$ 18,601	$ 20,397	$ 22,560
Other revenues	1,340	1,416	1,428
Total operating revenues	19,941	21,813	23,988
Operating expenses:			
Compensation and benefits	4,750	5,161	5,076
Purchased services and materials	2,258	2,421	2,558
Depreciation	2,038	2,012	1,904
Fuel	1,489	2,013	3,539
Equipment and other rents	1,137	1,230	1,234
Other	997	924	924
Total operating expenses	12,669	13,761	15,235
Operating income	7,272	8,052	8,753
Other income (Note 7)	192	226	151
Interest expense	(698)	(622)	(561)
Income before income taxes	6,766	7,656	8,343
Income taxes (Note 8)	(2,533)	(2,884)	(3,163)
Net income	$ 4,233	$ 4,772	$ 5,180
Share and Per Share (Note 9):			
Earnings per share - basic	$ 5.09	$ 5.51	$ 5.77
Earnings per share - diluted	$ 5.07	$ 5.49	$ 5.75
Weighted average number of shares - basic	832.4	866.2	897.1
Weighted average number of shares - diluted	835.4	869.4	901.1
Dividends declared per share	$ 2.255	$ 2.20	$ 1.91

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

Union Pacific Corporation and Subsidiary Companies

Millions, for the Years Ended	2016	2015	2014

December 31,			
Net income	$ 4,233	$ 4,772	$ 5,180
Other comprehensive income/(loss):			
Defined benefit plans	(29)	58	(448)
Foreign currency translation	(48)	(43)	(12)
Total other comprehensive income/(loss) [a]	(77)	15	(460)
Comprehensive income	$ 4,156	$ 4,787	$ 4,720

[a] Net of deferred taxes of $49 million, ($8) million, and $291 million during 2016, 2015, and 2014, respectively.
The accompanying notes are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

Union Pacific Corporation and Subsidiary Companies

Millions, Except Share and Per Share Amounts as of December 31,	2016	2015
Assets		
Current assets:		
Cash and cash equivalents	$ 1,277	$ 1,391
Short-term investments (Note 14)	60	-
Accounts receivable, net (Note 11)	1,258	1,356
Materials and supplies	717	736
Other current assets	284	647
Total current assets	3,596	4,130
Investments	1,457	1,410
Net properties (Note 12)	50,389	48,866
Other assets	276	194
Total assets	$ 55,718	$ 54,600
Liabilities and Common Shareholders' Equity		
Current liabilities:		
Accounts payable and other current liabilities (Note 13)	$ 2,882	$ 2,612
Debt due within one year (Note 15)	758	594
Total current liabilities	3,640	3,206
Debt due after one year (Note 15)	14,249	13,607
Deferred income taxes (Note 8)	15,996	15,241
Other long-term liabilities	1,901	1,844
Commitments and contingencies (Notes 17 and 18)		
Total liabilities	35,786	33,898
Common shareholders' equity:		
Common shares, $2.50 par value, 1,400,000,000 authorized; 1,110,986,415 and 1,110,426,354 issued; 815,824,413 and 849,211,436 outstanding, respectively	2,777	2,776
Paid-in-surplus	4,421	4,417
Retained earnings	32,587	30,233
Treasury stock	(18,581)	(15,529)
Accumulated other comprehensive loss (Note 10)	(1,272)	(1,195)
Total common shareholders' equity	19,932	20,702
Total liabilities and common shareholders' equity	$ 55,718	$ 54,600

The accompanying notes are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

Union Pacific Corporation and Subsidiary Companies

Millions, for the Years Ended December 31,	2016	2015	2014
Operating Activities			
Net income	$ 4,233	$ 4,772	$ 5,180
Adjustments to reconcile net income to cash provided by operating activities:			
Depreciation	2,038	2,012	1,904
Deferred and other income taxes	831	765	895
Net gain on non-operating asset dispositions	(94)	(144)	(69)
Other operating activities, net	(228)	116	(216)
Changes in current assets and liabilities:			
Accounts receivable, net	98	255	(197)
Materials and supplies	19	(24)	(59)
Other current assets	22	(47)	(35)
Accounts payable and other current liabilities	232	(276)	295
Income and other taxes	374	(85)	(313)
Cash provided by operating activities	7,525	7,344	7,385
Investing Activities			
Capital investments	(3,505)	(4,650)	(4,346)
Purchases of short-term investments (Note 14)	(580)	-	-
Maturities of short-term investments (Note 14)	520	-	-
Proceeds from asset sales	129	251	138
Other investing activities, net	43	(77)	(41)
Cash used in investing activities	(3,393)	(4,476)	(4,249)
Financing Activities			
Common share repurchases (Note 19)	(3,105)	(3,465)	(3,225)
Debt issued	1,983	3,328	2,588
Dividends paid	(1,879)	(2,344)	(1,632)
Debt repaid	(1,013)	(556)	(710)
Debt exchange	(191)	-	-
Other financing activities, net	(41)	(26)	(3)
Cash used in financing activities	(4,246)	(3,063)	(2,982)
Net change in cash and cash equivalents	(114)	(195)	154
Cash and cash equivalents at beginning of year	1,391	1,586	1,432
Cash and cash equivalents at end of year	$ 1,277	$ 1,391	$ 1,586
Supplemental Cash Flow Information			
Non-cash investing and financing activities:			
Capital investments accrued but not yet paid	$ 223	$ 100	$ 174
Capital lease financings	-	13	-
Cash dividends declared but not yet paid	-	-	438
Cash paid during the year for:			

Income taxes, net of refunds	$ (1,347)	$ (2,156)	$ (2,492)
Interest, net of amounts capitalized	(652)	(592)	(554)

The accompanying notes are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CHANGES IN COMMON SHAREHOLDERS' EQUITY

Union Pacific Corporation and Subsidiary Companies

Millions	Common Shares	Treasury Shares	Common Shares	Paid-in-Surplus	Retained Earnings	Treasury Stock	AOCI [a]	Total
Balance at January 1, 2014	1,109.7	(197.7)	$ 2,774	$ 4,210	$ 23,901	$ (8,910)	$ (750)	$ 21,225
Net income			-	-	5,180	-	-	5,180
Other comp. loss			-	-	-	-	(460)	(460)
Conversion, stock option exercises, forfeitures, and other	0.4	3.0	1	111	-	71	-	183
Share repurchases (Note 19)	-	(32.0)	-	-	-	(3,225)	-	(3,225)
Cash dividends declared ($1.91 per share)	-	-	-	-	(1,714)	-	-	(1,714)
Balance at December 31, 2014	1,110.1	(226.7)	$ 2,775	$ 4,321	$ 27,367	$ (12,064)	$ (1,210)	$ 21,189
Net income			-	-	4,772	-	-	4,772
Other comp. income			-	-	-	-	15	15
Conversion, stock option exercises, forfeitures, and other	0.3	0.8	1	96	-	-	-	97
Share repurchases (Note 19)	-	(35.3)	-	-	-	(3,465)	-	(3,465)
Cash dividends declared ($2.20 per share)	-	-	-	-	(1,906)	-	-	(1,906)
Balance at December 31, 2015	1,110.4	(261.2)	$ 2,776	$ 4,417	$ 30,233	$ (15,529)	$ (1,195)	$ 20,702
Net income			-	-	4,233	-	-	4,233
Other comp. loss			-	-	-	-	(77)	(77)
Conversion, stock option exercises, forfeitures, and other	0.6	1.1	1	4	-	53	-	58
Share repurchases (Note 19)	-	(35.1)	-	-	-	(3,105)	-	(3,105)

Cash dividends declared ($2.255 per share)	-	-	-	-	(1,879)	-	-	(1,879)
Balance at December 31, 2016	1,111.0	(295.2)	$ 2,777	$ 4,421	$ 32,587	$ (18,581)	$ (1,272)	$ 19,932

[a] AOCI = Accumulated Other Comprehensive Income/(Loss) (Note 10)
The accompanying notes are an integral part of these Consolidated Financial Statements.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Union Pacific Corporation and Subsidiary Companies

For purposes of this report, unless the context otherwise requires, all references herein to the “Corporation”, “Company”, “UPC”, “we”, “us”, and “our” mean Union Pacific Corporation and its subsidiaries, including Union Pacific Railroad Company, which will be separately referred to herein as “UPRR” or the “Railroad”.

1. Nature of Operations

Operations and Segmentation – We are a Class I railroad operating in the U.S. Our network includes 32,070 route miles, linking Pacific Coast and Gulf Coast ports with the Midwest and Eastern U.S. gateways and providing several corridors to key Mexican gateways. We own 26,053 miles and operate on the remainder pursuant to trackage rights or leases. We serve the western two-thirds of the country and maintain coordinated schedules with other rail carriers for the handling of freight to and from the Atlantic Coast, the Pacific Coast, the Southeast, the Southwest, Canada, and Mexico. Export and import traffic is moved through Gulf Coast and Pacific Coast ports and across the Mexican and Canadian borders.

The Railroad, along with its subsidiaries and rail affiliates, is our one reportable operating segment. Although we provide and analyze revenue by commodity group, we treat the financial results of the Railroad as one segment due to the integrated nature of our rail network. The following table provides freight revenue by commodity group:

Millions	2016	2015	2014
Agricultural Products	$ 3,625	$ 3,581	$ 3,777
Automotive	2,000	2,154	2,103
Chemicals	3,474	3,543	3,664
Coal	2,440	3,237	4,127
Industrial Products	3,348	3,808	4,400
Intermodal	3,714	4,074	4,489
Total freight revenues	$ 18,601	$ 20,397	$ 22,560
Other revenues	1,340	1,416	1,428
Total operating revenues	$ 19,941	$ 21,813	$ 23,988

Although our revenues are principally derived from customers domiciled in the U.S., the ultimate points of origination or destination for some products we transport are outside the U.S. Each of our commodity groups includes revenue from shipments to and from Mexico. Included in the above table are freight revenues from our Mexico business which amounted to $2.2 billion in 2016, $2.2 billion in 2015, and $2.3 billion in 2014.

Basis of Presentation – The Consolidated Financial Statements are presented in accordance with accounting principles generally accepted in the U.S. (GAAP) as codified in the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC).

2. Significant Accounting Policies

Principles of Consolidation – The Consolidated Financial Statements include the accounts of Union Pacific Corporation and all of its subsidiaries. Investments in affiliated companies (20% to 50% owned) are accounted for using the equity method of accounting. All intercompany transactions are eliminated. We currently have no less than majority-owned investments that require consolidation under variable interest entity requirements.

Cash and Cash Equivalents – Cash equivalents consist of investments with original maturities of three months or less.

Accounts Receivable – Accounts receivable includes receivables reduced by an allowance for doubtful accounts. The allowance is based upon historical losses, credit worthiness of customers, and current economic conditions. Receivables not expected to be collected in one year and the associated allowances are classified as other assets in our Consolidated Statements of Financial Position.

Investments – Investments represent our investments in affiliated companies (20% to 50% owned) that are accounted for under the equity method of accounting and investments in companies (less than 20% owned) accounted for under the cost method of accounting.

Materials and Supplies – Materials and supplies are carried at the lower of average cost or market.

Property and Depreciation – Properties and equipment are carried at cost and are depreciated on a straight-line basis over their estimated service lives, which are measured in years, except for rail in high-density traffic corridors (i.e., all rail lines except for those subject to abandonment, yard and switching tracks, and electronic yards), for which lives are measured in millions of gross tons per mile of track. We use the group method of depreciation in which all items with similar characteristics, use, and expected lives are grouped together in asset classes, and are depreciated using composite depreciation rates. The group method of depreciation treats each asset class as a pool of resources, not as singular items. We determine the estimated service lives of depreciable railroad assets by means of depreciation studies. Under the group method of depreciation, no gain or loss is recognized when depreciable property is retired or replaced in the ordinary course of business.

Impairment of Long-lived Assets – We review long-lived assets, including identifiable intangibles, for impairment when events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If impairment indicators are present and the estimated future undiscounted cash flows are less than the carrying value of the long-lived assets, the carrying value is reduced to the estimated fair value as measured by the discounted cash flows.

Revenue Recognition – We recognize freight revenues as freight moves from origin to destination. The allocation of revenue between reporting periods is based on the relative transit time in each reporting period with expenses recognized as incurred. Other revenues, which include revenues earned by our subsidiaries, revenues from our commuter rail operations, and accessorial revenue, are recognized as service is performed or contractual obligations are met. Customer incentives, which are primarily provided for shipping a specified cumulative volume or shipping to/from specific locations, are recorded as a reduction to operating revenues based on actual or projected future customer shipments.

Translation of Foreign Currency – Our portion of the assets and liabilities related to foreign investments are translated into U.S. dollars at the exchange rates in effect at the balance sheet date. Revenue and expenses are translated at the average rates of exchange prevailing during the year. Unrealized gains or losses are reflected within common shareholders' equity as accumulated other comprehensive income or loss.

Fair Value Measurements – We use a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The level in the fair value hierarchy within which the fair value measurement in its entirety falls is determined based on the lowest level input that is significant to the fair value measurement in its entirety. These levels include:

Level 1: Quoted market prices in active markets for identical assets or liabilities.

Level 2: Observable market-based inputs or unobservable inputs that are corroborated by market data.

Level 3: Unobservable inputs that are not corroborated by market data.

We have applied fair value measurements to our short term investments, pension plan assets and short- and long-term debt.

Stock-Based Compensation – We have several stock-based compensation plans under which employees and non-employee directors receive stock options, nonvested retention shares, and nonvested stock units. We refer to the nonvested shares and stock units collectively as “retention awards”. We have elected to issue treasury shares to cover option exercises and stock unit vestings, while new shares are issued when retention shares are granted.

We measure and recognize compensation expense for all stock-based awards made to employees and directors, including stock options. Compensation expense is based on the calculated fair value of the awards as measured at the grant date and is expensed ratably over the service period of the awards (generally the vesting period). The fair value of retention awards is the closing stock price on the date of grant, while the fair value of stock options is determined by using the Black-Scholes option pricing model.

Earnings Per Share – Basic earnings per share are calculated on the weighted-average number of common shares outstanding during each period. Diluted earnings per share include shares issuable upon exercise of outstanding stock options and stock-based awards where the conversion of such instruments would be dilutive.

Income Taxes – We account for income taxes by recording taxes payable or refundable for the current year and deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in our financial statements or tax returns. These expected future tax consequences are measured based on current tax law; the effects of future tax legislation are not anticipated. Future tax legislation, such as a change in the corporate tax rate, could have a material impact on our financial condition, results of operations, or liquidity.

When appropriate, we record a valuation allowance against deferred tax assets to reflect that these tax assets may not be realized. In determining whether a valuation allowance is appropriate, we consider whether it is more likely than not that all or some portion of our deferred tax assets will not be realized, based on management's judgments using available evidence for purposes of estimating whether future taxable income will be sufficient to realize a deferred tax asset.

We recognize tax benefits that are more likely than not to be sustained upon examination by tax authorities. The amount recognized is measured as the largest amount of benefit that is greater than 50 percent likely to be realized upon settlement. A liability for "unrecognized tax benefits" is recorded for any tax benefits claimed in our tax returns that do not meet these recognition and measurement standards.

Pension and Postretirement Benefits – We incur certain employment-related expenses associated with pensions and postretirement health benefits. In order to measure the expense associated with these benefits, we must make various assumptions including discount rates used to value certain liabilities, expected return on plan assets used to fund these expenses, compensation increases, employee turnover rates, anticipated mortality rates, and expected future health care costs. The assumptions used by us are based on our historical experience as well as current facts and circumstances. We use an actuarial analysis to measure the expense and liability associated with these benefits.

Personal Injury – The cost of injuries to employees and others on our property is charged to expense based on estimates of the ultimate cost and number of incidents each year. We use an actuarial analysis to measure the expense and liability. Our personal injury liability is not discounted to present value. Legal fees and incidental costs are expensed as incurred.

Asbestos – We estimate a liability for asserted and unasserted asbestos-related claims based on an assessment of the number and value of those claims. We use a statistical analysis to assist us in properly measuring our potential liability. Our liability for asbestos-related claims is not discounted to present value due to the uncertainty surrounding the timing of future payments. Legal fees and incidental costs are expensed as incurred.

Environmental – When environmental issues have been identified with respect to property currently or formerly owned, leased, or otherwise used in the conduct of our business, we perform, with the assistance of our consultants, environmental assessments on such property. We expense the cost of the assessments as incurred. We accrue the cost of remediation where our obligation is probable and such costs can be reasonably estimated. We do not discount our environmental liabilities when the timing of the anticipated cash payments is not fixed or readily determinable. Legal fees and incidental costs are expensed as incurred.

Use of Estimates – The preparation of our Consolidated Financial Statements in conformity with GAAP requires management to make estimates and assumptions that affect certain reported assets and liabilities, and the disclosure of certain contingent assets and liabilities as of the date of the consolidated financial statements, as well as the reported amounts of revenue and expenses during the reporting period. Actual future results may differ from such estimates.

3. Accounting Pronouncements

In May 2014, the FASB issued Accounting Standards Update No. 2014-09 (ASU 2014-09), Revenue from Contracts with Customers (Topic 606). ASU 2014-09 supersedes the revenue recognition guidance in Topic 605, Revenue Recognition. The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods and services to customers in an amount that reflects the consideration to which the entity expects to be entitled in the exchange for those goods or services. This standard is effective for annual reporting periods beginning after December 15, 2017, and can be adopted either retrospectively or as a cumulative effect adjustment as of the date of adoption. ASU 2014-09 is not expected to have a material impact on our consolidated financial position, results of operations, or cash flows.

In January 2016, the FASB issued Accounting Standards Update No. 2016-01 (ASU 2016-01), Recognition and Measurement of Financial Assets and Financial Liabilities (Subtopic 825-10). ASU 2016-01 provides guidance for the recognition, measurement, presentation, and disclosure of financial instruments. This guidance is effective for annual and interim periods beginning after December 15, 2017, and early adoption is not permitted. ASU 2016-01 is not expected to have a material impact on our consolidated financial position, results of operations, or cash flows.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02 (ASU 2016-02), Leases (Subtopic 842). ASU 2016-02 will require companies to recognize lease assets and lease liabilities on the balance sheet and disclose key information about leasing arrangements. For public companies, this standard is effective for annual reporting periods beginning after December 15, 2018, and early adoption is permitted. Management is currently evaluating the impact of this standard on our consolidated financial position, results of operations, and cash flows, but expects that the adoption will result in a significant increase in the Company’s assets and liabilities.

In March 2016, the FASB issued Accounting Standards Update No. 2016-09 (ASU 2016-09) Compensation - Stock Compensation (Topic 718), which simplifies the accounting for income taxes related to stock-based compensation. We elected to early adopt ASU 2016-09 in the first quarter of 2016 with an effective date of January 1, 2016. As a result of the adoption, we recognized excess tax benefits in the Consolidated Statements of Income and the Consolidated Statements of Cash Flows of $28 million for the year ended December 31, 2016. Prior periods have not been adjusted.

4. Stock Split

On June 6, 2014, we completed a two-for-one stock split, effected in the form of a 100% stock dividend. The stock split entitled all shareholders of record at the close of business on May 27, 2014, to receive one additional share of our common stock, par value $2.50 per share, for each share of common stock held on that date. All references to common shares and per share amounts have been retroactively adjusted to reflect the stock split for all periods presented.

5. Stock Options and Other Stock Plans

There are no restricted shares outstanding under the 1992 Restricted Stock Plan for Non-Employee Directors of Union Pacific Corporation. We no longer grant awards of restricted shares under this plan.

In April 2000, the shareholders approved the Union Pacific Corporation 2000 Directors Plan (Directors Plan) whereby 2,200,000 shares of our common stock were reserved for issuance to our non-employee directors. Under the Directors Plan, each non-employee director, upon his or her initial election to the Board of Directors, receives a grant of 4,000 retention shares or retention stock units. Prior to December 31, 2007, each non-employee director received annually an option to purchase at fair value a number of shares of our common stock, not to exceed 20,000 shares during any calendar year, determined by dividing 60,000 by 1/3 of the fair market value of one share of our common stock on the date of such Board of Directors meeting, with the resulting quotient rounded up or down to the nearest 50 shares. In September 2007, the Board of Directors eliminated the annual payment of options for 2008 and all future years. As of December 31, 2016, 40,000 restricted shares and 7,400 options were outstanding under the Directors Plan.

The Union Pacific Corporation 2004 Stock Incentive Plan (2004 Plan) was approved by shareholders in April 2004. The 2004 Plan reserved 84,000,000 shares of our common stock for issuance, plus any shares subject to awards made under previous plans that were outstanding on April 16, 2004, and became available for regrant pursuant to the terms of the 2004 Plan. Under the 2004 Plan, non-qualified options, stock appreciation rights, retention shares, stock units, and incentive bonus awards may be granted to eligible employees of the Corporation and its subsidiaries. Non-employee directors are not eligible for awards under the 2004 Plan. As of December 31, 2016, 2,715,137 options and 726,657 retention shares and stock units were outstanding under the 2004 Plan. We no longer grant any stock options or other stock or unit awards under this plan.

The Union Pacific Corporation 2013 Stock Incentive Plan (2013 Plan) was approved by shareholders in May 2013. The 2013 Plan reserved 78,000,000 shares of our common stock for issuance, plus any shares subject to awards made under previous plans as of February 28, 2013, that are subsequently cancelled, expired, forfeited or otherwise not issued under previous plans. Under the 2013 Plan, non-qualified options, incentive stock options, retention shares, stock units, and incentive bonus awards may be granted to eligible employees of the Corporation and its subsidiaries. Non-employee directors are not eligible for awards under the 2013 Plan. As of December 31, 2016, 3,439,910 options and 3,207,689 retention shares and stock units were outstanding under the 2013 Plan.

Pursuant to the above plans 73,745,250; 76,548,520; and 77,786,772 shares of our common stock were authorized and available for grant at December 31, 2016, 2015, and 2014, respectively.

Stock-Based Compensation – We have several stock-based compensation plans under which employees and non-employee directors receive stock options, nonvested retention shares, and nonvested stock units. We refer to the nonvested shares and stock units collectively as “retention awards”. We have elected to issue treasury shares to cover option exercises and stock unit vestings, while new shares are issued when retention shares are granted.

Information regarding stock-based compensation appears in the table below:

Millions	2016	2015	2014
Stock-based compensation, before tax:			
Stock options	$ 16	$ 17	$ 21
Retention awards	66	81	91
Total stock-based compensation, before tax	$ 82	$ 98	$ 112
Excess tax benefits from equity compensation plans	$ 28	$ 62	$ 118

Stock Options – We estimate the fair value of our stock option awards using the Black-Scholes option pricing model. The table below shows the annual weighted-average assumptions used for valuation purposes:

Weighted-Average Assumptions	2016	2015	2014
Risk-free interest rate	1.3%	1.3%	1.6%
Dividend yield	2.9%	1.8%	2.1%
Expected life (years)	5.1	5.1	5.2

Volatility	23.2%	23.4%	30.0%
Weighted-average grant-date fair value of options granted	$ 11.36	$ 22.30	$ 20.18

The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant; the expected dividend yield is calculated as the ratio of dividends paid per share of common stock to the stock price on the date of grant; the expected life is based on historical and expected exercise behavior; and expected volatility is based on the historical volatility of our stock price over the expected life of the option.

A summary of stock option activity during 2016 is presented below:

	Options (thous.)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value (millions)
Outstanding at January 1, 2016	5,571	$ 66.69	5.4 yrs.	$ 114
Granted	1,672	75.52	N/A	N/A
Exercised	(978)	37.66	N/A	N/A
Forfeited or expired	(103)	100.16	N/A	N/A
Outstanding at December 31, 2016	6,162	$ 73.13	5.9 yrs.	$ 205
Vested or expected to vest at December 31, 2016	6,101	$ 73.05	5.9 yrs.	$ 204
Options exercisable at December 31, 2016	3,639	$ 62.95	4.2 yrs.	$ 154

Stock options are granted at the closing price on the date of grant, have ten-year contractual terms, and vest no later than three years from the date of grant. None of the stock options outstanding at December 31, 2016, are subject to performance or market-based vesting conditions.

At December 31, 2016, there was $18 million of unrecognized compensation expense related to nonvested stock options, which is expected to be recognized over a weighted-average period of 1.3 years. Additional information regarding stock option exercises appears in the table below:

Millions	2016	2015	2014
Intrinsic value of stock options exercised	$ 52	$ 50	$ 194
Cash received from option exercises	39	27	54
Treasury shares repurchased for employee payroll taxes	(15)	(12)	(24)
Tax benefit realized from option exercises	20	19	74
Aggregate grant-date fair value of stock options vested	19	19	17

Retention Awards – The fair value of retention awards is based on the closing price of the stock on the grant date. Dividends and dividend equivalents are paid to participants during the vesting periods.

Changes in our retention awards during 2016 were as follows:

	Shares (thous.)	Weighted-Average Grant-Date Fair Value
Nonvested at January 1, 2016	2,900	$ 80.01
Granted	836	75.77
Vested	(799)	57.70
Forfeited	(148)	88.42
Nonvested at December 31, 2016	2,789	$ 84.68

Retention awards are granted at no cost to the employee or non-employee director and vest over periods lasting up to four years. At December 31, 2016, there was $84 million of total unrecognized compensation expense related to nonvested retention awards, which is expected to be recognized over a weighted-average period of 1.6 years.

Performance Retention Awards – In February 2016, our Board of Directors approved performance stock unit grants. The basic terms of these performance stock units are identical to those granted in February 2014 and February 2015, except for different annual return on invested capital (ROIC) performance targets and the addition of relative operating income growth (OIG) as a modifier compared to the companies included in the S&P 500 Industrials Index. We define ROIC as net operating profit adjusted for interest expense (including interest on the present value of operating leases) and taxes on interest divided by average invested capital adjusted for the present value of operating leases. The modifier can be up to +/- 25% of the award earned based on the ROIC achieved.

Stock units awarded to selected employees under these grants are subject to continued employment for 37 months and the attainment of certain levels of ROIC, and for the 2016 plan, modified for the relative OIG. We expense the fair value of the units that are probable of being earned based on our forecasted ROIC over the 3-year performance period, and with respect to the third year of the 2016 plan, the relative OIG modifier. We measure the fair value of these performance stock units based upon the closing price of the underlying common stock as of the date of grant, reduced by the present value of estimated future dividends. Dividend equivalents are paid to participants only after the units are earned.

The assumptions used to calculate the present value of estimated future dividends related to the February 2016 grant were as follows:

	2016
Dividend per share per quarter	$ 0.55
Risk-free interest rate at date of grant	0.9%

Changes in our performance retention awards during 2016 were as follows:

	Shares (thous.)	Weighted-Average Grant-Date Fair Value
Nonvested at January 1, 2016	1,255	$ 82.98
Granted	503	70.09
Vested	(530)	62.57
Forfeited	(83)	90.42
Nonvested at December 31, 2016	1,145	$ 86.23

At December 31, 2016, there was $20 million of total unrecognized compensation expense related to nonvested performance retention awards, which is expected to be recognized over a weighted-average period of 1.2 years. This expense is subject to achievement of the performance measures established for the performance stock unit grants.

6. Retirement Plans

Pension and Other Postretirement Benefits

Pension Plans – We provide defined benefit retirement income to eligible non-union employees through qualified and non-qualified (supplemental) pension plans. Qualified and non-qualified pension benefits are based on years of service and the highest compensation during the latest years of employment, with specific reductions made for early retirements.

Other Postretirement Benefits (OPEB) – We provide medical and life insurance benefits for eligible retirees. These benefits are funded as medical claims and life insurance premiums are paid.

Funded Status

We are required by GAAP to separately recognize the overfunded or underfunded status of our pension and OPEB plans as an asset or liability. The funded status represents the difference between the projected benefit obligation (PBO) and the fair value of the plan assets. Our non-qualified (supplemental) pension plan is unfunded by design. The PBO of the pension plans is the present value of benefits earned to date by plan participants, including the effect of assumed future compensation increases. The PBO of the OPEB plan is equal to the accumulated benefit obligation, as the present value of the OPEB liabilities is not affected by compensation increases. Plan assets are measured at fair value. We use a December 31 measurement date for plan assets and obligations for all our retirement plans.

Changes in our PBO and plan assets were as follows for the years ended December 31:

Funded Status	Pension		OPEB	
Millions	2016	2015	2016	2015
Projected Benefit Obligation				
Projected benefit obligation at beginning of year	$ 3,958	$ 4,142	$ 329	$ 354
Service cost	84	106	1	3
Interest cost	143	163	11	13
Actuarial loss/(gain)	124	(267)	16	(18)
Gross benefits paid	(199)	(186)	(23)	(23)
Projected benefit obligation at end of year	$ 4,110	$ 3,958	$ 334	$ 329
Plan Assets				
Fair value of plan assets at beginning of year	$ 3,544	$ 3,654	$ -	$ -
Actual return/(loss) on plan assets	279	(43)	-	-
Voluntary funded pension plan contributions	100	100	-	-
Non-qualified plan benefit contributions	24	19	23	23
Gross benefits paid	(199)	(186)	(23)	(23)
Fair value of plan assets at end of year	$ 3,748	$ 3,544	$ -	$ -
Funded status at end of year	$ (362)	$ (414)	$ (334)	$ (329)

Amounts recognized in the statement of financial position as of December 31, 2016, and 2015 consist of:

	Pension		OPEB	
Millions	2016	2015	2016	2015
Noncurrent assets	$ 67	$ 1	$ -	$ -
Current liabilities	(24)	(22)	(24)	(23)
Noncurrent liabilities	(405)	(393)	(310)	(306)
Net amounts recognized at end of year	$ (362)	$ (414)	$ (334)	$ (329)

Pre-tax amounts recognized in accumulated other comprehensive income/(loss) as of December 31, 2016, and 2015 consist of:

	2016			2015		
Millions	Pension	OPEB	Total	Pension	OPEB	Total
Prior service (cost)/credit	$ -	$ (2)	$ (2)	$ -	$ 7	$ 7
Net actuarial loss	(1,681)	(123)	(1,804)	(1,652)	(117)	(1,769)
Total	$ (1,681)	$ (125)	$ (1,806)	$ (1,652)	$ (110)	$ (1,762)

Pre-tax changes recognized in other comprehensive income/(loss) during 2016, 2015 and 2014 were as follows:

	Pension			OPEB		
Millions	2016	2015	2014	2016	2015	2014
Net actuarial (loss)/gain	$ (112)	$ (31)	$ (780)	$ (16)	$ 18	$ (33)
Amortization of:						
Prior service cost/(credit)	-	-	-	(9)	(10)	(11)
Actuarial loss	83	106	71	10	13	10
Total	$ (29)	$ 75	$ (709)	$ (15)	$ 21	$ (34)

Amounts included in accumulated other comprehensive income/(loss) expected to be amortized into net periodic cost during 2017:

Millions	Pension	OPEB	Total
Prior service credit	$ -	$ (1)	$ (1)
Net actuarial loss	(79)	(10)	(89)
Total	$ (79)	$ (11)	$ (90)

Underfunded Accumulated Benefit Obligation – The accumulated benefit obligation (ABO) is the present value of benefits earned to date, assuming no future compensation growth. The underfunded accumulated benefit obligation represents the difference between the ABO and the fair value of plan assets. At December 31, 2016, and 2015, the non-qualified (supplemental) plan ABO was $412 million and $388 million, respectively. The following table discloses only the PBO, ABO, and fair value of plan assets for pension plans where the accumulated benefit obligation is in excess of the fair value of the plan assets as of December 31:

Underfunded Accumulated Benefit Obligation		
Millions	2016	2015
Projected benefit obligation	$ 428	$ 398
Accumulated benefit obligation	$ 412	$ 388
Fair value of plan assets	-	-
Underfunded accumulated benefit obligation	$ (412)	$ (388)

The ABO for all defined benefit pension plans was $3.9 billion and $3.7 billion at December 31, 2016, and 2015, respectively.

Assumptions – The weighted-average actuarial assumptions used to determine benefit obligations at December 31:

	Pension		OPEB	
Percentages	2016	2015	2016	2015

Discount rate	4.20%	4.37%	4.00%	4.16%
Compensation increase	4.20%	4.10%	N/A	N/A
Health care cost trend rate (employees under 65)	N/A	N/A	6.31%	6.52%
Ultimate health care cost trend rate	N/A	N/A	4.50%	4.50%
Year ultimate trend rate reached	N/A	N/A	2038	2038

Expense

Both pension and OPEB expense are determined based upon the annual service cost of benefits (the actuarial cost of benefits earned during a period) and the interest cost on those liabilities, less the expected return on plan assets. The expected long-term rate of return on plan assets is applied to a calculated value of plan assets that recognizes changes in fair value over a five-year period. This practice is intended to reduce year-to-year volatility in pension expense, but it can have the effect of delaying the recognition of differences between actual returns on assets and expected returns based on long-term rate of return assumptions. Differences in actual experience in relation to assumptions are not recognized in net income immediately, but are deferred in accumulated other comprehensive income and, if necessary, amortized as pension or OPEB expense.

The components of our net periodic pension and OPEB cost were as follows for the years ended December 31:

	Pension			OPEB		
Millions	2016	2015	2014	2016	2015	2014
Net Periodic Benefit Cost:						
Service cost	$ 84	$ 106	$ 70	$ 1	$ 3	$ 2
Interest cost	143	163	158	11	13	14
Expected return on plan assets	(267)	(255)	(230)	-	-	-
Amortization of:						
Prior service cost/(credit)	-	-	-	(9)	(10)	(11)
Actuarial loss	83	106	71	10	13	10
Net periodic benefit cost	$ 43	$ 120	$ 69	$ 13	$ 19	$ 15

Assumptions – The weighted-average actuarial assumptions used to determine expense were as follows:

	Pension			OPEB		
Percentages	2016	2015	2014	2016	2015	2014
Discount rate for benefit obligations	4.37%	3.94%	4.72%	4.13%	3.74%	4.47%
Discount rate for interest on benefit obligations	3.65%	3.94%	4.72%	3.34%	3.74%	4.47%
Discount rate for service cost	4.69%	3.94%	4.72%	4.59%	3.74%	4.47%
Discount rate for interest on service cost	4.55%	3.94%	4.72%	4.44%	3.74%	4.47%
Expected return on plan assets	7.50%	7.50%	7.50%	N/A	N/A	N/A
Compensation increase	4.20%	4.00%	4.00%	N/A	N/A	N/A
Health care cost trend rate (employees under 65)	N/A	N/A	N/A	6.52%	6.34%	6.49%
Ultimate health care cost trend rate	N/A	N/A	N/A	4.50%	4.50%	4.50%
Year ultimate trend reached	N/A	N/A	N/A	2038	2028	2028

Beginning in 2016, we measure the service cost and interest cost components of our net periodic benefit cost by using individual spot discount rates matched with separate cash flows for each future year. The discount rates were based on a yield curve of high quality corporate bonds. The expected return on plan assets is based on our asset allocation mix and our historical return, taking into account current and expected market conditions. The actual return/(loss) on pension plan assets, net of fees, was approximately 8% in 2016, (1)% in 2015, and 6% in 2014.

Assumed health care cost trend rates have an effect on the expense and liabilities reported for health care plans. The assumed health care cost trend rate is based on historical rates and expected market conditions. The 2017 assumed health care cost trend rate for employees under 65 is 6.52%. It is assumed the rate will decrease gradually to an ultimate rate of 4.5% in 2038 and will remain at that level. A one-percentage point change in the assumed health care cost trend rates would have the following effects on OPEB:

Millions	One % pt. Increase	One % pt. Decrease
Effect on total service and interest cost components	$ 1	$ (1)
Effect on accumulated benefit obligation	19	(16)

Cash Contributions

The following table details our cash contributions for the qualified pension plans and the benefit payments for the non-qualified (supplemental) pension and OPEB plans:

	Pension		
Millions	Qualified	Non-qualified	OPEB
2016	$ 100	$ 24	$ 23
2015	100	19	23

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Our policy with respect to funding the qualified plans is to fund at least the minimum required by law and not more than the maximum amount deductible for tax purposes. All contributions made to the qualified pension plans in 2016 were voluntary and were made with cash generated from operations.

The non-qualified pension and OPEB plans are not funded and are not subject to any minimum regulatory funding requirements. Benefit payments for each year represent supplemental pension payments and claims paid for medical and life insurance. We anticipate our 2017 supplemental pension and OPEB payments will be made from cash generated from operations.

Benefit Payments

The following table details expected benefit payments for the years 2017 through 2026:

Millions	Pension	OPEB
2017	$ 199	$ 24
2018	201	24
2019	204	23
2020	206	22
2021	209	22
Years 2022 - 2026	1,094	98

Asset Allocation Strategy

Our pension plan asset allocation at December 31, 2016, and 2015, and target allocation for 2017, are as follows:

	Target	Percentage of Plan Assets December 31,

	Allocation 2017	2016	2015
Equity securities	60% to 70%	68%	67%
Debt securities	20% to 30%	21	23
Real estate	2% to 8%	6	6
Commodities	4% to 6%	5	4
Total		100%	100%

The investment strategy for pension plan assets is to maintain a broadly diversified portfolio designed to achieve our target average long-term rate of return of 7.0%. We reduced our expected rate of return on plan assets to 7.0% in 2017 from 7.5% in 2016 to reflect our expected future returns on plan assets based on our current asset allocation strategy. While we believe we can achieve a long-term average rate of return of 7.0%, we cannot be certain that the portfolio will perform to our expectations. Assets are strategically allocated among equity, debt, and other investments in order to achieve a diversification level that reduces fluctuations in investment returns. Asset allocation target ranges for equity, debt, and other portfolios are evaluated at least every three years with the assistance of an independent consulting firm. Actual asset allocations are monitored monthly, and rebalancing actions are executed at least quarterly, if needed.

The pension plan investments are held in a Master Trust. The majority of pension plan assets are invested in equity securities because equity portfolios have historically provided higher returns than debt and other asset classes over extended time horizons and are expected to do so in the future. Correspondingly, equity investments also entail greater risks than other investments. Equity risks are balanced by investing a significant portion of the plans' assets in high quality debt securities. The average credit rating of the debt portfolio exceeded A at both December 31, 2016 and December 31, 2015. The debt portfolio is also broadly diversified and invested primarily in U.S. Treasury, mortgage, and corporate securities. The weighted-average maturity of the debt portfolio was 14 years and 12 years at December 31, 2016, and 2015, respectively.

The investment of pension plan assets in securities issued by UPC is explicitly prohibited by the plan for both the equity and debt portfolios, other than through index fund holdings.

Fair Value Measurements

The pension plan assets are valued at fair value. The following is a description of the valuation methodologies used for the investments measured at fair value, including the general classification of such instruments pursuant to the valuation hierarchy.

Temporary Cash Investments – These investments consist of U.S. dollars and foreign currencies held in master trust accounts at The Northern Trust Company (the Trustee). Foreign currencies held are reported in terms of U.S. dollars based on currency exchange rates readily available in active markets. These temporary cash investments are classified as Level 1 investments.

Registered Investment Companies – Registered Investment Companies are entities primarily engaged in the business of investing in securities and are registered with the Securities and Exchange Commission. The Plan's holdings of Registered Investment Companies include both public and private fund vehicles. The public vehicles are mutual funds (real estate) and exchange-traded funds (stocks), which are classified as Level 1 investments. The private vehicles (bonds) do not have published pricing and are valued using Net Asset Value (NAV).

Federal Government Securities – Federal Government Securities consist of bills, notes, bonds, and other fixed income securities issued directly by the U.S. Treasury or by government-sponsored enterprises. These assets are valued using a bid evaluation process with bid data provided by independent pricing sources. Federal Government Securities are classified as Level 2 investments.

Bonds and Debentures – Bonds and debentures consist of fixed income securities issued by U.S. and non-U.S. corporations as well as state and local governments. These assets are valued using a bid evaluation process with bid data provided by independent pricing sources. Corporate, state, and municipal bonds and debentures are classified as Level 2 investments.

Corporate Stock – This investment category consists of common and preferred stock issued by U.S. and non-U.S. corporations. Most common shares are traded actively on exchanges and price quotes for these shares are readily available. Common stock is classified as a Level 1 investment. Preferred shares included in this category are valued using a bid evaluation process with bid data provided by independent pricing sources. Preferred stock is classified as a Level 2 investment.

Venture Capital and Buyout Partnerships – This investment category is comprised of interests in limited partnerships that invest primarily in privately-held companies. Due to the private nature of the partnership investments, pricing inputs are not readily observable. Asset valuations are developed by the general partners that manage the partnerships. These valuations are based on the application of public market multiples to private company cash flows, market transactions that provide valuation information for comparable companies, and other methods. The fair value recorded by the Plan is calculated using each partnership's NAV.

Real Estate Partnerships – Most of the Plan's real estate investments are partnership interests. The Real Estate Partnership category also includes real estate investments held in similar structures such as private real estate investment trusts and limited liability companies. Valuations for the holdings in this category are not based on readily observable inputs and are primarily derived from property appraisals. The fair value recorded by the Plan is calculated using the NAV for each investment.

Collective Trust and Other Funds – Collective trust and other funds are comprised of shares or units in commingled funds that are not publicly traded. The underlying assets in these funds (U.S. stock funds, non-U.S. stock funds, commodity funds, and short term investment funds) are publicly traded on exchanges and price quotes for the assets held by these funds are readily available. The fair value recorded by the Plan is calculated using NAV for each investment.

This category also includes investments in limited liability companies that invest in publicly-traded securities. The limited liability company investments are funds that invest in both long and short positions in convertible securities, stocks, commodities, and fixed income securities. The underlying securities held by the funds are traded actively on public exchanges and price quotes for these investments are readily available. The fair value recorded by the plan is calculated using the NAV for each investment.

As of December 31, 2016, the pension plan assets measured at fair value on a recurring basis were as follows:

Millions	Quoted Prices in Active Markets for Identical Inputs (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Plan assets at fair value:				
Temporary cash investments	$ 27	$ -	$ -	$ 27
Registered investment companies [a]	17	-	-	17
Federal government securities	-	142	-	142
Bonds and debentures	-	357	-	357
Corporate stock	1,059	8	-	1,067
Total plan assets at fair value	$ 1,103	$ 507	$ -	$ 1,610
Plan assets at NAV:				
Registered investment companies [b]				280
Venture capital and buyout partnerships				283
Real estate partnerships				212
Collective trust and other funds				1,346
Total plan assets at NAV				$ 2,121
Other assets [c]				17
Total plan assets				$ 3,748

[a] Registered investment companies measured at fair value include stock and real estate investments.
[b] Registered investment companies measured at NAV include bond investments.
[c] Other assets include accrued receivables and pending broker settlements.

As of December 31, 2015, the pension plan assets measured at fair value on a recurring basis were as follows:

Significant

Millions	Quoted Prices in Active Markets for Identical Inputs (Level 1)	Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Plan assets at fair value:				
Temporary cash investments	$ 13	$ -	$ -	$ 13
Registered investment companies [a]	179	-	-	179
Federal government securities	-	125	-	125
Bonds and debentures	-	383	-	383
Corporate stock	1,034	7	-	1,041
Total plan assets at fair value	$ 1,226	$ 515	$ -	$ 1,741
Plan assets at NAV:				
Registered investment companies [b]				270
Venture capital and buyout partnerships				256
Real estate partnerships				199
Collective trust and other funds				1,075
Total plan assets at NAV				$ 1,800
Other assets [c]				3
Total plan assets				$ 3,544

[a] Registered investment companies measured at fair value include stock and real estate investments.
[b] Registered investment companies measured at NAV include bond investments.
[c] Other assets include accrued receivables and pending broker settlements.

For the years ended December 31, 2016 and 2015, there were no significant transfers in or out of Levels 1, 2, or 3.

Other Retirement Programs

401(k)/Thrift Plan – We provide a defined contribution plan (401(k)/thrift plan) to eligible non-union and union employees for whom we make matching contributions. We match 50 cents for each dollar contributed by employees up to the first six percent of compensation contributed. Our plan contributions were $19 million in 2016, $20 million in 2015, and $19 million in 2014.

Railroad Retirement System – All Railroad employees are covered by the Railroad Retirement System (the System). Contributions made to the System are expensed as incurred and amounted to approximately $671 million in 2016, $749 million in 2015, and $711 million in 2014.

Collective Bargaining Agreements – Under collective bargaining agreements, we participate in multi-employer benefit plans that provide certain postretirement health care and life insurance benefits for eligible union employees. Premiums paid under these plans are expensed as incurred and amounted to $50 million in 2016, $46 million in 2015, and $52 million in 2014.

7. Other Income

Other income included the following for the years ended December 31:

Millions	2016	2015	2014
Rental income	$ 96	$ 96	$ 96
Net gain on non-operating asset dispositions [a] [b]	94	144	69
Interest income	11	5	4
Non-operating environmental costs and other [c]	(9)	(19)	(18)
Total	$ 192	$ 226	$ 151

[a] 2016 includes $17 million and $50 million related to a real estate sale in the first and second quarter, respectively.
[b] 2015 includes $113 million related to a real estate sale.
[c] 2014 includes $14 million related to the sale of a permanent easement.

8. Income Taxes

Components of income tax expense were as follows for the years ended December 31:

Millions	2016	2015	2014
Current tax expense:			
Federal	$ 1,518	$ 1,901	$ 2,019
State	176	210	239
Foreign	8	8	10
Total current tax expense	1,702	2,119	2,268
Deferred and other tax expense:			
Federal	692	644	753
State	139	121	142
Total deferred and other tax expense	831	765	895
Total income tax expense	$ 2,533	$ 2,884	$ 3,163

For the years ended December 31, reconciliations between statutory and effective tax rates are as follows:

Tax Rate Percentages	2016	2015	2014
Federal statutory tax rate	35.0 %	35.0 %	35.0 %
State statutory rates, net of federal benefits	3.1	3.1	3.1
Tax credits	(0.5)	(0.5)	(0.4)
Other	(0.2)	0.1	0.2
Effective tax rate	37.4 %	37.7 %	37.9 %

Deferred tax assets and liabilities are recorded for the expected future tax consequences of events that are reported in different periods for financial reporting and income tax purposes. The majority of our deferred tax assets relate to deductions that already have been claimed for financial reporting purposes but not for tax purposes. The majority of our deferred tax liabilities relate to differences between the tax bases and financial reporting amounts of our land and depreciable property, due to accelerated tax depreciation (including bonus depreciation), revaluation of assets in purchase accounting transactions, and differences in capitalization methods.

Deferred income tax (liabilities)/assets were comprised of the following at December 31:

Millions	2016	2015
Deferred income tax liabilities:		
Property	$ (16,687)	$ (16,079)
Other	(346)	(352)
Total deferred income tax liabilities	(17,033)	(16,431)
Deferred income tax assets:		
Accrued wages	75	76
Accrued casualty costs	231	237
Stock compensation	69	72
Debt and leases	14	149
Retiree benefits	222	204
Credits	145	156
Other	281	296
Total deferred income tax assets	$ 1,037	$ 1,190
Net deferred income tax liability	$ (15,996)	$ (15,241)

When appropriate, we record a valuation allowance against deferred tax assets to reflect that these tax assets may not be realized. In determining whether a valuation allowance is appropriate, we consider whether it is more likely than not that all or some portion of our deferred tax assets will not be realized based on management’s judgments using available evidence for purposes of estimating whether future taxable income will be sufficient to realize a deferred tax asset. In 2016 and 2015, there were no valuation allowances.

Tax benefits are recognized only for tax positions that are more likely than not to be sustained upon examination by tax authorities. The amount recognized is measured as the largest amount of benefit that is greater than 50 percent likely to be realized upon settlement. Unrecognized tax benefits are tax benefits claimed in our tax returns that do not meet these recognition and measurement standards.

A reconciliation of changes in unrecognized tax benefits liabilities/(assets) from the beginning to the end of the reporting period is as follows:

Millions	2016	2015	2014
Unrecognized tax benefits at January 1	$ 94	$ 151	$ 59
Increases for positions taken in current year	31	38	92
Increases for positions taken in prior years	10	13	22
Decreases for positions taken in prior years	(20)	(87)	(14)
Refunds from/(payments to) and settlements with taxing authorities	4	(13)	(8)
Increases/(decreases) for interest and penalties	6	(5)	1
Lapse of statutes of limitations	-	(3)	(1)
Unrecognized tax benefits at December 31	$ 125	$ 94	$ 151

We recognize interest and penalties as part of income tax expense. Total accrued liabilities for interest and penalties were $8 million and $2 million at December 31, 2016, and 2015, respectively. Total interest and penalties recognized as part of income tax expense (benefit) were $5 million for 2016, $(3) million for 2015, and $9 million for 2014.

Internal Revenue Service (IRS) examinations have been completed and settled for all years prior to 2011, and the statute of limitations bars any additional tax assessments. In 2016, UPC amended its 2011 and 2012 income tax returns to claim deductions resulting from the resolution of IRS examinations for years prior to 2011. The IRS is currently reviewing the 2011 amended return.

In the third quarter of 2015, UPC and the IRS signed a closing agreement resolving all tax matters for tax years 2009-2010. The settlement had an immaterial effect on our income tax expense. In connection with the settlement, UPC paid $10 million in the fourth quarter of 2015.

In the fourth quarter of 2014, UPC and the IRS signed a closing agreement resolving all tax matters for tax years 2005-2008. The settlement had an immaterial effect on our income tax expense. In connection with the settlement, UPC paid $11 million in 2014.

Several state tax authorities are examining our state income tax returns for years 2006 through 2014.

We do not expect our unrecognized tax benefits to change significantly in the next 12 months.

The portion of our unrecognized tax benefits that relates to permanent changes in tax and interest would reduce our effective tax rate, if recognized. The remaining unrecognized tax benefits relate to tax positions for which only the timing of the benefit is uncertain. Recognition of the tax benefits with uncertain timing would reduce our effective tax rate only through a reduction of accrued interest and penalties. The unrecognized tax benefits that would reduce our effective tax rate are as follows:

Millions	2016	2015	2014
Unrecognized tax benefits that would reduce the effective tax rate	$ 31	$ 31	$ 33
Unrecognized tax benefits that would not reduce the effective tax rate	94	63	118
Total unrecognized tax benefits	$ 125	$ 94	$ 151

9. Earnings Per Share

The following table provides a reconciliation between basic and diluted earnings per share for the years ended December 31:

Millions, Except Per Share Amounts	2016	2015	2014
Net income	$ 4,233	$ 4,772	$ 5,180
Weighted-average number of shares outstanding:			
Basic	832.4	866.2	897.1
Dilutive effect of stock options	1.5	1.5	2.1
Dilutive effect of retention shares and units	1.5	1.7	1.9
Diluted	835.4	869.4	901.1
Earnings per share – basic	$ 5.09	$ 5.51	$ 5.77
Earnings per share – diluted	$ 5.07	$ 5.49	$ 5.75

Common stock options totaling 2.0 million, 1.1 million, and 0.4 million for 2016, 2015, and 2014, respectively, were excluded from the computation of diluted earnings per share because the exercise prices of these options exceeded the average market price of our common stock for the respective periods, and the effect of their inclusion would be anti-dilutive.

10. Accumulated Other Comprehensive Income/(Loss)

Reclassifications out of accumulated other comprehensive income/(loss) were as follows (net of tax):

Millions	Defined benefit plans	Foreign currency translation	Total
Balance at January 1, 2016	$ (1,103)	$ (92)	$ (1,195)
Other comprehensive income/(loss) before reclassifications	(3)	(48)	(51)
Amounts reclassified from accumulated other comprehensive income/(loss) [a]	(26)	-	(26)
Net year-to-date other comprehensive income/(loss), net of taxes of $49 million	(29)	(48)	(77)
Balance at December 31, 2016	$ (1,132)	$ (140)	$ (1,272)
Balance at January 1, 2015	$ (1,161)	$ (49)	$ (1,210)
Other comprehensive income/(loss) before reclassifications	(4)	(43)	(47)
Amounts reclassified from accumulated other comprehensive	62	-	62

income/(loss) [a]			
Net year-to-date other comprehensive income/(loss), net of taxes of $(8) million	58	(43)	15
Balance at December 31, 2015	$ (1,103)	$ (92)	$ (1,195)

[a] The accumulated other comprehensive income/(loss) reclassification components are 1) prior service cost/(benefit) and 2) net actuarial loss which are both included in the computation of net periodic pension cost. See Note 6 Retirement Plans for additional details.

11. Accounts Receivable

Accounts receivable includes freight and other receivables reduced by an allowance for doubtful accounts. The allowance is based upon historical losses, credit worthiness of customers, and current economic conditions. At both December 31, 2016, and 2015, our accounts receivable were reduced by $5 million. Receivables not expected to be collected in one year and the associated allowances are classified as other assets in our Consolidated Statements of Financial Position. At December 31, 2016, and 2015, receivables classified as other assets were reduced by allowances of $17 million and $11 million, respectively.

Receivables Securitization Facility – The Railroad maintains a $650 million, 3-year receivables securitization facility (the Receivables Facility), which now matures in July 2019, after we completed a renewal in August 2016 with comparable terms. Under the Receivables Facility, the Railroad sells most of its eligible third-party receivables to Union Pacific Receivables, Inc. (UPRI), a consolidated, wholly-owned, bankruptcy-remote subsidiary that may subsequently transfer, without recourse, an undivided interest in accounts receivable to investors. The investors have no recourse to the Railroad’s other assets except for customary warranty and indemnity claims. Creditors of the Railroad do not have recourse to the assets of UPRI.

The amount outstanding under the Receivables Facility was $0 and $400 million at December 31, 2016, and December 31, 2015, respectively. The Receivables Facility was supported by $1.0 billion and $0.9 billion of accounts receivable as collateral at December 31, 2016, and December 31, 2015, respectively, which, as a retained interest, is included in accounts receivable, net in our Consolidated Statements of Financial Position.

The outstanding amount the Railroad is allowed to maintain under the Receivables Facility, with a maximum of $650 million, may fluctuate based on the availability of eligible receivables and is directly affected by business volumes and credit risks, including receivables payment quality measures such as default and dilution ratios. If default or dilution ratios increase one percent, the allowable outstanding amount under the Receivables Facility would not materially change.

The costs of the Receivables Facility include interest, which will vary based on prevailing benchmark and commercial paper rates, program fees paid to participating banks, commercial paper issuance costs, and fees of participating banks for unused commitment availability. The costs of the Receivables Facility are included in interest expense and were $7 million, $5 million and $4 million for 2016, 2015, and 2014, respectively.

12. Properties

The following tables list the major categories of property and equipment, as well as the weighted-average estimated useful life for each category (in years):

Millions, Except Estimated Useful Life As of December 31, 2016	Cost	Accumulated Depreciation	Net Book Value	Estimated Useful Life
Land	$ 5,220	$ N/A	$ 5,220	N/A
Road:				
Rail and other track material	15,845	5,722	10,123	40
Ties	9,812	2,736	7,076	33
Ballast	5,242	1,430	3,812	34
Other roadway [a]	18,138	3,226	14,912	47
Total road	49,037	13,114	35,923	N/A
Equipment:				
Locomotives	9,692	3,939	5,753	20
Freight cars	2,243	972	1,271	24
Work equipment and other	905	232	673	19
Total equipment	12,840	5,143	7,697	N/A
Technology and other	974	412	562	11
Construction in progress	987	-	987	N/A
Total	$ 69,058	$ 18,669	$ 50,389	N/A

Millions, Except Estimated Useful Life As of December 31, 2015	Cost	Accumulated Depreciation	Net Book Value	Estimated Useful Life
Land	$ 5,195	$ N/A	$ 5,195	N/A
Road:				
Rail and other track material	15,236	5,495	9,741	37
Ties	9,439	2,595	6,844	33
Ballast	5,024	1,350	3,674	34
Other roadway [a]	17,374	3,021	14,353	47
Total road	47,073	12,461	34,612	N/A
Equipment:				
Locomotives	9,027	3,726	5,301	19
Freight cars	2,203	962	1,241	24
Work equipment and other	897	191	706	19
Total equipment	12,127	4,879	7,248	N/A
Technology and other	919	358	561	11
Construction in progress	1,250	-	1,250	N/A
Total	$ 66,564	$ 17,698	$ 48,866	N/A

[a] Other roadway includes grading, bridges and tunnels, signals, buildings, and other road assets.

Property and Depreciation – Our railroad operations are highly capital intensive, and our large base of homogeneous, network-type assets turns over on a continuous basis. Each year we develop a capital program for the replacement of assets and for the acquisition or construction of assets that enable us to enhance our operations or provide new service offerings to customers. Assets purchased or constructed throughout the year are capitalized if they meet applicable minimum units of property criteria. Properties and equipment are carried at cost and are depreciated on a straight-line basis over their estimated service lives, which are measured in years, except for rail in high-density traffic corridors (i.e., all rail lines except for those subject to abandonment, yard and switching tracks, and electronic yards) for which lives are measured in millions of gross tons per mile of track. We use the group method of depreciation in which all items with similar characteristics, use, and expected lives are grouped together in asset classes, and are depreciated using composite depreciation rates. The group method of depreciation treats each asset class as a pool of resources, not as singular items. We currently have more than 60 depreciable asset classes, and we may increase or decrease the number of asset classes due to changes in technology, asset strategies, or other factors.

We determine the estimated service lives of depreciable railroad assets by means of depreciation studies. We perform depreciation studies at least every three years for equipment and every six years for track assets (i.e., rail and other track material, ties, and ballast) and other road property. Our depreciation studies take into account the following factors:

- Statistical analysis of historical patterns of use and retirements of each of our asset classes;
- Evaluation of any expected changes in current operations and the outlook for continued use of the assets;
- Evaluation of technological advances and changes to maintenance practices; and
- Expected salvage to be received upon retirement.

For rail in high-density traffic corridors, we measure estimated service lives in millions of gross tons per mile of track. It has been our experience that the lives of rail in high-density traffic corridors are closely correlated to usage (i.e., the amount of weight carried over the rail). The service lives also vary based on rail weight, rail condition (e.g., new or secondhand), and rail type (e.g., straight or curve). Our depreciation studies for rail in high-density traffic corridors consider each of these factors in determining the estimated service lives. For rail in high-density traffic corridors, we calculate depreciation rates annually by dividing the number of gross ton-miles carried over the rail (i.e., the weight of loaded and empty freight cars, locomotives and maintenance of way equipment transported over the rail) by the estimated service lives of the rail measured in millions of gross tons per mile. For all other depreciable assets, we compute depreciation based on the estimated service lives of our assets as determined from the analysis of our depreciation studies. Changes in the estimated service lives of our assets and their related depreciation rates are implemented prospectively.

Under group depreciation, the historical cost (net of salvage) of depreciable property that is retired or replaced in the ordinary course of business is charged to accumulated depreciation and no gain or loss is recognized. The historical cost of certain track assets is estimated using (i) inflation indices published by the Bureau of Labor Statistics and (ii) the estimated useful lives of the assets as determined by our depreciation studies. The indices were selected because they closely correlate with the major costs of the properties comprising the applicable track asset classes. Because of the number of estimates inherent in the depreciation and retirement processes and because it is impossible to precisely estimate each of these variables until a group of property is completely retired, we continually monitor the estimated service lives of our assets and the accumulated depreciation associated with each asset class to ensure our depreciation rates are appropriate. In addition, we determine if the recorded amount of accumulated depreciation is deficient (or in excess) of the amount indicated by our depreciation studies. Any deficiency (or excess) is amortized as a component of depreciation expense over the remaining service lives of the applicable classes of assets.

For retirements of depreciable railroad properties that do not occur in the normal course of business, a gain or loss may be recognized if the retirement meets each of the following three conditions: (i) is unusual, (ii) is material in amount, and (iii) varies significantly from the retirement profile identified through our depreciation studies. A gain or loss is recognized in other income when we sell land or dispose of assets that are not part of our railroad operations.

When we purchase an asset, we capitalize all costs necessary to make the asset ready for its intended use. However, many of our assets are self-constructed. A large portion of our capital expenditures is for replacement of existing track assets and other road properties, which is typically performed by our employees, and for track line expansion and other capacity projects. Costs that are directly attributable to capital projects (including overhead costs) are capitalized. Direct costs that are capitalized as part of self-constructed assets include material, labor, and work equipment. Indirect costs are capitalized if they clearly relate to the construction of the asset.

Normal repairs and maintenance are expensed as incurred, while costs incurred that extend the useful life of an asset, improve the safety of our operations or improve operating efficiency are capitalized. These costs are allocated using appropriate statistical bases. Total expense for repairs and maintenance incurred was $2.3 billion for 2016, $2.5 billion for 2015, and $2.4 billion for 2014.

Assets held under capital leases are recorded at the lower of the net present value of the minimum lease payments or the fair value of the leased asset at the inception of the lease. Amortization expense is computed using the straight-line method over the shorter of the estimated useful lives of the assets or the period of the related lease.

13. Accounts Payable and Other Current Liabilities

Millions	Dec. 31, 2016	Dec. 31, 2015
Accounts payable	$ 955	$ 743
Income and other taxes payable	472	434
Accrued wages and vacation	387	391
Interest payable	212	208
Accrued casualty costs	185	181
Equipment rents payable	101	105
Other	570	550
Total accounts payable and other current liabilities	$ 2,882	$ 2,612

14. Financial Instruments

Short-Term Investments – The Company's short-term investments consist of time deposits and government agency securities. These investments are considered level 2 investments and are valued at amortized cost, which approximates fair value ($60 million of time deposits as of December 31, 2016). All short-term investments have a maturity of less than one year and are classified as held-to-maturity. There were no transfers out of Level 2 during the year ended December 31, 2016.

Fair Value of Financial Instruments – The fair value of our short- and long-term debt was estimated using a market value price model, which utilizes applicable U.S. Treasury rates along with current market quotes on comparable debt securities. All of the inputs used to determine the fair market value of the Corporation's long-term debt are Level 2 inputs and obtained from an independent source. At December 31, 2016, the fair value of total debt was $15.9 billion, approximately $0.9 billion more than the carrying value. At December 31, 2015, the fair value of total debt was $15.2 billion, approximately $1.0 billion more than the carrying value. The fair value of the Corporation's debt is a measure of its current value under present market conditions. It does not impact the financial statements under current accounting rules. At December 31, 2016, and 2015, approximately $155 million of debt securities contained call provisions that allow us to retire the debt instruments prior to final maturity, with the payment of fixed call premiums, or in certain cases, at par. The fair value of our cash equivalents approximates their carrying value due to the short-term maturities of these instruments.

15. Debt

Total debt as of December 31, 2016, and 2015, is summarized below:

Millions	2016	2015
Notes and debentures, 1.8% to 7.9% due through 2065	$ 13,547	$ 11,964
Capitalized leases, 3.1% to 8.4% due through 2028	1,105	1,268
Equipment obligations, 2.6% to 6.7% due through 2031	1,069	963
Term loans - floating rate, due in 2017	100	200
Mortgage bonds, 4.8% due through 2030	57	57
Medium-term notes, 9.3% to 10.0% due through 2020	23	23
Receivables Securitization (Note 11)	-	400
Unamortized discount and deferred issuance costs	(894)	(674)
Total debt	15,007	14,201
Less: current portion	(758)	(594)
Total long-term debt	$ 14,249	$ 13,607

Debt Maturities – The following table presents aggregate debt maturities as of December 31, 2016, excluding market value adjustments:

Millions	
2017	$ 763
2018	572
2019	645
2020	1,042
2021	673
Thereafter	12,206
Total principal	15,901
Unamortized discount and deferred issuance costs	(894)
Total debt	$ 15,007

Equipment Encumbrances – Equipment with a carrying value of approximately $2.3 billion and $2.6 billion at December 31, 2016, and 2015, respectively, served as collateral for capital leases and other types of equipment obligations in accordance with the secured financing arrangements utilized to acquire such railroad equipment.

As a result of the merger of Missouri Pacific Railroad Company (MPRR) with and into UPRR on January 1, 1997, and pursuant to the underlying indentures for the MPRR mortgage bonds, UPRR must maintain the same value of assets after the merger in order to comply with the security requirements of the mortgage bonds. As of the merger date, the value of the MPRR assets that secured the mortgage bonds was approximately $6.0 billion. In accordance with the terms of the indentures, this collateral value must be maintained during the entire term of the mortgage bonds irrespective of the outstanding balance of such bonds.

Credit Facilities – At December 31, 2016, we had $1.7 billion of credit available under the facility, which is designated for general corporate purposes and supports the issuance of commercial paper. We did not draw on the facility during 2016. Commitment fees and interest rates payable under the facility are similar to fees and rates available to comparably rated, investment-grade borrowers. The facility allows for borrowings at floating rates based on London Interbank Offered Rates, plus a spread, depending upon credit ratings for our senior unsecured debt. The facility matures in May 2019 under a five-year term and requires UPC to maintain a debt-to-net-worth coverage ratio.

The definition of debt used for purposes of calculating the debt-to-net-worth coverage ratio includes, among other things, certain credit arrangements, capital leases, guarantees and unfunded and vested pension benefits under Title IV of ERISA. At December 31, 2016, the debt-to-net-worth coverage ratio allowed us to carry up to $39.9 billion of debt (as defined in the facility), and we had $15.1 billion of debt (as defined in the facility) outstanding at that date. Under our current capital plans, we expect to continue

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to satisfy the debt-to-net-worth coverage ratio; however, many factors beyond our reasonable control could affect our ability to comply with this provision in the future. The facility does not include any other financial restrictions, credit rating triggers (other than rating-dependent pricing), or any other provision that could require us to post collateral. The facility also includes a $125 million cross-default provision and a change-of-control provision.

During 2016, we did not issue or repay any commercial paper, and at December 31, 2016, and 2015, we had no commercial paper outstanding. Our revolving credit facility supports our outstanding commercial paper balances, and, unless we change the terms of our commercial paper program, our aggregate issuance of commercial paper will not exceed the amount of borrowings available under the facility.

Dividend Restrictions – Our revolving credit facility includes a debt-to-net worth covenant (discussed in the Credit Facilities section above) that, under certain circumstances, restricts the payment of cash dividends to our shareholders. The amount of retained earnings available for dividends was $12.4 billion and $13.6 billion at December 31, 2016, and 2015, respectively.

Shelf Registration Statement and Significant New Borrowings – On July 28, 2016, the Board of Directors renewed its authorization for the Company to issue up to $4.0 billion of debt securities under the Company’s current three-year shelf registration filed in February 2015, which had $0.9 billion of authority remaining. Under our shelf registration, we may issue, from time to time, any combination of debt securities, preferred stock, common stock, or warrants for debt securities or preferred stock in one or more offerings. At December 31, 2016, we had remaining authority to issue up to $3.55 billion of debt securities under our shelf registration.

During 2016, we issued the following unsecured, fixed-rate debt securities under our current shelf registration:

Date	Description of Securities
March 1, 2016	$500 million of 2.750% Notes due March 1, 2026
	$600 million of 4.050% Notes due March 1, 2046
	$200 million of reopened 4.375% Notes due November 15, 2065
August 8, 2016	$150 million of reopened 2.750% Notes due March 1, 2026
	$300 million of 3.350% Notes due August 15, 2046

We used the net proceeds from the offerings for general corporate purposes, including the repurchase of common stock pursuant to our share repurchase program. These debt securities include change-of-control provisions.

Equipment Trust – On May 9, 2016, UPRR consummated a pass-through (P/T) financing, whereby a P/T trust was created, which issued $151 million of P/T trust certificates with a stated interest rate of 2.495%. The P/T trust certificates will mature on November 9, 2029. The proceeds from the issuance of the P/T trust certificates were used to purchase equipment trust certificates to be issued by UPRR to finance the acquisition of 59 locomotives. The equipment trust certificates are secured by a lien on the locomotives. The $151 million is classified as debt due after one year in our Consolidated Statements of Financial Position.

Debt Exchange – On October 4, 2016, we exchanged $1,006 million of various outstanding notes and debentures due between 2028 and 2044 (the Existing Notes) for $1,044 million of 3.799% notes (the New Notes) due October 1, 2051, plus cash consideration of approximately $183 million in addition to $11 million for accrued and unpaid interest on the Existing Notes. In accordance with ASC 470-50-40, Debt-Modifications and Extinguishments-Derecognition, this transaction was accounted for as a debt exchange, as the exchanged debt instruments are not considered to be substantially different. The cash consideration was recorded as an adjustment to the carrying value of debt, and the balance of the unamortized discount and issue costs from the Existing Notes is being amortized as an adjustment of interest expense over the terms of the New Notes. No gain or loss was recognized as a result of the exchange. Costs related to the debt exchange that were payable to parties other than the debt holders totaled approximately $8 million and were included in interest expense during the year ended December 31, 2016.

The following table lists the outstanding notes and debentures that were exchanged:

Millions	Principal amount exchanged
7.125% Debentures due 2028	$ 2
6.625% Debentures due 2029	25
5.375% Debentures due 2033	15
6.250% Debentures due 2034	52
6.150% Debentures due 2037	2
5.780% Notes due 2040	4
4.750% Notes due 2041	175
4.750% Notes due 2043	204
4.821% Notes due 2044	373
4.850% Notes due 2044	154
Total	$ 1,006

Receivables Securitization Facility – As of December 31, 2016, and 2015, we recorded $0 and $400 million, respectively, of borrowings under our receivables securitization facility, as secured debt. (See further discussion of our receivables securitization facility in Note 11).

16. Variable Interest Entities

We have entered into various lease transactions in which the structure of the leases contain variable interest entities (VIEs). These VIEs were created solely for the purpose of doing lease transactions (principally involving railroad equipment and facilities) and have no other activities, assets or liabilities outside of the lease transactions. Within these lease arrangements, we have the right to purchase some or all of the assets at fixed prices. Depending on market conditions, fixed-price purchase options available in the leases could potentially provide benefits to us; however, these benefits are not expected to be significant.

We maintain and operate the assets based on contractual obligations within the lease arrangements, which set specific guidelines consistent within the railroad industry. As such, we have no control over activities that could materially impact the fair value of the leased assets. We do not hold the power to direct the activities of the VIEs and, therefore, do not control the ongoing activities that have a significant impact on the economic performance of the VIEs. Additionally, we do not have the obligation to absorb losses of the VIEs or the right to receive benefits of the VIEs that could potentially be significant to the VIEs.

We are not considered to be the primary beneficiary and do not consolidate these VIEs because our actions and decisions do not have the most significant effect on the VIE's performance and our fixed-price purchase options are not considered to be potentially significant to the VIEs. The future minimum lease payments associated with the VIE leases totaled $2.2 billion as of December 31, 2016.

17. Leases

We lease certain locomotives, freight cars, and other property. The Consolidated Statements of Financial Position as of December 31, 2016, and 2015 included $1,997 million, net of $1,121 million of accumulated depreciation, and $2,273 million, net of $1,189 million of accumulated depreciation, respectively, for properties held under capital leases. A charge to income resulting from the depreciation for assets held under capital leases is included within depreciation expense in our Consolidated Statements of Income. Future minimum lease payments for operating and capital leases with initial or remaining non-cancelable lease terms in excess of one year as of December 31, 2016, were as follows:

Millions	Operating Leases	Capital Leases
2017	$ 461	$ 221
2018	390	193
2019	348	179
2020	285	187
2021	245	158
Later years	1,314	417
Total minimum lease payments	$ 3,043	$ 1,355
Amount representing interest	N/A	(250)
Present value of minimum lease payments	N/A	$ 1,105

Approximately 96% of capital lease payments relate to locomotives. Rent expense for operating leases with terms exceeding one month was $535 million in 2016, $590 million in 2015, and $593 million in 2014. When cash rental payments are not made on a straight-line basis, we recognize variable rental expense on a straight-line basis over the lease term. Contingent rentals and sub-rentals are not significant.

18. Commitments and Contingencies

Asserted and Unasserted Claims – Various claims and lawsuits are pending against us and certain of our subsidiaries. We cannot fully determine the effect of all asserted and unasserted claims on our consolidated results of operations, financial condition, or liquidity. To the extent possible, we have recorded a liability where asserted and unasserted claims are considered probable and where such claims can be reasonably estimated. We do not expect that any known lawsuits, claims, environmental costs, commitments, contingent liabilities, or guarantees will have a material adverse effect on our consolidated results of operations, financial condition, or liquidity after taking into account liabilities and insurance recoveries previously recorded for these matters.

Personal Injury – The cost of personal injuries to employees and others related to our activities is charged to expense based on estimates of the ultimate cost and number of incidents each year. We use an actuarial analysis to measure the expense and liability, including unasserted claims. The Federal Employers' Liability Act (FELA) governs compensation for work-related accidents. Under FELA, damages are assessed based on a finding of fault through litigation or out-of-court settlements. We offer a comprehensive variety of services and rehabilitation programs for employees who are injured at work.

Our personal injury liability is not discounted to present value due to the uncertainty surrounding the timing of future payments. Approximately 94% of the recorded liability is related to asserted claims and approximately 6% is related to unasserted claims at December 31, 2016. Because of the uncertainty surrounding the ultimate outcome of personal injury claims, it is reasonably possible that future costs to settle these claims may range from approximately $290 million to $317 million. We record an accrual at the low end of the range as no amount of loss within the range is more probable than any other. Estimates can vary over time due to evolving trends in litigation.

Our personal injury liability activity was as follows:

Millions	2016	2015	2014
Beginning balance	$ 318	$ 335	$ 294
Current year accruals	75	89	96
Changes in estimates for prior years	(29)	(3)	9
Payments	(74)	(103)	(64)
Ending balance at December 31	$ 290	$ 318	$ 335
Current portion, ending balance at December 31	$ 62	$ 63	$ 111

In conjunction with the liability update performed in 2016, we also reassessed our estimated insurance recoveries. We have recognized an asset for estimated insurance recoveries at December 31, 2016, and 2015. Any changes to recorded insurance recoveries are included in the above table in the Changes in estimates for prior years category.

Asbestos – We are a defendant in a number of lawsuits in which current and former employees and other parties allege exposure to asbestos. We assess our potential liability using a statistical analysis of resolution costs for asbestos-related claims. This liability is updated annually and excludes future defense and processing costs. The liability for resolving both asserted and unasserted claims was based on the following assumptions:

· The ratio of future claims by alleged disease would be consistent with historical averages adjusted for inflation.
· The number of claims filed against us will decline each year.
· The average settlement values for asserted and unasserted claims will be equivalent to historical averages.
· The percentage of claims dismissed in the future will be equivalent to historical averages.

Our liability for asbestos-related claims is not discounted to present value due to the uncertainty surrounding the timing of future payments. Approximately 20% of the recorded liability related to asserted claims and approximately 80% related to unasserted claims at December 31, 2016. Because of the uncertainty surrounding the ultimate outcome of asbestos-related claims, it is reasonably possible that future costs to settle these claims may range from approximately $111 million to $118 million. We record an accrual at the low end of the range as no amount of loss within the range is more probable than any other.

Our asbestos-related liability activity was as follows:

Millions	2016	2015	2014
Beginning balance	$ 120	$ 126	$ 131
Accruals/(Credits)	12	-	1
Payments	(21)	(6)	(6)
Ending balance at December 31	$ 111	$ 120	$ 126
Current portion, ending balance at December 31	$ 8	$ 6	$ 8

In conjunction with the liability update performed in 2016, we also reassessed our estimated insurance recoveries. We have recognized an asset for estimated insurance recoveries at December 31, 2016, and 2015. The amounts recorded for asbestos-related liabilities and related insurance recoveries were based on currently known facts. However, future events, such as the number of new claims filed each year, average settlement costs, and insurance coverage issues, could cause the actual costs and insurance recoveries to be higher or lower than the projected amounts. Estimates also may vary in the future if strategies, activities, and outcomes of asbestos litigation materially change; federal and state laws governing asbestos litigation increase or decrease the probability or amount of compensation of claimants; and there are material changes with respect to payments made to claimants by other defendants.

Environmental Costs – We are subject to federal, state, and local environmental laws and regulations. We have identified 292 sites at which we are or may be liable for remediation costs associated with alleged contamination or for violations of environmental requirements. This includes 33 sites that are the subject of actions taken by the U.S. government, 21 of which are currently on the Superfund National Priorities List. Certain federal legislation imposes joint and several liability for the remediation of identified sites; consequently, our ultimate environmental liability may include costs relating to activities of other parties, in addition to costs relating to our own activities at each site.

When we identify an environmental issue with respect to property owned, leased, or otherwise used in our business, we perform, with assistance of our consultants, environmental assessments on the property. We expense the cost of the assessments as incurred. We accrue the cost of remediation where our obligation is probable and such costs can be reasonably estimated. Our environmental liability is not discounted to present value due to the uncertainty surrounding the timing of future payments.

Our environmental liability activity was as follows:

Millions	2016	2015	2014
Beginning balance	$ 190	$ 182	$ 171
Accruals	84	61	56
Payments	(62)	(53)	(45)
Ending balance at December 31	$ 212	$ 190	$ 182
Current portion, ending balance at December 31	$ 55	$ 52	$ 60

The environmental liability includes future costs for remediation and restoration of sites, as well as ongoing monitoring costs, but excludes any anticipated recoveries from third parties. Cost estimates are based on information available for each site, financial viability of other potentially responsible parties, and existing technology, laws, and regulations. The ultimate liability for remediation is difficult to determine because of the number of potentially responsible parties, site-specific cost sharing arrangements with other potentially responsible parties, the degree of contamination by various wastes, the scarcity and quality of volumetric data related to many of the sites, and the speculative nature of remediation costs. Estimates of liability may vary over time due to changes in federal, state, and local laws governing environmental remediation. Current obligations are not expected to have a material adverse effect on our consolidated results of operations, financial condition, or liquidity.

Insurance – The Company has a consolidated, wholly-owned captive insurance subsidiary (the captive), that provides insurance coverage for certain risks including FELA claims and property coverage which are subject to reinsurance. The captive entered into annual reinsurance treaty agreements that insure workers compensation, general liability, auto liability and FELA risk. The captive cedes a portion of its FELA exposure through the treaty and assumes a proportionate share of the entire risk. The captive receives direct premiums, which are netted against the Company’s premium costs in other expenses in the Consolidated Statements of Income. The treaty agreements provide for certain protections against the risk of treaty participants’ non-performance, and we do not believe our exposure to treaty participants' non-performance is material at this time. In the event the Company leaves the reinsurance program, the Company is not relieved of its primary obligation to the policyholders for activity prior to the termination of the treaty agreements. We record both liabilities and reinsurance receivables using an actuarial analysis based on historical experience in our Consolidated Statements of Financial Position.

Guarantees – At December 31, 2016, and 2015, we were contingently liable for $43 million and $53 million in guarantees, respectively. The fair value of these obligations as of both December 31, 2016, and 2015 was $0. We entered into these contingent guarantees in the normal course of business, and they include guaranteed obligations related to our affiliated operations. The final guarantee expires in 2022. We are not aware of any existing event of default that would require us to satisfy these guarantees. We do not expect that these guarantees will have a material adverse effect on our consolidated financial condition, results of operations, or liquidity.

Indemnities – We are contingently obligated under a variety of indemnification arrangements, although in some cases the extent of our potential liability is limited, depending on the nature of the transactions and the agreements. Due to uncertainty as to whether claims will be made or how they will be resolved, we cannot reasonably determine the probability of an adverse claim or reasonably estimate any adverse liability or the total maximum exposure under these indemnification arrangements. We do not have any reason to believe that we will be required to make any material payments under these indemnity provisions.

Gain Contingency – UPRR and Santa Fe Pacific Pipelines (SFPP, a subsidiary of Kinder Morgan Energy Partners, L.P.) currently are engaged in a proceeding to resolve the fair market rent payable to UPRR commencing on January 1, 2004, for pipeline easements on UPRR rights-of-way (Union Pacific Railroad Company vs. Santa Fe Pacific Pipelines, Inc., SFPP, L.P., Kinder Morgan Operating L.P. "D" Kinder Morgan G.P., Inc., et al., Superior Court of the State of California for the County of Los Angeles, filed July 28, 2004). In February 2007, a trial began to resolve this issue, and in May 2012, the trial judge rendered an opinion establishing the fair market rent and entering judgment for back rent, including prejudgment interest. SFPP appealed the judgment. On November 5, 2014, the Second District Circuit Court of Appeal in California issued an opinion holding that UPRR was not entitled to collect rent from SFPP for easements on the portions of the property acquired solely through federal government land grants issued during the 1800s. The Appellate Court also reversed the award of prejudgment interest and remanded the case to the trial court. A favorable final judgment may materially affect UPRR's results of operations in the period of any monetary recoveries. Due to the uncertainty regarding the amount and timing of any recovery or any subsequent proceedings, we consider this a gain contingency and have not recognized any amounts in the Consolidated Financial Statements as of December 31, 2016.

19. Share Repurchase Program

Effective January 1, 2014, our Board of Directors authorized the repurchase of up to 120 million shares of our common stock by December 31, 2017, replacing our previous repurchase program. As of December 31, 2016, we repurchased a total of $19.1 billion of our common stock since the commencement of our repurchase programs in 2007. The table below represents shares repurchased under this repurchase program.

	Number of Shares Purchased		Average Price Paid	
	2016	2015	2016	2015
First quarter	9,315,807	6,881,455	$ 76.49	$ 117.28
Second quarter	7,026,100	7,975,100	85.66	104.62
Third quarter	9,088,613	13,800,700	93.63	89.65
Fourth quarter	9,624,667	6,646,899	97.60	88.19
Total	35,055,187	35,304,154	$ 88.57	$ 98.14

On November 17, 2016, our Board of Directors approved the early renewal of the share repurchase program, authorizing the repurchase of up to 120 million shares of our common stock by December 31, 2020. The new authorization was effective January 1, 2017, and replaces the previous authorization, which expired on December 31, 2016.

Management's assessments of market conditions and other pertinent factors guide the timing and volume of all repurchases. Repurchased shares are recorded in treasury stock at cost, which includes any applicable commissions and fees.

From January 1, 2017, through February 2, 2017, we repurchased 2.75 million shares at an aggregate cost of approximately $291 million.

20. Related Parties

UPRR and other North American railroad companies jointly own TTX Company (TTX). UPRR has a 36.79% economic and voting interest in TTX while the other North American railroads own the remaining interest. In accordance with ASC 323 Investments - Equity Method and Joint Venture, UPRR applies the equity method of accounting to our investment in TTX.

TTX is a railcar pooling company that owns railcars and intermodal wells to serve North America’s railroads. TTX assists railroads in meeting the needs of their customers by providing railcars in an efficient, pooled environment. All railroads have the ability to utilize TTX railcars through car hire by renting railcars at stated rates.

UPRR had $877 million and $830 million recognized as investments related to TTX in our Consolidated Statements of Financial Position as of December 31, 2016, and 2015, respectively. TTX car hire expenses of $368 million in 2016, $376 million in 2015, and $350 million in 2014 are included in equipment and other rents in our Consolidated Statements of Income. In addition, UPRR had accounts payable to TTX of $61 million at both December 31, 2016, and December 31, 2015.

21. Selected Quarterly Data (Unaudited)

Millions, Except Per Share Amounts 2016	Mar. 31	Jun. 30	Sep. 30	Dec. 31
Operating revenues	$ 4,829	$ 4,770	$ 5,174	$ 5,168
Operating income	1,687	1,660	1,960	1,965
Net income	979	979	1,131	1,144
Net income per share:				
Basic	1.16	1.17	1.36	1.40
Diluted	1.16	1.17	1.36	1.39

Millions, Except Per Share Amounts 2015	Mar. 31	Jun. 30	Sep. 30	Dec. 31
Operating revenues	$ 5,614	$ 5,429	$ 5,562	$ 5,208
Operating income	1,977	1,949	2,208	1,918
Net income	1,151	1,204	1,300	1,117
Net income per share:				
Basic	1.31	1.38	1.51	1.31
Diluted	1.30	1.38	1.50	1.31

Per share net income for the four quarters combined may not equal the per share net income for the year due to rounding.

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

None.

Item 9A. Controls and Procedures

As of the end of the period covered by this report, the Corporation carried out an evaluation, under the supervision and with the participation of the Corporation’s management, including the Corporation’s Chief Executive Officer (CEO) and Executive Vice President and Chief Financial Officer (CFO), of the effectiveness of the design and operation of the Corporation’s disclosure controls and procedures pursuant to Exchange Act Rules 13a-15 and 15d-15. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Based upon that evaluation, the CEO and the CFO concluded that, as of the end of the period covered by this report, the Corporation’s disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified by the SEC, and that such information is accumulated and communicated to management, including the CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure.

Additionally, the CEO and CFO determined that there were no changes to the Corporation’s internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) during the last fiscal quarter that materially affected, or are reasonably likely to materially affect, the Corporation’s internal control over financial reporting.

MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Union Pacific Corporation and Subsidiary Companies (the Corporation) is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)). The Corporation's internal control system was designed to provide reasonable assurance to the Corporation's management and Board of Directors regarding the preparation and fair presentation of published financial statements.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

The Corporation's management assessed the effectiveness of the Corporation's internal control over financial reporting as of December 31, 2016. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control – Integrated Framework (2013). Based on our assessment, management believes that, as of December 31, 2016, the Corporation's internal control over financial reporting is effective based on those criteria.

The Corporation's independent registered public accounting firm has issued an attestation report on the effectiveness of the Corporation's internal control over financial reporting. This report appears on the next page.

February 2, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Union Pacific Corporation

Omaha, Nebraska

We have audited the internal control over financial reporting of Union Pacific Corporation and Subsidiary Companies (the "Corporation") 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. The 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 Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Corporation'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, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and 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 by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel 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 the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the 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, the Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2016 of the Corporation and our report dated February 3, 2017 expressed an unqualified opinion on those financial statements and financial statement schedule.

Omaha, Nebraska

February 3, 2017

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers, and Corporate Governance

(a) Directors of Registrant.

Information as to the names, ages, positions and offices with UPC, terms of office, periods of service, business experience during the past five years and certain other directorships held by each director or person nominated to become a director of UPC is set forth in the Election of Directors segment of the Proxy Statement and is incorporated herein by reference.

Information concerning our Audit Committee and the independence of its members, along with information about the audit committee financial expert(s) serving on the Audit Committee, is set forth in the Audit Committee segment of the Proxy Statement and is incorporated herein by reference.

(b) Executive Officers of Registrant.

Information concerning the executive officers of UPC and its subsidiaries is presented in Part I of this report under Executive Officers of the Registrant and Principal Executive Officers of Subsidiaries.

(c) Section 16(a) Compliance.

Information concerning compliance with Section 16(a) of the Securities Exchange Act of 1934 is set forth in the Section 16(a) Beneficial Ownership Reporting Compliance segment of the Proxy Statement and is incorporated herein by reference.

(d) Code of Ethics for Chief Executive Officer and Senior Financial Officers of Registrant.

The Board of Directors of UPC has adopted the UPC Code of Ethics for the Chief Executive Officer and Senior Financial Officers (the Code). A copy of the Code may be found on the Internet at our website www.up.com/investor/governance. We intend to disclose any amendments to the Code or any waiver from a provision of the Code on our website.

Item 11. Executive Compensation

Information concerning compensation received by our directors and our named executive officers is presented in the Compensation Discussion and Analysis, Summary Compensation Table, Grants of Plan-Based Awards in Fiscal Year 2016, Outstanding Equity Awards at 2016 Fiscal Year-End, Option Exercises and Stock Vested in Fiscal Year 2016, Pension Benefits at 2016 Fiscal Year-End, Nonqualified Deferred Compensation at 2016 Fiscal Year-End, Potential Payments Upon Termination or Change in Control and Director Compensation in Fiscal Year 2016 segments of the Proxy Statement and is incorporated herein by reference. Additional information regarding compensation of directors, including Board committee members, is set forth in the By-Laws of UPC and the Stock Unit Grant and Deferred Compensation Plan for the Board of Directors, both of which are included as exhibits to this report. Information regarding the Compensation and Benefits Committee is set forth in the Compensation Committee Interlocks and Insider Participation and Compensation Committee Report segments of the Proxy Statement and is incorporated herein by reference.

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

Information as to the number of shares of our equity securities beneficially owned by each of our directors and nominees for director, our named executive officers, our directors and executive officers as a group, and certain beneficial owners is set forth in the Security Ownership of Certain Beneficial Owners and Management segment of the Proxy Statement and is incorporated herein by reference.

The following table summarizes the equity compensation plans under which UPC common stock may be issued as of December 31, 2016:

Plan Category	(a) Number of securities to be issued upon exercise of outstanding options, warrants and rights		(b) Weighted-average exercise price of outstanding options, warrants and rights		(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	8,112,595	[1]	$ 73.11	[2]	73,745,250
Total	8,112,595		$ 73.11		73,745,250

[1] Includes 1,950,148 retention units that do not have an exercise price. Does not include 2,024,198 retention shares that have been issued and are outstanding.
[2] Does not include the retention units or retention shares described above in footnote 1.

Item 13. Certain Relationships and Related Transactions and Director Independence

Information on related transactions is set forth in the Certain Relationships and Related Transactions and Compensation Committee Interlocks and Insider Participation segments of the Proxy Statement and is incorporated herein by reference. We do not have any relationship with any outside third party that would enable such a party to negotiate terms of a material transaction that may not be available to, or available from, other parties on an arm’s-length basis.

Information regarding the independence of our directors is set forth in the Director Independence segment of the Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information concerning the fees billed by our independent registered public accounting firm and the nature of services comprising the fees for each of the two most recent fiscal years in each of the following categories: (i) audit fees, (ii) audit-related fees, (iii) tax fees, and (iv) all other fees, is set forth in the Independent Registered Public Accounting Firm's Fees and Services segment of the Proxy Statement and is incorporated herein by reference.

Information concerning our Audit Committee's policies and procedures pertaining to pre-approval of audit and non-audit services rendered by our independent registered public accounting firm is set forth in the Audit Committee segment of the Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) Financial Statements, Financial Statement Schedules, and Exhibits:

(1) Financial Statements

The financial statements filed as part of this filing are listed on the index to the Financial Statements and Supplementary Data, Item 8, on page 46.

(2) Financial Statement Schedules

Schedule II - Valuation and Qualifying Accounts

Schedules not listed above have been omitted because they are not applicable or not required or the information required to be set forth therein is included in the Financial Statements and Supplementary Data, Item 8, or notes thereto.

(3) Exhibits

Exhibits are listed in the exhibit index beginning on page 88. The exhibits include management contracts, compensatory plans and arrangements required to be filed as exhibits to the Form 10-K by Item 601 (10) (iii) of Regulation S-K.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 3rd day of February, 2017.

UNION PACIFIC
CORPORATION

By /s/ Lance M. Fritz
Lance M. Fritz,
Chairman, President and
Chief Executive Officer
Union Pacific Corporation

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below, on this 3rd day of February, 2017, by the following persons on behalf of the registrant and in the capacities indicated.

PRINCIPAL EXECUTIVE OFFICER
AND DIRECTOR:

By /s/ Lance M. Fritz
Lance M. Fritz,
Chairman, President and
Chief Executive Officer
Union Pacific Corporation

PRINCIPAL FINANCIAL OFFICER:

By /s/ Robert M. Knight, Jr.
Robert M. Knight, Jr.,
Executive Vice President and
Chief Financial Officer

PRINCIPAL ACCOUNTING OFFICER:

By /s/ Todd M. Rynaski
Todd M. Rynaski,
Vice President and Controller

DIRECTORS:

Andrew H. Card, Jr.*	Michael R. McCarthy*
Erroll B. Davis, Jr.*	Michael W. McConnell*
David B. Dillon*	Thomas F. McLarty III*
Deborah C. Hopkins*	Steven R. Rogel*
Charles C. Krulak*	Jose H. Villarreal*

Jane H. Lute*

* By James J. Theisen, Jr.
James J. Theisen, Jr., Attorney-in-fact

SCHEDULE II – VALUATION AND QUALIFYING ACCOUNTS

Union Pacific Corporation and Subsidiary Companies

Millions, for the Years Ended December 31,	2016	2015	2014
Allowance for doubtful accounts:			
Balance, beginning of period	$ 16	$ 21	$ 23
Charges/(reduction) to expense	23	1	5
Net recoveries/(write-offs)	(17)	(6)	(7)
Balance, end of period	$ 22	$ 16	$ 21
Allowance for doubtful accounts are presented in the Consolidated Statements of Financial Position as follows:			
Current	$ 5	$ 5	$ 5
Long-term	17	11	16
Balance, end of period	$ 22	$ 16	$ 21
Accrued casualty costs:			
Balance, beginning of period	$ 736	$ 757	$ 702
Charges to expense	202	227	256
Cash payments and other reductions	(222)	(248)	(201)
Balance, end of period	$ 716	$ 736	$ 757
Accrued casualty costs are presented in the Consolidated Statements of Financial Position as follows:			
Current	$ 185	$ 181	$ 249
Long-term	531	555	508
Balance, end of period	$ 716	$ 736	$ 757

UNION PACIFIC CORPORATION

Exhibit Index

Exhibit No.	Description
Filed with this Statement	
10(a)	Form of Performance Stock Unit Agreement dated February 2, 2017.
10(b)	Form of Stock Unit Agreement for Executives dated February 2, 2017.
10(c)	Form of Non-Qualified Stock Option Agreement for Executives dated February 2, 2017.
12	Ratio of Earnings to Fixed Charges.
21	List of the Corporation’s significant subsidiaries and their respective states of incorporation.
23	Independent Registered Public Accounting Firm’s Consent.
24	Powers of attorney executed by the directors of UPC.
31(a)	Certifications Pursuant to Rule 13a-14(a), of the Exchange Act, as Adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 - Lance M. Fritz.
31(b)	Certifications Pursuant to Rule 13a-14(a), of the Exchange Act, as Adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 - Robert M. Knight, Jr.
32	Certifications Pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 - Lance M. Fritz and Robert M. Knight, Jr.
101	eXtensible Business Reporting Language (XBRL) documents submitted electronically: 101.INS (XBRL Instance Document), 101.SCH (XBRL Taxonomy Extension Schema Document), 101.CAL (XBRL Calculation Linkbase Document), 101.LAB (XBRL Taxonomy Label Linkbase Document), 101.DEF (XBRL Taxonomy Definition Linkbase Document) and 101.PRE (XBRL Taxonomy Presentation Linkbase Document). The following financial and related information from Union Pacific Corporation’s Annual Report on Form 10-K for the year ended December 31, 2016 (filed with the SEC on February 3, 2017), is formatted in XBRL and submitted electronically herewith: (i) Consolidated Statements of Income for the years ended December 31, 2016, 2015 and 2014, (ii) Consolidated Statements of Comprehensive Income for the years ended December 31, 2016, 2015, and 2014, (iii) Consolidated Statements of Financial Position at December 31, 2016 and December 31, 2015, (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2016, 2015 and 2014, (v) Consolidated Statements of Changes in Common Shareholders’ Equity for the years ended December 31, 2016, 2015 and 2014, and (vi) the Notes to the Consolidated Financial Statements.
Incorporated by Reference	
3(a)	Restated Articles of Incorporation of UPC, as amended and restated through June 27, 2011, and as further amended May 15, 2014, are incorporated herein by reference to Exhibit 3(a) to the Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2014.
3(b)	By-Laws of UPC, as amended, effective November 19, 2015, are incorporated herein by reference to Exhibit 3.2 to the Corporation’s Current Report on Form 8-K dated November 19, 2015.

4(a) Indenture, dated as of December 20, 1996, between UPC and Wells Fargo Bank, National Association, as successor to Citibank, N.A., as Trustee, is incorporated herein by reference to Exhibit 4.1 to UPC's Registration Statement on Form S-3 (No. 333-18345).

4(b) Indenture, dated as of April 1, 1999, between UPC and The Bank of New York, as successor to JP Morgan Chase Bank, formerly The Chase Manhattan Bank, as Trustee, is incorporated herein by reference to Exhibit 4.2 to UPC's Registration Statement on Form S-3 (No. 333-75989).

4(c) Form of 2.750% Note due 2026 is incorporated by reference to Exhibit 4.1 to the Corporation's Current Report on Form 8-K dated March 1, 2016.

4(d) Form of 4.050% Note due 2046 is incorporated by reference to Exhibit 4.2 to the Corporation's Current Report on Form 8-K dated March 1, 2016.

4(e) Form of 4.375% Note due 2065 is incorporated herein by reference to Exhibit 4.3 to the Corporation's Current Report on Form 8-K dated March 1, 2016.

4(f) Form of 2.750% Note due 2026 is incorporated herein by reference to Exhibit 4.1 to the Corporation's Current Report on Form 8-K dated August 8, 2016.

4(g) Form of 3.350% Note due 2046 is incorporated herein by reference to Exhibit 4.2 to the Corporation's Current Report on Form 8-K dated August 8, 2016.

Certain instruments evidencing long-term indebtedness of UPC are not filed as exhibits because the total amount of securities authorized under any single such instrument does not exceed 10% of the Corporation's total consolidated assets. UPC agrees to furnish the Commission with a copy of any such instrument upon request by the Commission.

10(d) Supplemental Thrift Plan (409A Non-Grandfathered Component) of Union Pacific Corporation, as amended March 1, 2013, is incorporated herein by reference to Exhibit 10(c) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

10(e) Supplemental Thrift Plan (409A Grandfathered Component) of Union Pacific Corporation, as amended March 1, 2013, is incorporated herein by reference to Exhibit 10(d) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

10(f) Supplemental Pension Plan for Officers and Managers (409A Non-Grandfathered Component) of Union Pacific Corporation and Affiliates, as amended February 1, 2013, and March 1, 2013, is incorporated herein by reference to Exhibit 10(e) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

10(g) Supplemental Pension Plan for Officers and Managers (409A Grandfathered Component) of Union Pacific Corporation and Affiliates, as amended February 1, 2013, and March 1, 2013 is incorporated herein by reference to Exhibit 10(f) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

10(h) Union Pacific Corporation Key Employee Continuity Plan, as amended February 5, 2015, is incorporated herein by reference to Exhibit 10(d) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013.

10(i) Union Pacific Corporation Executive Incentive Plan, effective May 5, 2005, amended and restated effective January 1, 2009, is incorporated herein by reference to Exhibit 10(g) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.

10(j) Deferred Compensation Plan (409A Grandfathered Component) of Union Pacific Corporation, as amended March 1, 2013, is incorporated herein by reference to Exhibit 10(b) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

10(k) Deferred Compensation Plan (409A Non-Grandfathered Component) of Union Pacific Corporation, as amended December 17, 2013, is incorporated herein by reference to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013.

10(l) Union Pacific Corporation 2000 Directors Plan, effective as of April 21, 2000, as amended November 16, 2006, January 30, 2007 and January 1, 2009 is incorporated herein by reference to Exhibit 10(j) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.

10(m) Union Pacific Corporation Stock Unit Grant and Deferred Compensation Plan for the Board of Directors (409A Non-Grandfathered Component), effective as of January 1, 2009 is incorporated herein by reference to Exhibit 10(k) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.

10(n) Union Pacific Corporation Stock Unit Grant and Deferred Compensation Plan for the Board of Directors (409A Grandfathered Component), as amended and restated in its entirety, effective as of January 1, 2009 is incorporated herein by reference to Exhibit 10(l) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.

10(o) Union Pacific Corporation 2013 Stock Incentive Plan, effective May 16, 2013, is incorporated herein by reference to Exhibit 4.3 to the Corporation's Form S-8 dated May 17, 2013.

10(p) UPC 2004 Stock Incentive Plan amended March 1, 2013, is incorporated herein by reference to Exhibit 10(g) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.

10(q) Amended and Restated Registration Rights Agreement, dated as of July 12, 1996, among UPC, UP Holding Company, Inc., Union Pacific Merger Co. and Southern Pacific Rail Corporation (SP) is incorporated herein by reference to Annex J to the Joint Proxy Statement/Prospectus included in Post-Effective Amendment No. 2 to UPC's Registration Statement on Form S-4 (No. 33-64707).

10(r) Agreement, dated September 25, 1995, among UPC, UPRR, Missouri Pacific Railroad Company (MPRR), SP, Southern Pacific Transportation Company (SPT), The Denver & Rio Grande Western Railroad Company (D&RGW), St. Louis Southwestern Railway Company (SLSRC) and SPCSL Corp. (SPCSL), on the one hand, and Burlington Northern Railroad Company (BN) and The Atchison, Topeka and Santa Fe Railway Company (Santa Fe), on the other hand, is incorporated by reference to Exhibit 10.11 to UPC's Registration Statement on Form S-4 (No. 33 64707).

10(s) Supplemental Agreement, dated November 18, 1995, between UPC, UPRR, MPRR, SP, SPT, D&RGW, SLSRC and SPCSL, on the one hand, and BN and Santa Fe, on the other hand, is incorporated herein by reference to Exhibit 10.12 to UPC's Registration Statement on Form S-4 (No. 33 64707).

10(t) The Pension Plan for Non-Employee Directors of UPC, as amended January 25, 1996, is incorporated herein by reference to Exhibit 10(w) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 1995.

10(u)	Charitable Contribution Plan for Non-Employee Directors of Union Pacific Corporation is incorporated herein by reference to Exhibit 10(z) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 1995.
10(v)	Form of Non-Qualified Stock Option Agreement for Executives is incorporated herein by reference to Exhibit 10(c) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2012.
10(w)	Form of Stock Unit Agreement for Executives is incorporated herein by reference to Exhibit 10(b) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2012.
10(x)	Form of Non-Qualified Stock Option Agreement for Executives is incorporated herein by reference to Exhibit 10(c) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013.
10(y)	Form of Stock Unit Agreement for Executives is incorporated herein by reference to Exhibit 10(b) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013.
10(z)	Form of 2014 Long Term Plan Stock Unit Agreement is incorporated herein by reference to Exhibit 10(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013.
10(aa)	Form of 2015 Long Term Plan Stock Unit Agreement is incorporated herein by reference to Exhibit 10(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2014.
10(bb)	Form of 2016 Long Term Plan Stock Unit Agreement is incorporated herein by reference to Exhibit 10(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2015.
10(cc)	Form of Non-Qualified Stock Option Agreement for Directors is incorporated herein by reference to Exhibit 10(d) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004.
10(dd)	Executive Incentive Plan (2005) – Deferred Compensation Program, dated December 21, 2005 is incorporated herein by reference to Exhibit 10(g) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2005.
99	Form of U.S. $1,700,000,000 5-Year Revolving Credit Agreement dated as of May 21, 2014, is incorporated herein by reference to Exhibit 99(a) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2014.