



UNION PACIFIC

2016 Building America Report

A report to communities on our social, environmental and economic sustainability progress.



About the Report

Union Pacific's mission of service defines us and drives our commitment to safely transport products across the country, provide good jobs, operate ethically and invest in our communities.

This report details our progress in key areas supporting social, economic and environmental sustainability pillars: operating safely, strengthening communities, engaging employees and working to preserve the environment. We also summarize our 2016 financial performance.

We used the Global Reporting Initiative's global sustainability reporting standards as a guide to report our most material social responsibility issues. This publication focuses on initiatives and accomplishments from the 2016 calendar year and includes 2016 data, unless otherwise noted.

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On the cover: from top to bottom, Track Supervisor Demarcus Thompson, Carman Refugio Rickford, Occupational Health Nurse Trudy Forbes and Electrician Stoe Saing.

Letter to Stakeholders

Sustainability is fundamental to Union Pacific's vision of Building America. Our rail network crosses 23 states, connecting communities to opportunity – and our country to sustainable economic growth. It is our duty to deliver products in a safe, reliable, fuel-efficient and environmentally responsible manner.

Union Pacific is committed to operating responsibly and serving customers with excellence, which our 43,000 employees accomplish with ingenuity and integrity. Community and infrastructure investments also play an important role in Union Pacific's mission to serve. Each section of this Building America Report describes key initiatives and reflects on our performance over the last year.



- Economic Impact illustrates how Union Pacific drives economic growth in the 23 states where we operate through direct employment, capital investments and in-state sourcing efforts.
- Operating Safely details our relentless investments and innovations to maintain a safe rail network. This section also showcases our ongoing efforts to increase public safety near railroad tracks.
- Strengthening Communities demonstrates the role Union Pacific plays in our 7,000 communities. This includes investments in developing workforces, employees' donations and volunteer efforts, and partnerships with colleges and universities.
- Engaging Employees outlines our commitment to our employees by creating fulfilling careers, including well-being, training and development investments.
- Preserving the Environment highlights efforts to increase fuel efficiency, reduce carbon emissions and partnerships with communities and government agencies to preserve ecosystems across our network.

Our sustainability approach is evolving. One of the most exciting developments is the Union Pacific Foundation's renewed focus on partnerships centered on safety, workforce development and enhancing community spaces. This will enable us to multiply the positive impact we have in the communities we serve. Details of the Foundation's evolving role are outlined in the Strengthening Communities section.

We are proud of the work we do and understand there always is more to learn. This report is part of our ongoing conversation with you, our stakeholders, and we truly value your feedback.

A handwritten signature in black ink, appearing to read "Lance M. Fritz", with a stylized flourish at the end.

Lance Fritz
Chairman, President and CEO

OUR VISION

Building America

OUR MISSION

The Men and Women of Union Pacific
are Dedicated to Serve

OUR VALUES

Passion for Performance
High Ethical Standards
Work as a Team

Our Company

Union Pacific Railroad is the principal operating company of Union Pacific Corporation (NYSE: UNP). We are one of America's most recognized companies, with a heritage of building the country and a vision to keep doing so.

Our rail network connects 23 states in the western two-thirds of the country, providing a critical link in the global supply chain. Over the last 10 years, from 2007 to 2016, Union Pacific invested approximately \$34 billion in our network and operations, supporting America's transportation infrastructure and enabling economic growth.



Financial Performance

Union Pacific adds value to the U.S. economy through our operations' profits and shareholder returns. In 2016, we reported net income of \$4.2 billion or \$5.07 per diluted share. This represents 11 and 8 percent decreases, respectively, compared to the \$4.8 billion or \$5.49 per diluted share we reported in 2015. We had operating revenues of \$19.9 billion compared to \$21.8 billion in 2015, a 9 percent decrease, and operating income of \$7.3 billion compared to \$8.1 billion, a 10 percent decrease.

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.

What We Carry

Union Pacific moves the goods American families and businesses use every day. Our diversified business mix includes food we eat, cars we drive, chemicals to clean water and steel to build cities.

Our railroad serves many of the fastest growing cities in the United States and connects all major West Coast and Gulf Coast ports to Canada, Mexico and the country's eastern gateways. We have roughly 10,000 direct customers, and work to deliver products in a safe, reliable, fuel-efficient and environmentally responsible manner.

DIVERSIFIED BUSINESS PRODUCTS

Agricultural Products

The whole grains and other agricultural goods we haul feed America and many other parts of the world.

Automotive

We transport automotive parts, finished vehicles and aftermarket vehicles, taking them from assembly plants, operating or accessing distribution centers for all major auto manufacturers, and distributing imported vehicles from the West Coast and Gulf of Mexico.

Chemicals

Chemicals we carry help clean drinking water, produce plastics and fertilize crops. We also transport petrochemicals, crude oil and soda ash.

Coal

Coal generated about 30 percent of America's electricity in 2016, according to the U.S. Energy Information Administration. We ship coal from mines in the Southern Powder River Basin, Utah, Colorado, southern Wyoming and southern Illinois, delivering to electric plants as well as ports.

Industrial Products

We carry a broad range of raw materials and finished goods, including steel, pipe, frac sand, cement, military equipment, wind turbine components and lumber.

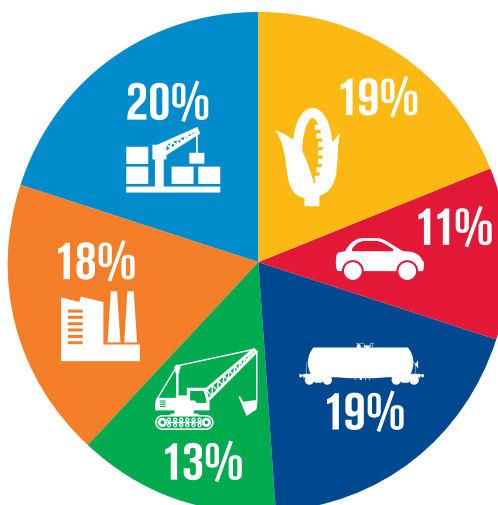
Intermodal

We transport intermodal freight containers for domestic and international shippers, moving products such as electronics, toys, furniture and clothing. One Union Pacific intermodal train takes up to 300 trucks off America's congested highways.

Mexico Markets

We are the leading freight transportation services provider between the United States and Mexico, and the only railroad to serve all six major Mexico gateways.

2016 FREIGHT REVENUE



Risk Oversight Approach

We operate a dynamic enterprise risk management process, with continuous monitoring to identify and address potential risks. This includes risks arising in the ever-changing economic, political and legal environments in which Union Pacific operates.

Management identifies and prioritizes enterprise risks and regularly presents them to our board of directors for review and consideration. Our chief compliance officer reports to the board on risk mitigation strategies, supported by senior executives responsible for implementing risk mitigation. We also report risk factors in our Annual Report Form 10-K.

Our board's audit committee oversees the company's enterprise risk internal audit. Internal auditors present their findings on mitigating controls and processes to the committee, which in turn reports to the board.

Sustainability Management Approach

Our business grows by understanding the needs of our communities and customers – and responding to those needs with dedication and commitment. Our sustainability approach reflects this. We are committed to engaging employees in our mission, transporting products safely, providing good jobs, operating ethically and investing in America's communities.



Greg Wilson, Inspection Vehicle Operator

OUR SUSTAINABILITY AND CITIZENSHIP GOALS

Union Pacific's Building America report details the company's progress against the key pillars of our sustainability and citizenship strategy:

- Operating a safe, efficient and environmentally responsible rail network that delivers the best customer experience.
- Providing employees with the safest work environment.
- Constantly improving employee, customer and public safety through training, education, innovation and investment.
- Developing programs and processes making us an employer of choice.
- Investing in our network infrastructure to enhance safety, service and efficiency.
- Growing our business profitably and responsibly so we can invest in the future and make positive impacts on employees, communities, customers and shareholders.
- Creating economic strength and improving quality of life in the 7,000 communities where we operate.

We track our performance toward these goals using the Key Performance Indicators (KPIs) shown in the table on page 7.

BUSINESS AND INDUSTRY AFFILIATIONS

Union Pacific is a member of many national industry and business organizations including those listed below.

- American Frozen Foods Institute.
- American Wind Energy Association.
- Association of American Railroads.
- Food Shippers of America.
- GoRail.
- GreenBiz Executive Network.
- National Association of Manufacturers.
- National Business Group on Health.
- National Freight Transportation Association.
- National Grain and Feed Association.
- National Minority Supplier Development Council.
- National Safety Council.
- Operation Lifesaver.
- United States-Mexico Chamber of Commerce.
- U.S. Chamber of Commerce.
- Women's Business Enterprise National Council.

Key Performance Indicators

FINANCIAL	2014	2015	2016
Reported net income	\$5.2 billion	\$4.8 billion	\$4.2 billion
Operating revenue	\$24.0 billion	\$21.8 billion	\$19.9 billion
OPERATING SAFELY	2014	2015	2016
Rail crossing accidents <i>(per million train miles)</i>	2.34	2.28	2.43
Reportable injury rate <i>(per 200,000 employee-hours)</i>	0.98	0.87	0.75
Public outreach	About 13,580 events, reached more than 629,500 people	More than 15,000 events reached more than 600,000 people	More than 14,500 events reached more than 498,000 people
STRENGTHENING COMMUNITIES	2014	2015	2016
Capital program <i>(private funds, no taxpayer dollars)</i>	\$4.1 billion	\$4.3 billion	\$3.5 billion
Spend with minority- and women-owned businesses	\$509 million	\$423 million	\$325 million
ENGAGING EMPLOYEES	2014	2015	2016
Percent of employees unionized	85%	85%	85%
Workforce diversity	6% Female, 94% Male 2% Asian 11% Black 73% Caucasian 12% Hispanic 2% Native American	6% Female, 94% Male 2% Asian 11% Black 73% Caucasian 12% Hispanic 2% Native American	6% Female, 94% Male 2% Asian 11% Black 72% Caucasian 13% Hispanic 2% Native American
<i>U.S. Population 2015 census data (permits reporting of more than one race): 5% Asian, 13% Black, 77% Caucasian, 17% Hispanic, 1% Native American</i>			
PRESERVING THE ENVIRONMENT	2014	2015	2016
Energy usage	48.4 million megawatt hours	44.5 million megawatt hours	40.6 million megawatt hours
Water usage withdrawals	1.78 billion gallons	1.54 billion gallons	1.25 billion gallons
GHG emissions			
Intensity per million gross ton miles	12.6 metric tons	12.7 metric tons	12.6 metric tons
Locomotive fossil fuel emissions <i>(scope 1)</i>	11,850,514 metric tons	10,834,984 metric tons	9,913,870 metric tons
Fossil fuel emissions <i>(scopes 1 and 2)</i>	12,666,733 metric tons	11,683,549 metric tons	10,685,250 metric tons
Employee travel <i>(scope 3)</i>	19,977 metric tons	19,803 metric tons	18,603 metric tons
Purchases from biomass sources	87,744 metric tons	129,600 metric tons	119,872 metric tons
Waste			
Total waste generated	1.05 million tons	1.04 million tons	1.15 million tons
Tonnage diverted from landfills	81%	68%	67%
E-waste	Approximately 270,000 pounds recycled or reused	Approximately 270,000 pounds recycled or reused	Approximately 270,000 pounds recycled or reused

Stakeholder Engagement

Everything Union Pacific does is built on our vision, mission and values. Our strategy drives value to Union Pacific's key stakeholders – shareholders, communities, employees and customers. Union Pacific's approach to sustainability requires engaging with our four key stakeholder groups to understand their evolving needs.



EMPLOYEES

Union Pacific employees work 24/7 in more than 7,000 communities across our service area. We engage employees through:

- Communication from our CEO in many forms including online and in-person town halls with question-and-answer sessions. CEO system wide videos cover key issues such as safety and employee engagement, and a CEO blog highlights observations in the field and topics affecting the company.
- Information Television network.
- Senior management town halls with question-and-answer sessions.
- Employee clubs, resource groups, networks, focus groups and surveys.
- Labor Relations Connection, an online portal for union employees.
- Ethics bulletins and our values line, allowing employees to report concerns anonymously.



Union Pacific Safety Manager Kevin Barnett and League City, Texas, Mayor Pat Hallisey at a community event in the Houston area.

COMMUNITIES

Union Pacific's business has a positive impact on local communities through economic development, good paying jobs and reduced congestion on roads. We seek to support communities and manage potential negative impacts through:

- Local public affairs representatives, who work with elected officials, economic development alliances, civic groups and other community organizations.
- Our national 24/7 emergency hotline. In addition to emergency response, operators work with callers reporting issues such as blocked crossings.
- Event sponsorships and employee volunteering.
- The Union Pacific Foundation.
- Our Crossing Accident Reduction and Education Safety program, UP CARES.
- Free safety training for emergency responders.
- Inside Track, our self-publishing website for communities.
- Social media platforms including Facebook, LinkedIn, Twitter, Instagram and YouTube.



Union Pacific employees live and work in many of the communities we serve. We are dedicated to operating safely for the good of our customers and the places we call home.

CUSTOMERS

Communication is at the heart of our customer relationships, enabling us to develop solutions meeting their changing needs and supporting their growth. We engage with customers through:

- Social media.
- Customer bulletins.
- Regular meetings and customer web portals.
- Customer satisfaction surveys, evaluations and suggestions.
- Our National Customer Service Center.

SHAREHOLDERS

Clear communication with shareholders is important to Union Pacific. We engage them through:

- Annual reports, proxy statements and SEC filings.
- Our Investor Relations site featuring upcoming events, public filings, industry reports, shareholder resources and answers to frequently asked questions.
- Annual Building America Report and Fact Book.
- Shareholder meetings with management and investor conferences.
- Quarterly earnings, reports and conference calls.

Other Key Audiences

REGULATORY OFFICIALS

Union Pacific works closely with regulatory officials to align our business with the country's infrastructure requirements and shape a responsible and sustainable operating environment:

- Transparent compliance reports, voluntary agreements and in-person meetings.
- Ongoing dialogue via staff in Washington, D.C., and across our network.
- Participation in the Association of American Railroads and U.S. Environmental Protection Agency's SmartWay Transport Partnership.
- Employee and corporate regulatory and legislative advocacy.
- The Union Pacific Environmental Management Program.
- Agreements with the California Air Resources Board and other states.
- Collaboration with U.S. Customs and Border Protection and other government agencies.

SUPPLIERS

Suppliers are an important part of Union Pacific's business – they help us serve our customers with excellence and provide quality materials. We manage suppliers through our [supplier code of conduct](#) and quality program, engaging them through:

- Electronic commerce capabilities.
- Supplier performance tracking system.
- Supplier diversity program.

Key Awards and Recognition

Union Pacific is proud of the external recognition for efforts to operate safely, strengthen communities, engage employees and preserve the environment. We were recognized with the following awards in 2016.

- No. 1 in Fortune's Most Admired among trucking, transportation and logistics companies for the sixth consecutive year.
- Named in Forbes' 100 Most Trustworthy Companies and Best Employers' lists.
- Recognized as America's Top Military-Friendly Employer by G.I. Jobs.
- Named Best for Vets Employer by Military Times.
- Named to the Most Valuable Employer in Military list by civilianjobs.com.
- Recognized as a Globally Certified Healthy Workplace by the Global Centre for Healthy Workplaces.
- Named a Top Green Provider by Food Logistics.
- Moved up 40 spots on Newsweek's Green Rankings for the world's largest companies on corporate sustainability and environmental impact.
- Recognized as top performer in the Soy Transportation Coalition Railroad Report Card.
- Named to CDP's Climate Leadership Index.



Union Pacific machinist Alia Eden works on locomotives at a shop in Salt Lake City, Utah.

Our Economic Impact

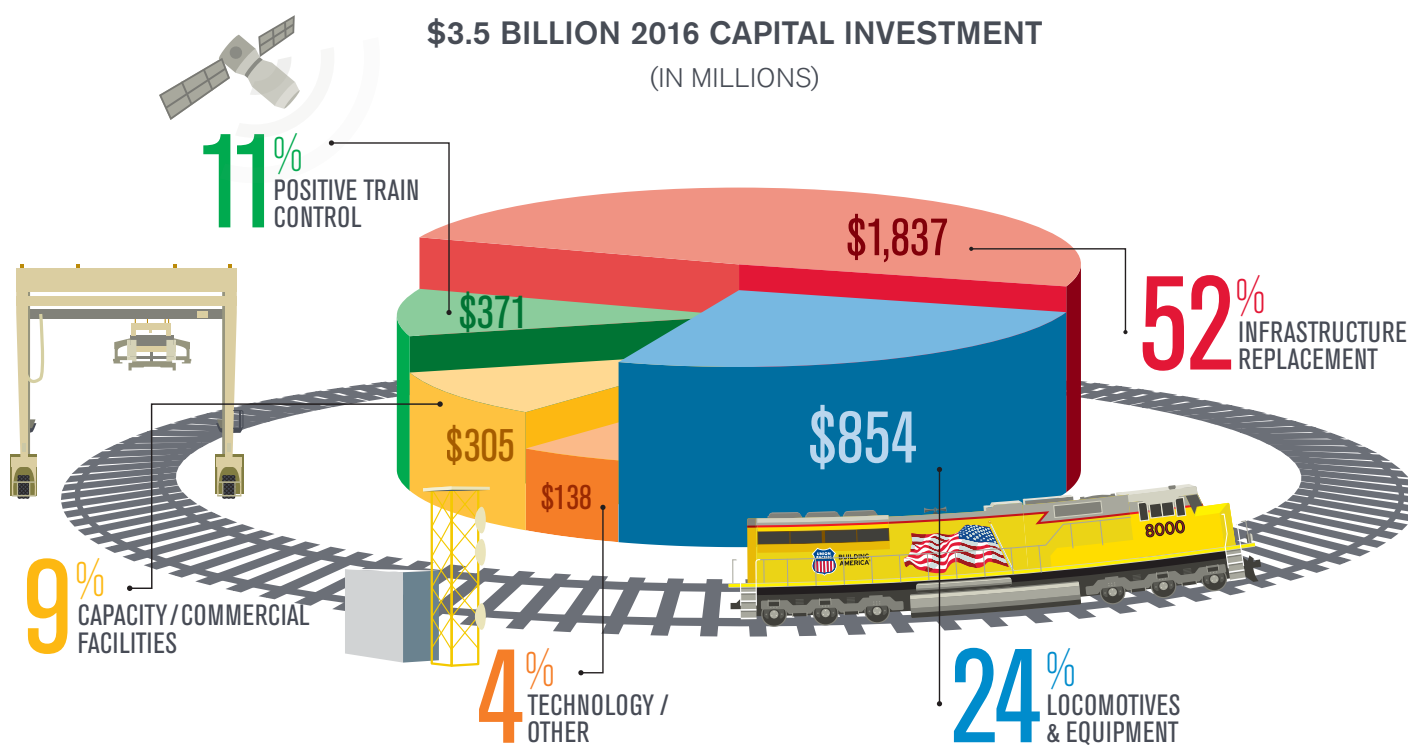
Union Pacific exists to build America. Our positive economic impact isn't just a by-product of our business; it's central to our vision and purpose.

Our railroad connects communities and resources, generating opportunity and supporting growth in the 23 states where we operate, and across the country. We create economic value not only through returns generated for shareholders, but also employment for roughly 43,000 employees, the business we give suppliers, and every business opportunity, commercial relationship and innovative idea our network makes possible.

Investing in Infrastructure

Union Pacific's capital investments create economic opportunity, through employment and supply chain activity. They also represent investments in building a sustainable rail network that can support economic growth for generations to come. The more we invest in building a safe and efficient railroad today, the more opportunity our infrastructure can support communities going forward.

The chart on this page shows the level of infrastructure capital investments Union Pacific made in 2016.



Infrastructure replacement

Our largest form of capital investment strengthens our rail network through track, signal and bridge replacement projects.

Locomotives and equipment

New and upgraded locomotives, rail cars and equipment investments to meet customer needs, enhance safety and reduce our environmental impact.

Capacity and commercial facilities

New commercial facilities and network expansions increase capacity to support economic growth and opportunities to serve new locations.

Positive train control (PTC)

An advanced, automatic train stopping system designed to prevent train-to-train collisions and accidents caused by excessive train speeds or unauthorized movements, helping to build a safer rail network.

Technology

From apps managing train systems to enhanced track inspection systems, we continually invest in new technologies to enhance safety, efficiency and service.

Creating Local Economic Opportunity

Union Pacific Railroad owns and operates more than 32,000 miles of railroad track in 23 states across the western two-thirds of the United States. We create economic opportunities for local communities through direct employment with Union Pacific and the opportunities created by local employee spending. Our capital investments create additional jobs and business opportunities through our supply chain. The following chart shows Union Pacific's economic impact in the 23 states where we operate. In the following pages, we explore other local economic opportunities we support.

State	Employees	Payroll*	Route Miles	Capital Investment*	In-State Purchases*
Arizona	1,126	104.5	691	59.5	26.5
Arkansas	2,654	226.7	1,325	133.6	34.7
California	4,450	414.3	3,291	230.1	231.0
Colorado	948	96.5	1,503	82.2	124.8
Idaho	817	79.2	848	47.7	18.4
Illinois	4,004	344.7	2,318	129.9	1,200.0
Iowa	1,563	135.3	1,383	62.4	72.3
Kansas	1,283	126.0	2,196	75.4	220.8
Louisiana	1,121	112.9	1,143	131.1	18.8
Minnesota	418	38.4	645	11.4	112.3
Missouri	2,445	210.7	1,541	87.9	406.9
Montana	11	0.9	125	1.5	2.4
Nebraska	8,741	926.7	1,066	251.4	154.0
Nevada	502	42.6	1,193	54.6	5.8
New Mexico	474	45.0	618	14.6	1.3
Oklahoma	333	36.7	1,172	90.1	171.1
Oregon	1,515	134.9	1,073	75.5	157.6
Tennessee	49	3.8	14	0.0	58.7
Texas	7,356	692.4	6,307	801.9	1,400.0
Utah	1,239	116.5	1,248	45.2	138.6
Washington	311	28.3	532	20.1	129.3
Wisconsin	378	38.4	930	7.3	55.0
Wyoming	1,070	87.8	874	55.1	46.1
Total	42,808	4,043.2	32,036	2,468.5	4,786.4

*In millions

Local Economic Opportunities

CONNECTING ARIZONA TO THE WORLD

The Port of Tucson is a vital logistics hub connecting Arizona and northern Mexico with the world. Through access to the Pacific seaports of Los Angeles and Long Beach, the port enables transportation for commodities such as lumber, sheetrock, steel and grain, stimulating trade on both sides of the border. Thanks to a \$5 million investment modernizing the port, funded through a federal TIGER 2013 grant, this capacity to drive economic growth has significantly increased. In May 2016, Union Pacific announced a new container export facility completion and an expansion of the port's rail infrastructure. Improvements included siding track extensions, powered switches that increase train and operating efficiencies and a new main line switch to increase the flexibility of operations at the site.

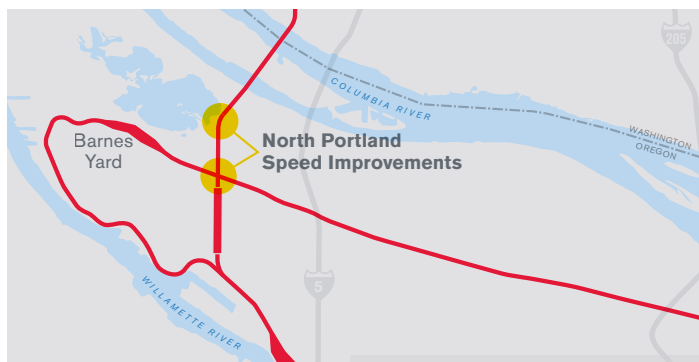


Union Pacific joined local, state and federal officials at a ribbon-cutting ceremony at the Port of Tucson, Arizona. Photo was not taken on live track.

KEEPING FREIGHT MOVING IN OREGON

Rail passengers, businesses and the environment will benefit from the public private partnership announced by Union Pacific, BNSF and the state of Oregon. The partnership will support a \$13 million investment to improve the North Portland Junction, one of the most congested points in the region's rail network. The junction connects Portland's rail network with that of Washington, and markets across the country.

Project funding includes an \$8.3 million state grant, \$3.9 million from Union Pacific and a contribution from BNSF. Increased track speeds and improved traffic flow will reduce delays and transit times, enable more efficient freight transport and cut emissions from locomotives through reduced wait times in the area.



A public-private partnership will improve rail congestion in Oregon.

BUILDING A SOUTH TEXAS ROAD NETWORK – THROUGH RAIL

The economic potential of the southern Texas region faces one major constraint – a lack of stone deposits to help the road infrastructure required for growth. Union Pacific and aggregates supplier Martin Marietta are changing that.

Medina Rock & Rail, a new quarry 40 miles west of San Antonio, supports concrete demand more than 200 miles away. Rock and other heavy freight move on Martin Marietta and Union Pacific's rail infrastructure, including one of the largest privately-funded rail projects in the United States. Medina Rock & Rail's connection to Union Pacific's main line and loading technology that fills 135-car trains in six hours has secured South Texas stone supplies for the next half-century.



Building a 12-mile stretch of Interstate 69 in Texas recently required more than half a million tons of Martin Marietta's aggregate moved on Union Pacific trains.

Enabling Innovation and Sustainability

The rail infrastructure that Union Pacific maintains and operates doesn't just support business as usual. It's also an innovation enabler. By helping businesses source new types of raw material, and forming new partnerships, our network supports the transition toward a more sustainable economy.

CONNECTING LOUISIANA WOOD PELLETS WITH THE WORLD'S ENERGY SUPPLIERS

Wood pellets are one of the most versatile forms of biomass, a renewable alternative to fossil fuels produced by compressing organic material from trees, plants and agricultural and urban waste. Thanks to Union Pacific, wood pellets produced in Louisiana are now playing a key role in generating electricity in the United Kingdom. During the year, Union Pacific hauled 300,000 tons of wood pellets from Louisiana destined for the U.K., helping its countries meet their commitment to reduce greenhouse gas emissions by at least 80 percent by 2050. During the first half of 2016, biomass accounted for 20 percent of the U.K.'s renewable energy output.

DELIVERING BIODIESEL TO HIGH TRAFFIC STATES

Biodiesel is a cleaner alternative fuel produced from renewable products such as recycled cooking oil, soybean oil, corn oil and animal fats that reduces greenhouse gas emissions from vehicles by between 57 percent and 87 percent. Union Pacific is playing a key role in the expanding demand for biodiesel, transporting the fuel from the Midwest – where 70 percent of production takes place, to California, Texas and other states seeking low-carbon fuel. During 2016, Union Pacific hauled enough biodiesel to replace 324 million gallons of petroleum.



Compressed wood pellets are unloaded off a railcar at a Drax Biomass facility.

CONNECTING GLASS CULLET TO NATIONWIDE ENERGY SAVING

Glass bottles and jars are 100 percent recyclable. By moving the broken glass, called cullet, used to make new glass and fiberglass materials, Union Pacific contributes to this process. Every ton of recycled glass saves sand, soda ash and limestone. Recycling glass also saves energy and equivalent greenhouse gas emissions. Over the last three years, cullet moved by Union Pacific has saved enough sand to fill more than 2,000 professional beach volleyball courts.



Union Pacific transports broken glass used to make products such as insulation.

Generating Opportunity Through Our Supply Chain

Union Pacific spent more than \$6 billion through our network of more than 53,000 suppliers during 2016. Our supply chain includes businesses in every one of the 23 states in which we operate, and this spending represents a significant portion of the economic impact our business generates.

Union Pacific was the first U.S. railroad to establish a supplier diversity program more than 30 years ago. Suppliers support our operations with fuel, engineering services, construction materials and much more. Union Pacific purchased approximately \$325 million goods and services from more than 500 minority and women-owned businesses in nearly 40 states. Our spending with diverse suppliers grew an average of more than 2 percent from 2008 to 2016. Approximately 45 percent of our critical suppliers reported purchasing goods and services from diverse suppliers, demonstrating their support for our diversity initiative, a 4 percent increase from 2015.

Operating Safely

Safety is Union Pacific's number one priority because nothing is more important than protecting our employees and communities. Safety is also a critical component of our customer commitment.

We invest significant resources in training employees, developing innovative technologies and increasing rail safety awareness. Our ultimate goal is to operate an incident-free environment, which we advance toward every day.

Rail Safety Maintenance

Rigorously maintaining quality rail infrastructure is foundational to our ability to operate safely. It helps prevent derailments, provides a safe path for train crews and avoids shipment delays for customers.

Union Pacific inspects railroad tracks, locomotives and other equipment on a continuous basis. Our track inspection program customizes schedules and techniques to examine each rail line. We inspected five million track miles across our 32,000-mile network in 2016, supporting the goal of meeting or exceeding federal requirements.

Efforts to strengthen our rail infrastructure contributed to a 17 percent improvement in FRA reportable derailments from 2015 to 2016. Track safety is a major focus for Union Pacific and we continue working toward our goal of eliminating accidents on our network.

SAFETY INSPECTION FLEET

We use state-of-the-art equipment to inspect rail lines regularly.

Lasers and cameras in Union Pacific's Geometry Cars capture images of track structures and test for defects, covering nearly 80,000 track miles per year. We are testing an unmanned geometry car equipped with an axle-mounted generator instead of a fuel tank. The cars report type, severity and location of track defects in near real-time. More information on Union Pacific's track inspection fleet is available [online](#).



The rail test truck's 48 ultrasonic transducers identify air gaps in the track, indicating the rail part needing maintenance, with high-frequency sound.

DRONE INSPECTIONS

Union Pacific positioned 14 drones across the system in 2016. Drones allow us to assess our infrastructure and respond to incidents affecting our network. We continue exploring new applications for drone technology to increase safety across our railroad.



Union Pacific used drones to assess weather-related damage in Doyle, California.

MACHINE VISION

Our Machine Vision system equipped with lasers and cameras captures three-dimensional images of passing trains. It takes 50,000 photos every second, providing remote inspectors with detailed information regardless of time or weather conditions.

Machine Vision eliminated hours of manual rail car inspections made after trains arrived at rail yards. Inspectors now identify trouble spots noted in reports accessible as soon as trains arrive, saving time and focusing their efforts on making repairs. Streamlining inspections reduces delays and the possibility of problems missed during manual visual inspections. Machine Vision is available in Union Pacific yards in Nebraska, Iowa and Arkansas.



Remote rail car inspectors receive detailed images of rail cars as they travel through Machine Vision.



A DIFFERENT KIND OF PUCK

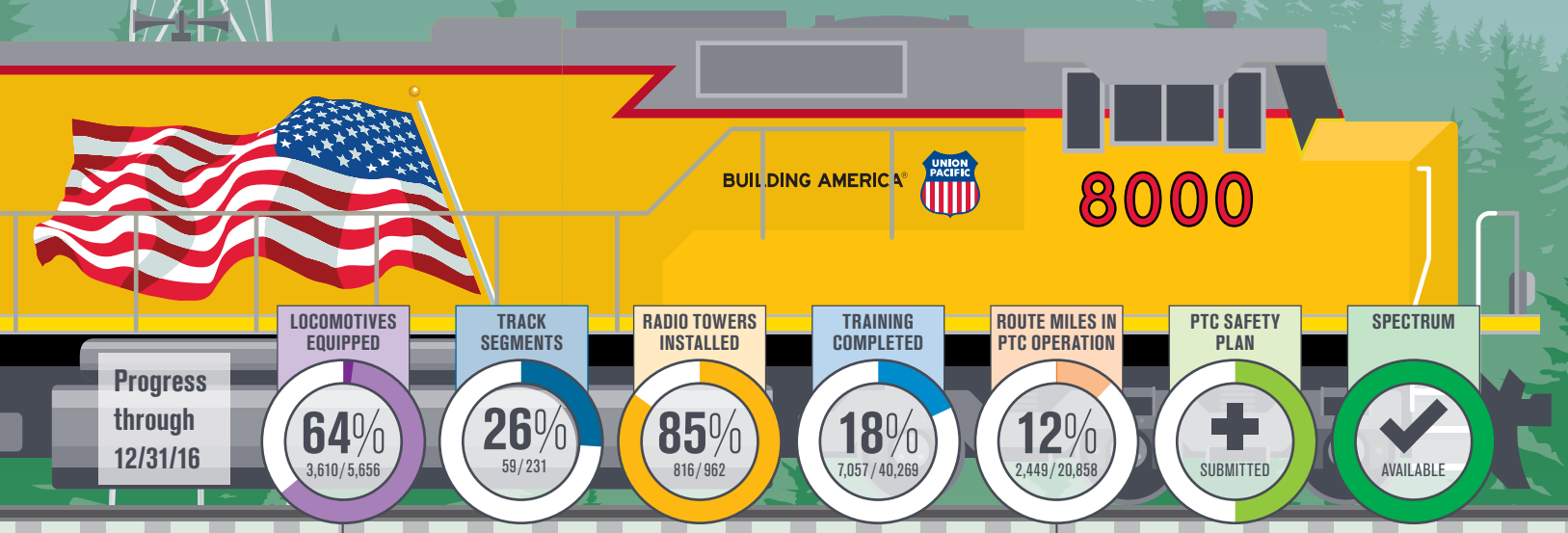
Embedded transponders known as pucks mark railroad crossings, switches and other track elements crucial to safely operate remote-controlled locomotive movements. Union Pacific's technology team developed a new, 3D-printed puck reader designed to improve usability. We are currently rolling out new readers across our network.

Senior Systems Engineer Royce Connerley, left, holds the first puck reader prototype. Associate Project Engineer Evan Milton, right, holds the final prototype.

Positive Train Control

Union Pacific made significant progress implementing positive train control (PTC), an advanced system designed to automatically stop a train before certain accidents occur. Key milestones reached in 2016:

- **More than a quarter of track segments are PTC-ready.** These 59 track segments, or subdivisions, are equipped with wayside devices (signals, switches and radios) and have defined GPS coordinates, which identify thousands of precise locations for systemwide PTC coordination. The PTC-ready segments cover a wide swath of UP's Western Region, from Southern California to Portland; from Portland to Pocatello, Idaho; and from Roseville, California, through Reno to Elko, Nevada.
- **Training efforts continue with more than 7,000 employees educated on PTC operations.** Diverse training materials are tailored to a variety of employee roles, including engineer, conductor, dispatcher, maintenance of way/engineering, mechanical, signal, telecom and information technologies.



More than 3,600 Union Pacific locomotives are fully PTC equipped with the exception of a single component: the PTC-compatible, crash-hardening memory (black box). We expect to make significant locomotive installation progress in 2017, once a supplier-related black box issue is addressed.

Union Pacific is running PTC operations on nearly 2,500 route miles in California, Oregon, Idaho, Nevada and Washington as part of revenue service demonstration, an ongoing and multifaceted test of the PTC system in a defined corridor. Upon FRA approving Union Pacific's safety plan, these miles will become officially PTC operable and our progress will increase significantly.

WHAT PTC DOES:

- ✓ Automatically stops a train before certain accidents caused by human error occur, including train-to-train collisions, derailments caused by excessive train speed, unauthorized train entry into work zones or movements through misaligned track switches.

WHAT PTC DOES NOT DO:

- ✗ Will not prevent vehicle-train accidents at railroad crossings, stop trains when pedestrians are on the tracks, or prevent incidents due to track or equipment malfunctions.

Handling Hazardous Materials Safely

Union Pacific is obligated to transport hazardous materials by federal law and we take our responsibility seriously. Transporting these products requires special handling, rigorous inspections, strict operating procedures and other safeguards. We met the American Chemistry Council's stringent Responsible Care® Management System certification requirements for the 20th consecutive year, recognizing our commitment to move hazardous materials safely.

Union Pacific focuses on accident prevention, preparedness, response and recovery. Prevention efforts reduced reportable derailments across the network by 52 percent. Our Hazardous Management Group consists of highly-trained experts in hazardous material transportation safety who work with customers and inspect tank cars ensuring products are properly secured.



Union Pacific Hazardous Materials Manager Paul Holt discusses safe chemical handling procedures with emergency responders and community leaders in Hercules, California.

ACCIDENT RESPONSE

While 99.99 percent of rail hazardous materials shipments are transported without incident, Union Pacific is prepared to respond when accidents occur. We worked closely with emergency responders after 16 crude oil tank cars derailed near Mosier, Oregon, June 3, 2016. Our hazardous materials experts from across the country were immediately dispatched to address the incident and protect the environment. While there were no injuries, the accident greatly affected the community.

Union Pacific cooperated with local, state and federal officials as we worked to safely restore the area. Protective barriers were quickly positioned as a precautionary measure to contain and collect potential oil discharge into the Columbia River. A thin sheen surfaced at an outfall to the river the day after the accident, but dissipated before reaching the protective boom. The barrier remained in place as we restored the site to further ensure oil did not enter the river.

We took action and replaced lag bolts with a spike fastening system in the Columbia River Gorge after determining the accident was caused by broken lag bolts. While both systems are equally safe, rail spikes provide higher levels of defect detectability during track inspections.

As a result of what we learned, Union Pacific began a phased plan to increase inspections on rail lines and replace lag bolts with spike fastening systems across our network. While the replacement program is under way, Union Pacific track inspectors will conduct walking inspections on tracks with lag bolt fastening systems. These walking inspections will not be required once spike fastening systems are installed.

We have a clear focus – to operate our trains safely and protect our communities. The fastening system replacement plan reinforces our commitment to rail safety as we strive to improve upon our 99.99 percent chemical transportation safety record, and achieve our goal of zero incidents.



Union Pacific uses different inspection methods including a safety inspection fleet that uses technology to identify imperfections. Finding and addressing these issues helps ensure trains operate on a safe, reliable railroad.

EMERGENCY RESPONSE TRAINING

Union Pacific provides fire departments and other emergency responders along our routes with comprehensive training on minimizing derailment-caused impacts. We provided classroom and hands-on training to approximately 2,500 local, state and federal first-response agencies in 2016.

We also sponsored 70 emergency responders from 11 states to attend a rail-specific HAZMAT training center in Pueblo, Colorado. The five-day tank car safety training course focused on tank car assessments, repairs and controlling hazardous material spills safely. Training also included a large-scale simulation of a hazardous material incident providing emergency responders with hands-on experience responding to accidents.

SAFETY THROUGH SECURITY

The Union Pacific Police Department is a team of highly trained special agents dedicated to maintaining the security and integrity of our railroad. The department holds certification from the Commission on Accreditation for Law Enforcement Agencies, which is considered the gold standard in public safety accreditation and recognizes agencies that meet the highest standards of law enforcement.

The police department uses security monitoring technology to protect critical infrastructure from intruders around the clock. It coordinates its operation with U.S. Customs and Border Protection (CBP), the U.S. Coast Guard, the Federal Bureau of Investigation, the Central Intelligence Agency, the Department of Homeland Security, the Transportation Security Administration and local law enforcement. Union Pacific was the first U.S. railroad named a partner in the CBP's Customs-Trade Partnership Against Terrorism.

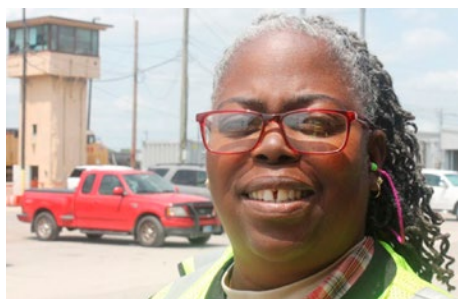


Union Pacific trained more than 45,000 emergency responders among communities we serve in the past 30 years.

Best Employee Safety Performance in History

Union Pacific became the safest U.S. railroad and achieved the best annual employee safety performance in our 154-year history in 2016. This marked our second consecutive year as the top-performing railroad in employee safety. The employee reportable injury rate, measured by the number of injuries for every 200,000 employee hours worked, improved by 14 percent from 0.87 in 2015 to 0.75 in 2016. We are grateful to our employees for their unwavering safety focus, contributing to a year without an employee fatality. This marks a major advance toward our ultimate goal of zero accidents and zero injuries. However, we recognize the journey is ongoing. Union Pacific continues improving technology, enhancing processes and fostering a culture focused on operating safely.

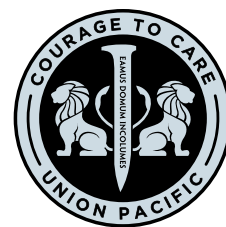
COURAGE TO CARE AND SAFETY STAND DOWNS



Jan Yates is among many Houston volunteers participating in employee-driven safety initiatives.

Our employees are our eyes and ears when it comes to embedding safe behaviors. They identify risks, initiate action to mitigate those risks and work to keep each other safe.

Courage to Care, a voluntary commitment made by Union Pacific employees since 2012, empowers employees to look out for their peers and “stop the line” on any operation that could result in an incident. The company also occasionally pauses system-wide operations for safety stand downs, giving employees an opportunity to have candid safety discussions and share experiences to learn from each other.



SAFETY SPOTLIGHT

Jessie Delgado, a Supply Chain material clerk in West Colton, California, received Union Pacific's highest safety honor, the J.C. Kenefick Safety Award.

As safety captain, Delgado created monthly safety raffles for her work location. Employees entered the contest after identifying risks and solutions eliminating risks. The raffles produced visible results, such as securely wrapped items on tall shelves and properly stacked pallets. It also increased employee engagement, with employees offering assistance to each other.

Putting UP's safety training into action, Delgado helped save the life of a fellow employee having a heart attack. She also improved traffic flow at a nearby, busy intersection, adding signage to reduce risk.

Since its inception in 1986, the J.C. Kenefick Safety Award annually has recognized a union employee who demonstrated outstanding job safety achievements. Jessie Delgado was recognized for her safety-driven leadership.



ENHANCING SIMULATOR TRAINING

Union Pacific uses nearly 30 full-size [locomotive simulators](#) to replicate the experience of operating a locomotive along our tracks. Engineers spent nearly 18,000 hours training on these simulators in 2016, up from 17,000 hours in 2015. We expanded real-time remote training, increasing simulator training accessibility.

We also use more than 200 remote controlled locomotive (RCL) simulators to provide hands-on training for licensed remote operators. In their daily work, operators use a small computer console to direct locomotives in rail yards. Remote control operators spent nearly 4,000 hours training on RCL simulators in 2016, down from 7,000 hours in 2015. Workforce reductions, as Union Pacific aligned resources to meet market conditions, contributed to decreased training hours.



Alexis Howle, technical training instructor, applies her past experience as a brakeman, conductor and locomotive engineer in the classroom teaching new hires in Salt Lake City.

MONITORING PERFORMANCE AND EMBEDDING SAFER BEHAVIORS

Union Pacific is rolling out video technology across our locomotives and vehicles to monitor drivers' and engineers' performance, and ensure safety, security and situational awareness. On the vast majority of occasions, this proactive performance sampling validates and confirms the professionalism of our employees. It also increases our in-depth understanding of our people's response to different situations, enabling us to improve coaching and embed safer behaviors.

We installed new in-cab cameras inside 1,500 locomotives, increasing the total number of such cameras to over 3,400. The in-cab cameras complement external-facing track image recorders (TIRs) providing a complete view of incidents. We also integrate event recorder data on train speed, throttle and brake settings, traction power levels and horn use.

By the end of 2016, we had installed 961 DriveCams across our vehicle fleet. DriveCams are positioned below rearview mirrors, and record 12-second video clips triggered by driving events such as hard braking, swerving and excessive speed. DriveCam captures images from eight seconds before an incident occurs and four seconds afterwards, enabling trained, third-party personnel to analyze the causes of such incidents. We plan to roll out DriveCam to new and retrofitted vehicles during 2017.

Public Safety

Keeping our communities safe involves proactive outreach to raise awareness and prevent risk-taking behavior near our tracks. We made significant progress in both areas through Union Pacific's Crossing Accident Reduction Education and Safety (UP CARES) program in 2016.

RAISING AWARENESS ACROSS COMMUNITIES AND MEDIA PLATFORMS

Union Pacific's 2016 railroad safety campaign addressed sobering consequences of risky behavior near railroad tracks, reaching more than 32 million people through social media. We also reached out to schools, cities and professional driving companies. These community organizations recognized train safety is a community concern and were a big part of the rail safety campaign's success.

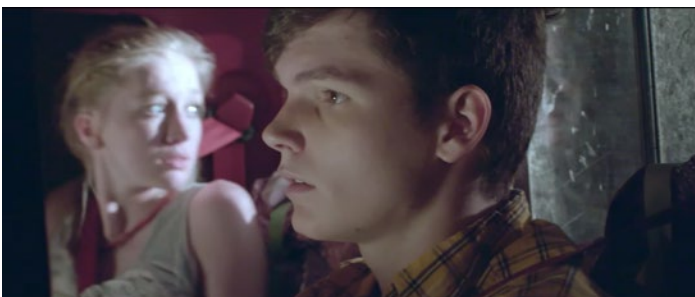
Your Life is Worth the Wait Videos

What's your life worth? That was the question Union Pacific asked in [Your Life is Worth the Wait videos](#) featuring drivers tempted to beat trains at railroad crossings, which are described below.

A hurried woman weaves her car through traffic to avoid being late to a high-stakes job interview considers racing an approaching train across a railroad crossing. She slams on the brakes and recognizes stopping the car prevented a catastrophic accident. The woman glances at her daughter's picture and recognizes her life was worth the wait.

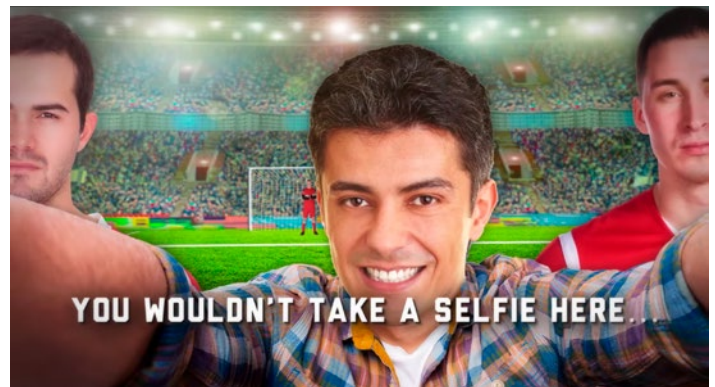


A teen races his truck to get his panicked date home before curfew. The young woman tells him to hurry as a train moves toward a railroad crossing they need to pass. The truck stops seconds before the train passes and both teens realize waiting for the train saved their lives. The young woman calls her father to let him know she will be late.



Selfies off the Tracks

[Two animated videos](#) addressed pedestrian safety and the dangers of taking selfies near railroad tracks. The videos featured a soccer fan taking a selfie on the field during game action and people taking selfies in front of landmarks. While there are all kinds of unique places to take selfies, Union Pacific reminded everyone that railroad tracks are not among them.



Earbuds Aren't your Buds

A Pandora commercial asked Chicago-area passenger train commuters to turn down the volume on earbuds anytime they are near railroad tracks.



PROACTIVELY ENGAGING COMMUNITIES THROUGH UP CARES

Our UP CARES program recognizes that the most compelling arguments for staying safe around railroad tracks are often those delivered face-to-face. During 2016, our employee volunteers delivered more than 14,500 rail safety presentations to more than 498,000 pedestrians, motorists and professional truck drivers across our 23-state network.

UP CARES also addresses risky driver behavior around railroad tracks. Union Pacific special agents partner with local and state police departments to observe driver behavior at railroad crossings. Officers stop drivers who risk their own safety and the lives of others. We carried out nearly 300 UP CARES operations of this kind during 2016, stopping and educating more than 10,000 drivers.

Combating railroad photo trend with an award-winning campaign

Union Pacific's deliberately startling high school photo safety campaign was awarded Bronze at the 2016 Telly Awards, which recognize outstanding online and cable TV commercials. We launched the campaign in 2015 to address a worrying trend of high school seniors organizing photo shoots on train tracks. It compares snapping photos on tracks to posing for senior pictures in the middle of a busy road, bringing to life the extreme dangers involved.



SAFETY SPOTLIGHT

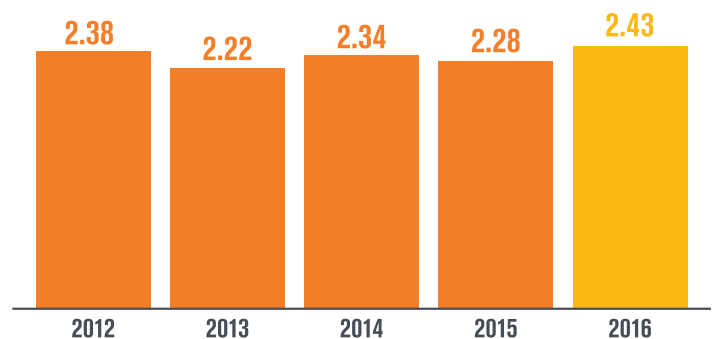
The sudden popularity of the Pokémon Go! smartphone game brought an unwelcome side effect: fans playing on railroad property. We responded by developing a meme to emphasize rail safety, which reached nearly 500,000 people on Facebook and Twitter.



ANALYZING PATTERNS TO KEEP CROSSINGS SAFE

Roughly 4 percent of railroad crossings are responsible for 25 percent of crossing-related accidents. By analyzing the characteristics of these crossings, Union Pacific is able to make tailored improvements to help motorists and enhance safety. First launched in 2015, our Crossing Assessment Process is already delivering significant gains through leveraging this insight. At a railroad crossing in Fairfield, Arkansas, which had 24 reported incidents of motorists turning onto tracks in five years, we worked with local officials to add warning signs to caution drivers from turning too early – and landing on railroad tracks.

CROSSING ACCIDENTS Per Million Train Miles



RESPONDING TO INCIDENT REPORTS

Union Pacific's Response Management Communications Center (RMCC) processes emergency and non-emergency calls from communities across our 23-state system. The RMCC team operates around the clock, responding to emergencies, reports of vehicles stuck on railroad tracks, criminal activity and other concerns. Drivers and pedestrians can contact the RMCC through the phone number posted near railroad crossings, 888-UPRR-COP (877-7267).

In 2016, the Commission on Accreditation for Law Enforcement Agencies (CALEA) awarded our RMCC team its second distinguished accreditation, recognizing an advanced standard of compliance across policy and procedures, administration, operations and support services. RMCC received its first CALEA accreditation in 2013 and is one of 95 public safety communications centers recognized for emergency response and professional excellence in this way.

Strengthening Our Communities

Union Pacific takes tremendous pride in our community relationships and efforts to improve the places where we live and work. We support communities through the Union Pacific Foundation, local funding programs, volunteer efforts and other forms of assistance. Union Pacific sponsored hundreds of events in communities across our network and was part of more than 200 organizations, such as chambers of commerce and economic development organizations.

Union Pacific's lines of communication are open to local and state agency officials, neighborhood groups and local citizens. Union Pacific's public affairs representatives facilitate resources and address operations-related concerns reported directly, through our 24/7 community line and website. Communities are one of Union Pacific's key stakeholders and we are committed to serving and investing in their futures.

Union Pacific Foundation in Our Communities

The Union Pacific Foundation has helped thousands of nonprofit organizations achieve their missions for nearly 60 years. Our giving program has evolved with the changing needs of the cities, counties and states we call home.

As Union Pacific looks to the future, our new Building Community Investments program renews our support in three important areas to our business and communities: safety, workforce development and community spaces. While the program will not be fully implemented until 2018, recent gifts have already supported causes aligned with these key initiatives. Details on our new community investment priorities are listed below.

SAFETY



Communities thrive when citizens feel safe. Union Pacific is committed to helping communities prevent and prepare for accidents and emergencies, ensuring citizens get home safely at the end of each day. This

reflects Union Pacific's commitment to the safety of our employees and communities through which our railroad passes. We prioritize funding for programs achieving the following objectives.

- Prevent accidents and emergencies through education and awareness efforts, particularly around pedestrian, bike, driver and rail safety.
- Improve safe access to public places including, but not limited to, signage and proper lighting.
- Prevent crime and violence through efforts addressing root causes and mitigating future incidents.
- Prepare and equip citizens and independent, non-profit emergency responders to effectively respond to accidents and emergencies when they occur. Union Pacific supports publicly funded emergency responders separately, through a variety of corporate programs.

WORKFORCE DEVELOPMENT



Union Pacific believes the following are essential elements for a prosperous community: a skilled workforce and jobs paying good wages. We prioritize funding for programs that seek to:

- Educate and prepare local workforces for good living-wage jobs through community colleges, vocational and career training programs, workforce readiness initiatives including job placement and on-the-job experience.
- Prepare youth for future careers, self-sufficiency and high school graduations from an early age. Support life skills development necessary to transition into careers of their choice such as Science, Technology, Engineering and Mathematics (STEM) programs.
- Create a pipeline of workers proficient in middle-skills jobs such as those offered by Union Pacific. This involves growing awareness of opportunities and benefits associated with these careers, as well as training in specific skills such as welding, diesel electrical work, machine operations and civil and electrical engineering.
- Encourage and support diversity and inclusion in the workplace through outreach and cultivating a diverse workforce.
- Provide training and mentorship for non-profit and small business professionals to help them grow and advance their organizations.

WORKFORCE DEVELOPMENT SPOTLIGHT

The Union Pacific Foundation donated \$23,000 to support workforce development and computer training programs at Dona Ana Community College's campus in Sunland Park, New Mexico, and \$24,000 to the Texas A&M International University Planetarium in Laredo, Texas, to create shows that can engage young people with STEM subjects.

COMMUNITY SPACES



Vibrant communities attract businesses, tourists and skilled workers. We seek to ensure citizens within our communities have access to special places celebrating cultural diversity, artistic expression, our natural

environment and the social interactions that enrich our lives. We believe such community spaces contribute to the distinct identity of cities or towns. This creates destinations where families, businesses and visitors want to be. We prioritize funding for programs and projects that:

- Foster an appreciation for arts, culture and diversity with a focus on efforts bringing community members together.
- Preserve and share the unique history of local communities including projects documenting their connections to Union Pacific's history and other rail-related efforts.

The Union Pacific Foundation proudly supports local United Way organizations across our operating regions. Union Pacific and the Union Pacific Foundation have a longstanding partnership with the United Way, which we believe is a vital resource and contributor to communities across the country.

- Provide clean, safe, and positive outdoor recreational or educational opportunities fostering an appreciation for our natural environment.
- Beautify neighborhoods and main street areas by improving the living environment, promoting commerce and attracting more residents, businesses and visitors to town.
- Lay the groundwork for prosperous communities through planning and multiple stakeholder engagement.

COMMUNITY SPACES SPOTLIGHT

Our \$10,000 donation to the San Antonio River Foundation will provide 20 percent of the funding required for renewable photovoltaic lighting at Confluence Park. When completed, Confluence Park will provide the community with an innovative learning space, designed to inspire students and adults to preserve the area's waterways.

The Union Pacific Foundation supported thousands of organizations working to make our communities better places for almost 60 years. Organizations supported in 2016 include those listed below. More information is available in [Union Pacific's Inside Track news page](#).

- **The Heartland Equine Therapeutic Riding Academy** (HETRA) in Gretna, Nebraska, which provides an alternative to hospital therapy for those with disabilities.
- **Mujeres de la Tierra**, an organization which teaches women and their children to take ownership and leadership of Los Angeles-area neighborhoods.
- **The Colorado Center for the Blind** in Littleton, Colorado, for which our funding has helped provide education and sports programs.
- **The Fort Bend Children's Discovery Center** in Sugar Land, Texas, an organization transforming communities through innovative child-centered learning.

Making a Difference in Our Communities

Union Pacific's business is inextricably linked with communities – and we strive to tackle problems, find solutions and make positive impacts. This includes recruiting efforts and responding in times of crisis.

UNIVERSITY PARTNERSHIPS

Union Pacific's partnerships with universities and colleges across America support students navigating transitions into the professional world. Our initiatives include student mentoring, mock interviews, rail yard tours and internship opportunities. Students also are challenged to find innovative solutions for real-world business challenges.

In Spring 2016, 30 students learned about preparing for successful careers as auditors or financial analysts at a two-day leadership summit at the Union Pacific Center in Omaha, Nebraska. Sessions covered leadership, corporate life, effective presentations, networking and opportunities at Union Pacific. Participants built leadership skills and networked with peers from 12 Union Pacific partner universities.

SUPPORTING COMMUNITIES IN CRISIS



With more than 70,000 residents seeking assistance, the Federal Emergency Management Agency declared Louisiana's 2016 flooding a major disaster. When a crisis such as this strikes one of our communities, Union Pacific responds through a broad range of different community channels.

We donated \$10,000 directly to the American Red Cross to support disaster relief and matched our employees' contributions.

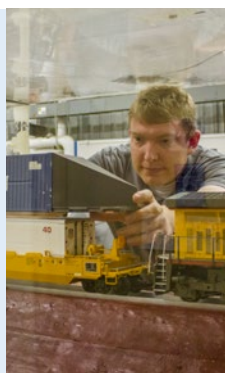
Friend-to-Friend, an employee-operated organization that helps fellow colleagues in need, provided additional financial assistance to 80 Union Pacific employees affected by the flooding. Union Pacific also made a \$15,000 contribution supporting the Louisiana Small Business Rebirth Fund's efforts to provide quick relief for impacted businesses with triage loans.

In addition to financial support, our Peer Support network was on hand 24/7 to help Union Pacific employees affected by the disaster.

UNIVERSITY SPOTLIGHT

At Brigham Young University, students helped develop a device improving aerodynamics and fuel efficiency of Union Pacific trains. We are exploring additional applications for the device across our network. More information available on page 34.

Justin Millerberg lines up Arrowedge 3.0 for wind tunnel testing, which led to improved intermodal rail car aerodynamics.



COMMUNITY SUPPORT



The sister-city relationship between Omaha, Nebraska and Xalapa, Veracruz, Mexico, goes beyond cultural exchanges. In 2016, the city of Omaha asked Union Pacific to support a humanitarian effort by delivering four ambulances, breathing

machines and other life-saving tools to Xapala's emergency responders. Our employees redesigned rail cars to accommodate the unique 2,000-mile delivery—all at no charge. The equipment helps address a dangerous shortfall in emergency services for Veracruz's residents living far from the nearest hospital.

LEADING THE FIGHT AGAINST SUICIDE



Seventy-six suicides and 11 suicide attempts took place on Union Pacific railroad tracks in 2016. More than 200 Union Pacific train crew members witnessed these tragedies unfold. In addition, suicide among employees and their families

makes us vividly aware suicide is a national issue.

In August, we hosted the inaugural Rail Summit Conference on Suicide Prevention, uniting 50 transportation professionals from different rail businesses and associations across the country. Union Pacific hosted a system-wide Suicide Awareness Day a month later, raising awareness of support networks available when our employees reach crisis points in their lives.

MATCHING OUR EMPLOYEES' GENEROSITY

Union Pacific's GivePlus program matches employee donations to non-profit organizations, dollar-for-dollar, up to an agreed maximum matching limit for each employee. Our annual employee matching limit increased to \$25,000 per employee in 2015. We matched our employees' generosity and donated \$2.3 million for non-profit organizations improving our communities, a \$500,000 increase from 2015.

Engaging Employees

Union Pacific's dedicated employees are passionate about their role in building America. We strive to provide them with fulfilling careers and professional development opportunities, helping us serve customers with excellence.

Embracing Employee Needs

Union Pacific draws thriving talent, energizes current employees and develops them to carry our mission and lead the transportation industry into the future. Key engagement initiatives revolve around our culture, workplace relationships, employee rewards, job responsibilities and personal growth opportunities.

EMPLOYEE BENEFITS

Union Pacific offers a comprehensive benefits program including medical insurance, educational assistance and a 401(k). Benefits may vary based on non-union and collective bargaining agreement employees. For full details, please see the Building America [web pages](#).

Work schedules required to run our railroad's around-the-clock operations can be challenging and employees often need extra support caring for loved ones. The Bright Horizons Care Advantage™ database refers employees to supportive care providers and services listed below.

- Center-based and in-home child care
- Elderly care
- Pet care
- Housekeeping
- Tutoring and homework help

LABOR AGREEMENTS

Union Pacific works with 15 major rail unions representing approximately 85 percent of roughly 43,000 full-time employees.

Labor agreements became subject to modification January 1, 2015, launching the latest round of ongoing negotiations with unions. Existing agreements remain in effect until new agreements are reached or the Railway Labor Act's procedures are exhausted. The process involves mediation, cooling-off periods and the possibility of Presidential Emergency Board and congressional intervention. Contract negotiations historically continue for an extended period of time and rarely cause work stoppages.



Locomotive engineer Thomas Moses, left, and Eddie Echols before operating trains to separate locations.

AUXILIARY WORK AND TRAINING STATUS (AWTS)

Train and yard service reductions due to business declines resulted in employee furloughs. Approximately 65 percent of all train and yard employees were eligible to be covered under AWTS agreements providing limited benefits.

AWTS agreements provide up to eight work or training days per month and continue full health care benefits and service months contributing to Railroad Retirement. Employees continue training to sharpen their skills and prepare for full-time employment when customer demands increase.

POPULATION (TOTAL COMPANY)

Approximately 43,000

Traditionalists (born before 1946)	<1%
Baby Boomers (born 1946-1964)	28%
Generation X (born 1965-1981)	52%
Millennial (born 1982-1997)	20%

SENIOR MANAGEMENT

Female	19%
Male	81%
Asian	1%
Black	9%
Caucasian	84%
Hispanic	6%
Native American	1%

Helping People Develop

The work of building, maintaining and operating a railroad is challenging. Union Pacific's commitment to employee training and development is vital for cultivating the high-quality workforce we need. It also plays a critical role in keeping our employees safe and ensuring we operate ethically.

2016 TRAINING	NONAGREEMENT	AGREEMENT
Total Hours	447,572	2,239,712
Number Employees	6,672	38,344
Avg Hrs/Employee	67	58
<i>Union Pacific conducted 2 million hours of safety-related training, a slight decrease from 2.1 million hours in 2015 driven primarily by a reduced workforce.</i>		

2016 RETENTION RATE	OPERATIONS MANAGEMENT TRAINEE	FIELD MANAGEMENT TRAINEE
2013	51%	76%
2014	56%	81%
2015	68%	78%
2016	87%	88%

DEVELOPING SKILLS

Training and development focus on setting goals and achieving great results. Union Pacific believes how employees accomplish their work is equally important as what they accomplish. Our core competencies foster a culture of performance and growth supporting our vision, mission and values. In addition to work-related skills, we develop employees' capabilities in eight core competencies.

- Building relationships and influencing others
- Handling adversity
- Confronting problems with courage
- Leading teams
- Embracing change
- Making effective decisions
- Acting strategically
- Focusing on customers

We offer skills development opportunities for employees at all levels of Union Pacific. These include:

- New Employee Onboarding Program – Courses on communication and industry-specific training through an interactive, instructor-led learning experience.
- Skill Development – Technical, communication, safety and environmental courses.
- Managerial and Leadership Development – Management and leadership courses helping employees grow and develop.
- Transitioning Managers – Courses helping newly promoted managers lead teams.
- Transportation Operations Training – Operational excellence courses strengthen employee skills and train for superior service.
- Field Management and Operations Management Training Programs – These programs prepare employees for frontline management positions within the Operating Department.
- Emerging Leaders – Leadership programs maintaining a strong pipeline of future leaders including day-training courses to 10-month programs. Ongoing, self-led learning tools to foster employee development also are available.

EMPLOYEE SPOTLIGHT: RECOGNIZING THE VALUE OF MENTORSHIP

Union Pacific's Coach of the Year Awards recognize those providing excellent one-to-one guidance and support to future frontline leaders, through our Operations Management Training program. In 2016, we recognized 10 exceptional coaches, who were nominated by the more than 100 trainees mentored through the program during the year.

Honorees included William Barlow, director-Terminal Operations; Adam Brock, director-Mechanical Maintenance; Glenn Bulanek, senior manager-Terminal Operations; Casey Clark, senior manager-Terminal Operations; Thomas Cooper, manager-Track Maintenance; Gerald Hoelting, manager-Terminal Operations; Jonathan Jett, manager-Yard Operations; Daniel Jones, director-System Locomotive Facility; Steven Kirby, manager-Terminal Operations; and Preston Lawless, manager-Track Projects.



From left, Lance Good, transportation associate, with his coach Casey Clark, senior manager-Terminal Operations.

Embedding an Ethical Approach

Union Pacific's brand and business stems from employees' character, people with whom we choose to do business and the decisions we make. Providing training and tools needed to help employees make the right decisions is a priority.

Our Policy on Ethics and Business Conduct, The How Matters, explains the company's expectation of ethical conduct, as well as our zero tolerance policy toward dishonesty. Union Pacific employees operate under the following high ethical standards.

- Honesty: Being truthful when dealing with customers, suppliers, shareholders and fellow employees.
- Fairness: Treating everyone fairly.
- Integrity: Voicing concerns when we believe our company or colleagues are not acting ethically or complying with the law.
- Respect: Maintaining a foundation of trust and respect with colleagues, customers, regulators, suppliers and other stakeholders.
- Loyalty: Ensuring no employee is, or appears to be, subject to influences, interests or relationships that conflict with the company's best interests.
- Accountability: Holding ourselves, peers and customers to the company's high standards.
- Adherence to the law: Complying with all laws.
- Compliance with policies: Complying with the letter and spirit of company policies.

ETHICS AWARENESS

Union Pacific educates employees about ethics and why they are important throughout the year. We focus on 'The How Matters,' and how we do our jobs is as important as what we accomplish. Published articles, periodic ethics bulletins and mandatory training modules remind employees of Union Pacific's ethical standards. In 2016, we held our third annual Ethics Awareness Week, a company wide initiative focusing on our values and business conduct required of all employees.

Establishing a Diverse and Inclusive Workplace

Union Pacific recruits talented people dedicated to our mission of service who are passionate about performing to the best of their abilities. We are committed to diversity and recognize people come from all backgrounds and walks of life.

Recruiting and maintaining a diverse workforce provides access to the skills and character we need, resulting in innovative ideas to grow business. Drawing on different experiences and expertise is critical for strategic decision making, problem solving, leadership development and creativity.

Union Pacific makes great efforts to increase diversity through recruiting and helping employees from all groups advance their careers with Union Pacific. However, we still have work to do. We are committed to improving and strengthening performance to establish a workforce reflecting the diverse communities we serve.

We established a diversity taskforce to develop strategies for recruiting talented people from underrepresented backgrounds at Union Pacific.

OUR DIVERSITY POLICY

All Union Pacific employees have the fundamental right to fair treatment within a discrimination-free workplace. We create a work environment that respects and values differences which is essential for employees to reach their fullest potential in our business.

We are committed to a work environment free of offensive behavior directed at a person's race, color, national origin, religion, gender, sexual orientation, age, gender identity, veteran status or disability. This includes offensive behavior directed at employees, customers and visitors to company facilities and other people employees may contact during the normal course of work.

For full details, please see the Building America webpages.

EMPLOYEE RESOURCE GROUPS

Union Pacific's Employee Resource Groups (ERGs) are nurturing networks promoting a diverse workplace where everyone does their best work. Each ERG has an executive sponsor directing the leadership team's attention to issues of particular concern. ERGs support their members, educate other employees and support the communities we serve.

While most ERGs traditionally host annual conferences for respective members, all eight ERGs came together for Union Pacific's first collective ERG conference in 2016. The groups shared best practices and celebrated diversity at all levels of Union Pacific.

About 3,000 employees across Union Pacific are involved in one or more Employee Resource Groups, which include:

- Asian Employee Resource Organization: AERO
- Black Employee Network: BEN
- LGBT Employee Network: BRIDGES
- Council of Native American Heritage: CONAH
- Latino Employee Network: LEN
- A Women's Initiative – Lead Educate Achieve and Develop: LEAD
- Emerging Professionals Network: UP Ties
- Union Pacific Veterans Network: UPVETS

Additional information on each ERG can be found in the [online Building America Report](#).



The presidents of each of Union Pacific's Employee Resource Groups, from left, Eric Humphrey, Black Employee Network; Jim Astuto, UPVETS; Heather Davis, BRIDGES; Santha Krishnan, Asian Employee Resource Organization; Robert Natal, Latino Employee Network; Melissa Robinson, UP Ties; Diane Savage, Council of Native American Heritage, and Julie Phillips, LEAD: A Woman's Initiative.

ENCOURAGING WOMEN TO SEE THEMSELVES AT UNION PACIFIC

Women make up approximately 6 percent of Union Pacific's total workforce and represent one of the company's biggest diversity opportunities. At the same time, businesses such as ours face a growing shortfall of skilled trade workers due to fewer men and women choosing to learn a trade.

Union Pacific hired 4% more women into our Operating Management Trainee program, 16.7% vs. 12.2% in 2015. We continue recruiting and encouraging women to see themselves succeeding at Union Pacific. In 2016, Union Pacific's [careers website](#) featured stories of women working in Transportation, Engineering, Mechanical and Technical teams. We partnered with women's skilled trade organizations, women's veterans groups, technical and trade schools, and women affinity groups of 28 universities. Union Pacific shared opportunities with women who possess skilled trade experience. We also introduced support systems offering women's mentoring and child-care options.



Manager of Yard Operations Leia Durrant talks with Brakemen Jason Pendley (left) and Allen Hammer in Salt Lake City's Roper Yard.

Keeping Employees Healthy, Happy and Well

We are determined to help employees stay healthy and well. Our wellness program helps employees take charge of their well-being with tools to manage physical and mental health. Available resources include coaching, access to fitness centers, health education programs, health screenings and flu shots.

The System Health Injury Protocol program assists employees who may be at risk for injury because of low fitness levels. It provides access to personal training and nutritionist consultations, helping them achieve their fitness goals. When employees sustain injuries, Union Pacific's Return to Work program offers meaningful work within their physical capabilities. We also provide education and assistance to help with substance abuse, staying alert and stress-related conditions.

Other employee wellness programs include:

- Personalized health coaching, helping employees and their spouses manage stress, depression, smoking, diabetes, nutrition education and weight management.
- Employee assistance program, offering all employees and their families counseling and referral services for personal or work-related problems.
- System health facility program, giving employees access to more than 5,000 gyms located near UP work sites, including gyms from industry leaders such as Gold's Gym, Lifetime Fitness and Anytime Fitness.
- Wellness incentives encouraging annual wellness assessments and physicals for non-union employees.

UNION PACIFIC WELLNESS CHALLENGE

Launched in 2013, the Worksite Wellness Challenge recognizes Union Pacific locations adopting world-class wellness programs. The challenge evaluates and scores all sites on wellness and safety education objectives. Points are awarded based on employee engagement levels. Approximately 72 percent of Transportation and Mechanical work units achieved platinum or gold status through the Challenge in 2016.



EMPLOYEE SPOTLIGHT: APPLYING RAILROAD SKILLS IN A COMBAT ZONE

Nate Westover's experience as a Union Pacific senior manager for strategic sourcing made an important difference when the 13-year U.S. Army reservist was deployed to Iraq May 2015 to April 2016. Nate was sent to Iraq to perform petroleum support operations – but on arrival, he received a much larger responsibility. A new base camp supporting special regional operations needed procurement and logistics support, making Nate ideally suited for the job. In September 2016, following his return from Iraq, Nate was presented with the Bronze Star for meritorious service in a combat zone. The award recognized his leadership in ensuring food, fuel supplies and life support services were available for the camp. It's a vivid demonstration of how the skills learned at Union Pacific carry weight in all walks of life.

Nate Westover, senior manager – strategic sourcing, applied UP experience to facilitate resources at a new base camp in northern Iraq. The U.S. Army honored him with the Bronze Star Medal.

SPREADING BEST PRACTICE ON PEER SUPPORT

A central role in Union Pacific's approach to well-being is played by peer support networks with trained employees offering confidential advice and guidance to their colleagues. This strengthens bonds between our people and builds a sense of community within Union Pacific, providing support from those with an inherent understanding of the rail industry.

Peer support leadership conferences in Iowa, Texas and California, enabled networking, sharing best practices and building momentum for a vital part of our well-being support structure. Union Pacific brought together 400 volunteers from regional peer support programs to provide invaluable support to those facing crises at home or work.

EMPLOYEE ASSISTANCE PROGRAM

We operate an employee assistance helpline available to employees 24/7. It provides access to trained employee volunteers equipped to help colleagues work through the emotional impacts of life-changing events. Support is entirely confidential – and can provide a bridge to professional support services where needed.

EMPLOYEES ACTIVELY SERVING

Union Pacific's Support our Troops initiative encourages employees to send messages to our railroad's uniformed soldiers on active service around the world on Memorial Day 2016. We sent an American flag, messages and care packages to our 45 employees stationed overseas. This marked the 13th year we supported our troops in this way.

COMMITMENT TO MILITARY VETERANS

Each year, the job search websites www.monster.com and www.military.com partner to compile a list of the Best Companies for Veterans. Union Pacific is proud to have earned sixth place in the 2016 ranking, our second year on the Top 10 list. The Best Companies for Veterans list rates businesses on veteran support, recruitment, onboarding and retention policies. At the start of 2017, the website www.militaryfriendly.com also recognized Union Pacific as a Military Friendly Employer.



Looking on as Chairman Lance Fritz signs the Employer Support of the Guard and Reserve document are, back row, from left, UPVETS leadership representatives Brian Detweiler, associate systems engineer-Information Technologies; Tammy Anderson, senior manager-Industrial Track Construction; and Jim Astuto, manager-Data Integrity. Front row, from left, Nate Westover, senior manager-Strategic Sourcing; Fritz; and Jesse Miller, senior manager-Short Line Development.

Preserving the Environment

A healthy environment is an essential foundation for a strong country – and a strong economy. Our vision of building America involves protecting and strengthening this foundation.

Railroads are one of the most fuel efficient means of transportation, generating fewer carbon emissions than long-haul trucks or air transport. Moving freight on trains also reduces traffic gridlock on America's overtaxed highways and carbon emissions from idling vehicles.

Union Pacific moves freight in an environmentally friendly way, enabling sustainable economic growth, but still recognizes the importance of not being complacent about our operations' impact. As the world seeks to improve environmental sustainability, we are doing our part to reduce our carbon footprint and help our customers do the same.

Highlights, Challenges and Opportunities

Freight trains are four times more fuel efficient than trucks on a ton-mile basis. On average, Union Pacific moved a ton of freight 452 miles on a gallon of diesel fuel in 2016, compared to long-haul trucks which move a ton of freight approximately 134 miles on a gallon of diesel fuel.

Union Pacific again earned an "A" rating on the Carbon Disclosure Project's (CDP) Climate Change Survey and inclusion on CDP's S&P Climate Disclosure Leadership Index in 2016. Leadership status recognizes companies demonstrating best practices, leadership efforts and understanding climate change risks and opportunities. We are proud of our achievements, resulting from the eighth consecutive year of submitting climate change data to CDP.

GREEN RANKING

Union Pacific ranked number 81 among all U.S. businesses in Newsweek's 2016 Green Ranking, an improvement from our position as number 121 in 2015.

Our Approach to Environmental Management

Union Pacific's goal is to be a leader in moving goods in a fuel-efficient and environmentally responsible manner. Environmental Management System policies and procedures provide a pathway for the company to meet or exceed applicable environmental laws and regulations. Our environmental management efforts are based on the following strategic pillars.

- **Prevention:** Acting to reduce environmental damage from operations, including carbon emissions and climate impact.
- **Preparedness:** Working with customers and communities to prepare an effective response to future environmental issues.
- **Response:** Responding to emergencies involving environmentally sensitive materials to minimize health, environmental, operational and financial impact.
- **Recovery:** Restoring the environment from contamination for which Union Pacific is responsible.



Union Pacific's Environmental Management System improves processes and tracks performance. We strive to improve our performance by investing in technology, maintaining track equipment and training employees in more environmentally friendly behaviors.

Every Union Pacific employee must commit to preventing pollution, continuously improving and complying with all regulations, according to the company's environmental policy signed by Chairman, President and CEO Lance Fritz.

Union Pacific's Environmental Management Group (EMG) oversees environmental compliance. It is integrated into daily operations. EMG rigorously plans, coordinates and communicates best environmental practices. It also engages employees in our environmental management mission and vision.

ENVIRONMENTAL RISK MANAGEMENT

Union Pacific's vice president of safety is directly responsible for the progress of the company's environmental efforts. He reports to the chairman, president and CEO regarding environmental policy compliance. In addition, the vice president of safety reports directly to the board of directors at least once a year.

Continuous improvement in achieving the Company's fuel efficiency goals, which directly impact our emissions, is tied to compensation based on our performance review process.

COMPLIANCE

Union Pacific is subject to federal and state environmental statutes and regulations related to public health and environment, which are administered and monitored by the U.S. Environmental Protection Agency (EPA) and other federal and state agencies. Primary laws affecting rail operations are included below:

- Resource Conservation and Recovery Act, regulating solid and hazardous waste management and disposal.
- Comprehensive Environmental Response, Compensation and Liability Act, governing contaminated property cleanup.
- Clean Air Act, regulating air emissions.
- Clean Water Act, protecting the country's waters.

OUR ENVIRONMENTAL PARTNERSHIPS

Union Pacific collaborates with a range of partners to identify opportunities to reduce our environmental impact and manage our land responsibly. Information on organizations we work with is listed below:

- Membership in the GreenBiz Executive Network, a peer-to-peer learning forum for sustainability executives from some of the world's largest companies.
- The California Council for Environmental and Economic Balance, a nonprofit, non-partisan coalition of industry, labor and public leaders working to solve the most pressing environmental policy problems facing California.
- The Association of American Railroads Sustainability Task Force, a rail industry forum sharing sustainability best practices. In 2016, Union Pacific partnered with other railroads to host the 6th Annual Railroad Sustainability Symposium at the University of Illinois at Urbana Champaign.

Environmental Risks

Extreme weather results in harsh working environments for employees, increased rail maintenance costs and negative service impacts. Blizzards, floods and hurricanes can lead to slower train speeds, service interruptions, track damages and recovery costs.

Our company acts to strengthen our network's resiliency from potential effects of extreme weather events. We have established emergency response procedures, which include moving required resources to regions likely to be affected. We are pursuing improvements that further increase our infrastructure's resiliency, including mitigating the impact of potential sea level rise.

Renewable energy growth and other proactive measures tackling carbon emissions reductions change can result in opportunities. Union Pacific continues to support wind turbine and other clean energy technology shipments.

Union Pacific educates public and elected officials about the environmental benefits of moving goods by rail. We work closely with public agencies to advance emissions reduction technology, while delivering immediate benefits in improved air quality. As part of this collaboration, we strategically locate our lower-emitting locomotives in parts of the country where communities fail to meet federal and national air quality standards.

For additional information on how climate change could have a material adverse effect on operations results, financial condition and liquidity, see the risk factors in Union Pacific's Annual Report, Form 10-K and CDP filings.

GREENHOUSE GAS (GHG) EMISSIONS PERFORMANCE

Union Pacific locomotives produced 9,913,870 metric tons of GHG emissions from fossil fuels in 2016, down from 10,834,984 metric tons in 2015 due primarily to decreased freight volumes. Biomass source emissions were 119,872 metric tons, including 34,026 from renewable fuels. This is a decrease from 129,600 metric tons in 2015, which included 35,534 from renewable fuels.

Scope 3 emissions from employee travel totaled 18,603 metric tons, a decrease from 19,803 metric tons in 2015. Employee travel includes rental car fuel and commercial air travel. We worked with suppliers to identify Scope 3 emissions generated on Union Pacific's behalf. Suppliers representing an estimated 27 percent of Scope 3 spend produced emissions totaling 269,386 metric tons in 2016, compared to 266,746 in 2015.

Scope 3 emissions from Union Pacific's largest fuel suppliers' extraction, production and transportation were 2,536,657 metric tons, down from 2,779,030 in 2015.

Fuel Efficiency

Fuel efficiency is a critical part of Union Pacific's sustainability approach. Diesel fuel accounts for more than 11 percent of Union Pacific's operating expenses. We strive to appropriately balance financial returns, environmental performance and social commitment.

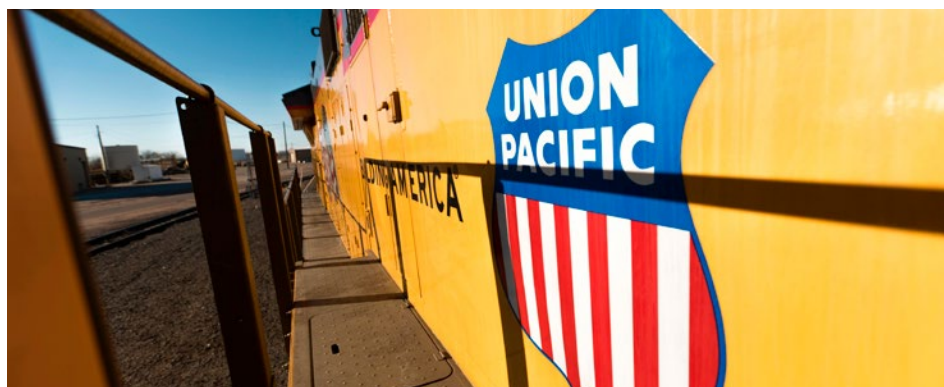
Fuel efficiency and carbon emission reductions fluctuate based on business volumes and commodity mix. Fuel efficiency improves when trains move heavier shipments. We improved our fuel efficiency rate by 0.8 percent, compared to the 0.6 percent decrease in 2015. The improvement brings us closer to our goal of reducing locomotive fuel consumption rate by 0.5 percent annually from 2015 to 2017.

WORKING WITH CUSTOMERS TO REDUCE AND MEASURE EMISSIONS

Customers seeking to reduce carbon emissions can calculate savings by choosing rail by using Union Pacific's online Carbon Emissions Estimator. Many customers also receive annual emissions savings estimates compared to moving goods with other transportation modes. In 2016, Union Pacific customers eliminated an estimated 29 million metric tons of GHG emissions by choosing rail over truck transportation.

VERIFICATION OF UNION PACIFIC RANKING AS CLIMATE CHANGE LEADER

Union Pacific worked with independent organizations to ensure an accurate annual greenhouse gas inventory and emissions calculation. Trinity Consultants assists with methodology to accurately measure and calculate GHG inventory. GHD Limited verified our GHG emissions inventory.



INVESTING IN NEW LOCOMOTIVES

Union Pacific acquired 160 new locomotives that meet the EPA's stringent Tier 4 emissions standards in 2016, adding to the 100 locomotives purchased in 2015. Tier 4 standards reduce particulate emissions from diesel locomotives by as much as 90 percent and nitrogen oxide emissions by as much as 80 percent. We plan to purchase additional Tier 4 locomotives in 2017.

Union Pacific has invested about \$8.5 billion in purchasing more than 4,500 new locomotives since 2000. These locomotives all meet the EPA's Tier 0 to Tier 4 standards. We retired more than 3,200 older, less fuel efficient locomotives over the same period.

Since 2000, we overhauled or rebuilt more than 6,700 diesel engines with emissions control upgrades. As a result of new locomotive and refurbishment programs, more than 96 percent of Union Pacific locomotives meet Tier 0 to Tier 4 EPA emissions standards.

Incorporating Technology

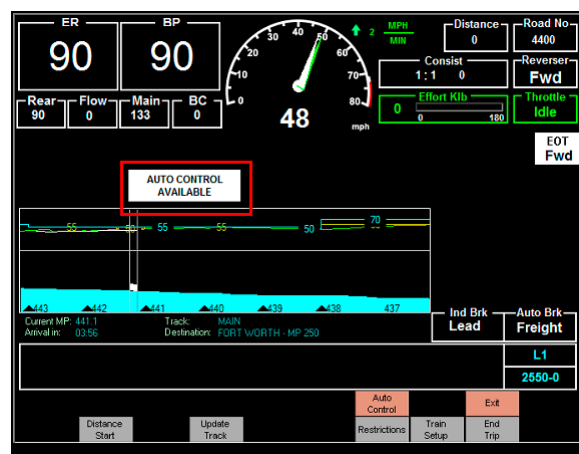
Technology plays a fundamental role in Union Pacific's fuel efficiency performance. The following technologies all help drive fuel efficiency across the system.

- The LEADER (Locomotive Engineer Assist/Display and Event Recorder) system uses GPS maps to analyze train operations and prompt engineers when to accelerate and when to brake. During 2016, our 451 LEADER-enabled locomotives completed 9.2 million trip miles.
- Trip Optimizer (TO) automatically controls a locomotive's throttle, which helps keep trains on schedule while minimizing fuel use. This system calculates the most efficient way of operating a locomotive by considering factors such as train length, weight, grade, track conditions, weather and locomotive performance. Our 987 TO locomotives made 9.8 million trip miles in 2016.
- The Smart Consist system selects throttle notch combinations for the best fuel economy. We have deployed Smart Consist in 408 locomotives.

Process improvements reduce GHG emissions by optimizing maintenance work. Union Pacific's cross-functional Fuel Mizers Load Testing Reduction Team implemented an efficient process for locomotive tests that ensures engines and generators produce enough horsepower to pull loaded rail cars. The process reduced fuel consumption by more than 2.6 million gallons and improved reliability in 2016. Teams also use ultrasound technology to test underground conditions for steel pipes used for fuel. It allows us to identify irregularities without uncovering the pipes.

NEW TECHNOLOGY SOLUTIONS FROM A NEW GENERATION OF ENGINEERS

Union Pacific and Brigham Young University's Capstone program gave students an opportunity to test new aerodynamic technologies that dramatically impact fuel efficiency. Students from the university tested Arrowedge, a device that reduces drag and improves freight container efficiency. Union Pacific deployed Arrowedge in 2014, and new generations of students helped us conduct wind tunnel testing. Arrowedge 3.0, is the latest version, which cuts manufacturing costs for the drag reduction system by 88 percent. We are manufacturing 50 devices to be deployed across our railroad.



Trip Optimizer display.



Guided wave technology allows Union Pacific's fuel team to take a closer look at the railroad's underground assets.



NATIONAL COUNCIL OF STATE LEGISLATORS VISIT PROVISIO YARD

Union Pacific welcomed 80 legislators and state officials attending the National Conference of State Legislators' Annual Legislative Summit in Chicago at our Proviso Yard in November. They were briefed on Union Pacific's safety and environmental improvement efforts. The officials received an up-close look at Tier 4 and GenSet locomotives, PTC operations, Arrowedge and track inspection vehicles. Union Pacific's hazardous materials experts demonstrated tank cars and emergency equipment inside a box car converted into a classroom for emergency responder training sessions. The group also received a tour of the Union Pacific – Metra West Line.

Mike Iden, Union Pacific's general director of car and locomotive engineering, explains how Arrowedge reduces aerodynamic drag on trains and improves fuel efficiency.

EVALUATING ALTERNATIVE FUELS

Union Pacific has been at the forefront of testing alternative fuels for locomotives since 1952, when we launched a project to explore the use of gas turbines to power locomotives.

The company continues evaluating LNG-powered locomotives as a commercially reliable and economical option. In previous years we met with community leaders, first responders and employees along the test route to discuss the multi-year project details and safety precautions. We will continue to maintaining open lines of communication to update communities of progress and new developments.

Energy Conservation

Union Pacific's utility conservation projects reduced energy consumption by more than 4 million kWh, which is enough to power approximately 370 U.S. homes annually. Many projects were simple, employee-driven solutions such as installing LED lighting, replacing compressors and turning equipment off at the end of the day.

ENERGY CONSUMPTION*	2014	2015	2016
Diesel	1,171.2 gallons	1,071.3 gallons	979.9 gallons
Gasoline	12.7 gallons	11.9 gallons	11.5 gallons
Other fuel	13.6 gallons	17.7 gallons	11.4 gallons
Electricity	627.1 kilowatt hours	669.4 kilowatt hours	648.9 kilowatt hours
Natural gas	720.4 standard cubic feet	1,145.5 standard cubic feet	573.6 standard cubic feet

**Estimated in millions*

LEVERAGING SOLAR POWER

Solar power provides a ready source of energy in remote locations that can help Union Pacific reduce exposure to fluctuating energy markets. Union Pacific's solar power use includes the following initiatives.

- Solar-powered active warning signals, which consume approximately 2.8 million kWh of electricity each year.
- The Joliet Intermodal Terminal is powered by solar and wind energy, featuring 273 solar panels generating 72,000 kWh annually.
- Our Santa Teresa facility draws 40 percent of its power from on-site solar panels.
- Solar panels for refrigerated rail cars provide electricity to maintain battery charge, ensuring the cars are ready to move at all times.



Solar grids at the Joliet Intermodal Terminal near Chicago.

Waste Management

Union Pacific generated an estimated 1.1 million tons of waste in 2016, and diverted approximately 67 percent of this waste from landfills. Our multi-year efforts reduced federal large-quantity hazardous waste generator sites from 35 to three.

EXTENDING RAILROAD TIE LIFECYCLE

Union Pacific continued testing durable materials to increase railroad tie lifecycles, expanding its ability to stabilize the track and reducing waste. We seek a sustainable rail tie with commercial and environmental benefits. Tests are currently focused on new composite materials and a new two-step wood tie treatment process.

DISPOSING E-WASTE

Union Pacific recycles electronics no longer in use, commonly known as e-waste. We recycled or distributed more than 270,000 pounds of electronic equipment and more than 1.6 million pounds of signal batteries in 2016. In November, we invited employees to drop off obsolete and unwanted electronics at our headquarters in Omaha, to mark America Recycles Day.

RECYCLING FUEL AND OIL

We recycled more than 3.3 million gallons of oil and fuel at our facilities. Union Pacific facilities have systems to catch spills, extract engine oil from wastewater and use fuel nozzles to shut off automatically, preventing locomotive fuel tank overflow.



Union Pacific replaces millions of ties each year and seeks to expand their life cycle.

Water management

Managing thousands of utility accounts across our network can be challenging. We analyzed the accounts and researched irregularities and identified opportunities to conserve thousands of gallons. We made changes and repairs that eliminated unnecessary water use. A solution in Commerce, California, was as simple as addressing an underground water leak, which reduced water consumption by an estimated 120,000 gallons a year.

Union Pacific used an estimated 1.25 billion gallons of water in 2016, a reduction from 1.54 billion gallons in 2015. We continue exploring ways to conserve water. We help protect water resources from our operations through spill prevention controls and countermeasure plans at 136 facilities. Ninety wastewater treatment facilities capture and treat water from equipment washing and maintenance. We also treat captured wastewater to comply with government regulations and wastewater discharge permits.

REPORTING WATER TO CDP

Union Pacific was the only Class 1 railroad to report water consumption to CDP, which we submitted for the third consecutive year in 2016. The company's "C" rating reflects Union Pacific's awareness of the impacts of business activities on the environment, people, ecosystems and vice versa. The CDP results help Union Pacific's efforts to measure, monitor and report water consumption. We remain committed to evaluating the situation and exploring steps to reduce water use.

GIVING THE GREAT SALT LAKE FREEDOM TO FLOW

A causeway built to support railroad tracks over Utah's Great Salt Lake has divided the Western Hemisphere's largest saltwater lake since 1957. While it enabled waters of the north and south ends of the lake to mix, it changed the surface level and salt content. The northern end of the lake became lower and saltier, due to a lack of fresh water.



Union Pacific's rock-fill railroad causeway stretches 20 miles across the Great Salt Lake, the largest salt water lake in the Western Hemisphere.

In 2016, Union Pacific engineers constructed a 180-foot bridge, increasing the flow of water between the north and south ends. The increased flow improved conditions for tiny crustaceans and brine shrimp, which cannot survive in water that is too salty. Brine shrimp eggs are used in aquaculture to feed some types of fish and baby shrimp that don't survive well on artificial feed.

Utah supplies one-third of the world's brine shrimp supply, which contributes \$57 million annually to its economy. Brine shrimp population declines in the Great Salt Lake could negatively impact world-wide seafood prices.

Brine shrimp are important to the Great Salt Lake's unique ecological system. Along with brine flies, they are the main food source for migratory birds. The lake is a massive refueling station for birds completing migrations from places like South America, Russia and Mexico. The Eared Grebe, a water bird, actually doubles its weight eating the Great Salt Lake's brine shrimp before completing its migration south for the winter.

Adjustable earthen control berms enable Union Pacific to respond to changing ecological requirements. Scientists will monitor the bridge's impact over the next five years. Models predict water levels at the south end will drop, stabilizing the Great Salt Lake's waters mix more freely.

BRIDGING THE GAP TO FRESHWATER SUPPLIES IN LOUISIANA

Union Pacific constructed a 102-foot steel bridge spanning the Bayou Lafourche in Louisiana in a project led by Bayou Lafourche Fresh Water District in 2016. The new bridge does more than support two rail lines crossing wetlands. Replacing a previous box-culvert structure allows for greater freshwater flow from the Mississippi River.

Improved freshwater flow helps prevent saltwater incursion while providing freshwater supplies for approximately 300,000 businesses and residents near the bayou. It also prevents wetland loss, which protects shores from wave action, reduces flood impacts and absorbs pollutants. Bayou Lafourche's water quality provides a habitat for plants and animals found nowhere else.



The 106-mile Bayou Lafourche in southwest Louisiana stretches from the Mississippi River in Donaldsonville to the Gulf of Mexico in southern Lafourche Parish. Photo courtesy of Bayou Lafourche Fresh Water District.

UNION PACIFIC REDUCED WATER CONSUMPTION BY 290 MILLION GALLONS IN 2016.

Land Preservation

A healthy environment supports healthy, vibrant local communities – and their economies. Union Pacific is committed to being a responsible steward of the land we own. We work to preserve our ecosystems, improve our resiliency and reduce our impacts.

Union Pacific implements Habitat Conservation Plans to protect ecosystems and endangered species in various locations. Plans in the western half of our network included the desert tortoise, endangered southwestern willow flycatcher and valley elderberry longhorn beetle.

We also manage 30 miles of trees to control sand from blowing across the track in the Mojave Desert and actively manage several wetland areas.

USING OUR NETWORK TO ESTABLISH HABITAT CORRIDORS

Union Pacific's vast rail network provides an opportunity to establish ecologically significant habitat corridors across wide areas of the central and western United States. In 2015, we joined the Wildlife Habitat Council (WHC) to leverage this potential for preserving and improving pollinator habitats. Starting with lands on which we do not run railroad operations, we are working with the WHC to establish a suitable habitat to support migrating species such as the Monarch butterfly to travel between winter and summer territories. Union Pacific also joined the Rights of Way Habitat working group, supported by the University of Illinois at Chicago to enhance our efforts.

INVESTING IN FUTURE ENVIRONMENTAL STEWARDS

Union Pacific awarded Daisy Lazcon from Beach Park, Illinois, a \$500 conservation project scholarship for her volunteer efforts to reestablish native plants under the Center for Conservation Leadership Program's guidance. Daisy removed invasive plants from nature preserves and planted seeds to improve biologic diversity and practice environmental stewardship.



Compliance

Union Pacific is committed to following applicable laws and regulations in all areas of our operations. From time to time, we are involved in legal proceedings, claims and litigation that occur in connection with our business. For example, we received 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 United States, 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. Where we are found in violation of specific rules or regulations, we seek remedy through the appropriate channels.

Looking Ahead

FEEDBACK

For questions on this report or to provide feedback, contact Union Pacific via email at sustainability@up.com.

OUR COMMITMENT

Since our founding more than 150 years ago, Union Pacific has driven economic growth in America. Our mission, vision and values all are focused on completing tasks better tomorrow than we do today, enabling Union Pacific to remain critical to the American economy in the centuries to come. We will continue to strive to be the best in the business in our safety initiatives, on our tracks, in our communities, across our workforce and for our environment. The 2016 Union Pacific Building America Report shares our initiatives and progress thus far. We are proud of our accomplishments and our work to improve our operations. In the years ahead, we will continue to invest in our employees, communities and infrastructure because they shape our growth and success.

CAUTIONARY INFORMATION

Our 2016 Building America Report provides additional explanatory information regarding Union Pacific that may not be available, included or directly derived from information in the company's Annual Report. This report includes statements and information regarding future expectations or results of the company that are not historical facts. These statements and information are, or will be, forward looking as defined by the federal securities laws. Forward-looking statements and information can be identified by use of forward-looking terminology (and derivations thereof), such as "believes," "expects," "may," "should," "will," "would," "intends," "plans," "estimates," "anticipates," "projects" and other words or phrases of similar intent. Forward-looking statements and information generally include the following: the company's expectations or forecasts with respect to general economic conditions in the United States and the world; the company's financial and operational performance; increases of the company's earnings; demand for the company's rail service; improving customer service; enhancing profitability; volume and revenue growth; efficiency improvements and increasing returns; and improving asset utilization. Statements also include the effectiveness or growth of new and newer services; management of network volumes; increasing shareholder value; total amount of capital investments; completion and effectiveness of capacity expansion and other capital investments, and other investments in infrastructure improvements; returns on capital investments; improvements regarding safety of our operations and equipment; improving efficiencies in fuel consumption; preserving the environment and communities where the company operates; and effectiveness of plans, programs and initiatives to reduce costs and other efficiency improvements. Forward-looking statements and information 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. 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 the company's [Annual Report on Form 10-K](#), filed Feb. 3, 2017, could affect our future results and could cause those results or other outcomes to differ materially from those expressed or implied in the forward-looking statements and information. This report should be read in consideration of these risk factors. To the extent circumstances require or the company deems it otherwise necessary, the company will update or amend these risk factors in subsequent Annual Reports, periodic reports on Form 10-Q or current reports on Form 8-K. 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.

ADDITIONAL RESOURCES

For ongoing updates on our citizenship and sustainability efforts, visit www.up.com.

- [Media](#). Up-to-date information about Union Pacific
- [Environment](#). Sustainability commitments and progress
- [Employees](#). Programs and services available to the members of our workforce
- [Customers](#). Product offerings and business groups
- [Investors](#). Annual report, proxy statements and other SEC filings
- [Communities](#). News, photos and video about Union Pacific, our employees and the communities where we operate