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Our Vision is to realize the tremendous potential of BNSF Railway Company by providing transportation services that consistently meet our customers’ expectations.

EVIDENCES OF SUCCESS
We will know we have succeeded when:

- Our customers find it easy to do business with us, receive 100 percent on-time, damage-free service, accurate and timely information regarding their shipments, and the best value for their transportation dollar.
- Our employees work in a safe environment free of accidents and injuries, are focused on continuous improvement, share the opportunity for personal and professional growth that is available to all members of our diverse workforce, and take pride in their association with BNSF.
- Our owners earn financial returns that exceed other railroads and the general market as a result of BNSF’s superior revenue growth and operating ratio, and a return on invested capital that is greater than our cost of capital.
- The communities we serve benefit from our sensitivity to their interests and to the environment in general, our adherence to the highest legal and ethical standards, and the participation of our company and our employees in community activities.

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ADDRESS CHANGES
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ON THE COVER
A BNSF automotive train parallels the Columbia River east of Lyle, Wash. Photo by Patrick Bennett.
As we’ve discussed before, 2016 has been a difficult year for our business. Our volumes are down about 7 percent year-over-year through the end of September, with a significant drop in coal, crude and other energy-related commodities, as our country faces a sustained industrial recession.

Our declining coal volumes reflect a structural change across the rail industry, due to the impact of low natural gas prices combined with regulatory and other changes that affect coal demand. While coal volumes will ebb and flow, we expect them to continue to decline each year. This year, consumer demand has remained tepid, impacting our international intermodal volumes. The reduced business levels have had a considerable impact on our financial results, including revenues, operating income and net income.

At the same time, we can be proud of what we’re accomplishing together in the face of these challenges. We are focused on safety, service and efficiency, as always, while remaining flexible and agile in response to a changing economy and world.

We’ve maintained our tough-minded optimism in this soft freight environment and continued to move ahead. While volumes are down year-over-year, we have done a good job of capturing volume opportunities where they exist. In fact, our reputation for strong service combined with smart marketing strategies and solid customer relationships have helped us increase market share to record levels in the West.

For instance, Agricultural Products volumes reached record levels for the third quarter, as grain exports increased. We also continue to bring on new domestic intermodal, automotive and plastics business. This edition of Railway takes an in-depth look at one of those initiatives – our new service offering that will target increased domestic production of plastics – which offers promise for growth.

As we consider the future, clearly we need to be nimble and innovative in the face of change. At BNSF, we have long been a technology leader, and these advances play an essential role in our ability to drive safety and efficiency. This edition of Railway highlights two important technology initiatives, and BNSF is truly leading the way in both. Our deployment of positive train control (PTC) is the most significant and complex technology investment since the conversion of steam to diesel, and it is changing the way we operate in many ways. Similarly, our digital mapping technology – leveraging Geographic Information Systems – is revolutionizing the way we store and use critical information about our network, assets, right-of-way and other property, including our PTC infrastructure.

This edition of Railway also includes a look at the railroad town of Topeka, Kan. BNSF’s history in this town dates to 1859, and the town continues to play an important role in BNSF’s operations every day. The story reminds us of just how far we’ve come over the past 160 years and of how bright the future is for our railroad. In this edition, Dave Freeman also shares his perspective on how we are building for the future across Operations.

Thanks to BNSF’s resilience, our diverse franchise and our competitive business model, we can be measured and thoughtful in our response to challenges, weathering difficulties better than many other companies. I’m proud of all of our employees who continue to stay focused on working safely, serving our customers and improving efficiency. Thanks to your efforts and commitment, we are prepared for whatever comes our way.

Carl Ice, President and Chief Executive Officer

Leading through change
Dave Freeman was named executive vice president, Operations, effective June 1, succeeding Greg Fox, who announced his retirement. In this role, Freeman oversees the entire Operations organization, including Engineering, Environmental, Mechanical, Operations Support, Transportation, Safety and Training, Service Design and Resource Protection.

Freeman joined BNSF in 2001, after 24 years in leadership positions in companies outside BNSF. At BNSF, he has served in a variety of Operations roles in the field as well as in Fort Worth, including assistant vice president, Fort Worth Service Region; general manager, Gulf Division; general superintendent, Transportation; and assistant vice president, Intermodal and Automotive Operations. He served more than three years as vice president, Engineering, and then more than three years as vice president, Transportation, prior to being named senior vice president, Transportation, in April 2014.

In his new role, Freeman reports to President and CEO Carl Ice and joins BNSF’s Executive Team.

“Dave is a strong, resilient, empowering leader who has led many teams across Operations to deliver outstanding results,” says Ice. “We are fortunate to have someone of Dave’s caliber in this role. With his deep commitment to safe production and his exceptional ability to develop and foster others, he will be a great leader on the journey going forward. We look forward to his important contributions in this executive role.”

Here Freeman provides insights into BNSF’s commitment to safety and service as well as current challenges and opportunities in the rail industry.
You bring considerable and varied experience to this new leadership role. What are some of the most important experiences you’ve had that influence your perspective today?

Through my career, I’ve had a broad range of experiences that have brought me a deep understanding of what it takes to run a railroad. At BNSF as well as previous roles at a shortline and in industrial rail, I’ve had leadership responsibilities in Engineering, Mechanical, Transportation and Service Design that have helped me learn many facets of the business. Those experiences give me a view of the unique challenges each group faces. While we all have many things in common, there are some fundamental differences in what a Mechanical leader faces vs. a Transportation leader, and it’s important to understand the issues unique to each group.

Prior to BNSF, I worked more than 15 years at industrial companies, so I spent a lot of time viewing railroads from the perspective of a customer. Service, rates, safety, communication – I had a chance to experience all of those issues from the viewpoint of a customer on the outside looking in.

So those various perspectives influence my decision-making and my communication style, and I know we have to take various factors into account and adjust depending on the circumstance.

What’s your view of BNSF’s current safety performance? What are the most important things we need to do to continue our safety improvement?

We clearly have a long-standing commitment to safety at BNSF, and we’ve made a lot of progress. But as the tragic event on the Panhandle Subdivision demonstrates, we still have an opportunity to do a better job on safety. There’s no question that we all know how to run trains, but we need to ask ourselves how we can do a better job of making sure that every employee has his or her head in the game every minute of every day.

I think it all comes down to relationships. Just as we discuss in Approaching Others and our other safety processes, it’s not about you or me – it’s about what we can do together to reduce and eliminate risk and get to zero injuries.

Earlier this year, BNSF realigned Operations around two regions and 10 divisions. Explain the operational benefits BNSF is currently seeing or expects to see as a result of that realignment.

The realignment went very smoothly, and the railroad is operating well. The changes we made have simplified decision-making and the flow of information, and we have a stronger company as a result. I give all the credit to our people, who very quickly adjusted to their changed roles both in Fort Worth and at field locations.

Economic conditions have been challenging, and volumes are down across the rail industry. What takes priority in times like these? How can Operations employees help position BNSF to capture new business, where it exists?

Fluctuations in business are inevitable over time. Sometimes the economy will be strong and volumes will be high, and sometimes volumes will be down. Through it all, the key is to run a safe, reliable railroad. Whether your job is to operate trains or inspect locomotives or maintain track, do it safely and efficiently, and do everything you can to ensure the safety of our people and our railroad. At the same time, remember that our vision is to consistently meet our customers’ expectations. If we do these things well, everything else will fall into place.

Of course, to meet customers’ expectations we need to be sure we understand our customers’ transportation needs. That’s pretty straightforward on some parts of our railroad. At Hobart Yard in Los Angeles, where the vast majority of our freight is intermodal, our people know how to build and move stack tracks. At Alliance, Neb., our people know all about coal and what those customers need. It’s the same with serving agricultural customers in North Dakota. I think our biggest
challenge is in industrial products, where we have such a diversity of commodities and customers. We’ve focused on helping our people understand and serve those customers, given the variety in terms of what’s moving and how it’s moving.

Q BNSF has been consistently recognized as a premier service provider. How is our reputation for strong service helping us in a challenging time like this?

A We always want to be the railroad of choice when our customers are deciding how they’re going to move their freight. The way to make that happen is to always hit our on-time performance goals and, as I said earlier, to ensure we’re running a safe, reliable railroad. Delivering service that is consistently strong really can help us at a time like this to capture whatever new business is out there.

Q When you’re coaching leaders on your team, what advice do you give? What traits do you think are most important to be an effective leader?

A I have three key points I always emphasize when I’m asked about my views on leadership. First, be sure that you thoroughly understand your role, be it in Transportation or Engineering or Marketing or whatever it is. Second, focus on building strong relationships. Ultimately, success in this business is about people, building trust and recognizing that you can accomplish so much more as a team than you can as an individual. And, third, always do the right thing. It’s as simple as that.

Q As a member of BNSF’s Executive Team, you play a significant role in influencing BNSF’s strategy going forward. As we look to the future, what are our most important challenges and opportunities?

A Of course, as we look ahead, many things are important in keeping this business strong for the future. But the single most important thing the Executive Team can do is to develop future leaders. We have a lot of talent across this railroad, and we need to focus on identifying and developing those leaders who can really drive our individual and team dynamics for continued success.
BNSF puts digital precision on the map

Railroaders need to know exactly where things are – including sidings, signals and structures, property lines, etc. – and today’s technology makes that information more precise and easier to access than ever before.

Maps have been crucial to railroading since the industry’s beginning – a necessary tool for railroaders working to move freight from point A to point B. Whether BNSF employees are building new track, pinpointing assets that need maintenance, designing emergency response plans or verifying the boundaries of the right-of-way, maps have always played an essential role.

For much of that history, the way employees created, archived, retrieved and used maps remained essentially unchanged. But over the past several years, thanks to the company’s push to deploy digital mapping technology, called Geographic Information Systems (GIS), BNSF is unleashing the true potential of electronic maps to drive safety, efficiency and precision.

This focus is also addressing physical maps’ historical limitations, eliminating the need for lots of unwieldy paper. Today, employees have quicker access at their fingertips – and a much greater trove of geographic information.

Greg Palcich, manager, Enterprise GIS, Technology Services (TS), has long been involved with digital mapping at BNSF.

“GIS is the platform we use to house critical information about our network, assets, right-of-way and land use,” Palcich says. “Access to geographical data is the backbone of what we do as a company. We move freight from one location to another across a vast rail network. We are a geography-centric organization.”
GIS involves the integration of maps with databases, enabling geographic data to be archived, manipulated, analyzed and shared in powerful ways. “It’s a digital representation of the real world,” Palcich adds.

A signature feature of GIS is its ability to overlay a range of data from multiple sources onto a map image using layers, offering a geographical context that might not be as apparent when viewing rows of numbers.

Digital mapping has become ubiquitous for most Americans, but BNSF was tapping into the technology years before that. “Google Maps has only been around for 11 years,” Palcich notes. “And now it’s so commonplace – think about everything everybody does with it, from checking traffic to finding a place to eat.”

BNSF’s history with GIS dates to the 1990s, when the Engineering Department started exploring ways to use it. In 2002, the Network Control Systems (NCS) team conducted a full-scale survey of BNSF’s rail network, using GPS (Global Positioning System) collection devices mounted on hy-rail trucks. The data collection gave BNSF the most precise fix it had ever had on the locations of assets.

Since then, Palcich says, BNSF’s use of GIS “has grown by leaps and bounds, in terms of the amount and kinds of data available and the level of precision with which we can record that data.”

Engineering

Engineering uses the GIS system to access geographically represented data related to the track network and assets along that network. Over time, the GIS team has added layers to its system to support the needs of its users. Layers of data such as maintenance ownership, trackage rights and territory boundaries are available.

“With the advent of the Engineering Asset Management (EAM) initiative, tools are being deployed that provide more geographically represented information than ever before,” says Steven Mendell, director, Engineering Support and Information Technology.

“Maps and dynamic track charts are at the core of new systems being built to identify, view and report work performed on field assets. And whether you are an inspector, a section foreman or a supervisor, the map views are quickly becoming a tool of choice.”

With GIS, employees can access documents for a particular location from a geographical view, explains Asim Ghanchi, director, TS.

“You click on an asset – a switch, crossing gate, signal, etc. – on the map, and a dialog box pops up with information about that asset, including links to related documents. So now a track inspector in a hy-rail pulls up to a switch, fires up a Windows tablet and knows everything there is to know about that switch,” Ghanchi notes. “In the past, he or she would have had to put in a request in advance to get paperwork for assets on their territory, and then load and carry the paper records with them in their vehicle.”

By the end of 2016, inspectors will be able to access inspection reports in SAP

“I am told there are people who do not care for maps, and I find it hard to believe.”

– Robert Louis Stevenson, novelist and travel writer (1850-1899)
directly from the GIS platform, Ghanchi adds. In the near future, field employees will be able to display an asset they’ve just repaired on a map on their mobile device, draw a circle around that asset on-screen and then add a report about their work.

GIS is also used to pinpoint repairs. “Up until 12 or 13 years ago, when a geometry car detected a defect, employees would spray yellow or red paint on the ties. Red paint meant the nearby defect must be fixed immediately, yellow meant the tie was approaching the red threshold. Now, the location is simply digitized, and the data is accurate to within 15 feet,” says Michael Saniei, manager, TS.

Environmental

BNSF’s Environmental team is also leveraging our GIS system, making data and information more readily available to internal stakeholders while also helping to ensure the railroad maintains compliance with environmental regulations.

The Environmental GIS application draws from a variety of sources, using internal as well as public data, to create those layers.

“We can plug in publicly available data, for example fish and wildlife habitat, cultural resources, wetlands or tribal areas, and assess where there are potential conflicts with new projects or permits,” says Matt Graham, director, Environmental Project Controls. “We can also note specific environmental features or concerns on the GIS to make other departments aware of property restrictions or hazards.”

Or as Patrick Brady, general director, Hazardous Materials Safety, says, “We’re building a book here. Each layer is a page of that book.” Brady notes the hazmat team’s use of GIS falls into two main categories: preplanning and emergency response.

“We use it to determine the safest and most secure route for a specific freight movement based on factors like population density and the grade of the track,” says Brady. “We can click on any track and see how many hazardous materials we’ve moved there over a 12-month period. Some of that information also needs to be provided to public officials.”

Brady says all of BNSF’s emergency response trailers have GPS tracking units installed. Using the GIS tool, teams can see where all the trailers are located at any given time. The tool is also a convenient way to access Geographical Response Plans that contain BNSF’s strategies for responding to a spill in a given location.

“We all know that incidents are rare, but let’s say I am responding to an incident near a city I’ve never visited before,” Brady says. “The GIS tool brings me the key information I need, such as the location of waterways or schools or emergency responders, along with images, so we can respond more quickly and accurately.”

Now, with the help of GIS, Brady says, “It takes only minutes to know where we need to be and the factors we need to consider.”

The view of a GIS display from inside a track inspector’s vehicle.
Real Estate

It makes sense that BNSF would move to digitize the thousands of maps accumulated over decades of operations and scores of mergers.

“BNSF is one of the largest landholding companies in the U.S.,” Palcich says. That means a lot of paper – paper that requires space and climate controls to preserve and takes time to file and retrieve.

As part of an 18-month effort involving Corporate Real Estate, TS and Corporate Support, the team converted 23,000 maps of BNSF right-of-way and real estate agreements into a digital geographic representation with an application that rolled out in September 2014. The system contains more than half a million agreements and parcels of land, and connects to other data sources, including BNSF’s Property Inventory Management System (PIMS) and Corporate Contracts Database (CCD).

With the Real Estate GIS tool, users can view customized maps displaying the latest data about a parcel and related agreements, as well as historical maps and information.

Given the complexity of BNSF’s network and the history of various predecessor railroads, documents and supporting information continue to be added to the tool.

“Our GIS application has sped up our ability to analyze and report real estate information to our internal customers, facilitated revenue-generating land transactions, and enabled other departments to build on and use real estate data,” says Kurt Geringer, general director, Corporate Real Estate. “Research that used to take several weeks or months now only takes days.”

Safety and train control systems

This shared GIS platform offers a powerful tool for organizing and accessing yet another layer of information – data generated through BNSF’s Light, Detection and Ranging (LiDAR) system, the most accurate geographic data collection technology available.

LiDAR is a crucial component of positive train control (PTC), a safety overlay that enforces movement authorities and speed restrictions (see Page 12 for related story), and the Hy-rail Limits Compliance System (HLCS), which sounds an alarm if a hy-rail vehicle moves outside its track authority.

With a technology similar to radar, BNSF’s four LiDAR hy-rail detectors use lasers to precisely measure the location, dimension and distance between assets across BNSF’s network. This LiDAR Mobile Mapping technology creates a three-dimensional, 360-degree “point cloud” with a density of over 8,400 data points per
LiDAR – Light, Detection and Ranging – technology creates a three-dimensional, 360-degree “point cloud” used to catalog and map railroad assets.

Wagner says a LiDAR vehicle can collect 60-100 miles of data per day, a pace that’s up to six times faster than previous data collection methods, while providing significantly more detail.

The implementation of LiDAR data goes beyond PTC and HLCS. The data collected by this technology is put into the GIS database to support these critical systems as well as TMDS (Train Management Display System) and the Network Simulators (NetSims).

What’s ahead for digital mapping at BNSF?

The TSS Modernization effort currently underway is tasked with rewriting BNSF’s core transportation system, TSS. GIS will play a big role in the modernization effort, housing yard configurations, labor agreements, rail partner agreements and other geographic elements, and will support train route planning, blocking and other functions.

New and emerging technologies at BNSF, including unmanned aerial systems (UAS, commonly called drones) and computer vision, further increase the need for more precise geographic information about BNSF’s rail network. For example, precise GIS information is essential for UAS flight plans and asset inspections. GIS is also being leveraged with computer vision technology, as computers process and analyze digital images and videos to support BNSF’s operation, such as automated validation of wayside asset locations.

Over the past two decades, BNSF has revolutionized its approach to mapping the network, and GIS technology is having a significant impact throughout the organization. GIS is just one more way that BNSF is providing a safe, reliable freight delivery service for our customers.

Contributed by Stephen Manning

“The application of GIS is limited only by the imagination of people who use it.”

– Jack Dangermond, environmental scientist and co-founder of Esri, the Environmental Systems Research Institute
BNSF continues to make headway on PTC implementation

In late 2015, Congress extended the deadline for all railroads to implement positive train control (PTC) to Dec. 31, 2018, with a further extension to 2020 available if railroads met certain implementation requirements. BNSF submitted its updated PTC Implementation Plan to the Federal Railroad Administration (FRA) a few months later, with a commitment to fully implement PTC on mandated subdivisions by Dec. 31, 2018.

PTC is a safety system, mandated by the Rail Safety Improvement Act of 2008, designed to mitigate train-to-train collisions, over-speeds, incursions into established work zone limits and movement of a train through a switch left in the wrong position.

“PTC is an important safety system that has already prevented incidents,” says Chris Matthews, assistant vice president, Network Control Systems. “Implementing PTC is the most complex technology our industry has ever attempted. BNSF leads the industry in PTC development and implementation, but we have to get even better to make it run smoothly on our railroad.”

BNSF was the first Class I railroad to have an FRA-certified PTC system. As of Oct. 31, 2016, BNSF is daily running an average of 1,000 PTC trains in revenue service on 38 of the 87 PTC-mandated subdivisions. The team has already surpassed more than 200,000 successful trips operating PTC in revenue service. Nearly 4,500 locomotives have been equipped with PTC hardware, and the Signal and Telecom teams have installed 550 base stations.

BNSF’s PTC implementation team expects to have more than 50 percent of the 87 PTC-mandated subdivisions operating in revenue service by the end of 2016, and as of Oct. 31, 2016, the team has already installed approximately 95 percent of the PTC communication support technology that includes signal, wayside, back office and locomotive hardware and software. Additionally, more than 22,000 employees have been trained to operate PTC.

On Nov. 8, 2016, the PTC team finished the implementation on the mandated portion of the Southern Transcon, which is 2,150 continuous miles of PTC.
protection. “This is, by far, the longest stretch of PTC technology that has been implemented in the country,” says Matthews. “There is a lot more work to do, but completing the last segment of the Southern Transcon is a major milestone, a real ‘golden spike’ moment for the team.”

BNSF will continue to work closely with other railroads to jointly test PTC system interoperability for wayside, locomotive and other technology, which will be essential to full industrywide implementation.

To further ensure the program’s success, the PTC team recently implemented enhanced reporting tools and ToneUp, a new communication system for train crews to contact PTC support personnel directly for all PTC-related questions.

“Many teams have been instrumental in our continued progress on PTC — from Engineering to Mechanical to Transportation, Technology Services and many more,” says Director Lesha Hampton, PTC Implementation, Network Control Systems. “Cross-departmental collaboration and support have been outstanding and continue to get even better as we move toward the deadline.”

Contributed by Andrea Scott
The plastics push:
How the shale revolution is turning America’s plastics manufacturing industry into a growing powerhouse
Mr. McGuire: “I just want to say one word to you … plastics.”
Ben Braddock: “Exactly how do you mean?”
Mr. McGuire: “There’s a great future in plastics. Think about it.”

While that exchange from the 1967 movie “The Graduate” may have a more subliminal meaning, it accurately described the evolution in American manufacturing.

By the late 1960s, a variety of industries had embraced plastics in all sorts of applications. Whether in the making of furniture, clothes, medical devices or even Tupperware®, plastics were inexpensive and offered revolutionary benefits. As U.S. companies made technological advances with petrochemicals, which are needed to manufacture plastic, the domestic production of plastic materials continued to grow.

But over the next 40 years, the great future in plastics took a few turns as the competitive landscape for plastics production changed.

“In recent decades, resin production moved overseas, where it was cheaper to manufacture,” explains Richard Miller, assistant vice president, Industrial Products Sales for BNSF. “Over time, with profitability highly dependent on raw material costs, plastic resin production shifted to regions like the Middle East, where large natural gas reserves exist.”

Between 2000 and 2010, there were no large capital investments in the U.S. chemical and plastics industry, and more than 17 resin production plants closed. Jobs were being lost and the U.S. market was preparing for the influx of Middle East imports. “But just when many were writing off our domestic petrochemical market, the competitive landscape was turned upside down,” Miller adds.

A revolution begins

“The U.S. is going to give Saudi Arabia and Russia a run for their money in terms of being the world’s No. 1 oil producer … and that just wasn’t on the cards five years ago. It’s that recent.”

– Daniel Yergin, author and leading energy authority

The “shale revolution” that began around 2010 was a development that took many by surprise. The goal of energy independence for the U.S., once seemingly unattainable, was now within reach.

With hydraulic fracturing, or “fracking,” vast amounts of trapped natural gas and crude oil buried deep within rock formations were now accessible. Oil companies and producers rushed to shale regions like the Williston Basin, or the Bakken, in North Dakota, to extract oil using this new technology and method.

A FEW FACTS ABOUT PLASTICS

The following are a few fast facts about the plastics industry…

- It is the third-largest manufacturing industry in the U.S.
- The U.S. plastics industry creates more than $380 billion in annual shipments.
- There are nearly 18,500 plastics facilities in the U.S., and the plastics industry has a presence in every state.
- From 1980 to 2010, U.S. plastics industry shipments grew at a 2.4 percent annual rate.

Source: SPI Plastics Industry Trade Association
Many of these new operations were located close to the BNSF network, and pipelines had not yet been added to handle the surge in production. Between 2010 and 2015, BNSF’s crude-by-rail volumes increased from 20,000 units to over 500,000 units per year.

Like other commodities, however, as supply outstrips demand, prices fall. In previous eras of oil oversupply, OPEC would enforce a production cut among its members to restore price stability and keep the price per barrel at a higher-than-market level. But this time was different. With U.S. shale oil producers now threatening to take market share away from Saudi Arabia and other large petroleum exporters, Middle East production was not cut. As a result, the price of oil began to plummet, from near $100 per barrel in late 2014 to under $30 a barrel by the beginning of 2016.

While oil and crude-by-rail was generating much of the media attention, the abundant natural gas being produced from fracking was causing dramatic changes in other energy markets, specifically coal and petrochemicals.

Since 2010, natural gas production in the U.S. has increased by 25 percent, with substantial contributions from fracking in additional states like Ohio and Pennsylvania. After reaching its all-time high of $15.39/MMBtu (1 million British thermal units) in December 2005, natural gas is now trading below $3/MMBtu. And with U.S. producers using natural gas and natural gas liquids (NGLs) as the primary raw material to make polyethylene, the resurgence in U.S. petrochemical production has begun.

Plastic resins can be produced from several chemicals contained in natural gas and NGLs. One of the most prevalent is ethylene, which is derived from ethane and is used in the creation of plastic resins such as polyethylene (PE).

PE, a key ingredient in products ranging from container lids to toys to garbage bags, is the most versatile form of resin. Because raw materials account for up to 70 percent of the total cost for plastic resin production, today’s cheap natural gas makes the U.S. one of the most cost-effective ethylene producers.

Since 2010, the North American chemical industry has announced investments of more than $164 billion, including more than 10 new or expanded PE plants. As a result, U.S. PE production is expected to soar from these record plant expansions, from the current 19 million metric tons (MMT) to an estimated 24.7 MMT in 2020, with 30 percent targeted for export.

BNSF is ready

“The vast majority of petrochemical production in the U.S. is along the Gulf Coast, and BNSF has invested heavily in the Gulf area to support this growth, both now and in the future.”

– Dave Garin, BNSF group vice president, Industrial Products

Between 2014 and 2030, net plastic resin exports are expected to more than triple, from $6.5 billion to $21.5 billion, according to a 2015 report by the American Chemistry Council. Currently, about 70 percent of plastics volume originating in the Gulf on BNSF is destined for consuming markets in the Midwest, North-
east and the South. If all announced Gulf Coast petrochemical plant projects are completed, that could translate to the equivalent of over 75,000 covered hopper cars of PE annually.

“We have been studying the markets, listening to our customers and proactively planning for what the additional supply will mean. We think there are significant export opportunities, with the primary new movements being between production sites and packaging facilities in the Gulf,” says Garin. “That’s why we have invested more than $135 million on expansion projects in the Gulf Coast area over the past seven years.”

Plastics already make up the largest share of containerized exports, 28 percent in 2014, at the Port of Houston. While the Port is investing nearly $2 billion over the next 10 years to expand its terminals, an imbalance between export demand and the supply of available containers is expected to generate more opportunities to ship product on rail from the Gulf through other export channels.

To offer cost-effective and reliable supply chain solutions to plastic resin producers, BNSF’s Dayton, Texas, storage-in-transit yard as well as the rail yard in Lacassine, La., will support greater volumes from facilities in the Gulf.

“Internally, we are collaborating across departments and business units to offer innovative solutions for this evolving supply chain,” adds Tom Williams, vice president, Industrial Products Sales. “One of the new export-focused solutions is an exclusive Match-to-Market option.” (See sidebar.)

Another solution to moving plastic resin product out of the Gulf Coast region is BNSF’s Forward Storage-in-Transit (SIT) Strategy. With a shortage of silo storage at Gulf production facilities, hopper cars parked at the Dayton storage-in-transit yard serve as mobile storage units while awaiting release to their final destinations, such as processors or packaging facilities elsewhere on the network. To facilitate more efficient interchange with eastern railroads, the hoppers can also be moved closer to end markets via Chicago, Memphis, Tenn., or through rail-to-truck transfers at various private transload facilities.

While the chemicals and plastics business represents less than 10 percent of BNSF’s year-to-date carload volumes, its future is looking bright – echoing the predictions in “The Graduate.” And as North American plastics resin production expands, BNSF will continue to be a strong partner in supporting the industry’s growth in the months and years ahead.

Contributed by Michael DiSerio
BNSF predecessors helped realize the American dream as they built lines from the Midwest to the West. Wherever the railroad went, people – and eventually towns – followed. Many of these cities became thriving railroad centers. Today, they continue to play an important role for BNSF and are home to generations of railroaders and their families. Railway takes a look at the connections we’ve made over the years with some of these communities as they continue to change and grow with us.

On a warm Kansas afternoon, the sound of a train horn breaks the silence of an otherwise quiet downtown Topeka. It’s a sound that most locals appreciate and a source of pride for the hundreds of BNSF employees working in Topeka to keep the trains running for one of the largest railroads in America.

There are countless “railroad towns” across the American landscape, but Topeka has a special place in history as the birthplace of the great Atchison, Topeka & Santa Fe Railway (AT&SF). For generations, the railroad has been a part of life for the people of Topeka, and being a railroader remains a sought-after profession for locals.

**Founder and visionary**

As Topeka’s first mayor and the founder of the AT&SF, Cyrus K. Holliday was a visionary who set the foundation for both Topeka and BNSF. The city of Topeka was incorporated in 1857, and the Kansas Territory was admitted to the Union...
in 1861 as the 34th state. Thanks in part to Holliday’s persistence – not to mention his generous donation of 20 acres for the new state capitol building – Topeka was chosen as the capital of Kansas.

As waves of settlers headed west in the mid- to late 19th century, the small town of Topeka was well-suited as an important link in the expanding American supply chain. It was centrally located to serve the rich farmland of the Corn Belt, the cattle ranches of the West and the mineral resources of the Mississippi Valley. With Holliday’s help, a proud city was born, and a storied railroad would quickly earn its place in American history.

The charter for the new railroad company was drafted in 1859, and Holliday soon became the director and president. Significant construction on the AT&SF began after the Civil War. By 1876, Holliday’s railroad had reached as far as Pueblo, Colo., and would continue to expand westward into California and countless other destinations throughout the southwestern U.S. As Holliday’s railroading prospects grew, so did the city of Topeka.

**BNSF in downtown Topeka**

Topeka’s story is filled with successes and challenges – including economic recessions, major floods and devastating tornadoes. But through it all, the railroad remains a consistent source of pride. Along with BNSF’s expansive Topeka locomotive shops and the General Office Building (GOB) downtown, the railroad influence is evident throughout the city. The old AT&SF logo is prominent on various buildings, including the former Motive Power Building, just east of the maintenance facility. That building now serves the community as a senior living center.

The Motive Power Building is where many locals started their careers with the railroad, and many of those employees moved to the GOB after its opening in the mid-1980s. Inside the 14-story GOB and the attached data center are more than 400 BNSF employees with responsibilities spanning Finance, Law, Human Resources, Labor Relations, Technology Services (TS) and Operations Support.
Keep the cash flowing

The Revenue & Disbursement Management team in Finance has a large and important operation in Topeka, with teams that manage revenue coming into BNSF as well as cash that’s disbursed. They work closely with employees, internal and external customers, and vendors to ensure ease of business, as well as efficiency and controls throughout the revenue and disbursement pipeline.

The payroll team processes pay for all active employees, plus about 10,500 pensioners. The accounts receivable and customer billing teams bill and collect revenue from customers. Other teams manage financial transactions related to shortlines and joint facilities, as well as car hire and interline settlements with other railroads. In short, Finance teams in Topeka are responsible for anything to do with cash flowing into or out of BNSF.

Peggy Stauffer, lead payroll clerk, Finance, is a Topeka native who joined the railroad in February 1976. She has worked in many roles and seen a lot of change, but she’s very proud of her long career with BNSF. “In Topeka, someone might ask you where you work, and when you say ‘BNSF’ they’ll say, ‘Oh! You’ve got a good job,’ ” says Stauffer, who will retire from BNSF later this year.

Meeting expectations

Not far from the Finance team, on the seventh floor of the GOB, George Wong, director of TY&E compensation systems, Labor Relations, and his team process millions of dollars a day in wages for thousands of train crews. Others in maintenance and support timekeeping, part of Finance, do the same for Mechanical and Engineering employees.

Although they play an important role in paying scheduled employees, these teams also understand the important role they play in keeping employees engaged.

“We take our jobs very seriously,” Wong says. “Our train crews don’t need any concerns about their pay, and we see it as our mission to ensure all Transportation employees are paid accurately and appropriately to further employee engagement.”

The Topeka Crew Support Center is also located downtown in the GOB. The center provides 24/7 service to BNSF’s train, yard and engine (TY&E) employees. All crew calling is performed in the center – which includes crew offices that were consolidated from around the system in 1997, shortly after the BNSF merger. Ninety percent of all crew calls are handled using digital technology, and the remaining transactions are handled by the center’s dedicated staff.

“The agents in the center are focused on safe and reliable service to both our TY&E employees and our customers,” says Bobby Pechal, general director, Transportation Support. “This work is critical to ensuring that our services consistently meet transportation customer expectations.”

Also critical to meeting customer expectations is the work performed in the Computer Office Building (COB) data cen-
While Electric Motive Diesel (EMD) locomotive engines have been overhauled (rebuilt and replaced) by Topeka employees for a long time, the engines from General Electric (GE) locomotives were sent back to the GE factory, then Topeka employees would replace them as the rebuilt engines were returned to the shop. This year, that has changed. Today, BNSF machinists in Topeka are doing complete overhauls (rebuilding and replacing) of GE 7FDL engines. "We’re all very proud to say that both EMD and GE engines are being rebuilt right here at Topeka."

— Dan Ralls, general foreman, Mechanical

At the historic Topeka mechanical shops, which trace their heritage to 1869, a red brick smoke stack towers above the old power house, which used to be a source for electrical generation. Today, many of the original structures still stand as recognizable links to the past, and the buildings are alive with around-the-clock operations by hundreds of skilled workers, each committed to keeping trains moving. The majority of BNSF locomotives receive their major service or repairs in Topeka. BNSF employees are tearing down locomotives, rebuilding alternators, repairing AC and DC traction motors, and rebuilding locomotive engines. Once a locomotive enters the shop, it can be completely stripped down, rebuilt, tested and back in service in about 12 days. Last year, more than 600 locomotives were overhauled here.

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“We’re all very proud to say that both EMD and GE engines are being rebuilt right here at Topeka,” says Dan Ralls, general foreman, Mechanical, who has worked at the shops since 1988.

In another part of the shops, BNSF employees work to maintain and refurbish completely different machines — the BNSF business car fleet.

BNSF owns more than 40 historic business cars ranging from 50 years old to more than 100. The easily recognizable silver business cars are constantly on the move, used for marketing and charitable and employee-appreciation events across the system. In addition to maintaining the fleet here, the Business Car staff — chefs, porters, servers — are based in Topeka.

On the far north end of the shops are several small buildings that house...
BNSF’s Technical Research & Development (TR&D) team. TR&D is an eclectic mix of railroad scientists with extensive backgrounds in chemistry, metallurgy, engineering and more.

Often working behind the scenes, the TR&D team helps enhance safety and sharpen BNSF’s competitive edge through the use of computer modeling, mechanical research and lab testing to prove (or disprove) new technologies, improve safety and increase efficiency. They also play a crucial role in preventing derailments by investigating the causes of incidents and identifying preventive actions.

Inside the TR&D facility, Bryce Lovewell, engineer, Lab & Testing Services, investigates cracks that developed in a knuckle flag hole. Across the room, Rachel Flott, engineer, Lab & Testing Services, completes lubricity testing using a high-frequency reciprocating rig. In short, her work ensures that the diesel fuel used in BNSF locomotives isn’t causing premature engine wear. As a fifth-generation railroader, Flott takes special pride in her career with BNSF.

Understanding the importance of technical research, BNSF is expected to complete construction on a new on-site Physical Test Lab next spring. The new building will double the current lab space, bring the entire TR&D team under one roof and expand testing capabilities with an indoor inspection track running the length of the building.

Looking ahead

Back in downtown Topeka, on 10th Street, stands a bronze statue of a young Cyrus K. Holliday. The statue is the centerpiece of a “pocket park” sponsored by BNSF – and dedicated this past summer. The statue’s artist captured Holliday looking up and into the distance – envisioning his dream of a railroad that would serve the needs of an expanding American West.

Holliday was well-known for his oratories describing his vision for his railroad. His famous “Wakarusa Speech” was cited in Glenn Danford Bradley’s book The Story of the Santa Fe. After a short excursion to the small town of Wakarusa, just south of Topeka, Holliday stood before a modest group of citizens and guests. Holding his arms up in front of his chest to make an X, Holliday reportedly touted:

“Fellow citizens, imagine, if you please, my right hand as Chicago, my left arm as St. Louis. Eventually the railroad we contemplate will reach these two cities and, crossing at Topeka the intersection of my arms, will extend to Galveston, the City of Mexico [Mexico City] and San Francisco. The coming tides of immigration will flow along these lines of railway, and like an ocean wave will advance up the sides of the Rockies and dash their foaming crests down upon the Pacific slope.”

While there were skeptics in the crowd that day, 160 years later, today’s railroad far exceeds even Holliday’s lofty expectations, and Topeka’s central location and strong workforce will ensure it remains a vital railroad town on the present-day BNSF network.

BNSF is an unquestionable source of pride for the city of Topeka, and there’s no sign of that changing.

“Everybody in Topeka supports the railroad,” adds Stauffer. “Either you work for the railroad, you know someone who works for the railroad – or you want to work for the railroad.”

Contributed by Jason Lamers

BNSF’s pocket park in downtown Topeka, located at the northwest corner of 10th Street and Kansas Avenue, features a life-sized bronze statue of a young Cyrus K. Holliday.
It's time for high school seniors to think about college scholarships, including those offered through the BNSF Railway Foundation Scholarship Program. Once again, the Foundation will award up to 50 scholarships for the 2017-2018 college year. The online application process may be accessed beginning Dec. 1, 2016, by going directly to the ISTS website.

Applicants will need to go online to fill out an application request. International Scholarship and Tuition Services (ISTS) no longer accepts or uses paper applications. To apply for a scholarship, the student must go directly to the ISTS website and follow the instructions. If asked to enter an access key, please use BNSF.

Please direct any questions to ISTS or National Merit Scholarship Corporation (NMSC) through the high school guidance counselor. The BNSF Railway Foundation is not able to answer any questions regarding specific requirements, timelines or payment schedules.

Contact information for ISTS
• Phone: 615-777-3750
• Website: https://aim.applyists.net/BNSF
• E-mail: contactus@applyists.com

The following address the most frequently asked questions about the BNSF College Scholarship program.

Who is eligible?
The program is available to current high school seniors who are the dependent sons, daughters or stepchildren of full-time BNSF employees or of retired, furloughed, disabled or deceased employees of BNSF or its predecessor companies. Full-time employees must have at least two years of service as of Dec. 1, 2016, and must still be employed by BNSF when winners are selected. Retired, furloughed, disabled or deceased employees must have completed the two-year requirement prior to ending their service with BNSF.

When can students begin the application process?
The online application process may be accessed beginning Dec. 1, 2016, by going directly to the ISTS website.

When are submissions due?
Completed applications, including ACT or SAT scores, must be submitted no later than March 8, 2017. The student or applicant is responsible for making sure his or her application is complete, including all required documentation. ISTS handles all administration of the application process, and all questions about the completeness of an application must go to ISTS. The BNSF Railway Foundation does not have access to any application records. ISTS will not necessarily contact students who have incomplete submissions, given the high number of submissions. An accurate and complete submission is part of the competition for the awards.

How many scholarships are available?
Up to 50 scholarships of at least $2,500 each will be awarded to full-time students enrolled in accredited four-year U.S. colleges/universities. Of these, up to 10 scholarships, at $5,000 each, are available through the NMSC. If not all 10 NMSC scholarships are awarded, the balance will be converted to ISTS scholarships at $2,500 each. All the scholarships are renewable for three additional years, with satisfactory academic progress. The BNSF Railway Foundation National Merit winners are selected by the NMSC, and neither BNSF nor the Foundation has input in the selection of winners.

Who is eligible for National Merit Scholarships?
To be eligible, students must have taken the PSAT in their junior year. After selecting finalists, the NMSC then notifies sponsors, such as BNSF, about award acceptances and provides scholarship certificates for presentation to winners. Neither BNSF Railway nor the BNSF Railway Foundation has any input in the selection of winners.

How are winners selected?
For the scholarships handled by ISTS, winners are selected largely on the basis of academic merit, with consideration for past academic performance, leadership of and participation in school and community activities, and an essay. Either ACT or SAT scores are required. Guidance counselors routinely supply the required test scores on the high school records accompanying the applications. As mandated by federal law, neither BNSF Railway nor BNSF Railway Foundation has any input in the selection of winners. All winners are screened, reviewed and selected by independent parties through ISTS or NMSC. The Foundation is unaware of who has applied until a preliminary list of winners is sent to the Foundation for confirmation of eligibility based on the parent’s employment status as described in the “Who is Eligible” section.

Can more than one scholarship be awarded?
No. A student cannot win more than one scholarship funded by the BNSF Railway Foundation. Since neither award is guaranteed, it is recommended that National Merit Finalists apply for the scholarships handled by ISTS. Students who win a National Merit scholarship are automatically withdrawn from consideration for scholarships handled by ISTS.
THIS YEAR’S PEAK SEASON IS NOV. 25 THROUGH DEC. 24.