

## A Double-Stack Runs Through It



# Biz NS

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A decade  
after the  
idea was  
hatched...

## The Heartland Corridor has arrived

In mid-2001, **Jim Carter**, Norfolk Southern's chief engineer bridges and structures, took a phone call from **Steve Evans**, NS assistant vice president ports and international. Evans had a question: What do you think about clearing the Pocahontas main line for double-stack intermodal trains?

Evans wasn't laughing.

Carter knew the line well. To clear it, 28 tunnels through the Appalachian Mountains, some constructed more than 100 years ago, would have to be enlarged. Two dozen overhead obstructions would need to be removed. It would be a massive job, taking years and costing who knew how much.

"I thought he was crazy," Carter said. "I realized right off the magnitude of what he was talking about. It's one of our busiest lines, with a lot of coal moving on it, and I knew we weren't going to be able to detour traffic or shut it down to do the work. It was just unprecedented, unheard of."

■ Intermodal train 233, the first double-stack revenue freight train to run on the improved Heartland Corridor, passes through the Gordon Tunnel near Iaeger, W.Va., after a grand opening ceremony in September. Attending the ceremony near Radford, Va., were some of NS' key movers and shakers on the corridor project, including, from left to right: **Mike McClellan, Jim Carter, Darrell Wilson, and Jeff Heller.**





## Making things happen

Fast forward nearly 10 years to a sunny late-summer morning in September. Carter was on hand for a railroad celebration near Radford, Va., at the 3,302-foot Cowan Tunnel, longest of the tunnels modified during the three-year construction project.

The event marked the official opening of the Heartland Corridor to double-stack intermodal trains hauling freight from the Port of Virginia to consumer markets in the Midwest, including the Ohio Valley and on to Chicago. Carter watched as train 233 passed through the tunnel. It was carrying 148 double-stack containers packed with televisions, electronics, furniture, clothes, and other imports offloaded from a ship at Norfolk International Terminals.

Carter, who became a big believer in the project, still views the railroad's feat with a sense of amazement.

"I was really skeptical in the beginning that we would ever be able to do this," he said. "As time went along and we began meeting with people, I was like, 'Wow, this might happen.' Then, finally, it was 'Oh my God, this is going to happen – and I've got to make it happen!'"

"To me, as an engineer, this project was just an amazing thing to be a part of," he said. "It's a wonderful testament to what Norfolk Southern can do and has done. I know I'll never see another one like it."

Altogether, a total of 5.7 miles of tunnel were cleared, a slow, gritty process of modifying 23 tunnels in West Virginia, four in Virginia, and one just inside Kentucky.

Starting in June 2007, construction crews excavated and replaced concrete roof liners or notched the crowns on 22 tunnels. They lowered the track on five tunnels, while they skirted one by laying track around the side of a hill.

The work, carried out during 10-hour windows five days a week, progressed in 15- to 20-foot sections a day as crews ground and cut away concrete, installed 12- to 30-foot bolts to secure rock walls, and sprayed on thick coats of steel-fiber reinforced shotcrete, a type of concrete.

All the while, NS avoided major disruptions to daily operations, successfully managing one of the most significant business risks associated with the project.

The clearance work cost \$191 million. To pay for it, NS plowed new ground, developing Heartland as the rail industry's first major national public-private partnership. In recognition of the project's public benefits, including job creation, economic development, and improvements to the nation's transportation system, the federal government provided \$83.3 million, Virginia contributed \$9.75 million, and Ohio chipped in a little more than \$836,355. NS invested \$97.8 million.



■ During the clearance phase, Norfolk Southern gangs work in and near Big Sandy tunnels 1, 3, and 4. At far left top is a chain hook used to lift track sections. At far left bottom, Crane Helper **Daryl Rasnake** assists as a rail crane removes a section of track. In middle photo is an NS thermite welding gang – Welder **Tory Huff**, Welder Helper **Tony Mullens**, and Trackman **Derek Preece**. At left, a rail crane stacks a 42-section of track panel.

**Bob Billingsley**, NS director structural projects, attributed the project’s success to comprehensive planning and teamwork. NS transportation employees in Atlanta and on the Pocahontas and Virginia divisions did a remarkable job of choreographing train traffic with tunnel work, he said.

During 38 months of construction, NS made good on its promise to make the tracks available to contractors while ensuring that trains continued to meet customer service demands.

“To look back at what we accomplished, it was a proud day for Norfolk Southern and everyone involved to see a double-stack train go through,” Billingsley said. “In my career, we’ve never done any kind of tunnel work of this magnitude. It’s probably the largest engineering project that Norfolk Southern has done in the last 100 years.”

*“I was really skeptical in the beginning that we would ever be able to do this,”* said **Jim Carter**, chief engineer bridges and structures. *“As time went along and we began meeting with people, I was like, ‘Wow, this might happen.’ Then, finally, it was ‘Oh my God, this is going to happen – and I’ve got to make it happen!’”*

## Expanding the Franchise

For Norfolk Southern, double-stacking the Heartland is the culmination of a decades-long effort to improve track clearances across the railroad’s 22-state system. While a few smaller projects remain, the Heartland “is the major capstone of clearance work required to have a fully unencumbered network,” said **Mike McClellan**, vice president intermodal and automotive marketing.

The improved corridor traverses a line that since the late 1800s has served as the backbone of NS’ and predecessor railroads’ coal business.

“I look at this, really, as a franchise lane,” McClellan said. “It was built 100 years ago to develop the coal business, and what we’re trying to do here is to strengthen and diversify the franchise. Hopefully, 100 years from now people will be saying, like they did about the coal fields, that they’re really happy we cleared the corridor.”

McClellan led internal efforts to persuade senior management that clearing the corridor for double-stack trains was a good business investment.

“I kind of put my neck on the line to get this project justified, but once we agreed to sell it, everybody kicked in to work on this,” he said. “Clearly, the benefits to NS are compelling.”

■ Tamperers, ballast regulators, and ballast sweepers were used to regulate and adjust the ballast profile of the refurbished sections of track on the Heartland Corridor. On the right in the top and bottom photos, ballast is tampered down by a tamper. In the larger photo at right, new signals are being installed on the corridor at Naugatuck, W.Va.



■ Far Right: **Rob Martínez**, NS vice president business development, helped turn the Heartland Corridor into a successful public-private partnership.



“By reducing the circuitry, we’re going to save almost 20 million unit miles a year,” McClellan said. “We also will be able to double-stack more than 100,000 loads that had been restricted by clearances. That has all kinds of positive downstream impacts in terms of costs, productivity, safety, and business value.”

Before Heartland was cleared, NS moved double-stack traffic from Virginia to Chicago over two roundabout lanes that routed traffic through Knoxville, Tenn, or Harrisburg, Pa. Now, double-stack trains bound for Chicago travel a straighter, 1,031-mile route that is 311 miles shorter than the Knoxville run and 233 miles fewer than going through Harrisburg.

That has shaved up to two days of transit time from the Port of Virginia to Chicago terminals, saving on fuel costs and reducing the number of rail cars and locomotives needed to handle customer freight.

“By getting to Chicago in two days instead of four, we’re turning those rail cars back on the third day instead of the fourth or fifth, so your asset utilization gets better,” said **Mark Woods**, manager service design intermodal operations. “That frees up cars and locomotives that can be used elsewhere on the system.”

Trains bound for Columbus will achieve efficiency gains by running double-stack loads, Woods said. For one, train lengths can be shortened by going vertical with stacked containers. That means they can pull off onto shorter rail sidings to let oncoming trains pass, which adds capacity.

“If you’re running a 7,000-foot train over a 100-mile segment, and the longest siding you have is 6,000 feet, you don’t have a place for trains to meet, so you have trains waiting,” Woods said. “If you double-stack, you can carry the same number of units but reduce train length, which gives you flexibility to run more trains over the line.”

Another key benefit is improved flow of all types of freight, including export coal moving from Appalachian mines to NS’ coal pier at Norfolk’s Lamberts Point. The improved corridor also will speed transit times of trains moving between Chicago and NS rail terminals in North Carolina, opening new business opportunities on those lanes of traffic.

“What our employees should care about the most,” McClellan said, “is that, from Day 1, we benefit from reduced operating costs, as well as increased fluidity for all the commodities currently using the Heartland Corridor.”

## Creating demand For international business

Clearing the Heartland was a strategic business project to position NS for long-term growth in international container traffic, said **Jeff Heller**, NS group vice president international intermodal. The corridor, he said, will offer shippers a high-capacity, high-velocity route to move goods to Midwest consumer markets. It is expected to generate more business for the Port of Virginia, where NS handles the majority of freight moving inland by rail.

Over the past decade, East Coast ports and freight railroads have benefited from congestion and labor disruptions at West Coast port terminals. Currently, nearly 60 percent of NS' international freight originates on the East Coast, compared with 30 percent 10 years ago.

The Panama Canal expansion, scheduled for completion in 2014, and a projected increase in the number of big container ships from Asia using the Suez Canal above Africa are expected to bring more international freight to the East Coast.

"We need to be able to handle as much freight as shippers can throw at us," Heller said. "The Heartland Corridor has increased the efficiency of our trains exponentially, and it also gives us more flexibility on the service side to go after freight that we couldn't compete for before."

With the Heartland open, NS has a double-stack network established at every major port on the East Coast to link shippers to major U.S. consumer markets. The change will affect the way NS markets its business to international shippers, McClellan said.

"I like having the ability to go around the world and say, 'I don't know what your port deals are, but whether you choose Jacksonville, Savannah, Charleston, Norfolk, or New York, we have services in all of those ports that are equal to or better than the other guys,'" McClellan said. "We can be the underlying carrier and give them the flexibility to go anywhere they want. As we go forward, this network flexibility is going to be our competitive advantage."

## Heartland Corridor is a model partnership

When **Rob Martínez** received an invitation to speak at an intermodal summit in Huntington, W.Va., he wasn't sure what to make of it. Unless you counted people who bicycled or drove a car to a bus stop, he said, West Virginia, while a major player in coal freight, had no intermodal service.



"I thought this was funny," said Martínez, NS' vice president business development and a former transportation secretary in Virginia.

Martínez attended the June 2000 summit anyway. "I put up a photo of a double-stack train and said, 'Folks, if you're from West Virginia, this is what an intermodal train looks like,'" he recalls.

After he spoke, several midlevel managers with West Virginia's transportation department approached him. West Virginia, they said, was interested in working with NS on a plan to address double-stack clearances in the state.

"I said I'd be willing to talk to them," Martínez remembers. "I had no predetermined notions of what this would come to."

From that small overture, the seeds of the Heartland Corridor, one of the largest railroad undertakings in modern times, were planted.



## A national model

“With its opening for double-stack trains in September, the Heartland Corridor showcases what can be achieved when industry and government partner on projects that carry substantial benefits for both the public and private sectors,” Martínez said.

The public-private partnership involved Norfolk Southern, West Virginia, Virginia, Ohio, the federal government, and a variety of business, community, and economic development organizations. The overall project cost approximately \$321 million, including \$191 million to clear the route for taller trains.

As its share, NS contributed \$97.8 million to clear the corridor, \$42.3 million to construct the Rickenbacker Intermodal Terminal in Columbus, Ohio, and a whole lot of sweat equity.

“The Heartland Corridor is the first time anyone had tried to bring multiple states and congressional delegations into a partnership with a freight rail system that spans 22 states,” said **Darrell Wilson**, NS assistant vice president government relations in Washington. “What we had never attempted to do before – what nobody in the industry had attempted – was to translate what our railroad means to people when a project is about more than one locality.”

The project broke new ground in U.S. transportation policy, pointing the way toward a future where rail plays a larger role in meeting the nation’s long-term needs for safe and fuel-efficient transport of consumer goods.

“We set new public policy with this project,” Wilson said. “The public funding that came established a paradigm with freight rail and when it is the proper role of public entities to invest in private rail infrastructure, primarily when there are substantial and demonstrable public benefits to be gained.

“As you can imagine, competition for funding is always keen, and getting our project funded was very, very difficult,” Wilson added

To make it happen, members of Congress, governors, and state legislators in the Heartland Corridor territory “needed to realize that they were linked together, and the common theme was Norfolk Southern’s system,” Wilson said. “They needed to understand why this was important for their states or legislative districts, but they also needed to understand that if we didn’t get the corridor up and running, nobody could benefit. I spent about 18 months meeting with those constituencies and honing that message.”

In the end, Ohio embraced the prospect of an intermodal terminal in Columbus and the jobs and economic activity it would spawn in the Central Ohio Valley. Virginia recognized that an improved rail corridor to Midwest consumer markets would grow business for the state’s port terminals. West Virginia knew that benefits would flow from connecting their economy to the global marketplace.

“I think our approach to combine the transportation benefits with the economic development benefits was very important,” said **Rob Martínez**.



■ Left: With the Heartland Corridor clearance project complete, double-stack intermodal trains are now a common sight on the Pocahontas main line, a primary lane for NS coal trains.

■ Below: Engineer **John L. McCadden**, operator of Train 233, gives the “all clear” sign upon his arrival at the Cowan Tunnel ceremony.

Ultimately, Congress appropriated \$83.3 million for the tunnel work and \$27.7 million for the Rickenbacker terminal. So far, Virginia has made the largest state contribution, including \$9.75 million to help clear the corridor and \$60 million to relocate a rail line that connects the corridor to a port terminal.

Future plans include construction of intermodal terminals in Pritchard, W.Va., and in Elliston, Va., near Roanoke, which would generate additional economic benefits.

“I think our approach to combine the transportation benefits with the economic development benefits was very important,” Martínez said. “We were committed to producing a project that carried very clear public benefits and that generated enough of a financial return to the railroad to justify our investment. With the public participation, we were able to get this done sooner, and the jobs and the economic development benefits will accrue right away.”



## NS employees prove what they can do

In addition to demonstrating the value of public-private partnerships, the corridor produced another important result: It has bolstered NS’ reputation as a can-do company that contributes significantly to the U.S. economy.

“I think many people didn’t understand the talent we have at Norfolk Southern to engineer solutions and then implement and construct them,” Wilson said. “We’re a silent part of the economy in many ways, and people aren’t aware of all the work that’s going on. What people see now, especially on Capitol Hill, is a railroad with a real capability. The Heartland Corridor brings out not only what we do, but what we can do.”

In the beginning, only a handful of NS employees were involved, a group that Martínez now refers to as the Heartland “co-conspirators.” One was **Rob Siik**, NS group manager intermodal operations.

“It was by far the most important line we had that was not double-stack capable, and I thought it would be a very worthwhile project,” Siik said. “I also knew it would be very expensive, and I wondered how we could justify making that investment by ourselves. I think people realized right off that we would need some kind of public participation.”

Siik recalls that he was working on a cost analysis of the project in a small conference room in Norfolk on Sept. 11, 2001, when he learned that terrorists had flown planes into the World Trade Center towers in New York.

Now, after so much time, it’s gratifying to see the corridor up and running, he said.

“It’s a great thing for NS and for the states this is going to serve,” Siik said. “Intermodal is the wave of the future, and more and more people are realizing that. Being able to run double-stack freight directly between the mid-Atlantic and the Midwest is a big plus for the country’s transportation network.”

■ At right: **Wick Moorman**, NS' CEO, thanks public partners for their support and congratulates employees for following through with commitments to complete the project on time and improve the nation's transportation system. Below: Train 233 arrives at the ceremony, Moorman inspects the locomotive, and NS' corporate band, The Lawmen, perform an original song written for the Heartland Corridor's opening.



## Good for economic development

The Appalachian Regional Commission, which fosters economic development in a 13-state region, including West Virginia, understands that access to intermodal transportation networks is essential in a global economy.

"Projects like the Heartland Corridor are models for the future," said **Scott Hercik**, ARC transportation and trade advisor. "They reflect the public-private cooperation needed to enhance access to global markets and stimulate economic growth across the country. More of our Appalachian businesses are moving supplies and products in containers. Without efficient access to intermodal, many firms would be locked out of business opportunities in an increasingly competitive global marketplace."

In Ohio, the Columbus Regional Airport Authority operates Rickenbacker International Airport, a cargo airport located adjacent to NS' intermodal terminal. Both are components of the Rickenbacker Inland Port.

"To be able to position the Rickenbacker Inland Port not only as an airport but as a multimodal facility — including ocean freight considering its direct connection to the Heartland Corridor — has increased our value proposition significantly," said **David Whitaker**, the authority's vice president business development and communications.

Since NS announced the intermodal facility, three warehouse and distribution buildings totaling 2.5 million square feet have sprung up on property owned by the authority in the Rickenbacker Global Logistics Park, another piece of the inland port. Their occupants include Kraft, the global food company, Toys R Us, and Whirlpool, which all have warehouse and distribution operations there.

"It seems pretty clear that without a public-private partnership to develop the intermodal facility and the Heartland Corridor," Whitaker said, "these projects probably would not have occurred."

*"The Heartland Corridor showcases what can be achieved when industry and government partner on projects that carry substantial benefits for both the public and private sector," said **Rob Martínez**.*

## How it came together

NS teamed with the ARC and West Virginia to fund a study on the potential benefits to the state of having intermodal service. The Rahall Transportation Institute at Marshall University, a research center focused on transportation issues in Appalachia, did the study. Completed in 2003, the study helped NS demonstrate the project had merit on a regional and national basis.

"The first step in a megaproject like this is to develop a record of feasibility," Wilson said. "We used this study done by a third party to validate our internal analysis."

During the study, NS began talking to officials in Virginia and Ohio. Eventually, consensus developed to seek public funds for three major corridor projects: the Rickenbacker terminal, the tunnel clearance project, and the relocation of a rail line operated by short line Commonwealth Railway into the new APM Terminal in Portsmouth, Va.

"Marrying those three projects created a political coalition in Congress that carried substantial weight in support of a series of projects that made very strong economic sense and that improved the nation's transportation infrastructure," Martínez said.

Early on, NS referred to the project as the Central Corridor. After efforts began to seek funds from Congress, proponents wanted a name that would capture people's imagination.



“We came up with the Heartland, which was a very conscious effort to find something that would sing, and we packaged it,” Martínez said.

Former U.S. Rep. Deborah Pryce of Ohio, a big supporter, wanted a lapel button to promote the corridor, Martínez said, and she specified that it include three hearts to represent the states along the route. NS’ corporate communications group quickly created a design, and the buttons were delivered to Washington.

“Members of the Ohio delegation were walking the hallways in Congress wearing these buttons,” Martínez said. Former U.S. Sen. George Allen of Virginia placed one on his desk, so that anyone who walked in “would be looking right at the Heartland proposal,” he added.

## Sealing the deal

Before joining NS, Wilson worked as a staff member for the House Transportation Committee, and he knew what needed to be done to successfully move the legislation. About two months before a vote on the transportation bill, Wilson orchestrated a 30-minute meeting between Rep. Don Young of Alaska, then chairman of the transportation committee, and a dozen members of Congress who supported the project.

“Each one told the chairman that this was a project of utmost importance to them, their districts, and the economies of their states,” Wilson said.

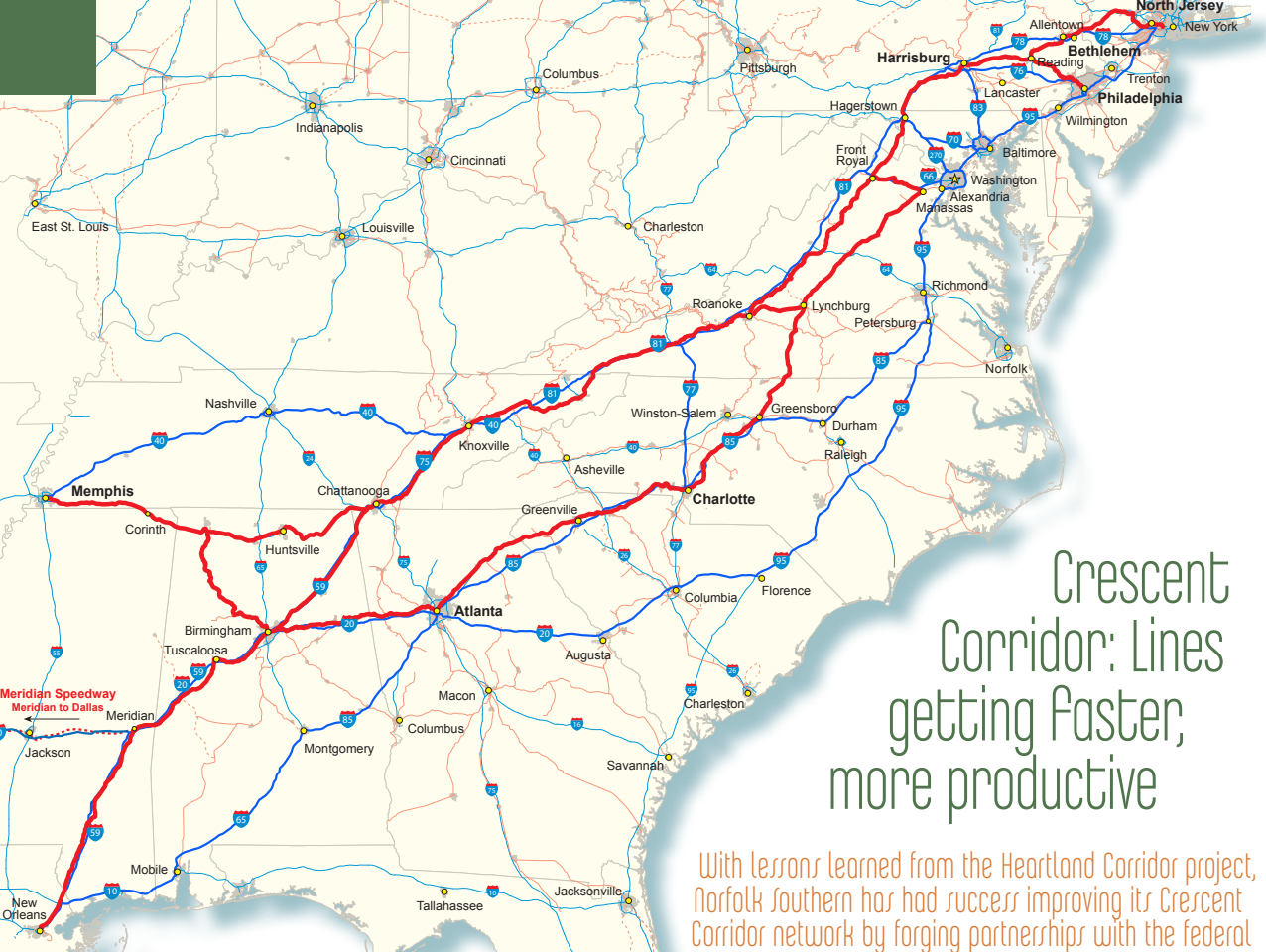
Out of that, Young became a big proponent of the rail corridor.

NS also rounded up 14 representatives and four senators who agreed to sign a letter of support for the Heartland project, an unprecedented endorsement.

With the groundwork laid, the Heartland Corridor was among 25 projects nationwide identified as having regional and national significance in the 2005 highway reauthorization bill. The projects were singled out for their potential to facilitate international trade, relieve traffic congestion, improve transportation safety, and address critical national economic and transportation needs.

One thing that bolstered NS’ case, Wilson said, was the railroad’s pledge to pay the costs of completing the project if federal funding approved by Congress ended up not being enough.

With the opening of the corridor, NS fulfilled its commitment to finish the job. ■ BizNS



## Crescent Corridor: Lines getting faster, more productive

*With lessons learned from the Heartland Corridor project, Norfolk Southern has had success improving its Crescent Corridor network by forging partnerships with the federal government and states along the 2,500-mile corridor.*

■ Norfolk Southern's Crescent Corridor network and adjacent interstate highways. NS aims to remove 1 million tractor-trailer trucks annually from the interstates by converting freight from highway to rail on the corridor.

NS and two partner states, Alabama and Tennessee, scored a victory earlier this year when the federal government awarded \$105 million to help construct new regional intermodal terminals in those states.

Those facilities have drawn the most public attention because of the jobs and economic benefits to be generated, but NS is working on dozens of smaller projects to increase train speed and freight capacity on the corridor, which spans 13 states between the Gulf Coast and the Northeast.

In addition to new regional terminals planned in Greencastle, Pa., and near Memphis, Tenn., and Birmingham, Ala., NS is making 557 individual speed improvements, upgrading 393 miles of track, constructing 10 passing tracks, and improving equipment.

"The Crescent Corridor is made up of many segments, and we are working to increase speed on all of the segments that we can," said **Jackie Corletto**, NS director strategic planning in Norfolk.

It's all part of the railroad's strategic plan to grow domestic intermodal business. A primary thrust is to persuade shippers to use rail instead of trucks to move freight between the Southeast and mid-Atlantic consumer markets.

"A lot of the improvements and investments we've planned will allow us to offer higher service levels that are equal to 18-wheel trucks," Corletto said. "One of the public appeals of the Crescent Corridor is its potential to divert truck traffic from the highways. For us, it's about moving a million-plus loads of freight off the interstates each year and onto our rail system."

■ Work crews use a gantry crane to lift a new bridge span into place at Riverton Junction near Front Royal, Va., working through the night to complete the job. The new span features a rock ballast deck and automated turnout for trains to switch lines, one of hundreds of improvements NS is making to increase train speed and capacity on the Crescent Corridor.

## A milestone in Virginia

In August, NS completed the last of six corridor projects in Northern Virginia to handle more trains at higher speeds. The work included adding or lengthening passing tracks, installing five miles of double-track line near the Virginia Inland Port at Front Royal, and improving signal and traffic control systems.

“These improvements will make our operation more efficient and reliable and will benefit all of our customers along those lines, including the Virginia Inland Port,” said **Bill Schafer**, NS director strategic planning.

Virginia’s Department of Rail and Public Transportation contributed \$43 million to help fund the improvements. NS invested nearly \$20 million.

The most complex of the Virginia projects involved eliminating a critical choke point near Front Royal at Riverton Junction, where two main Crescent Corridor lines from Birmingham and Memphis cross. Several site constraints had limited train speeds there to 15 mph. Among them were an open-deck bridge that limited placement of a turnout section for trains to switch lines; a creek running parallel to one side of the connection; and a rock bluff that restricted the curvature of the junction.

NS employees worked together to come up with a creative fix, said **Mark Dewberry**, NS chief engineer design and construction in Atlanta. Transportation identified the problem, strategic planning helped secure public funding, and engineering worked out a design.

A major effort involved replacing one section of the old bridge with a new span that featured a rock ballast deck and automated turnout for trains to switch lines. The solution to reduce curvature included blasting away the rock bluff and building a retaining wall along the creek to move and straighten the roadbed.

The end result: Trains pass through the switch at up to 30 mph, twice as fast as before, making time for more trains to run over the lines.





■ A train passes over the new bridge span at Riverton Junction. **Michael Breen**, NS project engineer design and construction, took the photograph, which appears in the 2011 NS calendar.

“For long trains, and especially for the large number running over these routes, that’s a significant savings in time when you add it all up,” Dewberry said. The resulting increase in line capacity allows for business growth.

After months of working on site and watching NS trains creep through at 15 mph, **Jim Lamkin**, NS assistant chief engineer construction, said he felt giddy watching trains clear the junction so much faster.

“When you can see trains going through there at twice the speed,” he said, “the significance of this project is obvious.”

### New terminals will add capacity

While improved transit times are key to boosting customer service, the planned intermodal terminals are essential for adding freight capacity.

“Those facilities are really at the root of getting this traffic up and running,” Corletto said. “We have double-stack trains on the corridor today, but we’ll be able to ramp up traffic once we have these facilities in place.”

The corridor terminals are the centerpiece of the \$2.5 billion public-private partnership. The terminals in Tennessee and Alabama each received \$52.5 million from the federal Transportation Investment Generating Economic Recovery fund – the largest single award nationwide under the TIGER grant program.

“From a Class 1 railroad perspective, this is a big deal,” Corletto said. “It sends a message that our public transportation officials finally are seeing rail as a solution to the nation’s transportation dilemma.”

The terminals are scheduled to be completed in 2012, she said.

In August, lead state Pennsylvania, joined by North Carolina, Alabama, Virginia, Tennessee, and Mississippi, applied for \$109.2 million for various Crescent Corridor projects in a second round of TIGER funding, but the federal government did not award money for those projects. The states were seeking grants to support new or expanded intermodal facilities in Harrisburg and Philadelphia, Pa., and in Charlotte, N.C., along with track and signal improvements in Alabama, Tennessee, and Virginia.

As the new terminals open, NS plans to ramp up traffic volume over several years, with 2007 as the baseline year to measure growth, said **Christine Traubel**, NS intermodal group manager planning. In the first half of 2010, NS moved 94,000 revenue loads and empties over the corridor, a 19 percent increase year-over-year compared with 2007.

“Our domestic intermodal business has grown as shippers looking for more efficient and economical transportation choose rail over truck,” Traubel said.

■ BizNS

# Barley-Fueled plant brings new business

A barley-fueled ethanol plant in Hopewell, Va., is bringing new business to Norfolk Southern. The plant opened in August and is the newest facility for Osage BioEnergy.

The facility uses barley and corn to manufacture ethanol. NS hauls those products inbound to the facility, which serves the Richmond, Va., market.

Osage BioEnergy sought NS' help in finding the most appropriate site for the plant. "Osage looked at a number of sites and settled on a former Firestone site in Hopewell," said **Jeff Savage**, NS manager industrial development. "It was a good candidate. The original plant was World War II vintage where tire components were manufactured. It was once rail-served, and the city had demolished the structures. **Jeff Cline**, senior planning engineering, industrial development, worked tirelessly on numerous track designs on numerous properties until Osage finally settled on this site."

A team that included members from industrial development, transportation planning, engineering, marketing, local transportation employees, and others worked with Osage to develop a transportation package and track improvements.

"One issue was to make sure their facility footprint fit the site in the most efficient way," said **Bob Ingram**, NS national account manager. "That included designing rail infrastructure that would accommodate 75-car unit trains for inbound product. It also is near our Hopewell yard that handles a significant amount of local traffic, so we had to consider that in our planning."

"Speed of execution was essential to the success of this project. We had to act on much shorter notice than usual to provide the infrastructure Osage needed," said **Pat Simonic**, director marketing agricultural products. "We met with Osage in November of 2009. They told us that they were going to have to receive most of their inbound raw materials by rail, with startup as early as April 2010. Our team rose to the challenge and made this project happen."

"We have a solid relationship with Osage BioEnergy because we've worked together to develop sites at other locations on our system." Simonic said. "This facility helps expand their reach into more markets and benefit NS as well."

NS expects to move 4,000 carloads annually. ■ BizNS



■ Top: The Osage BioEnergy plant produces ethanol for the Richmond, Va., market.

■ Above left to right: Jeff Cline, Bob Ingram, and Jeff Savage.



■ Above: Mixed freight rolls under a high/wide load detector.

■ Top right: Low air hose detector (yellow), automated equipment identification reader (gold back, grey rectangular front), and a wheel impact load detector (black covers on rail).

■ Bottom right: A hot box detector and a dragging equipment detector.

## Team works to integrate data to make train operations safer, more efficient

Using new technologies to keep Norfolk Southern's trains running smoothly and safely is the goal of a project involving trackside detectors that indicate when there's a problem with equipment.

Managing the project is a team effort of customer service, transportation, mechanical, engineering, strategic planning, information technology, law, and led by research and tests.

"Our goal is to have an integrated system that inspects as many different aspects as possible to eliminate costly train delays and derailments, improve equipment health, and save fuel," said **Bob Blank**, director research and tests.

"Essentially, a detector is anything that automatically measures some aspect of rail car health without human interference," said **Nate Stoehr**, research engineer. "Included are those that register imbalanced loads, wheel temperature variations, car weights, dragging equipment, high/wide loads, low air hoses, wheel profiles, rail car truck performance, and potential roller bearing problems."

Detectors relay information about equipment performance to train crews and dispatchers. Decisions to stop and inspect a train are made according to the information received. Right now, that information goes to individual departments for handling.



“We have to be able to use the data received in a meaningful way,” Stoehr said. “Having an integrated data system gives us the ability to better interpret data relayed from any detector, make a decision as to the extent of the problem, and then take the most appropriate actions.”

One of the objectives of the project is to determine how to get that data dynamically.

“It is more relevant to get data in real time while the train is moving past a detector than when the train is sitting still,” Blank said. “Just as we can now weigh cars as they pass over a scale, we would like to be able to use a similar system to determine if we need to stop a train immediately or if we can move it to the next terminal for inspection. That cuts down on delays that affect our customers and our train plan.”

Some 1,000 hot box detectors that indicate if there is a problem with roller bearings already are part of a common database called the Joint Wayside Diagnostic System. Other railroads use the same system, which makes identifying problems earlier in the process easier.

“JWDS gives us an advantage in that we can share information and work together to determine if there’s a problem,” Stoehr said. “It also tracks what each person in the process did.”

Another advantage of a common data system is to constantly and consistently monitor equipment, according to **Hayden Newell**, manager innovative research. That allows for better decision-making as to how to handle repairs and replacements.

“It’s similar to having your car inspected,” Newell said. “You look at how your tires are wearing or what condition your shock absorbers are in and you make decisions about whether to replace them or wait a while before you do that. We can do the same with our rail equipment.”



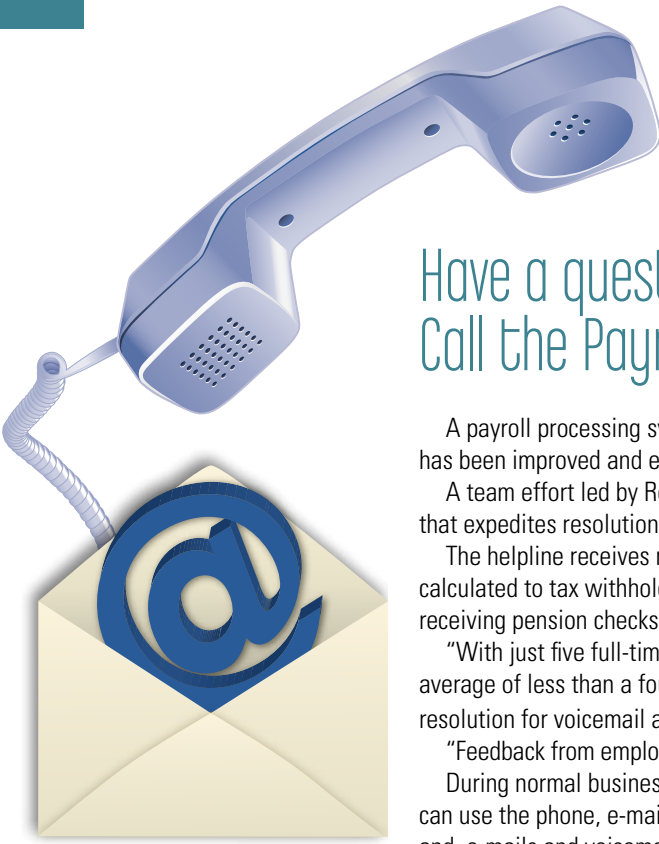
A major goal of the team is to create a mechanical department help desk that would operate 24-7. Data would be sent automatically to the help desk and be interpreted as to what

needs to be done short-and long-term. Experts from the help desk will contact crews and dispatchers to determine if the train can move safely and where to best set the car aside for repairs.

Blank said other technologies are under consideration, including radio frequency identification tags on car parts. Also, an automatic safety appliance inspection system is being tested. It uses cameras to provide a 360-degree look at each rail car and all of the safety appliances on it.

“When we finish this project, we’ll have all of the information we need in one place to make the best determination of how to proceed when we identify an equipment issue,” Blank said. “We can use that information to establish the best maintenance practices and incorporate these into our maintenance plans. We also will minimize train delays, help prevent derailments, save fuel, improve our equipment, and enhance safety, all of which is good for Norfolk Southern and our customers.” ■ BizNS





## Have a question about your paycheck? Call the Payroll Helpline For answers

A payroll processing system launched two years ago for train and engine employees has been improved and expanded to include all employees and retirees.

A team effort led by Roanoke accounting systems, the result is a payroll helpline that expedites resolution of payroll issues.

The helpline receives nearly 250 calls per day. Issues range from how pay was calculated to tax withholding to direct deposit or other deduction questions. Retirees receiving pension checks call with similar questions.

"With just five full-time timekeepers, the helpline has been able to maintain an average of less than a four-minute wait for a live call, and less than 24 hours to resolution for voicemail and e-mail," said **Brian Garber**, senior business analyst.

"Feedback from employees has been positive, even on days when call volume is heavy."

During normal business hours, employees who have questions about their pay checks can use the phone, e-mail, or voicemail to contact the helpline. Calls take top priority, and e-mails and voicemail messages are prioritized according to when they arrive. After normal business hours, employees are asked to leave a voicemail message that is handled by a payroll agent the following day.

The system automatically generates an electronic ticket so the resolution process can be tracked. The payroll representative has immediate access to the employee's historical and demographic data to help resolve the issue quickly. If that is not possible, the issue is assigned to a specialist to expedite resolution. Results are sent via e-mail to the employee.

Data logged from each ticket is collected and periodically analyzed, allowing any widespread issues to be identified and examined in detail.

"This approach allows payroll to handle and track issues in a much more efficient manner. We certainly gained efficiency and accountability using this technology," Garber said. ■ BizNS

### Employees can contact the helpline in the following ways:

- All employees and retirees can call the Payroll Helpline at 1-800-624-4193 between 7 a.m. and 5 p.m. Monday through Friday eastern time, or use e-mail anytime.
- T&E employees with questions about their pay can e-mail the helpdesk either via MEMO by sending a message to [TEPAYHELP](mailto:TEPAYHELP) or via e-mail to [tepayrollhelpdesk@nscorp.com](mailto:tepayrollhelpdesk@nscorp.com).
- T&E employees also can send a request to the helpline using a Web form found on the Employee Resource Center under the "My Pay" tab's "Train and Engine Payroll" link. The Web form is converted to an e-mail for an agent to handle.
- Non T&E craft employees can direct their questions to [ntepayhelp@nscorp.com](mailto:ntepayhelp@nscorp.com).
- Questions about direct deposit, taxes, and miscellaneous deductions from any employee can be sent to [gtnpayrollhelpline@nscorp.com](mailto:gtnpayrollhelpline@nscorp.com).



# 401k

Save Smart. Retire Smart.

## Save Smart. Retire Smart.

Lots of employees are wondering if the Roth 401(k) feature of the TIP or TRIP plan is right for them. Each person has to make this choice based on his or her own circumstances. Is it right for you? Get the facts about Roth 401(k) and use the Roth Assessment Tool on the ERC's 401(k) Information Center. Or contact Vanguard at 800-523-1188 or [www.vanguard.com](http://www.vanguard.com). ■ BizNS

	My Story	Is 401k Right For You?
 <p><b>Lindsey Frazier</b> SAP analyst</p>	<p>I've been with NS a few years, but retirement is a long way off. I think I have a great future with the company.</p>	<p>Roth 401(k) may be preferable since you are young and if you think your career growth means you'll be in a higher tax bracket down the road. With Roth, you won't have to pay taxes on the earnings growth if you take a qualified distribution. Plus with compounding, the earnings on your investments are likely to be the majority of your account.</p>
 <p><b>Patrick Rickard</b> manager transportation training</p>	<p>I'm buying a house, so take-home pay is important. But I still want to save for retirement.</p>	<p>Maybe, but contributing the same payroll percentage to your Roth 401(k) will result in lower take-home pay than pretax contributions. Check out Paycheck Modeling on the ERC to see the difference and whether it's affordable to you right now.</p>
 <p><b>Pam Hudson</b> manager service measurement</p>	<p>I'll be retiring in a few years, and all of my current 401(k) savings are pretax.</p>	<p>Generally, pretax contributions would be a better choice if you expect you'll need to use the 401(k) funds within five years. Also, you would lean toward pretax if you expect to be in a higher tax bracket today than in retirement. However, tax diversification may be a good idea, so if you think you'll keep a portion of your 401(k) savings for at least five years, contributing some to Roth could be a good strategy.</p>



#### ON THE COVER:

*The Heartland Corridor project was a public-private partnership between Norfolk Southern, the federal government, and the states of Virginia, Ohio, and West Virginia. Its completion means that double-stack trains travel more efficiently between Norfolk and the Midwest, bringing improved service to NS customers and economic growth to communities along the route.*

*BizNS* presents an in-depth look at the challenges and opportunities Norfolk Southern faces. It is produced by the Corporate Communications Department.

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## 2011 Calendar winners announced

Winners of this year's calendar contest are: **Kristie Dibeau**, assistant product manager, marketing, metals and construction, Roanoke; **Roger Durfee**, conductor, Cleveland Terminal; Locomotive Engineer **Willie Brown**, Powhatan Point, Ohio; Locomotive Engineer **Jim Haag**, Enola, Pa.; Don Woods, road foreman of engines, Altoona, Pa.; **Mark Shull**, machinist, Charlotte Roadway Shop; **Christopher Rotondo**, locomotive engineer, Mingo Junction, Ohio; Signal Maintainer **Ty Burgin**, Irondale, Ala.; **Brad Brenneman**, sourcing analyst, material management, Roanoke; **Michael Breen**, project engineer, design & construction, Atlanta; **Rich Borkowski**, train dispatcher, Green Tree, Pa.; Locomotive Engineer **Bill Gantz**, Powhatan Point, Ohio; **Casey Thomason**, formerly a locomotive engineer, Columbus, Ga.; Locomotive Engineer **Willie Brown**, Powhatan Point, Ohio; and Machinist **Sam Wheland**, Juniata Locomotive Shop.

This was a significant year for Casey Thomason. He submitted his 14th winning calendar shot, and he later was hired as a visual communications specialist working as a full-time photographer for NS.

Norfolk Southern 2011 calendars can be purchased for \$12.99 (including tax, postage, and shipping). For international shipments add \$12 for shipping costs. To order by credit card, call toll-free 1-800-264-4394 between 9:00 a.m. and 5:30 p.m. eastern time. ■ BizNS

#### Or send a check or money order to:

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■ 2011 Calendar Cover photo by Kristie Dibeau.

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