AUTONOMOUS CARS: THE FUTURE OF FREIGHT? p. 22

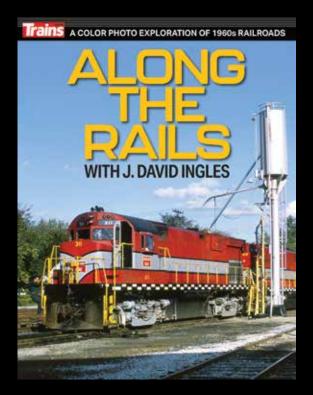


Amtrak
deals with
a harsh
winter p. 5
Rail gains
ground in
Panama





Travel back to a time (and a place) that no longer exists with a collection of scenes as captured by well-known railroad photographer J. David Ingles. Dave's 1960s images are bold, colorful, and filled with details which capture stunning scenes.



Featuring the trains and locomotives of more than 90 railroads, this 224-page book includes 200+ photos from *Classic Trains* magazine's Ingles Color Classics series and other features. The images were taken as long-time *Trains* magazine staffer Dave Ingles traveled to various cities throughout the country, capturing railroading as it was in the 1960s. You'll find inspiration with the many different scenes, events, and features of this popular era.

With each image you'll find:

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Features



COVER STORY Carolina Coastal's winning moves p. 12

Growing a local short line into a Regional Rail star Scott A. Hartley



Are autonomous freight cars in railroading's future? p. 22

Several companies are exploring self-guided and self-propelled railcars Bill Stephens



The California Zephyr turns 75 p. 30

Showing what a passenger train can be for three-quarters of a century Bob Johnston



Desert railroading at its finest p. 40

Exploring nearly the final leg of **BNSF's Chicago-Los Angeles** main line David Lustig



Gallery p. 56

Images of contemporary passenger railroading from the lenses of Trains readers

ON THE COVER:

A Carolina Coastal Railway freight rumbles over the long bridge across the Pamlico River at Washington, N.C. Scott A. Hartley

In every issue

Trains.com p. 4

Guide to the latest on the web

News p. 6

Amtrak deals with significant weather-related service disruptions in a harsh winter

Bill Stephens p. 10

The CPKC merger has shaken the industry in many ways

Preservation p. 48

New trackage for WMSR; Seaboard steam 2-10-0 rehab



Travel p. 52

The Texas State Railroad combines a 4-hour train ride with a family-friendly atmosphere

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From the Editor



Carl Swanson

cswanson@kalmbach.com X @TrainsMagazine @ @trains_magazine

his month's cover asks if autonomous (that is, unmanned,

battery-electric, and self-propelled) freight cars are in the future. The answer seems to be a firm "maybe."

Starting on page 22, Bill Stephens profiles three startups with very different approaches to autonomous freight operation. Which has the best shot at commercial viability? Do any of them?

It's possible the concept will prove a dead end. Even if that's the case, it's always a good idea to explore new approaches. In railroading, standing still is not an option.

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Thomas the Tank Engine is ready for action. This year's tour for Day Out With Thomas events is bubble-themed. Mattel

Thomas the Tank Engine, a classic event

CALLING ALL GRAND KIDS: Thomas the Tank Engine is a fictional character living on the make-believe island of Sodor. With his human-like qualities and ability to talk, Thomas is a cute steam-powered locomotive that has mesmerized children for generations from within illustrated books and the long-running television series Thomas & Friends.

Thomas is a small but vital, strong-willed engine that wants to be useful on the Sodor Railway. With railway manager Sir Topham Hatt and other engine friends to help him out, Thomas bravely maneuvers through risky situations and succeeds at completing his adventures safely. This shiny blue engine has become a role-model that has morphed into a common icon for today's railroads and train museums to utilize for children's events.

As an endearing image for children, the Day Out With Thomas events — licensed by Mattel — have grown nationally and are conducted at many locations throughout the United States, as well as in other countries.

On Trains.com, there are schedules of Day Out With Thomas events (and other popular attractions like The Polar Express) for reader convenience. Go to the Tourist Profiles section under the Railroad & Locomotives tab. The 2024 tour is bubble-themed and the locations are promoting ticket sales/dates. - Nastassia Putz, Trains.com production editor



Explore the mysterious world of private cars

PRIVATE CARS — also called private varnish - is a side of railroading that is a mystery to many. Imagine being trackside

one day and seeing a historic passenger car attached to an Amtrak train. Who's in that car? Where are they going? How are they able to do that? What does it cost? These are questions that Model Railroader Associate Editor Bryson Sleppy has pondered time and time again.

Bryson has written several articles on this topic that are located in the History section under the Railroads & Locomotives tab on Trains.com. There is also a QR code located



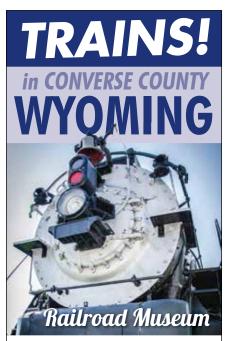
The Milwaukee Road Super Dome in front of Denver Union Station. Bryson Sleppy

above by the image of the Super Dome, which will take you to a behind-the-scenes video on private cars. Happy exploring! - NP



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The Douglas Railroad Museum & Visitor Center in Douglas, Wyoming is housed in the historic FE & MV Railroad Passenger Depot. It is surrounded by seven historic railcars, including the Chicago Burlington and Quincy Railroad 4-8-4 Steam Locomotive #5633.

Visitors are invited to go inside many of the rail cars, including a day coach, a dining car and a sleeper, as well as a little red caboose!



1911 bridge, built by the American Bridge Company, is reminiscent of the railroad that once ran through Glenrock. Today the rail ballast, including the bridge, serve as a walking path through the community.



From Highway 59, mile-long coal trains can be seen crossing a bridge above the highway. As travelers make their way toward Bill, 35 miles north, trains frequent the north-south tracks to and from the Powder River Basin which supplies much of the nation's coa

And venturing a little further north, off Antelope Coal Mine Road, enthusiasts will appreciate a birds eye view of Wyoming coal mining and trains at work.



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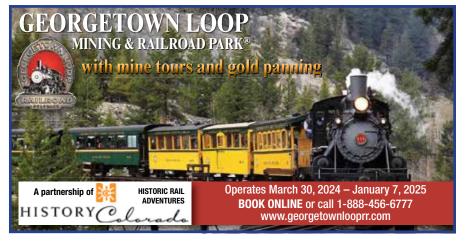
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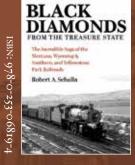






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Weather leads to cancellations from coast to coast, but equipment is also a factor

▲ Amtrak's first Empire Builder in more than a week - after a series of weather cancellations - departs Chicago on Jan. 20, 2024. Bob Johnston

rupted service across Amtrak's

HARSH WINTER WEATHER dis-

network from California to the Northeast Corridor in January, as the passenger operator dealt with conditions ranging from extreme cold to excessive rain.

Hardest hit was the *Empire* Builder, cancelled for more than a week for the second straight winter. The train didn't operate Jan. 11-19, 2024. Elsewhere, BNSF Railway's Seattle-Portland, Ore., artery was blocked by mudslides on three occasions, forcing multi-day cancellations of Amtrak Cascades service and termination of the Los Angeles-Seattle Coast Starlight at Portland. That train was cancelled outright north of Oakland, Calif., for nearly a week by a series of storms. Rains also disrupted Pacific Surfliner service when a slide in San Clemente, Calif., forced cancellations and bus substitutions.

In the east, lake-effect snow buried western New York, leading to cancellations of the Lake Shore Limited and Empire Service trains west of Schenectady and Albany-Rensselaer. There were also Northeast Corridor disruptions principally caused by signal outages.

Operating decisions are made jointly by Amtrak and the host railroad. "Conditions often take days to resolve, with freight trains filling sidings and blocking main lines," Amtrak spokesman Marc Magliari tells Trains, adding, "We don't make [cancellation] decisions lightly and only do so after hearing what the host railroads can support."

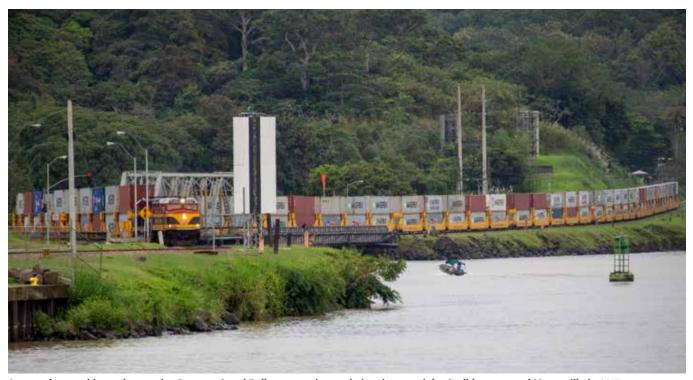
Improved forecasting has no doubt played a part. An employee advisory from Amtrak management notes 10% of scheduled trains "were proactively cancelled between Jan. 6 and 23," and said the company feels it is best to cancel if "bad weather is going to put our ability to serve customers or complete trips at risk." This avoids cascading impacts such as crews and equipment being out of position.

Different this year, though, is that a large number of trains were delayed or cancelled by a lack of mechanically sound equipment. As temperatures plunged below zero, Chicagobased service was hit especially hard. Beginning Jan. 7, Amtrak cancelled 18 trains over three days, a list that grew later that week. Few trains operated the following weekend when Midwest states issued travel advisories, but delays persisted after weather challenges diminished. Beginning Jan. 16, 23 trains in a

three-day period sustained cumulative departure delays of more than 34 hours. The Southwest Chief and California Zephyr each had a departure more than 3 hours late; Michigan's Blue Water, whose equipment makes a same-day turn at Chicago after minimal overnight servicing at Port Huron, departed more than a half-hour late for six days; the average delay was 2 hours.

Amtrak's Magliari says the company "has a team that drills to the root cause of mechanical issues on cars and locomotives long out of production," as well as working with vendors on equipment still being built to improve reliability with physical and software changes.

A contributing factor, however, is clearly insufficient standby rolling stock. Management's decision starting in 2021 to only restore enough pre-pandemic capacity outside the Northeast Corridor for low-demand patronage periods has left it without a cushion. Historically, spare cars were available in winter but now trains must wait for whatever rolling stock is available to be fixed — or not leave the station at all. Unlike the weather, investment is something Amtrak can control. — Bob Johnston



As seen from a ship on the canal, a Panama Canal Railway container train heads toward the Caribbean port of Manzanillo in 2017. David Lassen

Canal issues lead to new rail traffic

Panama Canal Railway gains container activity because of drought; Asia-Europe traffic seeks alternatives to avoid conflict along route via Red Sea, Suez Canal

UNIQUE CIRCUMSTANCES at major canals are seeing rail lines draw container traffic away from ships.

The Panama Canal Railway, partially owned by Canadian Pacific Kansas City, is seeing increased container traffic because of drought conditions affecting canal water levels, while global conflict is diverting some traffic that normally would travel by ship through the Red Sea and the Suez Canal.

The 37-mile Panama Canal Railway normally handles about 300,000 containers per year, mostly for regional transshipment for Central, South American, and Caribbean markets. But the railway saw a 20% increase in container traffic last summer as drought altered shipping patterns, and in January, its largest container shipper, Maersk, announced shipments bound to and from Australia and New Zealand would be diverted to the railway.

"Based on current and projected water

levels in Gatun Lake, the Panama Canal Authority has needed to make reductions to the amount and weight of vessels that can pass through the canal," Maersk said in an advisory, adding that it had "made changes to services to ensure that our customers are impacted as minimally as possible," and that the rail line would become a "land bridge" replacing ship traffic through the canal.

"This creates two separate loops, one Atlantic and one Pacific," the advisory explains. "Pacific vessels will turn at Balboa, Panama, dropping off cargo heading for Latin America and North America and picking up cargo heading for Australia and New Zealand. Atlantic vessels will turn at Manzanillo, Panama, dropping off cargo heading for Australia and New Zealand and picking up cargo heading for Latin and North America."

Most of the new volume last year came from shipping lines that did not regularly

use the railroad. More such traffic could be coming, CPKC CEO Keith Creel said at the Midwest Association of Rail Shippers Winter Meeting.

"We never had this opportunity set before — not only to continue to do business with our primary customer there, which is Maersk ..." Creel said, "but also for the other steamship lines that we have a very material commercial relationship with to enter into negotiations and discussions about bringing more traffic to that railway to grow."

It's why, Creel said, the Panama Canal Railway has proven to be one of the pleasant surprises of the CPKC merger. Kansas City Southern and Mi-Jack, a builder of gantry cranes, were awarded a 50-year concession to operate the rail line in 1998.

"We've got one customer, it's making money, it's doing well. It was a great investment. But in my head, I said, how do you

NEWS PHOTO

grow it? But little did I know. You don't know what life has in store for you."

RED SEA DISRUPTION

Meanwhile, the conflict in the Middle East and attacks by Houthi rebels in Yemen on shipping in the Red Sea have led some companies to seek rail alternatives for routes between Europe and Asia. About 20% of all global trade — and 30% of global container traffic — normally transits the Red Sea and the Suez Canal, including goods from Asia for Europe and North America's eastern seaboard. In an average week, nearly 400,000 TEUs (20-foot container equivalents) travel between Asia and these locations. Ships traveling this route between Chinese ports and northern Europe can do so in about 26 days; longer routes around Africa add 10 days or more. The shipping attacks have seen the cost of sending a 40-foot container rise, reportedly to more than \$7,100 from less than \$3,000 in December, with insurance costs also rising substantially. The disruption to supply chains has led to some temporary factory closures as parts from Asia have been delayed.

Rail freight between China and European countries had grown over the last decade, with much of it routed via Russia's Trans-Siberian railway. But the Russian invasion of Ukraine led to creation or promotion of alternatives. Despite less use of the Trans-Siberian route, nearly 20,000 trains were dispatched from Chinese cities to Europe by all routes in 2023, carrying around 2 million containers; this includes those destined for Russia, but also those using new routes avoiding Russia. By rail, a container can reach Poland or Germany from China in as few as 12 days via Russia or around double or triple that via the newer, more complex routes.

Rail freight rates between China and Europe were averaging around \$4,200 per container in late 2023, but that has risen to about \$6,000 — if space is available, as many trains are fully reserved far in advance. However, unlike the largest container ships, which can carry over 23,000 TEU (or around half that number of 40-foot containers) the average international freight train on a China-Europe route is capable of handling 80 to 100 TEU (40 to 50 40-foot containers). Even if there were unlimited numbers of suitable freight cars, locomotives, and crews, it would take thousands of trains to replace one large container ship.

As of late January, neither the drought in the Panama Canal nor the troubles in the Suez Canal had resulted in steamship lines diverting traffic to U.S. West Coast ports, Class I railroad executives said on their fourth-quarter earnings calls. — Bill Stephens and Keith Fender.



HOMAGE IN SASKATCHEWAN The colors of the Saskatchewan flag — applied in a scheme resembling that of the 1970s Reading Co. design - adorn Great Sandhills Railway SD38-2 No. 2022 after painting by Metro East Industries in East St. Louis, III. Mark Mautner

NEWS BRIEFS

Senate, for the first time since 2015, approves Amtrak board nominees

The U.S. SENATE confirmed nominations to the AMTRAK board of directors for the first time since 2015. In votes on Jan. 24, it reconfirmed Anthony Coscia, the current board chairman, while finally confirming three-time nominee Christopher Koos, mayor of Normal, Ill., as well as first-time nominee Joel Szabat, who as a member of the **DEPARTMENT OF TRANSPORTATION** served on the board as the representative of Transportation Secretary Elaine Chao from June 2019 to January 2021. The confirmation votes came after U.S. Sen. Jerry Moran (R-Kan.), assured that the White House would address geographic-balance requirements for the board required by law. lifted his hold on the nominations.

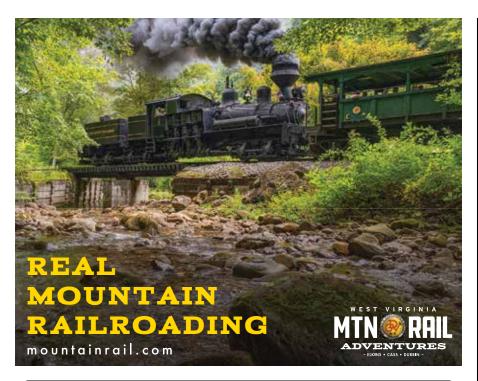
AMTRAK CSX TRANSPORTATION NORFOLK SOUTHERN, and the PORT OF MOBILE assured the SURFACE TRANSPORTATION **BOARD** they were working toward Amtrak service between New Orleans and Mobile, Ala., and asked the board to cancel a planned Feb. 14 hearing on delays in launching that service. The board, which called for a detailed status report and invited the CITY OF MOBILE to participate in the hearing because of concern over "apparently unresolved negotiations" over a station site, had not yet indicated status of the hearing at deadline. The city is not a party to the settlement, but owns some of the land needed for a pocket track and platform where trains would lay over without blocking the CSX main line.

CANADIAN PACIFIC KANSAS CITY an-

nounced the schedule for the "Final Spike" Anniversary Steam Tour," sending 1930 Montreal Locomotive Works 4-6-4 No. 2816 on a Canada-to-Mexico trip to celebrate the first anniversary of the Canadian Pacific-Kansas City Southern merger. The trip begins April 24 in Calgary and concludes June 4 in Mexico City, with nine intermediate stops, seven of them in the U.S. A full schedule is at www.cpkcr.com/en/ community/final-spke-steam-train, Watch Trains for more details.

South Florida commuter operator TRI-RAIL began service to **BRIGHTLINE**'s downtown MiamiCentral station on Jan. 13, running shuttles from its Metrorail Transfer Station in Hialeah to the downtown terminal. MiamiCentral, which opened in May 2018, was built with two tracks for Tri-Rail service, but service had been delayed by issues ranging from problems in positive train control certification for FLORIDA EAST **COAST RAILWAY** to platform clearance issues for some Tri-Rail equipment.

NORFOLK SOUTHERN became the first Class I railroad to join the FEDERAL RAILROAD **ADMINISTRATION**'s Confidential Close Call Reporting System in a one-year pilot program with the BROTHERHOOD OF LOCOMO-TIVE ENGINEERS AND TRAINMEN and SMART-TI. The program allows NS employees to report safety concerns while knowing the reports will not result in discipline.



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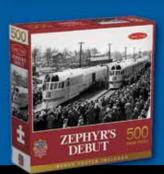


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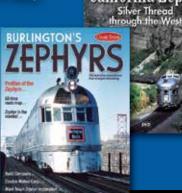
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Let's count the ways CPKC shook the industry



Bill Stephens bybillstephens@gmail.com Analysis: Trains.com

Competitive responses from other railroads are an encouraging development

> ast year's merger of Canadian Pacific and Kansas City Southern, the two smallest Class I systems, has turned out to be a big catalyst for railroad competition.

Skeptics have scoffed at Canadian Pacific Kansas City's meandering route from the Midwest to the Mexican border at Laredo, Texas. It's longer and slower than the rival main lines of Union Pacific and BNSF Railway. Plus, CPKC doesn't control its own destiny across Texas. It relies on UP trackage rights between Beaumont and Rosenberg, on the western outskirts of oft-congested Houston, and then again between Victoria and Robstown.

Some observers wisecrack that CPKC's route is the fourth best of the three that connect Chicago and the Mexican border. What they ignore is that the shoe is on the other foot south of the border, where CPKC de Mexico's routes to Monterrey and the Mexico City area via Laredo are shorter than those of Ferromex via Eagle Pass, Texas.

Nonetheless, the other railroads are taking the underdog CPKC quite seriously. Just look at their responses to CPKC's flagship Mexico Midwest Express intermodal trains, which were launched in May and link Chicago and points in Mexico.

Canadian National, UP, and Ferromex teamed up for Falcon Premium intermodal service. Their cross-border trains — introduced the week after CPKC's MMX — connect CN's terminals in Canada and Detroit with points in Mexico. UP CEO Jim Vena tightened the trains' schedules by a day when he arrived in Omaha in August.

BNSF Railway and partner J.B. Hunt in December shifted their cross-border intermodal business away from CPKC's Laredo gate-



A Canadian Pacific Kansas City Mexico Midwest Express intermodal train rolls through Moline, Ill., on July 31, 2023. Erik Rasmussen

way to Eagle Pass and Ferromex. The new route is 24 hours faster.

In a move that will create a new interchange and interline service between the Southeast and Mexico, CPKC and CSX in May announced that they will acquire and operate Genesee & Wyoming short line Meridian & Bigbee. The short line fills the 168-mile gap between CPKC at Meridian, Miss., and CSX at Montgomery, Ala., and creates competition for CPKC-Norfolk Southern interline service between the Southeast and Mexico.

UP responded to this development by announcing new interline intermodal service linking Mexico with CSX, NS, and Florida East Coast terminals in the Southeast via Memphis. The service relies on rubber-tiring boxes between Memphis terminals, which is not ideal. But it does give UP's intermodal customers a head start against the eventual CPKC-CSX service.

Elsewhere, CN and NS in September announced joint intermodal service connecting CN's terminals in Canada with NS terminals in Kansas City and Atlanta via steelwheel interchange at Detroit and Chicago. Also in September: CN began intermodal service linking Mexico with the Midwest and Canada in a partnership with Crowley, whose container ships sail weekly between the Port of Mobile, Ala., and Tuxpan, Mexico.

One rail executive says Class I railroads have hatched more interline deals in the past 10 months than they did in the past 10 years. The common thread among all these new joint services? They could have been created years ago. But railroads instead chose to sit on their duffs.

CPKC CEO Keith Creel chalks this up to inertia. "When you're not challenged — and this is human nature, this is railroading nature, this is any business nature, this is competitive sport nature, this is just a fact of life — sometimes complacency can set in," Creel told the RailTrends conference in November. "And this industry is in a place where we needed to be better. We need to be better for all stakeholders, not just our own, but for this nation."

Creel's analysis is spot-on. But there are two other reasons behind the interline uptick.

First, CSX, NS, and UP all looked inward from 2017 through 2020 as they pruned joint services while adopting Precision Scheduled Railroading. The focus was on cutting, not adding, although there were exceptions, such as CSX-CN joint intermodal service linking the ports of New York, New Jersey, and Philadelphia with Toronto and Montreal.

Second, railroads have recovered from the widespread crew shortages that snarled traffic in 2022 and the first half of 2023. No rational railroad would embark on a new service it couldn't deliver.

CPKC has shaken up the industry. Let's hope complacency is out — and more cooperation and competition are in. I

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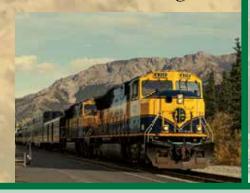


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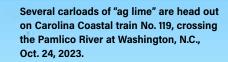
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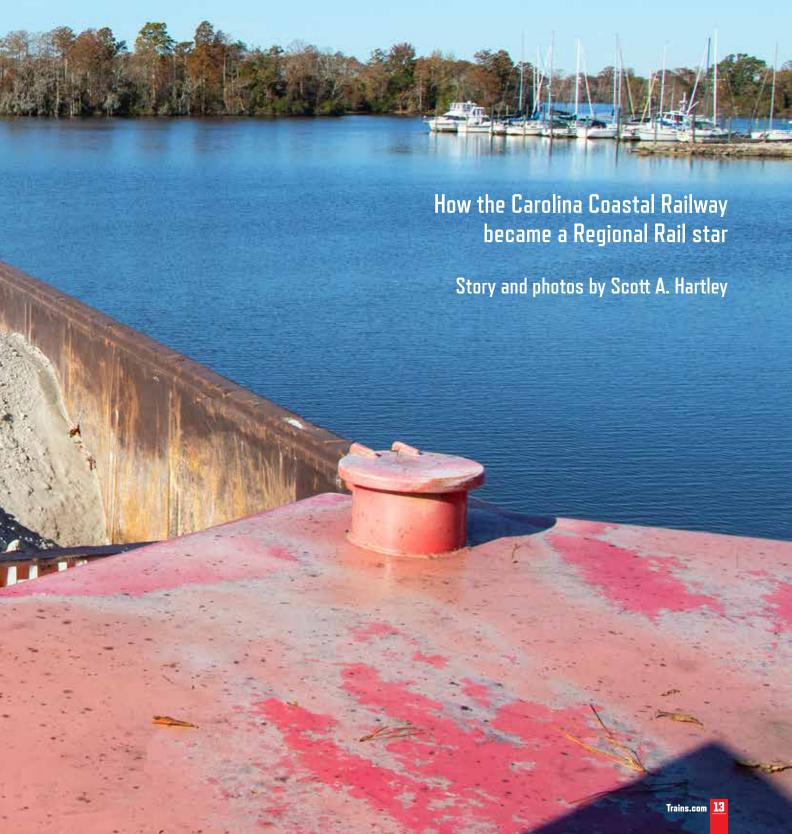
SPECIALINTEREST TRAINS







a local short line



long cut of gondolas loaded with agricultural lime trails the GP9R leading Carolina Coastal Railway train No. 119 across the 3,207-foot trestle over the Pamlico

River at Washington, N.C. Delivering Tennessee "ag lime" to eastern North Carolina customers is just one aspect of today's 180mile Carolina Coastal (CLNA), part of shortline holding company Regional Rail, LLC, since 2020. Regional Rail, headquartered in Kennett Square, Pa., was founded in 2007, and now has 15 short lines and switching operations in the U.S. and Canada. Other well-known properties include East Penn, Middletown & New Jersey, and Florida Central.

Al Sauer, Regional Rail president and CEO, says the Carolina Coastal purchase involved "a really good business, with a good team," adding that the new addition offered opportunities to grow business.

History

Carolina Coastal had small beginnings, starting as a 17-mile short line close to the ocean, passing through four owners, expanding on new trackage, growing business, and even now increasing operations.

All but 20 miles of Carolina Coastal's lines are leased from the Norfolk Southern Railway. And all of that was part of a much earlier Norfolk Southern Railway. That original Norfolk Southern was a system that reflected the territory it served. Running south from Norfolk, Va., it soon entered North Carolina and extended south to New Bern and west to Raleigh and Charlotte, eventually operating more

than 900 route-miles. The Southern Railway purchased the original NS — by then down to 622 route-miles — in 1974, giving the large railroad access to the seaport city of Norfolk. The old NS route saw upgrades and added traffic under its new owner. The old Norfolk Southern name was revived in 1982 for use by the merged Southern Railway and Norfolk & Western.

The direct route to Norfolk was an early merger casualty. The 5-mile trestle over Albemarle Sound, just north of Plymouth, N.C., was taken out of service in 1987. Other segments already had been cast off. As often happens following a large merger, the new Norfolk Southern began to shed segments of the original NS as early as 1983. Today's 150-mile Aberdeen, Carolina & Western [see "Sleepy short line to busy unit train host," June 2017] is made up of mostly original NS track west of Star, N.C. Similarly, eastern segments of the old NS were taken over by new short lines.

Norfolk Southern continued to operate the "old NS" tracks that now constitute Carolina Coastal for a while longer. Change began in 1989 when Rail Link, Inc., now a rail switching unit of Genesee & Wyoming, leased the 17-mile branch between Pinetown and Belhaven, N.C. Rail Link operated the lightly trafficked line as the Carolina Coastal Railway.

The Golden years

Enter Douglas Golden. A University of Virginia grad, Golden worked for Amtrak in marketing and government affairs in the carrier's early years before joining rail consulting and engineering firms. The latter experience taught him much about

freight operations, he says, and in 2001 he began operating the Landisville Terminal & Transfer, a 2-mile short line near Lancaster, Pa. Under his management, the railroad's annual car count increased from 60 to 1,300 over an eight-year period.

Golden says he began looking for opportunities that would not cost much, but offered chances to grow on-line business. "In 2003, I had learned about a line in North Carolina." That line was the Carolina Coastal. "It was being served only every two weeks, and there was almost no business left." Norfolk Southern was willing to transfer the line's lease, and Golden acquired Carolina Coastal in July 2003, running the line with a GP10 locomotive that came with the deal and two part-time employees.

Initially, it didn't seem like a good investment: "In the first six months of operation, we carried nine cars," Golden says.



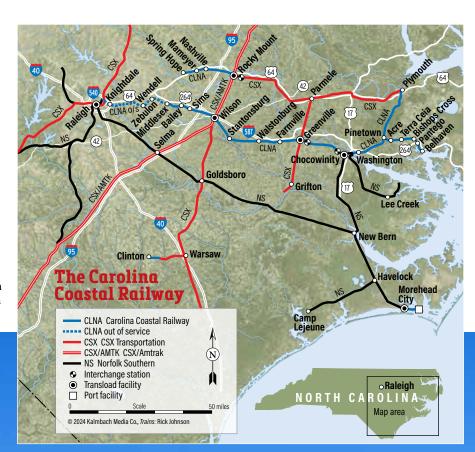
Freshly painted GP15-1 No. 1501, a former Missouri Pacific unit, wears CLNA's new scheme, similar to that of the original Norfolk Southern. Carolina Coastal Railway, Kashawn Corey



But he had a long-term strategy: Norfolk Southern had two nearly parallel eastwest main lines in eastern North Carolina — the "old Norfolk Southern" main, and the state-owned line to the south running through Selma, Goldsboro, and New Bern to Morehead City. He reasoned that NS probably would do what major railroads were doing and eliminate one of them. He predicted that the old NS route through Wilson would be cast off, and he was right. Golden says he and his team had grown business on the 17-mile Carolina Coastal, moving 1,200 cars in 2006.

"I thought if I do really well there, Norfolk Southern will come to me." He was again right. Golden's Main Line Rail Management entered into a lease with NS, and the greatly expanded Carolina Coastal began operating from Plymouth through Pinetown and Chocowinity to Raleigh in July 2007.

GP9R No. 4630 leads train No. 119 past soybean fields on Carolina Coastal's original trackage, the 17-mile Pinetown-Belhaven branch, at Acre, N.C., on Oct. 24, 2023.







Carolina Coastal train No. 114 prepares to depart the railroad's main yard at Wilson, N.C. Lead unit No. 2177 is a former Southern Railway GP38 converted to Dash 2 status by Norfolk Southern.

Carolina Coastal Railway's current logo is in the same shape as the original Norfolk Southern Railway logo. The original NS once operated most of CLNA's system.



"We had grown from 17 miles to 159 miles overnight," Golden says. He recalls the newly acquired trackage as "a good piece of railroad," much of it with welded rail, upgraded in the early 1980s. Norfolk Southern retained, and still operates, its original Norfolk Southern Railway line from Chocowinity south to New Bern.

CLNA continued to use Norfolk Southern mileposts, and the line is considered timetable south all the way to Raleigh. CLNA picked up NS interchanges at Chocowinity and Raleigh, and CSX interchanges at Greenville and Wilson. CLNA trains operate through Chocowinity and the yard there on 5 miles of Nor-

folk Southern trackage rights. Today, Chocowinity is CLNA's only active NS interchange point. At Phosphate Junction, at the north end of Chocowinity, a 25-mile NS branch diverges south to reach mining operations at Lee Creek. Both NS and CSX continue to use the line today. CSX trains operate at night using Carolina Coastal trackage rights from Greenville to reach the branch.

The expanded Carolina Coastal established its headquarters in Wilson, added locomotives and staff, and started seeking new business. Rock from a quarry south of Wilson, which had moved by truck, started rolling in CLNA freight trains.

Similarly, the railroad began to handle woodchips from Sims to a paper mill at Plymouth. The railroad pursued other local freight moves, all truck-competitive, Golden says. "Big railroads wouldn't do it for this margin."

Seventy-five secondhand gondolas and covered hoppers carrying CLNA reporting marks were purchased to ensure a good car supply for customers. "When agricultural lime traffic from Tennessee looked like it would reroute via truck, CLNA built a transload terminal that not only retained this business, but expanded market reach to gain additional new business," Golden says. In its last year on the route, NS



Carolina Coastal locomotive roster Model Heritage Location No. 106 GP7 Algoma Central Morehead City **New York Central** Clinton Branch SW8 GP10 Illinois Central 486 Morehead City Missouri Pacific 1501 GP15-1 Main Line 1502 GP15-1 Missouri Pacific Main Line GP38 2068 Chesapeake & Ohio Nash County 2177 GP38-2 Southern Main Line 4012 GP9RM Canadian National Main Line 4609 GP9R Central Vermont Main Line 4612 GP9R Central Vermont Main Line 4624 GP9R Grand Trunk Western Main Line 4628 GP9R **Grand Trunk Western** Main Line 4630 GP9R **Grand Trunk Western** Main Line 7003 GP9RM Canadian National Nash County 7048 GP9RM Canadian National Nash County 8311 GP10 Union Pacific Morehead City Note: All locomotives built by EMD or GMDD



Carolina Coastal GP9RM No. 7033 and GP38 No. 2068 are seen at Nashville, N.C., on Oct. 22, 2023, along the railroad's Nash County Subdivision. This former Atlantic Coast Line trackage connects with CSX at Rocky Mount, N.C.

moved 4,000 cars, according to Golden. Within four years, CLNA's annual car counts exceeded 10,000.

In 2010, Carolina Coastal assumed the lease and operating rights from shortline holding company Gulf & Ohio to switch the railroad at the state-owned Port of Morehead City (see page 19). The following year, Golden purchased the Gulf & Ohio's Nash County Railroad, a 16-mile former CSX branch west of Rocky Mount, N.C. He arranged for CSX to move Carolina Coastal freight traffic between the isolated Nash County Subdivision and other CLNA points at haulage rates. Traffic that had been trucked between agricultural facilities on the Belhaven Branch and the Nash County began using this all-rail routing.

"These are the type of things short lines do to make business," Golden says. He also established a haulage agreement with Norfolk Southern to move loads between the Port of Morehead City and locations on CLNA.

There were challenges — some customers moved or shut down. In 2015, CLNA's largest revenue source, a woodchip producer, suffered a fire and didn't reopen.

"We developed enough other business to offset the loss. We did not take a big drop," Golden says.

New owners

"I was getting past retirement age," Golden says of his decision to sell the railroad that he spent nearly two decades building. "I was looking for a buyer for three years." He says that he had several offers. "But I was looking for a deal that would be the best for our employees. Our company was what it was because

Sporting the road's locally inspired paint scheme of Tarheel blue and Wolfpack red, CLNA GP9R No. 4630 crosses a tributary of the Pamlico River at Washington, N.C., Oct. 23, 2023, with loads of agricultural lime.



of its employees. I took the deal that would be the best for the people there." In March 2020, Carolina Coastal Railway joined the growing list of short lines and switching operations owned by Regional Rail, LLC.

Four years after the sale, Golden's final management team remains in place. "They were already running a good railroad," Regional Rail CEO Al Sauer says. "We didn't feel the need to change." It's a corporate practice: "This is part of our growth strategy," says Sauer. "We have kept everyone from every purchase we have made."

Today's railroad

Carolina Coastal headquarters remain in Wilson, about 50 miles east of Raleigh. Once a tobacco-growing center, agriculture remains important in the Wilson region, with manufacturing and service

industries also contributing to the local economy. Railroads reached the city early, and today Amtrak's Palmetto and Carolinian use CSX's former Atlantic Coast Line to stop there. CLNA's offices and main yard are located southeast of downtown. A modular building houses all local functions. The railroad's shop is an open-air canopied area. CLNA serves 47 active customers, moving 15,000 cars in 2023. Commodities includes rock, lime, scrap, steel, lumber, propane, chemicals, fertilizer, and a variety of agricultural products. All tracks can handle industrystandard 286,000-pound cars. Maximum authorized speed is 25 mph. Train dispatching is contracted to RailTerm in Rutland, Vt.

Alan Bridgers, CLNA general manager, grew up in Wilson and says he always want-

ed to be a railroader. He landed his first train service job on the Eastern Shore Railroad in Norfolk, Va. Within weeks of being hired, a Class I offered him a position, but even after that short time he realized he liked working for a smaller railroad. He moved closer to home in 2001, running trains on the Nash County Railroad, now CLNA's Nash County Division. Following Golden's purchase of NCYR in 2011, Bridgers found himself working on the Carolina Coastal in his home town. He later worked as trainmaster, and was promoted to general manager in 2018.

Operations Manager Christopher Carr also has local roots. Growing up in Plymouth, N.C., he had early exposure to what someday would be his railroad. He benefited from early training provided by his father, Jay Carr, a veteran shortline rail-



The Morehead City Subdivision

The railroad reached today's Morehead City in 1858, Just 4 miles from the Atlantic. Morehead City remains a natural port and commercial fishing center. The Port of Morehead City is the smaller of two deepwater ports overseen by the North Carolina State Ports Authority. The 128-acre, nine-berth port is a breakbulk, bulk, and warehousing facility, serving both foreign and domestic trade. Carolina Coastal Railway has served the port since 2011. The railroad's Manager of Port Operations, John Odham, who retired at the end of 2023, had worked for CNLA and its predecessors since 1988. The port is 120 miles south of CNLA's Wilson headquarters, so the operation has its own team of six railroaders. They shift cars on the 9 miles of track in the port and adjacent Radio Island, working five or six days a week, but sometimes around the clock. Today's Norfolk Southern delivers and picks up cars three days a week. Odham says that the crew moves potash, fertilizers, coke, steel coils, lumber, rubber, and a variety of grains. Notable are imported rail for U.S. railroads and even new EMD locomotives en route to overseas customers. The most prominent feature of the port railroad is its long bridge over the Newport River, alongside U.S. 70. A bascule span allows passage of watercraft. CLNA crews must receive radio permission from the Port's bridgetender prior to crossing. - Scott A. Hartley



On Oct. 25, 2023, Carolina Coastal GP10 No. 8311 switches cars at Radio Island in Morehead City, N.C., part of the railroad's service to the Port of Morehead City. Being 120 miles from the Wilson, N.C., headquarters, the port has its own crew of six that work five to six days weekly.

roader and manager, who currently is the regular engineer on CLNA train No. 119. Bridgers' and Carr's local knowledge is evident as we follow the Belhaven Subdivision in a company pickup truck. They comment on the status of endless soybean, corn, and cotton fields close to the railroad, and discuss upcoming harvests and how the CLNA will handle the anticipated extra traffic.

Carolina Coastal has 35 employees: 18 in train service, four each for mechanical, signaling, and maintenance of way, and five management/administrative. Most are local residents. Some came from other railroads, but most were hired and trained by CLNA. The railroad is not unionized.

CLNA is a Monday-through-Friday railroad. Three train crews cover most work on the old Norfolk Southern lines. Train No. 120 reports early in the morning at Wilson, and works north to Chocowinity, switching customers. Train No. 119 reports at Pinetown, also in the morning. It generally works south to Chocowinity meeting No. 120 in the Norfolk Southern yard.

Before reaching the yard, No.119 first must negotiate the railroad's landmark structure, the 3,207-foot bridge over the Pamlico River at Washington. The swing bridge normally remains open for water traffic until a train approaches. A Carolina Coastal bridge tender will walk out to the moveable span, and a train must receive permission from him before crossing.

At Chocowinity, an NS train out of New Bern may show up as the two CLNA trains are working the small yard, making it a busy place at midday. This is NS trackage, and CLNA crews operate under the owner's rules.

After swapping cars with NS, the two CLNA trains depart. No. 119 will work sidings north to Pinetown, and work either the branch to Belhaven or cover customers north on the original NS main line at Plymouth.

No. 120 returns to Wilson, again working customers along the way. No. 114 is an afternoon job, working south out of Wilson. It often takes No. 120's power and most of its train and works to the end of active trackage at Middlesex. A large Cargill plant on the CLNA at Raleigh closed in 2014, eliminating the need to run beyond Middlesex. Those 28 miles are inactive but intact, and could be served again. Some tracks in the Raleigh area are used for car storage.



Carolina Coastal has a 16-unit locomotive fleet. On Oct. 24, 2023, GP9R No. 4609 receives attention in the railroad's open-air service area at Wilson, N.C.

An important task for No. 114 is serving the railroad's biggest customer, a stone quarry at Sims. Customer service on all routes is important, Bridgers says. Train crews are authorized to perform an extra switch or pickup of a car even if that work is not on the day's list.

"This has been a big part in making CLNA what it is today," Bridger says.

Train No. 115 is the Nash County job, working days, usually out of Nashville, N.C., home of two large agricultural plants. Interchange is made with CSX at a yard in Rocky Mount, adjacent to the busy Richmond-Florida "A Line."

In August 2023, Regional Rail purchased the Clinton Terminal Railroad, a 3-mile short line at Clinton, N.C., about 60 highway miles south of Wilson. Now Carolina Coastal's Clinton Branch, using an ex-New York Central SW8 as power, it is served two days a week.

Motive power

The original Rail Link-operated Carolina Coastal power included a former Missouri-Kansas-Texas Baldwin switcher, rebuilt with an EMD engine, and a side-rod GE center-cab. Both were painted in a red and silver scheme, an image that was carried over to an ex-Illinois Central GP10.

Following the railroad's 2007 expansion, a wide variety of secondhand EMD units worked for

varying periods. Most were four-axle road-switchers, but one interesting member of the roster was a former Duluth, Missabe & Iron Range SD9M. Golden says it was well-suited for the 2% grades heading to Raleigh, but was too big for switching many sidings.

Deciding to standardize, he began to acquire a small fleet former Grand Trunk Western and Canadian National GP9R units. They arrived in varying states. "Some were wrecks, without traction motors or other components," according to Bridgers. But nine of the units were made serviceable by CLNA employees at Wilson shop.

A new logo with stylized rails and the railroad name spelled out was carried on the long hood of units painted University of North Carolina Tarheel blue and North Carolina State University Wolfpack red. The first new-image GP9R was painted by the railroad in 2013. Contractors painted five more in 2015.

Unlike many shortline groups, Regional Rail does not have a system paint scheme, and each of its railroads carries its own image. The new owners did introduce a new Carolina Coastal logo, similar in

> shape to that of the original Norfolk Southern. Heritage emerged in a much bigger way in 2023, when Carolina Coastal acquired a pair of former Union Pacific GP15-1s. The two EMDs arrived in a red scheme



No. 114 crosses CSX's former Atlantic Coast Line main at Wilson, N.C. CLNA trains must contact the CSX dispatcher to receive a signal to cross the busy line, used by both CSX and Amtrak trains. This train serves all customers between Wilson and the end of active track at Middlesex, including the railroad's largest customer, a quarry at Sims.

much like that carried on the original NS Baldwin diesels. Bridgers hopes to budget funds for repainting two CLNA units a year, so it will be a while before the entire roster wears red.

The future

Regional Rail's Al Sauer sees a bright future for Carolina Coastal. He says it was already a good operation and that CLNA will benefit from investment capital and marketing resources supplied by its owner.

He adds, "North Carolina's Department of Transportation is a wonderful partner, and we can leverage our available capital with theirs. It's a good investment and gives customers confidence to grow with us." I





Humble, yet functional — Carolina Coastal's modular headquarters building and the adjacent brightly painted caboose that serves as the crew room are located in the railroad's main yard in Wilson, N.C.



The three startup companies developing autonomous, battery-electric, self-propelled freight cars all imagine a future where railroads see massive growth. They want to target short-haul freight where trucks dominate and railroads aren't effective competitors. And they say they can solve the rail industry's growth problem by using cutting-edge technology to upend the way railroads have operated for nearly two centuries.

The companies — Parallel Systems, Intramotev, and Glid — are led by former aerospace engineers who saw the same opportunity to disrupt freight transportation: Add autonomy to the efficiency of steel wheels rolling on steel rails, and you're able to go after freight moving in lower volumes over shorter distances. This, they say, will enable a major shift of freight from highways to zero-emissions rail service, which will bring environmental, traffic, and safety benefits.

The three companies are taking slightly different approaches.

Parallel Systems aims squarely at short-haul intermodal. Its high-tech flatcars carry containers and by design would operate alongside conventional rail equipment, not with it. Parallel and two Genesee & Wyoming short lines are seeking Federal Railroad Administration permission to begin tests in Georgia this year.

Intramotev targets carload freight by retrofitting conventional equipment with autonomous, battery-electric propulsion systems that also can be

operated by remote control. A handful of the company's Tug-Volt hopper cars are in revenue test service on a pair of isolated mine railroads that are beyond the reach of federal regulators. The goal is to prove the technology before making the leap to short lines and Class I railroads.

Glid's sleek, bimodal Gliders are on the drawing board, with the first hybrid prototype scheduled to debut this year. Gliders will be able to operate on rail or roads and are designed to handle any trailer, from dump



trucks to dry vans, which would open railroads to virtually the entire trucking universe.

What the three companies are proposing is a far cry from the automation being pursued by locomotive manufacturers Wabtec and ProgressRail and tech startups like Railspire. Instead of merely automating what already exists — like what mining company Rio Tinto has done in Australia with its heavy ore unit trains — the upstarts envision technology that will create an entirely new operating



▲ Workers for startup company Intramotev test the company's autonomous hopper cars. Intramotev is one of three companies developing autonomous freight cars; each is taking a slightly different approach.

◀ A member of the Intramotev team 'drives' one of the company's self-propelled hopper cars. The cars have been sent to a mining railroad for initial testing of the company's technology. Two photos, Intramotev



Parallel's second-generation prototype car can carry a container 500 miles on a single battery charge. It is designed to assemble into platoons of 10 to 50 cars, but has bumpers, not couplers. Four photos, Parallel Systems

model that should provide more frequent, more flexible, and more reliable service.

The railroad visionaries advising Parallel, Intramotev, and Glid see huge potential in the technology. It will, they say, finally allow railroads to really grow after decades of marketshare loss to highways.

The skeptics — and there are many — point to a host of potential hurdles. Will the technology work? Will it be safe? Will regulators give their blessing? Will rail labor unions approve? Will the public welcome trains rolling through neighborhoods and grade crossings with no one aboard? And will railroads shun innovations that they didn't invent?

Although none of the vehicles would require engineers or conductors, Parallel, Intramotev, and Glid say their autonomous systems would ultimately lead to growth in overall rail employment. Put more freight on rails, they say, and you'll need more people in terminals, in new office jobs, and to maintain and repair equipment, tracks, and signal systems.

In the next few years we'll know whether the technology is a flash in the pan — or the spark that will ignite a new railroad revolution.

Parallel Systems

Los Angeles-based Parallel Systems, founded by a team of former SpaceX engineers in 2020, set out to find the answer to a single question: How can



Parallel Systems CEO Matt Soule

more freight be shifted from road to rail? They wondered what a railroad would look like if it were invented with the technology of today. This ultimately led Parallel to take a clean-sheet approach to railroad equipment and operations.

"Why does a train still need to be in its current form? Our process was to peel back the layers and try to get the fundamentals," says CEO Matt Soule, one of the company's founders.

Parallel's engineers looked at advancements in self-driving technology and in batteries, then aimed to understand how a self-propelled, autonomous railcar could use existing infrastructure and operate alongside conventional equipment while helping railroads crack the short-haul market.

The challenge is the massive scale that railroads tend to operate at," Soule says. Moving high volumes of freight long distances - whether in bulk unit trains or 3-mile long stack

trains — produces fat profit margins for railroads, which generally ignore moves of less than 500 miles. But that strategy also limits the markets where railroads can compete and the types of freight they can carry.

Enter the autonomous, battery-electric freight car. "It's the autonomy that allows us to still accomplish truck-competitive unit economics without requiring massive scale," Soule says. "When you can relieve yourself from that requirement, then you can start to develop more flexible services and new approaches to terminals."

Parallel's second-generation prototype flatcar can carry one intermodal container 500 miles on a single battery charge. The batteries in each truck power the car's traction motors. The autonomous system relies on cameras and sensors, as well as

software in computers on board the car and at a data center. And electronic brakes can bring cars to a stop in 10 times less distance than conventional equipment with air brakes.

Just as important as what the cars have is what they don't: couplers. Instead, they're equipped with bumpers that allow cars to travel together in platoons that improve aerodynamics, reduce energy consumption, and make efficient use of rail network capacity. Platooning is automatic and can be done on the fly. The cars move close to each other and touch bumpers. Once contact is made, each vehicle maintains a set force with the one in front by regulating tractive effort.

"We're not proposing to move single containers through the network, because that is not a good use of network capacity. Nor is it the most aerodynamic," Soule says. "We think the ideal platoon size is between 10 and 50 vehicles."

A 50-car platoon would be about a half-mile long, and is the practical limit due to train dynamics. Ten is the lower limit, Soule says, because that's where the energy advantages of platooning begin.

The cars are so unlike conventional rolling stock that the G&W and Parallel waiver petition asks the FRA to make the equipment temporarily exempt from 30 separate car and locomotive regulations that cover everything from cabs and



An overhead view of the Parallel Systems intermodal car makes clear its lightweight framework, as well as its lack of couplers. Cars are powered by battery-powered traction motors on each truck.



An illustration shows Parallel's cars operating in platoon formation. Their unconventional design will require a waiver from the Federal Railroad Administration from some 30 regulations to allow for trial operations.

sanders to brake valves and uncoupling levers.

These differences make them a tool for taking on truckers.

"We'll never be as flexible as a truck. We are absolutely not approaching this from the standpoint that trucks are going to go away," Soule says. "But what we're doing is working to enable modal shift. There's a tremendous number of miles that are driven by trucks each year, and we think up to 50 billion miles of that activity could be shifted to rail with a platform like this."

Parallel's equipment would enable railroads to use small intermodal terminals where platoons would frequently arrive and depart. The idea behind Parallel's terminals is to keep freight moving. And since they're small, they could be located much closer to customers or even at an auto assembly plant, warehouse, or steel mill.

"It's all about asset turns. That's the business case for autonomy. The equipment is going to be more expensive than conventional rolling stock. But because we're not limited by availability of power or crew, we can move those assets a lot more than they do today," Soule says.

Intermodal containers could ride Parallel's autonomous cars from ports to big box retailers' warehouses and transload centers, eliminating the trucking dray move between the ports and the customer. Or they could deliver international containers directly to inland markets with-

in 500 miles of the docks: Think Long Beach, Calif., to Phoenix; Savannah, Ga., to Atlanta; or Newark, N.J., to Buffalo, Pittsburgh, or Cleveland.

For domestic business, Parallel's cars could be used to connect small markets on either side of the Mississippi River, which aren't well-served by Class I railroads today, as well as to eliminate crosstown drays in Chicago. They also could serve as a feeder network that connects existing double-stack intermodal terminals in Chicago with destinations like Milwaukee, the Twin Cities, or Detroit. Or they could be used to launch new service between cities like Denver and Salt Lake City.

"This is a real opportunity for the industry that helps with growth but also helps to strengthen and make more resilient supply chains," Soule says. "A lot of our strategy is to improve the quality of service for rail ... This platform has strong abilities to help do that."

Intramotev

Boeing engineer Tim Luchini was developing flying cars and package-delivery drones when his business student friend, Alex Peiffer, suggested a more down-to-earth project: Autonomous freight cars.

Peiffer was researching how emerging technologies could shape logistics and supply chains as part of his MBA work at the University of Southern California. What would happen, he wondered, if a delivery

drone's sensor package was applied to trains? The duo's first concept was underwhelming. "But we riffed off of it," Luchini says. "It got to the point where we said, 'Hey, every railcar could drive itself, so why don't we try that?"

And so St. Louis-based Intramotev was born in 2019,



Intramotev CEO Tim Luchini

with Luchini as chief executive. and Peiffer as chief operating officer. Their goal is to apply an engineering solution to a railroad business problem.

"How do you drive volume to rails today when people want the speed and flexibility of trucks but they want the cost advantage and they want the



Intramotev COO Alex Peiffer



Intramotev says TugVolt hoppers will reduce operating costs significantly enough that payback can be achieved in months. The company is also looking at intermodal and other car types. Three photos, Intramotev



Intramotev CEO Tim Luchini examines the electronics of a TugVolt car. The technology can be retrofitted to any freight car; it will first be tried on isolated railroads not subject to FRA regulations. Intramotev

environmental advantage of rail? How do you marry those two together? They're conflicting, it seems," Luchini says. "You have the lowest-cost mode of transportation and you have the fastest mode of transportation over land. And we're really trying to build the best of both worlds: Something that has the speed and flexibility of a truck, takes advantage of the rail system, and ultimately leans into what the customers want, which is just in time delivery."

The result is the TugVolt, a battery-powered freight car that can be fully autonomous, operated by remote control using a smartphone app, or tucked into a traditional train. Adding the Intramotev tech to conventional freight cars makes the TugVolt fully compatible with existing operations. As part of the freight car retrofit, Intramotev adds a secondary electronic braking system that's triggered when the car's sensors detect an obstacle ahead, such as at a grade crossing. The stopping distance is dramatically reduced compared with conventional pneumatic brakes.

Intramotev envisions three modes of TugVolt operation.

First, it can run in a train just like any other freight car, making them easier for railroads to adopt.

The second is point-to-point operation — like from Califor-

nia to Chicago — that combines conventional operation for the long-haul and autonomous or remote control operation for short-haul regional and local delivery. "The reality is that stuff's not all consumed in Chicago," Luchini says. "You've got to get it to Gary, Ind., you've got to get it to Milwaukee, you've got to get it to Peoria, Ill. So you can cut that car off ... and let it go."

The third is using TugVolt like an autonomous or remotecontrol locomotive in local service. "It can pull five fully loaded cars with it. So that's really where you get the unit economics of a big train, but on a small train more in line with what the customers ... are asking for," Luchini says. A manufacturer that uses plastic pellets, for example, likely prefers to receive a handful of loaded cars per day, not unit-train quantities. Tug-Volt can bring down the cost of local service and make rail competitive with trucking in shorter hauls, Luchini says.

Class I railroad CEOs say the key to volume growth is providing better service. "But they don't have the tools to do that," Luchini says. "This is that tool."

The base model TugVolt is equipped with 100 kilowatt-hour batteries — about the size of a Tesla battery pack — that

can move 100 tons of freight 100 miles on a single charge. "You're getting 3.5 times the weight of a semi a hundred miles," Luchini says. A longerrange version can run 600 miles between charges. The batteries can be charged in as little as 30 minutes.

Intramotev is taking a three-phase approach to introducing the TugVolt. The first target: Mines, ports, and intraplant railroads not regulated by the Federal Railroad Administration. This allows Intramotev to test, refine, and prove the technology with revenue customers. The first two customers are isolated mine operations, including the Cumberland Mine Railroad in Pennsylvania. Cumberland began using its first TugVolts in late December.

Mining operations are good testbeds, Luchini says, because they move millions of tons of material per year, tend to be out of sight, have labor challenges due to their remote locations, and want to electrify their operations for environmental reasons. TugVolt hoppers can reduce operating costs by 30 to 80%, with a payback period measured in months. "It's a no brainer from a business case," Luchini says. "You get huge cost savings and you electrify."

The second target, likely three to 10 years away, is common-carrier regional and shortline railroads, once the system is proven to be safe and reliable, regulatory hurdles are cleared, and the public is comfortable with the concept of autonomous rail vehicles. The final market, likely more than a decade away, would be Class I railroads. In either case, FRA waivers would be required to permit autonomous and remote-control operation.

Any freight car can be retrofitted with Intramotev's tech, not just the hoppers destined for mine use. "Intermodal is

■ Cumberland Mine RailroadSD38-2 No. 22 works the loader at Iron Senergy's Cumberland Coal Resources Mine in Kirby, Pa., on Jan. 21, 2023. The railroad is one of the first to test Intramotev's TugVolt. Joseph Cermak



really interesting. We have that carbody type already," Luchini says. "Our general approach is to basically be scalable around any car type."

Gliders

Glid's idea of a better mousetrap is one sleek machine. The company's Glider system pairs autonomous, battery-electric front and rear bogies that can carry a fully loaded semi-trailer. The bogies use rubber tires when on the road. Pull the Glider onto a track — at a grade crossing, a paved lot, or even just gravel spread up to the rails — and it will deploy flanged steel wheels. The rubber tires retract. And then it becomes something akin to a self-propelled Road-Railer. "We can transport any commodity you put on rail and road," says CEO Kevin Damoa, a former SpaceX employee who is both a mechanical engineer and a battery engineer.

To avoid regulations on highway weight standards and autonomous operations, Damoa envisions Gliders operating on private roads, such as at industrial parks, that are close to the tracks. Truckers would use conventional rigs to transport the trailers on public roads, just like today's intermodal dray operations.

Damoa says Glid's initial target market is short lines. They tend to operate older, less efficient, more polluting locomotives that are costly to operate and whose emissions disproportionately affect socioeconomically disadvantaged residents who live on the proverbial wrong side of the tracks.

The first prototype, which will be a hybrid that features a biodiesel engine to charge the batteries and extend their range, is being built at a factory in Stockton, Calif. The conceptual design looks a bit like a futuristic hot rod convertible. "We're trying to make it as close to that as possible," Damoa says. "When I designed it I said, 'Hey, I need it to be sexy."

It will be tested on private trackage in Vancouver, Wash., that connects with short line Portland Vancouver Junction



Glid's Gliders aim to be able to move on both road and rail, although, for regulatory reasons, the road operations would be limited to private thoroughfares such as those at industrial parks. Glid



A BNSF RoadRailer train heads eastbound through Ellinor, Kan., in October 2011. Glid's concept is akin to autonomous RoadRailers - but the originals were done in by their non-standard nature. Steve Schmollinger

Railroad. "We'll prove out the operation," Damoa says, and then take the lessons learned and apply them to a 2.0 prototype. A Vancouver trucking outfit, Taylor Transportation, has ordered two prototypes.

Ultimately Glid wants to more fully test the prototypes on the 33-mile PVIR, which handles lumber, aggregates, glass, and sand — some of which could shift to local Glider moves that would avoid local transloads, Damoa says.

Glid, a unit of Salt Lake City-based Genesis Electronics, aims to use a different business model: Gliders as a service offered to short lines and truckers. The company will compete like a freight broker, and shippers can pay for one-time moves or pony up \$15,000 for a monthly subscription per Glider, plus a

certain cost per ton mile. Glid will maintain the vehicles.

Operations opportunities

Experienced railroaders advising the three startup companies say autonomous railcars could open up a wide range of significant operational changes



Glid CEO Kevin Damoa

in a tradition-bound industry. No, the autonomous equipment won't replace the bulk unit train or the 12,000-foot, longhaul double-stack train.

But the self-propelled equipment can enable fast, frequent service. There would be no more waiting for a lone daily train or local service provided just three days per week. And there would be no lingering in a hump yard or intermodal terminal for a day, no need to run a 150-car merchandise train, or to wait for a rested crew or a late inbound train's locomotives.

Instead, cars could release right after they're loaded or unloaded in what Dean Wise, a consultant and former BNSF Railway executive who is a Parallel advisor, calls an "operational ballet."



Glid's bogies are sleek to fulfill a requirement of CEO Kevin Damoa: "I need it to be sexy," he says. Glīd

Terminal operations would be like going to the McDonald's drive-through: Within 2 minutes, a container could be lifted onto a waiting Parallel car and be on its way. The cars could gather at a nearby siding or yard, classify themselves into platoons, and then head to their destination. What they will not be, Wise says, "is ants marching all over the network."

Concerns about short, autonomous platoons gobbling up more than their share of mainline capacity are overblown, says Marty Schlenker, a former BNSF and CSX executive who is Parallel's head of strategy.

In fact, Parallel cars — and therefore platoons — will have a higher power-to-weight ratio than conventional locomotivepowered trains. "They will behave more like light engines than trains," Schlenker says. "Picture yourself as a crew member on the second move out of a terminal. The dispatcher comes on the radio. Would you rather hear, 'You're next after the stack train' or 'You're next after the light engine'?"

When a Parallel platoon runs up on a conventional train out on the main line, it will be capable of entering the preceding train's signal block at restricted speed, just as a conventional train would. "Its short length will mean that it promptly gets out of the way of any train following it," Schlenker says. "And shorter length can be beneficial when a platoon follows a conventional train on single track and an opposing

platoon or train must meet."

In some instances a platoon could take up less capacity than a conventional train. If an 8,000foot train pulls into a 10,000foot passing siding, a Parallel platoon could pull in behind to await a meet — something a traditional freight train could not do, Schlenker explains. In addition, tucking a train and a platoon into a single siding also would free up the closest passing siding behind them.

Advancements like movingblock technology — in which multiple trains or platoons can occupy the same fixed signal block under directional authority at speeds above restricted speed — would enhance operations and increase capacity. "Even with current signaling technology, Parallel's platoons will have a light footprint, and we are developing ways for them to have an even lighter touch on the network in the future," Schlenker savs.

Cathcart Rail CEO Casey Cathcart, whose company operates three short lines and 18 railcar repair facilities, is an advisor to Intramotev. He says Intramotev equipment would dramatically improve the way short lines operate and interchange with their Class I partners.

At Cathcart's Belpre Industrial Parkersburg Railroad, CSX delivers inbound interchange cars overnight to the short line's yard in Parkersburg, W.Va. The next morning BIP switches the inbound cars, rolls them across the Ohio River bridge, and distributes them to

customers in Ohio.

With Intramotev cars, CSX could deliver an interchange train and the cars would release themselves one by one and run directly to the customer's gates. They'd be waiting for the customers when their facilities open in the morning, and plant employees would operate the cars on intraplant trackage. The process would work in reverse for interchange to CSX: The cars would head from customer facilities and gather themselves in the yard in Parkersburg.

"Not only have you streamlined shortline operations, you've streamlined in-plant, captive-use cases and you ... can do away with all the extra yard trackage. You don't need it. Now all you need is a main line and maybe a siding to peel out all the non-Intramotev cars," Cathcart says.

A short line could run fewer

switch jobs and condense work into fewer shifts, Cathcart says. "You will have a lot more people behind screens than you have down in the yard," which he says would improve employee safety.

The lower-cost operation also would open up more short-haul moves to rail.

"The dispatcher could actually be Intramotev, with a single person sitting in a dispatch office overseeing that move versus my own people," Cathcart says. "The cost for that is probably substantially cheaper than having a yard superintendent and other people."

Yet large portions of the North American rail network are dark territory with handthrow switches. To take advantage of automation, railroads or customers would have to automate switches and make other investments in order to make door-to-door operation feasible. And coupling and connecting brake hoses would need to be automated, too.

Optimism and skepticism

Industry observers say widespread adoption of autonomous technology faces long odds and a time frame measured in decades, not years.

"It is exciting to see the level of innovation that the rail industry is generating — in these types of new conveyance concepts as well as other areas like inspection technology, car telematics, and in-cab automation," says Adriene Bailey, a partner at consulting firm



Locomotives climb UP's hump in North Platte, Neb. Autonomous cars could be self-classifying and reduce dwell in yards. Mike Danneman



A Belpre Industrial Parkersburg Railroad train climbs toward the Ohio River crossing on Oct. 1, 2020. The CEO of the railroad's parent company sees huge shortline benefits from autonomous equipment. Oliver Menges

Oliver Wyman. "There may be closed-system applications for these that will make sense in the short term.

"The challenge is and will continue to be the need for standards and interoperability across the rail networks," Bailey says. "In addition, the vast, expensive, and long-lived installed asset base will make any transition to a new 'standard' of conveyance a complex and most likely multi-decade initiative. It's super important to get it right when thinking about 'the next gen' of railroading — because false starts will be very expensive."

Todd Tranausky, former vice president of rail and intermodal at freight forecasting firm FTR Transportation Intelligence, says there are too many hurdles stacked against autonomous freight cars for them to enter service anytime soon, if ever.

"It's great if it can be made to work. But I am skeptical," he says. "This is the industry that can't even agree on a single railcar visibility solution. Now we're going to get railroads to agree,

labor to agree, shippers to agree, and regulators to agree on a new way of moving cars around? It feels like a massive leap."

The FRA accepted the G&W waiver petition in January but sought written comments and said it may hold a public hearing on the Parallel test proposal.

Greg Regan, president of the Transportation Trades Department of the AFL-CIO, says the potential impact of autonomous technology poses more questions than answers, particularly on safety. "People jump to the rosiest, sunniest possibility without considering all of the really important things that go into a safe operation," he says.

Labor unions would be willing to have discussions about autonomous operations as long as railroads view workers as partners, Regan says, noting that ultimately the unions must adapt to new technology as they have throughout railroading history. "We could have a conversation about how do we use this new technology to supplement — and not one that will supplant - existing operations," Regan says. But he doubts that Class I railroads have any interest in adopting autonomous tech unless it means whacking jobs.

"If the railroads' recent behavior would be any indication, then they would use it to eliminate headcount and lower their overhead as much as possible," he says. "They've shown very little interest in actually growing and expanding their operations over the last five or six years."

National Transportation Safety Board Chair Jennifer Homendy in January told Congress that she had safety concerns about autonomous trains based on lessons learned from investigations of crashes involving selfdriving cars. "I would not like to see a 2- or 3-mile-long train much less a 4-mile train, which I once saw a consist for — with nobody on board," she said.

Intermodal analyst Larry Gross says Parallel and Glid could be game-changers, if they can get past the regulatory, labor, and technical challenges.

"Either of these is a tool for getting at the rest of the market, which is THE market. Intermodal is an afterthought right now for shippers," Gross says. "Either of these is a quantum jump toward adapting domestic intermodal to the needs of the domestic freight market."

The current domestic intermodal system — high volumes moving long distances between major terminals — doesn't fit how freight moves in shorter



TTD President Greg Regan

hauls to widely dispersed destinations. "This industry needs disruption," Gross says.

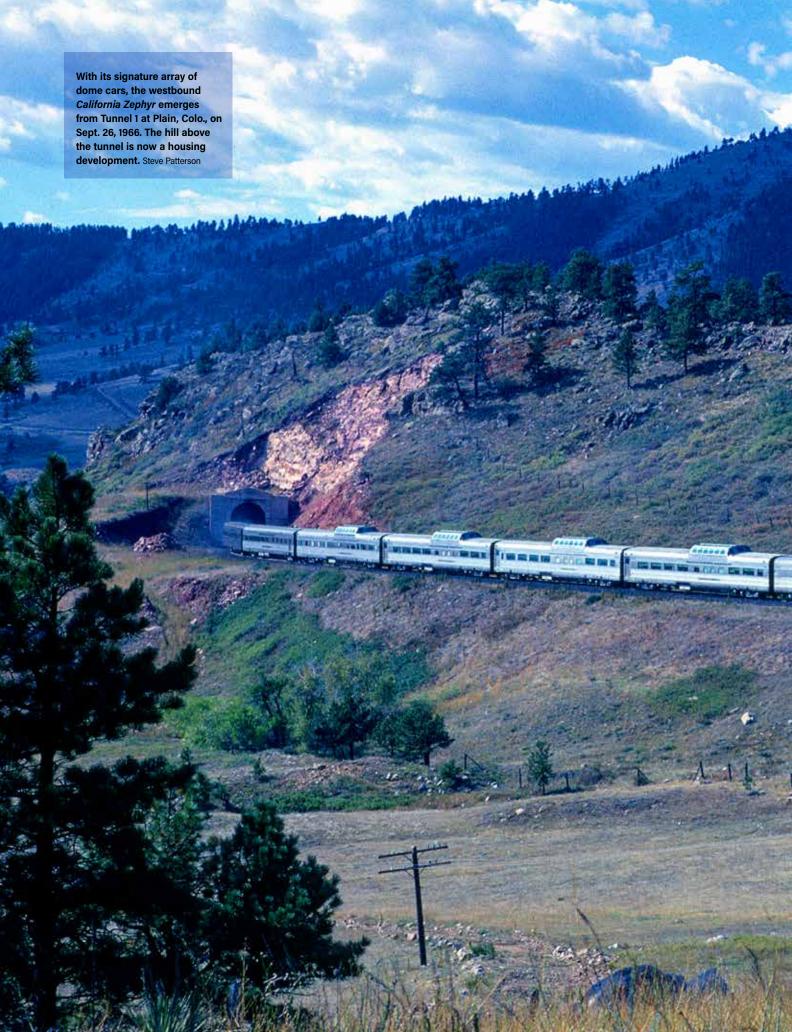
Parallel could use smaller, less expensive, and more numerous terminals to speed freight, reach smaller markets, and be an effective feeder system for the long-haul intermodal network, Gross says. Gliders don't need a terminal and could tap the much broader opportunity to handle highway trailers. "It's very ingenious," Gross says.

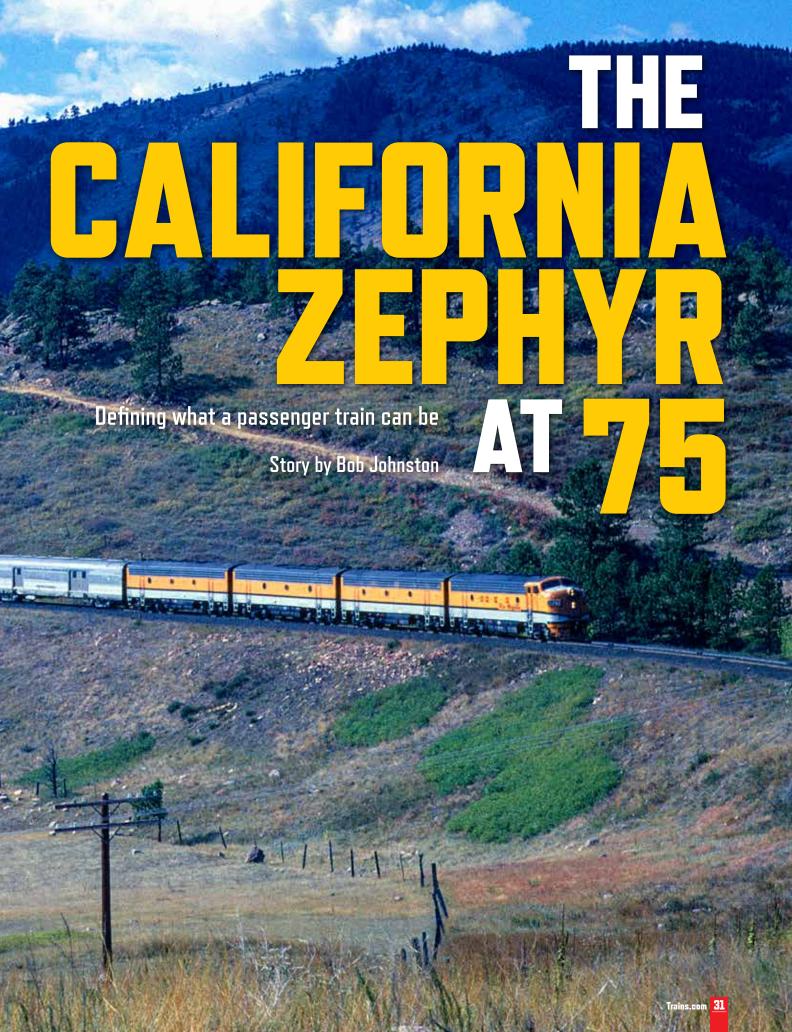
But he cautions that railroads like standardization and intermodal innovations like RoadRailer and Expressway ultimately failed to survive after domestic double-stack reached critical mass.

Wise says there's widespread interest in Parallel's system. The company has had discussions with railroads, shippers, trucking companies, ports, and steamship lines. "No one threw us out of the room and said this is crazy," Wise says. I



Parallel's second-generation car tests in Southern California. The company says it has had talks with parties throughout the supply chain.





orn on March 20, 1949, three railroads cobbled together what would become a lasting travel inspiration and envy of other U.S. lines as "The most talkedabout train in America." It lives on under Amtrak.

The U.S. intercity passenger rail landscape 75 years ago, for the most part, catered to the same need for speed and convenience demanded by travelers today. Fast streamliners between major cities were scheduled to compete for business travelers at a time when fledgling commercial airlines operated puddle-jumping prop planes derived from their wartime counterparts. The nation's highway system, with few exceptions, offered no stoplight alternatives.

ORIGINS

The Chicago, Burlington & Quincy had its share of flashy speedsters on two main routes out of Chicago to the Twin Cities and Denver. Named for Zephyrus, the Greek god of the west wind, stainless-steel diesel streamliner Zephyr No. 9900 shook up the status quo with its pioneering dawnto-dusk run from Denver to the Windy City — 1,015 miles in 13 hours, 5 minutes on May 26, 1934. The Burlington parlayed the earliest Zephyr's reputation on those competitive rail corridors in 1936, when it introduced two seven-car daytime Twin Zephyrs between Chicago and Minneapolis and the 12-car overnight Denver Zephyr from Chicago to the Mile High City.

The same year Zephyr No. 9900 made its flashy debut, the Denver & Salt Lake Railroad completed a 40-mile connection between its stub-end line through the recently completed Moffat Tunnel to the Denver and Rio Grande Western's circuitous Salt Lake City-Pueblo-Denver main line. The initial trackage rights agreement into Denver over what became the "Dotsero cutoff" evolved into an outright merger under the D&RGW banner in 1947.



A Zephyrette hostess poses with the Burlington's Denver, Colo., passenger agent on Sept. 5, 1967. Famed for providing exceptional customer service, Zephyrettes handled everything from dining car reservations to passenger emergencies. Three photos, Bob Johnston

Early in the 20th century, the Rio Grande had, of necessity, developed friendly connections with Western Pacific at Salt Lake City and the Missouri Pacific at Pueblo, Colo., to compete against Union Pacific-Southern Pacific for transcontinental freight and passenger traffic. Beginning in 1915 and operating through the Royal Gorge west of Pueblo, the WP-D&RGW-MP Scenic Limited linked St. Louis and Oakland. Calif. Completion of the cutoff and 1939's Golden Gate International Exposition in San Francisco created an opportunity for a new partnership with the Burlington east of Denver for a Chicago-West Coast train.

Launched initially to only coincide with the San Francisco event, the Exposition Flyer attracted enough passengers to continue through World War II years as a formidable alternative to the Chicago & North Western-Union Pacific-Southern Pacific Overland Route, which bypassed Denver and did not directly serve Salt Lake City.

Meanwhile, a diesel locomotive cab ride on one of his company's newly minted locomotives over the Rio Grande through Colorado's Glenwood Canyon on July 4, 1944, by Electro-Motive Division Vice President Cyrus Osborn was fortuitous. He allegedly remarked to the engine crew, "Why can't passengers have a view like we have?" and later sketched his idea for providing that vision to travelers on a napkin. Osborn took the drawing to the Burlington, which at the time was focused on completely renewing its streamliner fleet. From the EMD executive's plans, the company constructed a squarish glasstopped "Vista-Dome" on top of an existing stainless steel Budd Co. coach. The car debuted on a Twin Zephyr out of Chicago in December 1945.

SEEKING A NICHE

The Burlington wasted no time or expense incorporating domes into all of its



postwar Zephyr renewal plans, and the three Exposition Flyer partners agreed in October 1945, that immediate replacement of its tired heavyweight equipment was necessary. An order was placed with Budd for six 11-car California Zephyr trainsets, with ownership of the new rolling stock split among the three roads according to route mileage. Since scenery was envisioned as the primary marketing attraction, each train had five Vista-Domes: three dome coaches, a lounge car for all passengers whose dome was to be used exclusively for sleeping car patrons, and a unique bullet-ended observation-lounge-sleeper. The tail car also contained a drawing room with shower — a first — and three bedrooms. While the Flyer's heavyweight consist included upper and lower berths among every sleeping car configuration, the new Zephyr initially would have only one 16-section car and three 10-roomette, 6-double-bedroom sleepers. From the outset, one of the 10-6s was a through car operating to and from New York alternate days on either the New York Central or Pennsylvania Railroad.

Another necessary alteration was the schedule. With lightweight streamlined equipment and fewer stops, timings could be tightened by about six hours. The westbound Exposition Flyer's early afternoon Chicago departure was moved a few hours later but the eastbound run out of Oakland needed to be switched from 6:30 p.m. to 9 a.m. so as not to miss daytime views through California's Feather River Canyon and Ruby Canyon west of Colorado's Grand Junction.

INNOVATION

Dome coaches began arriving on the property in 1948 and drew assignments on the Exposition Flyer, whetting travelers' appetites. Then, following a San Francisco inaugural ceremony on March 19, 1949,



On Sept. 9, 1967, the westbound California Zephyr with four dome coaches up front begins its slow trek around Williams Loop, east of Keddie, Calif., on Western Pacific's Feather River Route through the Sierra Nevada mountains in northeastern California.



The Western Pacific routinely executed a motive power swap after the California Zephyr exited the Feather River Canyon at Oroville, Calif., north of Sacramento. At Oroville, the Feather River exits the Sierra Nevada and flows into California's Central Valley.

the first California Zephyrs departed Oakland and Chicago the next day.

The train's short- and long-term impact cannot be underestimated. Its accessibleto-all domes garnered immediate public and media praise. The scenery and onboard diversion they offered established a real difference among long-distance trains. Santa Fe's Super Chief, Baltimore & Ohio's

Capitol Limited, and Missouri Pacific's Colorado Eagle would soon gain a single dome each. But it took Union Pacific. Great Northern, and Northern Pacific flagships about five years to join the party with add-ons to lightweight consists already ordered. Only the GN's Empire Builder and NP's North Coast Limited dome capacity approached that of the CZ.

Onboard, the new train featured "taperecorded music" and "controlled radio reception," though these elements were routinely available on other streamliners of the era. Each California Zephyr, however, also featured a "Zephyrette" hostess who pitched dining car meal reservations as a conversation starter, helped families get settled, offered public address system commentary, sent telegrams, and dealt with passenger emergencies. Burlington Supervisor of Passenger Train Services Velma McPeek had originated the position on pre-World War II Zephyrs and reinstated it only on the California train in 1949. The young women made it a point to personally greet passengers and also provided continuity and esprit among operating and onboard service employees.





After the westbound California Zephyr arrived in Denver on the Chicago, Burlington & Quincy, its E units were cut off and a switcher dragged the train through the wash rack, then backed it into Union Station yard. A switchman maintains a look-out from the observation car. Steve Patterson

Word-of-mouth and numerous magazine articles created demand that quickly outstripped available space; the *Zephyr*'s combination of unique equipment, onboard service, and scenery indeed made "The most talked-about train in America" a valid advertising slogan. Its widespread popularity clearly influenced Canadian Pacific's design choice to order — in 1953 more than 170 stainless steel cars from Budd to launch the Canadian in April 1955, though CP eschewed the CZ's dome coaches. VIA Rail Canada continues to operate that equipment today after compression testing showed the 70-year-old cars remain sound.

Sold-out accommodations had prompted the *Zephyr* host railroads to add six 6-double-bedroom, 5-compartment sleeping cars in 1952; additional Burlington stainless steel coaches and sleepers often augmented each train during peak periods for the next two decades. By 1964, public disdain for curtained berths and affinity for private rooms resulted in the conversion of the open section sleepers to 48-seat chair cars placed in front of the three coach domes seasonally as needed.

TRANSITION

Although the Zephyr remained a crowd pleaser through the 1960s, its slower schedule meant it never benefited from U.S. Mail Railway Post Office contracts providing revenue on many routes. That business virtually disappeared in September 1967 when the USPS switched delivery to air and trucks. The previous year, Western Pacific had sought to extricate itself from the operation by petitioning the Interstate Commerce Commission for discontinuance. The case was compelling, since every labor, equipment, and facilities expense connected with passenger operation could be eliminated if WP's only train disappeared. After several years of ICC denials, which the agency justified by saying the train was "unique," the WP was allowed to drop its portion of the *Zephyr*. The last runs departed March 20, 1970.

Nevertheless, the train maintained its service quality - complete with the Zephyrettes — to the final curtain.

But that was not the end. Zephyr coaches, sleepers, diners, and lounges lived on, continuing to run three times per week for the next year. The D&RGW extended the

Denver-Salt Lake City Rio Grande Zephyr to and from Ogden, Utah, on a modified schedule that connected to Southern Pacific's City of San Francisco for an across-platform transfer. East of Denver, newly merged Burlington Northern ran the equipment as a "California Service" extension of a Chicago-Omaha daytime train previously named the Nebraska Zephyr.

Despite its recent demise and even in a debilitated state, the California Zephyr's 21- year trajectory made a compelling case for preserving a long-distance passenger rail network as Department of Transportation officials weighed options for the government-sponsored takeover that would become Amtrak.

The Penn Central bankruptcy had triggered a sense of urgency in the East where urban areas depended on multiple daily frequencies, but the Zephyr arguably had pioneered a land cruise concept that also provided rural mobility. It stood as a well-run and well-patronized example of a service that succumbed to the same headwinds as eastern trains without suffering downgrades and service shortfalls that PC inflicted. And any eastern bailout would



need political support of the entire country. There certainly were other well-run passenger trains at the time, but the California Zephyr's absence illustrated how real the negative impact of wholesale train-offs might be.

So it was no surprise DOT strategists chose to continue what the Burlington and Rio Grande had preserved of the original California Zephyr through Denver rather than the Union Pacific's Overland Route as May 1, 1971, drew near. Alas, D&RGW management found the price of joining Amtrak to be too steep, so the Denver-Salt Lake City portion was abruptly shifted to the UP days before the takeover date. The Rio Grande Zephyr would continue to soldier on with its dome coaches, observation lounge and dining car as a triweekly daytime train through the Moffat Tunnel and over Soldier Summit. Amtrak also initially operated three times per week west of Denver via Laramie, Wyo., and Ogden as the Denver Zephyr or City of San Francisco until settling on San Francisco Zephyr in 1972.

During this "California Zephyr in exile" period, the train's Western Pacific cars were sold off - many to Mexico and the new Virginia-Florida Auto-Train Corp. startup, while Burlington-owned domes and sleep-



Eastbound Rio Grande Zephyr, train No. 18, is in colorful Ruby Canyon on the Colorado River on Oct. 10, 1971, having crossed into Colorado from Utah a few miles back. The 25-mile-long canyon is one of the scenic highlights of "The most talked-about train in America." Steve Patterson

ers migrated east to replace worn out rolling stock. Meanwhile, the Rio Grande Zephyr gained a mystique among locals that rivaled its predecessor's reputation. On Amtrak's increasingly homogenized system, cars and locomotives began losing their identity to variations of the red. white, and blue scheme, but the RGZ's individuality and unwavering customer service standards continued to stand out.

While the national carrier gained the wherewithal to modernize its fleet with Superliners, new locomotives, and headend power, increasing maintenance costs and the difficulty of stimulating patronage west of Grand Junction, Colo., encouraged Rio Grande management to drop its remnant and allow Amtrak to take over the route. An April 1983, mudslide at Thistle, Utah, temporarily delayed the planned switch from the Union Pacific. The Rio Grande Zephyr's last hurrah occurred on April 24 as a truncated train from Grand Junction to Denver. Once a tunnel was completed and D&RGW tracks at Thistle



The tail sign on the California Zephyr's Vista Dome Observation Lounge, photographed at Chicago Union Station. Bob Johnston

repositioned, Amtrak's version of the California Zephyr to its rightful rails through the Rockies on July 16, 1983.

REINVENTION

The *RGZ* route takeover happened at a fortuitous time in Amtrak history. W. Graham Claytor Jr. became company president in 1982, after a series of route-killing Carter Administration budget cuts just as a new fleet of Superliners began arriving. The former U.S. Naval Secretary and Southern Railway president relished his role as the new sheriff in town, one capable of standing up to similar Reagan Administration entreaties. Claytor appreciated and understood what it took to run a good passenger train: spotless equipment and gung-ho employees capable of delivering a quality transportation product and exceptional customer service.

He had a great deal to work with. The two-level Superliners ordered in the mid-1970s on former president Paul Reistrup's watch efficiently accommodated many more passengers per coach and sleeping car than the Zephyr's old single-level equipment. When properly staffed, diners with kitchens below provided plenty of capacity to comfortably handle anyone who wanted to eat. Glass-topped Sightseer Lounge cars, inspired by similar Budd-built lounges for Santa Fe's 1956 El Capitan, combined ceiling to near-floor windows upstairs with a downstairs cafe. This provided a focal point for scenery viewing that, with the later addition of tables, morphed into one of the most pleasant rail interior spaces on any continent. Superliner lounges preserved

AFTERNOON RITUAL: CHECKING THE **ZEPHYR**

WORKING FOR THE BURLINGTON ROUTE at Chicago Union Station as an assistant passenger agent during the summer of 1967, one of my duties was making sure each long-distance train was spotlessly ready to accept passengers after it backed in from the coach yard. Had carpets been vacuumed properly? Were car line numbers accurate after a last-minute equipment swap? Were the washrooms clean? (We did have a recurring problem with baby cockroaches on a dome coach normally assigned to the Kansas City Zephyr).

The highlight of those afternoon trips through the Empire Builder-North Coast Limited, Denver Zephyr, and California Zephyr, however, was passing through their dining cars. Walking in, the aro-



A proud cook displays a pie ready to bake in the California Zephyr kitchen's oven. Three photos, Bob Johnston

ma was always different depending on the train and it usually prompted an obligatory cracker snatch from baskets already set on tables. Cooks and waiters were understandably busy for the Builder's lunch service (it left at 1:15 p.m.) and the Denver train's dinner (5 p.m. departure), but there always seemed to be a surprising beehive of activity in the California Zephyr's kitchen, even though it was carded out at 2:30 p.m. Roasts were being placed in ovens, vegetables sliced, and soups getting stirred. The crew was pleased someone from management was taking an interest in their handiwork - with a camera, no less. A laborintensive operation? No question; it was a different era in food preparation. Yet here were skilled employees with plenty of pride making sure the meals they put on the table were just as memorable as the train and scenery their customers had paid to ride. — Bob Johnston



Amtrak's Zephyr climbs Colorado's front range on June 5, 2016, with three sleeping cars, a transition sleeper, three coaches, a dining car, a Sightseer Lounge, and a baggage car.

key elements from the original CZ's many bubble-top Vista-Domes, albeit while losing forward-facing viewing.

The fleet also paved the way for significant western route expansion that survived drastic cuts in 1979: through cars from the San Francisco Zephyr at Ogden traveled to Seattle as the *Pioneer* and to Las Vegas,

Nev., and Los Angeles as the *Desert Wind.* The junction point for the three trains shifted to Salt Lake City with the 1983 move to the Rio Grande. Increased patronage of all three trains, driven in part by the California Zephyr's scenic draw, dictated that the Pioneer begin operating through Wyoming starting in



An engineer climbs into the cab of Amtrak's westbound California Zephyr on June 5, 2016, after checking on the second unit at the Fraser-Winter Park, Colo., station. The Winter Park Express seasonal ski train stops at a heated platform several miles to the east near the west portal of the Moffat Tunnel.

1991 to instead join the Chicago-bound train at Denver.

Amtrak's CZ and extensions became the backbone of the company's western operations into the 1990s until another round of politically forced cost-cutting weakened its western appendages just as a second batch of Superliners began arriving. In response to a misguided consultant's assertion that costs would be saved by running longdistance trains less than daily, Amtrak management reduced the Pioneer and Desert Wind to triweekly departures and



for a time from 1996 to 1997, the Zephyr itself was cut back to four times per week alternating with the Wind west of Salt Lake City. Economies of scale delivered previously by combining three daily trains disappeared when fewer revenue-producing days were pitted against a weeks' worth of route costs The two triweekly trains' performance weakened to the point that they both got the axe on May 10, 1997. Those routes can now be reactivated only after consultants gobble up another batch of study money for capacity modeling leading to infrastructure investment demands.

TODAY

After the California Zephyr resumed daily departures in 1997, the train briefly continued to enjoy the benefits of enhanced onboard service during the period when individual product line managers assumed responsibility for generating revenue and managing expenses. Budgets were available to regionally brand, market, and promote Amtrak's Zephyr as Chicagobased manager Lee Gleysteen saw fit. Recentralization and a Northeast Corridor orientation ushered in by Amtrak President and CEO George Warrington discontinued the program.

For the next 20 years under presidents David Gunn, Alexander Kummant, and Joe Boardman, the California Zephyr steadily increased annual ridership from 347,856 in fiscal 2005 to 417,322 in 2016. It typically has ranked third in both categories behind Auto Train and the Chicago-Seattle/Portland, Ore., Empire Builder among all longdistance trains.

During that same 20-year span, ticket

revenue jumped from \$35.1 million to \$51.9 million.

Numbers held steady for the following three years until 2020's COVID-19 pandemic, though Amtrak began including seasonal Winter Park Express January-March weekend results in the train's reported totals. Even with that delivery inflating the outcomes, the Zephyr only carried 328,458 passengers in fiscal 2023.

The main culprit: lack of capacity. Prior to the COVID-19 pandemic in the peak spring-through-fall season and holiday periods, each Zephyr was assigned three Superliner coaches and often three Superliner sleeping cars plus a transition sleeper. Only two coaches and two sleeping cars ran throughout 2023 and into the current year. As a result, the train experienced frequent and prolonged sellouts. With limited



Conductor Brad Swartzwelter brings coffee to engineer L.C. Owen as the eastbound California Zephyr stops at Fraser-Winter Park, Colo. Three photos, Bob Johnston

CONDUCTOR SWARTZWELTER: ON THE CASE

PERHAPS FEW PEOPLE are in a better position to evaluate how today's California Zephyr operates — its strengths and weaknesses — than Amtrak Conductor Brad Swartzwelter. Most of the year, he works Monday-Tuesday and Thursday-Friday out-and-back journeys from Denver to Grand Junction, Colo., but from January through early April he works Friday through Sunday Winter Park Express round trips. Swartzwelter helped make the case to Amtrak management for the seasonal service, which is sponsored in part by the Winter Park Resort.

A Zephyr ride with Brad is always informative, as he often provides route descriptions in the train's Sightseer Lounge. "Operating responsibilities come first, but I try to give customers an idea of where they are and what they're seeing. It's nowhere near as in-depth as what the National Park Service Trails and Rails docents delivered," he tells Trains. Amtrak stopped subsidizing the nationwide volunteer program in 2018 but has since reinstated some of the former perks

"Our cafe lounge car has at least as much popularity as the original California Zephyr domes," Swartzwelter said. He urges passengers on every trip to rotate back to their seats or accommodations to give everyone an opportunity to enjoy the view, at least changing places at the train's usual Fraser-Winter Park fresh air stop. "The beauty of the Zephyr today is that it remains a poster child for what a scenic land cruise can be," he adds.

Swartzwelter has not been shy about expressing his ideas for improvement, having spearheaded the effort within the company to get management on board with the Winter Park Express venture. He has also suggested — as long as additional capacity can be provided — establishing a premium coach class with preferred access along with sleeping car passengers to Sightseer Lounge seating.

When Trains asked for his views about distributing onboard service duties, he praised the employees that previously and currently work the train, while acknowledging there is room for modernization of craft divisions and work rules, and adding, "Let's look at ways to negotiate common sense labor relations and compensation so that we all benefit."

The conductor joined Amtrak in Seattle in the late 1990s and transferred to the Denver area as an assistant conductor. He was promoted to a junior conductor's slot on the Zephyr in 2011, and through seniority finally attained the No. 1 conductor position in 2021. "It's by far the best job I've ever seen in railroading — like the kid who dreams of going to outer space and then becomes an astronaut," Swartzwelter says, though he is slated to retire in October 2024.

"The one thing that could keep me here is if they said we need a supreme leader of the California Zephyr to operate it the way it should be from start to finish."

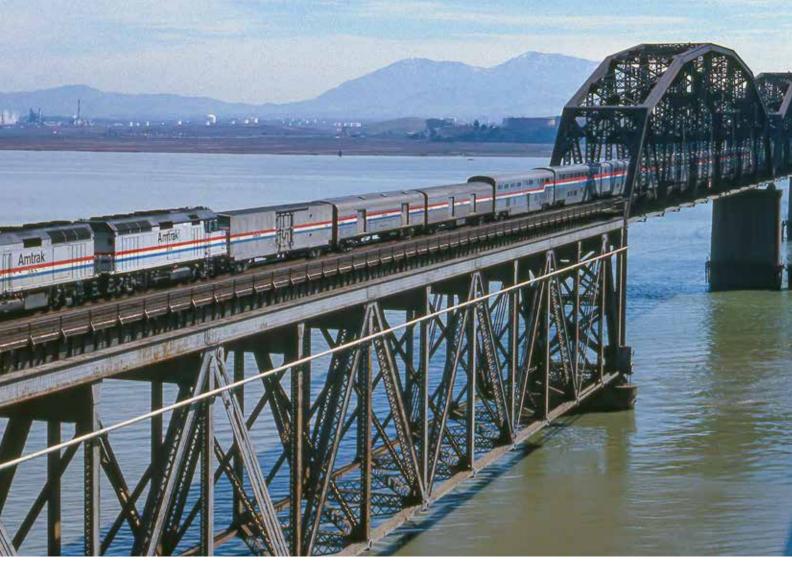
It's hard to imagine anyone better suited for such a job. — Bob Johnston



Amtrak's eastbound California Zephyr, led by a pair of F40PH locomotives followed by a Material Handling car and two heritage baggage cars, crosses Southern Pacific's 5,603-foot-long, vertical-lift bridge across the Carquinez Strait, adjacent to San Pablo Bay, on Feb. 16, 1990.

space available, coach and sleeping car passengers booking passage through the California Zephyr's traditional mid-route magnet between Denver and Grand Junction prevented other long-distance travelers from using the train at all. An extra coach was also previously added (accompanied by regional advertising) to accommodate San Francisco Bay Area-Reno, Nev., weekend tourists. For this summer, Amtrak spokesman Marc Magliari tells Trains the company expects to restore the CZ's transition sleeper, but as of early 2024 there are no plans to add a third coach.

Despite the capacity constraints forcing lower ridership, demand remains strong. Again with the Winter Park results included, the CZ's 2023 ticket revenue set an all-time annual record at \$56.4 million, so fewer passenger have been willing to pay higher prices. With more capacity, that number could have been even higher.



Operationally, the train's punctuality has been repeatedly challenged by Union Pacific freight train interference, primarily in eastern Nevada. Mudslides and other track obstructions have also caused serious delays on the former Rio Grande portion. Overall timekeeping stands at a dismal 27%. Poor on-time performance adds costs when the eastbound Zephyr is so late that connections are missed at Chicago, but built-in recovery time permits early arrivals if there are no en route delays.

THE FUTURE

Most of the characteristics that made the California Zephyr an instant success 75 years ago are still in place today. But enabling the train to reach its full potential demands recycling some elements from its past that made it successful. No, the Zephyrettes aren't coming back, but the onboard service quality control they once provided shouldn't be overlooked.

Amtrak has dramatically expanded the number of executive positions in Washington, D.C., over the past few years, but if the company is serious about providing a unique transportation product everywhere, it's time to create a cadre of hands-on man-



It's showtime in the Sightseer Lounge west of Denver as passengers jockey for position on June 5, 2016, and conductors urge passengers to take turns enjoying the view.

agers with revenue and expense responsibility who ride the trains and know its customers. This job simply can't be done from headquarters; managers need to be in the field every day.

Of course, there will be pushback. It may be a heavy lift for top level executives unfamiliar with the California Zephyr's unique attributes and history. Labor organizations might argue positions

such as these are reincarnations of previously unionized "train chief" supervisors. But that would be incorrect, as these would clearly be management positions with a

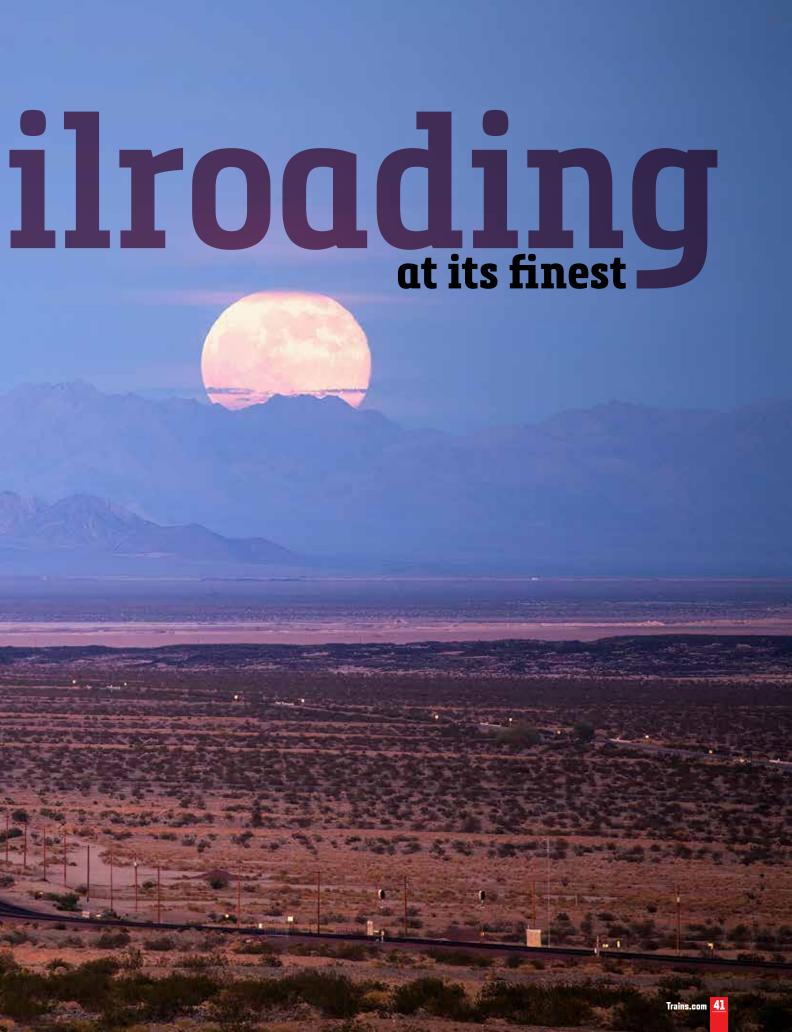
> small staff charged with stimulating business at every community along the route, watching costs, and monitoring performance.

At 75, today's California Zeph*yr* would be a perfect venue to try out the concept. **I**

Desert Ra

Nearly the final leg of BNSF's Chicago-LA main line by David Lustig







When the wind is blowing, and more often than not it is, you'll see a train in the distance long before you hear it.

You're in the Mojave Desert, and as the song by The Who says, you can see for miles and miles. Not necessarily flat like parts of Texas, but a rolling, up and down terrain punctuated by cactus, tiny hamlets both alive and abandoned, and fragments of the original Route 66 - now a disconnected relic from the past — can be seen here and there.

If there is an arid version of heaven, for train fans, this is it; an endless parade of BNSF freight trains hustling to and from the West Coast, with a smidgen of Amtrak and an interchange with short line Arizona & California thrown in for punctuation at a remote wide spot in the road called Cadiz.

This is the Needles Subdivision of the former Santa Fe's main line, which at one time was the only railroad route between Chicago and the ultimate prize: California. Once it was simply known as the main line to California. Now, it's part of BNSF's Southern Transcon, its northern counterpart traveling between Chicago and the Pacific Northwest. It's a great place to

watch, chase, and photograph trains doing what they do best — moving freight rapidly and efficiently.

Beginning the journey

The chase begins at the Arizona-California border for the 170-mile dash to Barstow. significant for the site of BNSF's mainline split — southwest to the Los Angeles basin and north through the heart of the state to reach the San Francisco Bay area.

Barstow is not only home to a significant classification yard and servicing facilities, but a U.S. Marine Corp logistics base, a former Harvey House hotel, and the Western America Railroad Museum.

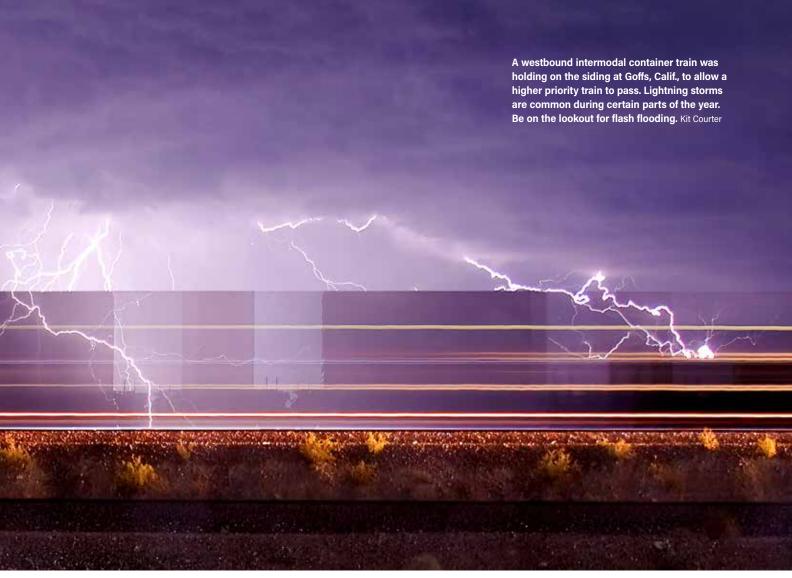
In between lies what looks like a deceptively easy run for train crews. Easy compared to operations over nearby Cajon Pass, perhaps, but the trip through the desert, with its up-and-down contours, keeps everyone on top of their game. This is no place to sit back and enjoy the scenery. Located on the western bank of the life-giving Colorado River, Needles — named after a group of mountains on the Arizona side of the river — is an oasis for BNSF and travelers on parallel Interstate 40. Just east of the

former Harvey House, trains make a quick crew change. Initially the town was just a series of tents for advancing railroad construction crews. Southern Pacific originally built the line from Barstow to Needles and met with the Atlantic and Pacific Railroad (an ATSF Subsidiary) at Needles. In 1884, the SP sold the Needles Sub to the ATSF.

At its peak, Needles would sport a Harvey House Hotel, car repair shops, a roundhouse, and refrigerator car icing facilities. Except for being a crew change point, today little remains except a portion of the Harvey House — now on the list of National Register of Historic Places. No longer a functioning hotel, restoration of the structure was completed in 2014, and currently the El Garces Intermodal Transportation Facility is used as a transportation hub for Needles area transit and other civic activities.

Once on board, westbound crews leave Needles and its 5,000 or so residents in their rearview mirror.

For those who have a little time to explore, this small town has more to offer visitors than just the railroad. As the entrance to California, it was once a major stop on U.S. Route 66, the Chicago to Pacific Ocean



highway made famous in movies, television shows, and music. For movie buffs, Hollywood made it forever known as one of the shooting locations for the 1940 epic Grapes of Wrath, the story of a down-on-its-luck Oklahoma family escaping the Dust Bowl during The Great Depression.

For the scores of trains leaving Needles and climbing out of the Colorado River Valley, the first 30 or so miles is an uphill slog, with the toughest being a 1.4% grade stretching from the crew change point west to the crest of the hill at Goffs and the end of the newly installed third track. After topping the hill at Goffs, there begins a high speed decent (up to 70 mph for freight and 90 mph for Amtrak) toward the aforementioned Cadiz, which looms quickly on the horizon. Here, the BNSF interchanges with the Arizona & California Railroad, a Class III short line that was originally a subdivision of the Santa Fe.

Sold to ParkSierra RailGroup in the early 1990s, it was taken over by Rail-America, and eventually Genesee & Wyoming in 2012. From Cadiz, the A&C heads southeast to Rice before crossing the Colorado River at Parker, Ariz. It continues to



Matthie and then on to Phoenix via BNSF trackage rights.

Past Cadiz and over the slight "Bolo Bump," the line traverses the longest stretch of zero grade on the Needles Subdivision, the 1-mile segment east of Amboy. Continuing west, another 1.4% grade must be overcome to reach Ash Hill. Manned helpers are rare to non-existent these days, replaced by a liberal use of distributed power.

Continuing west, there are other points of interest — most of them a myriad of scenes revealing what the harsh desert climate does to humans and the little towns that dot the right-of-way. A perfect example is the hamlet of Ludlow, some 50 miles



An outbound crew waits to climb aboard ES44AC No. 6350 at Needles, Calif., for the next leg of the journey to Winslow, Ariz. The employee descending the locomotive stairs on the left has just handled the train across the 170-mile Needles Subdivision. Elrond Lawrence



With the Dead Mountains as a backdrop, ES44DC No. 7825 crosses U.S. Highway 95 as it leads an intermodal train on Main Track One and rejoins Main Track Two climbing Goffs Hill. David Styffe

east of Barstow. There are a few gas stations and local businesses, but basically the unincorporated town sitting on or near Route 66 is only a shell of its former glory. Dating back to the 19th century, it was originally a water spot that turned into a mining center after ore was discovered nearby.

Adding to its fame, from 1906 to 1940, it was the southernmost destination of the Tonopah & Tidewater Railroad, as well as the northernmost point of the Ludlow & Southern Railway, a mining railroad that operated due south to a place called Rochester and the nearby Bagdad-Chase gold mine. It lasted into the 1930s, with its last stand as

a railroad being transportation for locals into Ludlow on an L&S speeder. If nothing else, it is notable for once operating a former New York Central 4-6-0 that, when the boiler was no longer usable, was rebuilt with a Holt tractor engine connected by chain drive to its original driving wheels. If one knows where to look, remnants of some old Tonopah & Tidewater structures or foundations remain visible.

By the time World War II came around. the town of Ludlow was on the skids, save for being a watering hole for rubber-tired travelers. The coming of the replacement Interstate 40, bypassing what was left of the town, sealed its fate. It's a scene that plays

out over and over again with only slight variations as the right-of-way reaches Barstow. Along the way, you may start noticing some of the peculiarities of this line. Many of the long-abandoned online stations, now just mileposts, have interesting names. Many were named for local Southern Pacific employees; others were cleverly put into a loose form of alphabetical order.

What you might see today

BNSF wisely tries to keep certain locomotive models assigned to particular regions on the system. On the southern transcon, expect a majority of General Electric (now Wabtec) units, while in the coal and grain fields of northern and mid-America various EMD (now Progress Rail) models predominate.

That doesn't mean you will never see an EMD/Progress Rail locomotive in GE/ Wabtec territory and vice versa, but be aware that it is not particularly common. If an EMD slips through to the west, consider it just a little variety.

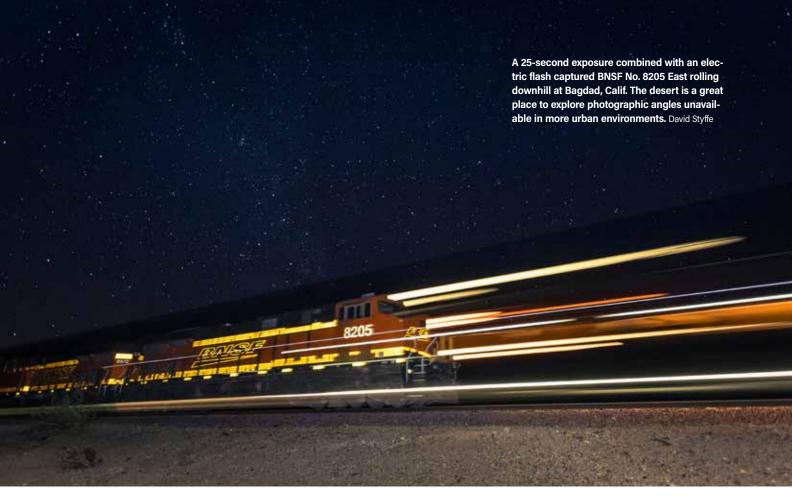
Amtrak has the Southwest Chief on this line, and if it is running on time, you will never see it in daylight. It is, however, a prime candidate to hone your night photography. Eastbound Amtrak No. 4 slips out of Barstow at 9:46 p.m. and stops at Needles at 12:11 a.m., departing 5 minutes later for Chicago. Westbound No. 3 stops at Needles at 12:26 a.m. and sees the bright lights of Barstow at 3:40 a.m.

How it came to pass

Before getting into chasing, watching, and photographing the railroad and its trains, perhaps consider some of the reasons the original Santa Fe and its Chicago-LA main line became such a buzz word. The word is publicity. At one time, every major U.S. railroad knew how to effectively get the word out, especially when it concerned its passenger trains.

Just as important as the operating department in the organizational chart of any railroad was its publicity department. And Santa Fe's was among the best. It was not a coincidence that when a movie or stage star boarded or got off a Santa Fe train that the press and its accompanying flashbulb popping photographers were on hand for the event. The city of Pasadena, a suburb of LA, for example, was a popular photo op when the railroad and the movie studios combined their efforts.

Toy makers such as Lionel and American Flyer were eager to display Santa Fe's redand-silver livery on their model locomotives, and the railroad made liberal use of highway billboards and print media to advertise almost every passenger train that plied the system. Perhaps the biggest and most well-organized boosters of the rail-



road's image were the local public relations offices that dotted the system. From Chicago to Topeka, Amarillo, and LA, as well as San Francisco, Albuquerque, and Dallas -wherever the railroad had an image to project — Santa Fe men and women were pushing it, whether at a public event or working the halls of the state government.

Perhaps one of the busier offices was LA. Among the farthest from corporate headquarters in Chicago, the men and women in this field office made sure everything went well. They were there when Hollywood's special passengers were appropriately received when they took the Super Chief to or from LA, or when someone suggested that the railroad should again run its annual Holiday Train. Unfortunately, at times, they also were there standing trackside at a major derailment managing the information flow to a questioning press to ensure public understanding that the railroad was doing everything it could to clean up the mess safely and in a timely manner.

Accordingly, whenever the press, usually a local newspaper or regional magazine wanted to do "A day in the life of the railroad," it was the PR department that handled it. And more often than not, the story always included a locomotive cab ride.

Acquiescing when they got the green light from Chicago, before any reporter or photographer set foot on the property, the



Part of the success of continuing to keep the line in front of the press was Santa Fe's public relations department escorting journalists on tours. Based out of Los Angeles, PR representative Mike Martin takes a break to enjoy the ride from the cab. David Lustig

telephone was heating up. It would be somebody like Tom Buckley or Mike Martin from PR talking with the operating department to arrange it. Then it was a call to the shops.

"I've got a reporter and photographer planning to take a cab ride from San Bernardino to Barstow next Tuesday," Martin would say. "Please keep an eye on what

power is planned for their trip. Can we put together a quartet of F45s? Maybe wax the lead unit?"

And Martin or one of his cohorts would shepherd the visitors throughout the trip. Working for Santa Fe was more than just a job, it was a career. Which is why when train fans want to get a taste of desert railroading today, more often than not, BNSF's



Grinding upgrade, C44-9W No. 4078 is in charge of an intermodal train at Siberia, Calif., east of Ash Hill and Ludlow. Telephoto lenses are perfect for shooting in the Mojave Desert.

More resources

THERE ARE A MYRIAD OF SOURCES that provide information on current BNSF operations, including historical societies and groups hosting detailed websites on what visitors may or may not expect on a typical trip. You cannot be too prepared for a trip into the California desert.

former Santa Fe main line in California is a natural magnet.

Chasing the trains

If you like desert railroading, the line between Needles and Barstow is a must. You've got to look behind the obvious and realize that it isn't really desert at all, just arid, windy, and unforgiving for both man and beast if not prepared.

Hunting trains between Needles and Barstow is not only fun, but frequent. Scores of through BNSF freights punctuated by a few locals roam this line, as well as Amtrak's daily Southwest Chief will definitely keep your interest. But like any other



A pair of EMD SD40-2s demoted to yard service pass the Harvey House in Barstow, Calif. Today, it houses an Amtrak station, railroad museum, visitor's center, and more. Two photos, Elrond Lawrence

trip, study the maps, look and see what's available in hotels and rest stops, and take note from those who have experienced it before you.

There are remnants of civilization everywhere; once thriving towns are now shells of what they once were - some totally abandoned. There have also been line relocations and operational changes due to advances in technology.

Just as important as chasing trains, there's an incredible history out here from the country's westward push to the Pacific. You might want to consider the historical aspect. Performing internet searches and reviewing books and magazines on Santa Fe's operations might be worth your time. Researching historical societies and museums along the route will help you schedule your trip so sites are open while you're near. I

Your trip

NO. 1: BE PREPARED. If you have never been in a desert climate before, it might be a rude awakening. The trees are few and far between, the wind incredible, the heat almost unbearable, and the cold bone-chilling.

Think you have seen it all? A couple of fans I know were tooling around in their automobile, the air conditioning taming the outside temperature hovering around 100 degrees while on Interstate 40 looking forward to finding their next train when the car's motor began acting up. Wisely getting off the freeway and coasting to a stop underneath a remote overpass for the shade, they soon found out they had no cell coverage. (Note: The Needles Sub has multiple areas where cell phone coverage may not be reliable.)

So, they sat, nursing a single bottle of water for hours until a

California Highway Patrol cruiser, on routine patrol spotted them. The officer rolled down his window, ascertained both were okay and offered to radio for a tow truck. It was the only vehicle they had seen in 4 hours.

From whichever direction you enter the Mojave Desert, the Barstow side, or the Needles side, make sure your vehicle is in good mechanical condition. Get an ice chest and fill it with ice, water, and food. If it's the summer months and your body can take it, plan to use salt. Bring a hat, maybe one with a draw string to prevent it from flying off if it's windy. Consider sunscreen lotion, and a good pair of sunglasses.

Conversely, the winter months provide their own requirements. It gets cold in the desert, especially at night. Bring a warm jacket, scarf, and gloves — basically the typical accoutrements you might bring for a trip to the mountains.

And not to sound like "the sky is falling," but be aware of flash flooding during inclement weather. It's important to understand that flash flooding on the Needles Sub can occur from heavy rain falling on the mountain ranges many miles north of the track when it's not raining where you are. Take note of all the extensive bridges and dikes the railway has built over the years in what appear to be dry washes — they were built for a reason.

NO. 2: DON'T FORGET THE CAR.

Your vehicle has a trunk so use it. Bring extra water or coolant for the radiator, a sturdy shovel (foldable) — in case you get into unforeseen sandy conditions — and a decent flashlight. Planning to stake out a particular spot on the

line? Consider a beach chair and an umbrella. Laugh now, but when the unrelenting sun is beating down on everything you'll be glad you toted one along.

NO. 3: PHOTO GEAR. The California desert is a wonderful justification for that monster telephoto zoom you have and rarely use. Bring a tripod and be careful of heat waves. For digital photographers, bring plenty of cards and a safe place to store them. Film shooters bring ISO 100 stock. Remember it can be windy so bring adequate protection for your equipment. Optics? Wide angles to super telephotos will find use out here.

A westbound stack train captures the last rays of daylight in the desert's wide-open spaces on a typically cloudless Feb. 6, 2016. David Styffe





Georges Creek Railway will provide 'passenger and freight opportunities'

▲ A Western Maryland Scenic Railroad train approaches Frostburg, Md., on Nov. 5, 2022. The WMSR will expand its territory with the lease of the nearby Georges Creek Railway. The WMSR plans to revive the longdormant onetime Cumberland & Pennsylvania line, and explore both passenger and freight operations. Carl Swanson

THE WESTERN MARYLAND SCENIC RAILROAD has signed a

long-term lease acquiring the Georges Creek Railway, a dormant short line in the southwestern portion of Maryland's Allegany County. The short line will become the Georges Creek Division of the WMSR. Plans call for the branch line to be used for "passenger and potential freight opportunities," according to a WMSR statement.

The Georges Creek line is a former CSX branch. The line. originally part of the Cumberland & Pennsylvania, was purchased by the Western Maryland Railway in 1944. CSX operated it until 2005, when it ceased operations because of a combination of washouts and declining traffic. The Eighteen Thirty Group purchased the branch in 2006 and continued to operate it until 2019 when the paper mill it served in Luke, Md., closed.

The new lease agreement comes after two years of discussions with the Eighteen Thirty Group, says Wesley Heinz, WMSR executive director.

He indicated CSX Transportation and some businesses have occasionally approached WMSR about the possibility of providing limited freight service.

"CSX has been courteous enough to identify opportunities for WMSR, and the Georges Creek Division could help us fulfill these requests," Heinz said. "Our staff has spent countless hours imagining a revitalization of the railroad line and how WMSR can use their vision to bring economic development to the Georges Creek valley through tourism and rail services."

The Georges Creek Division will be set up as a separate business unit managed by WMSR. The new property gives WMSR greater opportunities for expansion in the wake of growth that has seen it go from more than 47,000 passengers in 2021 to almost 75,000 in 2023.

"Our first order of business will be to attend to the overgrowth of vegetation along the right-of-way, identify safety needs, and communicate with the community leaders along

the 'CRIK' on how the WMSR can encourage and diversify tourism throughout the valley," Heinz says.

The WMSR is also working to return its two steam locomotives to operation. Former Chesapeake & Ohio 2-6-6-2 No. 1309 needs new pistons and rods. No. 734, a 2-8-0 built for the Lake Superior & Ishpeming Railroad by Baldwin in 1916, is due for its 1,472day FRA inspection and a complete rebuild.

During 2023, No. 1309 underwent running gear repairs that were designed to extend the life of the 75-year-old pistons. While not part of the original restoration, WMSR had plans to eventually replace the pistons. During operations in December, it was discovered the piston heads and rods now require complete replacement. The discovery dramatically accelerated the timetable for completing this project.

For more information on the WMSR or to assist with the locomotive projects, please visit: wmsr.com. — Trains staff



THE NORTH CAROLINA TRANSPORTATION MUSEUM recently completed a cosmetic restoration of Seaboard Air Line No. 544, a 2-10-0 Russian Decapod. Built by Alco in March 1918, the locomotive was part of an order for the Russian State Railroad. Shipping of the locomotives stopped after the 1917 Revolution, with the USRA assigning 200 2-10-0s to U.S. lines. What would become SAL No. 544 went to the Detroit, Toledo & Ironton and was then sold to the Seaboard. It later went to Seaboard subsidiary Gainesville Midland, which ran it until 1959. Under Seaboard ownership, Russian Decapods operated over several branches in North Carolina. Harvey George

Southern Railway archives available at Atlanta History Center

Materials donated by Norfolk Southern can be studied by appointment

THE SOUTHERN RAILWAY ARCHIVES are now open to the public by appointment at the Atlanta History Center. Additionally, a group of more than 11,000 photos from the collection are beginning to be made available online, indicates an announcement by the History Center.

The archives were donated in 2021 by Norfolk Southern Railway [see "Norfolk Southern to donate ...," Trains News Wire, Oct. 25, 2021], which also contributed a \$50,000 grant to help catalog, organize and digitize the materials.

The materials involved document the Southern Railway's history and that of its predecessors from 1828 to 2007. The collection spans nearly 250 linear feet, and includes annual reports, company publications, rule books, timetables, employee records, correspondence, and meeting minutes, among other items.

As an example, more than 3,000 construction contracts detail the building of stations, rail lines, bridges, yard offices, and other structures. In a blog post announcing the opening of the archives, the History Center writes, "The construction contracts provide researchers with a conceptual understanding of the company's overall goals by showcasing the change in operational and structural needs during different periods in time, as well as the shift in geographic locations as the company continued to grow and acquire additional railroads and companies."

The collection also holds records from more than 100 predecessor railroads. This group of records paints a picture of how the railroads came to be, operations, financial standing, challenges, and relationships with other railroads. In the group are records from the South Carolina Canal & Railroad, Louisville, Evansville & St. Louis Consolidated Railroad, Central of Georgia Railway, and



A map of the Southern Railway dating to 1908 exemplifies the kind of materials included in the Southern Railway archives, now open at the Atlanta History Center. Kenan Research Center at Atlanta History Center

Cincinnati, New Orleans, & Texas Pacific Railway.

The Southern Railway collection is open only by appointment, which can be made by emailing reference@atlantahistorycenter or calling (404) 814-4040.

More than 2,000 photos from the Southern collection are now online, and others will be added throughout 2024. They can be accessed at the search page of the center's website. — Trains staff



PRESERVATION BRIEFS

Steam, diesel locomotives restored, EBT expands tours



THE LAKE SUPERIOR RAILROAD MUSEUM. Duluth, Minn., has begun cosmetically restoring MINNEAPOLIS. NORTHFIELD & **SOUTHERN RAILWAY FAIRBANKS-MORSE** H10-44 switcher No. 11, believed to be one of only three intact examples in existence. The museum plans to restore the cab, engine compartment, and exterior. It will be repainted into the MN&S 1960s-era paint scheme, which featured large MNS billboard-style lettering. Steve Glischinski

EXPANDED TOURS of the **EAST BROAD** TOP RAILROAD shops, roundhouse, and archives will be offered for the first time in 2024. The three-hour Extended Tour will visit most buildings. A Master Mechanics



Tour will devote two hours to the roundhouse. A one-hour Archivist's Tour will illustrate the process of keeping and cataloguing more than 5,000 linear feet of documents. Dan Cupper

WHITE MOUNTAIN CENTRAL RAILROAD.

Lincoln, N.H., operated by Clark's Bears, has fixed the front power-truck issues that sidelined its TWO-TRUCK CLIMAX NO. 6 last season. The locomotive is scheduled to operate during July and August 2024. No. 6 is one of only four Climax geared locomotives still operating anywhere, according to White Mountain Central. The railroad has other geared locomotives, including a Shay and a Heisler.

Join us at the Southern California Rail Museum in Perris, CA, for our 2024 Convention May 8-11 as we celebrate the LA&SL portion of the UP System. Ride and photograph historic UP, ATSF, and SP equipment at the Museum, take field trips with us to other venues, and listen to informative clinics on UP history.

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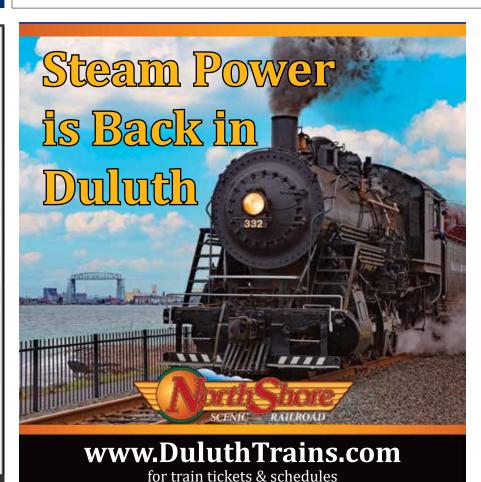
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A family friendly train ride in the heart of Texas

A Recently, a regular runner on the railroad has been Baldwin 2-8-2 No. 30, built in 1917 for the Tremont & Gulf Railway, It's here on the Texas State Railroad carrying number 7, reflecting its years working on the Magma Arizona Railroad. Two photos, Tom Kline

ARE YOU LOOKING FOR something different, yet familiar? Consider a visit to the Texas State Railroad, where you'll experience a classic mix of mid-20th century railroading and a pleasant 4-hour train ride.

The Texas State Railroad is aptly named. It was built as a state project in the late 19th century. Initially, it served as an industrial railroad built and maintained by the prison system hauling iron products manufactured at the state smelter in Rusk using inmate labor.

In the early years of the 20th century, the railroad was transformed into a state-run common carrier and expanded to Palestine, where it connected with the Missouri Pacific. In the 1920s, the railroad was leased to Southern Pacific affiliate Texas & New Orleans. By the 1960s, T&NO ended its operation, and the railroad was at best marginally profitable. As the freight business declined, the state

moved to develop the property.

In the 1970s, the line was conveyed to the state's parks and wildlife department and ultimately transformed into an excursion line connecting the principal towns on the line: Palestine and Rusk. In 2007, the state began leasing the operation of the railroad and since that time a variety of operators have run historic trains here.

Since 2020, Texas State operations have been conducted by the Lone Star & Eastern, part of the Jaguar Transport Holdings family, a Joplin, Mo.-based transport company that runs a variety of shortline railroads.

Houston-based railroad scholar and photographer Tom Kline savs "the State Railroad is a neat little [casual] operation that is fan friendly; visitors can expect old-time Texas hospitality with a wave and toot of the whistle." Excursions run between the two terminal stations at Rusk on the east end of the

line and Palestine on the west end, with most excursions from Palestine making an approximately 4-hour round trip while allowing for about an hour and 15-minute layover at the historic Rusk station, giving visitors time to picnic and explore the grounds.

Trains amble along through the Pineywoods of east Texas at 15-20 mph. Among the highlights of the line is the remote bridge over the Neches river. At 1,115 feet, it's the longest of roughly 20 bridges on the route.

The excursion season typically begins in March and runs through the winter holidays. Since the railroad offers a variety of excursions and up to seven types of seating — depending on the car — passengers are advised to read the description of their train trip carefully.

One of the most desirable cars is the former Santa Fe, Budd-built, Super Dome that offers elevated panoramic views.

The railroad can be very popular and it is always a good plan to book tickets ahead of time. Also be sure to arrive at your departure station at least 45 minutes before departure to avoid disappointment, since the boarding platforms close 10 minutes before excursions are scheduled to depart.

The railroad alternately operates steam and historic diesels. In recent years, a regular runner has been locomotive No. 30, a Baldwin 2-8-2 built in 1917 for the Tremont & Gulf Railway based at Winnfield, La. In its early years at Texas State, this engine was No. 400, and has also operated as No. 7 to commemorate its years of service on the Magma Arizona Railroad.

Texas State also regularly assigns FP9s Nos. 125 and 126, both former Canadian National units, to excursions. These are painted in scheme inspired by Katy's classic Texas Special livery, which helps give them a regional appearance. Alco aficionados will be keen to see locomotive No. 7, a rare surviving RS-2 built in 1949 and painted in black, silver, and orange to resemble a Southern Pacific/Cotton Belt unit.

Railroad headquarters are in Rusk, also the location of an engine house and shops. However, equipment is stored at both ends of the line. Among the historic equipment kept at Palestine is former Tex-

In the May issue



Running the DRZ

Canadian Pacific Kansas City and Canadian National's DIRECTIONAL **RUNNING** in British Columbia keeps Canada's export economy on track. Switzerland's Montreux Oberland Bernois Railway's GOLDENPASS **EXPERIENCE**. Eight game-changing **DIESEL LOCOMOTIVE** breakthroughs. Plus: Union Pacific's CONTROL CAR **REMOTE LOCOMOTIVE** experiment.

On sale April 9, 2024



Texas State Railroad's depot at Rusk, Texas, is a busy place in the summer excursion season. Plan your visit and book your tickets early to avoid disappointment.

as & Pacific Lima No. 610. Built in 1927, this significant engine was part of T&P's pioneering fleet of 2-10-4s, a wheel arrangement named the Texas type in honor of the line. It closely resembles Lima's original Superpower 2-8-4 Berkshire of 1924, and was one of three steam locomotives used to haul the 1970s American Freedom Train, which helped commemorate the American bicentennial.

Kline advises that photographers interested in making lineside photos will find plenty of opportunities. Highway 84 loosely follows the line and there are several easily accessible grade crossings.

"The best time to photograph is during the afternoon of the westbound from Rusk," says Kline.

The entire line is its own state park roughly 50 to 200-feet wide — making it the narrowest in Texas, yet visitors should exercise caution and maintain a safe distance of at least 25 feet from trains in motion.

Among the excursions offered are the Dogwood Lunch Train and the Piney Woods Express trains. In the winter, try Texas State's interpretation of *The Polar Express*. See website, texasstaterailroad.net, for more information. — Brian Solomon



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www.wfrm.org

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601 Yucca Street, Boulder City 89005



The Nevada State Railroad Museum, Boulder City, is a showcase of the regional railroad lines that built Hoover Dam and other parts of Southern Nevada. Visitors can experience railroading through train rides, exhibits, and learning opportunities. For more information, visit boulderrailroadmuseum.org.

boulderrailroadmuseum.org

702-486-5933

NEVADA

Carson City

NEVADA STATE RAILROAD MUSEUM

2180 South Carson Street, Carson City 89701



The Nevada State Railroad Museum, Carson City, is a cultural resource dedicated to educating the community about Nevada railroad history. The museum contains an extensive collection of significant locomotives, rolling stock, artifacts, photographs, and memorabilia. In addition to static exhibits, select pieces of equipment in the collection are restored and operated throughout the year to demonstrate steam and early gasoline technology and provide visitors with an immersive experience. For more information, visit carsonrailroadmuseum.org.

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www.RosenbergRRMuseum.org (281)633-2846

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RAIL SHOWS AND EVENTS

MARCH 23-24. 2024: Train Show, Lewis Recreation Center, 3110 Forest Lawn Dr., Greensboro, NC 27455. 9:00am-5:00pm both days. Admission \$10 (includes both days), \$2 off with flyer, children under 12 free w/adult. Visit us: www.carolinamodelrr.org. Contact Kenn at kcassell@twc.com, 336-501-0233, or Ron at ronalddidonato195@gmail.com, 336-240-6881

MARCH 23-24, 2024: Lincoln Square Train Show, 100 W. High St., Urbana, IL 61801. Saturday 8am-5pm, Sunday 11am-4pm. Hosted by Illinois Terminal Division, NMRA. FREE public admission. Railroadania and historical societies. Freemo Set-up and run. Free parking, wheelchair accessible. Vendor table info at http://itd.illinoisterminaldivision.org/show/show.htm

APRIL 6-7, 2024: Lewis County Model Railroad Club, Annual Spring Train Show and Swap Meet. Southwest Washington Fair Grounds, Blue Pavilion Building, 2555 N. National Ave., Chehalis, WA. Saturday 10:00am-4:00pm, Sunday 10:00am-2:00pm. Admission \$5.00. Free parking. Information: Ted, 360-985-7788, or TedsTrains@LewisCounty.com

APRIL 6-7, 2024: Rocky Mountain Train Show. National Western Complex, 4655 Humboldt St., Denver, 80216. Saturday, 9:00am-5:00pm, Sunday 9:00am-4:00pm. 3 acres of model trains, all scales, 30 layouts, 700 sales tables, clinics and more. Admission \$14.00, under 12/scouts in uniform FREE. Free Parking. 303-364-0274

MAY 4-5, 2024: Neuse River Valley Model Railroad Club 6th Annual SPRING Into TRAINS Show. Agri Supply Exposition Center, NC State Fairgrounds, 4825 Trinity Road, Raleigh, NC. 9am-5pm. Admission: \$10 covers both days, 12 and under admitted free w/adult. 300 tables of model railroading and railroadiana. Contact George Lasley, 919-757-4503, email: gwlasley52@gmail.com, visit www.nrvclub.net

MAY 4, 2024: Greater Grand Rapids Spring Train Show. 10:00am-3:00pm. HSB Inc., 5625 Burlingame Avenue SW, Wyoming, MI 49509. Adults \$5, under 12 FREE, 203 vendordisplay tables, RR Books & Photos, Trains in all scales, Food, Lionel "Thomas-the-Train" drawing, door-prizes, and free parking. Vendor tables \$25 each. Contact Tom Klonowski, 847-691-1163, trainshow@grvrrc.org or www.grvrrc.org

MAY 31-JUNE 1, 2024: Annual Johnson City, Tennessee MAY 31-JUNE 1, 2024: Annual Johnson City, tennessee, BIG TRAIN SHOW Host: George L. Carter Railroad Museum. 64,000 sq.ft., 330+ tables. All scales, operating layouts, vendors, books, memorabilia, food. ETSU "Mini-Dome" Noon-6pm Friday, 10am-4pm Saturday. Admission: \$8/day, under 12 Free. Free covered parking. Contact Roger Teinert 423-791-4937 or www.etsu.edu/railroad

JUNE 9, 2024: 48th Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd., St. Charles, IL. Sunday, 10:00am-3:00pm. Admission: \$6.00 w/tax. Tables starting at \$65.00. Information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

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Abilene & Smoky Valley Railroad	55
Along the Rails with J. David Ingles	
Big E Productions	
Bridgeview Bed & Breakfast	54
Castle Rock Carbon & Coal	
Colorado Railroad Museum	
Converse County Tourism	٠.
Promotion Board	. 5
Dean Carroll	
Don Pelletier	
Durbin & Greenbrier Valley Railroad	
Georgetown Loop	
Indiana University Press	5
Leadville Colorado & Southern Railroad Company	
Morning Sun Books, Inc	
Nadinepaints	
National Railroad Museum	
Nevada State RR Museum, Boulder City	
Nevada State RR Museum, Carson City	
North Shore Scenic Railroad	
Old Hotel Art Gallery	
Plasser American Corporation	
Railcom	
Ron's Books	
Rosenberg Railroad Museum	
Sumpter Valley Railroad	
Trains Photo Contest	
Trains Tours	
Trains.com	
Union Pacific Historical Society	
West Florida RR Museum	
Whitewater Valley Railroad	
Wisconsin Great Northern Railroad	55
Zephyr Products	







Homeward bound

The workday for Aug. 12, 2016 is done. A MARC -**Maryland Area Regional** Commuter - train has made its stop at Odenton, Md. This is MARC's Penn Line, using Amtrak's Northeast Corridor from Washington, D.C., to Perryville, Md. Michael T. Burkhart

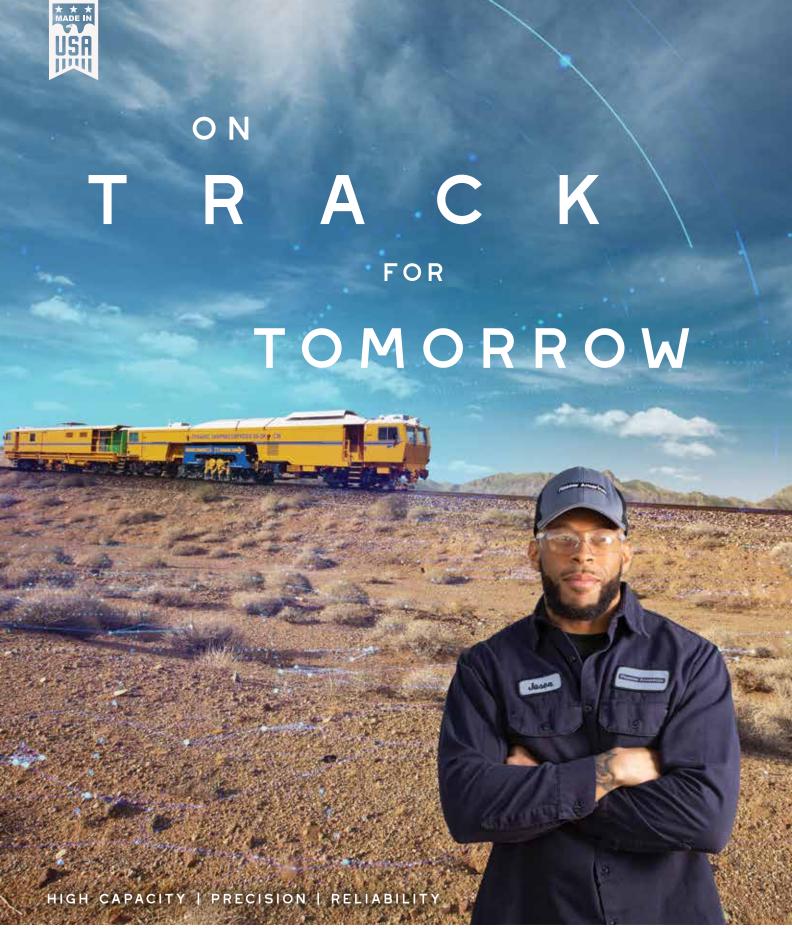
Formal dress

Hawaii in Chicagoland why not? On a warm May 15, 2013, a Metra engineer, sporting a fine Hawaiian shirt, glides his train into the next station. No bibbed overalls and engineer's striped hat here. Today it's casual in the cab.



Marshall W. Beecher





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