MARCH 2019

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SHORT LINE OF THE YEAR
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TRANSIT-ORIENTED DEVELOPMENT
How New York Got It Right

TECHNOLOGY FOCUS – M/W
Crossties Face Conflicting Pressures

RAILWAY AGE
MARCH 2019

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ON THE COVER:
Regional of the Year Rapid City, Pierre & Eastern.
Photo: Genesee & Wyoming

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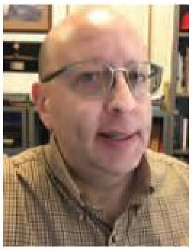
"Responsible Capitalism"



If we're not careful, this is where our industry may be headed: "Investors pressure companies to pursue the short-term model, figuring they can enjoy the ride on the way up and get out before it collapses. As a result, long-term shareholders get left holding the bag."

So cautions Bill George, a senior fellow at Harvard Business School, former chairman and CEO of Medtronic, and the author of *Discover Your True North.* As an example: "Kraft Heinz announced a $15.4 billion writedown of its mega-brands and disclosed an investigation by the U.S. Securities and Exchange Commission of its accounting practices. Consequently, its stock dropped 27% the next day and is down 62% from its peak two years ago. *One more short-term cost cutter bites the dust.*" (Emphasis mine.)

What George calls *responsible capitalism* "provides well-paying jobs for its employees, complete with health care and retirement benefits; offers customers high-quality products with great value; bolsters communities by supporting local education, health care and infrastructure; and ensures steady returns to its shareholders."

"As a result of problems created by capitalism's extremes, most notably the meltdown of the financial system 10 years ago, responsible CEOs and their boards have shifted to the multi-stakeholder model of responsible capitalism as purpose-driven, values-centered organizations," George stresses. "They have recognized the pitfalls in the stock market's unceasing pressure for maximizing short-term earnings and cash returns to shareholders, rather than investing in building sustainable businesses. These CEOs understand that serving a greater purpose and meeting customers' needs with innovative products and service is the best way to develop talented organizations with highly motivated employees. By creating greater value for their customers, they increase their revenues and profits while earning sustainable value for their shareholders. *This model works as long as companies continue to invest for the future in difficult times as well as boom times.*" (Again, emphasis mine.)

There is something about the current fixation on operating ratios below 60%, Precision Scheduled Railroading, cost-cutting (firing thousands of people, and that's what it is—*firing*, not "headcount reduction") and "maximizing shareholder value" that makes me uncomfortable.

Long term, if things go south, we won't be able to blame the hedge funds that started some of this—and that don't give a rat's ass about our industry, thank you very much. We'll only have ourselves to blame.

Making money is fine. But at what cost?

WILLIAM C. VANTUONO
Editor-in-Chief

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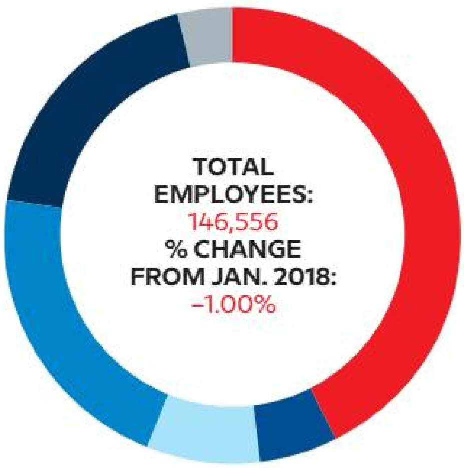
Intermodal Grows a Little, Despite the Weather

"Even with the weather-induced slowdown, this was the best January ever for intermodal in terms of weekly average units," the Association of American Railroads noted in late February. "It's early, obviously, but right now there's nothing to indicate that this year won't see continued intermodal growth." But winter weather took its toll. In weeks 1-3, total carloads were up 8.1% over last year and intermodal was up 5.7%. In weeks 4-5, carloads were down 6.6% and intermodal was down 6.5%. "Clearly, harsh weather at the end of January hurt rail traffic," AAR said. "Just one example: Extreme cold interferes with air brakes, and among other things, forces railroads to run shorter trains."

RAILROAD EMPLOYMENT, CLASS I LINEHAUL CARRIERS, JAN. 2019

(% CHANGE FROM JAN. 2018)



- **Transportation (train and engine)** 62,545 (–1.00%)
- **Executives, Officials, and Staff Assistants** 8,173 (–1.00%)
- **Professional and Administrative** 11,732 (+0.003%)
- **Maintenance-of-Way and Structures** 31,405 (–1.00%)
- **Maintenance of Equipment and Stores** 27,120 (–1.00%)
- **Transportation (other than train & engine)** 5,581 (–1.00%)

Source: Surface Transportation Board

EMPLOYMENT FLAT, BUT FOR HOW LONG?
There wasn't very much change in Class I railroad employment figures in this year's first month from the previous one. All categories except for one, Professional and Administrative, declined a miniscule 1%. That may not last very long, however, as massive personnel cuts are in the works at carriers like Union Pacific and Norfolk Southern, both of which are moving to a Precision Scheduled Railroading operating model. NS will lay off 500 employees this year, and by 2021 will have eliminated 2,500 more jobs. *(Details, p. 12.)*

TRAFFIC ORIGINATED

CARLOADS — FIVE WEEKS ENDING FEB. 2, 2019

MAJOR U.S. RAILROADS BY COMMODITY	JAN. '19	JAN. '18	% CHANGE
Grain	111,045	112,165	-1.0%
Farm Products ex. Grain	4,448	4,692	-5.2%
Grain Mill Products	44,210	44,434	-0.5%
Food products	28,898	28,054	3.0%
Chemicals	158,263	154,422	2.5%
Petroleum & Petroleum Products	66,298	53,507	23.9%
Coal	404,164	404,974	-0.2%
Primary Forest Products	5,227	5,625	-7.1%
Lumber and Wood Products	16,372	15,785	3.7%
Pulp and Paper Products	29,512	28,430	3.8%
Metallic Ores	23,244	20,514	13.3%
Coke	18,575	20,621	-9.9%
Primary Metal Products	46,124	43,021	7.2%
Iron & Steel Scrap	17,775	17,117	3.8%
Motor Vehicles & Parts	72,254	74,269	-2.7%
Crushed Stone, Sand, & Gravel	93,501	95,619	-2.2%
Nonmetallic Minerals	19,913	17,471	14.0%
Stone, Clay & Glass Products	32,860	31,046	5.8%
Waste & Nonferrous Scrap	18,019	16,151	11.6%
All Other Carloads	27,785	29,516	-5.9%
TOTAL U.S. CARLOADS	***1,238,487***	***1,217,433***	***1.7%***
CANADIAN RAILROADS			
TOTAL CANADIAN CARLOADS	***403,116***	***375,362***	***7.4%***
COMBINED U.S./CANADA RR	**1,641,603**	**1,592,795**	**3.1%**

INTERMODAL — FIVE WEEKS ENDING FEB. 2, 2019

MAJOR U.S. RAILROADS BY COMMODITY	JAN. '19	JAN. '18	% CHANGE
Trailers	117,289	117,017	0.2%
Containers	1,198,879	1,193,143	0.5%
TOTAL UNITS	***1,316,168***	***1,310,160***	***0.5%***
CANADIAN RAILROADS			
Trailers	0	4,506	-100.0%
Containers	326,251	314,508	3.7%
TOTAL UNITS	***326,251***	***319,014***	***2.3%***
COMBINED U.S./CANADA RR			
Trailers	117,289	121,523	-3.5%
Containers	1,525,130	1,507,651	1.2%
TOTAL COMBINED UNITS	**1,642,419**	**1,629,174**	**0.8%**

Source: Rail Time Indicators, Association of American Railroads

TOTAL U.S./CANADIAN CARLOADS, JAN. 2019 VS. JAN. 2018

1,641,603	1,592,795
JANUARY 2019	JANUARY 2018

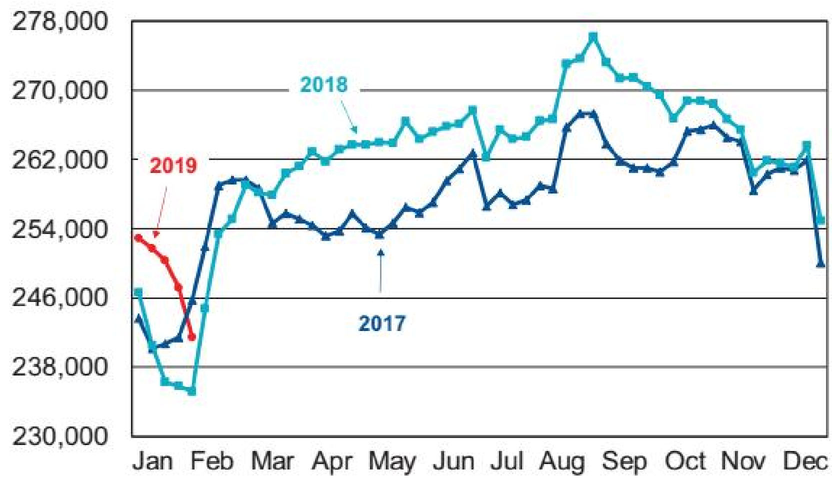
SHORT LINE AND REGIONAL TRAFFIC INDEX

CARLOADS

BY COMMODITY	ORIGINATED JAN. '19	ORIGINATED JAN. '18	% CHANGE
Chemicals	55,255	47,942	15.3%
Coal	20,545	20,581	-0.2%
Crushed Stone, Sand & Gravel	22,929	23,061	-0.6%
Food and Kindred Products	11,485	11,600	-1.0%
Grain	25,094	26,733	-6.1%
Grain Mill Products	7,711	6,772	13.9%
Lumber and Wood Products	8,820	9,270	-4.9%
Metallic Ores	3,203	2,651	20.8%
Metals and Products	18,749	17,307	8.3%
Motor Vehicles and Equipment	9,206	9,844	-6.5%
Nonmetallic Minerals	2,567	1,960	31.0%
Petroleum Products	2,464	2,306	6.9%
Pulp, Paper and Allied Products	20,839	19,579	6.4%
Stone, Clay and Glass Products	12,103	11,429	5.9%
Trailers / Containers	51,497	39,063	31.8%
Waste and Scrap Materials	9,652	8,883	8.7%
All Other Carloads	76,666	78,719	-2.6%

AVERAGE WEEKLY U.S. RAIL CARLOADS: ALL COMMODITIES

(NOT SEASONALLY ADJUSTED)



Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP. Source: AAR

Cuomo, De Blasio Propose MTA Makeover

NEW YORK GOVERNOR Andrew Cuomo *(above, right)* and New York City Mayor Bill de Blasio have—some would say surprisingly, as the two have publicly feuded in the recent past over transit funding—collaborated on a 10-point plan to transform and fund the New York Metropolitan Transportation Authority.

The proposal would create what is being called "dedicated and sustained funding streams" for the agency, and it includes the joint endorsement of congestion pricing and a plan to reorganize the MTA.

The first item on the to-do list calls for the MTA to develop a reorganization plan to make the agency more efficient and effective, essentially centralizing the common functions among the massive organization's six existing operating entities: MTA New York City Transit, MTA Long Island Rail Road, MTA Metro-North Railroad, MTA Capital Construction, MTA Bus and MTA Staten Island Railway.

The second item includes a congestion pricing financing model—electronic tolling devices would be installed on the perimeter of the Central Business District (CBD), defined as streets south of 61st St. in Manhattan. The tolls would provide discounts for off-peak hours, and emergency vehicles would be exempt from them.

Interestingly, under the plan, the MTA will also receive some revenue from a new internet sales tax in New York City and a cannabis excise tax.

Also, the MTA will be limited to mass transit fare increases of 2% per year, and all MTA Board appointments will be modified so that all terms end with the appointing elected officials' tenure.

In addition, the plan calls for:

- A partnership between the city and state to combat fare evasion.
- An MTA audit to determine its actual assets and liabilities.
- The plan to be reviewed by a committee of transportation, engineering and government experts who have no financial ties to the MTA.
- All of the MTA's major projects will be pursued as a design-build.
- The MTA will expedite the completion of the Subway Action Plan.
- Cuomo and de Blasio will work closely with the New York State Legislature on provisions in this framework.

Virgin Trains USA Scuttles IPO

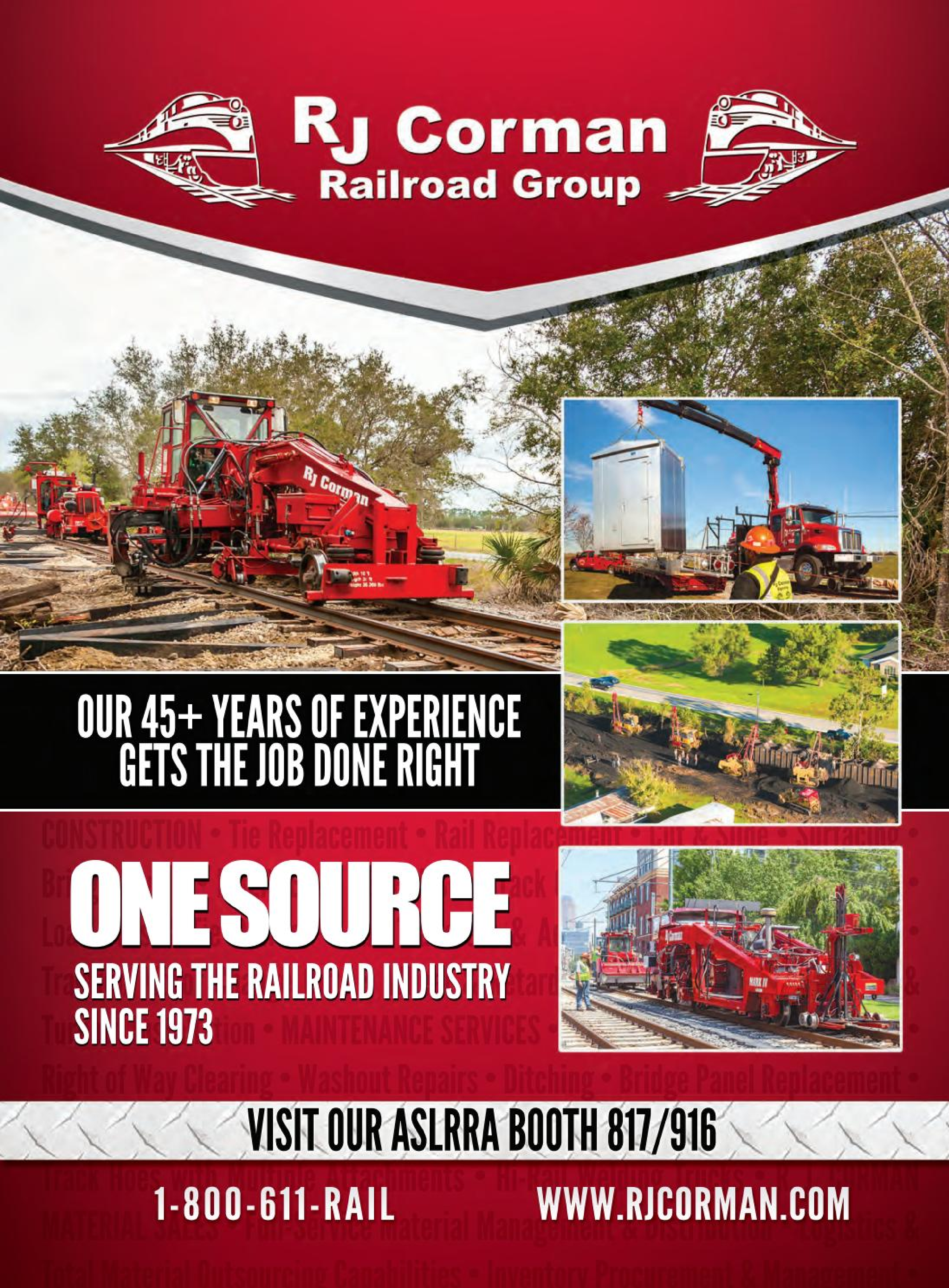
VIRGIN TRAINS USA LLC, previously known as Brightline before it rebranded itself following a 2018 partnership forged with Virgin Enterprises Ltd. and founder Richard Branson, canceled issuing the IPO scheduled for the week of Feb. 11, saying it will pursue other fundraising options. No indication was given whether the company will reconsider an IPO in the near future.

Advised by Skadden Arps Slate Meagher & Flom LLP, Virgin Trains planned to offer 28.3 million shares priced between $17 and $19 each, which would have raised $510 million at the midpoint of that range and established a market capitalization of roughly $3.2 billion, according to U.S. Securities and Exchange Commission filings.

"As we explored a public offering, a number of alternative financing sources became available that allow us to keep the company private and meet our growth strategies," Virgin Trains Senior Vice President Ben Porritt said Feb. 12.

The IPO proceeds, along with money raised from debt financing and private placements, were meant to expand operations into markets where travelers are seeking medium-distance connections "too long to drive" and '"too short to fly." Virgin Trains operates the former Brightline passenger rail service connecting Miami and West Palm Beach, and has plans to connect with Orlando and Tampa markets. The company is also looking to develop a high-speed rail system in Las Vegas and expand elsewhere in North America.

Virgin Trains' main stockholders are private equity funds affiliated with Fortress Investment Group LLC, which was not planning to sell any shares in the IPO. Barclays, J.P. Morgan and Morgan Stanley, represented by Davis Polk & Wardwell LLP, were the lead underwriters assigned to the Virgin Trains IPO.



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Tutor Perini Lands LA, NYC Work

Tutor Perini has won contracts for high-profile transit projects in Los Angeles and New York City. The company will team with O&G Industries to design and build 2.6 miles of line and two stations for the Los Angeles Purple Line Extension Section 3 project. The contract with the Los Angeles County Metropolitan Transportation Authority is valued at $1.4 billion. The contract follows one that Tutor Perini and partner Frontier-Kemper won last year to design and build twin-bore tunnels for the Purple Line. In New York, Tutor Perini secured a $253 million contract with MTA New York City Transit to install CBTC on the Culver Line between West 8th Street and Church Avenue in Brooklyn.

NORTH AMERICA

METROPOLITAN TRANSIT AUTHORITY OF HARRIS COUNTY has awarded **SIEMENS** a contract to supply 14 S70 LRVs for the Houston MetroRail light rail network. The order will take the total number of S70s in service in Houston to 51. Siemens supplied an initial 18 Series H1 vehicles in 2003. This was followed by a further order of 19 Series H2 LRVs in 2012. MetroRail also operates 30 Series H3 vehicles supplied by CAF USA in 2015. Siemens says the latest order of S70s will feature an improved design with a centralized low-floor offering full low-floor access among all doors along the length of the vehicle. Houston was the first city to opt for the S70, which entered service with the opening of the first phase of the MetroRail network in 2004. Siemens has since supplied more than 600 S70s to 11 U.S. cities.

Chicago's **METRA** regional/commuter rail system has awarded a $70.9 million contract to **PROGRESS RAIL** for 15 remanufactured and repurposed diesel-electric locomotives to modernize its aging fleet. The contract includes options for up to 27 additional units, which will be purchased if funding becomes available. The program involves rebuilding six-axle AC-traction **ELECTRO-MOTIVE DIESEL (EMD)** SD70MAC freight locomotives, 1,109 of which were built by EMD between 1993 and 2004. Metra says all components will be refurbished, upgraded or replaced, and the locomotives will be modified for passenger operation. The remanufactured units will be designated SD70MACH. In 2018, Metra acquired 24 FP59PHI passenger locomotives from **AMTRAK CALIFORNIA** at a price of $1.3 million each, which reduced the percentage of its 147-unit fleet in "marginal or poor condition" from around 70% to around 45%. The arrival of the SD70MACH fleet is expected to reduce the figure to 14% by 2023.

WORLDWIDE

BARCELONA METROPOLITAN TRANSPORT (TMB) has approved a tender for 42 five-car trains to replace the oldest fleets on the city's metro network. The order will enable the withdrawal of all 3000 and 4000 series trains, which constitute most of the rolling stock fleet on lines 1 and 3. Asbestos has been found in 94 of the 210 vehicles, which date from 1986-1990, and while TMB says this poses no risk to staff or the public, removal would be virtually impossible. TMB has therefore opted to accelerate replacement of the fleet. The procurement will be divided into two lots. Lot 1 has an estimated value of 264.6 million euros and comprises 24 1,668-mm-gauge trains for Line 1. Lot 2 is valued at 182.6 million euros and comprises 18 standard-gauge trains for Line 3. TMB expects to conclude a contract with the winning bidder this fall, with the fleet delivered within 48 months of contract signing.

WABTEC COMPLETES GE TRANSPORTATION TRANSACTION

Wabtec Corp. last month completed its merger with GE Transportation. The combined company, which is expected to have revenues greater than $8 billion in 2019, has a compelling growth profile—especially as market conditions improve in its industries. Wabtec announced the transaction completion at the same time as its fourth-quarter and full-year 2018 financials.

With the transaction, Wabtec said it "has established itself as a Fortune 500 global transportation and logistics leader by combining its broad range of freight, transit and electronics products with the former business unit of GE's equipment, services and digital solutions in the locomotive, mining, marine, stationary power and drilling industries." Furthermore, Wabtec will now be included in the S&P 500 Index.

"We are very excited to complete the merger of our two companies," Wabtec President and CEO Raymond T. Betler said. "This is a once-in-a-lifetime opportunity to bring together nearly four centuries of collective experience to create a technologically advanced leader with a highly complementary set of capabilities to move and improve the world … Today, we are a stronger, more diversified company ready to better serve customers across the globe and capitalize on new growth opportunities at an attractive point in the cycle."

The combination of portfolios is expected to create a leading equipment, aftermarket services and digital solutions provider across the transportation sector; improve utilization and accelerate the path to automation; deliver improved customer outcomes through expanded monitoring and services; and drive increased value for shareholders.

"Our shared focus on innovation, collaboration and continuous improvement will enable us to unlock new value for our shareholders, customers, employees and the industry," Rafael Santana, who served as President and CEO of GE Transportation and is now President and CEO of Wabtec's Freight segment, said. "Together we are well-positioned to take advantage of the opportunities created by industry trends toward efficiency and improved performance and, with the merger complete, we are focused on leveraging our complementary portfolios to spur growth."

In addition, Wabtec reported results for its 2018 fourth quarter and issued 2019 financial guidelines. In 4Q18, Wabtec had cash operations of $277 million (highest quarter of the year), sales of $1.1 billion (4% increase) and GAAP earnings per diluted share of $0.36. Sans expenses for the GE Transportation merger, restructuring actions, litigation and pension settlements, and the effects of the tax law changes in India, its adjusted earnings per diluted share was $0.97.

For the 2018 full year, Wabtec had cash operations of $315 million, sales of $4.4 billion (12% increase year-over-year) and GAAP earnings per diluted share of $3.05. Excluding the aforementioned items and the U.S. tax law changes, its adjusted earnings per diluted share was $3.81.

> "THIS IS A ONCE-IN-A-LIFETIME OPPORTUNITY TO COMBINE OUR EXPERIENCE."

NS Targets 60% OR, Sets 2019 Capex

NORFOLK SOUTHERN, at its Feb. 11 Investor and Financial Analyst Conference in Atlanta, said it plans to hold capital expenditures to between 16% and 18% of revenues through 2021, as the railroad targets a 60% operating ratio by that year.

The operating ratio target is quite ambitious. To begin, NS is looking for an improvement of at least 100 basis points from its 2018 operating ratio of 65.4%. Last year was the third year in a row where NS posted a decline in operating ratio. Executives told the conference that operating ratio improvements would come from a combination of increased revenue and decreased headcount. Some 500 jobs will be eliminated by year-end 2019, and a total of 3,000 jobs will disappear by the end of 2021.

NS's target range for capital spending is in keeping with what the railroad's executives implied in its fourth-quarter and full-year 2018 financial report. This equates to about 60% infrastructure, 20% locomotives (mostly rebuilds) and 20% PTC and other technologies.

Other targets announced:

- Revenue growth at a compound annual rate of 5% through 2021.
- Dividend payout ratio of 33% and continuance of share repurchases using free cash flow and borrowing capacity.
- 34% improvement in T&E (Train and Engine Crew) productivity.
- 12% increase in average train weight, to 7,130 tons.
- 30% improvement in locomotive productivity.
- 12% decrease in cars on line.

In October 2018, NS announced plans to adopt most of the Precision Scheduled Railroading (PSR) practices promoted by the late E. Hunter Harrison, most recently at NS's eastern competitor CSX. Low operating ratios are widely seen as one of the primary benefits of PSR. But Norfolk Southern has seen its operating ratio improve by 740 basis points since 2015, long before it decided to implement PSR.

Norfolk Southern is also in the midst of modernizing its locomotive fleet. The railroad is rebuilding, repowering and converting to AC traction some 527 DC-traction locomotives, at a substantially lower cost than acquiring new, though it will make some "modest" purchases. GE (now part of Wabtec) is performing the rebuilds at its facility outside of Dallas, Tex.

"Our strategic plan capitalizes on the strength of our exceptional franchise to lower costs, operate more efficiently and deliver stronger margins," Chairman, President and CEO James A. Squires said. "As we implement Precision Scheduled Railroading, our initiatives are focused on five key principles: serving our customers, managing our assets, controlling our costs, working safely and developing our people."

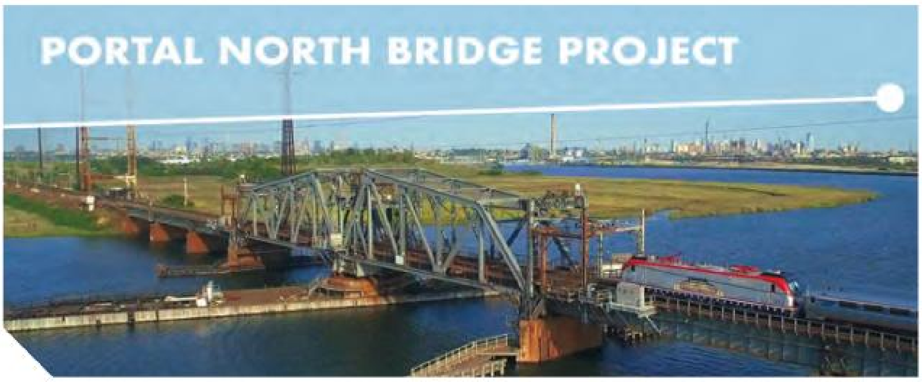
Groundwork Completed on NEC Portal North Bridge

NEW JERSEY TRANSIT, with support from Amtrak, the Gateway Program Development Corporation (GDC) and federal partners, has completed preliminary construction on the 2.3-mile-long Portal North Bridge, a fixed span that will replace the existing, century-old-plus two-track movable span on the Northeast Corridor (NEC) over the Hackensack River, between New Jersey and New York. The new bridge, NJT says, will increase its capacity by 10% and allow trains to move more reliably.

The project included installation of new poles to carry fiber-optic data communications and transmission cable lines for services to New York City and the surrounding metropolitan area; construction of utility protection for a century-old cast iron water main that supplies water to Jersey City, N.J.; erecting two poles that carry the high-voltage (138kV) transmission lines that supply power to the OCS (overhead contact system, or catenary) along this section of the NEC; and construction of a finger pier to support future construction activities and a retaining wall just west of Secaucus Junction that will support the new bridge alignment.

The NJT-sponsored and -managed project, which broke ground in October 2017, was completed "on time and on budget," the agency said. Funding was provided through a $16 million federal TIGER grant awarded in September 2016 to NJT, with a local match of $4 million from New Jersey's Transportation Trust Fund (TTF). In mid-2018, NJT's board approved a financing agreement with the New Jersey Economic Development Authority for up to $600 million toward construction.

Completion of Portal North Bridge will depend upon USDOT approval of the funding application submitted by NJT in 2018 through the Core Capacity program. The agency plans to hold an informational meeting for interested contractors this spring.



Simmons-Boardman Rail Group Named Railway Interchange Media Partner

RAILWAY INTERCHANGE, the largest exhibition and technical conference in North America, last month named Simmons-Boardman Rail Group, publisher of *Railway Age, Railway Track & Structures (RT&S)* and *International Railway Journal (IRJ)*, as official media partner for 2019. Railway Interchange is scheduled on Sunday, Sept. 22 through Wednesday, Sept. 25 at the Minneapolis Convention Center, Minneapolis, Minn.

"As the official media partner for Railway Interchange, *Railway Age, RT&S* and *IRJ* will offer exclusive news coverage of the event in addition to offering digital opportunities for exhibitors and sponsors to raise their companies' profile with conference attendees," the event's organizers noted.

"Digital opportunities available include an exclusive Railway Interchange channel sponsorship on RailwayAge.com, newsletter banners, dedicated email campaigns, branded video content and a webinar sponsorship."

Railway Interchange 2019 combines the technical and educational conferences of the American Railway Engineering and Maintenance-of-Way Association (AREMA) and the Railway Supply Institute (RSI). The latter includes the Coordinated Mechanical Associations (CMA). The event also features a major exhibition showcasing the latest technology, services and research by members of the RSI, the Railway Engineering-Maintenance Suppliers Association (REMSA) and Railway Systems Suppliers, Inc. (RSSI).

"This media marketing partnership between Railway Interchange 2019 and Simmons-Boardman's rail publications will provide expanded coverage of Railway Interchange technical and educational sessions, as well as the innovative products and services that will be showcased at the indoor and outdoor exhibitions," said AREMA Executive Director and CEO Elizabeth S. Caruso. "We look forward to working with these leading U.S. and international rail publications to promote our world-class rail conference."

"*Railway Age, RT&S* and *IRJ* are honored to be named the official media partners for Railway Interchange," said Rail Group Publisher Jonathan Chalon. "In addition to supporting the event through digital marketing, the September issues of *Railway Age* and *RT&S* will feature exclusive coverage for our subscribers and social media content for our followers." Companies seeking information about digital advertising opportunities may contact Chalon at Jchalon@sbpub.com.

As of late February more than 80% of Railway Interchange exhibition booth space had been sold; sponsorship sales are ongoing. Registration and hotel reservations for Railway Interchange 2019 will open on April 2.

BNSF 2019 Capex: Up 5% to $3.57 Billion

BNSF RAILWAY will invest $3.57 billion in capital in 2019—a 5% increase from 2018—toward "maintaining and expanding its network with an unwavering focus on operating a safe railroad that meets customers' demands."

BNSF has invested nearly $65 billion in its network since 2000. The largest component of this year's capital plan will be to replace and maintain the railroad's core network and related assets, "much like last year's $3.4 billion capital program," BNSF said.

"Keeping the railroad well-maintained limits the need for unscheduled service outages that can slow down the rail network and reduce capacity," BNSF noted. The maintenance component of this year's capex plan totals roughly $2.47 billion. The projects included in this part of the plan largely consist of upgrading and/or mainting the right-of-way (rail, crossties, ballast) and maintaining rolling stock. It will include approximately 12,000 miles of track surfacing and/or undercutting work and the replacement of 535 miles of rail and nearly 2.3 million crossties.

Approximately $760 million of this year's capital plan has been allocated for expansion and efficiency projects. A majority of the expansion projects are planned on the Northern and Southern Transcon routes, connecting Southern California with Chicago and the Pacific Northwest to Upper Midwest, respectively. About $340 million is for freight cars, locomotives and other equipment acquisitions.

"Our rail network is in excellent shape and its condition is a direct result of our continued capital investments," said Carl Ice, BNSF President and CEO. "We work tirelessly to provide the level of service our customers expect and to position ourselves well for future growth opportunities."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At Amtrak, It's No Longer 1950

Amtrak seemingly operates in the shadow of a Bat Signal over Gotham—that specially modified searchlight displaying the emblem of a bat, and intended, when lighted, to summon superhero Batman.

Rather than Batman, the Amtrak sentinel, with a passenger train emblem, summons self-appointed management surrogates—hopefully helpful railfans; well-intentioned but cash-strapped lawmakers from federal, state and local government; and, surely, the snoopy press corps.

Patience, persistence and self assurance are required to superintend Amtrak, where there is heard daily uninvited reproaches: The train schedules are inconvenient; delays are too many and too long; service should be inaugurated or expanded; full-service dining cars should be restored; the books are cooked; and management is secreting a dystopian agenda to destroy service. It's enough to make a preacher cuss.

Welcome to the work-a-day environment of Amtrak President Richard H. Anderson and Senior Executive Vice President Stephen Gardner, a duo struggling, as did the mythical Odysseus, to navigate the narrow strait between the twin monsters Scylla and Charybdis.

Anderson, 63, arrived in July 2017 with a background in the most competitive of people transports—commercial airlines, where he was Delta's CEO. The 43-year-old Gardner *(above)*, who arrived in 2009 and quickly climbed the ladder, contributes a freight rail pedigree augmented by a decade advising congressional Democrats, following operating positions at Maine Central (now part of Pan Am Railways) and short line Buckingham Branch Railroad. His rail career began as an unpaid Amtrak intern.

Among Gardner's Senate mentors were former Amtrak board member Tom Carper (D-Del.) and now-retired Jay Rockefeller (D-W.Va.), the latter having devoted substantial intellectual effort to rail issues.

As a senior congressional aide, Gardner learned that to lead a public transportation agency is to endure a smorgasbord of unpleasantries, as no such agency on the globe operates without subsidies, and all lack sufficient resources to meet unrelenting demands.

"Amtrak is not an independent actor," says Gardner, who invited this column into the belly of the beast to discuss the incessant brickbats hurled Amtrak's way. "We are a congressionally chartered private corporation, with a mission established by law for a public purpose. It is the role of Congress to fund the rail passenger network the public wants." That network includes a combination of national long-distance routes, regional corridors, and state and local shorter-haul service.

Actually, Amtrak answers to a trilogy of masters—the Executive Branch that includes the Department of Transportation and White House, which nominates Amtrak board members; the Legislative Branch, which authorizes Amtrak's mission, confirms board members and appropriates federal subsidies; and the marketplace, which determines passenger modal choice. Increasingly, state governments and quasi-governmental state and regional authorities are providing funds and direction.

Not overlooked by Gardner is the change in American demographics. "Millennials take over as the largest American cohort this year, replacing Baby Boomers as Amtrak's core market. As demographics change, so must Amtrak's public purpose," he says.

The Amtrak network, hastily cobbled by Congress beginning in 1970, was secondary to relieving privately owned, primarily freight railroads of the unsustainable financial hemorrhaging of hauling passengers. That 1950s-era route structure, although

650,000

AMTRAK RIDERS BOOKED
SLEEPING ACCOMODATIONS,
OUT OF 32 MILLION, IN 2018

occasionally tweaked, is, says Gardner, out of touch with the additional 118 million people who now live in America compared to 1971—exemplified by the millennials who tend to cluster in metropolitan areas and desire public transit out of environmental consciousness and convenience.

Amtrak, says Gardner, has not met their expectations—not along the population-dense Northeast Corridor (NEC), where market share is being lost to amenity-stocked motor coaches with more convenient suburban boarding points; nor between many intercity pairs that lack Amtrak service entirely. An example is the 240-mile Houston-Dallas corridor, linking the nation's 4th and 5th largest metropolitan regions.

"Too many population centers rely on a single, often chronically late long-distance train a day, with uncompetitive trip times and intermediate-point arrival and departure times that run counter to leisure time and business travel demands," Gardner says.

"That a sizeable number of travelers are willing to spend four hours on a bus between Washington, D.C. and New York indicates we've created neither enough station access to the NEC nor capacity to compete with other discretionary travel modes," Gardner says. "If we can provide a service that meets or exceeds the bus competitor at the right price, people will trade up to rail in those markets."

Among potential strategies is providing a higher-speed NEC *Acela Express* service for those seeking the shorter trip time between major business centers, while offering smaller regional markets between Washington, D.C. and Boston a separate service, competing price- and amenity-wise with bus.

As for Amtrak long-distance routes, trains typically pass through vibrant and growing intermediate cities at such inconvenient times and with so few frequencies as to discourage a wealth of new riders. "We must address younger riders early in their working careers who seek commercially relevant 21st century service, not the 20th century Amtrak model," Gardner says.

"Millennials," says Gardner, "have no relationship to the past network, or the pre-airline and pre-Interstate Highway glory days of rail. They seek utility and comfort—grab-and-go food and work-place productivity. We are not a preservation society. Our job is to create modern and relevant products and services that can grow rail trips and provide real transportation value with the scarce public dollars we receive."

Inescapable is that of 32 million Amtrak riders last year, just roughly 650,000 booked sleeping accommodations. "While we believe there is still a market for long-distance rail travel that provides an experience, the obvious real demand is for corridor trains of 300 to 400 miles connecting intermediate city pairs with frequent, conveniently timed service," Gardner says.

"Corridors work for the same reason unit-trains work for freight railroads," he says. "We must focus on actually moving people by offering convenient alternatives to congested highways and limited air service—not just traversing landscape. That a city pair like Atlanta and Charlotte doesn't have fast, frequent Amtrak service is an outrage. We are developing a long-range plan to grow the network across the nation in the corridors we think offer the most promise."

Dollars, of course, are scarce, and wants are plentiful. The 457-mile NEC, for example, which is owned by Amtrak—except for 103 miles under state ownership—has an estimated backlog of $40 billion in capital projects just to put it in a state of good repair.

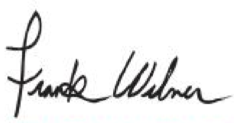
"The bottom line is that we continue to rely on investment from public entities for the major capital needs of the network," Gardner says. "We weren't put in business to achieve a profit for the government, but must continue to reduce the operating loss. What we are pursuing is incremental progress through continual financial improvement while growing ridership. We want to be viewed as a safe, well-run, capable steward of public funds, and a viable vehicle for growing passenger rail service nationwide."

As for an increasingly acrimonious relationship with freight railroads that host most Amtrak intercity trains—a kerfuffle playing out in the courts—Gardner says the freight network is "not optimized for the quality we need. I take some level of excitement with Precision Scheduled Railroading, which means running freight trains as we run passenger trains—concrete schedules and a high level of reliability. As they move toward that, it could be great for us."

> "AS DEMOGRAPHICS CHANGE, SO MUST AMTRAK'S PUBLIC PURPOSE."

The new Congress installed new chairmen of rail authorizing committees—Peter DeFazio (D-Ore.) now chairs the House Transportation & Infrastructure Committee, succeeding Bill Shuster (R-Pa.), who retired; and Roger Wicker (R-Miss.) chairs the Senate Commerce Committee, succeeding John Thune, who was elevated to Majority Whip.

Gardner is buoyant Amtrak will not be overlooked by Congress, although annual appropriations are extremely difficult for recipients of discretionary funding. Amtrak is especially attentive to pending reauthorization of the 2015 Fixing America's Surface Transportation (FAST) Act, which will establish new, long-term funding targets. "The question of whether America needs intercity passenger trains has long been answered in the affirmative," Gardner says.



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Contributing Editor

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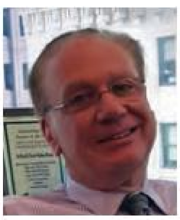

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LOUISVILLE & INDIANA

A remarkable story of vision, patience, transformation and execution.

BY WILLIAM C. VANTUONO, EDITOR-IN-CHIEF

Railway Age's 2019 Short Line of the Year, the 106-mile Louisville & Indiana Railroad Company (LIRC), a subsidiary of Anacostia Rail Holdings Company (ARH), is celebrating the 25th anniversary of its formation in 1994. 2018 "marked the culmination of a significant physical transformation for LIRC, as the direct result of a creative partnership with CSX Transportation that began more than five years ago."

Here's how LIRC describes its transformation:

A brief recap of LIRC's history sets the stage for the developments that spurred its growth. The Indianapolis to Louisville route was originally part of the Pennsylvania Railroad network in the Midwest. At the time, business flourished, as southern Indiana became a focal point for a significant military buildup, including Camp Atterbury, the Jeffersonville Proving grounds, the Army Quartermaster complex, and Freeman Field. LIRC honored the Pennsylvania legacy by adopting the PRR Tuscan Red livery and keystone during a locomotive upgrade program that began in 2014.

By the time Conrail was formed, the track was worn out, the Vietnam War had ended and the military traffic disappeared. A one-mile bridge across the Ohio River was enough to convince Conrail headquarters that this route was fraught with more liabilities than potential benefits. However, the visionary leadership of LIRC and ARH saw a route with significant opportunity, including a corridor that paralleled Interstate 65 and US 31 through key industrial markets that were aggressively positioning themselves to accommodate the automotive and manufacturing industries. Additionally, what became the LIRC boasted enough yard capacity and developable land to attract new customers.

For nearly two decades, the LIRC has relied on a commitment to customer service to keep the railroad viable through hardships including slow orders, derailments and rising costs. LIRC focused every dollar that could be allocated on capital projects, to maintain the infrastructure at a usable level. Patience and diligence were the strategy, while ARH and LIRC persuaded CSX to consider a strategic partnership.

After several years of negotiations, CSX

agreed to a significant financial investment in which LIRC would oversee the upgrade of the entire line from the ground up. The upgrade began in 2015, and consisted of replacing the entire 106-mile main line rail infrastructure with 136-pound CWR, tie replacement, embankment work, construction of two 10,000-plus-foot sidings and replacing the 119-year-old Flat Rock River Bridge in Columbus, Ind. The bridge is now a modernized structure that will support rail traffic well into the future. As of early 2019, all the upgrade objectives have been met except for one siding that will be constructed this year. The LIRC main line now handles 286,000-pound cars for its entire length.

It is undeniable that the upgrade has created a more-efficient railroad that supports both a significant increase in CSX traffic across its route and a monumental commercial opportunity for LIRC, which continues to dispatch the improved railroad for both CSX and its own trains in a new dispatch building created as part of the upgrade. The dispatch building contains state-of-the-art computerized dispatching and communications equipment that replaced the century-old practice of using train sheets to move traffic.

This 106-mile franchise is now a critical link in the CSX network bolstered by the industrial giants of Kentucky and Tennessee to the South and the distribution markets of Chicago and points East on the North. CSX has solidified overhead rights allowing automotive, merchandise and intermodal trains to move over the dramatically improved LIRC line. This provides LIRC a direct, straight and level north-south route

LIRC has secured new customers in each of the past three years, growing traffic by double digits.

between Louisville and Indianapolis. The completion of the upgrade and associated improvements permits CSX to better utilize its assets while allowing LIRC to maximize its local franchise. LIRC has utilized the upgraded infrastructure to aggressively grow the freight traffic in Southern Indiana and Louisville.

The upgrade and resulting grade crossing renewals required an extensive outreach campaign by LIRC to its neighboring communities. Many communities expressed concern to LIRC regarding future increases in train frequency, speed and length. LIRC forged strong bonds with local and state agencies to promote grade crossing safety while always maintaining the goal of keeping them informed on various project phases. LIRC's efforts included three permanent grade crossing closures, with two more identified for 2019; enhancements to grade crossing warning devices at 38 crossings; and state support of a pending grade crossing separation in Columbus.

LIRC is also very active in the Operation Lifesaver program. In 2018, LIRC targeted community events reaching more than 10,000 people. LIRC conducted 10 presentations at seven schools that reached approximately 260 children and provided training to more than 250 emergency responders from various agencies. LIRC also worked with National and Indiana Operation Lifesaver to pioneer a targeted social media campaign along its entire route. The social media campaign allowed LIRC to leverage technology to raise train safety awareness. The campaign ultimately reached 3.7 million viewers and created new volunteer and presentation opportunities. Additional LIRC community outreach included billboard and movie theater advertisements promoting the Operation Lifesaver tagline, "See Tracks, Think Trains."

Throughout the upgrade, LIRC has maintained the highest level of reliable service for its customer base, with greater than 95% on-time performance. Traffic has grown by double digits over consecutive years, with 12% growth in 2018. 2019 is projected to be another record year.

LIRC has successfully secured several new customers in each of the past three years. Camp Atterbury brought a state-of-the-art rail loading facility on line, and LIRC has now moved several brigade-size National Guard units through the facility, supporting both training and deployment.

In 18 months, LIRC cleared a previously shuttered WWII-era support yard in Jeffersonville, Ind., that had been constructed to support some of the nation's first Quartermaster activities. This improvement resulted in the ultimate creation of a 150-car spot transload terminal that continues to grow today. Further, this facility has room for at least two additional expansion phases.

LIRC, a proud supporter of veterans, has been awarded the American Short Line and Regional Railroad Association General Timmons Award for two consecutive years because of its efforts in hiring and aiding veterans, both at work and in the community. LIRC has again been nominated for this award for its efforts in 2018. LIRC's support for veterans goes beyond hiring, as it includes efforts by its employees outside of work. Several LIRC employees provide aid to the Kentucky & Indiana Paralyzed Veterans Association (KIPVA). Our employees have donated their time through two partnership projects to build a handicapped-accessible deck at KIPVA headquarters and provided much-needed assistance to a newly paralyzed veteran, in repairing his home to make it more accessible.

As 2019 began, LIRC rail has been completely upgraded, the new bridges are in place, and work continues on the second of two passing sidings to allow for bi-directional running by CSX. LIRC is looking forward to working with its strategic partners, customers and the surrounding communities for another record-breaking year.

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REGIONAL OF THE YEAR

RAPID CITY, PIERRE & EASTERN

The South Dakota Class II represents a successful public-private partnership involving customers and government.

BY WILLIAM C. VANTUONO. EDITOR-IN-CHIEF

All photos courtesy of Genesee & Wyoming

Genesee & Wyoming's Rapid City, Pierre & Eastern Railroad (RCPE) is *Railway Age's* 2019 Regional Railroad of the Year. The 670-mile RCPE, which began operations June 1, 2014, had zero FRA-reportable injuries for 2016, 2017 and 2018; invested more than $80 million into its infrastructure; grew revenues by more than 20%; lowered its operating ratio from 73% to 61%; and attracted more than $300 million in new customer investments generating 20,000 projected new carloads.

Here's the RCPE success story, as told to *Railway Age:*

On May 30, 2014, the newly created Rapid City, Pierre & Eastern Railroad (RCPE) completed its purchase of the west end of the Dakota, Minnesota & Eastern (DM&E West) rail line. That evening, the 670-mile line, which runs from western Minnesota across South Dakota and into northern Nebraska and western Wyoming, shut down. On June 1, following 24 hours of safety training and orientation, the 177 newly hired employees commenced freight service on the RCPE.

Immediately facing a pre-existing backlog of grain from the 2013 harvest, along with the expected typical challenges of starting a new railroad company from scratch, RCPE employees were simultaneously tasked with expanding their already aggressive operating plan to handle a record-breaking 2014 South Dakota wheat harvest—150% above normal yields in some areas.

Fast-forward four years, and that initial competency test has helped to transform RCPE into a regional railroad that is synonymous with safety and service.

The transition is a result of a comprehensive strategic plan that saw RCPE working more closely with existing customers and attracting new businesses along its entire line by communicating that customers could reach broader markets through three connecting Class I carriers.

"The real success story at RCPE has been the true public-private partnership among the railroad, the customers and government to invest and grow together," says Michael Miller, President of North American operations at G&W, parent of RCPE.

"We committed to investing and improving service levels, and customers committed to growing their business with us. State and federal grants helped the railroad increase its capacity and upgrade the line."

Prior to RCPE's acquisition of the DM&E West line, trains ran relatively unscheduled, essentially picking up what cars they could with the available power and crews. RCPE management successfully instituted a scheduled railroad that today runs 25 trains per week. Each crew knows where and when they come on and off duty and which customers to serve. Each customer, in turn, knows which days to expect service, and they receive that service within a 90-minute window.

More than $80 million of investment in infrastructure and equipment since 2014, including internal capital and federal and state grants, has contributed to RCPE's success. Replacing 100-year-old rail allowed for longer trains and increased speeds from Wall, S.Dak., east as well as fuel and labor savings. Building three additional sidings along the line doubled capacity; customer cars no longer get left behind during crucial peak harvest or construction seasons. Five "heavy bad-order" six-axle locomotives were repaired, and 2,000 railcars were purchased to meet customer demand.

Customers have responded to these efforts—including planning two new plants along the line, one re-opening a facility and another expanding an existing operation—with a total of $300 million in investment and a potential 20,000 new carloads for RCPE.

The changes have benefited RCPE operations as well. The railroad completed 2016-2018 without a single FRA-reportable employee injury. Revenues have grown more than 20% from 2015 to date, with a 27% reduction in the locomotive fleet. And in biennial satisfaction surveys in 2015 and 2017, customers rated RCPE above 8.0 out of 10, which is the benchmark for truly loyal customers.

"For 2019 and beyond, we are committed to providing a safe work environment for employees so that they can, in turn, provide first-class service to our customers," says Daniel Dalton, RCPE General Manager. "We have a tremendous team of dedicated, professional and safe employees striving every day to meet customer expectations and grow our business."

CLASS I PARTNERSHIPS

Part of RCPE's success is the solid relationships that parent Genesee & Wyoming has forged over the years with Class I connecting railroads. G&W chief executive Jack Hellmann, *Railway Age's* 2018 Railroader of the Year, spoke with Editor-in-Chief William C. Vantuono about that, and other topics, in the January 2018 issue:

"In general terms, our relationships with the Class I's are very strong. Our philosophy as short lines is pretty simple. Number one, we try to run the safest railroads in the world, so our Class I partners aren't having to worry about the condition of our track, whether any of our people are getting hurt and whether we're running a world-class operation. We like to be low-profile, under the radar screen, with no one worrying about us.

"Second, we spend all of our time in the commercial function hustling new traffic. That's our job. We view ourselves as the retail part of the network. The fact that we even exist today, if you look back to Staggers and deregulation to where we are now, is a deeply reinvigorated industry overall, including the short line component. One of the key elements of that success has been derivative of our ability to attract new carloads to our railroads. We've got guys that are out hustling the last carload on every single one of our railroads. Even as we've gotten to be a global company, we've never lost track of our roots, taking care of the customer first and foremost.

"With those two components with the Class I's, hustling carloads for customers—and most Class I's will tell you that short lines can drive a higher internal growth rate across their networks—it's just a question of providing seamless service to interchange. And I think as we've gotten bigger, the relationship with Class I's has progressively gotten better, every single year."

On working with government to establish a P3, Hellmann said public dollars have played an important role in growing a sustainable business:

"Government policy overall, whether it's federal or state, has been an important ingredient of the story of taking short line railroads that were never supposed to make it, if you look back 30 years, and breathing capital into them. Although the vast proportion of the investment has been private-sector dollars, in certain instances, state funds, state programs married to federal programs, have helped elevate our rail infrastructure.

"What we operate over today at G&W—and I couldn't have said this 20 years ago—is going to be there for the next 50 years, for the next generation to come, because of the success of the industry, the investment in the plant. By virtue of our own efforts as well as those of local and federal governments, we've simply elevated the caliber of our infrastructure in a meaningful way. Our plant has never been in better condition than it is today. It's very gratifying."

Finally, there's the 45G investment tax credit, which the small-road industry has been struggling to make permanent:

"45G is one of the component parts of the public-private partnership that's led us to tackle some of the longer lead-time projects—the big bridges, the big tunnel projects, the ones that you can defer for a while that are eventually going to have to come. With the support of things like 45G, our confidence and our ability to invest in those projects now rather than later has been accelerated, and you can see that in the condition of our plant today. It remains a priority. A lot of G&W now is 286-compliant. But we continue to have lines that require upgrades. 45G will be an important part of that prospectively. So we do spend a lot of time in Washington, D.C., talking about the merits of what has happened up until now, as well as what we see that can happen going forward, as we continue to upgrade track."

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Mechanical Department Regulations

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Part	Title
210	Railroad Noise Emission Compliance Regulations
215	Freight Car Safety Standards Updated 11-27-18.
216	Emergency Order Procedures: Railroad Track, Locomotive and Equipment Updated 11-27-18.
217	Railroad Operating Rules Updated 11-27-18.
218	Railroad Operating Practices - **Blue Flag Rule** Updated 11-27-18.
221	Rear End Marking Device-passenger, commuter/freight trains Updated 11-27-18.
223	Safety Glazing Standards Updated 11-27-18.
225	Railroad Accidents/Incidents Updated 11-27-18.
229	Locomotive Safety Standards Updated 1-22-19.
231	Safety Appliance Standards Updated 1-22-19.
232	Brake System Safety Standards Updated 11-27-18.

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Current FRA Regulations

Item Code	FRA Part #	Update effective		Each	50 or more
BKSEP	**209**	11-27-18	RR Safety Enforcement Procedures &	30.50	27.45
	211	7-20-09	Rules of Practice		
BKTSSAF	**213**	11-27-18	Track Safety Standards (Subpart A-F)	10.95	9.86
BKTSSG	**213**	11-27-18	Track Safety Standards (Subpart G)	10.00	9.00
BKWRK	**214**	11-27-18	RR Workplace Safety	10.50	9.45
BKFSS	**215**	11-27-18	RR Freight Car Safety Standards	8.50	7.65
BKROR	**217**	11-27-18	RR Operating Rules and Practices	10.50	9.45
	218	11-27-18			
BKRRC	**220**	11-27-18	RR Communications	6.75	6.10
BKEND	**221**	11-27-18	Rear End Marking Device, Passenger, Commuter & Freight Trains	6.25	5.60
BKHORN	**222**	11-27-18	Use of Locomotive Horns	14.75	13.25
BKRFRS	**224**	11-27-18	Reflectorization of Rail Freight Rolling Stock	7.95	7.15
BKHS	**228**	11-27-18	Hours of Service	12.50	11.25
BKLSS	**229**	1-22-19	Locomotive Safety Standards	12.50	11.25
BKSLI	**230**	11-27-18	Steam Locomotive Inspection	25.95	23.35
BKSAS	**231**	1-22-19	RR Safety Appliance Standards	10.50	9.45
BKBRIDGE	**237**	11-27-18	Bridge Safety Standards	7.95	7.15
BKLER	**240**	11-27-18	Qualification and Certification of Locomotive	14.25	12.85
BKCONDC	**242**	11-27-18	Conductor Certification	12.50	11.25

				Each	25 or more
BKBSS	**232**	11-27-18	Brake System Safety Standards	16.50	14.85

Combined FRA Regulations

	FRA Part #	Update effective		Each	25 or more
BKCAD	40	1-1-18	Drug and Alcohol Regulations in	38.95	35.00
	219	11-27-18	the Workplace		
BKSTC	233	11-27-18	Signal and Train Control Systems	21.50	19.35
	234	11-27-18			
	235	11-27-18			
	236	1-22-19			
BKPSS	238	1-22-19	Passenger Safety Standards	25.50	22.95
	239	11-27-18			

Compliance Manuals

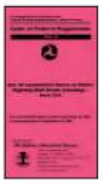
BKINFRA18	Track and Rail and Infrastructure Integrity Compliance Manual - Volume II, Track Safety Standards - Part 213	38.00	34.00
BKTM	Technical Manual for Signal and Train Control Rules. - Includes Part 233, 234, 235, 236	49.95	44.95

Updates from the Federal Register *may be supplied in supplement form.*

FRA News:

There are no new proposals or final rules to report for this issue. Be sure to check back next month to see if there are any changes to FRA regulations.

Use of Locomotive Horns at Public Highway-Rail Grade Crossings



49 CFR 222. This regulation provides for safety at public highway-rail grade crossings by requiring locomotive horn use at public highway-rail grade crossings except in quiet zones established and maintained in accordance with this part. 172 pages. Softcover, spiral bound. Updated 11-27-18.

BKHORN Use of Loco. Horns at Public Hwy-Rail Grade Crossings **$14.75**

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Part 242: Conductor Certification

The Conductor Certification rule (49 CFR 242) outlines details for implementing a Conductor Certification Program. The FRA implemented this rule in an effort to ensure that only those persons who meet minimum Federal safety standards serve as conductors, to reduce the rate and number of accidents and incidents, and to improve railroad safety. Softcover. Spiral bound. 124 pages. Updated 11-27-18.

BKCONDC Conductor Certification **$12.50**

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Part 240–Qualification and Certification of Locomotive Engineers

This rule clarifies the decertification process; when certified locomotive engineers are required to operate service vehicles; and address the concern that some designated supervisors of locomotive engineers are insufficiently qualified to properly supervise, train, or test locomotive engineers. 162 pages. Spiral bound. Updated 11-27-18.

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Railroad Operating Rules & Practices

49 CFR 217 to 218. Part 217: Purpose, Application, Definitions, Penalty, Operating Rules, Program of Operation Tests and Inspections; Program of Instruction on Operating Rules, Information Collection. Part 218: General Blue Signal Collection of Workers Protection of Trains and Locomotives, Prohibition against tampering with safety services, Protection of occupied camp cars. Softcover. Spiral bound. Updated 11-27-18.

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Encore Rail Systems Inc. is focused on increasing the size of its equipment fleet to better-serve an increased customer base.

CROSSTIES
FACE CONFLICTING PRESSURES

BY PAUL CONLEY, ENGINEERING EDITOR

It's shaping up to be an unusual year in crossties. And for wood crossties in particular, things are looking positively bizarre.

"We're seeing some big peaks and valleys in supply and prices," said Travis Gross, Vice President, Commercial Sales at Koppers. "The industry is not used to this."

Indeed.

The most widely used metrics for measuring the health of the wood crossties market is the Inventory/Sales Ratio (ISR).

ISR is at 0.67, according to Jim Gauntt, Executive Director of the Railway Tie Association. That's an historically low point for the level of demand for ties that is expected this year. In fact, Gauntt notes that just a further small reduction in ISR from 0.67 to below 0.66 would make it the worst this measure has seen since data was first archived in 1987. "That could signal stress in the supply-side for months or even years going forward," Gauntt said.

How significant is this challenge?

Consider this:

Demand in 2018 for wood crossties was 21.2 million. Even if 2019 demand holds steady at that level, there are nowhere near enough ties in air-dry yards to fill that need, according to data from the RTA. In fact, plugging in a moderate 7% increase in green-tie procurement this year would push the ISR from the current unhealthy 0.67 to 0.55 by the end of 2019.

It would take a massive 20% upside in procurement and flat demand for ISR to get back to 0.66 by year-end, according to Gauntt. "It can't be emphasized enough that maintaining healthy air-dry inventories, for a product that takes a 6- to 9-month minimum from the log to the track, is vital to the health of railroad maintenance operations," he said. "And, once ISR gets to a certain critical level, it is very, very difficult to rebuild those inventories."

At least in theory, inventories could recover quickly. "Tie production was off by 16% in 2018, so capacity should be there to do it. But there are so many other factors in play, it is impossible to know," Gauntt said.

THE BIG 4

Of those many other factors, four—rain, China, the feds and Precision

Scheduled Railroading—are particularly noteworthy, according to industry observers.

Unseasonably wet weather in Arkansas and Missouri has put a crimp in logging, according to Koppers' Gross. "We're back into a shortage of supplies. Wet weather is a big contributor. Sawmills have a difficult time getting into the woods," he said.

George Caric, Vice President of Marketing for Stella-Jones Corp., sees a similar dynamic.

"Wet weather continues to stymie crosstie production across the country. Tie inventories are at an all-time low and it doesn't look to turn around anytime soon," Caric said.

But Caric notes that at least one part of the market seems exceptionally strong. "Commercial crosstie sales are improving with plenty of projects to support customers moving to support transporting goods by rail," he said.

Gross agrees, noting that commercial prices have been driven much higher.

But at the same time, uncertainty over the future of Sino-U.S. trade has slowed exports tremendously. "Last year, China was a big purchaser of hardwood," Gross said. "They were buying almost anything they could get their hands on. That has slowed down, and almost stopped."

One potential boost on the demand side is a much-hoped-for infrastructure bill from the U.S. government.

Tim Carey, Industrial Product Specialist at Lonza Wood

A maintenance team applies new tie pads to concrete crossties.

Willamette Valley Company

Protection, says a dramatic push by the federal government could make a dramatic difference. And even existing Federal Railway Administration grant programs to states can move the market, he said.

"Government discussions of infrastructure improvement as well as federal funding of the short line and regional railroad support programs are providing a positive outlook for 2019," Carey said. "We expect to see modest growth in tie purchasing by all railroad classes as railroads continue to update their track systems based on government activity."

That's a wildcard that could hurt prices in the intermediate to long term. But the biggest wildcard in the market has to be the effects of PSR. As the Class I's look to push their operating ratios ever lower through PSR methods, the railroads (and Wall Street) seem to be less enthusiastic than in the past about maintenance.

"What we're seeing is that tie installations have dropped a bit," Gross said. "I don't know if this has to do with the wood lasting longer. But they [maintenance teams on PSR railroads] don't have the track time to be out there replacing ties."

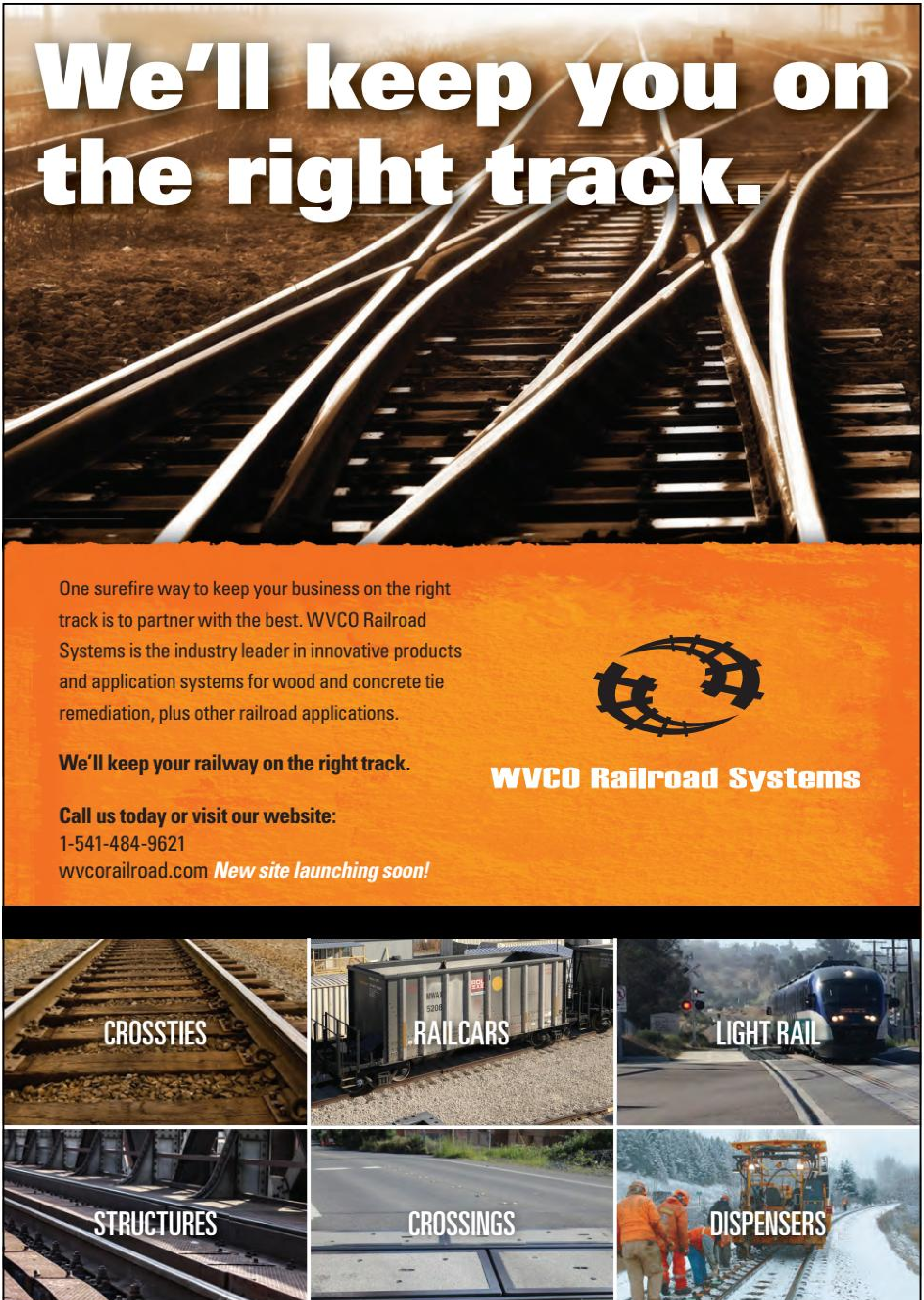
Gauntt is also concerned about how PSR plays out in the tie market. "Rail traffic has gone up," he noted. "So they've got to maintain more. I'm a little undecided about how this thing resolves itself. The push on operating ratios may be artificially affecting demand in a manner in which for the short term we may see continued softness."

CONCRETE

On the concrete side of the crosstie world, things look a bit different. Transit construction is soaring. And maintenance spending is strong, too.

"Projects that have been in the pipeline continue to come forward this year and we expect that improvement in performance to continue through 2020 due to growing federal government support," said Steve Burgess, President, CXT, Inc. and Vice President, Concrete Products, L.B. Foster.

In fact, CXT hopes that a recent acquisition will soon allow it to serve customers in the Western U.S. "Our acquisition of Carr Concrete, a concrete precaster in Waverly, W.Va., enabled us to expand its production footprint in the Eastern U.S. and add other concrete product offerings for the rail industry," Burgess said. Carr recently added a new concrete batch plant and expanded its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production capacity. Going forward, Carr plans to offer other types of precast concrete products by leveraging existing relationships east of the Mississippi River with transit agencies and short line and Class I railroads. Over time, the company plans to introduce some of those products to customers west of the Mississippi River through sister facilities in Hillsboro, Tex., and Spokane, Wash.

Similarly, Vossloh North America sees sufficient opportunity that it too is expanding production capability. The company is completing work on its seventh Concrete Tie facility in North America and was scheduled for startup in March 2019.

The new facility has direct access to Canadian Class I networks. Previously, the logistics challenges of shipping from off-line U.S. facilities to the Canadian market "did not allow for the economic benefits of concrete ties being installed. With this facility dedicated to the Canadian Class I market, we know that concrete ties now provide the best life-cycle cost benefit and volume will grow significantly in Canada," the company said.

Torsten Bode, Chief Sales Officer of Germany's RailOne, which operates a plant in Clinton, Iowa, also sees growth opportunity in North America. "From our perspective, the North American crosstie market remains interesting, even though the crosstie demand is lower than in earlier years," Bode said. "Class I railroads are still our core customer group. However, we identified an increasing number of interesting transit projects that we consider as a promising additional potential for our activities in North America."

Meanwhile, Nortrak is similarly optimistic.

"The market rebounded modestly in 2018 within our current niche of concrete ties for turnouts and special standard tie applications, and we believe that recovery will continue through 2019," the company said. "We forecast moderate growth as a result of increasing freight traffic and an uptick in transit and passenger projects." Also of note is that Nortrak built a state-of-the-art repeated load test center in Cheyenne in 2018 and announced a new partnership with Getzner USA to provide rail pads, ballast mats and undertie pads.

Concrete crossties are largely designed using an outdated understanding of what demand is likely to be placed on them in the field, according to researchers at RAILTec at the University of Illinois at Urbana-Champaign. See their findings by visiting http://bit.ly/concretecrossties on the *Railway Track & Structures* website.

COMPOSITES

RailOne is also in the composite space. And Bode says his sense is that railroads on this side of the Atlantic are also growing more comfortable with composites: "We recognize an increasing interest in alternative solutions as well ... showing one thing: an appetite for alternatives to wood as standard material for railroad ties in North America."

That seems to be the consensus among industry insiders. Composite ties may still be the new guy in the crosstie business, but the fight to win general acceptance is over.

Linda Thomas, President of LT Resources, which handles marketing and sales for American TieTek, said the railroad industry now sees the value in composites.

"The idea of installing a tie that doesn't need to be replaced for 50 years is quite compelling," she said, noting that "impressive performance and competitive life-cycle cost" has changed how railroads view composites "especially in high-decay areas, chemical environments and problem areas such as tunnels, grade crossings, turnouts


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and rail systems with limited hours to perform track maintenance."

TieTek® Engineered Polymer Composite (EPC) crossties, switch ties and bridge ties are used by a wide range of customers in a variety of applications throughout the U.S., Canada and Mexico. The TieTek tie is the only engineered polymer composite tie to perform without failure at TTCI for 15 years, accumulating over 2 billion gross tons, and the only EPC tie to withstand the most recent SRI testing at TTCI, Thomas said.

A newer player on the composite scene in the U.S. is Vossloh. Its Amalentic Tie material is polymer composite designed to be installed by conventional wood tie gangs. It has been in development and testing at Vossloh's Werdohl, Germany facility over the past three years and will be commercially marketed by the Vossloh Tie Technology group. The company says it is working with Class I partners to complete field testing.

One of the newer players in the composite space is Evertrak LLC, founded in 2017. Evertrak, which has an exclusive sales and distribution agreement with voestalpine Nortrak, says it's made rapid progress. "We have already or will soon have main line installations on four Class I railroads," according to Matt B. Moore, President. "In 2019, we will expand Evertrak into Class I main line wood tie replacement."

In addition, Moore says the company completed a test panel installation at TTCI's FAST loop in mid-2018 and that its Evertrak 7000, a glass-fiber-reinforced composite tie, "continues to demonstrate class-leading strength and consistency in heavy-axle-load track."

Finally, Pandrol recently signed a deal making it the exclusive representative in North America for Sicut, which holds the license to manufacture crossties from recycled materials using technologies developed by Rutgers University and Polywood Inc.

TREATMENTS AND COMPOUNDS

Disputes over world trade had an impact on those companies that service crossties in 2018. Industry insiders are hopeful that those problems will fade quickly.

"Tariffs on parts and machine-related expenses have increased dramatically, and we are hopeful that this will turn a corner this year," said Greg Spilker, Vice President and General Manager of Encore Rail Systems Inc.

The big news for Encore, however, is that the company moved into a new headquarters in Broomfield, Colo., in May 2018. The new plant will allow for increased production and capacity. That's much needed, according to Spilker, who says Encore is focused on increasing the size of its equipment fleet to better-serve an increased customer base that includes short lines, contractors, transits and mines in addition to Class I's.

Similarly, Rob Loomis, Business Manager, Performance Products Division at Willamette Valley Company, says new

AUTOMATED TIE-MARKING SYSTEM FROM GREX

Norfolk Southern, looking to improve efficiency in tie replacement, is the first Class I to adopt new automated tie-marking technology from Georgetown Rail Equipment Co. (GREX.)

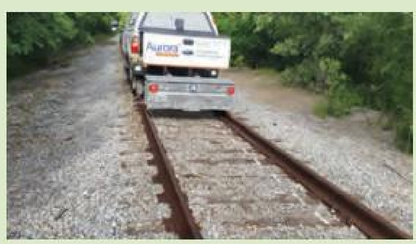
But NS won't be the last. A number of Class I's in North America have begun testing the technology. And Union Pacific is expected to sign on next.

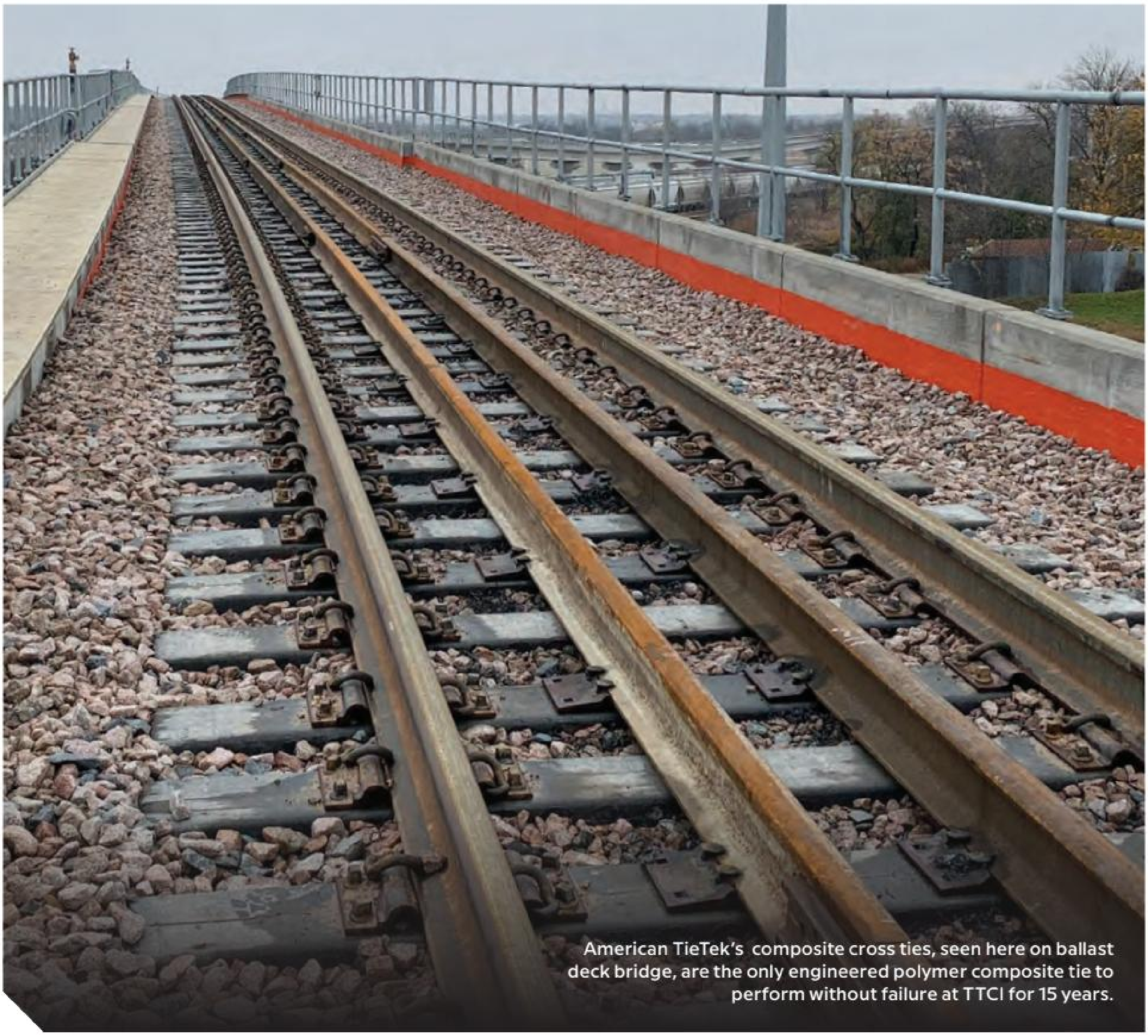
"Everyone needs it. Everyone wants it," according to Greg Grissom, GREX President.

So what is "it"?

Essentially, it's an Aurora automated tie-inspection truck with a box of paint hanging on the back. But that simple explanation belies the breakthrough it represents.

The tie-marking vehicles (NS has two in operation now) review the results of a previous tie-inspection survey; ride the rails to take a new real-time survey; orients itself to make sure its two sweeps line up logically; applies a tie-replacement logic that the railroad has created; and then marks the ties that the tie gang will replace, with paint.





American TieTek's composite cross ties, seen here on ballast deck bridge, are the only engineered polymer composite tie to perform without failure at TTCI for 15 years.

customers are driving changes at the company.

"Each year we reach new customers, both domestic and international, who are looking to either rehabilitate ties or are looking to extend the life of their current ties," he said. "In April, we are launching a new website (www.wvcorailroad.com) that will provide more details and information on these tie repair products."

Loomis notes that bridge maintenance can be particularly complex. That provides opportunity for suppliers with specialized products.

For bridge crossties, "our SpikeFast® tie-plugging material is commonly used to maintain track gauge, and the bridge bearing pads are repaired with our FastPatch® 5000, allowing of immediate return to service of the bridge," he said.

Jim Gorman, Corporate Vice President for Marketing for Nisus Corp., also sees growth potential in extending the life of bridge ties.

Gorman notes that East Coast Right of Way Maintenance, Inc., based in Lenoir, Tenn., has developed on-track equipment to do remedial Cellu-Treat liquid borate treatments on existing bridge ties. It is currently providing treatments for a Class I.

More Class I's are switching bridge ties to the BTX® system, which allows for dual treatment of green bridge ties with Cellu-Treat Liquid DOT Borate and QNAP copper naphthenate. In addition, Gorman says he's seeing more state railroads and DOTs, eager to improve worker safety, specifying QNAP® copper naphthenate for their crosstie and bridge tie programs. "QNAP copper naphthenate greatly reduces burns or skin irritation for workers," he said.

Meanwhile, Mike Raab, Vice President of Operations at Railroad Solutions, says his company has developed a new way to deliver proven products. "Customers are telling us that glue machines are too hard to keep going, always plugging up and causing massive down time for customers' ever-shrinking windows for repair," Raab said. "As tie-life extension products have become a maintenance standard over wood plugs, there is new demand for safer and more efficient equipment—not to mention that it's unsafe as the operator has to deliver plugging compound walking behind the machine."

Railroad Solutions has developed a new type of ride-on tie-plugging application technology. The equipment delivers Sure Spike powder, not liquid, safely with the operator in a cab, keeping workers safer with a machine that never plugs up.

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President & CEO
Kansas City Southern

Ian Jefferies
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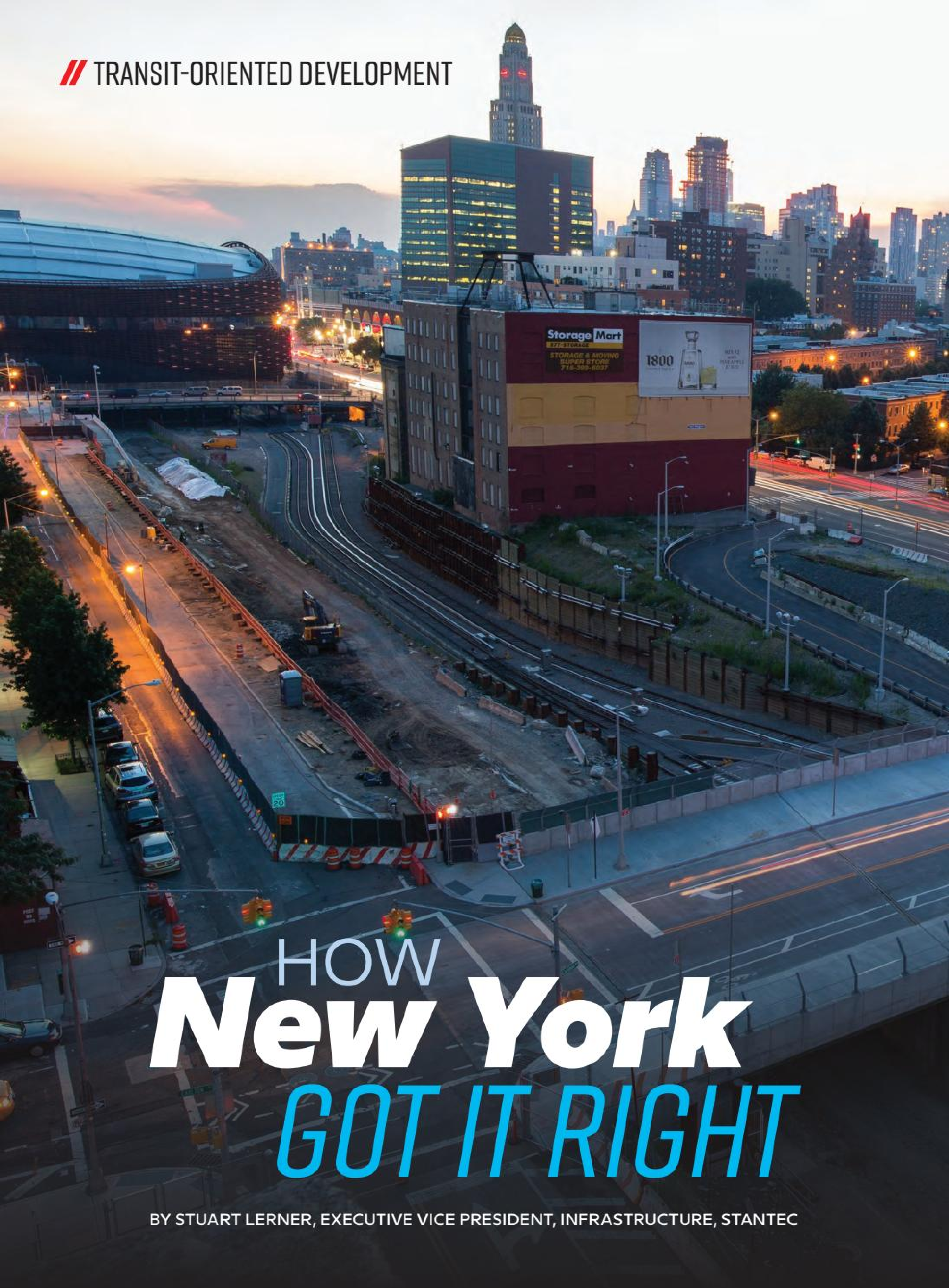

HOW *New York* GOT IT RIGHT

BY STUART LERNER, EXECUTIVE VICE PRESIDENT, INFRASTRUCTURE, STANTEC

TOD has gained prominence in boardrooms around the country with the increasing urbanization of society.

The Transit-Oriented Development terminology used by real estate developers, transit agencies and political leaders is "development that focuses on dense, mixed-use communities, integrated into a neighborhood within a reasonable walk of high-order mass transit—generally high-frequency rail or bus lines." It serves as a way of capturing the value of large mass transit earlier in a project's life cycle, thereby increasing the sustainability of the TOD.

This can be done by offering developers something they want—higher-density development, friendlier zoning laws or more retail—in exchange for sharing the cost of big-ticket items that benefit the entire community. The result is a walkable community that contributes to sustainable, resilient economic development that in turn increases property values and long-term financial stability.

Despite increased interest in recent years, TOD is not a new concept. While the prominence of TOD has varied around the world, many Asian cities count themselves among world leaders. Cities like Singapore have been getting TOD right for decades, resulting in quality transit networks that double as community and cultural hubs.

Back home in North America, governments have been increasingly exploring the possibility of sharing transit infrastructure investments with the private sector, to varying degrees of success. It's been a hard sell in more car-centric cities, or those with less history with grand real estate developments.

It's logical then that the New York Metro area has been one of the regions in North America where TOD has been most successful, using large-scale projects to generate the most significant improvements for the community.

TOD IN NEW YORK

TOD stems from the days of streetcars in the late 1800s. As commuter routes became established in cities across the U.S., general stores and other retail popped up along the route to service people going to and from work. Sometimes these commercial businesses stood two or more stories tall, with apartments on the upper floors. While New York can't claim to be the originator of TOD, it did take things to the next level.

Projects like Grand Central Terminal (GCT) and its surrounding district, built in the first decades of the 20th century, are part of the community fabric. The development of GCT was an early example of how electrification allowed trains to move underground, freeing up above-ground air rights for real estate development, which was seen as a way to fund construction of the Terminal. GCT opened in 1913, with the blocks surrounding it valued at an estimated \$2-\$3 million, according to the *New York Times*. The Grand Central District became Manhattan's most desirable, with land values increasing by more than 200% from 1904 to 1926.

Cities experiencing unprecedented growth should take a long look at TOD as they plan their future.

A century later, the Grand Central District still stands out as a prominent example of TOD, with a new tower, One Vanderbilt Avenue, being constructed right across from the Terminal itself. With completion estimated for 2020, the skyscraper will add world-class office space and provide more than \$200 million for the construction of transit improvements to ease the congestion at GCT, which is estimated to receive more than 1 million daily commuters and visitors after the Long Island Rail Road East Side Access project is complete. In this case, the developer was able to get higher density on the existing zoning lot from the City in exchange for investments into the transit hub next door. Stantec prepared all the related transit improvement designs, including a series of on- and off-site transportation improvements.

As part of the One Vanderbilt Avenue Transit Improvements project, new transit entrances are being added on-site, providing direct connections to the Terminal, the NYCT Shuttle (S) and Grand Central/42nd Street (7) subway stations as well as to the future LIRR East Side Access concourse, three levels below. Adjacent and running under existing buildings, the NYCT Grand Central/42nd Street Station, with a connection to the Lexington Avenue Line (4-5-6), will see circulation space increase on platforms to improve levels of service, egress and safety, and consequently improve train service in and out of the station. The subway mezzanine will also be expanded into acquired building cellar spaces, providing better pedestrian connectivity throughout the station and to the street, with a new wide entrance along Lexington Avenue. The resulting project, once completed, will invigorate economic development in the area, provide needed Class A office space and improve the mass transit experience and operations along the entire Lexington Avenue Line.

Hudson Yards and Atlantic Yards, also game-changing TOD projects, have been under development in New York City in recent years, and there is no shortage of similar projects. As New York City continues to grapple with updating and upgrading its century-old-plus transit system, it can look to TOD as one valuable funding tool needed to help complete infrastructure projects and stimulate economic development.

New Jersey has also recognized the need for increased TOD. In 1999, the New Jersey Department of Transportation established the Transit Village Initiative, offering \$1 million in agency money and grants to shovel-ready projects that meet guidelines in mixed-use strategy, transit, affordable housing, job growth and culture. New Jersey's TOD program is a work in progress but has rightfully been identified as a priority.

WHAT OTHERS CAN LEARN

While there is plenty to learn from the New York experience, other parts of North America have been slow to embrace TOD. Car-centric policies that limit density and mandate minimum parking function are a challenging barrier to break through, as preferences for 20th century car culture remain strong in some decision-making circles.

This runs counter to the consumer trends we see. According to the American Public Transportation Association, transit ridership has increased by 30% since 1995—a growth rate that exceeds our 22% growth in population. Nationally, public transit has become more popular.

We've also seen an increased preference for living in walkable, dense, mixed-use neighborhoods with access to transit—exactly what TOD provides. Here's an important point: TOD doesn't have to be in the middle of the city core. It can work as an effective tool to revitalize outer urban areas and suburbs. Washington, D.C. has embraced TOD through suburban developments in Virginia. Places like Arlington County have become the poster child for TOD in less-dense areas, with amenity-rich, walkable districts attractive to knowledge workers. Other jurisdictions should take notice, as suburban malls see a downswing, and many are being abandoned. These large swaths of land can transform into mixed-use hubs that provide rail transit connections to adjacent urban cores and to the region.

Add this consumer preference to several other trends and we have a strong case for TOD. Rideshare providers and other first- and last-mile solutions make transit more appealing than ever before. We're also on the cusp of a Smart Mobility revolution, which will change the way we drive and park forever. As soon as 2030, 50% of vehicles on the road may have some form of connected technology. Experts say that parking needs can only decline from thereon, as our future lies with connected, autonomous shared vehicles that supplement mass transit. Autonomous vehicles—or vehicles with some autonomous technology—will require significantly less parking space, as they will park themselves, or they won't park at all. By eliminating strict parking requirements, we can offer more space for mixed-use development and invest more in integrated transit options.

It's important to note that while TOD makes land and property more valuable, it can also make housing less affordable, which can eventually have a negative effect on the health of a neighborhood. Affordable housing strategies are increasingly part of any TOD strategy, and should continue.

TOD projects have their challenges, but the rewards are well-documented. Increased land and property value mean increased revenue for public agencies. Dense, mixed-use neighborhoods increase economic activity, injecting growth and increasing employment opportunities. It helps build a business case for transit investment, as building transit next to people naturally increases ridership. It attracts investment from business, and provides funds for transit and public-realm projects to the benefit of the community.

In the coming years, the prominence of TOD projects will continue to rise as one of the main drivers in mass transit development. That said, these projects don't necessarily have to be centered on heavy underground rail, or even light rail transit. New technologies are making diverse, multimodal transit options more feasible than ever before, which can alleviate the need for enormous capital investment. In the end, the purpose of TOD is to increase value, drive economic development, enhance communities and facilitate the movement of people—not to bolster a specific mode of transportation.

While there isn't necessarily a one-size-fits-all TOD strategy, there are many lessons to be learned. Cities experiencing

unprecedented growth—like Seattle, Nashville and Toronto—should take a long, hard look at TOD as they plan their future.

Stuart Lerner has more than 35 years of experience in transportation infrastructure engineering and is an acknowledged leader throughout the industry. He keeps a watchful eye on the future of community infrastructure and promotes solutions that embrace sustainability and efficiency.

KARALYN MOREIRA
TTCI

HIGH PROFILE: Transportation Technology Center, Inc. (TTCI) named Karalyn Moreira as Executive Director of Business Development. She joins TTCI after spending the past 17 years in Brazil as Commercial Director for Scomi Engineering, Bhd., and as Director of Business Development Operations for HKM Solucoes Tecnologicas. A Michigan native, Moreira, 45, graduated Magna Cum Laude from the University of Incarnate Word with a degree in Business Administration. She earned an MBA in Global Management from the University of Phoenix. Her areas of expertise include business development and strategy, and financial modeling. She is fluent in English, Spanish and Portuguese and has a working knowledge of Japanese. Moreira "is a product of globalization, as her career path demonstrates," said TTCI President Lisa Stabler. "Her background will be a tremendous asset to the company. Karalyn's wealth of experience, including in the passenger market, will help TTCI in our continued efforts assisting the industry in North America and beyond."

OmniTRAX, Inc. has elected **Cameron Scott** and **David Garin** to its Board of Directors. Scott's addition coincides with his retirement as Executive Vice President and Chief Operating Officer at Union Pacific Feb. 28, 2019; Garin's service follows an extensive career that culminated in his most recent role as Group Vice President, Industrial Products at BNSF.

New York University's **Tandon School of Engineering** has created the Institute of Design and Construction (IDC) Innovations Hub and selected railroad construction veteran **Dr. Michael Horodniceanu** as Chairman. Horodniceanu, a Professional Engineer, already serves as a professor within NYU's Department of Urban and Civil Engineering. But the railroad and transit industry, which calls him "Dr. H," knows him for his time as President of New York MTA Capital Construction, the subsidiary of the MTA that manages capital programs.

South Florida Regional Transportation Authority, operator of the Tri-Rail regional/commuter rail system, has restructured its senior management team and promoted several staff members. **Christopher C. Bross**, CPPO (Certified Public Procurement Officer), has been named Deputy Executive Director of Operations. **Dianelys Hernandez Del Calvo** has been named Deputy Executive Director of Administration/EEO Officer. **Loraine Kelly-Cargill**, Director of Planning and Capital Development; **Dr. Ralph E. Rapa**, Director of Operations; **M. David Trabal**, Director of Human Resources; and **Vicki Wooldridge,** Director of Government Affairs, were promoted to Director level. Completing the senior management team are **Brandy Creed,** Director of Engineering and Construction; **Renee Matthews**, Comptroller and Director of Information Technology; **Allen Yoder,** Director of Safety and Security; **Bonnie Arnold**, Public Information Officer; **Teresa Moore**, General Counsel; and **Noel Pfeffer**, Deputy General Counsel.

100 YEARS AGO IN RAILWAY AGE
MARCH 1919

The Plans for New Railroad Legislation

A fundamental of the bill: The return to private control of the railroads as soon as it can be accomplished without undue shock to the roads and the financial world. Government control would cease automatically upon enactment of the bill.

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LED Lighting Offers Advantages For Passenger Railways

ROB ENDERLE, principal analyst at the Enderle Group, says LED (light-emitting diode) lighting is one of the easier upgrades that U.S. passenger railroads can undertake. "Changing fluorescent lights to warm white LEDs not only saves energy, but also creates an environment that is far more comfortable for passengers," he says. "We need to update our trains while containing costs, and LEDs would be a relatively inexpensive place to start."

Torrance, Calif.-based LEDtronics, one of the largest producers of LED products, has partnered with Amtrak and regional rail transit authorities to illuminate trains, tunnels and stations from coast to coast. "The majority of our country's trains have old-technology lighting," says founder and CEO Pervaiz Lodhie, holder of numerous LED-related patents. "For safety and money-saving reasons alone, it's paramount that the railroad industry be educated on the clear advantages of switching to LEDs."

"LED lighting has huge advantages over incandescent lights that makes it a natural for the rail industry," Lodhie says. "For one thing, incandescent lights typically last a few months, whereas LED lighting, even if operated 24/7, can last up to 10 years under normal conditions. Also, because solid-state LED lighting withstands vibrations, this newer technology is virtually maintenance-free."

Amtrak is already riding the "LED train," so to speak. At eight stations, Amtrak uses LEDtronics' LED indicators for controls, tube lights inside trains and wall packs to light up tunnels, among other applications. These stations are located in New York, Los Angeles, Philadelphia, New Haven, Wilmington, Perryville, Beech Grove and Oakland, Calif.

Several light rail operators are replacing incandescent bulbs with LED units that include miniature-based indicator bulbs, tube lights, intermediate-based bulbs and PAR (parabolic aluminized reflector) spot and flood bulbs at the control panels and in light rail vehicles.

One of LEDtronics' newest customers is also one of the nation's oldest: San Francisco's cable cars, which were upgraded with LED bulbs earlier this year. Replacing dim incandescent headlights with PAR46 LED bulbs from LEDtronics, in addition to installing A19-style LED light bulbs inside the passenger cabins, has improved safety and has saved the city money on energy and maintenance, according to Arne Hansen, Maintenance Supervisor at the San Francisco Municipal Cable Car Barn.

The future of LED technology on U.S. railroads does look bright both inside and out, according to Shrikant Mahankar, Senior Research Analyst at MarketsandMarkets: "With train interiors, we're seeing an increasing demand for comfort and luxury, and that is propelling the U.S. market and others internationally for advanced lighting applications such as reading, vestibule, emergency, bathroom and cabin lights. LEDs also allow designers to develop imaginative train interior light designs."

As for exterior train lighting, Mahankar says such applications as headlights and rear marker and indicator lights open up opportunities for LED lighting: "The main benefits for using LEDs in train exterior lights are long warranty periods, due to the long lifetime of the LEDs and low maintenance costs. Low power consumption is an added advantage, as LEDs are energy efficient."

Information: www.ledtronics.com.

Miller Ingenuity Customized Locomotive Truck Kits

MILLER INGENUITY noticed that some customers were frustrated with the way the industry supplied locomotive truck parts to their shops. Loosely packaged parts within a box would cause confusion and lacked efficiency. No two shops are ever the same, so why should they be receiving the same type of kit?

Miller knew there could be a better solution, and created customized locomotive truck kits that meet the specific individual customer need. Miller product development people visited with customers and observed the shop employees who unpack and use truck parts, and determined what parts they wanted and the order in which they needed the parts packaged, to increase efficiency. This innovative process has established a new standard for the locomotive truck part industry and has enhanced the company's reputation as a provider of accurate and reliable truck parts.

Here's how the packaging process works: Miller finalizes a list of materials and loads it into an ERP system connected to its PickStar pick-to-light system. This process allows the company to choose all of the materials accurately every time. All of the parts are labeled for easy identification, and all of the bag parts show the part numbers and quantity to verify the count accuracy.

The kits can hold more than 50 line items. The time and space needed to stage materials for a job can be greatly reduced with an organized, compact kit. Miller doesn't believe in a one-size-fits-all strategy. Visit MillerIngenuity.com/products/locomotive-truck-parts or email customerservice@milleringenuity.com.

Battery-Powered Railcar Mover From DJ Products

MAKING IT SAFER and easier to move railcars, DJ Products, Inc. has just released its RailCarCaddy Rail Car Mover, a battery-powered, compact mover that makes moving railcars weighing up to 200,000 pounds entirely effortless.

The RailCarCaddy revolutionizes the way railcars are moved in and around rail terminals, repair shops and maintenance yards. At less than 10% of the cost of a traditional railcar mover, the battery-powered RailCarCaddy makes the movement of railcars easier, more efficient and less expensive than ever before.

The RailCarCaddy is fitted with a railcar coupler that swiftly attaches to a car. With a turn of the RailCarCaddy's variable-speed twist-grip handle, workers are able to safely and effortlessly guide cars to their desired locations. The low-speed, high-torque design of the RailCarCaddy, with adjustable acceleration and braking, allows workers to move railcars safely and precisely.

Many rail companies are finding that DJ Products' RailCarCaddy Rail Car Mover is great for indoor use. It's one of the few battery-powered movers on the market and can be safely used in a warehouse all day long without any concerns about emissions or ventilation.

With 20 years in the business of making movers, DJ Products' RailCarCaddy is fresh with innovation and backed with two decades of experience in the industry. At a fraction of the cost of other movers, the RailCarCaddy is designed to be used eight hours a day, seven days a week.

DJ Products is known for its service and customization abilities. All of DJ Products' movers are made completely in the U.S. in Little Falls, Minn., to fit each customer's individual needs.

DJ Products also offers Cart Tuggers and Trailer Movers that can reduce injuries from manually moving heavy carts and wheeled equipment. These battery-powered "walk behind" tugs can be maneuvered even in tight, difficult spaces; are more manageable than bulky, expensive riding equipment such as fork trucks or a riding tug; and increase material handling productivity while reducing operating costs.

To learn more about the RailCarCaddy Rail Car Mover and DJ Products' wide variety of movers, visit www.DJProducts.com or contact the company by phone at 800-686-2651.

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Fuzzy Math, Politics and Railcars

On Feb. 19, the Alberta government announced that it had entered into transportation (and some logistics) contracts with CN and Canadian Pacific to begin to move Canadian oilsands crude from the Albertan province down to the Gulf of Mexico. The province intends to move 20,000 barrels per day (BPD) by rail beginning in July 2019, increasing to a total number of 120,000 BPD by midyear 2020.

The Alberta order to buy or lease tank railcars to facilitate moving crude to points of sale would hypothetically eat away the current oversupply, stabilize prices and encourage growth. Crude producers, now having a committed and consistent method of off-take, could continue expansion. After a period of time, between pipeline expansion and rail franchise expansion, Alberta would be able to move crude with ease.

Slick!

When this plan was first announced, Alberta talked about leasing up to 7,000 tank railcars, and for the most part there were "crickets." The announcement acquired an emotional feeling similar to what happened after BNSF's dramatic 2014 announcement that it would order 5,000 new DOT 117J tank railcars for hauling Bakken crude. It was like a threatened punishment by a middle-school parent that wants to take away an iPad but can't because it is used for "homework" (scoff).

Then Feb. 19 happened. The number Alberta Premier Rachel Notley cited was not 7,000 tank railcars but 4,400—1,000 retrofit DOT 117Rs and 3,400 new DOT 117Js. The hypothetical lease term is three years, and the delivery date is going to commence in July 2019 and continue on into midyear 2020, at which point the 120,000 BPD day threshold will be achieved.

The Albertans are not doing this for free, of course. The cost for the transportation of the crude (cars and rail and logistics) is pegged at C$3.7 billion. The government believes that will generate C$5.9 billion in revenue. As a result of this process, and after expenses (transportation, lease rates, etc.), the Albertan government expects to pocket a cool C$2.2 billion.

That's not too bad for three years' worth of work.

While the "Financial Edge" is all about examining the fuzzy math involved in that $3.7 billion cost number since it makes for really interesting copy, what raises concerns in the railcar market is what 3,400 additional DOT117J tank railcars might already do to a backlog that is already on the edge of being overheated.

As of Dec. 31, 2018, the tank railcar backlog stood at 34,512 cars. Versus historical standards, that number represents three to four years of production. The sum of the Alberta order plus any additional orders placed in the first quarter of 2019 could easily bring the backlog up above 40,000 tank railcars. That would be the highest it has been since 2015.

For those readers new to the party or with selective short-term memory, hyper-extended backlogs (like the one that occured from 2014 to 2015) usually end with an oversupplied railcar market and a potentially significant market rental rate disruption.

The Canadian crude oil market has recently been an opportunistic one. There is limited takeaway capacity, and there have been limited tank railcar resources to serve the demand. Effectively flooding the market in a short time frame with a large number of tank railcars is, if history proves out, likely to cause a displacement of existing assets working opportunistically that may not have alternative homes.

Railcar markets generally have a fragility that often goes unnoticed, as the parties involved are too close to the market to maintain perspective. It doesn't take long for a small disconnect to become a contagion.

Additionally, the long-term prospects are far more troubling. The cause for the Alberta tank railcar purchase is a lack of alternative (e.g. pipeline) takeaway capacity. The likelihood is that over time, and as a result of often-changing political winds, pipeline capacity will eventually be built. Pipelines are cheaper, and their capacity to move crude oil is easily increased to a level greater than the existent crude by rail capacity.

Three years from lease commencement (roughly 2022 and 2023) 4,400 tank railcars will flood the market and railcar shops and cleaning facilities. Every lessor hopes that they will not have expiring leases competing with that block of assets.

> "IT IS THEATER OF THE ABSURD OF THE HIGHEST ORDER, OVERTLY POLITICAL."

Industry sources have not been able to confirm that an order for the cars has actually been placed, and are split on whether the order actually does get placed. Thus, the BNSF similarity remains apropos.

Another fine comparison might be President Trump's threats to declare a national emergency at the U.S.-Mexico border and his fixation on spending billions on constructing a border wall. Like with the "national emergency," immediately following Rachel Notley's announcement of the Alberta tank railcar order, opposition was raised about the business case, its viability and justification for it. Does this sound familiar?

In all these cases, the main similarity is that the decisions being discussed are overtly or covertly political. Fuzzy math, politics and railcars: It is theater of the absurd of the highest order.

Got questions? Set them free at dnahass@railfin.com. //

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