

MASS TRANSIT

BEST PRACTICES FOR INTEGRATED MOBILITY

How Sound Transit Controls TRAIN-BORNE NOISE

► By diving deep into noise-measurement data and tapping industry expertise, Sound Transit has refined its wheel and rail maintenance programs to keep assets in a state of good repair. PAGE 16



SPECIAL REPORT

**2023 Trends in
Passenger Rail**

PAGE 24

**The Future of Paying for
Public Transit Will Bring
Better Connections**

PAGE 32



THE OFFICIAL SPONSOR OF MOTHER NATURE™

BATTERY ELECTRIC • ZERO-EMISSIONS • BUILT IN AMERICA

GLOBAL LEADING INNOVATOR



DRIVING THE FUTURE
TO A BETTER WORLD



Made in
the USA



80,000 Buses
Globally



Safest
Battery



For more information, visit www.MassTransitmag.com/11195189

SIEMENS

Create a better **#TomorrowWithUs**

At Siemens Mobility, we are curious minds, groundbreakers and innovation-drivers. We are rail enthusiasts with diverse backgrounds, skills, interests and a passion for transportation. We are women in transportation, redefining tomorrow with the products we design and build today.

usa.siemens.com/mobility

Lisa Civello | Marion, KY
People & Organization Advisor.
Former Production Manager.
MBA Grad. Sister. Mom.



Apply today!

For more information, visit www.MassTransitmag.com/21273733





FEATURES

16

How Sound Transit Controls Train-Borne Noise

SEATTLE AND THE TRI-COUNTY AREA

By diving deep into noise-measurement data and tapping industry expertise, Sound Transit has refined its wheel and rail maintenance programs to keep assets in a state of good repair.

On the cover: Sound Transit



24



32

24

Special Report: 2023 Trends in Passenger Rail

Renewal appears to be the overarching trend with significant federal investment coming in for station and rail vehicle replacement, as well as work progressing on expansion and maintenance projects.

28

One of the Best Transit Tools of the Future is an Old Friend - The Bus

New tools are helping agencies with zero-emissions and climate change goals to identify potential technologies to advance environmentally friendly improvements to existing bus fleets and infrastructure.

32

The Future of Paying for Public Transit Will Bring Better Connections

Transit systems in Milwaukee, Wis., and the Tampa, Fla., area reflect the industry's wider move toward payment systems that support equitable efforts.

36

What Kind of Big Impact Will a New Minibus Have on North America's Small Bus Market?

The new-style transit bus can provide flexibility and support lower emission goals, but its wider adoption will depend on how well policy challenges can be navigated.

DEPARTMENTS

6

Editor's Notebook

8

People & Places

The latest industry and people news and updates

14

Guest Opinion: Buy America – Striking the Right Balance

Better progress toward Buy America goals requires the government to consistently implement policies.

41

Products

In Focus: Rail and Rail Components

ONLINE EXCLUSIVES

Four steps for creating a successful on-demand microtransit service

► On-demand transit carries the potential to support ridership on fixed-route systems, bridge mobility gaps and address first- and last-mile challenges.

MassTransitmag.com/53060532

Major U.S. cities leading in transit electrification

► A review of CIPs identified the projects which include fleet electrification, charging infrastructure, parking spaces and modifying existing lanes for EVs.

MassTransitmag.com/53061099

FOLLOW US

 **FACEBOOK**
facebook.com/MassTransit

 **TWITTER**
@MassTransitmag

 **LINKEDIN**
linkedin.com/company/11303271

 **SUBSCRIBE TO OUR NEWSLETTERS**
MassTransitmag.com/subscribe

ADVERTISER'S INDEX

Advanced Rail Management Corp.....	22
American Public Transit Association.....	31
AngelTrax.....	7
BendPak.....	13
BYD North America.....	2
Complete Coach Works.....	10
Hatch Associates Consultants Inc.....	38
Okonite Company.....	27
ORX Rail.....	44
Plasser-American Corporation.....	21
Rosco Vision Systems.....	11
Safety Vision.....	40
Siemens Industry, Inc.....	3
Vericom LLC.....	23
Western Cullen Hayes.....	23

MASS TRANSIT

Published by Endeavor Business Media, LLC
30 Burton Hills Blvd, Ste. 185,
Nashville, TN 37215
800-547-7377

Vol. 49, No. 3

VICE PRESIDENT, GROUP PUBLISHER

Lee Hetherington
(952) 467-8615 | LHetherington@MassTransitmag.com

EDITOR IN CHIEF Mischa Wanek-Libman
(224) 324-8532 | MWanek@MassTransitmag.com

ASSOCIATE EDITOR Brandon Lewis
(216) 298-3269 | BLewis@MassTransitmag.com

CONTRIBUTORS Bennett E. Resnik, Robert Tuzik, Bill Crowley,
Fabiola Dagrín

MULTIMEDIA ACCOUNT MANAGER Kristy Dziukala
(920) 568-8324 | Kristy@MassTransitmag.com

MULTIMEDIA ACCOUNT MANAGER Paul Ropski
(815) 255-4118 | PRopski@MassTransitmag.com

LIST RENTALS REPRESENTATIVES InfoGroup
MICHAEL COSTANTINO
(402) 836.6266 | Michael.Costantino@infogroup.com
KEVIN COLLOPY
(402) 836.6265 | Kevin.Collopy@infogroup.com

PRODUCTION MANAGER Patti Brown

AD SERVICES MANAGER Deanna O'Byrne

ART DIRECTOR Erin Brown

AUDIENCE DEVELOPMENT MANAGER
Debbie Dumke



ENDEAVOR BUSINESS MEDIA, LLC

CEO Chris Ferrell
PRESIDENT June Griffin
CFO Mark Zadell
COO Patrick Rains
CRO Reggie Lawrence
CHIEF ADMINISTRATIVE AND LEGAL OFFICER Tracy Kane
EVP HEALTHCARE & CITY SERVICES Amy Mularski
EVP MARKETING SOLUTIONS & DATA Jacquie Niemiec
GROUP PUBLISHER, Lee Hetherington

SUBSCRIPTION CUSTOMER SERVICE
877-382-9187; 847-559-7598



Circ.MassTransit@Omeda.com
PO Box 3257, Northbrook, IL 60065-3257

ARTICLE REPRINTS
reprints@endeavorb2b.com

Mass Transit (USPS 017-230), (ISSN 0364-3484 print, ISSN 2150-413x online) is published 6 times per year in February, March/April, May/June, July/August, September/October and November/December by Endeavor Business Media, LLC, 1233 Janesville Ave., Fort Atkinson, WI 53538. Periodical postage paid at Fort Atkinson, WI, and additional mailing offices. **POSTMASTER:** Send address changes to Mass Transit, PO Box 3257, Northbrook, IL 60065-3257. **SUBSCRIPTIONS:** Publisher reserves the right to reject non-qualified subscriptions. Subscription prices: U.S. (\$47.50 per year); Canada/Mexico (\$81.25 per year); All other countries (\$116.25 per year). All subscriptions payable in U.S. funds. Send subscription inquiries to *Mass Transit*, PO Box 3257, Northbrook, IL 60065-3257. Customer service can be reached toll-free at 877-382-9187 or at circ.masstransit@omeda.com for magazine subscription assistance or questions.

Printed in the USA. Copyright 2023 Endeavor Business Media, LLC. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopies, recordings, or any information storage or retrieval system without permission from the publisher. Endeavor Business Media, LLC does not assume and hereby disclaims any liability to any person or company for any loss or damage caused by errors or omissions in the material herein, regardless of whether such errors result from negligence, accident, or any other cause whatsoever. The views and opinions in the articles herein are not to be taken as official expressions of the publishers, unless so stated. The publishers do not warrant either expressly or by implication, the factual accuracy of the articles herein, nor do they so warrant any views or opinions by the authors of said articles.

Transit Industry's Summer MVP: Taylor Swift

With Swift's Eras Tour set to hit major cities throughout the summer, transit agencies need to ask themselves if they're 'Ready for It.'

The horde arrives at night donned in various hues of pink, red or even black. Cowboy hats, tank tops, dresses and sequins will be spotted. To those outside of a certain demographic (anyone considered elder Generation X or older), the only hint as to what this gaggle of humanity has in common can be found in the concert t-shirts some wear with several images of the same blond woman on them. This mob is known collectively as Swifties, and they are fans of one of the top music performers in the world: Taylor Swift.

Swift can sell out arenas on consecutive nights and since her "Eras" Tour began this past March in Arizona, her legion of fans has provided local economies, including the transit industry, a measurable boost that is both welcoming and intimidating.

In Atlanta, Metropolitan Atlanta Rapid Transit Authority carried 140,000 people the weekend Swift performed, triple the number of weekend riders it typically sees. Systems in Philadelphia and Houston also saw bumps in weekend ridership when Swift came to town. Massachusetts Bay Transportation Authority commuter rail tickets to Gillette Stadium for the Swift concert initially sold out

before Keolis Commuter Services, which operates the rail service, released additional tickets.

This kind of activity has caught the eye of transit's social media users. Videos of Swift's fans riding transit have been entertaining, including one in Atlanta when a rider on a train captured the moment it pulled into a station passing packed platforms of fans; fellow riders can be heard expressing themselves at various levels of shock and exasperation as to what was going to happen the moment the doors opened. Some videos have also been heartwarming, including one from Philadelphia where a train car full of young Swift fans collectively sings one of her songs. There are also more and more "how to" videos cropping up on social media platforms, detailing how concert goers can take transit to upcoming concerts.

While transit systems cannot be built or sustained on special event services, they certainly can offer an introduction to riders of these services that transit is a viable travel option. Maybe in the next 10 to 15 years, *Mass Transit* will have the opportunity to

highlight a transit leader who shares their first transit experience involved the bus and a Taylor Swift concert or singing on that SEPTA train with a group of strangers.

So, heads up Chicago, Detroit, Pittsburgh, Minneapolis, Cincinnati, Kansas City, Mo., Denver, Seattle, Santa Clara, Calif., and Los Angeles: Time to polish off your special event plans and let your marketing departments loose on promotions because Swift will be arriving this summer, and she's bringing her fans. Are you ready?



A MARTA train platform packed with Taylor Swift concert goers.

Photo: MARTA

“

Swift can sell out arenas on consecutive nights and since her "Eras" Tour began this past March in Arizona, her legion of fans has provided local economies, including the transit industry, a measurable boost that is both welcoming and intimidating.

”

✉ mwanek@masstransitmag.com

☎ 224-324-8532

🌐 [linkedin.com/in/mischawaneplibman](https://www.linkedin.com/in/mischawaneplibman)



Mischa Wanek-Libman

Mischa Wanek-Libman,
editor in chief



INNOVATION

the spark that ignites
when people and technology intersect.



High-Definition Mobile Video
Surveillance Solutions

At AngelTrax, our greatest asset is our team that constantly challenges the status quo in customer service and tirelessly collaborates to produce the newest technologies in video clarity, high-capacity in-vehicle storage and remote access to your data hosted in our secure AngelTrax facility.

People & Places



A joint funding agreement will purchase up to 1,229 electric buses to transit agencies in Quebec.

Photo: ATUQ

Quebec launches largest North American electric bus project with more than 1,200 vehicles

A joint funding commitment from the governments of Canada and Quebec will see up to 1,229 electric transit buses deploy among the province's 10 transit providers. The joint funding of more than C\$1.88 billion (US\$1.41 billion) consists of more than C\$780 million (US\$583.34 million) from the government of Canada through its Public Transit Infrastructure Stream and C\$1.1 billion (US\$820 million) from the provincial government. The funding will cover up to 95 percent of the cost to procure up to 1,229 40-foot electric vehicles at a total cost the Association du transport urbain du Québec estimated to be C\$2.1 billion (US\$1.57 billion). Nova Bus was awarded a base contract for 339 LFSe+ vehicles, with an option for up to 890 additional vehicles. Nova bus says the vehicles will be delivered over a three-year period beginning in 2025.

[MassTransitmag.com/53059816](https://masstransitmag.com/53059816)

all regions of the state and will result in the purchase of 277 new zero-emission vehicles statewide and the development of several high-priority mobility hubs and rail projects. The more than \$690 million awarded in TIRCP grants will help deliver \$2.63 billion in transit projects. This round of funding follows \$2.54 billion awarded in January for a total state investment of more than \$3.2 billion in public transportation in just the first four months of 2023.

[MassTransitmag.com/53058693](https://masstransitmag.com/53058693)

FTA recognizes four transit agencies with climate challenge awards

► The Federal Transit Administration (FTA) recognized four transit agencies – Metropolitan Transportation Authority (MTA), Minnesota Valley Transit Authority (MVTA), Chicago Transit Authority (CTA) and Everett Transit – for their work to reduce emissions and answering FTA's Transit for a Healthy Planet initiative call that was created in June 2021. The challenge tasked agencies with the development of strategies to reduce emissions, such as converting fleets to electric buses, making facilities more energy efficient and generating power through renewable energy sources. MVTA, which serves a region around Minnesota's Twin Cities, received the Most Transformative Plan Award for its 2023 Sustainability Plan. MTA, CTA and Everett Transit were recognized with Champions of the Challenge Awards, which is "bestowed on small, medium and large transit agencies that developed plans that include achievable, ambitious strategies for reaching their greenhouse gas emission reduction goals."

[MassTransitmag.com/53058084](https://masstransitmag.com/53058084)

CalSTA awards 28 California transit projects \$690 million in grants

► The California State Transportation Agency awarded more than \$690 million in funding through its Transit and Intercity Rail Capital Program (TIRCP) to 28 state transit projects. Funding for TIRCP is supported by California's Greenhouse Gas Reduction Fund, and the grants will benefit disadvantaged communities by supporting equity, enhance mobility options, improve service and reduce overdependence on driving. Projects receiving funding come from



Santa Cruz Metro's efforts to transition its fleet to lower emissions was one of 28 projects to receive grants from CalSTA.

Photo: Santa Cruz Metropolitan Transit District

APTA honors six transit agencies with 2023 Bus Safety, Security and Emergency Management Awards

► The American Public Transportation Association (APTA) honored six transit agencies from Florida, Illinois, New Jersey, Ohio and Texas with the 2023 Bus Safety, Security and Emergency Management Awards. The awards recognize transit organizations for their innovative and proactive safety and security programs. APTA added a new category in 2023 to honor transit agencies that excel in the management of emergencies through partnerships, planning, exercises and drills. The Bus Safety Gold Winner was Pace Suburban Bus, with the Bus Safety Certificate of Merit being awarded to Metro Regional Transport Authority (Akron Metro). The Bus Security Gold Winner was New Jersey Transit, with Bus Security Certificates of Merit awarded to Corpus Christi Regional Transportation Authority (CCRTA) and Akron Metro. The Bus Emergency Management Gold Winner was awarded to CapMetro in Austin, Texas, along with two Bus Emergency Management Certificates of Merit awarded to CCRTA and Miami-Dade Transit.

[MassTransitmag.com/53058620](https://www.masstransitmag.com/53058620)

USDOT's Build America Bureau provides \$327 million in low-interest TIFIA and RRIF Loans to Sound Transit

► The U.S. Department of Transportation's (USDOT) Build America Bureau has provided low-interest Transportation Infrastructure Finance and Innovation Act (TIFIA) and Railroad Rehabilitation & Improvement Financing (RRIF) Loans totaling \$327 million to Sound Transit. The TIFIA and RRIF Loans will finance three projects, including the Hilltop Tacoma Link Extension with a \$93.3 million TIFIA Loan, the Elevated Light-Rail Platform project associated with the Lynnwood Link Extension with a \$79.3 million TIFIA loan and the Sounder Access Improvements, which are supported with a \$154.2 million RRIF loan. Sound Transit estimates the loans will save \$245 million through 2046 when the agency's voter-approved expansion plan is complete and \$445 million over the entire life of the three loans.

[MassTransitmag.com/53059702](https://www.masstransitmag.com/53059702)

PEOPLE IN THE NEWS

Williamsburg Area Transit Authority (WATA)



WATA Board of Directors unanimously appointed **Matthew Scalia** as the executive director of the authority. The appointment follows a nationwide search for the executive director position. The authority says Scalia's appointment supports its work to better meet the region's goals through improved service. Scalia has recently retired from the U.S. Army as a colonel following a 27-year career. He is a graduate of the USMA West Point and received his Master of Strategic Studies from the U.S. Army War College. Scalia began his role as executive director April 17.

[MassTransitmag.com/53059706](https://www.masstransitmag.com/53059706)

Redding Area Bus Authority (RABA)



The city of Redding, Calif., has named **John Andoh** as its transit manager to lead RABA in transit operations and services. Andoh began in late April and is responsible for leading the day-to-day operations of RABA, supporting the RABA Board of Directors, facilitating and implementing elements of the short-range transit plan under development, pursuing grant funds and leading policy development for RABA. Additional responsibilities include promoting increased use of sustainable forms of transportation – including walking, biking and transit use in the RABA service area – and working to improve equal access to transportation programs and services.

[MassTransitmag.com/53059302](https://www.masstransitmag.com/53059302)

Foothill Transit



Foothill Transit has named LaShawn King Gillespie to be its deputy chief executive officer. Gillespie began her new role April 28 following the retirement of current deputy chief executive officer Kevin Parks McDonald after a 23-year career at Foothill Transit. Gillespie has been a part of the Foothill Transit team for 17 years. During her tenure, Gillespie has been a crucial member of many of the agency's landmark initiatives, including the launch of Foothill Transit's zero-emissions bus program in 2010, the agency's park and ride COVID-19 vaccine clinic in 2021 and the establishment of the nation's largest hydrogen fuel cell fleet.

[MassTransitmag.com/53057355](https://www.masstransitmag.com/53057355)

King County Metro



King County Metro has selected **Todd Morrell** as its new chief for the Metro Transit Police Department (MTP) following a competitive recruitment process. Morrell brings more than 25 years of experience in law enforcement. Before joining Metro Transit Police, he served as the operations captain with the Burien Police Department. He also served three tours with MTP as a patrol deputy, sergeant of the Bicycle and Street Crimes Teams and as acting captain of operations. He replaces former chief of police Jose Marengo, who was promoted to chief of the Patrol Operations Division with the King County Sheriff's Office in 2022.

[MassTransitmag.com/53057511](https://www.masstransitmag.com/53057511)

People & Places

Toledo Area Regional Transit Authority (TARTA)



TARTA has named **Rick Bailey** as its new chief customer experience and mobility officer. Bailey will oversee TARTA's customer experience efforts and employees, in addition to leading operations for TARTA's paratransit service, TARPS. His 15 years of transportation agency experience includes a history of innovative efforts, including the redesign of the Greater Dayton Regional Transit Authority's system. Bailey comes to TARTA from the Cincinnati area's Southwest Ohio Regional Transit Authority, where he was the director of transit operations.

MassTransitmag.com/53058241

American Public Transportation Association (APTA)



APTA has named **Christiana Cameron** its chief financial officer (CFO). Cameron most recently served as the CFO of Intelligent Transportation Society of America (ITS America) in Washington, D.C. In that role, she was responsible for finance, accounting, budgeting, internal controls, audit, IT, human resources, risk management and contracts. Prior to joining ITS America, she was the principal of Beckwith Cameron, LLC, providing strategic and operational expertise to diverse clients. She also served as vice president of finance and administration for America's Natural Gas Alliance managing internal operations.

MassTransitmag.com/53059887

Massachusetts Department of Transportation (MassDOT)



Patrick J. Lavin has been appointed by Massachusetts Gov. Maura Healey and Massachusetts Transportation Secretary and CEO Gina Fiandaca to be the MassDOT chief safety officer. Lavin has 40 years of experience in transportation safety and operations, including as a subject matter expert and technical writer to the Massachusetts Bay Transportation Authority Safety Review Panel in 2019. He was previously executive vice president and chief safety officer for the Washington Metropolitan Area Transit Authority, where he implemented the Agency Safety Plan, developed organizational policy to identify vulnerabilities and inefficiencies with operations.

MassTransitmag.com/53058433

EBW
COMPLETE COACH WORKS

TSI
TRANSIT SALES INTERNATIONAL

SBL
Shuttle Bus Leasing

Your Transportation Solution Providers

Rehabs Repowers Retrofits

Complete Electric Conversions • HVAC Upgrades • Brakes & Suspensions • Interior Facelifts • Mechanical & Electrical Repairs • Body Work • Fire Damage • Painting & Decals • Emission Upgrades • Major Collisions • Sales & Leasing • Glass Repairs & More

1-800-300-3751 completecoach.com

For more information, visit www.MassTransitmag.com/10065706



A ceremonial groundbreaking was held for the Metro B Line BRT project.
Photo: Metro Transit

Metro Transit breaks ground on Metro B Line BRT

► A ceremonial groundbreaking event was held in south Minneapolis, Minn., for Metro Transit's Metro B Line, a 12-mile bus rapid transit (BRT) route that will connect Union Station in St. Paul to Uptown in south Minneapolis. The two areas are currently connected with Route 21 service, which is Metro Transit's busiest route. When Metro B Line begins operation in 2024, it will deliver service that is 20 percent faster than Route 21 and offer connections to Metro Transit's Blue and Green light-rail lines, as well as Metro Orange, D, A and Green Line BRT routes. The \$65 million B Line project is fully funded with contributions from the FTA, state of Minnesota and Metropolitan Council. The project cost includes funding a fleet of 21 60-foot buses, construction of more than 30 stations, building bus-only lanes on portions of Lake Street and Lagoon and Marshall Avenues and improvements to enhance accessibility, reduce crashes and improve safety for pedestrians, cyclists and other wheeled mobility options.

[MassTransitmag.com/53059815](https://www.masstransitmag.com/53059815)

Two electric buses enter service on GO Transit lines

► Metrolinx placed two electric double decker buses into passenger service on May 15 as the next step in its efforts to develop a zero-emission fleet transition plan. The zero-emission vehicles have been undergoing non-passenger testing since December 2021. This is the first time they have carried commuters. Officials say riders can expect a quieter ride and enhanced amenities, including USB chargers and seatbelts. The buses also feature additional storage space and a pedestrian audible visual alert system that will play a sound and message when the bus is turning or reversing to notify pedestrians and cyclists. The results of the initial testing phase were considered when routes were selected for revenue service to help ensure the buses return to the garage with 20 percent battery capacity. Metrolinx President and CEO Phil Verster explained GO Transit operates routes that can be as long as 650 kilometers (403.9 miles), and the two electric buses entering service will assist in determining what a maximum range might be on the GO Transit system.

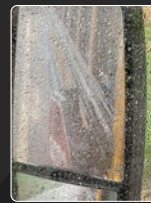
[MassTransitmag.com/53060498](https://www.masstransitmag.com/53060498)



D•CAMS Digital Camera and Monitor System

The new mirrorless camera system! Offering better visibility around the vehicle, the Rosco D•CAMS has been engineered to replace exterior rear vision mirrors on commercial vehicles.

- Wider and deeper Field-of-View (FOV)
- Smaller blind zones
- Better visibility and brighter images during the day and night
- Clearer images in all weather conditions
- Aerodynamic design offers fuel savings and efficient operations

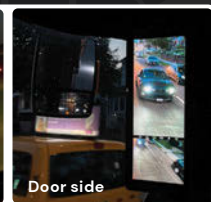
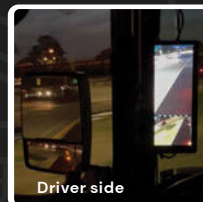


TRADITIONAL MIRROR VIEW WHEN RAINING



HIGHLY IMPROVED VISIBILITY WHEN USING ROSCO'S DCAMS

LOW LIGHT CONDITIONS



www.Rosco-DCAMS.com
800.227.2095

For more information, visit www.MassTransitmag.com/10066392



An illustrative rendering of future VIA Green Line service.

Photo: VIA Metropolitan Transit

VIA Metropolitan gains environmental clearance of ART North/South Corridor Project

► VIA Metropolitan Transit's Advanced Rapid Transit (ART) North/South Corridor Project has been cleared to proceed with final design and construction after gaining federal approval on its environmental evaluation under the National Environmental Policy Act of 1969. VIA Metropolitan says the FTA has applied a categorical exclusion to the project, which means the construction and operation of the transit corridor would have minimal impact and no adverse effect on its surroundings. The ART North/South Corridor Project will operate as the VIA Rapid Green Line and is described by VIA Metropolitan as a first-of-its-kind project in San Antonio and Bexar County. It is designed to move people faster and farther. The North/South project will operate along a 12-mile corridor between San Antonio International Airport through downtown San Antonio to Steves Avenue near Mission Concepcion.

[MassTransitmag.com/53060141](https://www.masstransitmag.com/53060141)

Debit cards can be tapped to pay for transit in Toronto region

► Customers traveling around the Greater Toronto and Hamilton Area can use their debit cards to pay for transit on PRESTO devices on GO Transit, UP Express, Brampton Transit, Burlington Transit, Durham Region Transit, Hamilton Street Railway, MiWay in Mississauga, Oakville Transit and York Region Transit. Additionally,



Nine Toronto region transit systems accept debit cards to be tapped as fare payment.

Photo: Metrolinx

paratransit services in Burlington, Durham Region, Hamilton, York Region, Oakville and Ottawa will also accept debit payment. Opening fare

payment to debit cards is the next evolution of the PRESTO fare system, which provided a foundation for the provincial government and its transit providers and partners to offer additional payment options. The government of Ontario and Metrolinx say they are working with Toronto Transit Commission (TTC) to introduce debit and credit payment options to TTC's network this summer.

[MassTransitmag.com/53059295](https://www.masstransitmag.com/53059295)

Brightline unveils its Orlando Station

► Brightline unveiled its Orlando Station at Orlando International Airport (MCO). The new station will connect two of the fastest growing regions in the state: Central and south Florida. The 37,350-square-foot station is in MCO's new 80,000-square-foot train station facility adjacent to Terminal C. Once inside the station, passengers can purchase tickets from guest services or one of several self-service kiosks and check luggage before proceeding through touchless turnstiles into the security screening tunnel. Once through the security tunnel, guests are greeted by an expansive two-story station space, featuring several amenities, including Mary Mary Bar serving hand-crafted cocktails and light food. The signature sit-down bar is positioned at the far end of the station, with a stunning panoramic view overlooking the train platforms where guests can leisurely watch as trains arrive and depart.

[MassTransitmag.com/53058108](https://www.masstransitmag.com/53058108)



Municipal, county, aviation and passenger rail officials took part in Brightline's unveiling of its Orlando station in mid-April.

Photo: Brightline

MORE NEWS AT A GLANCE

► The Omaha Streetcar Authority has selected HDR to deliver the final design for Omaha's 3.2-mile streetcar project, connecting downtown Omaha to the University of Nebraska Medical Center.
[MassTransitmag.com/53059885](https://www.masstransitmag.com/53059885)

► New Flyer of America Inc., a subsidiary of NFI Group Inc., received an order for an additional 116 Xcelsior® 40-foot, heavy-duty transit buses from the Metropolitan Transportation Authority's New York City Transit.
[MassTransitmag.com/53057983](https://www.masstransitmag.com/53057983)

► Orange County Transportation Authority awarded Keolis North America a contract to operate fixed route bus services in partnership with the agency from the Anaheim and Irvine/Sand Canyon bases. The contract will go into effect beginning June 11, 2023, and contains two, two-year options.
[MassTransitmag.com/53060381](https://www.masstransitmag.com/53060381)

► The Chicago Transit Board awarded a contract to F.H. Paschen, S.N. Nielsen & Associates LLC for the first stage of modernization for the Western Brown Line station.
[MassTransitmag.com/53057303](https://www.masstransitmag.com/53057303)

► Preteckt signed an agreement with the Pinellas Suncoast Transit Authority to help maintain the Florida authority's fleet by using Preteckt's AI-powered predictive maintenance technology.
[MassTransitmag.com/53058676](https://www.masstransitmag.com/53058676)

► RATP Dev USA has been awarded an operations contract with the city of Raleigh, N.C., and Wake County Access. The five-year contract will cover fixed route and paratransit services.
[MassTransitmag.com/53059135](https://www.masstransitmag.com/53059135)

► The Caltrain Board of Directors awarded a pre-construction services contract for the Mountain View Transit Center Grade Separation and Access Project to Stacy & Witbeck, Inc., and Myers & Sons Construction, a joint venture.
[MassTransitmag.com/53059708](https://www.masstransitmag.com/53059708)

► Tolar Manufacturing Company has delivered 51 Signature Crescent bus shelters to Chapel Hill, N.C., fulfilling its contract that began in May 2021.

[MassTransitmag.com/53059588](https://www.masstransitmag.com/53059588)

► The Metra Board of Directors approved a contract of up to \$20 million

with Global Display Solutions Inc. to purchase video monitors that will be installed at every station to provide up-to-the-minute travel information to customers from Metra's new train tracking and communications system.

[MassTransitmag.com/53058103](https://www.masstransitmag.com/53058103)

BENDPAK LIFTS BRING ANY JOB DOWN TO SIZE

BendPak Model
PCL-18B-4
Portable Column Lift



Certified to meet the
standards of ANSI/ALI
ALCTV: 2017

BendPak is the name that fleet operators rely on because they're the toughest lifts on earth. And nowhere is that strength more impressive than on our **PCL-18B** series portable column lifts. With a lifting capacity of 18,000 pounds for each column and paired configurations ready to accommodate two, four, six or eight axle vehicles, the **PCL-18B** is ready to service trucks as heavy as 144,000 pounds. From school buses and fire engines, to agricultural vehicles and utility trucks, BendPak continues to make today's tough challenges yesterday's problems.

Visit us online at [bendpak.com](https://www.bendpak.com) or call us at 1-800-253-2363.

1-800-253-2363 • BENDPAK.COM

©2023 BendPak Inc. All rights reserved.

BP BendPak

For more information, visit www.masstransitmag.com/21207835

MAY/JUNE 2023 | [MassTransitmag.com](https://www.masstransitmag.com) 13

Buy America – Striking the Right Balance

The program’s goals are worthy and widely supported, but better progress toward these goals requires the government to consistently implement Buy America policies, simplify administrative requirements and speed approval of appropriate waivers.

By Bennett E. Resnik

▶ One of the most effective ways to reduce the administrative burden for Buy America compliance is to simplify the requirements.

POLICY WITH bipartisan support is hard to find these days. Luckily, one of them involves the laudable effort to have more U.S.-made products used in federally funded contracts, such as public works and infrastructure projects. For these efforts to thrive and achieve a balanced Buy America policy, the government must reduce bureaucratic complexity, ensure greater transparency and tackle other problems that impede achieving the goals of domestic preference policies. Striking the right balance for Buy America requires a careful consideration of various factors such as economic benefits, job creation, exemptions and waivers and international trade obligations.

Domestic preference laws date back to 1933, though there were earlier laws at the state and local levels that encouraged domestic sourcing. Congress and President Herbert Hoover enacted the Buy American Act during the depths of the Great Depression as part of the National Industrial Recovery Act, creating a preference for U.S.-made products in its procurement of goods and services. Over time, subsequent laws expanded this effort.

In 1978, the Buy American Act was included as part of the Surface Transportation Assistance Act, which extended domestic-preference rules to federally financed transportation projects, such as airports, highways and public transit systems. Today, the Build America, Buy America Act, enacted as part of the Infrastructure Investment and Jobs Act, requires all federal agencies to ensure no federal financial assistance for “infrastructure” projects be provided “unless all of the iron, steel, manufactured products and construction materials used in the project are produced in the United States.”

These laws became more urgent—but also more complicated—as they were applied to new initiatives. These include President Joe Biden’s 2021 Executive Order on “Ensuring the Future Is Made in All of America by All of America’s Workers” and the Inflation Reduction Act, which includes the Clean Vehicle

Credit (an electric vehicle tax incentive under IRS section 30D with battery sourcing requirements).

Each statute is unique and enacted with different requirements and policy goals in mind. The overarching goal, however, is the same: To boost domestic manufacturing and supply chains while increasing U.S. jobs and promoting economic development nationwide. But how does this happen effectively and efficiently?

The Build America, Buy America Act applies “Buy America” to all federally funded infrastructure and public works projects. Though simple in purpose, its requirements can vary depending on the program or project involved. This makes it harder for contractors to navigate the various rules and regulations, which, of course, are meant to minimize waste and misuse.

The Office of Management and Budget—and specifically its Made in America Office – has made progress in implementing President Biden’s January 2021 Executive Order and requirements under the Build America, Buy America Act and has been a strong tip of the spear on domestic preference policy efforts. A remaining core challenge involves agencies determining how to apply domestic-preference guidance to their infrastructure programs and processes.

Critics of Buy America policy argue it increases costs and reduces efficiency. However, these concerns can be addressed by ensuring the policy is implemented in a way that balances the economic benefits with the costs. For example, exemptions and waivers can be provided for goods and materials when strict adherence to the laws is not in the public interest, when the needed materials are not sufficiently available in the U.S. and when using U.S.-made materials would increase a project’s overall cost by more than 25 percent. Timely approval of these requests can help prevent project delays while ensuring the overall objectives of the law are still being met.



Photo: Adobe Stock | 425754260

These aren't easy matters. A phased transition, which includes a steady increase in domestic sourcing percentage thresholds to manage supply chains and materials acquisition, is critical to ensuring the viability of any domestic-preference policy.

Additionally, many industries have complex supply chains involving multiple tiers of suppliers and subcontractors. One of the main challenges here is ensuring all required materials and components are made in the U.S. This can be difficult, as many products are made with parts or materials sourced overseas, and it can be challenging to trace the origin of every component in a complex supply chain.

The government should reduce the administrative burden for Buy America compliance to help businesses—especially small- and medium-sized enterprises—compete for contracts without inordinate red tape. Inconsistent implementation of Buy America policies causes undue problems for manufacturers and project sponsors. They become unable to conduct long-term capital project planning, provide investors with peace of mind and predict how the government will treat project bids.

One of the most effective ways to reduce the administrative burden for Buy America compliance is to simplify the requirements. This can include

providing clear definitions that apply across the federal government, reducing the number of required certifications and curtailing the amount of paperwork and other administrative tasks.

Greater transparency around the compliance process can also help reduce administrative burdens by enabling businesses to better understand the compliance requirements. Measures could include providing training materials and compliance best practices and ensuring compliance processes are clearly defined and communicated. Technical assistance, such as workshops, webinars or roundtable discussions, would also help.

Most Americans across the political spectrum support Buy America policies and rightly so. The policies support domestic production, enhance national security, certify quality and safety standards and support environmental interests. They promote fair competition by preventing the improper undercutting of domestic prices or distorting market competition.

Inconsistent implementation of Buy America policies, excessive administrative requirements and delays in approving appropriate waivers can hamper the program's worthy goals. By continuing to address these challenges, the government can responsibly boost U.S. production and jobs. **L**



About the author


Bennett E. Resnik is a senior vice president in the Critical Infrastructure Practice at Venn Strategies. The views and opinions expressed in this article are solely those of the author and do not necessarily reflect the views of Venn Strategies or its clients.

By diving deep into noise-measurement data and tapping industry expertise, Sound Transit has refined its wheel and rail maintenance programs to keep assets in a state of good repair.

BY ROBERT TUZIK, CONTRIBUTOR

How Sound Transit TRAIN-BORNE





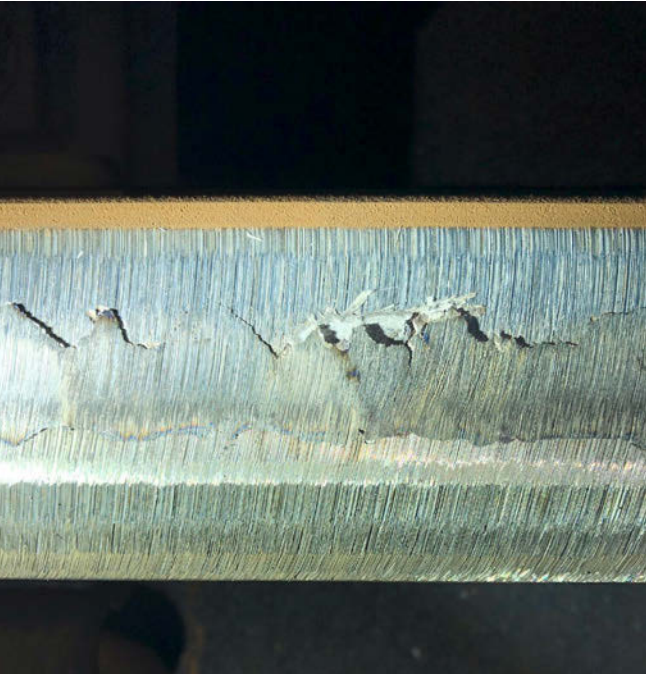
Passengers board a southbound Link light-rail train at Pioneer Square Station.

Photo: Glenn Landberg/
Sound Transit

Controls NOISE

Challenges abound in the design, construction, maintenance and operation of light-rail lines in urban areas. Chief among them is controlling track- and vehicle-borne noise, an important part of maintaining the support of an agency's various stakeholders, which include commuters and the many residents and businesses — the neighbors — adjacent to the tracks. Sound Transit, which runs through the heart of Seattle, has been particularly sensitive to the effects of train-borne noise since the system was on the drawing board.

Sound Transit, which serves Pierce, King and Snohomish counties, includes light rail, commuter rail and bus modes serving Seattle and the tri-county area.



ARM and Sound Transit performed a test grind to see if the surface squats could be removed. After 20 grinding passes, the squats are shown to be connected beneath the rail surface. As a result, Sound Transit scheduled the rail for replacement.

Photo: ARM

Light-rail service began on the 1.6-mile Tacoma Link T Line in 2003 and on the 15-mile Central 1 Line serving Seattle in 2009. In the early days, the 1 Line connected SeaTac airport to downtown Seattle. Between 2016 and 2021, the 1 Line opened three extensions as part of a 36-mile, \$17.8-billion ST2 expansion plan approved in 2008. At present, the operating segment on the 1 Line connects Angle Lake, located south of SeaTac Airport, to Northgate, located north of the University of Washington (UW) campus. This current 26-mile Link light-rail system accounts for most of the agency's annual ridership of 26 million. It also represents the bulk of the challenges.

There will be further challenges, no doubt, as the system grows with completion of the remaining construction underway as part of the ST2 expansion work. This will be followed by the 62-mile, \$54-billion ST3 expansion plan approved in 2016 — the largest light-rail expansion project on the continent — which will add further expansion and more transit connectivity in the region. By 2040, when the ongoing ST2

construction and the future ST3 plans are completed, the existing 26-mile, 20-station light-rail system will have grown to a 116-mile network with multiple lines and approximately 70 stations.

On the old and the new lines, the need to be good neighbors and control wheel/rail-generated noise has been a front-and-center issue. Lessons learned on the existing lines are being carried forward to the new lines.

Ground-borne vibration generated by trains was known to be a potential issue at Sound Transit from the get-go, especially in the Northgate Link tunnels on the 1 Line in which trains run through twin bored tunnels directly beneath the extremely vibration-sensitive research facilities on the UW campus. To ensure it met the rigorous wayside noise and vibration requirements in this area, Sound Transit worked with vibration consultant Wilson Ihrig to develop a 5-Hz floating slab track through the tunnels. Information from a 400-foot prototype section built as part of the University Link extension in the tunnels under Capital Hill was used to dial in the optimal fastener type, durometer of the rail pads and the size and weight of the concrete slabs to meet the performance requirements. To ensure it meets the stringent vibration criteria, every train operating on the alignment is monitored by "early warning" wheel flat detectors before entering the tunnels. The tunnels under the UW house 40 vibration monitors located every 300 feet along the tunnel bench.

"We have warning and exceedance criteria for vibration generated by trains, but we've never breached any threshold," said Shankar Rajaram, executive project director - vehicles of Sound Transit's Buildings, Infrastructure and LRV Division.

In addition to vibration monitors in the tunnels, Sound Transit performs periodic acoustic measurements across the lines.

A microphone in the rear cab of a revenue-service train records noise readings across the system.

"We've found the best place to control noise and vibration is at the source," Rajaram said. "We've also found noise data can also be used to maintain a state of good repair."

Sound Transit currently maintains 7.7 miles of track on elevated structure, eight miles of underground track and 10.3 miles of at-grade track. The at-grade track includes street-running embedded track on MLK Boulevard and the embedded tracks in the downtown Seattle transit tunnel that once shared right-of-way with transit buses. The underground track includes an approximately 3,700-foot section of floating slab track in each train tunnel under the university campus.

Of course, track design and maintenance represent only half of the equation, vehicle design and maintenance make up the other half. Sound Transit currently operates 62 of the Series-1 Kinkisharyo and 75 of the newer Series-2 Siemens light-rail vehicles (LRVs).

"We're currently taking delivery of three Series-2 cars per month," said George McGinn, Sound Transit executive operations director. "We expect to have all 152 Series-2 Siemens LRVs in service by mid-2025."

All of the vehicles incorporate powered trucks with a pair of solid axles on the A and B cars of the consist and a truck with four independently rotating wheels (IRWs) on the middle, low-floor C section of the cars. The 26-inch wheels have Bochum 84 tires on the Series-1 cars and a thicker Bochum 2000 on the Series 2 cars.

A by-product of the low-floor LRV design, IRWs behave differently from the typical fixed-axle arrangement, particularly in that they do not provide any rolling radius difference, which means they do not steer in curves, they hunt and flange excessively in curves and in tangent track and, more

significantly, in special trackwork, where they batter frog points.

As a result, IRWs require re-truing for flange wear every 40,000 to 50,000 miles — twice as frequently as the wheels on fixed axles, which are primarily cut for hollow tread wear or flats spots, said Paul Denison, Sound Transit deputy executive director, Transportation and

Maintenance Operations Department. In addition to high flange-wear rates, IRWs contributed to rail and track component wear and wheel/rail-generated noise on the system, an issue Sound Transit is very sensitive to.

To further mitigate wayside noise, Sound Transit initiated a rail grinding program in 2009, but

because of the relatively light vehicle weight and overall low tonnage on the system, grinding marks were not worn away under traffic. Although the rail was ground to the recommended profiles, the surface finish of the ground rail was so rough and the grind marks so deep that instead of reducing noise, the noise level increased by up 10dB after grinding.

“We were actually amplifying the noise,” said Jason Bailey, Sound Transit track engineering manager - design engineering and construction management.

Ten years lapsed between the first and subsequent grinding programs. During that time, noise became a more significant issue as new line extensions were introduced. By the time the South 200 and University Link extensions entered into service in 2016, the increasing noise levels made it clear something had to be done to mitigate train-generated noise on the system. Added to that, deteriorating rail profile conditions, increasing wheel tread and flange wear rates and rail defects had begun to emerge. In the 10 years since the previous grinding cycle, rolling contact fatigue (RCF), which leads to surface defects in the absence of sufficient natural, train-induced wear or frequent enough artificial wear provided by grinding, developed on the contact surfaces of the 310- to 380-Bhn rail on the system.

“If we had been grinding every three years from day one, as we are now, these types of defects might not have formed,” Bailey said.

In 2016, rail grinding was performed on the new rails in the University Link tunnels to match the rail shape to the wheel profile, which is common industry practice. After this grinding program, Sound Transit encountered a bewildering wheel/rail-related issue: E-clips that keep the rails fastened to the track started breaking within a 3,000-foot segment of the University Link section.

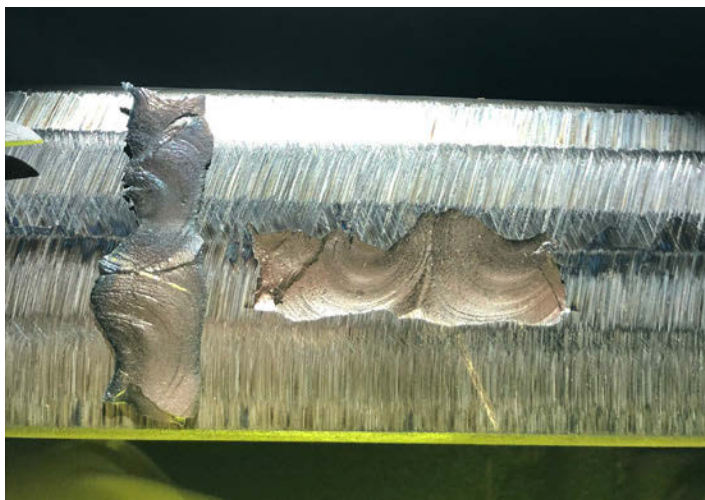


A series of squats appeared on the surface of un-ground rail.

Photo: ARM

“We’ve found that the best place to control noise and vibration is at the source. We’ve also found noise data can also be used to maintain a state of good repair.”

Shankar Rajaram, executive project director - vehicles of Sound Transit’s Buildings, Infrastructure and LRV Division



In some instances, spalls exposed by grinding in a section of the Tukwila curves were too deep to be removed. As a result, Sound Transit replaced the rail in the entire segment.

Photo: ARM



A Link train pulls into Tukwila International Boulevard Station during an evening commute.

Photo: Glenn Landberg / Sound Transit

Sound Transit's database of noise readings showed unusually high noise levels (in the high 800-Hz frequency range) in the clip-failure areas. Further investigation found the 820-Hz track noise corresponded to the natural frequency of the e-clips used in the segment. To determine the root cause of the high-frequency resonance in this segment, Sound Transit looked at track geometry, construction tolerances, fastener design and wheel and truck performance of the vehicles operating on the line. It also investigated research indicating the deep grinding marks left in the rail were associated with the speed of the grinding motors. The marks appeared at approximately one-inch intervals wherever a clip had failed.

A deeper dive into the noise data map showed noise spikes lined up with locations of the broken clips. The data provided fingerprints of frequencies at hot spots where the natural frequency of the track system matched the

frequency of the wheel/rail-generated noise pattern from the rail grinding marks, Rajaram said.

Sound Transit brought in Advanced Rail Management (ARM), which is now part of the Global Rail Group, to assess rail surface conditions in the clip-breakage area and to develop, along with Loram Maintenance of Way, the grinding contractor, a method of "polishing" the rail with softer-grit grinding stones to leave a smoother surface finish. ARM and the National Research Council of Canada (NRC) were charged with assessing wheel conditions and coming up with a profile design and truing method to reduce wheel surface roughness. Their study concluded that while powered wheels tended to hollow wear, the IRWs, which wore more heavily in the flange, tended to wear more asymmetrically — information that has since guided Sound Transit's wheel truing strategy and led to better uniformity and a smoother, quieter wheel running surface, Rajaram said.

In all, it took the better part of a year to identify the factors that contributed to the problem and to validate the root cause, Rajaram said.

"But once we changed the grinding program, the problem went away," he added.

The experience led Sound Transit to develop a specification to procure the wheel/rail expertise that could identify and assess the potential relationships between noise, wheel and rail wear, defect growth and the ability to address them. In addition to the more typical requirements for rail grinding to remove surface defects re-shape the rail profile, the Sound Transit spec incorporated a polishing step to ensure the wavelength signature of the finished rail will mitigate the types of noise and vibration-related problems previously encountered on the system. Its surface finish requirement is significantly more stringent than the North American grinding standard and beyond what any grinder on the continent had achieved.

"We found that what works on other properties doesn't seem to work here," Bailey said. "The polishing step is really important to us."

Sound Transit subsequently awarded ARM/GRG a long-term contract to provide wheel/rail-related engineering support, oversee its rail grinding program and provide quality assurance that the requirements for re-profiling, removing defects from the surface of the rail and that the all-important "polishing," or surface-finish requirements were met.

To get it done, ARM conducted an overall assessment of the system, including track geometry and rail corrugation measurement using a Corrugation Analysis Trolley, ultrasonic and pre- and post-grinding Draisine eddy current testing to measure rail surface crack length, depth, geometry and proximity to other cracks.



ON TRACK FOR TOMORROW



HIGH CAPACITY | PRECISION | RELIABILITY

Some see steel tracks. We see safer connections — trusted pathways maintained by our high performance, American-engineered technology. Because wherever they lead, at the end of the line, everything is riding on quality.

plasseramerican.com

For more information, visit www.MassTransitmag.com/10065915

Plasser American



A Link light-rail train makes its way through the Rainier Valley in Seattle.

Photo: Glenn Landberg/Sound Transit

“The first order of business was to assess overall wheel/rail conditions on the system,” McGinn said.

Following that, a revised set of rail profiles designed by the NRC was adopted; a grinding plan was developed and implemented.

ARM used data from the measurements to prioritize locations, estimate metal removal and the number of passes that would be required and determine the total number of miles to be addressed to establish an effective gradu-

al-preventive grinding program. Corrugation measurement data is used to guide rail polishing efforts to meet Sound Transit’s five-micrometer surface roughness target within the wheel/rail running band.

Through the partners it assembled, ARM provided access to a variety of rail bound and hi-rail grinding equipment that were fitted with coarse to extra-fine-grit grinding stones, depending on the metal-removal and surface-finish requirements. Milling equipment is also available if needed to address surface damage requiring extensive metal removal.

As is the case with most transit systems, obtaining adequate track time to perform maintenance is a challenge. The typical maintenance window between the last and first trains of the day is three to 3.5 hours at Sound Transit.

ARM
ADVANCED
RAIL MANAGEMENT

Over 30 years of North American wheel/rail engineering expertise

Now part of **Global Rail GROUP**



Our experienced team provides turnkey services combining on-site technical expertise and consulting to optimize wheel/rail interfaces

QA/QC Services • Consulting Services • Data Services • Training

Advanced Rail Management Corp.
 Indialantic, FL • Winnipeg, MB • 321-984-1474 • www.arm-corp.com

For more information, visit www.MassTransitmag.com/10066147

“Once you add in logistics and delays, we get 60 to 90 minutes of grinding time on average,” Bailey said.

With experience, Sound Transit has found ways to allocate more time for grinding. During the 25 days of grinding it will do this year, Sound Transit will begin single tracking train operation to create six-hour work windows, which will allow four hours of grinding — roughly 2.5 to four times the amount of grinding time than in the past, Bailey said.

While rail grinding has been effective in controlling defects on most of the system, the rail in the direct fixation track on the elevated Tukwila segment presents an ongoing challenge.

“Once a defect forms, it just propagates,” Bailey said.

Dye penetrant tests of rail samples have shown studs and spalls

are two- to six-mm deep. ARM and Sound Transit experimented with milling equipment earlier this year to address the defects.

“Grinding typically can’t remove enough metal to remove them. We’ll have to wait a bit to see if milling was able to get deep enough to remove or at least control the defects,” Bailey said.

Rail grinding, historically, has not been effective in embedded track. The six-inch stones found on the typical transit grinders are not able to effectively address the head of the rail in embedded track. Consequently, ARM will utilize a smaller, hi-rail grinder with four-inch stones for this part of the job. ARM is also working with Sound Transit to determine the cause of a few rail breaks that occurred during a cold snap in the Tukwila segment during the past winter.

“The current grinding program has been going well,” Bailey said. “Noise levels, overall, are reduced.”

“Sound Transit’s success in looking beyond the symptoms into studies and consultations with people around the world is a case in point that no individual or agency has all the answers,” Rajaram said. “It’s all about having knowledgeable people on your team and identifying the people who can answer your questions. As an agency you need to develop strong industry relationships so when issues come up, you know the right people to contact. You can’t put a value on that.”

About the author

Bob Tuzik is publisher of *Interface*, the Journal of Wheel/Rail Interaction and executive co-program director of Wheel/Rail Seminars.

“We’ll have to wait a bit to see if milling was able to get deep enough to remove or at least control the defects.”

Jason Bailey, Sound Transit track engineering manager - design engineering and construction management

The Trusted Brake Meter for 30 years

Portable. Simple. Quick.

» Brake Testing in 3 Seconds



VERICOM
MOTION PERFORMANCE INSTRUMENTS

VericomComputers.com

For more information, visit www.MassTransitmag.com/12078201

Low Profile Bi-Directional Portable Derail

The LP-TSX bi-directional derail incorporates the same, proven, overall design as the LP-TS Derail, with a low above top of rail height to clear locomotive pilots. The LP-TSX is the first genuinely bi-directional portable derail that once installed on the rail, it is equally effective when struck from either direction. There is no wedge to reposition, nor will the derail slide on the rail, if struck from the trailing end.



- Light weight - approximately 60 pounds w/o flag
- Can be padlocked in the derailing position
- Resists sliding - unique, patented, design holds derail securely to rail
- Rugged - fabricated from high strength alloy steel
- Easy to install - requires no special tools
- Equipped with a highly visible warning flag
- Fits rail 75 to 141 pounds



WESTERN-CULLEN-HAYES, INC.

2700 W. 36th Place • Chicago, IL 60632

(773) 254-9600 • Fax (773) 254-1110

Web Site: www.wch.com

E-mail: wch@wch.com



For more information, visit www.MassTransitmag.com/10065991

Special Report: **2023 Trends in Passenger Rail**

Renewal appears to be the overarching trend with significant federal investment coming in for station improvements and rail vehicle replacement, as well as work progressing on expansion and maintenance projects.

BY MISCHA WANKE-LIBMAN,
EDITOR IN CHIEF

A

According to ridership data collected by the American Public Transportation Association (APTA), heavy rail, light rail and commuter rail accounted for 46 percent of all transit trips in 2022. While the percentage is in line with where it has been historically, the success story is the increase in ridership rail modes have experienced over the calendar year. The 2022 year-to-date change for heavy rail shows a 36.55 percent increase, light rail shows a 37.85 percent increase and commuter rail shows a 51.82 percent increase. Systems including San Francisco Municipal Transportation Agency, El Paso's Sun Metro streetcar, Sound Transit's Link light rail, Sonoma Marin Area Rail Transit, Massachusetts Bay Transportation Authority, Maryland Transit Administration, New Mexico Rail Runner Express and Virginia Railway Express all experienced year-to-date changes in 2022 that were more than 100 percent.

Passenger rail and transit service providers continue to progress key projects, with the goal of delivering better service to riders. Concerning the Northeast Corridor, several projects have achieved significant milestones. One example is the Gateway Development Commission, which finalized agreements between funding partners on the Hudson Yards Concrete Casing – Section 3 project that will allow the project to move into construction. The Hudson Yards Concrete Casing – Section 3 is a critical component of the Hudson Tunnel Project. Amtrak began early construction work on the B&P Tunnel Replacement Program, which includes replacing aging wood crossties with new concrete crossties, installing new rail and completing track drainage improvements. Construction on the Norwalk River Railroad (Walk) Bridge Replacement Project started in May 2023. The existing four-track swing Walk Bridge, which hosts 175 passenger and freight trains per day, will be replaced with a structure that has two independent, moveable spans that will improve the reliability of the bridge.

However, not all passenger rail projects experienced progress. The Southeastern Pennsylvania Transportation Authority (SEP-

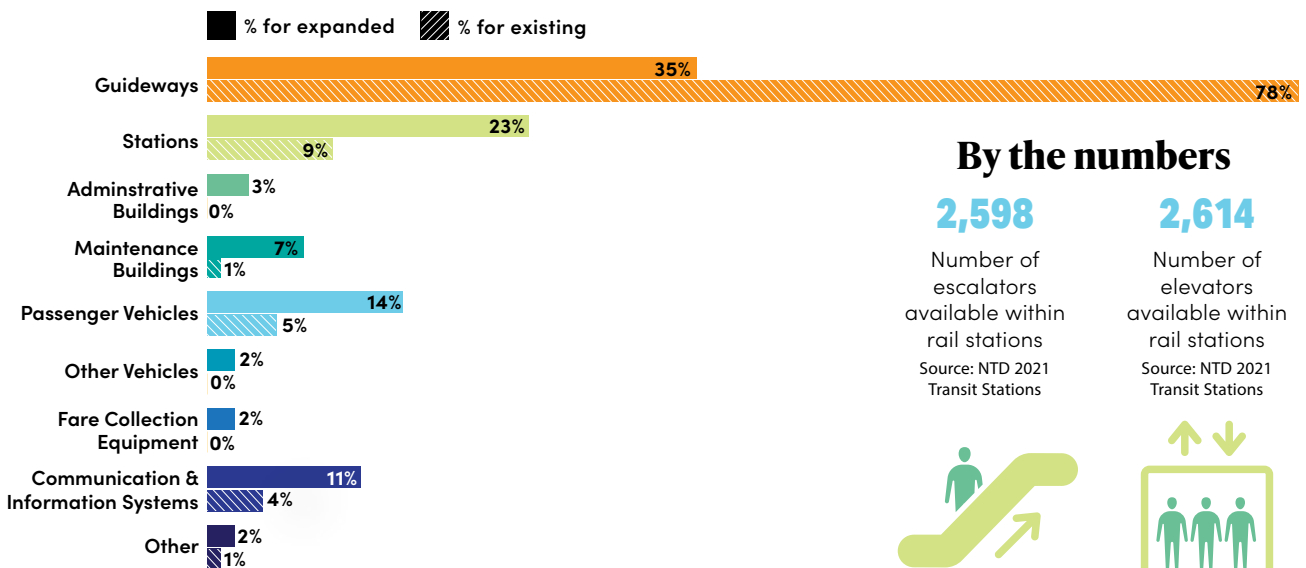
TA) made the decision earlier this year to stop work on its planned King of Prussia (KOP) Rail project to dedicate its financial resources toward critical infrastructure work rather than advance the expansion project. SEPTA leaders expressed disappointment but explained the authority's capital budget has a lack of flexibility that would not allow further pursuit of the KOP Rail project. Metrolinx also saw further delay to the Eglinton Crosstown LRT project, which was supposed to be in operation in late 2022 but was not, with Metrolinx placing the blame at the feet of its contractor, Crosslinx Transit Solutions. Metrolinx has vowed to work the Crosslinx Transit Solutions to get the quality issues with the project corrected and the project tested and operational.

One agency working to reduce risk associated with delays and cancellations of large project is the Metropolitan Council, which created a new regional transit infrastructure division in April that will provide what the entity calls "a more consistent and robust approach to complicated and critical infrastructure projects." The new regional transit infrastructure division will manage the development and construction of regional transit projects that are significant in size and complexity and have substantial financial impact, including light rail and bus rapid transit projects.

Terminology NTD Mode Types

- AR:** Alaska Railroad
- CC:** Cable Car
- CR:** Commuter Rail
- HR:** Heavy Rail
- IP:** Inclined Plane
- LR:** Light Rail
- MG/AG:** Monorail/
Automated
Guideway
- SR:** Streetcar
- YR:** Hybrid Rail

Capital Expenses: Existing vs. Expanded Services



NTD 2021 Capital Use

*Values represent percent of total expense for that group

By the numbers

2,598

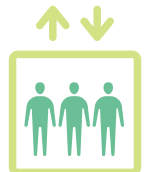
Number of escalators available within rail stations

Source: NTD 2021 Transit Stations

2,614

Number of elevators available within rail stations

Source: NTD 2021 Transit Stations



Accessibility and Fleet Replacement

The past year has seen the federal government award its first grants through two new rail programs created under the Infrastructure Investment and Jobs Act. In December 2022, the Federal Transit Administration (FTA) awarded \$686 million in grants through the All Stations Accessibility Program (ASAP). The total funds awarded represent grants meant for Fiscal Year (FY) 2022 and FY 2023, with FTA explaining it awarded funding for both years based on the significant number of funding requests received.

In the U.S., National Transit Database data from 2021 shows non-ADA accessible rail transit stations account for about 25 percent of all stations. Legacy rail systems have a higher rate of non-ADA accessible stations, with 45 percent of rail stations on networks in New York, New Jersey, Chicago, Philadelphia, Pittsburgh and Boston non-ADA accessible.

The grants awarded through the ASAP Program will support station upgrades in many of these regions that have higher percentages of non-ADA compliant stations.

Metropolitan Transportation Authority plans to use its \$252.5 million grant to make the Myrtle Avenue, Norwood Avenue and Avenue I subway stations in Brooklyn and the Burnside Avenue subway station in the Bronx fully ADA accessible. Chicago Transit Authority will modernize its Irving Park, Belmont and Pulaski stations with elevators, ramp upgrades, improved station signage and other station enhancements with support of its \$118.5 million grant.

In early May, FTA awarded \$703.1 million to six transit agencies in California, Florida, Illinois, Missouri, Ohio and Utah to replace aging rail cars through the Rail Vehicle Replacement Program.

The Bureau of Transportation Statistics shows the average age of a commuter rail passenger coach was 25.3 years in 2021, which is a 25 percent increase compared to 2016. The average age of heavy-rail passenger cars was 23.9 years, which is a five percent increase compared to 2016, and the average age of light-rail vehicles was 19.5 years, which is an eight percent increase compared to 2016.

“One-third of our nation’s subway and commuter rail vehicles are more than 25

years old,” said FTA Administrator Nuria Fernandez. “This program focuses on transit agencies that lack the funding they need to address overdue railcar replacements.”

Outside of federal investment, rail transit service providers are working to improve rail service by increasing the number of active rail cars. In March, Port Authority of New York and New Jersey began operation of nine-car trains on the PATH Newark-World Trade Center Line as part of the \$1 billion PATH Improvements Plan, which is a series of improvements designed to reduce delays and enhance customer experience. While the debut of nine-car trains is the first in PATH’s 100-year history, more trains of the same length will be rolled out gradually throughout 2023.

In the District of Columbia, Washington Metropolitan Area Transit Authority (WMATA) received approval to enter the final phase of its Return to Service Plan for its fleet of 7000 series railcars. With ridership growing throughout WMATA’s Metrorail system, the addition of more 7000 cars returning to service will support efforts to increase frequency. [L](#)

By the numbers



13,641 miles

Number of track miles transit authorities operate in the U.S.



1,152.6 miles

Number of below grade track miles transit authorities operate in the U.S.

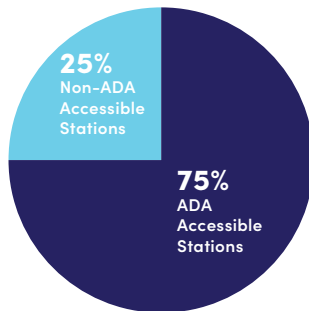
1,426.4 miles

Number of elevated track miles transit authorities operate in the U.S.

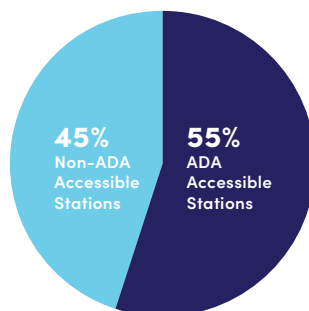
Source: NTD 2021 Track and Roadway

U.S. Station Accessibility

% of total stations

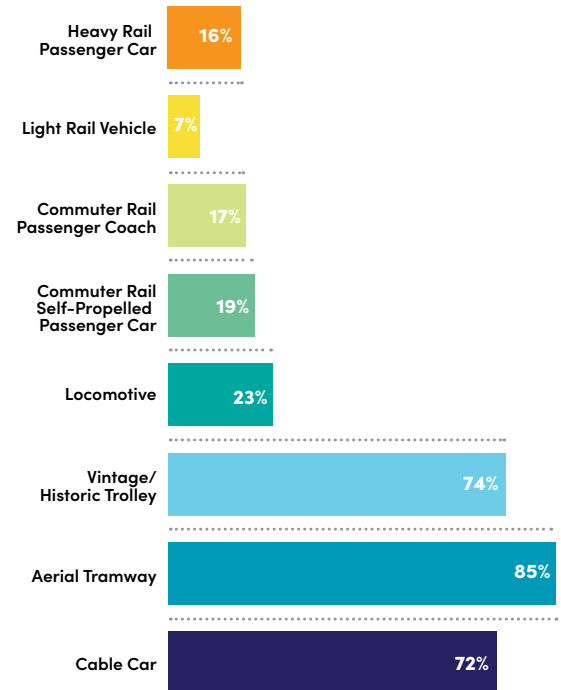


% of total legacy stations



NTD 2021 Transit Stations

Percent of Active Vehicles Beyond Their Useful Life



NTD Vehicles 2021

OKONITE

*Our Premier Vital Circuit Signal Cables are
Escorted by Superior Customer Service*



Our formula to keep your business on track is our fleet of 6 manufacturing plants, 5 service centers and 24 local sales offices. Our multiple plant capability provides manufacturing flexibility as we support your needs with our direct sales force and application engineering staff. Okonite has been setting the standard since 1878...and always 100% built in the U.S.A.

We're Here For You!



**THE
OKONITE
COMPANY**

Okonite Cables...A higher Standard!

102 Hilltop Road, Ramsey, New Jersey 07446 201.825.0300 www.okonite.com



For more information, visit www.MassTransitmag.com/21081936

One of the **Best Transit Tools** *of the Future* is an Old Friend - **The Bus**

New tools are helping agencies with zero-emissions and climate change goals to identify potential technologies to advance environmentally friendly improvements to existing bus fleets and infrastructure.

**BY BILL CROWLEY AND FABIOLA DAGRIN,
CONTRIBUTORS**



During this time of rapidly emerging technologies and high automation deployed on the nation's roadways, the transit world is making one of the most significant impacts to the future of mobility with an old friend – the bus. Over the course of its history, the bus has evolved to meet society's needs as a safe, efficient and affordable mode of mass transport. Now, as the United States prioritizes transforming its mobility landscape, the bus is once again at the center of this paradigm shift in the form of bus rapid transit (BRT) service. BRT is the fastest growing mode of public transportation in the nation that transit agencies are leveraging to deliver high-capacity transit and meet ridership demands sooner and at a lower capital cost than rail transit. BRT projects also create opportunities for equity, accessibility and connectivity for transit-dependent commuters by offering premium transport service for all users. Through the planning,

design and construction of a wide variety of premium BRT projects, the industry is shifting the mindset of urban transportation professionals to re-purpose the rights of way and measure success in the quality of experience over the expedient movement of vehicles.

AECOM is the general engineering consultant for the 25-mile University Line BRT project in Houston, Texas. It's true what they say – everything is bigger in Texas – and this BRT project is no exception. The University Corridor traverses nearly all communities from southwest to northeast Houston and is



slated to be the longest contiguous BRT system in the nation. Houston is fortunate to have a successful BRT Project in operation to help visualize other corridors but providing BRT the space to become the primary mode of throughput is still a new concept to many. Even with a catalog of case studies, detailed discussions are imperative to determine the best fit for each corridor.

The locally preferred mode that was determined from the AECOM-led study of the east-west high-capacity transit corridor in Columbus, Ohio, is also BRT. If completed as one corridor spanning approximately 22 miles, the east-west corridor would be categorized as a New Starts BRT project in the Federal Transit Administration's (FTA) Capital Investment Grants (CIG) Program, similar to the University Line. To simplify the implementation in central Ohio, it was decided to implement the initial phase of the east-west transit study as two Small Starts BRT projects: West Broad BRT and East Main BRT.

What is BRT?

BRT is a high-frequency high-capacity high-reliability bus service that operates like rail transit. BRT can be implemented in existing city roadways as center-running, side-running, mixed-flow, or any combination thereof.

Automated Bus Consortium A center-running BRT has bus lanes in a dedicated guideway in the center of the roadway. A side-running BRT, typically implemented as Business Access Transit (BAT) Lanes, runs in a dedicated bus lane along the outside curb. BRTs operating in mixed-flow are simply operating in general purpose lanes similar to a standard route. Transitions in guideway type are accommodated with queue jumps, where

Photo: AECOM

a transit phase in the traffic signal allows the bus to jump ahead of general-purpose traffic. In evaluating guideway options for a BRT corridor, project objectives need to be agreed upon early. The primary categories of the project undergo a technical evaluation process that includes a comprehensive range of criteria to shape the multi-modal character of a corridor.

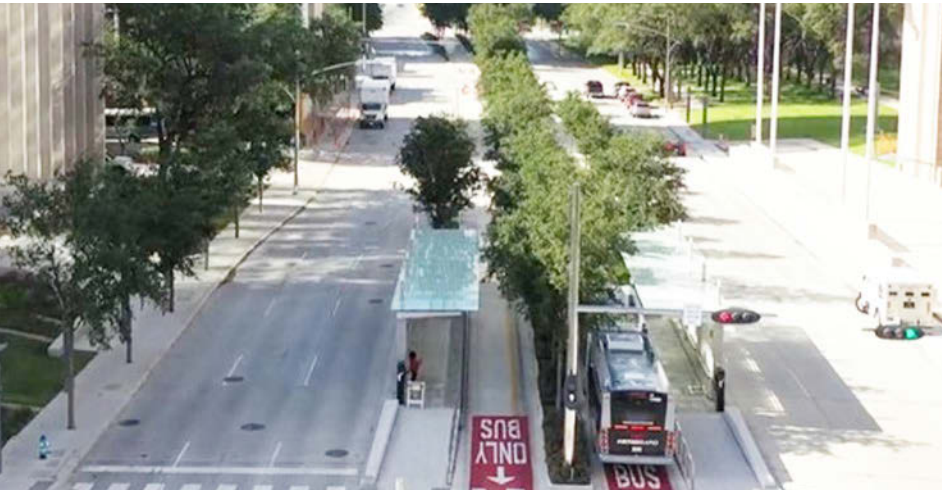
Vehicle fleet selection, sizing the platforms for accessibility, transit signal prioritization, service integration planning and system branding are key elements that are integral in the development of a successful BRT system. A range of options for these elements are included in the alternatives screening process to ultimately arrive at a Locally Preferred Alternative (LPA) for the corridor in the project development phase for the FTA CIG program.

Enhancing off-board mobility with BRT

BRT projects offer opportunities to enhance community connections for all modes of transportation and reach far beyond the transit elements. This is achieved in the planning phase with an approach that leverages BRT projects to improve community mobility. By leveraging BRT corridor investments to improve multi-modal mobility, stakeholders work together to accomplish common goals through improvements such as bike and pedestrian enhancements, micro-mobility and station area planning. This process includes analysis-driven decision-making data such as:

- Active transportation plans, including proposed bike and pedestrian enhancements and design standards that consider electric bikes/scooters and transit corridor street designations.
- Pedestrian crossing analysis to assess network safety and connection of the community activity centers through desire lines and alignment with adjacent land uses.

“ Vehicle fleet selection, sizing the platforms for accessibility, transit signal prioritization, service integration planning and system branding are key elements that are integral in the development of a successful BRT system.



Seven basics of bus rapid transit

- **Running ways:** Options range from BRT in mixed traffic to dedicated slide or center lane.
- **Stations:** Stations will include fare ticketing machines, covered-waiting areas, level boarding, and real-time transit information.
- **Vehicles:** BRT vehicles may be 10' or 60' long to accommodate more riders, may include upgraded interiors, streamlined vehicle designs, and features like multi-door boarding and interior bike storage.
- **Fare collection:** Fare payment will occur at BRT stations.
- **Intelligent transportation system (ITS):** Technology is used to help improve system operation and passenger experience, including transit priority at intersections, real-time arrival information for waiting passengers, and safety and security enhancements.
- **Service and operation plan:** BRT routes are designed to efficiently connect riders with their destinations by optimizing routes, station locations, and service schedules to meet rider demand.
- **Branding:** Unique name, color scheme, logo or other visual identifiers to differentiate BRT service from existing bus service.

-AECOM

- Micro-mobility investments with bike-share and allocated space for scooters.
- Mobility hubs for consolidated connections to local transit routes and/or micro-transit.
- Station area planning to really capture and improve the reach of BRT stations to the surrounding community through first and last-mile connections.

Using this data as a framework compiled in easily sharable maps and reports allows comparison of existing conditions and planned improvements. The connections that can be enhanced to improve overall connectivity and safety of the transportation network are more easily consumed by transit agencies and local community leaders in maps and diagrams. Because these projects often take more years to implement than the term limits of some decision-makers, these graphics also need to be archived carefully to offer similar results if re-analyzed in the future. This process used to develop elements included in the baseline project can also serve to identify future enhancements.

The future of BRT

BRT is rapidly becoming the mode of choice because it is flexible, scalable and can fit within the constraints of any urban or suburban environment. BRT has the flexibility to be implemented incrementally in different settings to meet community and operational needs. BRT projects are not without trade-offs; repurposing lanes for dedicated BRT guideways on congested city streets can prove to be a paradigm that challenges the logic of traffic engineers. However, cities are embracing

The Silver Line - Houston's first BRT

AECOM

“ BRT is rapidly becoming the mode of choice because it is flexible, scalable and can fit within the constraints of any urban or suburban environment.

ing initiatives such as Vision Zero, which leads to lane reductions and ultimately can convert single occupancy vehicles to a transit mode.

In the pursuit of premium BRT service for everyone, transit professionals seek to have as much dedicated guideway as possible in planning BRT corridors. Continuous, dedicated guideways pave the way for automated vehicles which, ultimately, will help relieve operator shortages that have forced the industry to reduce service. The Automated Bus Consortium is working with transit agencies to advance the deployment of automated buses across the U.S.

In the company's collective BRT experience, the transit industry is finding that even metropolitan areas that have yet to see the ridership to make corridors ripe for BRT service can benefit from the basic principles behind BRT. It is imperative the nation prioritize buses in the urban environment to provide fast, frequent and equitable transit service to sustain growth.

Let's embrace this old friend – the bus. The space allocated in public rights of way to BRT is one of the most critical components in the future for all mass transit systems. L

About the authors



Bill Crowley is BRT design manager at AECOM and currently serves on the American Public Transportation Association BRT Design Committee.



Fabiola Dagrin is deputy design manager at AECOM and a civil engineer with 20 years of experience in multi-disciplinary engineering and consulting projects.

experience in multi-disciplinary engineering and consulting projects.



NEXT

STARTS

HERE

Join us for this global gathering of public transit professionals at the industry's most influential event, October 9-11, 2023, in Orlando. You will discover the latest, cutting-edge solutions to increase ridership, revolutionize the rider experience, boost convenience, enhance security, and improve system-wide reliability and sustainability.

Orlando, Florida

EXPO: OCT. 9–11, 2023

TRANSform Conference: OCT. 8–11

TRANSform Conference Presented by **HNTB**

Sign Up for
Updates



Register Now

Fare reader on
a HART bus

Photo: HART

The Future of Paying for Public Transit Will Bring Better Connections

Transit systems in Milwaukee, Wis., and the Tampa, Fla., area reflect the industry's wider move toward payment systems that support equitable efforts, including fare capping, and provide for a more connected regional approach to fare collection.

BY BRANDON LEWIS, ASSOCIATE EDITOR

Over the course of the 21st century, modern technology has changed the way we live, including the way transportation agencies collect fares.

Fare collection has been around for ages. Riders and advocates of public transportation are used to paying a fee to use services. The way they pay, however, has significantly changed over the past few years.

Fare capping has allowed agencies to charge a specific amount for different kinds of passes and trips but limits the amount of money a person can spend on a transit system per day, per week and per month. It allows the agency to collect revenue while giving all customers the ability to benefit from multi-use discounts but pay ride by ride.

In addition to fare capping, contactless payments have become popular among many transit agencies, especially since the start of the COVID-19 pandemic. The convenience of being able to swipe a card—whether physically or digitally—against

a fare reader without physical contact in a quick and easy manner makes riding public transit hassle free for inexperienced or new riders.

Transit systems in Milwaukee, Wis., and the Tampa, Fla., area reflect the industry's wider move toward payment systems that support equitable efforts, including fare capping, and provide for a more connected regional approach to fare collection.

MCTS' WisGo and fare capping

In April, Milwaukee County Transit System (MCTS) in Wisconsin launched WisGo. Designed to make riding transit



easier and accessible for everyone, WisGo allowed the implementation of fare capping for MTCS.

WisGo is currently in its introductory stage. MCTS has given customers until Sept. 30, to transition from the previously used M-Card system to WisGo. The program is supported through a contract with the Umo Mobility Platform by Cubic Transportation Systems.

According to MCTS Chief Financial Officer Tim Hosch, MCTS received offers from 80 vendors before deciding on Umo.

“Deciding on a partner for this project wasn’t easy,” Hosch said. “We took our time with the interview process. We wanted to meet with their staff, really get

“

“There are 15 transit agencies in Wisconsin trying to develop and manage their own fair collection systems, and they’re doing it alone, so why not do it together and...take advantage of the economies of scale...”

Tim Hosch, MCTS Chief Financial Officer

to know them as a vendor because we’re trying to build this relationship over a 10-plus year period. We liked what Cubic brought to the table.”

Hosch adds partnering with Cubic Transportation Systems on WisGo allows

MCTS to stand out from other transit agencies in Wisconsin.

“There are 15 transit agencies in Wisconsin trying to develop and manage their own fair collection systems, and they’re doing it alone, so why not do it together



Validator on MCTS bus.

Photo: MCTS

“ We’re offering the old pass rates to everybody, regardless if riders are paying for it all upfront or if they’re just paying \$2 a tap, which is helpful for people in low income communities that maybe can only afford to put a little money on their card once a week, and that’s really easy to pitch to riders.”
Tim Hosch, MCTS Chief Financial Officer

A MCTS CONNECT bus, a MCTS clean diesel bus and a Waukesha Metro bus.

Photo: MCTS



and take Cubic, take advantage of the economies of scale, both economically and intellectually,” Hosch noted.

WisGo was initially set to launch in 2022, but it was pushed back until its April 1 launch day. The reason for the pushback according to Hosch: Supply chain issues.

“There were validator delays, which I think worked to our advantage because it allowed us a little more time in planning this out and getting everything scheduled and ready to go,” Hosch noted. “We switched to a different validator model that could be ready this spring, and we’ve been happy with the validator Umo has issued.”

Hosch explained the UMO validators pick up QR codes from six to seven inches away and have been well received by MCTS operators and riders.

MCTS implemented a new fare structure after the launch of WisGo, which includes:

- Regular fare rides — \$2 per ride, with caps at \$4 per day
- Reduced fare rides — \$1 per ride, with a cap of \$2 per day.

Under the previous MCTS system, riders would pay \$2 for a single ride, \$4 for a weekly pass or \$1,950 for a monthly pass, with reduced fare at half the price for each package with no fare cap. MCTS also offered premium fares, creating numerous options for riders to choose from.

Hosch said WisGo creates clarity for riders.

“Before the implementation of WisGo, riders would, let’s say, buy a monthly pass, but if they were out of town for a lot of the month, the pass would go to waste,” Hosch stated. “WisGo strips that all away and now rides are \$2, or \$1 with reduced

fare, and that's it, with fare capping taking care of the rest."

Hosch explained the decision to begin capping fares was made to help everybody in Milwaukee ride public transit, regardless of income status.

"We're offering the old pass rates to everybody, regardless if riders are paying for it all upfront or if they're just paying \$2 a tap, which is helpful for people in low income communities that maybe can only afford to put a little money on their card once a week, and that's really easy to pitch to riders," he said.

HART, PSTA, The Bus Contactless Payment System

In February, three transit agencies in the Tampa, Fla., area — Hillsborough Transit Authority (HART), the Pinellas Suncoast Transit Authority (PSTA) and Hernando County Transit (The Bus) launched a first-of-its-kind regional contactless payment system in the state of Florida. Each ride costs \$2, with a fare cap of \$4 per day. Riders can pay for their fare through various payment methods, including Apple Pay, Google Pay and debit cards, as well as the Flamingo Fares smartcard or mobile app. Flamingo Fares allows a rider to use the same payment method across all three agencies.

Stephanie Rank, communications and public relations manager at PSTA, said all three transit agencies came together to create a uniform fare system across the Tampa Bay region.

"Before the rollout of this system, if riders were riding HART, they would have to pay HART's fare. If they were riding Hernando, they would have to



Flamingo card/app

Photo: HART

pay Hernando's fare, and the same is true for [PSTA's] fare, and that made it really hard for riders to keep track of how much money they have to spend on each agency," Rank said.

Rank noted the system was in development for five years before launching, saying "a lot of testing with different cards and readers went into the development to ensure no hiccups at launch."

Emmanuel Nunez, manager of retail sales and revenue at HART, says the feedback he's received from HART riders has been overwhelmingly positive.

"The satisfaction from riders is about 98 percent since the system officially launched," Nunez said. "We had a few one-offs early on where the system would charge a client \$4 instead of \$2, and it was a quick fix with vendors and no customers have complained about the system."

HART also has its "Legacy System," which is a paper card riders can purchase that is not a contactless card. Nunez explained while HART wants all of its riders to transition to contactless payments eventually, it knows there is still a market for the "Legacy System," and they will not be discontinuing it anytime soon.

Even though the system has only been in operation for two months, Rank said PSTA is already seeing a boost in ridership, noting PSTA's revenue increased by about \$4,000 between February and March. Nunez noted ridership for HART is up five percent. Hernando County Public Information Coordinator Dominique Holmes noted The Bus has not seen an increase in ridership but pointed out The Bus' ridership is significantly less than PSTA and HART, as it only covers the rural urban area of Tampa.

While PSTA is happy with its \$2 fare price for its services, in the future, the agency is looking to implement a fare discount for its seniors across all payment methods.



"Right now, the discounted fare for seniors is only through the Flamingo Card, but that's the next phase of our contactless pay payment system," Rank noted. "Right now, phase one is where you can use your Apple Pay, Google Pay Transit app, credit card, debit card, tapable card, but the next phase is getting that parameters where if you are a senior citizen or if you do need a discounted fair, you'll be able to register your card and then automatically the next time you pay for a fair, it's discounted."

On the topic of potentially going fare free across all PSTA's modes like the agency has done with the SunRunner bus rapid transit system, Rank says it all comes down to funding.

"We would love to provide equitable free transit to everybody because it is a lifeline to a lot of people that use it to get to work, to get to medical appointments, to have freedom, but we need the proper funding to be able to do that. PSTA is one of the least funded transit agencies in the country, so we have to charge a fare to help with operating costs," Rank said.

Nunez said the agencies will be looking to expand the contactless system in the future to more agencies.

"Everything depends on funding, but the system has the ability to incorporate additional agencies, so even though we could have agencies that could drop off because they have a particular vision that they want to accomplish, and they want to come back or new agencies want to come in, that could happen in the next few years," Nunez said. L



What Kind of Big Impact will a New Minibus Have on North America's Small Bus Market?

The new-style transit bus can provide transit agencies with flexibility required to operate various services and support lower emission goals, but its wider adoption will depend on how well policy challenges can be navigated.

BY MISCHA WANEK-LIBMAN, EDITOR IN CHIEF



A

ttendees at the American Public Transportation Association's (APTA) Legislative Conference held in Washington, D.C., this past March, laid eyes on a relatively unfamiliar sight to North America: A 20-foot, low-entrance, electric minibus. This pint-sized vehicle style, while new to the North American market, carries loads of potential positive impacts. A new vehicle style could provide some level of relief to a small bus market hit hard by supply chain challenges. Its size lends itself to the nimbleness required of vehicles used for microtransit or on-demand services, and it's electric, which supports the industry's wider move toward lower and zero-emission fleets.

At a first glimpse, none of these things bubble to the top of the thought process. Like its automotive cousins, the Mini Cooper and Smart car, the initial description that jumps into one's mind when seeing a low-entrance minibus is a single word: Cute.

"It is cute. We don't promote it that way, but that seems to be the reaction," said Roger D'Hollander, chief operating officer of Damera Bus Sales Canada Corp.

The bus parked outside APTA's show hotel was a 20-foot electric e-JEST manufactured by Turkish company Karsan Automotive and distributed exclusively in North America by Damera. The bus is part of the vehicle's first U.S. demonstration project at Minnesota Valley Transportation Authority (MVTA), where its performance in winter conditions is being evaluated. According to MVTA Board records, the vehicle's initial evaluation is positive.

D'Hollander explains the e-JEST is purpose built for transit use rather than other styles of minibuses that use a standard chassis with a modified body frame. A diesel version of the e-JEST has been available in the global market for more than a decade, and its electric version was released about four years ago.

"I describe it as a 40-foot bus in a 20-foot footprint," said D'Hollander. "In North America, customers have interest in using it for on demand or microtransit and, obviously, it's not going to replace mainline fixed routes, but it will be a great feeder for those fixed routes."

Along with the growing interest in microtransit or on-demand service, the arrival of a new vehicle type to North America comes during a period where supply chain issues, particularly in the small bus market, have been adding to pandemic recovery pressures.

Small bus service providers have faced price increases and growing wait times in delivery of vehicles according to the Community Transportation Association of America. A survey conducted by the association last fall found more than 80 percent of respondents classified their level of concern regarding vehicle replacements as very concerned or an unprecedented level of concern. Approximately 37 percent are expecting price increases exceeding 40 percent and the estimated backlog as of fall 2022 was 20,000 vehicles – a number that is expected to increase in 2023.

Saint John Transit

Saint John Transit in Saint John, New Brunswick, was the first transit provider in North America to receive an e-JEST. A demon-

stration vehicle arrived in June 2022 and six leased vehicles were delivered in December before being placed into service in January 2023 as part of a pilot project that includes a 40-foot BYD electric bus. Saint John Transit is targeting 2040 to have its fleet completely transitioned to zero-emission. Ian MacKinnon, director of transit and fleet services for Saint John, explains the move toward a zero-emission fleet is the result of a perfect storm of high diesel prices, a want to implement on-demand transit and the availability of federal funding.

"We're very specific about growth activities in this city. We recognize the relationship between transit and growth and we want to encourage the use of transit," MacKinnon said. "We were thinking of how to better provide transit services to low frequency, low ridership areas, which led us to on-demand and, if we're going in that direction, let's make the whole thing green."

MacKinnon explains its intuitive to believe the move toward zero-emission vehicles will deliver operational efficiencies, but Saint John Transit wants to prove those efficiencies. It has partnered with a

“

In North America, customers have interest in using it for on demand or microtransit and, obviously, it's not going to replace mainline fixed routes, but it will be a great feeder for those fixed routes."

Roger D'Hollander, chief operating officer of Damera Bus Sales Canada Corp.

telematics company to collect data on the six e-JEST buses and 40-foot bus to track everything from battery life and maintenance costs to how the bus was driven. After a year of data collection, the information will then be compared to data from diesel buses operating on the same routes.

"We want to prove its cost effective and, once we do, we're all in," said MacKinnon.

MacKinnon says adjustments were needed to the e-JEST vehicles, as is the case with any new vehicle, to account for nuances of the bus being designed outside of the U.S. or Canada. For example, the minibus operator seat was not aligned with the console, which was corrected



Oakville Transit was the second provider in North America to take delivery of an e-JEST vehicle. The 15 vehicles support Oakville Transit's phased zero-emission fleet transition.

Jan Boic/Oakville Transit



MVTA's e-JEST shown outside the APTA Legislative Conference in March 2023.

Mischa Wanek-Libman/Mass Transit

during the first few weeks after delivery. Operators and mechanics were trained in how to operate, maintain and comply with new safety standards associated with the smaller, electric vehicles. The transit agency also went through a learning curve with its charge management.

Saint John is on a hill and located on a bay with frequent freeze/thaw cycles during the winter. MacKinnon says the agency learned a lot during the first three months from a route planning perspective and charging perspective.

The pilot service has been well received by passengers who are using the stop-to-stop service to access transit connection points with higher frequency.

"All the feedback has been fantastic. I haven't heard anything other than positive feedback from our user base," said MacKinnon.

Taking a wider lens on the industry, MacKinnon explains smaller buses, like the e-JEST, have an application in serving fringe areas with low ridership.

"In all transit - small, mid-size, large - they have a fringe location of low ridership and smaller buses have an application, as does on-demand service. Historically, transit addressed those low ridership areas with 40-foot diesel buses, and I think I think those days are changing," said MacKinnon.

Buy America compliance

The wider adoption of the e-Jest in the U.S. will depend on its ability to comply with or attain a waiver for the Build America, Buy America Act.

D'Hollander says Damera is working with federal and transit partners to develop and implement a phased approach that will support the spirit of the Buy America policy. He notes the company is managing the waiver process while it progresses through its plan, which starts with establishing a parts facility in Iowa, followed by second parts facility in California.

D'Hollander explains the company will reach 30 percent America content of the buses by ensuring several of the vehicle's peripheral components, including lighting, the ADA ramp, mirrors and seating, are made in the U.S. The percentage will increase to 60 percent with the addition of batteries from Michigan, which should begin by the end of 2023. The final phase will be manufacturing and assembly of



+ Smarter solutions for the world's toughest challenges

Transitioning to zero-emissions operations can be challenging, but it's an opportunity to optimize your system around new technologies. You need a partner who is innovative and will work with you to develop better ideas.

Together we can create positive change.
hatch.com

HATCH

For more information, visit www.MassTransitmag.com/21272729



Checkpoint

WHEEL NUT INDICATORS & DUST CAP FOR YOUR SAFETY



Dustite®



Dustite LR®

by **MARTINS**

For more information, visit www.MassTransitmag.com/21275748

Get up-to-date industry news and product information delivered right to you.

Sign up for the *Mass Transit* newsletters! Stay in the know...

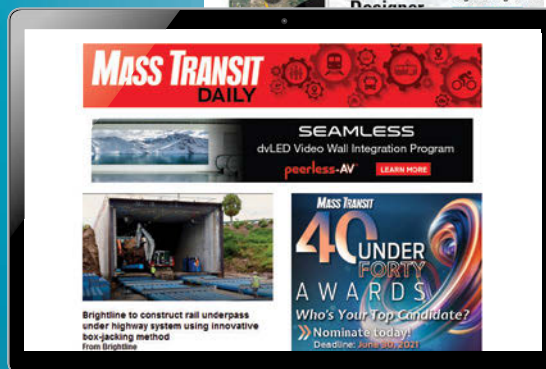
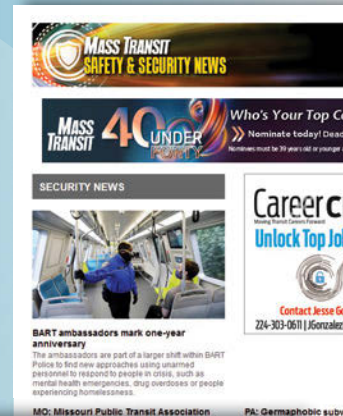


Visit MassTransitMag.com/Subscribe

- » Mass Transit Daily
- » Rail Update
- » Safety & Security News
- » Transit Bid Tracker



MassTransitmag.com/subscribe



MASS TRANSIT

BEST PRACTICES FOR INTEGRATED MOBILITY

the bus at a U.S. facility, the location of which is still being finalized.

“By the middle of 2024, we will definitely have a manufacturing facility in operation,” said D’Hollander.

Oakville Transit

Oakville, Ontario, sits on the edge of Lake Ontario slightly more than 20 miles southwest of Toronto. Oakville Transit is part of a larger regional area and as Adrian Kawun, director, Oakville Transit, explains, the town takes great pride in providing superior service and innovative solutions.

Oakville Transit has taken delivery of 15 e-JEST buses and is in the process of commissioning them before they are placed into specialized and on-demand service, which is planned for the end of May. The minibuses support Oakville Transit’s incremental transition to a zero-emission fleet.

“The idea here is that before you can go and buy a full suite of electric vehicles, you really have to understand, from an

operator perspective, how you are going to actually recharge these vehicles,” Kawun said. “We did an electric infrastructure review of our facility and identified that we could accommodate these 15 electric buses without any change to our existing operation in terms of the electricity.”

While modifications were not needed, operators and mechanics did undergo training to ensure the safe operation of the new additions to the fleet.

“These vehicles drive more like a car; they’re nimble and easy to get around, but they’re electric and there’s a lot of torque to them,” Kawun explained. “When we trained the operators, we focused on how to maintain that electric charge and battery to provide more distance.”

Kawun reports feedback has been overwhelmingly positive from both operators and customers, who have been introduced to the vehicles during charters and at special events. He said an unusual reaction observed from riders is people tend to be quieter in the e-JEST because it’s a smaller

bus and doesn’t make the same level of noise a diesel bus would.

“The operators love these things,” said Kawun. “We have operators who don’t usually operate the specialized or on-demand service that want to because they want to get into these vehicles.”

When Kawun ponders the greater impact of the e-JEST’s potential impact on the North American transit industry, he explains the more options available to operate in terms of vehicles, the more options that can be provided to the customer.

“These vehicles will change the way agencies in areas like mine provide our service or add to our service delivery in terms of reorganizing how we operate within the town,” said Kawun. “These vehicles are 100 percent accessible, which then gives us the opportunity to provide transit services as a transit service and not a two-tier system where we have a conventional system and then a specialized system. Now, it’s the transit bus. There’s no stigma attached to it. It is for everybody, anytime, anywhere.” L

UNIFY YOUR SECURITY OPERATIONS

Milestone XProtect ● Onboard Plug-in

Integrate your mobile video surveillance with your on-premise Milestone XProtect VMS for true unified security management. The plug-in allows XProtect to receive and display bus and rail fleet vehicle surveillance data – consolidating your security operations into a single VMS platform.

- GPS Tracking
- On-board Monitoring with Live Viewing
- Static and Dynamic Geofences
- Real-time Email Alerts



For more information, visit www.MassTransitmag.com/10065116



RAIL

Delkor Rail Platform Gap Filler

The Delkor Rail Platform Gap Filler is an engineered, robust, hard-wearing rubber profile that is mounted along the edge of a train platform to reduce the gap between the platform and the entrance of a passenger train, ensuring when a train has stopped at a platform, passengers are able to enter and exit with safety. Platform Gap Fillers can significantly reduce the likelihood of a passenger slipping through the gap between the platform and a train. Platform Gap Fillers were developed to overcome the variety of gap sizes found on most transit systems and provide a safe platform-to-train transition for wheelchairs and scooters.

CONSTRUCTION POLYMER TECHNOLOGIES

<https://constructionpolymertechnologies.com>



RAIL

Bridge Monitoring and Inspection Solution

Bentley's bridge monitoring and inspection solution transforms traditional bridge management by leveraging digital twin workflows. Uses iTwin Capture to create a 3D digital twin using drone or handheld photography and laser scanning. Gather real-time data in iTwin IoT to gain insight and improve decision-making. Utilize a reality model, leverage artificial intelligence and machine learning defect detection and share and collaborate using operational insights in design and engineering tools to take bridge maintenance and rehabilitation projects to the next level.

BENTLEY SYSTEMS

<https://go.bentley.com>

RAIL

DGTRACK

Hitachi Rail's DGTRACK digital Audio Frequency track circuit equipment was recently approved for use on a major passenger rail operator in North America. DGTRACK is an advanced audio-frequency-based track circuit used to continuously detect train presence within mainline track circuit blocks (except through interlocking) and transmit cab speed command signals to the train. The system's solution is part of Hitachi Rail's FDC 3G wayside signaling platform, which offers train control functions in a modern, vital platform (SIL-4).

HITACHI RAIL

www.hitachirail.com



RAIL

EMD Passenger Locomotives

For more than 100 years, Progress Rail's EMD® Passenger Locomotives have been known for their durability, reliability and sustainability. By replacing older engines and control systems with new, state-of-the-art, clean technology, the next generation of EMD® Passenger Locomotives are ready to provide reliable service for decades. Packages can be tailored with kits using modern EMD® or Cat® engines to meet the latest emissions standards, along with a choice of control systems.

PROGRESS RAIL

www.progressrail.com

View more products at MassTransitmag.com/directory



RAIL

Resilient Wheels

Penn Machine’s Resilient Wheels are engineered to reduce noise, vibration and maintenance costs while improving operating life and ride quality. Individual rubber blocks separate the wheel center from the tire and offer unique dampening properties unmatched by alternate wheels. The three-piece design allows the operator to quickly replace critical components without disrupting the wheelset, thus saving substantial time in periodic maintenance.

PENN MACHINE COMPANY, LLC
www.pennusa.co



RAIL

Airlink Communications Systems

The standard for broadband, wireless, fixed/mobile access systems, the Airlink Radios, based on IEEE 802.16s, enable wide-area, standard Internet Protocol connectivity – allowing railroads to transition from multiple, single-purpose networks to a common, managed, multi-purpose/multi-band network that can leverage railroads’ extensive investment in RF spectrum and physical infrastructure that is already in place. Airlink MC-IoT includes dual-mode base station and wayside radios that are over-the-air compatible with Siemens Mobility’s legacy ATCS base station and wayside radios to offer a cost-effective migration path to a standard, IP-based communication network.

SIEMENS MOBILITY
www.mobility.siemens.com



**EDNA A. RICE
 EXECUTIVE RECRUITERS, INC.**

The world’s most accomplished executive search firm specializing in rail, transportation, and mobility, since 1988. We possess the industry-specific expertise needed to consistently deliver exceptional results for both our clients and our candidates.

(713) 667-0406 • info@ednarice.com
www.ednarice.com

For more information, visit www.MassTransitmag.com/10064901



RAIL

Liberty NXT Streetcars

The Liberty NXT Streetcars are the second rendition of the BROOKVILLE streetcar platform. The Liberty NXT is designed, engineered and manufactured by an American car builder for American cities. The Liberty NXT features station-level boarding, more than 70 percent low floor standing and a modified coupler. BROOKVILLE’s Liberty NXT is a custom design, manufactured to adapt to existing streetcar applications. This vehicle also features an optional battery onboard energy storage system for off-wire operation.

BROOKVILLE EQUIPMENT CORPORATION
www.brookvillecorp.com

Career CENTER

Moving Transit Careers Forward

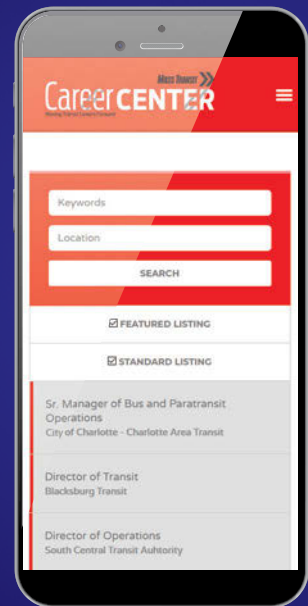
Start your search.

Access your next

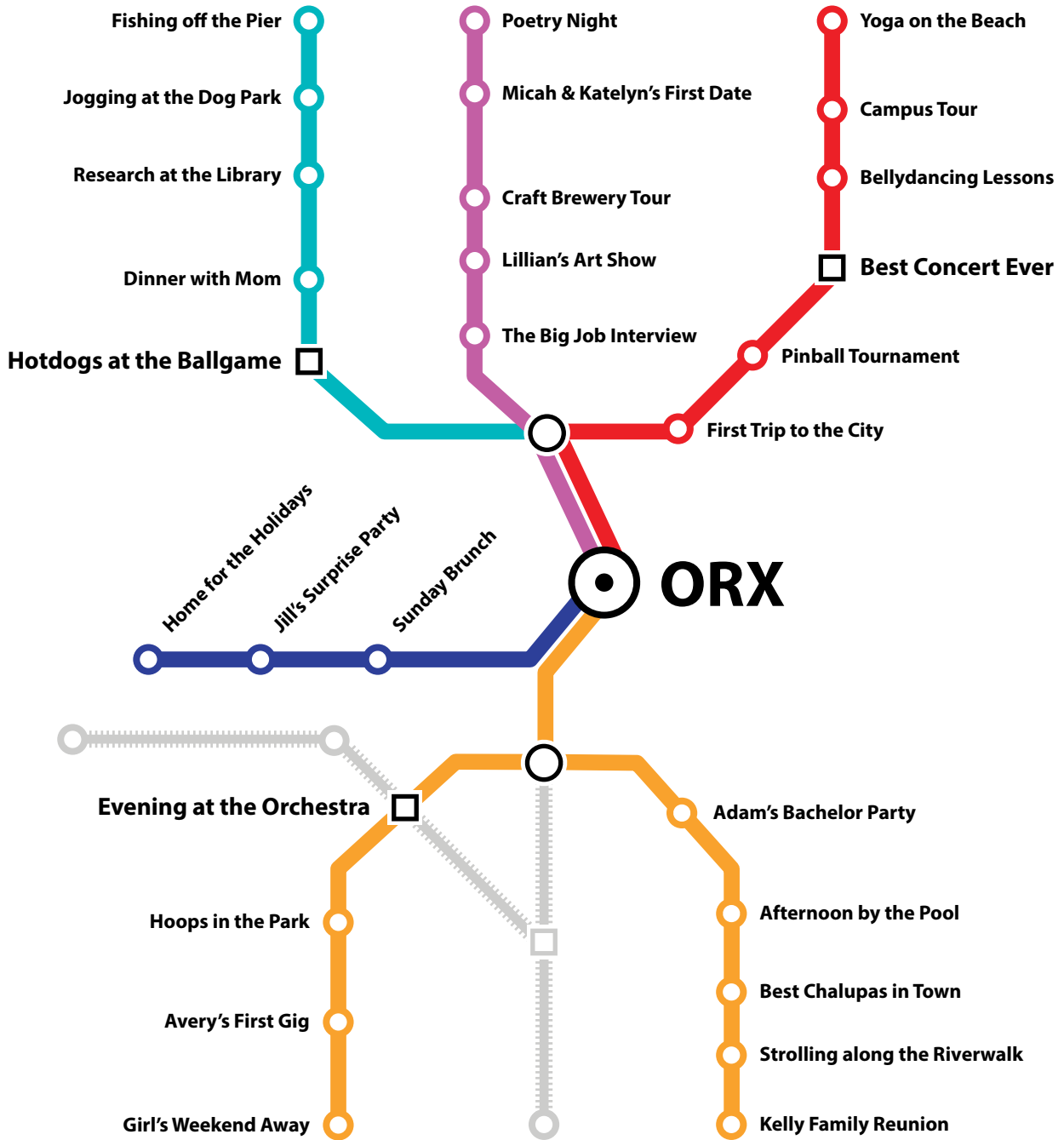
Career Opportunity.

Mass Transit Career Center:
Your guide to open positions
in the transit industry

Start your search
Jobs.MassTransitmag.com



Jobs.MassTransitmag.com



We get why your riders ride.

For over 40 years, professionals in the rail transportation industry have depended on ORX to keep them running smoothly. Innovative technology, bearing housing conversions, axle designs, gauging, tooling, complete wheel set designs, and more. Our team is here to meet your demands, exceed your expectations, and fulfill our promise to deliver *The World's Highest Standards in Railroad Wheel Sets*.