

# PASSENGER Transport

THE SOURCE FOR PUBLIC TRANSPORTATION NEWS AND ANALYSIS

MONDAY, JUNE 15, 2020 | VOLUME 78, NO. 12



PSTA CEO Brad Miller speaks about the first inductive wireless charging station on the U.S. East Coast at the agency's headquarters.

## PSTA Debuts First Inductive Wireless Charging Station on East Coast

THE PINELLAS SUNCOAST TRANSIT AUTHORITY (PSTA), St. Petersburg, FL, has opened, according to the agency, the first inductive wireless charging station on the U.S. East Coast, incorporating 250-kilowatt Inductive Power Transfer Technology.

PSTA's fleet of two electric buses (with four more expected this year), currently charge using a plug-in charger—a process that takes approximately four hours. With the new technology, that time is expected to be reduced by more than half.

The driver positions the electric bus over the charge plate—which connects with the bus wirelessly—and presses a button for a 10-minute charge to begin. Drivers are trained on how to align with the charger.

"This innovative technology is one giant step forward for not only PSTA, but transit agencies across the nation. Being the first electric charging station of its kind in Florida sets the standard of transportation agencies becoming more environmentally friendly," said Brad Miller, PSTA chief executive officer. "At PSTA we are committed to reducing our carbon-footprint while still providing the best service possible to our community."

## Voters Once Again Choose Increased Investment in Public Transportation

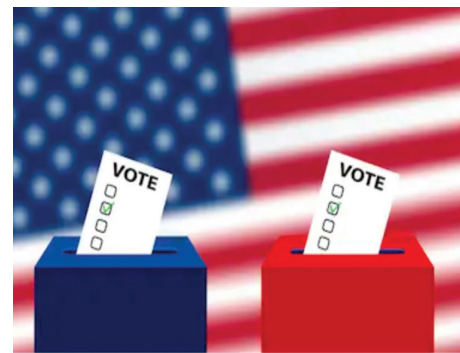
VOTERS IN WEST VIRGINIA ON JUNE 9 overwhelmingly supported four measures that called for investing in more public transportation.

Two are levy renewals for the Mid-Ohio Valley Transit Authority in Vienna and Parkersburg. They are expected to raise \$800,000 and \$2,000,000 per year, respectively.

The third is a levy renewal for the Tri-State Transit Authority in Huntington. It is expected to raise \$1,760,000 per year.

The fourth is the Monongalia County Urban Mass Transportation Authority levy, which was approved by 66.5 percent of voters and will provide \$1,994,843 annually and \$7,979,372 over a four-year term.

Overall, voters have supported public transit in 18 out of 20 elections this year—a 90 percent win rate.



## New VTA Sustainability Plan Most Comprehensive Yet

THE SANTA CLARA VALLEY Transportation Authority (VTA), San Jose, CA, has unveiled a new sustainability plan, which will serve as a road map to guide the agency's actions through Fiscal Year 2040. The plan, VTA's most comprehensive yet, outlines key performance indicators with short-term and stretch targets for greenhouse gas emissions, criteria air pollutants, building energy, fleet energy, water usage and waste diversion.

"Sustainable practices are at the core of VTA's mission to provide transportation solutions," said Nuria I. Fernandez, APTA chair and VTA general manager / CEO. "It is fundamental to how we do business and innovate the way Silicon Valley moves."

Over the last decade, VTA has sought to

improve efficiency and conserve resources by retrofitting equipment, installing solar and replacing vehicles, leading to a reduction in greenhouse gas emissions (GHG) by 50 percent and air pollutants by 70 percent. The agency earned APTA's Sustainability Commitment gold-level status in 2016.

Requirements for VTA to meet its enhanced sustainability targets include transitioning the entire bus fleet to zero-emission vehicles, upgrading to 100 percent renewable energy sources for light rail and facilities, and substantially increasing the use of non-potable water. The agency is also examining additional

### VTA SUSTAINABILITY PLAN

CONTINUED ON PAGE 4

## Examining Priorities in Rail Transit

FOLLOWING THE CANCELLATION OF APTA'S 2020 in-person Rail Conference and International Rail Rodeo due to the coronavirus pandemic, *Passenger Transport* invited a cross section of rail practitioners to discuss some of the priorities, concerns and opportunities facing rail service. Beginning on page 6, explore how zero-emissions technology, safety and cybersecurity concerns, and new maintenance and communications practices are shaping rail operations across North America.



By retrofitting equipment, installing solar and replacing vehicles, VTA has reduced its greenhouse gas emissions by 50 percent and air pollutants by 70 percent.



# COMMENTARY

**BY GARY C. THOMAS**

President/Executive Director  
Dallas Area Rapid Transit (DART)  
Former Chair, APTA

# Stronger Together

In this time of civil unrest and injustice, our hearts and hopes are with both our employees and the members of our community who are exposed, once again, to the pervasive prejudice and inequality that so often plagues our society. It is difficult to understand or accept acts of violence based on racism and hatred. I know that you, like me, are frustrated, sad and angry when we see an act of violence committed for no reason other than the color of a person’s skin.

**D**ALLAS AREA RAPID TRANSIT (DART) HAS a long history of working to remove barriers to transportation, employment and business opportunity based on race and ethnicity. We believe all the communities we serve should be treated fairly and be free from prejudice. I also believe this history provides us the opportunity to be a powerful voice in the conversations ahead and am already working on arranging those meetings.

As it has been since our creation 37 years ago, DART’s vision and mission will always be to operate a safe, efficient and effective public transportation system that provides enhanced mobility opportunities, including better access to jobs, healthcare and educational opportunities, and improves the quality of life for all North Texas residents. The only way to continue to realize that vision is by expanding the collaboration that has made our communities successful. I have been honored to have the opportunity to work with organizations and individuals across our service area and region who have dedicated their lives to bringing the difficult conversations that continue to divide us to the forefront. By working together, with a shared goal of building a better world for all of us, not only for those who look like us, will we realize that there is more that brings us together than keeps us apart.

The importance of public transit in creating equality and promoting equity has been evident throughout our country’s history. Since Rosa Parks declined to give up her seat in Montgomery, Alabama, on a cold December day in 1955, public transit has become a symbol for ending racial segregation and discrimination. By taking the first step towards desegregation and the Civil Rights Act of 1964, the Montgomery Bus Boycott proved what a powerful tool public transportation could be to enact social change. Even now, 65 years later, public transportation continues its legacy of promoting civil rights and equality for all.

Promoting inclusivity and diversity is one of the many things that make public transportation such an asset to our communities.

The importance of public transit in creating equality and promoting equity has been evident throughout our country’s history. Since Rosa Parks declined to give up her seat in Montgomery, Alabama, on a cold December day in 1955, public transit has become a symbol for ending racial segregation and discrimination.

The immense value public transit provides, especially to disadvantaged communities, impacts all of us. Providing affordable and accessible service to all members of our communities, public transportation serves as one of the great equalizers in modern society. Every day, transit agencies across the country work to break down many of the barriers people face in creating a better life for themselves, their families and their communities, regardless of the color of one’s skin, gender, age or socioeconomic status. Access to education, healthcare and job opportunities improves the quality of life for everyone. Promoting inclusivity and diversity is one of the many things that make public transportation such an asset to our communities.

Our commitment to diversity and inclusion has been and remains a core part of our identity as an agency. DART stands as an example of the strength that a diverse workforce provides and as an agent of action and change for all the communities we serve. Thoughtful conversations about what it means to be seen, heard and safe are as important now as they have ever been. We will continue our efforts to end prejudice and inequality as we always have, together.

On a personal note, I want you to know how much I appreciate and value each and every member of the DART team. I intend to quietly spend 8 minutes and 46 seconds each day for the next week reflecting on my personal role in addressing these concerns and encourage each of us to do the same.

Follow APTA on [Twitter @APTA\\_info](#) | Visit our Facebook page at [facebook.com/americanpublictransportationassociation](#)  
Connect with us on [LinkedIn American Public Transportation Association](#) | View APTA’s channel on [YouTube APTAtv](#)

“Commentary” features authoritative points of view from various sources on timely and pressing issues affecting public transportation. Statements and opinions expressed in *Passenger Transport* are those of the authors and do not necessarily reflect those of APTA. APTA would like to hear from you. If you are interested in submitting an original, thought-leader Commentary for consideration, please contact Senior Managing Editor David A. Riddy at [driddy@apta.com](mailto:driddy@apta.com).

# PASSENGER Transport

ISSN 0364-345X  
*The Source for Public Transportation News and Analysis*  
**VOLUME 78, NUMBER 12**  
**ESTABLISHED 1943**

Published bi-weekly by the **American Public Transportation Association**, 1300 I St., NW, Suite 1200 East, Washington, DC 20005; (202) 496-4800; Fax (202) 496-4321; [www.apta.com](http://www.apta.com)

It is the mission of *Passenger Transport* to communicate news and information about public transportation and to serve as the voice of the public transportation industry.

**Rosemary Sheridan**, Publisher  
[rsheridan@apta.com](mailto:rsheridan@apta.com)  
**Kathy Golden**, Editor  
[kgolden@apta.com](mailto:kgolden@apta.com)  
**David A. Riddy**, Senior Managing Editor  
[driddy@apta.com](mailto:driddy@apta.com)  
**Jack Gonzalez**, Senior Director-Marketing and Sales  
[jgonzalez@apta.com](mailto:jgonzalez@apta.com)  
**Erin Cartwright**, Program Manager-Communications and Marketing  
[ecartwright@apta.com](mailto:ecartwright@apta.com)  
**Mitchell Wood**, Graphic Designer  
[mwood@apta.com](mailto:mwood@apta.com)

**News & Commentary:** *Passenger Transport* welcomes articles, announcements, commentary, and letters to the editor. Submitted photographs become the property of APTA and may be used for other association purposes. Send submissions to [driddy@apta.com](mailto:driddy@apta.com). Illustration for Industry Briefs courtesy of Denver RTD.

*Passenger Transport* is a registered trademark of the American Public Transportation Association (APTA). Statements and opinions expressed in *Passenger Transport* are those of the authors and do not necessarily reflect those of APTA. Acceptance of advertising, advertorials, and articles does not imply APTA endorsement of goods, products, or services.

**Subscriptions:** Individual subscriptions within North America & U.S. possessions, \$75 per year; \$125 for two years. First-class subscriptions, \$113 per year; \$201 for two years.

Subscriptions outside North America, \$87 per year; Airmail service outside North America, \$147 per year. Quantity discounts available to APTA members, when billed to one address:

11-20 copies	\$65 each copy
21 and above	\$60 each copy

**Advertising Sales:** The appearance of advertisements and new product or service information in *Passenger Transport* does not constitute an endorsement of such products or services by APTA.

**The YGS Group**  
[www.theYGSgroup.com](http://www.theYGSgroup.com)

<b>Tima Good</b> Account Executive (717) 430-2282 <a href="mailto:Tima.Good@theYGSgroup.com">Tima.Good@theYGSgroup.com</a>	<b>Natalie DeSoto</b> Account Executive (717) 580-8184 <a href="mailto:Natalie.Desoto@theYGSgroup.com">Natalie.Desoto@theYGSgroup.com</a>
---	--

POSTMASTER: Send address changes to: *Passenger Transport*, 1300 I St., NW, Suite 1200 East, Washington, DC 20005. Periodicals Postage paid at Washington, DC and additional mailing offices.

**APTA Officers**  
**Nuria I. Fernandez**, Chair  
**Jeffrey A. Nelson**, Vice Chair  
**Freddie C. Fuller II**, Secretary-Treasurer  
**David M. Stackrow Sr.**, Immediate Past Chair

**Executive Committee Members**  
**Dorval R. Carter Jr.**, Chicago Transit Authority  
**Francis “Buddy” Coleman**, Clever Devices Ltd.  
**Michael Goldman**, Washington Metropolitan Area Transit Authority  
**Huelon A. Harrison**, Legacy Resource Group  
**Kevin J. Holzendorf**, Jacksonville Transportation Authority  
Board of Directors  
**Karen H. King**, Golden Empire Transit District  
**Michele Wong Krause**, Dallas Area Rapid Transit  
**Jeanne Krieg**, Eastern Contra Costa Transit Authority  
**Thomas C. Lambert**, Metropolitan Transit Authority of Harris County  
**Adelee Marie Le Grand**, Atlanta-Region Transit Link Authority  
**Richard J. Leary**, Toronto Transit Commission  
**Henry Li**, Sacramento Regional Transit District  
**Raymond J. Melleady**, USSC Group  
**Brad Miller**, Pinellas Suncoast Transit Authority  
**Allan Pollock**, Salem-Keizer Transit  
**Leanne P. Redden**, Regional Transportation Authority  
**Catherine Rinaldi**, MTA Metro-North Railroad  
**Doug Tisdale**, Regional Transportation District, Denver  
**William T. Thomsen**, Urban Engineers  
**Matthew O. Tucker**, North County Transit District  
**Thomas Waldron**, HDR

**President and CEO**  
**Paul P. Skoutelas**  
**Pamela L. Boswell**, Vice President-Workforce Development and Educational Services  
**David Carol**, Chief Operating Officer  
**Linda C. Ford**, General Counsel  
**Christina Garmeski**, Vice President-Meetings and Membership Services  
**Arthur Guzzetti**, Vice President-Mobility Initiatives and Public Policy  
**John S. Henry**, Chief Financial Officer  
**Kym L. Hill**, Vice President-Executive Office & Corporate Secretary  
**Jeff Hiott**, Vice President-Technical Services and Innovation  
**Shelley Taggart Kee**, Vice President-Human Resources & Administration  
**Ward W. McCarragher**, Vice President-Government Affairs and Advocacy  
**Petra Mollet**, Vice President-Strategic and International Programs  
**Rosemary Sheridan**, Vice President-Communications and Marketing





# Sports Stars Support Public Transit Agencies in Protecting Essential Workers

**THE NEW YORK METROPOLITAN** Transportation Authority (MTA) has received a donation of 100,000 cloth face masks from the New York Mets baseball team. The masks will be distributed to workers across all MTA agencies.

“I thank the New York Mets for this terrific delivery—it’s a home run for the MTA and its entire workforce, who are the heroes moving heroes of this pandemic,” said MTA Chairman and CEO Patrick J. Foye.

The masks are the Mets colors of blue and orange and read: “New York Tough.”

“On behalf of Fred Wilpon, Saul Katz and the entire Mets organization, we are proud to provide masks for the frontline workers at the MTA,” said Mets COO Jeff Wilpon. “Providing masks is our way of saying thank you to these brave individuals for all they are doing during the pandemic.”

MTA has distributed more than two million masks to employees at New York City Transit, the MTA Bus Company, Long Island Rail Road, Metro-North Rail-

road, MTA Bridges and Tunnels and MTA Police Department. The MTA has also distributed more than 4.5 million pairs of gloves, 27,000 gallons of hand sanitizer in 110,000 bottles, 2.4 million individual sanitizing wipes and 105,000 gallons of cleaning solutions.

IndyGo in Indianapolis has received a donation of boxes of hand sanitizer and 1,000 masks through a partnership with former Indianapolis Colts, Hall of Famer Edgerrin James and Super Bowl Cham-

pion Reggie Wayne, former NFL player Bryant McKinnie and ProKel Mobility CEO, Kelly Gonzalez, Jr.

More than \$6.9 million has been raised nationwide for COVID-19 relief by way of the NFL, its affiliates, current/past players, business partners and individuals.

“My heart has always been in Indy and I am happy that people like Reggie, Bryant and Kelly are working with me to support the city and its frontline workers like they did when I played,” said Edgerrin James. “IndyGo is the heartbeat of the city and we need to make sure the drivers and passengers are as safe as possible.”

Keolis Commuter Services, the operating partner for the Massachusetts Bay Transportation Authority’s (MBTA) commuter rail, joined members of the Boston Celtics Shamrock Foundation and Vistaprint in thanking train dispatchers at a recent lunch at two operations facilities in Boston and Somerville. The Food for Heroes community



MTA Chairman and CEO Patrick J. Foye, wearing a mask donated by the New York Mets

initiative is aimed at supporting local restaurants, while showing appreciation for frontline workers during the COVID-19 pandemic.

“Our Keolis teams are very appreciative of the entire Celtics organization’s generosity and of Olé restaurant in Cambridge,” said Keolis CEO and General Manager David Scorey. “Keolis employees are providing critically important transit services for other essential employees, and I’m proud to know that they are seen, appreciated and recognized for their daily efforts.”

## Citibus Launches Microtransit Service

**CITIBUS IN LUBBOCK, TX, HAS** launched its Citibus On-Demand microtransit pilot to provide enhanced service during the COVID-19 pandemic.

Amid the pandemic, Citibus shifted to hourly service, which impacted morning and afternoon schedules. The microtransit pilot will bridge these gaps in hourly fixed-route services.

With the personalized, on-demand, curb-to-curb service, riders can book a pick-up time using the Citibus app or by phone call. Rides will be shared with a maximum of three passengers per van to follow social distancing guidelines. The service will be fare-free until

June 30.

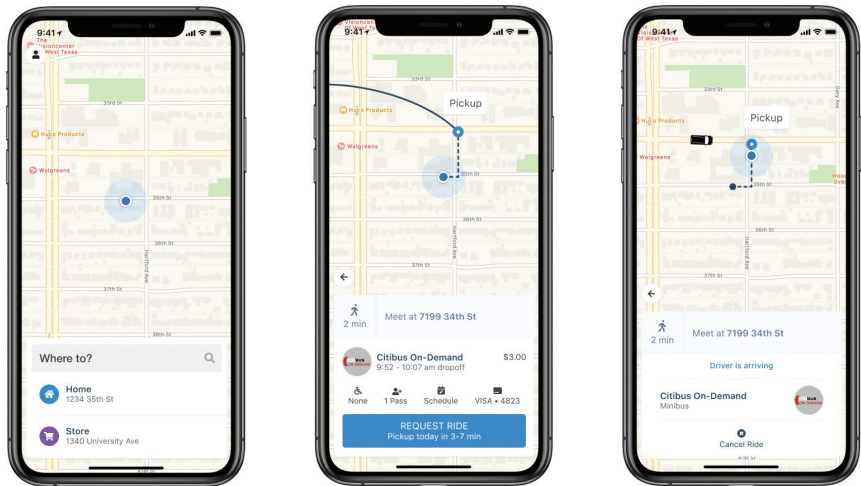
“This project will allow us to meet the needs of our current ridership and reach new ridership by utilizing more current and accessible services. The app gives the rider the ability to control their ride,” said Chris Mandrell, general manager.

“Launching Citibus On-Demand to supplement service amid COVID-19 is a great opportunity for us to innovate and get away from the old way of doing things. It will allow us to become more current with ways to provide mobility services,” said Tori Perkins-Clinton, marketing development manager.



Steve Pagliuca (center), co-owner of the Boston Celtics and chairman of the Boston Celtics Shamrock Foundation, joins Keolis CEO and General Manager David Scorey (front right) and Keolis employees at the MBTA commuter rail operations center in Somerville, MA.

### How to use Citibus On-Demand



Schedule a ride with the tap of a button

Get picked up where you want

Share your ride with others heading the same way

## New CEO Named

### Mauldin, Chatham Area Transit

**THE CHATHAM AREA TRANSIT (SAVANNAH, GA) BOARD OF** Directors has named Bacarra Sanderson Mauldin as the agency’s new CEO / executive director, beginning June 29. Mauldin currently serves as director of policy and innovation with the New Orleans RTA.

Mauldin is a senior executive with fifteen years of experience in public transit, public administration, municipal government, grants administration and business operations. At New Orleans RTA, she developed policies for the authority’s newly recreated structure and recommended solutions to increase operational efficiency.

Prior to RTA, Mauldin served as executive director for the Birmingham Regional Paratransit Consortium. Other positions include board member (vice chair), secretary/treasurer, and chair of the Operations Management Oversight Committee with the Birmingham Jefferson County Transit Authority; and chief service officer/grants administrator (and senior member of the Mayor’s cabinet), Office of the Mayor, City of Birmingham, AL, where she advised on civic engagement and transportation-related strategies.

Mauldin is active in the Conference of Minority Transportation Officials (COMTO). For APTA, she is a member of the Board of Directors; Vice Chair of the Membership Committee; member of the Diversity and Inclusion Council and member of the Legislative, Workforce Development and Transit Board Members committees, among others.



Bacarra Sanderson Mauldin





# Masabi, Littlepay Unveil ‘Contactless EMV in a Box’

**MASABI AND LITTLEPAY HAVE** partnered to deliver, according to the organizations, the world’s first ‘cEMV in a Box,’ an end-to-end contactless EMV (cEMV) system that can be deployed across all modes of public transit.


The partnership will see Masabi combine its back-office fare-engine and Justride Validator with Littlepay’s transit-specialist payment gateway to deliver a scalable, hybrid ticketing and payments solution.

With contactless payment options increasingly part of COVID-19 mitigation strategies, passengers will be able to tap their contactless bank cards or mobile phones to travel, removing the risks of handling cash or physically interacting with ticketing infrastructure.

“In this time of unprecedented change in the public transport sector, we are delighted to be working with Littlepay to offer transport authorities and operators a product that can promote simple, convenient, seamless and safe travel,” said Brian Zanghi, Masabi CEO.

“We know passengers enjoy the convenience of paying for travel with their contactless bank card or a digital wallet on their smartphone. With hygiene and frictionless passenger flow through stations and on vehicles essential at this time, we’ve seen demand escalate,” said Amin Shayan, Littlepay CEO.

# VTA Gets Creative with Protective Barriers



**EMPLOYEES AT SANTA CLARA** Valley Transportation Authority (VTA), San Jose, CA, came up with a creative solution when faced with how to increase protection for bus operators: old pull-down sunshades from decommissioned buses fitted with a plastic lining.


After initially working on a barrier similar to a shower curtain, issues with the operators’ field of view were identified. Not to be deterred, Kevin Morte, Jesus Jaras and Hubaldo Rodriguez from the paint and body shop, and Preston Lingenfelter from the upholstery shop took a sunshade from a decommissioned bus and went to work.

According to Tony Leyva, transit maintenance supervisor, it takes two employees approximately one-two hours to outfit each bus, estimating that a third of VTA’s fleet of 470 buses could be outfitted with the supply of old shades. “When a project needs to be taken care of that’s a little out of the norm, we’re used to brainstorming and solving problems,” he said.

# VTA SUSTAINABILITY PLAN CONTINUED FROM PAGE 1

measures to reduce regional GHG emissions, such as promoting countywide bike and pedestrian projects, TOD and complete streets.

VTA’s newest facilities, including the Milpitas and Berryessa/North San Jose BART stations, feature solar panels, LED lighting, skylights and light-permeable surfaces, electric vehicle charging stations, drought-tolerant plants, reclaimed water for landscaping, and energy-efficient intermittent escalators. Both of those stations are planned to formally open for passenger service June 13.



VTA and BART executives and board members celebrate the announcement of service for the BART Silicon Valley Extension. Stations feature solar panels, electric vehicle charging stations, energy-efficient intermittent escalators and other elements to improve sustainability. Service begins June 13.

# Register Now for APTA August Virtual Events

**DURING THE COVID-19 PANDEMIC**, when gathering in person is not possible, APTA is providing its members with virtual sessions including **Mobility & Rail NOW!**

This two-day event will provide the same timely content, outstanding speakers and valuable networking opportunities that had been planned for the Mobility Conference and Rail Conference—all delivered right to your home office, kitchen table or outdoor patio!

As an added benefit, you’ll be able to participate live or view the content on-demand—at YOUR convenience.

Join your peers Aug. 12-13 for the latest insight, trends and best practices impacting mobility and rail. Many sessions will be dedicated to exploring current COVID-19 challenges and what our industry will look like in the post-pandemic world.

Attendees will have the opportunity to ask questions, interact with presenters and take part in tabletop discussions and networking sessions with fellow participants.

Learn more and register at [www.apta.com/conferences-events](http://www.apta.com/conferences-events).

**Sustainability & Multimodal Planning Workshop**

APTA’s Sustainability & Multimodal Planning Workshop will be held July 30-31 and will feature sessions on how public transit systems are facing the challenges of COVID-19 and lessons learned. Panelists will engage in peer-to-peer discussions on topics related to livable and sustainable development, facilities planning, clean bus technologies, and route design and service planning.

Virtual-workshop attendees get exclusive access to follow-up webinars beginning in the fall. Register at [www.apta.com/conferences-events](http://www.apta.com/conferences-events).



## PERSPECTIVES

*Compelling Conversations To Keep You at the Forefront Of Public Transit’s Response To COVID-19 and Beyond*

AN OFFERING OF APTAU



# APTA Announces New, Live One-on-One Series

**APTAU HAS CREATED A NEW, LIVE** series exclusively for its members called *PERSPECTIVES: Compelling Conversations to Keep You at the Forefront of Public Transit’s Response to COVID-19 and Beyond*. The first one-on-one interview features Pat Foye, chairman and CEO of the NY Metropolitan Transportation Authority, who will discuss with APTA President and CEO Paul P. Skoutelas how his agency is moving forward during Phase 1 of reopening efforts.

Tune in Tues., June 16 from 2:30 – 3 p.m. Eastern at [www.apta.com/PatFoye](http://www.apta.com/PatFoye) to hear how riders and operators are navigating new safety measures, and predictions for restoring ridership and public confidence. Each episode allows time for audience Q&A.

# In Memoriam

**Jesse Dela Cruz**


**JESSE DELA CRUZ**, 63, a bus operator whose career spanned 40 years with the Alameda-Contra Costa Transit District (AC Transit), Oakland, CA, and who was fondly referred to as a “Local and International Bus Rodeo Luminary,” died May 24.

Dela Cruz represented AC Transit at 16 of APTA’s International Bus Rodeo competitions. He was crowned International Bus Rodeo Operator Champion in 1999, 2000 and 2008; garnered 2nd place honors during International Bus Rodeos in 1998 and 2006; third place International Bus Rodeo honors in 2018; and was a member of six Grand Champion (Best of the Best) teams in 1999, 2000, 2001, 2002, 2006 and 2019.

As a member of 2019’s Best of the Best Grand Champion team, Dela Cruz remarked on his final victorious APTA competition: “how sweet it is to win it when you least expect it.”

Dela Cruz was an 18-time Local Bus Rodeo winner and a seven-time winner of the Northern California regional Bus Rodeo Operator Team.

In his final years, before retirement, Jesse was instrumental in launching the district’s dynamic reservation-based transit service known as Flex. Dela Cruz retired from AC Transit in December 2019.



Jesse Dela Cruz





Build Your Dreams®



# The Largest Selection

## BATTERY-ELECTRIC BUSES

Leasing options as low as  
**\$4,900 /mo**



K7 | 30' TRANSIT



K9S | 35' TRANSIT



K9 | 40' TRANSIT



K11 | 60' ARTICULATED



C6 | 23' COACH



C8 | 35' COACH



C8MS | 35' DOUBLE DECKER



C9M | 40' COACH



C10M | 45' COACH



C10MS | 45' DOUBLE DECKER

For more information, please contact one of our experts:

Northwest, Hawaii & Alaska

**Justin Scalzi**

justin.scalzi@byd.com

Northeast

**Randy Premo**

randy.premo@byd.com

Southwest

**James Holtz**

james.holtz@byd.com

Mid-Atlantic

**Karl Wheeler**

karl.wheeler@byd.com

Midwest

**Jason Yan**

jason.yan@byd.com

NY Tri-State

**John Manzi**

john.manzi@byd.com

Southeast

**John Hatch**

john.hatch@byd.com

Leasing

**David Clamage**

david.clamage@byd.com

**byd.com**



# SBCTA Working to Reduce GHG Emissions Through ZEMU Initiative

**BY CARRIE SCHINDLER**  
Director, Transit and Rail Programs  
San Bernardino County  
Transportation Authority

**SAN BERNARDINO COUNTY, CA, IS** home to some of the poorest air quality in the state and the country. As such, the San Bernardino County Transportation Authority (SBCTA) works tirelessly to fulfill state, regional and agency goals for reducing greenhouse gas (GHG) emissions from the transportation network.

To achieve these goals, SBCTA has been at the forefront of developing innovative transportation projects that will significantly improve air quality in the region. SBCTA's zero-emission multiple unit (ZEMU) initiative came to fruition through the agency's dedication to expanding multimodal opportunities while also recognizing the need to innovate cost-effective solutions and maximize environmental benefits.

SBCTA's Redlands Passenger Rail Project, now in construction, will simultaneously expand the regional rail network serving southern California, move vehicles off congested Interstate 10, and reduce GHG emissions by developing and deploying the nation's first ZEMU passenger rail vehicle.

After careful evaluation of appropriate technologies for the corridor, it was determined that hybrid battery-hydrogen powered vehicles would be the most feasible technology for reducing emissions and for offering the flexibility to expand service beyond the 9-mile corridor and into Los Angeles Union Station. This allows for a longer range, reduced idle times and the ability to capture regenerative braking energy.

In November 2019, Stadler US and SBCTA signed the first-ever contract to supply a hybrid battery-hydrogen powered passenger rail train to run in the U.S., marking a major milestone for SBCTA, the California State Transportation Agency (CalSTA), and the larger transportation industry.



Rendering of a Redlands Passenger Rail Project (Arrow) train.

Stadler will initially provide one hybrid battery-hydrogen powered train with the option to provide up to four additional vehicles. Additionally, SBCTA has committed to converting the first three tier-4 diesel multiple units to be used on the Redlands Passenger Rail Project after the alternative propulsion technology is proven. Work on the vehicle design and associated infrastructure for fueling and storage has begun. The FLIRT H2 Hybrid train is expected to enter passenger service in mid-2024.

This project is critical to demonstrating the benefits and feasibility of operating hydrogen rail vehicles on mixed rail corridors with freight and locomotive hauled coach rail service. This

groundbreaking project will also clear a pathway in the regulatory approval process for future zero-emission rail vehicles across the country as we work with FRA.

Lessons learned and challenges overcome can serve as a case study for other agencies looking to implement zero-emissions technology in their fleet, particularly in the areas of vehicle and supportive infrastructure design, scope and contract development, and obtaining necessary approvals with local, state and federal agencies.

SBCTA has been working closely with Metrolink to expand the system in San Bernardino County to bring better

**REDUCING GHG EMISSIONS**  
CONTINUED ON PAGE 10

## LTK Engineering Services

We missed seeing you at APTA Rail this year and are looking forward to reconnecting in person soon.



- Vehicle Engineering
- Systems Engineering
- Revenue Systems and Technology
- Operations Planning and Simulation
- Optimization
- Zero-Emissions



[www.ltk.com](http://www.ltk.com)



### ADVERTISEMENT

LTK Engineering Services understands that COVID-19 poses unique challenges for public transit authorities across the country, who must run service for essential personnel to get to and from their jobs while protecting them and agency workers from contracting the virus.

Agencies and operators need new cleaning, disinfecting and anti-microbial application processes and procedures. They might also need new cleaning contractors who are certified to handle the different chemicals required. It means a review of the Safety Data Sheets (SDS) of each product for its effect on the materials in the vehicle or station (some are very caustic) and comparison with the EPA's list of disinfectants approved for use against the SARS-CoV-2 virus. A full, testable process includes 5 steps:

1. Swab areas for a baseline test,
2. Clean as thoroughly as possible,
3. Disinfect with chemical fog,
4. Apply an anti-microbial solution to all surfaces,
5. Swab and test again.

LTK has created a sample Scope of Work document agencies can use to hire outside contractors to do this work, based on work for a large public transit agency. It can be adapted into maintenance/cleaning procedures for in-house staff.

We also can automate the tracking and reporting of the asset cleaning using our Assurail™ software. Assurail provides an intuitive tablet application that digitizes the inspection forms and processes using mobile technology. Users can see the inspection progress as it happens because of the companion back-office application that communicates wirelessly with the tablets. Assurail can be customized for the inspection of a wide variety of an agency's assets.

UV lights are another disinfecting technology we have explored and on which we can provide advice.

For more information, contact LTK at [covid19help@ltk.com](mailto:covid19help@ltk.com).





Thinking.  
Inside the box.



## Light Rail that is Light-Years Ahead

Inside this box is decades of thinking about sustainable U.S. transportation. From safety and reliability to the latest in green energy innovation, Siemens Mobility has redefined urban infrastructure. In fact, 1 out of every 3 LRVs in American cities are manufactured by us. From brake-power energy storage to digitally-connected vehicles. That's Siemens Mobility – Thinking. Inside the Box.

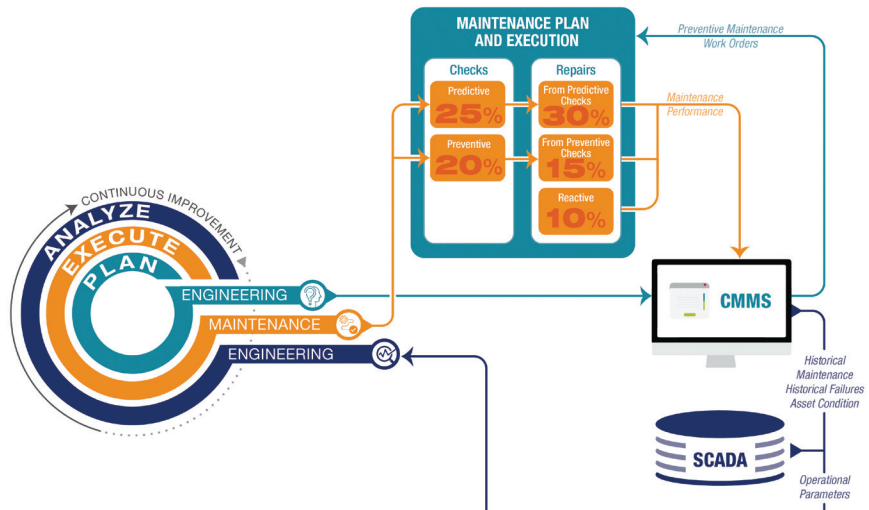


# Improving Maintenance Efficiency Without Compromising Safety

**BY AMELIA GANNON**  
Manager, Washington Metropolitan  
Area Transit Authority  
Washington, DC

**LIKE MANY PUBLIC TRANSIT** operators, Washington Metropolitan Area Transit Authority (WMATA) has been challenged to do more with less. The rise in resource costs, changes in costs and availability of transit alternatives, remote working and the major disruption of COVID-19 restrictions mean an increased need to balance costs and services. In 2019, WMATA's chief operating officer initiated an authority-wide effort to improve maintenance efficiency without compromising safety in its bus- and rail-related divisions. This program has taken on even greater importance due to recent events.

Beginning in March 2019, WMATA's Office of Strategic Initiatives, in partnership with seven maintenance departments, began a systematic approach to realizing benefits: first, establishing a baseline understanding of the state of maintenance practices, identifying opportunities to improve efficiencies without compromising safety, evaluating the feasibility of the most promising opportunities, implementing those with high-value business cases, and then monitoring impact and performance.



A mature maintenance organization leverages a continuous process of planning, performing, analyzing and improving maintenance practices.

WMATA's ability to identify, analyze and deliver these efficiencies was aided by the authority's Transit Asset Management database—an established, rigorous asset inventory complemented with historical maintenance data. Drawing on this dataset, the team selected specific efficiency initiatives based on a series of key parameters, including preventive maintenance costs, corrective maintenance costs, cost to maintain, preventative maintenance to corrective maintenance ratios, preventive and corrective backlogs, asset age, preventive

maintenance compliance, and asset availability. These evaluations resulted in a prioritized set of asset classes with the greatest potential for efficiency gains through maintenance program optimization. Today, multiple initiatives are underway across several departments, including bus maintenance, elevator/escalator maintenance, and plant maintenance. Select preventative maintenance (PM) program enhancements include:

- **PM Interval Adjustments:** Planned maintenance is routinely performed on a predetermined, repeat schedule. Fine-tuning the intervals, often making them wider, is realizing significant time savings while maintaining performance, such as shift-

ing work from every 3,000 miles to every 6,000 miles.

- **PM Optimization:** Every step involved in each maintenance instruction was evaluated to ensure it is structured properly, presented in the correct order and includes the appropriate details for a mechanic to easily follow. After optimization analysis is complete, either (a) tasks that do not materially improve the asset's performance or safety are removed, or (b) steps may be added that reduce failures between maintenance periods.
- **PM Standard Times:** The time a maintenance activity should take is evaluated through observations and best practices. After the standard time analysis is complete, a target time is established and performance is tracked to the target by individual, shop and asset. The end-to-end process is also evaluated to leverage process improvement techniques that streamline processes and remove inefficient steps.

With multiple programs now underway that are capitalizing on these techniques, the program is allowing more maintenance and state-of-good-repair work to be completed. Further, these techniques and tools can be scaled and/or applied across other departments to increase the efficiency gains. In all cases, asset performance is continually monitored to guarantee levels of safety remain constant or increase.

# Cybersecurity in Light Rail and Transit Control Systems

## Vulnerabilities, Mitigations and Technology Roadmap

**BY SUSAN HOWARD**  
Director Federal ICS Cybersecurity  
Jacobs

**LIGHT RAIL AND OTHER TRANSIT** control system environments have evolved as part of the industrial control system industry over the past 20 years and now include the Internet Protocol (IP) stack in all new components including substation PLCs, fare payment systems and on-board vehicular sensors. This evolution into the IP connected world has introduced significant cybersecurity concerns.

The House Homeland Security Committee held a hearing Feb. 26, 2019 on "Securing U.S. Surface Transportation from Cyber Attacks." The hearing focused on how both the Transportation Security Administration and the Department of Homeland Security's Cybersecurity and Infrastructure Security Agency (CISA) office can better protect surface transportation like commuter rail and light rail, among others. Transit cybersecurity has traditionally focused on aviation, but there is concern that the U.S. is not doing enough to protect

surface transportation. Some of the challenges discussed include a shortage of cyber personnel, a transportation workforce with little cyber training and awareness and resource constraints at transit agencies. Supply chain cybersecurity was another main issue of discussion.

In the past year, many transit agencies across the country have developed comprehensive cybersecurity policies and procedures based on the National Institute of Standards and Technology (NIST) 800 series framework or the International Organization of Standardization (ISO) 27000 series standards. Through these governance, risk and compliance efforts, agencies are finally addressing cybersecurity concerns for the Operational Technology (OT) environment in transit control systems.

Fast forwarding into the next decade, the IoT will play a huge role in predictive maintenance and real-time communications for rolling stock. IoT devices will use technologies like 5G, cloud platform

**CYBERSECURITY IN LIGHT RAIL**  
CONTINUED ON PAGE 10

### ADVERTISEMENT

The Transit & Paratransit Company (TAPTCO) has recreated its Transit Operator development course. Included are the practices and processes to comply with FTA's Public Transportation Agency Safety Plan requirements (PTASP).

The course consists of 33 video-based training programs available on DVD, thumb drive or web-based delivery from a Learning Management System. Included with the course is a guide showing how to use the course to be in compliance with FTA requirements. These include the four components of SMS, including: Safety Management Policy, Safety Risk Management, Safety Assurance and Safety Promotion.

The course focuses on persuading operators to avoid the 18 unsafe behaviors that lead to almost every accident. This is the focus of Safety Management Systems and identifies hazards, analyzes them and determines the actions to remove or reduce the risks from these hazards.

This new course is comprehensive, systematic and integrated, and the programs are presented by multiple narrators. The course is interactive, with many pauses in the programs that raise questions or provoke input and discussion with the trainees.

The 33 programs are delivered under nine groups:

1. Federal Regulations
2. Safety & Defensive Driving
3. About the Bus
4. Driving Situations
5. About the Driver
6. About the Passengers
7. Americans with Disabilities
8. Additional Programs
9. Emergency & Accident Procedures

Contact TAPTCO for costs and additional information.





# New Transit Bus Training Course

## Are You Ready To Comply With The FTA Requirements?

TAPTCO has just finished re-creating the Operator Development Course and woven throughout the course is compliance with the Public Transportation Agency Safety Plan (PTASP) requirements.

### New updated course created in 2020



Only \$7,975

### Practices to Comply with the Public Transportation Agency Safety Plan.

1. Safety Management Policy – Leadership, Commitment & Accountability
2. Safety Risk Management – Identify, Assess & Mitigate
3. Safety Promotion – Communicate & Training
4. Safety Assurance – Measure, Monitor & Evaluate

### The New Course includes 33 programs within nine categories

#### Federal Regulations

1. Introduction to Professional Driving
2. Federal Regulations

#### Safety & Defensive Driving

3. Safety Best Practices
4. LLLC Defensive Driving
5. Hazard Identification & Mitigation

#### About the Bus

6. Introduction To The Bus
7. Pre & Post Trip Inspections
8. Mirror Adjustment & Reference Points

#### Driving Situations

9. Preventing Rear End Collisions
10. Preventing Intersection Accidents
11. Railroad Crossings
12. Pedestrian & Bicycle Awareness
13. Preventing Backing Accidents
14. Merging, Lane Changing & Passing
15. Adverse Driving Conditions
16. Operating Electric Powered Buses

#### About the Driver

17. Preventing Driver Fatigue
18. Preventing Driver Distractions
19. Hazards Communication
20. Injury Prevention - Slips, Trips & Falls
21. Using Maps & GPS
22. Employee Safety Reporting Program
23. Health & Wellness

#### About the Passengers

24. Professionalism & Customer Service
25. Conflict & Aggression Management

#### Americans with Disabilities

26. ADA Compliance & Sensitivity
27. Mobility Devices

#### Additional Programs

28. Whistleblower
29. Preventing Harassment
30. Drug & Alcohol Awareness
31. Bloodborne Pathogens

#### Emergency & Accident Procedures

32. Emergency Evacuations
33. What To Do In The Event Of An Accident
34. Final Exam

Available on DVD, Thumb Drive & Web Based

This course has been created to help you instill a **Safety Culture** in your operations while at the same time complying with the new FTA requirements.

“This course is by far the most professional training course available. It is comprehensive, systematic and every part integrates together to achieve the outcomes we seek. Safe professional transportation.”

-**Kenneth F. Reed**, ARM-P, AIC, Director of Risk Management, for the Ohio Transit Risk Pool.

“This course really is a drastic improvement from the original course created eight years ago. I would not hesitate in recommending it to all transit systems.”

-**Chris DeVoll**, TSSP, CSSO Transit Risk Consultant and Senior Associate Instructor for the Transportation Safety Institute (TSI).

## Why Reinvent the Wheel?

Contact TAPTCO to obtain more information.

5611 Hudson Drive, Suite 100  
Hudson, Ohio 44236

**TAPTCO**   
TRANSIT AND PARATRANSIT COMPANY

Tel 1 855 963 3900  
[www.taptco.com](http://www.taptco.com)



# APTA PROFILE COMMITTEE



## COMMUTER RAIL COMMITTEE

### MATTHEW TUCKER

Executive Director, North County Transit District, Oceanside, CA; Chair since 2019

**APTA Staff Advisor:** Narayana Sundaram, Senior Director—Engineering & Commuter Rail Operations, Technical Services & Innovation Department

262 Members

### What is your committee's role for APTA and the industry as a whole?

The Commuter Rail Committee promotes commuter railroads and works to address our unique regulatory, legislative and operational issues. The committee, through its CEOs subcommittee, has an active agenda, including implementing PTC by December 2020, advancing Passenger Rail Standards and Recommended Practices, strengthening the Commuter Rail System Safety Program and enhancing the ability of passenger railroads to access freight railroad rights of way. The committee also jointly sponsors, with the Rail Transit Committee, APTA's annual Rail Conference.

### What are the committee's priorities for the year?

The Commuter Rail Committee has the following priorities for this year:

- **Recovering from the impacts of COVID-19.** COVID-19 has introduced a new and significant challenge for all commuter rail agencies. The nature of the virus and proposed mitigation strategies, such as social distancing, directly impact the core nature of our business, which is premised on moving large groups of people in an efficient manner. COVID-19 has significantly impacted ridership, customer revenue and sales tax revenues. Ridership, for most agencies, has declined by more than 75 percent, and revenues are expected to have significant downturn. The committee will collaborate across APTA to develop a plan to recover and prosper in response to COVID-19.
- **Achieve industry-wide Positive Train Control (PTC) implementation by Dec. 31, 2020.** We have established a PTC subcommittee to support the Commuter Rail CEOs subcommittee in ensuring that we achieve goals related to implementation and can transition into operations and maintenance in an efficient and effective manner. Reducing the cost and complexity of PTC will require the industry to consider options to scale systems in a manner that will maximize opportunities to reduce costs and foster system improvements and efficiencies.
- **Safety.** Although traveling by commuter and intercity rail is the safest form of transportation, commuter railroads are always evaluating avenues to increase safety by reducing incidents and accidents. The primary emphasis this year is a focus on grade crossing and trespasser information gathering to support legislative initiatives to increase funding for grade crossing improvements.
- **Reauthorization.** Promote and get approved surface transportation bill reauthorization and other legislative priorities, which include obtaining funding and commuter rail eligibility for CRISI grants for PTC operations and maintenance and to make grade-crossing improvements. Rep. Peter DeFazio (D-OR), chair of the House Committee on Transportation and Infrastructure, recently introduced the committee's surface transportation bill, the INVEST in America Act, which includes commuter rail as an eligible entity under the CRISI program. In addition, Sen. Ed Markey (D-MA) announced the introduction of the Warren Cowles Grade Crossing Safety Act to increase the funding for grade-crossing improvement projects for commuter rail and other operators in high-ridership rail corridors. APTA strongly supports both bills.

### How does the committee engage members in these priorities?

Committee members provide input to support the development and approval of our workplan. Our ability to engage has been impacted by COVID-19, but I am optimistic that we have identified the right priorities via consensus, and members of the committee have volunteered to lead specific tasks.

### How does your committee encourage young professionals to participate?

The Commuter Rail Committee is open to all APTA members. It is especially important for young professionals to get engaged with this committee, and others, to leverage the networking and growth potential in the industry. This committee has several young CEOs as well as mid-level managers participating and contributing. With that said, we can and will do more to encourage young professionals, women and minorities to participate.

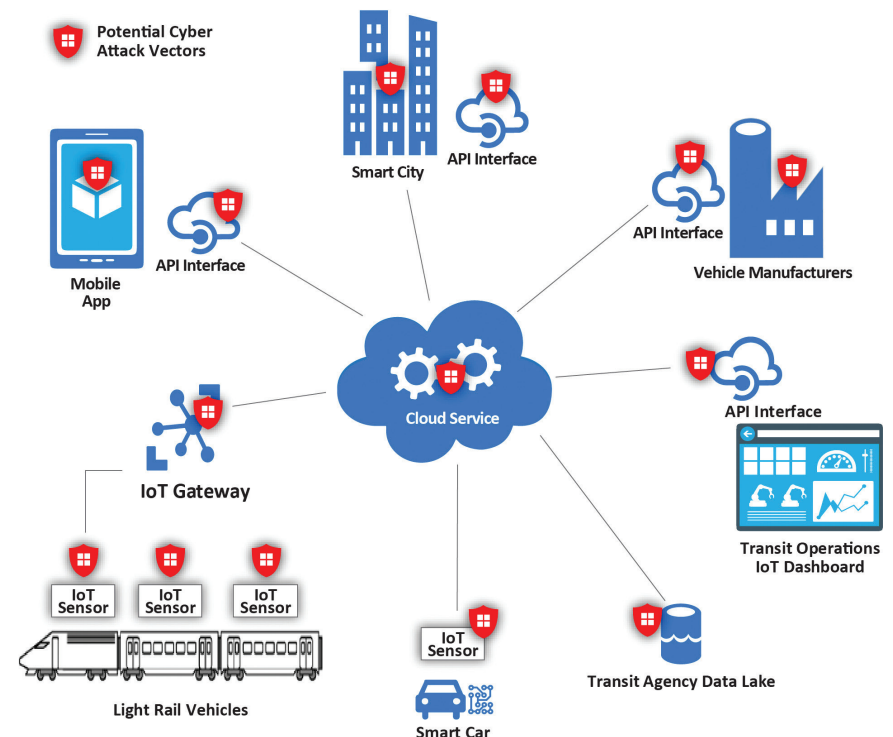
## CYBERSECURITY IN LIGHT RAIL CONTINUED FROM PAGE 8

services, Application Program Interfaces (APIs), and a reference architecture based on the evolving Message Queue Telemetry Transport (MQTT) connectivity protocol. These IoT implementations are game changers for the transit control system landscape.

In most cases, the data being collected for rolling stock is transmitted back to the vehicle manufacturers. More sophisticated monitoring tools will be needed for transit agencies to maintain visibility into this new information flow. Funding for these tools will prove challenging in this COVID-19 era of historically low ridership. There are several IoT implementations for light rail control systems across the U.S. already.

Cybersecurity is not yet a prominent part of these implementations for many reasons.

Until the new IoT ecosystem is secured, attackers can and will exploit vulnerabilities in these new IoT-enabled infrastructures. In light rail and other transit control systems, these attacks could prove catastrophic. The use of Information Sharing and Analysis Centers (ISACs) such as the Passenger Transportation (PT) ISAC, the Surface Transportation (ST) ISAC, and the Automotive (Auto) ISAC are more critical now than ever to keep transit agency stakeholders informed of transit control system cybersecurity tactics, techniques and procedures.



## REDUCING GHG EMISSIONS CONTINUED FROM PAGE 6

and more-frequent service to a broader region. Metrolink is a key participant in project development meetings and project decisions.

The work done to develop the initial ZEMU looked at the duty cycle demands not only for the Redlands corridor, but for the entire San Bernardino Line as well as larger train consists that could be used by Metrolink in the future.

The ZEMU initiative would not be

possible without grant funding awarded by CalSTA. SBCTA is in close contact with CalSTA and Caltrans Rail Division staff, and SBCTA is a member of the state-wide task force focused on the implementation of zero-emission transportation vehicles. Other key partnerships include Michigan State University Center for Railway Research and Education, the South Coast Air Quality Management District, Stadler US, Mott MacDonald and FRA.

### How can an individual's service on the committee add value to their career?

This committee brings together public- and private-sector professionals in the commuter rail industry. Together with our Canadian agencies, the committee has more than 30 commuter rail agencies participating and engaged. The committee provides immense potential and reach for any industry member in terms of professional development, networking and the exchange of best practices and information sharing.

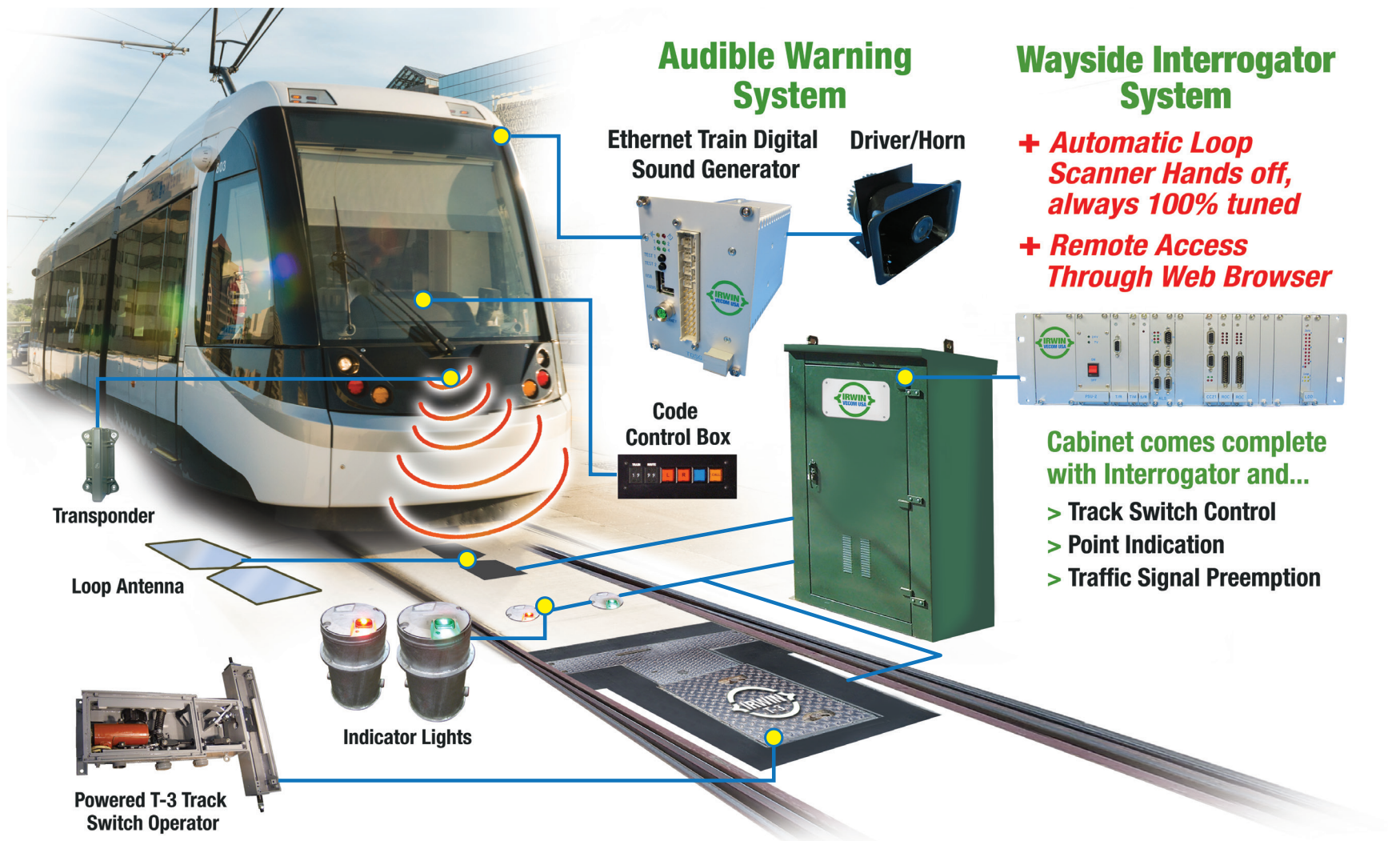
### What is the committee doing to advance the goals in APTA's strategic plan?

The committee is focused on several priorities that align with APTA's strategic plan, including championing investment and supporting policies to increase the footprint of public transportation. A recent example is APTA's testimony to Congress on Challenges and Opportunities for Commuter Railroads, which highlighted the importance of commuter rail to the U.S. economy and the safety of the public. Additionally, APTA staff and committee leadership have provided testimony on numerous occasions to highlight the progress of PTC implementation.



# Vecom USA

## Keeping You on the Right Track



We supply the products that keep you **MOVING**

**VECOM USA** is the industry's leading provider of **BUY AMERICA COMPLIANT** train to wayside (TWC) communications and track switching solutions.



- > One-way or Bi-directional Data Transmission between Vehicle Equipment & Wayside System
- > T-3 Electric Track Switch Systems
- > Aftermarket Support and Diagnostic Test Equipment

*If high reliability, outstanding engineering & customer service, and fast response time are critical to your success, then it's time to switch.*

Exclusive North American Distributor of **ELEKTROLINE**  
Electric/Hydraulic Point Machines & Signaling Systems



A Division of Irwin Transportation Products

**VECOM Tampa Operations**  
4803 George Road, Unit 300  
Tampa, FL 33634  
813-901-5300  
tcoomer@irwincar.com  
[www.vecom-usa.com](http://www.vecom-usa.com)

**Corporate Headquarters**  
9953 Broadway  
Irwin, PA 15642  
724-864-8900  
dcolussi@irwincar.com  
[www.irwincar.com](http://www.irwincar.com)



# Michigan Tech Addresses Grade Crossing Safety, Trespasser Detection

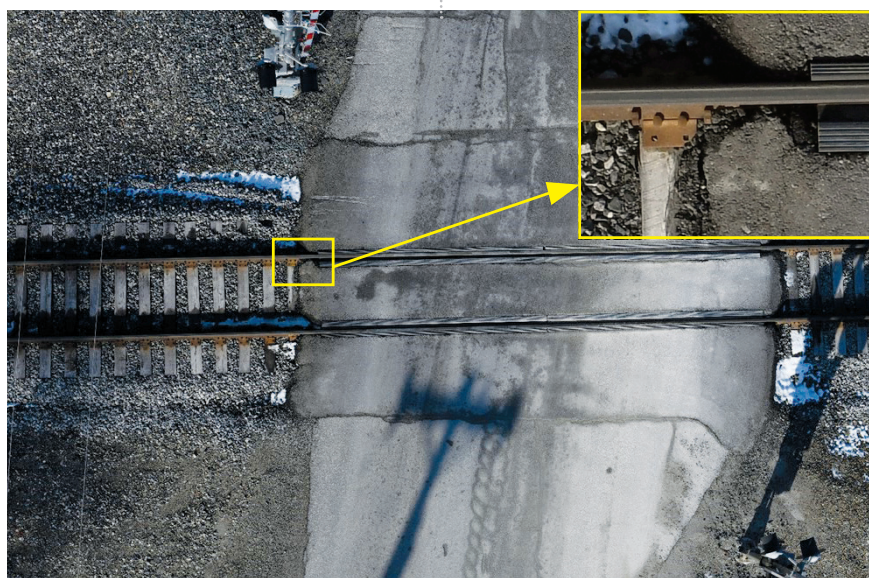
**BY DAVID NELSON, PE**  
Senior Research Engineer  
Civil and Environmental Engineering  
Michigan Tech Transportation  
Institute

**TRESPASSING AND GRADE** crossing incidents form the majority of rail transportation-related injuries and casualties, regardless of the type of system. The Rail Transportation Program (RTP) at Michigan Technological University is working on several research projects

with FRA, aimed at addressing these challenges.

Since more than 90 percent of grade crossing incidents are caused by human behavior, we used Strategic Highway Research Program Naturalistic Driving Study (NDS) data to systematically analyze drivers' actions as they traverse grade crossings. We found that most drivers lacked

**GRADE CROSSING RESEARCH**  
CONTINUED ON PAGE 13



Example of UAV collected image. Inset shows detail available.

ADVERTISEMENT

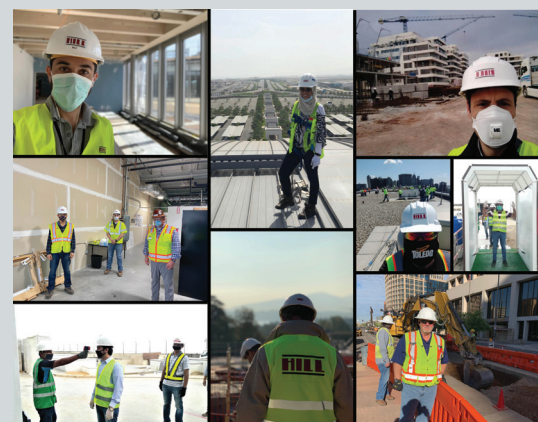
COVID-19's impacts have been felt in nearly all spheres of our lives. Few areas of life have been so transformed as passenger transportation. By its very nature, passenger transport brings us closer together—unfortunate during COVID-19. Transportation providers around the world have adjusted their procedures to limit ridership, enhance sanitation and enforce social distancing. Many municipalities may even be considering ways to maintain safety measures on their transit systems in the months following the COVID-19 pandemic to prevent further outbreaks.

Nevertheless, even with the disruptions caused by COVID-19, there is no question that public transportation will continue to play an absolutely critical role in sustainable urban development in the coming decades. If anything, COVID-19 has shown that transportation providers need optimally designed and well-maintained systems to dynamically react to the unpredictable economic and social circumstances of our future.

Hill International, Inc. offers a comprehensive range of project management and construction consulting services for projects, from their inception through to their successful completion, in communities around the world. Our teams have implemented innovative strategies to keep projects moving forward, safely, during this unprecedented time. In addition to moving many of our personnel to remote work, Hill has helped to devise return-to-work plans for clients' suspended projects, optimized remote work with technological solutions, and implemented rigorous on-site hygienic practices. In different sectors and regions, the demands on our professionals have varied significantly. Unwavering, though, is Hill's commitment to getting the job done.

Hill International, Inc. is proud of our exemplary professionals who are safely providing project management services and solutions to our clients and colleagues during COVID-19. Thank you for all that you do!

To speak with a Hill professional about your project's unique needs during COVID-19, reach out to Senior Vice President and Western Region Manager Mike Smith at 949-748-5476 or [mikesmith@hillintl.com](mailto:mikesmith@hillintl.com). To learn more about Hill and to view some of the ground-breaking projects we have supported, please visit [www.hillintl.com](http://www.hillintl.com).



**HILL**  
Hill International

## The Global Leader in Managing Construction Risk

Construction Management | Program Management | Project Management | Construction Consulting

[www.hillintl.com](http://www.hillintl.com) | **HILL LISTED NYSE**  
800.283.4088



# The Digital Transformation Of Railways Starts with Communications

**BY HANSEN CHAN**  
Senior Marketing Manager—Enterprise Solution  
Nokia

**LIKE MANY INDUSTRIES**, railways are embracing digitalization. Using cameras, sensors and other digital tools, agencies now have access to data on virtually every aspect of their operations. This helps with managing and improving safety, maintenance schedules, environmental risks and the passenger experience. While it is not entirely new—Communications Based Train Control (CBTC) and Supervisory Control and Data Acquisition and Monitoring Control (SCADA) systems have

been used for some time—it is the level of integration of different systems that is transformative. The key link is the communications network that joins everything together, including the cloud that powers many smart applications such as video analytics and IoT.

The cloud, of course, plays an important role by providing a dynamic pool of virtual compute and storage resources that are used to store and analyze all this data. Cloud resources can be centralized or at the edge of the network to optimize application performance. The virtual compute resources are dynamically assigned to whatever task requires them, wherever they are needed. For instance,



for automated tasks, such as video anomaly detection, compute resources should be close to the application for fast detection and lowered transport bandwidth.

Many purpose-built networks for SCADA or closed-circuit television (CCTV), unfortunately do not interact natively with the cloud, which is built on IP and software-defined networking (SDN) technologies. While these older communication networks have worked well in the past, with many new and emerging cloud-based applications on the horizon, this paradigm has become impractical. Fortunately, many rail oper-

ators have evolved their critical communication infrastructure to leverage the multiservice capabilities of IP/MPLS technology. This allows them to fully embrace emerging cloud-based applications, while retaining full support of legacy SCADA and voice applications and maintaining the security of each within its own segregated virtual private network (VPN).

Pairing the cloud interconnect capability of IP/MPLS with 4G and 5G wireless access, enables seamless,

**DIGITAL COMMUNICATIONS**  
CONTINUED ON PAGE 15

## GRADE CROSSING RESEARCH CONTINUED FROM PAGE 12

sufficient or timely attention to the potential presence of trains, even at crossings with passive warning devices where their own actions are the only defense.

Together with the Michigan Tech Research Institute (MTRI), the RTP is working on two projects that explore opportunities for unmanned aerial vehicles (UAVs) to improve railway safety. We are using video and machine learning techniques from UAV platforms to investigate trespass detection and behavior in rail corridors. Using

drones with either high-definition video or infrared camera systems, we have demonstrated the ability to quickly identify trespassers in the right of way and are working on rapid transmission of that data back to a dispatch center. We have also engaged with the industry in identifying the most promising uses, and greatest challenges in using UAVs for trespassing issues.

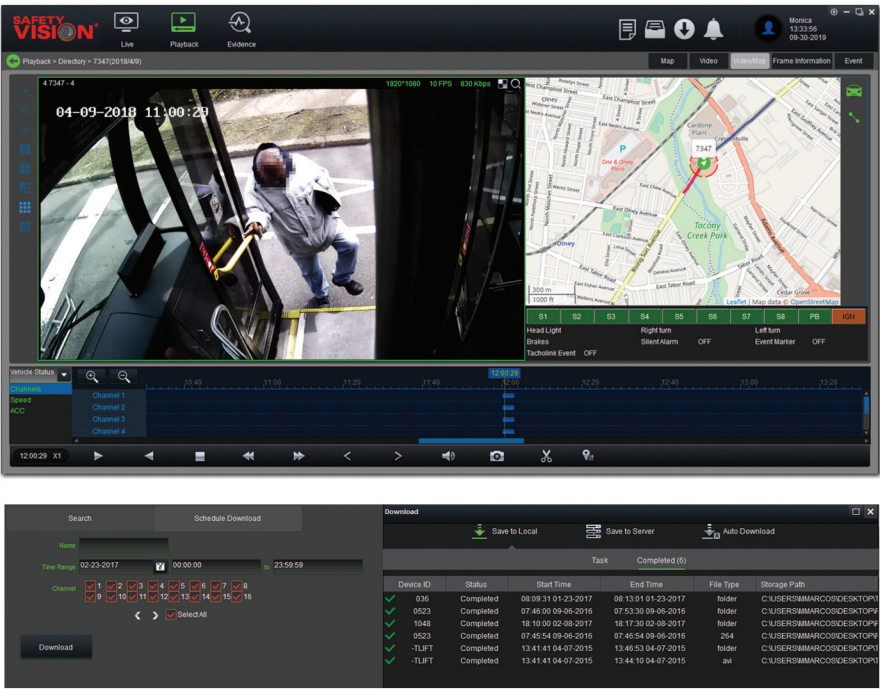
The second project concentrates on using UAVs and evolving photogrammetry techniques for rapid and automated assessment of grade crossings.

Phase 1 used photogrammetric data collected from the UAV to develop three-dimensional models and algorithms for rapid identification of potential safety concerns. With UAVs, the operator can map the crossing area while remaining safely out of the right-of-way. Data is then processed to reveal safety concerns, such as locations where low-clearance vehicles may get stuck, where insufficient visual sight distances create dangerous situations, or where warning devices don't meet highway traffic

requirements. This project is expected to move to large-scale testing under Phase 2.

While the current projects have been conducted in collaboration with FRA on heavy rail systems, we believe urban rail systems face similar safety concerns and situations. Safety is the ultimate priority in all rail systems, and we are looking for opportunities to adapt the knowledge obtained in our current projects to best meet the specific requirements of urban rail transportation systems.

# GO HANDS FREE WITH WIRELESS DOWNLOADS



Creating a hands-free environment is easier than you think. Using automatic and wireless downloads can help maintenance during the covid-19 pandemic. Simply creating custom wireless configurations based on your fleets needs can help maximize operation efficiency and safety.

- FEATURES INCLUDE:**
- Email notifications
  - Custom scheduled downloads
  - Easily identify flagged incidents
  - View individual bus or fleet group
  - Save custom camera settings
  - Convenient evidence folder

**WORK SMARTER & SAFER TODAY!**

**800.851.3901**

Masstransitsales@safetyvision.com



Copyright © 2020 Safety Vision, LLC. All Rights Reserved.



The AECOM logo is displayed in white, bold, sans-serif capital letters against a dark background of palm trees.

**AECOM**

# A BETTER NORMAL FOR MASS TRANSIT

Transit agencies are facing unprecedented challenges. AECOM has the expertise and technologies to help you make decisions with confidence. From rapid assessment and implementation strategies to funding and financing, our team can deliver the solutions to safeguard a progressive return to full service, and prepare for a better normal for mass transit of the future.

[aecom.com](http://aecom.com)





# Dual Education Programs For Rail Industry's Tight Labor Market

**BY DR. WIEBKE FELLNER**  
Manager, Consulting, DB Engineering  
& Consulting USA Inc.

**AN INCREASING DEMAND FOR** workers in a tight labor market, paired with a demographic shift in the industry, renders a new approach to hiring and training employees in the railway business inevitable. The North American railway industry can benefit from sustainable workforce development approaches from other countries that face similar challenges.

Deutsche Bahn (DB) AG (German railway company) has recently launched an ambitious recruiting program with hopes of hiring more than 24,000 employees within one year (2018). Dual education programs for staff entering the railway industry play a crucial role in achieving this goal. With more than 30 vocational training programs and 18 corporate study programs at DB, these dual education programs recruited more than 3,600 school graduates in 2018. (the most recent data available)

Germany has been recognized for decades for its dual education programs that are believed to have greatly contributed to its economic success:

- Vocational training programs are targeted to students looking to benefit from on-the-job training for a specific job function, paired with classroom training, rather than pursuing a college or university education. These officially recognized programs often last two to three years and ensure that participants are prepared for their upcoming career in their respective industry.

- Corporate study programs offer a full university program (Bachelor's or Master's) paired with on-the-job training. Partner companies cover university tuition costs and often pay a base salary to program participants.

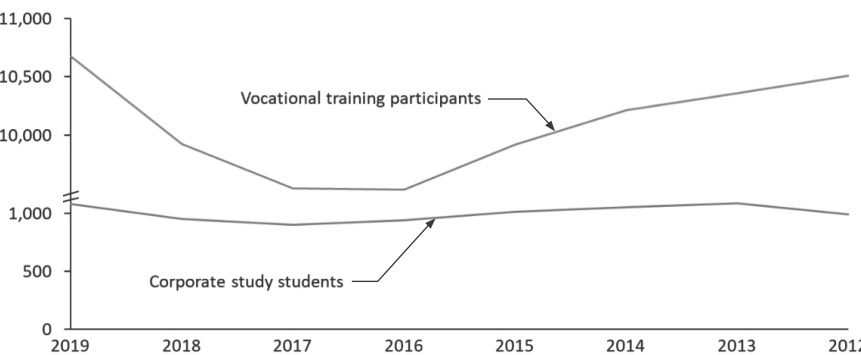
Both the vocational training and the corporate study program aim at increasing workforce retention at DB with a variety of advantages. These include the guarantee of an open-ended employment contract after successful program completion, fair payment throughout the program, free travel with DB as well as financial support for apartment rental fees.

In addition, DB ensures a well-structured onboarding process, which may include a one-week outdoor training that aims at increasing teamwork and company spirit. With this approach, DB has been successful in retaining corporate students after successful program completion with a rate of approximately 90 percent. With this form of recruitment, an average period of employment of 20 years can be observed throughout DB.

While the described dual education programs in Germany require strong collaboration with the academic world, recruiting the young workforce with a sustainable approach can be translated to the U.S. The development of national guidelines for vocational trainings facilitate this coordination.

In addition to the dual approach, the derived benefits make entry into the railway workforce extremely attractive to younger generations. Dual education programs are therefore recommended to be further implemented as recruitment marketing tools.

**Development of Dual Education Participants at Deutsche Bahn**



## DIGITAL COMMUNICATIONS CONTINUED FROM PAGE 13

ubiquitous connections to the cloud. Thus, any station, trackside or rolling stock sensor, video cameras monitoring the rail infrastructure or passenger information system terminal is directly connected to the cloud. AI or machine learning software is then able to analyze the data, detect anomalies and recommend appropriate actions. This may include an alert to maintain a piece of equipment, advise an oncoming train

of an obstruction at a level crossing, or respond to a passenger query with a customized solution.

The key to all this exciting digital functionality is a cloud-friendly communication network. This is the digital platform that railways need to fully embrace the digital rail paradigm, delivering new and connected passenger experiences and making railways more accessible and sustainable.

# Transit CHALLENGES Practical SOLUTIONS

Get  
**EXPERT**  
Research!

## Transit Cooperative Research Program

Whatever your challenge, whatever you need to know, you can turn to the Transit Cooperative Research Program (TCRP) for answers. TCRP has already studied and compiled more than 600 reports and products on a wide range of public transportation topics.

Discover the credible information you need to make the best decisions.

[in](#) [Twitter](#) [#TCRP](#)

Visit [www.apta.com/TCRP](http://www.apta.com/TCRP)



The National Academies of  
SCIENCES • ENGINEERING • MEDICINE  
**TRANSPORTATION RESEARCH BOARD**





# Reliability and Maintainability Strategies for Repairable Systems in Transit Rail Rolling Stock Revenue Fleets

BY **AERCIO REGIS ALENCAR, P. ENG.**

Senior Reliability Engineer  
Toronto Transit Commission (TTC)

Reliability studies at the TTC of non-structural, repairable components of a subway revenue fleet over a 13-year period show that a greater number of items suffered non-age-related failures. Results, modeled by the use of probability distributions used in a lifetime series analysis, revealed wear-out patterns in alignment with studies in aircraft and ship fleets found in the Nowlan & Heap United Air Lines (UAL) 1968 Reliability Centered Maintenance (RCM) Report. These failure patterns can provide public transit agencies a useful decision-making framework for component optimization within rolling stock maintenance.

Different types of assets will deliver different performances over their estimated life, and different categories of items require different strategies to ensure their functions perform as designed. Reliability growth does not include maintenance, which is concerned with restoring / maintaining an item's functions. Physical asset reliability isn't improved by maintenance; asset design improves reliability.

A misbelief in asset management is that maintenance improves reliability, which, in fact, could be opposite

if improperly prescribed. Also, that reliability is a function of an asset's operating age. Contrary to expectations, for many items, the likelihood of failure does not, in fact, increase with increased operating. Advances in technology and complexity increase failure uncertainty.

The TTC subway maintenance system is an "event and work order system." The system records serialized items' installation-removal dates and calculates 'days-in-service'. Maintainability Indicator of Repair Quality shows reliability, measured by Mean-Time-in-Service (MTIS) in days, for how long a component has remained installed following a repair.

Weibull distribution, (figure1) determines In-Service-Incursions, Mean-Time-Between-Failures (MTBF) or Mean-Time-In-Service (MTIS). Maintenance repair is described by the Lognormal distribution, which is used to calculate the Mean-Time-To-Repair (MTTR).

This TTC T1 train (fleet of 370 cars), figure2, consists of up to three interchangeable married-pairs or units. The criteria used to select components for analysis include Safety Critical, Impact in Customer-Service and Substandard Performance.

Figure3 shows systems analyzed with various distributions tested to determine best fit. Failure modes

should be verified over the asset life, due to the impact of modifications and maintenance.

When examining an asset over its entire life, there is evidence that time-based maintenance, when inadequately performed in assets that expose non-ageing related failure, provide no benefit or re-introduce 'infant mortality' and can offset the positive impact of design modifications.

A total of 84 families of repairable components from 2005-2018 (Table 1) provide sufficient evidence for the verification. The results reveal that 88 percent of those failures exposed non-age-related patterns. T1

values are in agreement with Nowlan & Heap UAL when 89 percent of those failures exposed similar values. This is the first quantitative confirmation of RCM failure patterns in mass transit rail rolling stock.

Figure 2: T1 Vehicle Six-Car Train



Figure 3: Serialized Repairable Components Reliability MTIS

T1 Serialized Component Reliability - Characteristic Performance Patterns

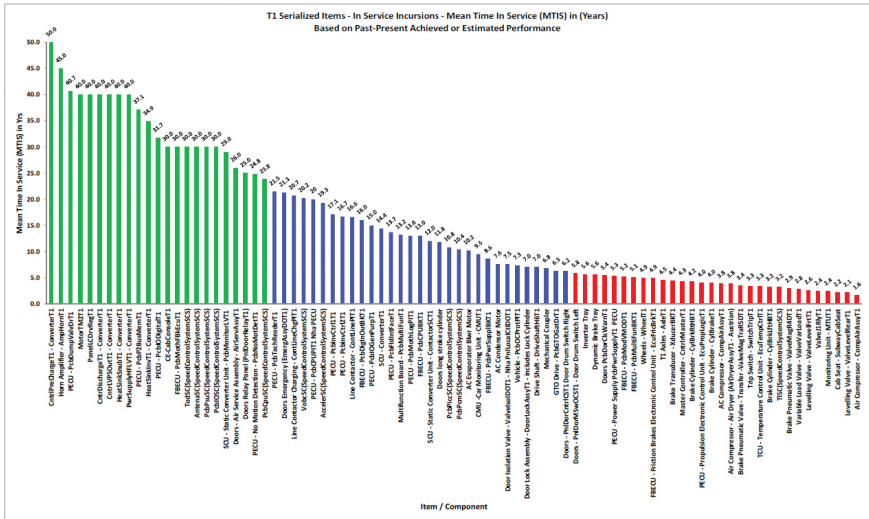
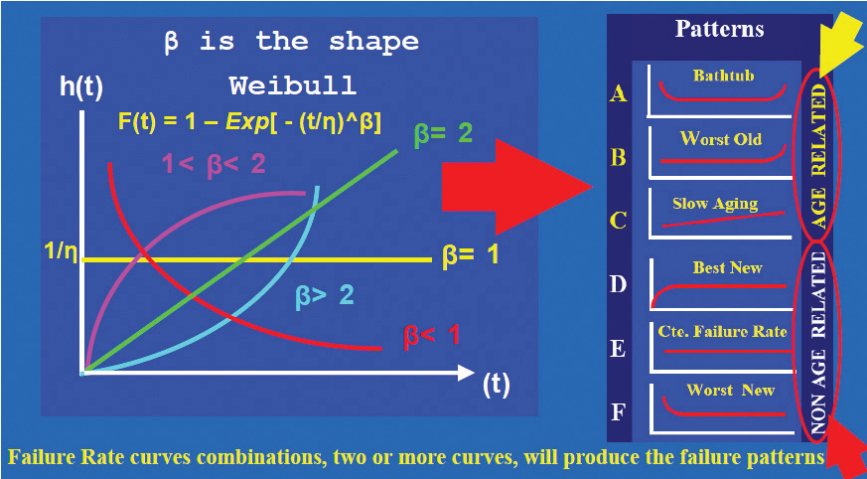


Table 1: TTC-T1 Rail, Aircraft UAL, Broberg, Ship Fleets MSP, SUBMEPP

Patterns		UAL <sup>1</sup> 1968	Broberg <sup>1</sup> 1973	MSP <sup>2</sup> 1982	SUBMEPP <sup>2</sup> 2001	TTC T1 <sup>3</sup> 2018
AGE RELATED	A Bathtub	4%	3%	3%	2%	1.2%
	B Worst Old	2%	1%	17%	10%	8.3%
	C Slow Aging	5%	4%	3%	17%	2.4%
NON AGE RELATED	D Best New	7%	11%	6%	9%	25.0%
	E Cte. Failure Rate	14%	15%	42%	56%	10.7%
	F Worst New	68%	66%	29%	6%	52.4%

Figure 1: Weibull Two Parameter Hazard Functions



## WAVE, CCW Provide Wireless Option for Electric Buses

WIRELESS ADVANCED VEHICLE Electrification's (WAVE) wireless charging system is to charge two remanufactured Zero Emission Propulsion System (ZEPS) buses from Complete Coach Works for Josephine Community Transit's maintenance depot, Grants Pass, OR, with an additional two vehicles being added later this year.

The WAVE system consists of a charging pad embedded in the pavement and transfers power through the air to a receiving pad mounted on the

vehicle's undercarriage. The system takes up less space than plug-in or overhead chargers, requires no cables or connectors and has no moving parts, reducing maintenance requirements both on and off the bus.

"Offering the WAVE system at a maintenance garage, in addition to its typical en-route use, is a unique opportunity to work collaboratively with Josephine and advance the industry," said Michael Masquelier, WAVE's chief executive officer.



WAVE's wireless charging system will be used to charge Complete Coach Works buses for Josephine Community Transit, Grants Pass, OR.



# CLASSIFIEDS

The Public Transit Marketplace—*Passenger Transport* Classified Ads are the marketplace for public transit. All classified ads appearing in the print version of *Passenger Transport* will also appear in the electronic version. All help wanted ads must appear in print in order to be listed on-line. **TO PLACE AN AD:** E-mail the requested date(s) of publication to: [ptads@apta.com](mailto:ptads@apta.com). Mailing address is: *Passenger Transport*, 1300 I Street, NW, Suite 1200 East, Washington, DC 20005. Ad copy is not accepted by phone. **DEADLINE:** 3 p.m., EST, Friday, one week prior to publication date. **INFORMATION:** Phone (202) 496-4877.

	APTA Member	APTA Non-Member
1 insertion*	\$1.65 per word	\$1.90 per word
Multiple insertions* (with no copy change)	\$1.50 per word	\$1.70 per word
Display classifieds / column inch rate	\$80.00	\$95.00
Minimum charge	\$95.00	\$95.00
Logo Placement (per issue)	\$45.00	\$45.00
Affidavits	\$3.50	\$3.50
Blind box fee	\$25.00	\$25.00
Minimum charge	\$95.00	\$95.00

To estimate the price of your ad, you may use Microsoft Word's "word count."  
\* Non-Commissionable

## NOTICES

### SIEMENS MOBILITY, INC. – DBE GOAL NOTICE

In accordance with the regulations of the U.S. Department of Transportation, 49 CFR Part 26, Siemens Mobility, Inc. Rolling Stock, hereby proposes an overall goal of 5.79 percent for Disadvantaged Business Enterprise (DBE) participation in contracting opportunities during Fiscal Year 2021 (October 2020 – September 2021).

The contact information for our DBE Liaison Officer is:

Ms. Michelle Picard  
Siemens Mobility, Inc.  
7464 French Road  
Sacramento, CA 95828  
(916) 681-3000  
E-mail: [michelle.picard@siemens.com](mailto:michelle.picard@siemens.com)

Siemens actively encourages DBEs that design, manufacture and/or service components which are generally accepted in the rail transit manufacturing industry to submit their current certification from a UCP authorized agency.

### SIEMENS MOBILITY, INC., – SEEKING QUALIFIED DBE & SMALL BUSINESS FIRMS FOR SUPPLIES & SERVICES

The Siemens Mobility, Inc. Rolling Stock factory in Sacramento, CA is seeking qualified Disadvantaged Business Enterprises (DBEs) and Small Businesses that are able to supply goods and services in the area of railcar manufacturing. This can include but is not limited to: car body assemblies and components, interior and exterior illumination components, windows, windscreens, seats, interior paneling, luggage racks, handrails, flooring, traction electric components, wheel sets, diesel and cooling systems, cabling, high and low voltage electrical cabinets, fire detectors, fire extinguishers, smoke detectors, passenger information system and infotainment, destination signs, HVAC units, door components, brake systems, vehicle control systems, mechanical and electrical connecting parts, hardware, shipping supplies, MRO supplies, logistics, decal and vehicle wrapping, and technical services.

We are interested in meeting potential suppliers to develop relationships and increase the probability of successfully obtaining business opportunities together. We constantly strive to deliver high quality solutions into the hands of our customers. To help achieve our mission, we partner with a broad variety of suppliers, including small and diverse businesses.

Siemens actively encourages DBEs and Small Businesses that design, manufacture, supply and/or service components which are generally accepted in the rail transit manufacturing functions to submit their information together with their current certification.

Please submit your information stating qualifications and areas of expertise by e-mail to our procurement department: [strategic purchasing.us@siemens.com](mailto:strategic purchasing.us@siemens.com).

To learn more about our products, please visit [usa.siemens.com/mobility](http://usa.siemens.com/mobility).

## BIDS/PROPOSALS

### REQUEST FOR PROPOSALS

The Kanawha Valley Regional Transportation Authority will receive proposals to select and purchase new IBR700 cradle points or an approved equal for its transit operations. These access points will connect future and existing camera systems, fare collection devices, and any device that may need an internet connection by either a wired LAN connection or Wifi. Proposals will be received at Kanawha Valley

Regional Transportation Authority's general offices located at 1550 4th Avenue, Charleston, WV 25387, until 11:00am local time, Monday, July 13, 2020 for this purchase.

Proposal forms and specifications may be obtained from Clyde Tyler Jr., Director of Purchasing/EEO Officer, at 1550 4th Avenue, Charleston, WV 25387 by request via email at [ctyler@rideonkrt.com](mailto:ctyler@rideonkrt.com).

All proposals will be directed to Clyde Tyler Jr., Director of Purchasing/EEO Officer, Kanawha Valley Regional Transportation Authority (KVRTA), 1550 4th Avenue, Charleston, WV 25387 securely sealed and plainly marked "Cradle Points." Proposals will be opened on the date, time, and place previously stated.

Any contract resulting from Request for Proposals submitted will be subject to a financial assistance contract between the Authority and the US Department of Transportation. All proposers will be required to certify that they are not on the Comptroller General's list of ineligible proposers.

Kanawha Valley Regional Transportation Authority reserves the right to accept any proposal or reject any and all proposals in whole or in part and to waive any informalities on such basis as it deems to be in its best interest.

KVRTA hereby notifies all proposers that it will affirmatively ensure that in regard to any contract entered into pursuant to this advertisement, Disadvantage Business Enterprise will be afforded full opportunity to submit proposals in response to this invitation and will not be discriminated against on the grounds of Race, Color, Sex or National Origin in consideration for an award.

Date of Advertisement	Monday, June 15, 2020
Bid Opening Date	Monday, July 13, 2020 @ 11:00am EST
Deadline for Questions/Approved Equals	Tuesday, June 30, 2020
Pre-Award Protests	Before Contract Award
Post-Award Protests	10 business days after contract award
Award	Thursday, July 16, 2020 Pending Board Approval

### NOTICE TO BIDDERS

#### 35 & 40 FOOT LOW FLOOR HEAVY DUTY HYBRID TRANSIT BUSES

Sealed bids will be received by Westchester County, New York for the manufacture, delivery, and purchase of up to one hundred and eighteen (118) 40-foot Low Floor Heavy Duty Diesel Hybrid Electric Transit Buses and up to ten (10) 35-foot Low Floor Heavy Duty Diesel Hybrid Electric Transit Buses. The buses are defined in the specifications.

The successful bidder must comply with the terms of financial assistance agreements with the Federal Transit Administration (FTA) and with New York State. Any name appearing on the Comptroller General's list of ineligible contractors for Federally financed and assisted construction is not an eligible bidder and will not be considered.

The County of Westchester reserves the right to withdraw this invitation to bid, to waive any informality in the bids and to reject any or all bids.

Detailed specifications and further bid information may be obtained by visiting the website <https://bps.westchestergov.com/doing-business/bid-on-county-contracts> or by requesting copies of RFB-WC-20185 from Michael Sweet, Westchester County Department of Public Works & Transportation, 914-995-1647 or the Bureau of Purchase and Supplies at 914-231-1872. **Requests for Approved Equals are due June 30, 2020 and the bid opening is scheduled for January September 8.**

### REGIONAL TRANSPORTATION AUTHORITY OF NORTHEASTERN ILLINOIS ("RTA") REQUEST FOR INFORMATION ("RFI") REQUISITION NO. 5277 (2020)

#### FOR

#### AMERICANS WITH DISABILITIES ACT (ADA) PARATRANSIT CERTIFICATION AND TRAVEL TRAINING PROGRAMS OPERATIONS

The Regional Transportation Authority (RTA) invites firms to submit a response to this RFI. It is the policy of the RTA to recognize that disadvantaged (D), minority (M), veteran (V) and woman (W) owned business enterprises contribute to the economic development of the RTA service area. Further, it is the intent of the RTA to promote the participation of D/M/V/WBE owned firms in its contracting opportunities as both prime and sub-contractors. The RTA strongly encourages D/M/V/WBE owned firms to reply to this RFI and further encourages the formation of joint ventures for the submission of responses.

Procurement Contact: Annisha Whittaker Procurement Specialist [whittakera@rtachicago.org](mailto:whittakera@rtachicago.org).

Response Due Date and Time: **Monday, June 29, 2020 at 3:00PM, CST** All clarifications must be submitted through the RTA Procurement Portal at <https://rtachicago.procurement.com/> no later than Friday, June 19, 2020 at 1:00PM, CST.

The RTA invites Respondents to submit an electronic response for the above described RFI. Respondents shall upload all documents as described in the RFI via the RTA Procurement Portal at: <https://rtachicago.procurement.com/home>. Responses must be received and electronically time-stamped no later than the date and time listed in the RFI. Responses are received, but not publicly opened.

### REQUEST FOR PROPOSALS

#### TIRE LEASE SERVICES FOR TRANSPO BUS FLEET

The South Bend Public Transportation Corporation (Transpo) is requesting proposals from qualified firms until 10:00 a.m. (EST) on Wednesday, July 15, 2020 for the procurement of Tire Lease Services for its bus fleet. To obtain an RFP packet or for more information please contact Virgil McCarthy, Asst. Director of Maintenance, by calling 574-239-2308 or via email [vmccarthy@sbtranspo.com](mailto:vmccarthy@sbtranspo.com) 1401 S. Lafayette Blvd, South Bend, IN 46613.

The procurement of Tire Lease Services shall follow Transpo's policies and FTA requirements for competitive procurement. The successful contractor will be required to comply with the applicable Equal Opportunity Laws and Regulations. Transpo, in accordance with Title VI of the Civil Rights Act of 1964, as amended and 49 CFR Part 26, will afford Disadvantaged Business Enterprises full opportunity to respond and will not discriminate against any interested firm or person on the basis of race, color, sex, or national origin in the review of qualifications or contract award.

## HELP WANTED

### CHIEF OF PLANNING, STRATEGY & INNOVATION

The North County Transit District is seeking a Chief of Planning, Strategy & Innovation. This position will work with the executive management team and key stakeholders to develop the NCTD vision and execute it through a comprehensive work plan to deliver a first-class mobility network that enhances the quality of life for all who live, work and play in North County San Diego and the surrounding region.

Visit [https://adkexecutivesearch.com/images/uploads/MSY\\_DD\\_Planning\\_Development\\_Brochure.pdf](https://adkexecutivesearch.com/images/uploads/MSY_DD_Planning_Development_Brochure.pdf) to see the recruitment brochure and apply. Posting closes June 21, 2020.

### LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY (METRO)

#### CHIEF ETHICS OFFICER

Salary: \$179,525-\$224,411-\$269,298  
Application deadline: 07/17/2020

Plan and direct the overall implementation and execution of Metro's Ethics Policy and

Lobby Registration programs. This includes overseeing the operations of conflict of interest, code of conduct, ethics and lobby registration program functions. The Chief Ethics Officer develops strategies and establishes and implements policies and procedures to achieve departmental goals.

JD and an active member in good standing of the California Bar is required. A BA in Political Science, Public Administration or other related field AND a minimum of five years (5) senior management-level experience performing work in support of ethics programs is also required. MA in a related field is desirable.

Submit your resume, cover letter and a list of work-related references: <https://executive-search.cpshr.us/JobDetail?ID=1656>

Frank Rojas  
CPS HR Consulting  
Ph: 916 471-3111  
Online brochure: [executivesearch.cpshr.us](https://executivesearch.cpshr.us)  
Los Angeles County Metropolitan Transportation Authority website: [www.metro.net](http://www.metro.net)  
EOE

### TRIMET - EXECUTIVE DIRECTOR, TRANSPORTATION

TriMet is seeking a skilled, dynamic and effective Executive Director of Transportation. TriMet provides bus, light rail and commuter rail service in the greater Portland, Oregon region. The Agency's transportation options connect people with their community, while easing traffic congestion and reducing air pollution — making the region a better place to live. TriMet's mission is to connect people with valued mobility options that are safe, convenient, reliable, accessible and welcoming for all.

The Executive Director of Transportation directs and manages all operational activities of the Transportation Division, which includes integrated fixed-route bus, light rail and commuter rail transportation, accessible transportation programs (LIFT), route scheduling and service delivery. Reporting to the Chief Operating Officer, the Executive Director participates as a member of the agency's Executive Team, which is responsible for implementing agency policies and direction.

Candidates should have a bachelor's degree and twelve (12) years of total credited experience, including experience in an executive or senior-level position working with a unionized workforce. For more information or to submit a resume and cover letter, please contact Gregg Moser, K&A at [gmoser@kapartners.com](mailto:gmoser@kapartners.com).

### SCHEDULE ANALYST

#### COMMUNITY TRANSIT SNOHOMISH COUNTY, WA

Hiring Range: \$78,426 to \$86,269  
Open: May 27 Closes: June 26

Under general supervision, coordinates with planning and operations staff to develop accurate transit operation plans; gathers pertinent route and schedule information; operates computer system for run-cutting, scheduling and modeling; maintains integrity of schedule data. Monitors and evaluates existing service through data analysis, personal observation, staff or customer input; attends planning and public meetings.

Apply online <https://www.communitytransit.org>

As a recipient of federal funds, Community Transit is an Equal Opportunity Employer and does not unlawfully discriminate on any basis prohibited by Federal, State or Local law.

### HUMAN RESOURCES DIRECTOR

#### KITSAP TRANSIT BREMERTON, WASHINGTON

\$113,922 - \$153,130

Kitsap Transit is headquartered in the City of Bremerton, Washington, directly across the Puget Sound from Seattle, and employs 372.2 FTEs. Under the direction of the Executive Director, the Human Resources Director directs the staff, operations, and programs of the agency's HR Department, which operates with 7 FTE's. For a full job description and to apply, visit Prothman at <https://www.prothman.com/>. For questions, call 206-368-0050. Kitsap Transit is an Equal Opportunity Employer. First review of applications: July 12, 2020 (open until filled).