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 $1,984,834 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.
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 toquietlyspend 8 minutes and 46 seconds on a cold December day in 1955, public transit has become a symbol for ending racial segregation and discrimination.

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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.
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 CEO 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, 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 Champion Reggie Wayne, former NFL player Bryant McKininnie 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 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 Òé 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.”

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

Citibus Launches Microtransit Service

CITIBUS IN LUBBOCK, TX, HAS launched its Citibus On-Demand micro-transit 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 micro-transit 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.

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

June 30.

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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

JUNE 15, 2020 | 3
The first one-on-one

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.

In Memoriam

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 “Local and International Bus Roadeo Luminary,” died May 24.

Dela Cruz represented AC Transit at 16 of APTA’s International Bus Roadeo competitions, including a win in 2008; garnered 2nd place honors during International Bus Roadeos in 1998 and 2006; third place International Bus Roadeo honors in 2018; and was a member of six Grand Champion (Best of the Best) teams in 1999, 2000 and 2008; garnered 2nd place honors during International Bus Roadeos in 1998 and 2006; third place International Bus Roadeo 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 was an 18-time Local Bus Roadeo winner and a seven-time winner of APTA’s Regional Bus Roadeo competition. He was crowned International Bus Roadeo Operator Champion in 1999, 2000 and 2008; garnered 2nd place honors during International Bus Roadeos in 1998 and 2006; third place International Bus Roadeo 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 Roadeo winner and a seven-time winner of the Northern California regional Bus Roadeo 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.

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-pan-demic 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.

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.

In Memoriam

Jesse Dela Cruz

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 R. 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 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.

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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

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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-emissions 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 Authority (CalSTA), and the larger transportation industry.

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 hauling coach rail service. The 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 transportation to fulfill state, regional and agency goals for reducing greenhouse gas (GHG) emissions from the transportation network.

CONTINUED ON PAGE 10

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.

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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.

Light Rail that is Light-Years Ahead

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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.

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 improvements 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-}

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

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

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. LLIC 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

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

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
Tel 1 855 963 3900
www.taptco.com
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 CEO 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 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-riderhip 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 work plan. 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.

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.
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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
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 operators 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.

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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.
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 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

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.
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 wearout 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 lives, 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 inter-changeable married-pairs or units. The criteria used to select components for analysis include Safety Critical, Impact Performance. Failure modes for many items, the likelihood of failure does not, in fact, increase with increased 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 inter-changeable married-pairs or units. The criteria used to select components for analysis include Safety Critical, Impact 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 (Table1) provide sufficient evidence for the verification. The results reveal that 88 percent of those failures exposed non-age-related patterns. T1

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

<table>
<thead>
<tr>
<th>Patterns</th>
<th>TTC T1</th>
<th>MSP</th>
<th>Broberg</th>
<th>UAL</th>
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<tr>
<td>Badbad</td>
<td>1.7%</td>
<td>4%</td>
<td>3%</td>
<td>3%</td>
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<tr>
<td>Worst Old</td>
<td>2.1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Slow Aging</td>
<td>2.1%</td>
<td>4%</td>
<td>3%</td>
<td>1%</td>
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<tr>
<td>Best New</td>
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<td>15%</td>
<td>6%</td>
<td>9%</td>
</tr>
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<td>New Fault Rate</td>
<td>15%</td>
<td>15%</td>
<td>42%</td>
<td>56%</td>
</tr>
<tr>
<td>Worst New</td>
<td>14%</td>
<td>15%</td>
<td>42%</td>
<td>56%</td>
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<tr>
<td>MTIS</td>
<td>68%</td>
<td>66%</td>
<td>29%</td>
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<table>
<thead>
<tr>
<th>Non Age Related</th>
<th>TTC T1</th>
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<tbody>
<tr>
<td>1968</td>
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<td>1973</td>
<td>3%</td>
</tr>
<tr>
<td>1982</td>
<td>2%</td>
</tr>
<tr>
<td>2001</td>
<td>1.2%</td>
</tr>
<tr>
<td>2018</td>
<td>8.3%</td>
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</table>

WAVE, CCW Provide Wireless Option for Electric Buses

WIRELESS ADVANCED VEHICLE
Electrification’s 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.