

MASS TRANSIT

BETTER TRANSIT THROUGH BETTER MANAGEMENT

HOW WE DID IT » Dubai has seen tremendous growth and building transportation to accommodate it has pushed innovation forward.

Fast Growth in a Demanding Environment

PAGE 14



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www.MassTransitmag.com/12070103

2015 APTA Bus Roadeo

Photos from the 2015 American Public Transportation Association Bus Roadeo.

www.MassTransitmag.com/12070629

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Better Access

As part of that generation that “grew up with ADA,” it’s something I’ve often taken for granted.



You never know what accommodations you may or may not need at some point.

Next month is the 25th anniversary of the Americans with Disabilities Act and ADA wasn’t something I ever really thought about. It was growing up with an aunt that used a wheelchair that so many things weren’t thought about, they came automatic. And while public places had accessible accommodations, it didn’t mean it was accessible to my aunt.

She had her own apartment, drove her own car, but if a place had one step they somehow failed to consider or the restroom didn’t have a type of bar on the correct side for her, it wasn’t accessible for her. For any family get-together, it was known which restaurants had the right bar placement or which county parks had terrain that was less challenging to navigate. The places most accessible, we frequented with gratitude.

My aunt had polio when she was younger and over time, lost the use of her legs. Even though she was always independent and it didn’t slow her down, it was a reminder that you don’t know what accommodations you may or may not need at some point in your life.

My father-in-law’s dad drove a bus in Milwaukee and I had heard some of the stories before about how much he enjoyed it. Recently, however, I heard a new one that involved ADA. As much as he enjoyed being a bus operator, it was when they installed lifts – and because they installed them – that he quit. He was close enough to retirement age and with the pressure on operators about times and schedules, he felt the lifts would add time and he was mad.

It was hard to hear. But, I’m glad I recently had been given the book “To Ride the Public’s Buses: The Fight that Built a Movement” for it gave insight on what people on various sides were thinking at the time. The book is an anthology of articles that appeared in The Disability Rag between 1980 and 1996. For someone not involved in public transportation at the time, it gave a glimpse into the depth of the fight and how much has evolved.

While ADA has worked to ensure equal opportunity to all, there will always be areas of grey. It’s not something completely of the past as a private transportation provider removing ramps on a used bus to accommodate other seating has recently been in the news. Having a better understanding of all sides gives appreciation to what challenges people were facing but two things stand out most: improved accessibility translates to improved and better access for everyone and for anyone that is able-bodied, that could change.

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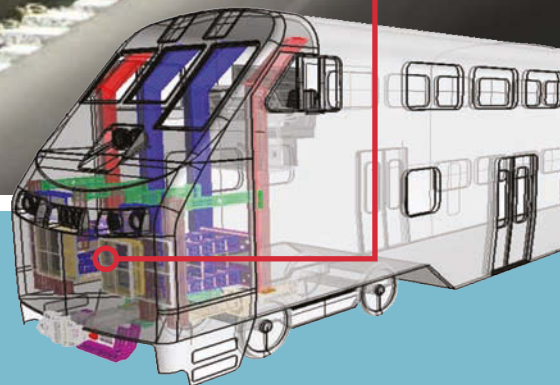


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IN DENVER, nearly 400 people turned out to join the RTD and its many partners for a unity parade and rally as a part of Stand Up For Transportation Day.

More Than 350 Organizations Participate in “Stand Up For Transportation” Day

Local, state and federal elected officials, business and transportation leaders, public transit advocates and riders called for a long-term transportation bill during a grassroots local advocacy day on April 9.

“Yesterday was a huge success as more than 350 organizations from across the country in small, medium, and large communities participated ...” said American Public Transportation Association (APTA) President and CEO Michael Melaniphy. “There were more than 150 community events with many elected officials, business, community, and transportation leaders, and public transit riders. Also, #standup4publictransportation was the third highest trending topic in the United States yesterday.”

➔ www.MassTransitmag.com/12072794



METRO HAS ordered 528 of the new 7000-series cars, enough to replace all 1000- and 4000-series cars and expand the size of the fleet by 128 cars.

Metro 7000-Series Train Debut

▶ Washington Metropolitan Transit Authority's (Metro) first 7000-series trains entered passenger service April 14 on the Blue Line.

The 7000-series cars feature new technologies that are generations ahead of Metro's current railcars, all of which were designed to be “backward compatible” with Metro's oldest cars, the 1000-series. Metro's current railcars use analog technology for onboard public address announcements, the P.A. systems on 7000-series cars will be entirely digital and feature clear, automated announcements.

The cars are equipped with state-of-the-art safety technology and a slate of new features and customer amenities. Through the project's Customer Design Team, Metro riders participated in the design of the new railcars.

➔ www.MassTransitmag.com/12058918

Tri-Rail Airport Station Opens



THE MIC'S Miami Central Station is an intermodal facility.

▶ Tri-Rail's new Miami Airport Station (MIA) opened April 5 as part of the Miami Central Station at the Miami Intermodal Center (MIC). Tri-Rail passengers can enjoy a seamless and immediate connection to the airport via a short ride on the MIA Mover.

“This is another significant milestone, which is symbolic of our vital role to connect South Florida to the world,” said Commissioner Bruno Barreiro, chair of the South Florida Regional Transportation Authority/Tri-Rail.

➔ www.MassTransitmag.com/12058467

TriMet Max Orange Line On Time, Under Budget

▶ With the Portland-Milwaukie Light Rail Transit Project — the future Max Orange Line — substantially complete, TriMet announced that the project is not only on schedule, but also millions under budget. The overall \$1.49 billion project is under budget in the range of \$10 to \$40 million, and the Federal Transit Administration will keep its proportional contribution toward the project of 50 percent. This leaves local savings likely in the range of \$5 to \$20 million.

➔ www.MassTransitmag.com/12059401

USHSR Conference Highlights Innovative Project Funding

▶ At the recent US High Speed Rail Association (USHSR) Conference in Washington, D.C., there were a variety of sessions, that addressed funding challenges, including proposals for privately-funded projects and the potential to utilize public-private partnerships (P3s).

USHSR showcased several high-speed rail projects that would rely primarily on private capital. Two discussed included the North American HSR Group's plan for a 90-mile line between Minneapolis and Rochester/Mayo Clinic and Congressman John Mica pitched a 2-hour, privately run service between Washington, D.C., and New York.

➔ <http://www.ushsr.com>

Very High Speed Train Makes Maiden Journey



THE TRAIN ran from Milan to Rome and will start commercial service in June.

► Italian transport operator Ferrovie dello Stato Italiane hosted the inaugural journey of the V300ZEFIRO very high speed train, known as the Frecciarossa 1000.

Manufactured in partnership with AnsaldoBreda, the Frecciarossa 1000 is the newest member of the Bombardier Zefiro family of high-speed trains. Bombardier Transportation was responsible for leading the project management, mechanical and engineering product development.

➔ www.MassTransitmag.com/12068520

Continued ►

Events

9th World Congress on High-Speed Rail Celebrate the Past, Design the Future

July 7-10 • Tokyo, Japan

More than 1,000 attendees from around the world will meet to exchange views on the development and achievements of HSR worldwide. The World Congress will feature international rail experts on transportation policy and technology. It will also feature an exhibit showcasing the latest HSR products and services.

Iowa Public Transit Association Annual Meeting and Rodeo

June 10-13
Des Moines, Iowa

13th Annual Latin American Leadership Forum

June 10-12
Antigua Guatemala

30th Annual Transport Chicago

June 12
Chicago, Ill.

2015 APTA Rail Conference

June 15-16
Salt Lake City, Utah

2nd Annual Asset Information and Data Management for Smart Rail Conference

June 23
London, U.K.

Locus Michigan Leadership Summit

June 23
Detroit, Mich.

Africa Rail 2015

June 30-July 1
Johannesburg, South Africa

9th World Congress on High-Speed Rail

July 7-10
Tokyo, Japan

2015 APTA Transit Board Members & Board Support Seminar

July 18-21
Denver, Colo.

2015 West Virginia Transit Association Annual Conference

July 28-31
Roanoke, W.V.

2015 APTA Sustainability and Public Transportation Workshop

Aug. 2-4
Portland, Ore.

Kansas Public Transit Association Annual Meeting & Expo

Aug. 3-5
Manhattan, Kan.

5th Annual Modern Railways

Aug. 3-5
Bali, Indonesia

2015 Right of Way Fatality and Trespass Prevention Workshop

Aug. 4-6
Charlotte, N.C.

Indiana Transportation Association 81st Annual Meeting

Aug. 11-13
South Bend, Ind.

For more on upcoming events, visit www.MassTransitmag.com/events

People in the News



David Genova



Guy Vachon



Eric Marx



Paige Stewart



Darryl Haley

Regional Transportation District

The Regional Transportation District (RTD) Board of Directors named David Genova interim general manager, following the announced departure of outgoing General Manager Phillip Washington.

Genova currently serves as assistant general manager of safety, security and facilities and was designated by Washington as his successor in the staff succession plan. Genova has been with RTD for more than 21 years, serving RTD since 1994 as the assistant general manager of safety, security and facilities for eight years and prior to that was the senior manager of public safety.

➔ www.MassTransitmag.com/12063434

MCI

Guy Vachon joined Motor Coach Industries (MCI) as vice president of aftermarket sales.

Vachon will be responsible for MCI Service Parts' PSM (regional parts solutions managers) field representation and will also oversee the management of large national accounts and the strategic direction of the customer service support team. He will be based at MCI headquarters in Des Plaines, Illinois. He formerly held several sales, marketing and strategic planning leadership positions in the commercial vehicle industry. Prior to joining MCI he was director of aftermarket sales and service with Morgan Olson.

➔ www.MassTransitmag.com/12059404

Potomac and Rappahannock Transportation Commission

Eric Marx, Potomac and Rappahannock Transportation Commission's (PRTC) director of planning and operations, has been appointed as interim executive director of the agency.

The appointment was made by the PRTC board of commissioners. PRTC's current executive director, Alfred Harf, informed the commission earlier in 2015 of his intent to resign after more than 16 years as the organization's leader and agreed to time his departure to suit the commission's need for an orderly transition.

➔ www.MassTransitmag.com/12065070

Stertil-Koni

Stertil-Koni has announced that Paige Stewart has been named logistics specialist.

Stewart previously served as marketing associate and recently made the transition to the operations department at Stertil-Koni, where she will leverage her educational and training background. She began her career in the vehicle lifting industry with Stertil-Koni in 2011. Over the past several years she has focused on advancing the company's social media and Web presence. While working in her marketing role, she earned her master's degree in supply chain management from Towson University.

➔ www.MassTransitmag.com/12067497

Cincinnati Metro

Cincinnati Metro promoted Darryl Haley to executive vice president.

In this role Haley will serve as second in command at Metro, under CEO and General Manager Dwight Ferrell. Haley will oversee the daily administration functions of Metro's operations, administration, planning and development, and human resources departments. Haley began his career with Metro in 2006 and has held various positions, most recently deputy general manager. He holds a degree in business administration from the University of Cincinnati.

➔ www.MassTransitmag.com/12068345

Continued ►

PEOPLE & PLACES



VALLEY METRO received a Transit Investments for Greenhouse Gas & Emissions Reduction (TIGGER) federal grant to help fund construction and installation of the solar photovoltaic system.

New Solar Energy Source Powering Valley Metro Light Rail Facility

► Valley Metro chose April 22 — Earth Day — as the kick off day to begin powering the Valley Metro Rail Operations and Maintenance Center using solar power.

The new solar plant, which comprises 2,800 solar voltaic panels spanning 1.15 acres, is mounted at ground-level and on parking lot shade canopies. It's capable of generating 1.3 million kilowatt-hours (kWh) of energy savings annually, or enough electricity to power 123 homes.

➔ www.MassTransitmag.com/12065901

VVTA Tests Real-Time Transit Sign in Apple Valley



FLEETWATCH MADE use of VVTA's existing Avail Technologies CAD/AVL Software data feed to display the real-time arrival information.

► Victor Valley Transit Authority (VVTA) launched real-time transit signage at its Apple Valley Transfer Point. The digital signage delivers real-time bus arrival information for several VVTA routes, enabling riders to easily plan trips on the fly.

The sign manufacturer, FleetWatch, provided the real-time signage free of charge, as a 90-day demonstration of its abilities. During this period, VVTA worked closely with the manufacturer to develop usability and reliability improvements.

➔ www.MassTransitmag.com/12069296

IndyGo Begins Building Electric Bus Fleet

► In 2013, Indianapolis Public Transportation Corp. (IndyGo) received a \$10 million federal Transportation Investment Generating Economic Recovery (TIGER) grant to purchase 21 electric buses, which will give it the largest fleet in the country.

Earlier this year, IndyGo received its first electric buses from Complete Coach Works. The buses are completely refurbished Gilligs, each with a set of 12 lithium-ion, also known as lithium cobalt batteries, a three-phase 480 watt motor and the new Zero Emission Propulsion System (ZEPS). The buses were built with lightweight flooring, lightweight seats, low-resistance tires and energy-efficient heating and cooling all to ensure a range of 130 miles on a single battery charge.

The IndyGo operations team has been busy installing fareboxes, applying branding, ensuring registration and licensing and training its drivers. IndyGo has also been installing solar panels in the garage, which will be used to charge the buses.

➔ www.MassTransitmag.com/12067545

New GoTransit Names Unveiled

► At a press conference in March, North Carolina Secretary of Transportation Tony Tata, Raleigh Mayor Pro Tem John Odom and Durham Mayor and GoTriangle Board Chair William V. Bell, unveiled GoRaleigh, GoDurham and GoTriangle. The transit providers are part of a new family of services called GoTransit.

"Today's launch is another important step in our mission to provide a well-connected multimodal transportation system that meets the growing needs of our state," said Transportation Secretary Tony Tata.

➔ www.MassTransitmag.com/12058463

SFMTA Purchases New Buses

► The San Francisco Municipal Transportation Agency (SFMTA) has taken delivery of its first New Flyer Industries electric trolley and biodiesel-electric hybrid buses. Sixty brand new electric trolley buses will replace buses that have been in operation for more than two decades.

➔ www.MassTransitmag.com/12067594

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People in the News



Michael Poore

Complete Coach Works

Complete Coach Works (CCW) announced the appointment of Michael Poore as Southwest regional sales manager.

He brings more than 35 years of leadership and automotive expertise to this role. Poore served as CCW sales executive in 2006, leading the company in business development and planning, creating alliances and partnerships, and advancing technological integrations. Poore held previous senior management and executive positions in the U.S. Army for more than a decade, at Schuff Steel Co., Sunset Enterprises Inc. and Eagle Support Services Corp.

➔ www.MassTransitmag.com/12068999



Arjan van Andel

GIRO

GIRO has appointed Arjan van Andel as director of business development.

Arjan Van Andel joins Le Groupe en Informatique et Recherche Opérationnelle (GIRO) after holding several high-level positions with software and technology companies in the public transportation sector. During his career in North America and Europe, Van Andel has worked with various cities and transit agencies to implement ITS systems and passenger information systems. He holds a master's degree in mechanical engineering and logistics from the University of Twente in the Netherlands.

➔ www.MassTransitmag.com/12070234



Shawn M. Donaghy

Fort Worth Transportation Authority

The Fort Worth Transportation Authority (The T) appointed Shawn Donaghy as vice president of operations and maintenance.

He will direct and coordinate The T's day-to-day bus operations Mobility Impaired Services (MITS), maintenance and security functions. Donaghy was most recently interim chief operations officer of the Southwest Ohio Regional Transit Authority (SORTA) Metro where he was responsible for transit operations, maintenance and paratransit. He also implemented SORTA's short- and long-term transit plans.

➔ www.MassTransitmag.com/12073504

MCI

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Plus, the MCI Commuter Coach is Buy America-compliant and available in clean-diesel, hybrid and CNG options. So whether you're looking to build capacity, serve new markets, improve passenger safety and comfort or simply build on your reputation for reliability, service and value, the Commuter Coach is ready to transform your commutes.

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Caltrain Takes Aim at Suicide Prevention

By **Jayme Ackemann**

"I am personally deeply troubled by every single lost soul who has chosen the drastic measure of taking his or her own life on our tracks," said Chuck Harvey, deputy CEO, operations, engineering and construction, Caltrain. "We're using every method, from means restriction to more creative coalition-led methods to address this problem."

That is a sentiment shared throughout the Caltrain organization and that is the reason that Caltrain focuses so much energy on outreach, education, engineering and enforcement activities meant to reduce the number of deaths on the rail corridor.

Caltrain, which operates the commuter rail service between San Francisco and San Jose, averages 13 deaths each year on its tracks. Ninety percent of those senseless deaths are ruled suicides

TriMet Security Efforts, Transit Police Division Grow

▶ As the Max system grows with the addition of the Orange Line in September, TriMet will grow its security efforts. That includes adding officers to the transit police division, increasing the number of contracted security patrols and expanding security and operational cameras.

➔ www.MassTransitmag.com/12067491



A TRIMET officer looks through a wallet

TTC Employee Charged

▶ On May 7, the Toronto Police Service laid criminal charges against a Toronto Transit Commission (TTC) employee following a May 5, incident involving a girl that is alleged to have occurred on a TTC bus.

The TTC is co-operating fully with police and the accused is not performing any TTC duties at this time.

➔ www.MassTransitmag.com/12072613

AC Transit Wins Top Honors for Safety

▶ AC Transit has been honored by the American Public Transportation Association (APTA).

APTA's Bus Safety & Security Excellence Awards recognizes bus and para-transit systems that have achieved documented success in addressing specific safety or security issues.

AC Transit was cited for "industry-leading, innovative...(and) exceptional achievement" in improving passenger safety.

➔ www.MassTransitmag.com/12070990

JTA Receives Safety & Security Excellence Award

▶ The Jacksonville Transportation Authority (JTA) received a Gold Award at the American Public Transportation Association (APTA) Safety and Security Excellence Awards.



APTA CHAIR Phillip Washington and JTA CEO Nathaniel P. Ford Sr.

JTA received the award for "The Foundation of a Complete Bus Overhaul", a safety program focused on operator training, bus stop accessibility and security.

➔ www.MassTransitmag.com/12071127



Caltrain


CALTRAIN RECENTLY unveiled new suicide prevention signs at its stations.

following an investigation. Sadly, Caltrain's experience is not unique among rail operators. Across the country more than 1,000 people die each year in rail-related tragedies.

Learn more about Caltrain's efforts to reduce suicide rates along its corridors in an upcoming edition of the Mass Transit Security Newsletter.



MASS TRANSIT



“Heroes are ordinary people
who make themselves
extraordinary.”

- Gerard Way

Keolis salutes the first responders competing in the
2015 World Police & Fire Games

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Fast Growth in a Demanding Environ

By **Leah Harnack**

Dubai has seen tremendous growth and building transportation to accommodate it in the hot, sandy environment has pushed innovation forward.



ment

THE DUBAI Metro is the world's longest driverless train system with almost 47 miles of track.

Leah Harnack/Mass Transit

DUBAI IS THE MOST POPULOUS city in the United Arab Emirates and is one of seven emirates in the country. It is situated on the Persian Gulf coast and surrounded by sandy desert. The summers get extremely hot, windy and humid, which can create a challenging environment.

The Roads and Transport Authority (RTA) was formed in 2005 to improve travel within Dubai. His Highness Sheikh Mohammed bin Rashid Al Maktoum, ruler of Dubai, appointed Mattar Al Tayer as the chairman of the board and executive director of the Roads and Transport Authority (RTA). The RTA oversees strategy and corporate governance; corporate and administrative support services; corporate technical support services; the public transport agency;

Dubai

Population
2,368,452

Area
1,588
square miles

the traffic and roads agency; the rail agency; Dubai Taxi; and the licensing agency.

A recent press tour organized by Alstom offered a firsthand look at the RTA's tram and provided insight to the growth and expansion of the city's transportation network.

Vincent Prou, MD Gulf countries with Alstom, talked of the huge growth in Dubai. There are 2.1 million inhabitants and 10 million visitors a year. While oil used to be a large source of revenue, it is now less than 5 percent and tourism is one of the largest generators.

The fast growth has created a need for strong infrastructure that can accommodate it. Dubai has a policy of investing heavily in its infrastructure, including its public transport, to improve its economic vitality. In 2014, Dubai Smart City was launched, an initiative to make the city one of the world's most connected and sustainable cities. The mission of Dubai Smart City is "Embraces innovation to make Dubai more efficient, seamless, safe and deliver an enriched city experience through smart technology."

DUBAI RTA

In 2013 the UAE won the right to host the World Expo in Dubai in 2020, which has also spurred infrastructure growth and development to meet those anticipated demands. World Expo's last six months it is anticipated 25 million will visit Expo 2020, and many of those will arrive by the RTA Metro.

With the 2.1 million inhabitants and 10 million visitors a year, there's a strong will of the Emirate to increase the share of public transportation to 30 percent by 2030. Currently it is at 13 percent. To do this, the RTA will introduce new legislation to deter car drivers and spending more than \$5.5 billion to build its transportation infrastructure.

Regional Connection

Dubai Metro's Red Line opened Sept. 9, 2009 and the Green Line



DUBAI TRAM arriving at JBR 1 station near the Dubai Marina.

opened for service to the public on Sept. 9, 2011. The overall length of the metro is about 44 miles and it is completely driverless by Thales Rail Signaling Solution with a minimum headway of 90 seconds. The driverless train control solution is Thales' Seltrac communications-based train control.

The five-car trains can accommodate more than 600 passengers and each of the cars are split into three classes: gold class, women and children, and silver class. The metro has many safety features, including more than 3,000 CCTVs in trains and stations, a dedicated Metro Police and radio

system between the metro and emergency services.

Metro has recorded high ridership levels during the first quarter of this year — 44,371,860 riders.

The Route 2020 Project is the extension of the Red Line to the site of Expo 2020, an approximately 9-mile extension. It includes seven stations and includes a plan to construct three stations to serve Al Maktoum International Airport.

The project is going to be a design-build contract. Construction will start once the contract is awarded in the first quarter of 2016 and it is set to be completed in 2020.

While talking about the RTA tram, Prou, spoke of trends in the region, including the Middle East focusing on turnkey projects. He said it is probably for two reasons.

"It's an emerging industry in this region so it's easier with expertise

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Public Buses

934

Public Bus Routes

103

Ferries

2

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5

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9

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and resources, to rely on experience,” he explained. “Second, I think the amount of work that is generated in the various countries is such that it would be difficult for the authorities to put people in to work on the different projects.”

Catenary-Free Landscape

RTA’s tram is a turnkey tramway system and it is 100 percent catenary free. The project was a design-build, is 11 km long, has 11 enclosed stations, eight traction power substations and five lighting power substations. The project began in 2012 and opened two months early on Nov. 11.

The trams are Alstom’s Citadis and carry up to 408 passengers. The front nose is diamond shaped and the external livery is meant to suggest the sand dunes found within the Emirates.



EACH OF the tram’s platforms is fully enclosed with air-conditioned stations.

RTA Employees

Public Transport Agency
3,835
 Rail Agency
148
*RTA 2013

Alstom Transport SVP MEA Gian-Luca Erbacci said there were particular challenges to create this project in the environment of extreme temperatures, sun and sand. In particular, protecting electronics parts in the power supply, protecting electronics from the heat, using particular ventilation to protect the components and increasing the power of the climatization.

Prou added that there were a lot of things done to make it robust for the climate in terms of corrosion, sand, humidity and temperature.

Some of which are batteries re-sized for higher loads; traction motor corrosion testing to 500hr; external CCTV upgraded to IP67; bogies climate tested for 55 C, special paint and corrosion testing to 1,500hr; UV-resistant cabling, electronics and car body paint; electronic-controlled HSCB replaced with electro-mechanical control; APS brushes to remove sand and objects; and UV-protected windows with specific solar films.

Each of the platforms is fully enclosed with air-conditioned stations. “For that, you need to ensure the right accuracy in stopping in front of the doors so you can align the train doors,” Prou said. The communications-based train control allows the tram to maintain a braking curve within a very specific distance.

For catenary-free power, RTA’s tram utilizes Alstom’s APS



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ground-level power supply solution along the line. Power is supplied to the vehicle through a segmented street-level power rail embedded between the running rails in the axis of the track. The conductive segments are switched off/on/off as the tram progresses, ensuring safety for pedestrians. Prou said when the tram leaves the section, the line is safe.



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The APS third rail is made of 8 meter-long conductive segments separated by 3-meter insulating joints. Power is supplied to the conductive segments by buried power units and the electricity transmitted through the third rail is picked up by two contact shoes located on both sides of the tram central bogie.

Conductive segments are powered underneath the vehicle only so that all segments not covered by a tram have no voltage running through them.

Turnkey Options

Messelyn explained the main difference between an integrated approach of a turnkey system and a traditional approach is the level of responsibility that is transferred. He gave several reasons why some opt for an integrated system. First is financing. Financing projects is easier when you have to finance your project through private-owned debt and have debt in one contract. With multiple tenders there are multiple financing contracts.

With a turnkey approach, there is no need to develop detailed design before tendering. "You can stick to a basic design and it's up to the manufacturer to develop the design," Messelyn said. "It's quicker when they have only one tender to launch, one contract to manage."

Costs are optimized. It's a very competitive market so the solutions that are provided by the competition is optimized.

Issues have to be solved within the private sector and the agency can rely on the industry to achieve a system that is most efficient, from fleet sizing to maintainability. "With those kinds of contracts, they can focus on their core mission: to organize the public transport network," said Messelyn.

Plans for the future include two more phases. Phase 2 is expected to start sometime in 2016, and further down the road is Phase 3, which will add another 15 to 20 km running along the coast. **MT**

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Metro Transit

THE GREEN Line runs along University Avenue between St. Paul and Minneapolis, which has been a historically strong transit corridor.

Paul International Airport into downtown Minneapolis.

“It was a function of project readiness,” Lamb said. “For most of those linear miles, there was already a commitment to making major road improvements and there was significantly less in linear miles where significant purchases of property were needed.

“The central corridor was much more complex and it wasn’t going to be possible to be able to do it as cost effectively or cheaply as the Hiawatha.”

Lamb said connecting into two downtown areas caused complex issues running the route along with center running tracks on University Avenue, so it had to balance access for cars while still making it a system that could compete time-wise to a car commute.

Lamb said Metro had to acquire an entire city block in downtown St. Paul to create a turning block for the North-South to East-West alignment as the line terminates at Union Depot.

“This was a really great opportunity to stimulate development,” he said. “Not including the \$1 billion stadium being constructed along the Green Line corridor,

Metro Has the Twin Cities Seeing Green

By **Joe Petrie**
The Metro Green Line opened to plenty of fanfare in June 2014, but getting the line put in place and making it a success took lots of collaboration.

UNIVERSITY AVENUE, connecting Minneapolis and St. Paul, Minnesota, has played an important role in moving people of the Twin Cities region for more than a century.

Brian Lamb, general manager for Metro Transit, said the tradition stretches back more than 100 years where the University Avenue corridor held one of the region’s first streetcar interurbans.

The area fell out of favor with mass suburbanization following World War II and led to a decline along the corridor.

“The corridor fell on hard times and it never found its way again,” Lamb said. “But over the course of the last 20 years, there was a renewed interest in creating

a light rail connection between the two downtowns.”

The Central Corridor Project connected a traditionally strong commercial corridor between Minneapolis and St. Paul, so when it got approval to move forward, the area began a journey to create the Green Line to connect the downtown areas of both cities.

Building a Bigger Workhorse

Lamb said the corridor included the workhorse bus route of Metro and it always held high potential for ridership, but the Green Line was passed over for being the first light rail line in the area. The Hiawatha Line opened in 2004, connecting the Mall of America and the Minneapolis-St.

since 2007 when we started the project through 2014, there has been a documented \$2.8 billion in new development that really has stimulated the economy and actively focused on higher density development.”

Lamb said Metro Transit has worked with local jurisdictions on development opportunities near stations. This meant looking at specific land acquisitions to create development while balancing with visionary planning within each neighborhood and the creation of new zoning rules to allow for higher density development to encourage transit-oriented development.

Getting the Green Line built meant investing nearly \$1 billion in public funds on a single project. This sparked plenty of debate about regional priorities on the local political levels, but Lamb said

Metro Green Line

Opened
June 14, 2014

Cost
\$957 million

Miles of new track
9.8

Manufacturer:
Siemens

New stations
18

Cost per vehicle:
\$3.3 million

Three-car train capacity:
600 people

Metro used the momentum of the Hiawatha line — which was already exceeding its 2025 ridership projections — to solidify support for the second line.

Metro held more unconventional outreach events with local community groups, such as coffee discussions about the project and also regional partners hosted trips to other successful light rail lines in the nation to see what potential the Green Line could hold.

“One of the things I think was important is we definitely added the Green Line to one of the most diverse corridors in the Twin Cities area by far, so we really wanted to make sure elected officials up and down the line fully understood the importance of an efficient transit system,” Lamb said.

There were more than 8,000 new housing units added along

the Hiawatha Line before the Great Recession hit in 2008, so Lamb said leaders had proof the Green Line could create development. Lots of development happened concurrently to the Green Line’s construction and development is already happening along the planned corridor expansion for the line.

“There’s more of a developer understanding and degree of confidence that there are a lot of people who want to live and work along a transit corridor,” Lamb said.

Collaborating for Success

Justin Gabrielson served as project manager for a joint venture of Ames/McCrossan, which handled construction of the western portion of the Green Line project. He said access was a big concern on that area due to a double-decker bridge across the Mississippi, which had

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PROJECT UPDATE - GREEN LINE

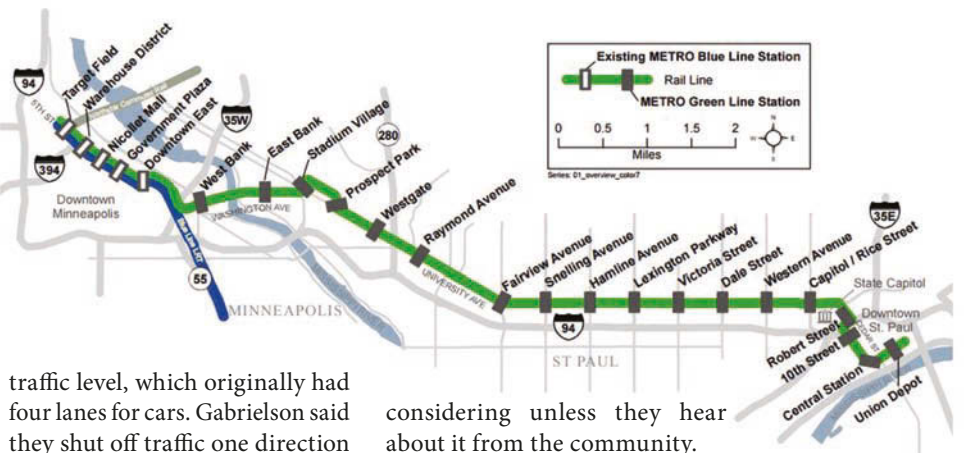
car and pedestrian traffic along it, and building through the University of Minnesota campus.

The campus portion also meant installing an electromagnetic interference zone in the university's research corridor to inhibit EMI.

Gabrielson said construction crews fenced in working areas and did walks with community stakeholders through the construction zone on a regular basis to ensure pedestrian access during the build, which also met the Americans with Disabilities Act requirements.

"In the U of M area there were literally hundreds of areas we were dealing with," he said. "Essentially you're dealing with 30,000 people walking through your job site on a daily basis."

The double-decker bridge has pedestrian access on the top level and rail lines were added to the



Metropolitan Council



traffic level, which originally had four lanes for cars. Gabrielson said they shut off traffic one direction at a time during the build and installed a specifically designed overhead crane.

Gabrielson said having a direct relationship with all the community stakeholders and the joint venture, the designers and construction agencies were able to discuss specific issues each time they entered a new zone or neighborhood so they could come up with the best solution. Lots of specific issues can be of concerns in a community and planners or crews would never think of

considering unless they hear about it from the community.

"Access is the main one," he said. "What will it look like, how long is this going to be on my property, businesses are trying to stay in business, so they want to know how people are going to get in and out of their business."

The joint venture also cohabitated offices with Met Council construction staff, Gabrielson said, which was extremely important for making sure the project was completed on time because issues could be resolved in a face-to-face manner very quickly after they arose.

UNIVERSITY AVENUE has a historically high number of transit riders.

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“There was a door with an arbitrary wall between us, so if there was an issue, we could walk right through that door as opposed to sending an email and driving five miles,” he said. “We were right there to work it out. It was very important for getting the project completed on time because there are a lot of moving parts.”

Metro tapped Siemens to build railcar equipment and provide trackside devices for the project.

Michael Cahill, president of the Siemens Rail Systems Division, said design for the Green Line cars took special consideration due to the harsh climate of the Twin Cities region. Trains needed insulation and additional heating capacity was added to the HVAC system, along with efforts to protect against corrosion.

The company had to work with the agency in a collaborative effort

to determine what Metro’s needs were and the final product is 6 percent lighter than older trains to increase efficiency.

“They chose the options, but in terms of the maintainability of their system, I think we learned a lot from each other,” Cahill said. “From the best positions of equipment to make for easier replacement of hydraulic hoses, to how to best heat cars in the cold winters, to looking at how they opted to take the side mirrors off and put on security cameras for the modern times. All of these things came from a very collaborative effort.”

A new light rail line also meant Metro and communities impacted by the Green Line needed to plan for changes in security.

Metro Transit Police Capt. James Franklin said the department took a collaborative effort

Ridership

Average weekday ridership as of April 20:

36,000

Ridership goal by 2030

41,000

Traffic

Traffic signal controlled intersections Green Line goes through: more than

60

within and outside of the organization to pinpoint concerns and address them along the line.

The department worked in conjunction with the safety department to find any concerns in the design or build out of the line and to plan for all the major venues served by the line. Franklin said they worked with the other safety and security agencies in the area to plan for the line, such as the St. Paul Police Department; St. Paul Fire Department, Ramsey County; and the University of Minnesota Police Department.

“We did a significant amount of public outreach to educate the police and fire department about what the light rail line is, what the hazards that are associated are, such as the catenary lines and how that’s a 750-volt DC current, so you don’t want to touch that if



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PROJECT UPDATE - GREEN LINE

it's a down line," he said about the efforts. "Once we did the outreach, we did some hands-on training."

Franklin said the training entailed showing emergency workers the rail cars and how they would operate when opened, then practicing coordinated events ranging from small issues to mass casualty events. Training provided the agencies with clarity on their roles for daily and major operations issues. He said after reaching out to them, Metro Police discovered there was a large appetite for hands-on training from other agencies.

"I think getting in front of the issues and getting public safety partners together and really bonding those partnerships and relations is really important so you have those strong relationships," he said. "You need to bring them to the table, to these exercises and committees."



THE GREEN Line spans from Target Field in Minneapolis to Union Station in St. Paul.

On-time Rate

August 2014

60%

November 2014

75%

February 2015

90%

Franklin said Metro Police's biggest concern with the opening of the line was pedestrian and car traffic and safety issues related to the new line. The department launched a public relations campaign to get the word out to the community about safety issues with the line. They educated the public about driving and pedestrian behaviors and urging them to use common sense by the rail line.

"Just the volume of people we were trying to reach, that was the only challenge," Franklin said. "Truthfully, there wasn't any other real challenge other than the workload and trying to manage it."


More Online

See best practices Metro learned to improve on-time performance of the Green Line and videos about the project at www.MassTransitmag.com/12072085

Opening With a Boom

The construction project employed 5,500 people along with 200 permanent operations jobs. And when it opened, people of the Twin Cities flocked to the gates.

The line opened June 14, 2014. More than 107,000 riders boarded by the end of the first weekend. An average of 27,805 riders got on board the first week. More than 1 million rides took place in September. By the end of 2014, 6.5 million rides took place on the Green Line, with an average weekday ridership of 34,548.

By April 17, the weekday average reached more than 36,000. The ridership goal is 41,000 by 2030. 

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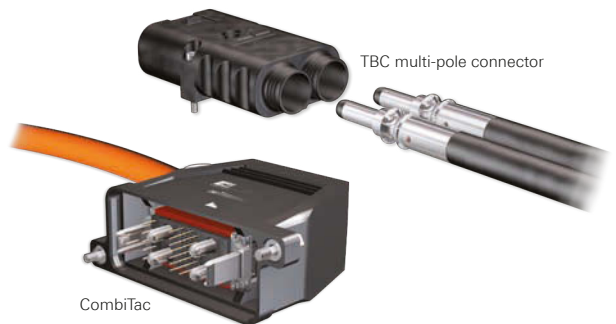
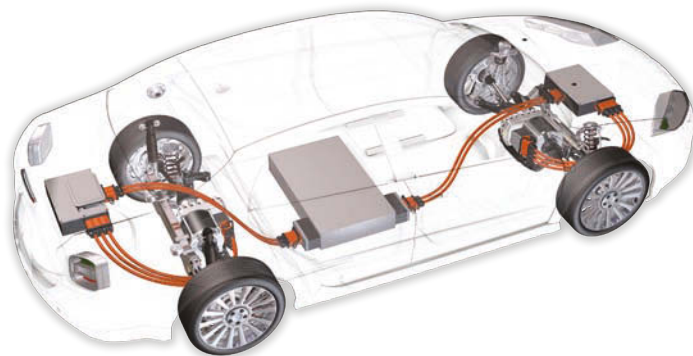
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New Ways to Attract New Riders

By Jennifer Jinadu-Wright, Adrienne Cochrane

Transit agencies use creative communication to reach new audiences and generate new riders.

FINDING NEW WAYS TO ATTRACT younger people who use social media — and who are more likely to ride transit — is integral to Metropolitan Atlanta Rapid Transit Authority's (MARTA) overall business strategy. Since MARTA has been using Facebook, YouTube and Twitter for several years, the marketing team knew there were opportunities to reach millennials with Instagram because it's a unique, visual way of telling MARTA's story. They decided MARTA's Instagram page would be more about illustrating the transit lifestyle than corporate branding. They wanted to convey the experience of what you can see and do on MARTA that you can't get driving in your car.

“The goal was to build engagement and relationships with MARTA outside of Instagram.”

The team also decided that MARTA wouldn't manage the Instagram page internally. Adam Shumaker was picked to manage it because they had worked with him before and knew he was an excellent photographer. Shumaker is also a millennial who lives downtown and takes MARTA to his photo shoots — he even got married on MARTA. Shumaker could help take away the fear of the unknown for people who don't ride the system by using his pictures.

They created a caricature of Shumaker for the Instagram account and called it “MARTA_Explorer.” The caricature is a grown-up version of a coloring book

character named “Wheels” created by Michael Allen, one of MARTA's graphic artists.

They don't pay Shumaker but give him a 30-day pass to ride the system. While they don't tell him what to shoot, they evaluate and look at his posts and provide feedback. They have been comfortable with the arrangement because Shumaker knows MARTA's brand and he knows their parameters.

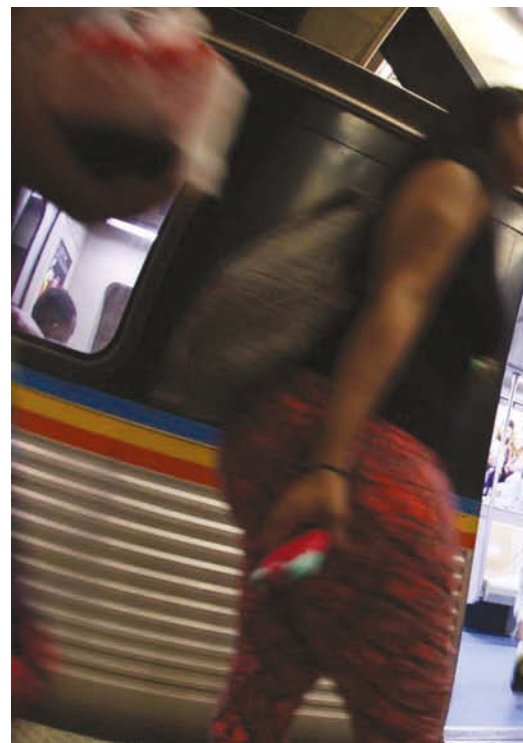
The reaction has been very positive and it's helping them build rapport with Atlanta's creative community. They have more than 200 posts and about 720 followers since it officially launched in December. It really helps to have the support of the GM/CEO, Keith Parker, who appreciates the value of social media.

The goal was to build engagement and relationships with MARTA outside of Instagram. It has been growing organically and they haven't done any real promotions yet. They were excited when one of their MARTA_Explorer Instagram posts was featured on “The Daily Share,” a show on CNN.

They have also built a relationship with #weloveatl, which started as a group of locals on Instagram who love the city and love to tell their stories with photos. Their Instagram has more than 15,000 followers.

The group hosted an Instameet to see some of their work that MARTA had on display at its Five Points station. About 75 people met in Decatur and took the train to Five Points. For some, it was their first time on MARTA. It was great to see a large group of people passionate about including MARTA in their photographic stories of Atlanta.

MARTA's marketing department is planning to focus even more on MARTA's Instagram presence with a contest. A lot of people do great photography and they hope to get them more involved in a way that's gratifying to MARTA and to the community.



MARTA'S MARKETING team use Instagram to reach millennials because it's a unique, visual way of telling MARTA's story.

Point of Interest

The Chittenden County Transportation Authority (CCTA) has an Unlimited Access program for students, faculty and staff who work and attend classes at any of the three major colleges/universities in the Burlington Area. Riders using this program contribute approximately 17 percent of CCTA's system ridership annually.

Through a collaborative relationship with a sustainable transportation course and professor at the University of Vermont, CCTA received feedback from students who said they were feeling overwhelmed with the CCTA Bus Map & Guide. The abundance of information included in the guide was hard to understand and it was believed that this was preventing students from not even trying the bus. With this feedback, staff knew they needed to find a way to make the system more approachable for this key ridership group.


They presented this information, but it needed to be easier to understand and more relevant to this group of riders. Staff asked themselves; if I were a college student, what would I need to get off campus? They stripped down the Burlington route map by looking at routes and proximity to key points of interest like shopping, restaurants, entertainment, etc. They applied that information to a printed, foldout piece that



could fit into the pocket of a rider who then could use it. One side included the stripped-down map and with key points of interest, then included basic “how-to”

information on the other side. It also included a pocket that can accommodate a student ID card which students swipe in the farebox upon boarding the bus.

The thinking behind this was if students could get a better understanding of the basic service, they would feel empowered to go deeper and explore more services outside of the Burlington Area. This would then enable them to utilize other tools, such as CCTA’s website, Google Transit and eventually a mobile application where they can better interact with the transit service.

CCTA printed 7,000 maps and they have distributed them all and the results were overwhelming. Campus offices are asking for more and CCTA’s TDM partner CATMA had been distributing them as well with a lot of positive feedback from students, faculty and staff. This process has also been a springboard to discussions about how CCTA can present information across all communication. 

Jennifer Jinadu-Wright is director of marketing & communications at MARTA.

Adrienne Cochrane is marketing and outreach manager at CCTA.

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An Express Commute

By **Tarnell Carroll**

An ongoing partnership with the Florida Department of Transportation has led to increased ridership and possible further expansion for both Broward County Transit and Miami-Dade Transit's express bus service, both of which travel in the managed high-occupancy toll lanes of the Interstate.

N SOUTHEAST FLORIDA, CON-gested roadways and extensive work commutes led to the launch of an express bus service in early 2010. The area's fast growing population made the I-95 express lanes in Miami-Dade and Broward counties a gridlock, with commuters lacking alternative routes. Transit service along the corridor generally suffers from the "first and last mile" handicap, and has yet to attract a significant share of commuters, mostly due to pedestrian accessibility and land-use compatibility issues.

Not only is the I-95 corridor heavily congested, it is also notorious for its aggressive drivers. These and other factors convinced the U.S. Department of Transportation (DOT) to select the Miami-Fort Lauderdale region as one of six cities to receive funding to implement '4Ts' projects to relieve congestion and give commuters other options.

In 2008, Broward County Transit (BCT) and Miami-Dade Transit (MDT) were designated as partners for the transit component of the I-95 Express Urban Partnership Agreement (UPA) between the Federal Transit Administration (FTA) and Florida Department of Transportation (FDOT) Districts 4 and 6. The UPA grant was awarded to FDOT to convert I-95's high-occupancy vehicle (HOV) lanes into high-occupancy toll (HOT) lanes.

The UPA project involved replacing an HOV lane with two HOT lanes. HOT lanes had more potential to increase person and vehicle throughput than HOV lanes and improved travel time reliability for transit and private vehicles. As part of the agreement, express bus service was funded, as well as enhanced travel demand management programs. In recent years, toll funding revenues have been sufficient to maintain the original express bus routes and expand the network substantially. Operating and maintenance costs for I-95 express buses are funded entirely from tolls collected on that corridor, making it a financially self-sustaining system. Toll funding is a reliable and growing funding source in this region, as automobile congestion and population continue to grow rapidly.

When it launched in 2010, the new I-95 express premium bus service was introduced with one bus route operated by BCT and two by MDT. The service provides commuters with reliable transit in the express lanes without the expense of tolls, fuel, car maintenance, parking and traffic jams. The cost per trip is \$2.65, including



NEW PARK-AND-RIDE facilities have popped up along the express bus route.

More DOT Collaboration

The Denton County Transportation Authority and the Texas Department of Transportation develop a marketing campaign to offer a hassle-free commute and increase A-train ridership during construction.

www.MassTransitmag.com/12072380

free park-and-ride lots with immediate access to buses that travel to downtown Miami and Miami's Civic Center/Health District. Since its launch, BCT added three additional bus routes to its express service. In fall 2015, MDT will add two additional express bus routes.

Several years ago, MDT started an express bus service departing from the Golden Glades Interchange — a massive park-and-ride facility catering to express and regular fixed-routes — and traveled along the HOV lanes. This service still exists today but is not a part of FDOT's UPA.

The express bus network consists of nine routes in total, all but one terminating in downtown Miami or the Miami Civic Center. Other destinations have

been attempted, yet failed to garner anywhere near the same level of ridership the downtown Miami-bound routes achieve, largely based on parking availability, roadway congestion, and quality of transit service at the destination.

In the five years since its introduction, the express bus service has grown from three routes and 1,000 weekday trips to nine routes and 3,500 weekday trips in five years — a 250 percent increase.

Coming Soon: More Express Bus Service

FDOT allocated funding for additional express bus service along the I-75 corridor, which is home to the region's newest sprawling suburbs. Service is expected to be operational by 2018 and will likely terminate at the Miami Intermodal Center (MIC), located across from the Miami International Airport (MIA). The MIC is a ground transportation hub making travel in the South Florida region more accessible. Tri-Rail commuter service recently began serving MIA, along with the city of Miami-Dade County's Metrorail.

FDOT planners say the standard peak-only travel times, common to express bus service routes, will need to be expanded for this particular route. The demand for this service is likely to be greater than any of the other express routes because of the access to the airport. This could very well become an all-day bus service.

Other plans for Broward's 95 express bus service include a new park-and-ride facility in the city of Miramar, which is home to more than 122,041 residents. Another new park-and-ride facility in nearby Pembroke Pines will replace the current space-constricted lot at C.B. Smith Park and an upcoming expansion of the parking facility at North Perry Airport, also in Pembroke Pines. All new and modified park-and-ride facilities will be built with the capacity to handle future growth.

In addition to headway improvements to accommodate growth, an extension of the downtown Miami route to the Brickell business district and fleet enhancements are in the works for express bus service. BCT ordered five Motor Coach Industries (MCI) Commuter buses for use on the express service. In the next

five years, HOT/Express lanes are coming to both the section of I-95 that runs through Broward County, as well as I-75 on the western edge of the metropolitan area. Express bus services are planned as part of these projects.

A recent report commissioned by the FDOT (Cambridge Systematics) provides strong evidence for why the

express bus has seen such strong growth: it is quicker, or at the very least, competitive, with the single-occupancy vehicle mode for getting into downtown Miami from Broward County. **MT**

Read more at www.MassTransitmag.com/12033271.

Tarnell Carroll is a marketing development associate for Broward County Transit.

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A Modern Approach for the PTC Environment

By **John Moore, James Schroeder**

Protect your wayside bungalows from lightning strikes and power surges.

THE MANDATE FOR POSITIVE train control (PTC) is driving significant upgrades in the electronic control infrastructure of the American railroad industry. Traditionally, most equipment in wayside signal bungalows consisted of electro-mechanical control circuitry. With the move to PTC, freight and passenger rail lines need to expand implementation of microprocessor-based electronic circuitry.

The upgrades to meet the new requirements have uncovered the need for a higher functioning and more cost-effective solution to lightning protection within the wayside railroad bungalow environment. The sensitive electronics behind PTC are more susceptible to the effects of lightning strikes than legacy electromechanical control circuitry.

Legacy Surge Protection

The basic design of surge protective devices (SPDs) used in the railroad industry has remained largely unchanged since the 1940s and are based on spark-gap technology.

The SPD is used in conjunction with a terminal mounting block. The terminal mounting block consists of three, four or five binding post configurations. Wire bending techniques, ring tongue terminals, loose washers and nuts connect wires to the binding posts. The SPD is mechanically connected between two of the binding posts.

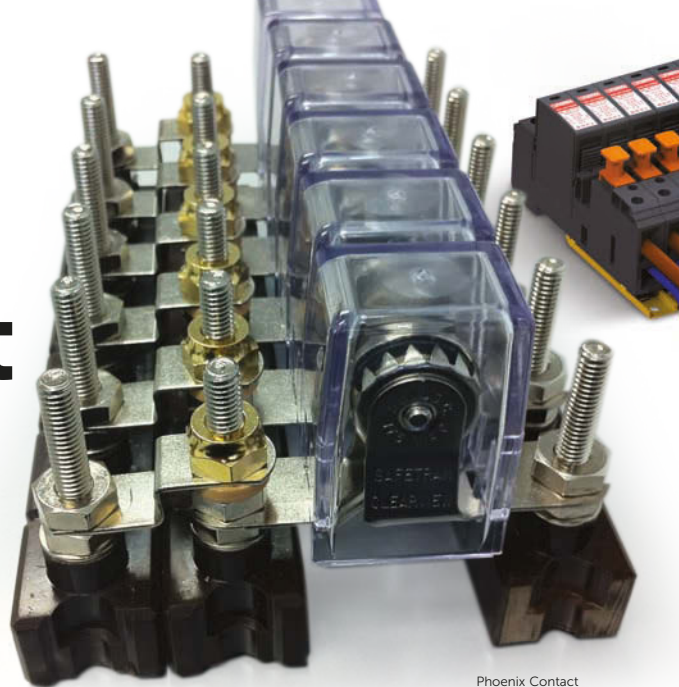
Some bungalows have up to 100 SPDs installed to protect the signal and communication

circuitry. Subsequent to the mounting of the SPDs in the bungalow, the installer must terminate the field and case wires. The user strips back the field and case wires, trims the wire insulation, forms a ring tongue out of bare wire or crimps a ring terminal onto the bare wire and then connects the wire to a post with a nut.

The AAR devices must be tested on site to determine minimum insulation resistance (IR) value. The orange field wire is tested with a megohmmeter. Testing requires the removal of the blue case wire and the ice cube element from the circuit. After the tester removes the gold nut — which disconnects the connection link, they connects the megohmmeter between the field wire post and ground reference to measure the insulation resistance between the two. Once complete, everything must be reattached.

If an individual AAR SPD in a bungalow fails due to a lightning strike or other voltage surge, it must be replaced. Inspectors are required to visit bungalows for visual inspection periodically or after a known lightning strike. If that inspection shows 30 percent of the SPD appears to be covered by carbon, it must be replaced.

To replace a failed SPD, all power to the bungalow must be shut down. The installer removes all of the mounting hardware from the ground, field and case wires, and the failed SPD from the inline circuit. They mount a new SPD



Phoenix Contact

THE ORIGINAL design of a typical SPD for wayside equipment is essentially the same today as it was in the 1940s.

Legacy Wayside SPDs

Surge protective device technology: **spark-gap based**

Operating voltage: **0 to 50-volt DC**

Breakdown voltage: **700 to 1000 volts**

Discharge current: **50 kVA max**

Let-through voltage: **2500-volts nom**

onto the correct terminal block post and reassembles the mounting hardware onto the terminal block posts. The assembly is put back into the inline circuit, and the bungalow protective circuit is reenergized.

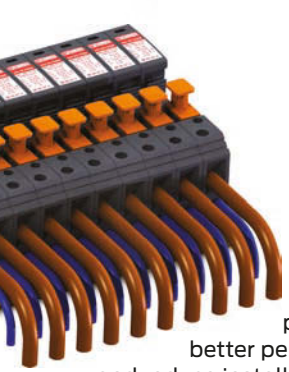
A Modern Approach

As railroads upgrade to IC-based equipment to meet PTC requirements, surge protection needs more demanding electronic and mechanical performance criteria. Electronic circuits associated with PTC systems have a higher sensitivity to lightning strikes and voltage surges and require faster response time and lower let-through voltage at the SPD level. Associated mechanical improvements are needed in order to meet more vigorous cost targets.

Railway operators have a new option to protect wayside equipment from surges.

The modern SPD is an MOV-based device consisting of a two-piece design:

- A base element containing wire and base attachment features, testing features and an available remote monitoring feature.
- A removable plug designed for different applications, including track circuits, track equalizer circuits, relay circuits and digital circuit applications.



NEW SPDS for the wayside environment provide better performance and reduce installation and maintenance costs.

- The design of the base element incorporates features to minimize installation time and maintenance time, without losing the robustness of the connection. Features include:
- A cavity on the upper left side of the unit for the attachment of the field wire, using a rising cage screw clamp.
 - A cavity on the lower left side of the unit for the attachment of the house wire, also using a rising cage screw clamp.
 - Z-axis tool actuation slots on top of left side of the base for tightening cage screw clamps and securing field and house wires.

- A pull-disconnect/push-connect post located on the top left side of the base.
- The disconnect post is alligator clip accessible during the high-pot and ground testing.
- DIN rail-mount slot at the center of the base.
- A cavity on the upper right side of the unit for the attachment of the ground wire. A tool actuation slot is provided on the top of the right side of the base.
- A three-position connector on the lower right side of the base to provide connection to an available remote monitoring feature of the unit.

Pluggable Protection

The base element accepts plugs with different voltage ratings to meet the unit's specific application. Each plug is keyed according to its

voltage rating to prevent incorrect plug voltage installation.

Advanced design features enhance safety and the operation of the assembly and reduce the maintenance cost.

Equipment Practice Comparisons

Following is the time required for initial installation of an existing AAR SPD on the shop floor and then the time required for track-side bungalow installation. That total installation time is then compared to the time required for an equivalent installation of a BE-AR product base. ^{MT}

Read the complete article at www.MassTransitmag.com/12064354

John Moore is senior business development manager — Transportation Infrastructure, with Phoenix Contact.

James Schroeder is president of Schroeder Consulting Services, LLC.

Modern Wayside SPDs

Surge protective device technology: **Hybrid MOV and gas tube technology**

Operating voltage (Un): **100-volt DC**

Breakdown voltage: **1.4 kilovolt**

Discharge current: **20 kVA (Imax)**

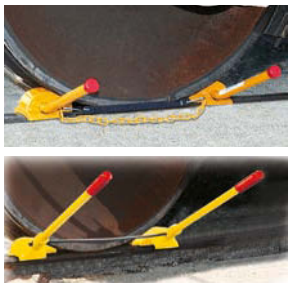
Let-through voltage: **450 Volts**



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THIRD-PARTY STAKEHOLDERS became integral team members in the highly inclusive and proactive teaming process

Executing the Large, Complex Transit Project As A Network of Teams

By **Jim Eisenhart**
 Developing a collaborative mindset requires commitment of senior management that engages all stakeholders.

THE LOS ANGELES COUNTY Metropolitan Transportation Authority (Metro) Phase 2 of the Exposition (Expo) Light Rail Line, at \$1.5 billion, has been the light rail project connecting downtown city of Los Angeles residents with the beaches of Santa Monica. A milestone design-build project in Los Angeles's massive more-than-\$40 billion transit program.

There are major challenges and key stakeholders that could derail the success of this endeavor and there are multiple municipalities involved. Furthermore, how does the project team coordinate utilities? There are numerous county and regional agencies, and a very sensitive and vocal public needing to be engaged.

The Expo Phase 2 Team, led by Mike Aparicio, EVP Skanska and head of the the Skanska-Rados design-build JV, and Rick Thorpe, CEO of the Exposition Construction Authority, challenged each other to develop a process to engage with these stakeholders to achieve project success.

The team began by implementing an iterative, inclusive and proactive teaming process with multiple stakeholders. Thorpe and Aparicio committed to a partnering process bringing together stakeholders at the outset of design to develop shared project goals exceeding contractual requirements. These sessions created personal commitments to collaborative actions.

The team created breakout teaming sessions with utilities and stakeholders. With Southern California Edison, both the JV and Expo Authority met with SCE's senior management and project personnel to develop specific goals. These teaming sessions have been termed 'derivative partnering sessions.'

"Adding the derivative partnering sessions to our normal partnering process has created a project-wide collaborative process," said Thorpe. "It has resulted in a multi-faceted project culture that brings more than just the contractor to the table. Other integral stakeholders are now engaged in helping achieve overall project success."

The third-party stakeholders became integral team members. Questions of schedule are discussed openly with utilities, key subs and city agencies acknowledging everyone's concerns relative to cost and available resources. The solution is to put an intra-organizational task group on issues with measurable deliverables, date(s) and a "champion." These half-day sessions include not only Thorpe and Aparicio, but also involve executives, middle managers and key technical staff.

The goal as a team is how the project is doing against the goals using hard data. It's not about Expo vs. SCE. It's about identifying challenges relative to the partnership goals; what's needed to prevent or mitigate them and holding everyone accountable.

Aparicio said, "The teaming process on Expo 2 has enabled our design-build JV to move forward with the active support of not only the Expo Authority, but also the key utilities and major process teams such as track work and systems to realize project goals that go well beyond any stakeholder's contractual obligations."

Every team adopted a communication protocol of no e-mails or letters except to confirm a verbal conversation. Each team also came up with a protocol to deal with individuals who did not play as team members.

They knew there would be differences and conflicts. They developed conflict resolution ladders making it OK to disagree while maintaining schedule and trust.

Said Aparicio, "The derivative workshops with Southern California Edison alone have saved us at least a year on our project schedule."

•Develop Overall Project Goals and Key Milestones — Large, projects are often more than 3 years in duration. Have your team start developing overall project goals and then have the teams focus on developing key milestones or derivative goals and action plans that support these over the next 6 to 12 months.

•Adapt the Teaming Process as the Construction Project Requires — The teaming process should be built around key processes or stakeholder relationships. These will change on a construction

project as it moves from design to construction.

•Ensure Senior Management Participation from Key Stakeholders — Team participation should be dictated

by who can contribute to the success of the phase of this project. Err on the side of being more inclusive.

•Ensure Lateral Coordination and Alignment Between Teams — Have individuals

from stakeholders participate on multiple teams. If you have a systems team and a commissioning team, have several individuals participate on both teams.

•Develop Communication Protocols — Have each team


develop its own conflict resolution and communication protocols, such as no e-mails except to memorialize a verbal communication. Also, have them talk about how they will deal with non team players.

•Acknowledge What's Working — Working sessions

should not only deal with challenges but also acknowledge and reinforce what's working well with the team and who's really playing as a team player.

•Senior Management's Role Evolves — Senior management's

role should evolve from one of just making day-to-day decisions, to one of managing the teaming process.

The one prerequisite in developing a teaming process is not conditional. It does not require good plans, collaborative project delivery method, good site conditions or good people. It requires commitment of senior management to a sustained collaborative process engaging all stakeholders. Committed teams do the rest. 



Jim Eisenhart is president of the Ventura Consulting Group.

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Training the Workforce to Meet Future Needs

Research / Academic Programs / Opportunity

➔ Read the full responses at www.MassTransitmag.com/12064417

Chicago, Ill.



Stephen Schlickman
Executive Director
Urban Transportation Center

THE URBAN TRANSPORTATION Center (UTC) at the University of Illinois at Chicago (UIC) aims to provide graduate student researchers with practical experience in real-world research projects that will better prepare them for transportation industry careers. Annually, some 20 to 30 students work with faculty and staff researchers on projects related to transportation planning, policy, operations, finance and management.

The UTC is also engaged in specific initiatives to help build the next generation of transportation professionals.

IDOT/CUPPA Workforce Development

In 2014, the UTC and the College of Urban Planning and Public Affairs (CUPPA) entered into an agreement with the Illinois Department of Transportation (IDOT) on a workforce development initiative to train graduate students in areas that are critical to IDOT's future workforce requirements.

There are two key elements to the program:

- Training students to conduct transportation research that's relevant to IDOT.
- Employing students from CUPPA's two academic programs as IDOT interns.

The workforce development program, which runs through the first half of 2015, currently employs two graduate students on UTC research projects and two additional students who work as interns within IDOT's Chicago office. The program will be renewed for 2015/16.

PTPM Certificate Program

For the past few years, I have been a co-instructor on a 12-credit, three-course transit certificate program to best train our students to be transit agency administrators. Through the Public Transit & Planning Management program (PTPM), students learn about the various functions of a public transit system, how levels of management interact and the complicated context of a transit agency. They also learn ways to effectively communicate within transit agencies and how agencies are funded and financed.

NuRail Curriculum Development

As a partner in NuRail, a U.S. DOT Tier 1 university transportation center, the UTC supports the development of new courses that focus on U.S. rail research and operational needs. One long-range goal is to facilitate training and development of the future rail transportation and engineering workforce.

FTA Ladders of Opportunity

Earlier in 2015, the UTC submitted a proposal to convert its nationally acclaimed transit management and planning curriculum to a cost-efficient e-learning system format and content optimized for smaller transit agencies.

Jacksonville, Fla.



Leigh Ann Rassler
Public Relations Manager
Jacksonville Transportation Authority

JACKSONVILLE TRANSPORTATION

Authority (JTA) took training to the next level by providing a bus simulator that creates vivid training environments for its 400-plus bus operators. It was unveiled in a ribbon cutting ceremony on March 24. The local media was on hand to experience first hand what it is like to drive a 40-foot bus. The simulator provides new operators with additional practice before getting behind the wheel and refresher training for current operators.

The new high-tech MB-2000 bus-driving simulator, manufactured by FAAC Inc. is considered a world leader in simulator technologies. The simulator, which takes up an entire room in the transit operations building and it provides a true 315-degree field of vision, driver cab replication and a motion seat, which allow students to feel when they hit a curb, turn too fast or brake too hard. Trainees learn what each knob and button does and how it will work in a real bus. Every aspect of the bus simulator is designed for the most true-to-life experience possible. This real-life approach to simulator development results in an effective and efficient training process with a host of benefits to both the trainer and trainee.

The training scenarios range from simple skill building to muscle memory exercises. The key benefits include a reduction in collisions, reduction in onboard injuries, effective forward planning, mastery of mirror usage techniques, improved fuel economy and avoiding intersection conflicts.

The project was federally funded and all operators are expected to utilize the simulator for new hire training, post-accident training and triennial recertification training.



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BEST PRACTICES

Dearborn, Mich.

THE BIGGEST FUTURE WORKFORCE challenge facing our organization is finding enough skilled professionals that will fit into our culture — not unlike many of our clients. From a demographic perspective, Educational Data Systems Inc. (EDSI) has a relatively young workforce, so we haven't experienced the affect of the greying of the workforce — even though plenty of us at EDSI have grey hair.

New entry-level employees at EDSI are part of a defined on-boarding process that includes becoming familiar with the EDSI Way and our culture, training on specific job functions and related processes, and assignment to a mentor. Being a professional services firm working from an office environment, we utilize a blended training platform — which means we combine classroom, Web-based, distance learning, and on-the-job



Kenneth Mall
Managing Director,
Workforce Consulting
Educational Data
Systems Inc.

training to provide learning opportunities to our employees. Leveraging technology to deliver training is important because our 500-plus employees are spread out across eight states.

Various training delivery technologies help to maximize the time employees spend in training and in some cases, allows for self-paced training during downtime. Technology also helps us to be consistent in our training message by providing a platform to push out the same training across our network of offices. Our mentors are a critical part of the training process. Mentors are available to assist with the development of new hire's job-specific skills and help new hires understand and navigate our organization and our culture.

New Brunswick, N.J.



Paul Larrousse
Director
National
Transit
Institute

THE FACE OF OUR INDUSTRY HAS been changing rapidly and so has the challenge of having a qualified and trained workforce.

There are many programs that exist to address the training needs of our industry. In addition to programs at the National Transit Institute (NTI), there are programs at the Transportation Safety Institute, Transportation Learning Center, American Public Transportation Association, Community Transportation Association of America, and the Eno Center for Transportation, just to name a few. All of us involved in training have been partnering to make sure we do not duplicate efforts and that we provide the broadest range of training to address our industry's needs.

To reach the workforce with training, our primary method is still the traditional classroom format. This is still proven to be the best method for adults to learn. It provides for interaction with one's peers and develops networks to support efforts when the trainee returns home.

We have also adapted our training to move beyond the traditional classroom. In the case of our technology training, we have moved from the classroom course model. Technology is changing so rapidly that by the time we complete a course it is outdated. Instead, we have changed our format to seminar/workshop that focuses on a specific technology or application of technology. This allows us to be timely and adapt as we move to the next offering.

We have also explored and used the new technologies that are available to provide distance learning. Webinars have proven very popular and successful to reach a broad audience on a specific topic without having to leave home. NTI has offered a few online courses and we recently held our first course via video conferencing when we connected our offices to the The Bus in Honolulu, Hawaii.

But training isn't one-size-fits-all.

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AT THE SMALL URBAN AND RURAL Transit Center (SURTC), we engage in workforce development in our research, education and training. We recognize it is imperative to attract young talent to public transportation and to retain as much of the current workforce as possible. Qualifications are earned and validated through an educational process, through both academic and non-academic training.

Our education and training programs directly impact current workforce needs. We address future workforce challenges by helping transit agencies identify their needs and then find and apply solutions, such as new courses or the addition or modification of material in existing courses, both in the academic setting and in the training arena.

North Dakota State University offers degrees in transportation that include public transportation courses. We recently launched the transit track of the Transportation Leadership Graduate Certificate (TLGC), a program that helps working professionals improve their skills in public transportation. The TLGC includes courses from universities across the United States, with NDSU contributing two courses in transit.

The first class, designed by transit professionals, provides an overview of seven core transit areas. Students are assigned an industry mentor to work with throughout the class. The on-line course has attracted students and professionals from all over the globe.

The second course provides more depth in areas critical to transit.



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BEST PRACTICES

Albany, N.Y.



Kelli Schreivogl
Director of Human Resources
Capital District Transportation Authority

DO MORE WITH LESS. TRANSIT properties, including Capital District Transportation Authority (CDTA), hear this on a regular basis as we contend with flat funding, unfunded mandates and rising expenses. Without a crystal ball, we can only speculate how our industry will look in five to 10 years, but it is our job as managers to best prepare our staff.

On the transportation front, we rely more and more on technology. It is used to create leaner, more productive schedules for drivers, to track inefficiencies that are happening within the system and to give more useful information to our customers. As technology changes and becomes more complex, it has been a challenge for us to keep our drivers trained on these new additions, as well as to keep them informed of the many changes going on each and every day. We have been forced to learn how to communicate and train our workforce in very unconventional ways, given the fast pace, logistical issues and crazy schedules that many of them work. We are heavily relying on technology to help us to train and to communicate, one tool being a new online training system.


Mississauga, Ontario



Paul Carey
Product Manager – Technology Solutions
Bombardier Transportation – Americas Division

TRAINING ANY LARGE MULTI-DISCIPLINARY global transit workforce is no easy task. Battling the opposing forces of ever-increasing demands with ever-shrinking resources can make delivering quality training seem impossible. Throw in different labor agreements or regulatory requirements, and now you've got a real challenge.

Having struggled with these same issues, Bombardier applied technological innovation to managing our training delivery and record management, with tremendous success.

At our GO Transit operations and maintenance site in Toronto, we implemented a new company-wide learning system to standardize employee training delivery, maintain employee training records and manage recertification. Available 24/7, the system automatically generates reminders for compliance retraining (e.g. bi-annual recertification for hostlers). The system generates reports about training for specific locations, courses, or even down to a specific employee's training requirements and history. 

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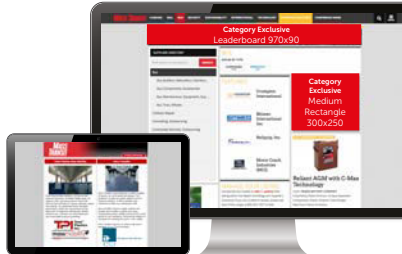
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Attempting to Keep Up

How do we adapt to new technologies and use them to their absolute potential?

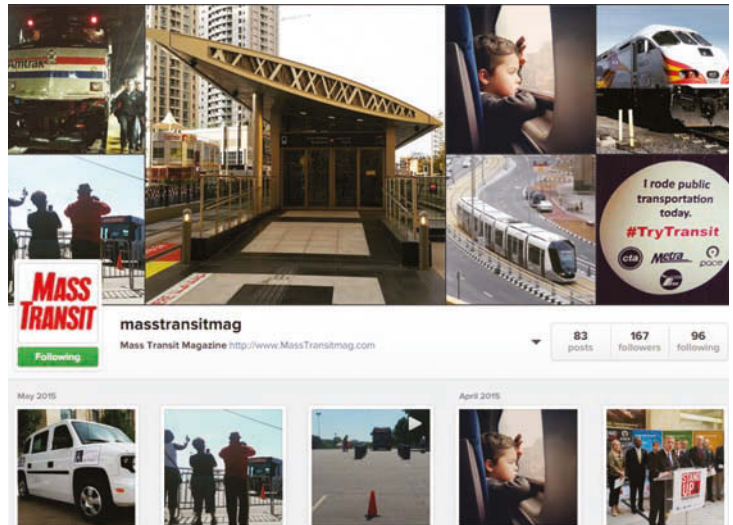


Time still seems short despite new digital tools made to be more efficient.

Reading this month's story of "New Ways to Attract New Riders," page 28, prompted me to revisit my Instagram account, which had lain dormant over the past year. As described in the story, MARTA uses Instagram in a variety of ways to build relationships with riders and potential riders, all for a minimal investment. Our editors typically post to Instagram but these pictures also are usually available on Facebook and at MassTransitmag.com, which I use more frequently. While not compelled to add to the daily avalanche of information, I hate to miss anything that may better inform, increase productivity, or in some way improve my daily life. It's become increasingly difficult to know and understand which technologies to embrace and which ones will get kicked to the curb as not worth the investment in time and effort.

Who could have predicted that in a few short years transit would need to adapt to Google Transit, Uber, Lyft, Zipcar, bike shares, mobile ticketing, Twitter, Instagram, YouTube, Facebook or LinkedIn. Now you must know not only what these and many other digitally enabled products are, but how they fit into the broader scheme of delivering transit service.

The ever-growing array of options in communications, social interaction, navigation, ITS, fare payments and advertising provide our readers with new-found tools seemingly in an endless stream (although on-rushing rapids might be a more apt term). Now the challenge is bringing all these new tools into operations without increasing costs or adding staff and still getting it right.



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It seems to be a common theme in our stories — new technology meets old; how to make it all work.

Fortunately, the transit industry — much like publishing — can rely on very old and proven conveyances as the foundation of operations and bring in new technology in supporting roles. Paper tickets are giving way to electronic payments and printed news is being augmented by digital delivery, so these are incremental upgrades to our core operations, blended in over time. However, the merge ramp seems to be shortening.

I truly enjoy the barrage of new technology and mastering as much of it as possible. I want that Apple watch. But why, with all these efficient digital tools, isn't there newfound surplus time in the day? I'll check Facebook and LinkedIn to see if anyone has the answers.

John Hollenhorst
John Hollenhorst, Publisher

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