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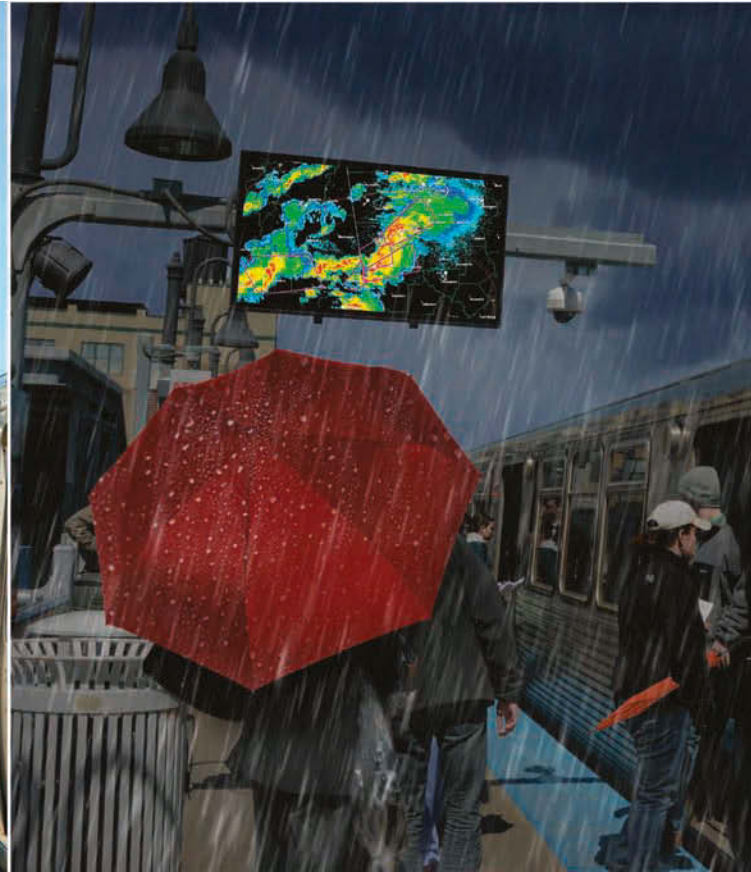
## Schedule, Under Budget

Navigating through major expansion and an upcoming referendum

PAGE 10

**Peter Rogoff**

Chief Executive Officer  
Sound Transit



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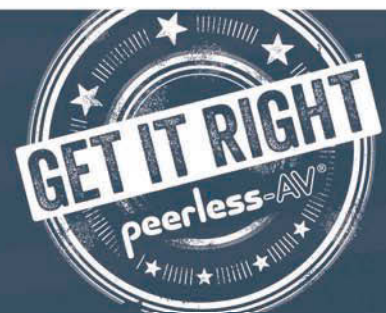


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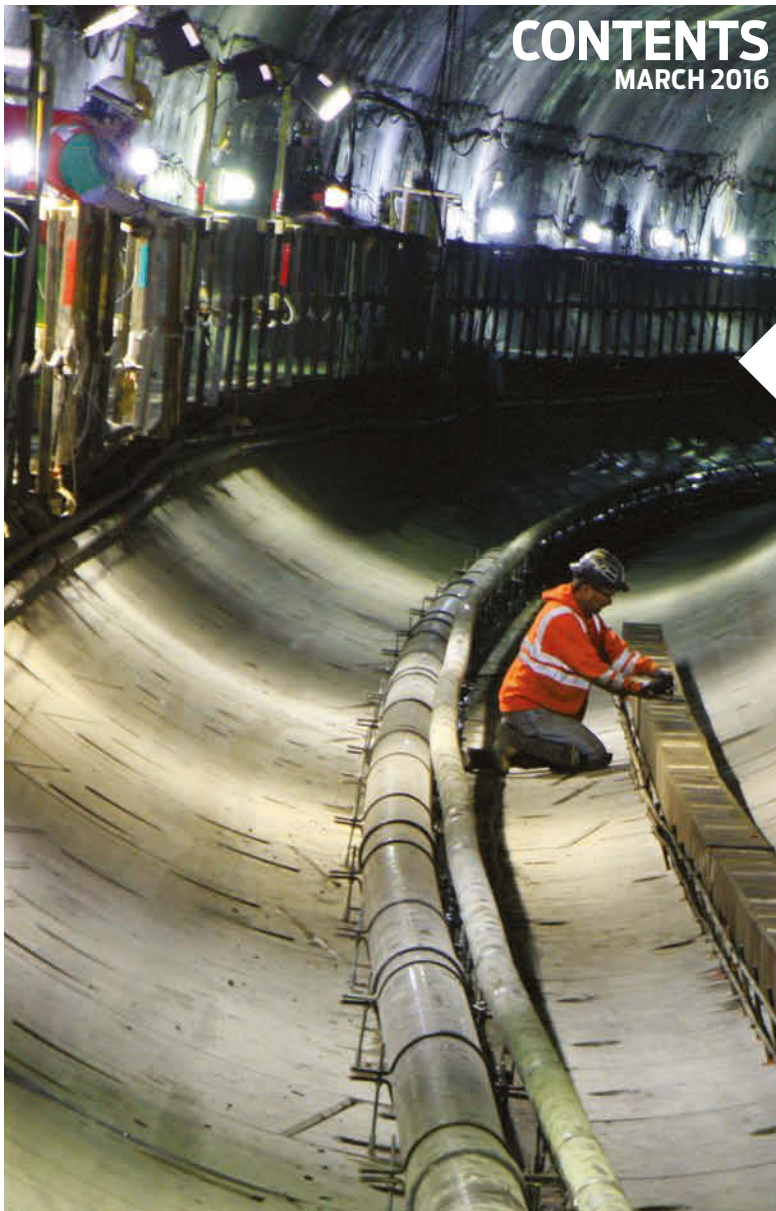
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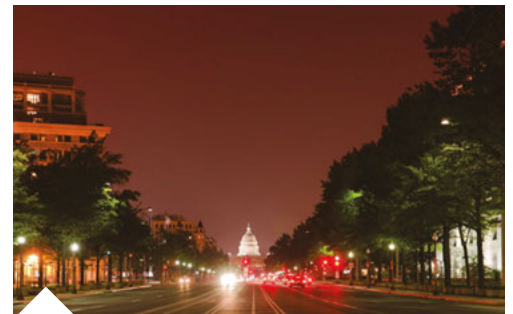
# MASS TRANSIT

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PETER ROGOFF**

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# MASS TRANSIT



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# Tomorrow's City

Technology is transforming urban mobility.



**The future of transit: seamless and borderless.**

In the summer of 2014 I saw a tractor-trailer being operated remotely from an iPad. The joint venture of ZF and Bosch was a prototype at the time and it demonstrated precise operation of a semitrailer and trailer from across the test track.

It was the first time I had seen something like that and it's hard to believe just a couple of years later, driverless cars and buses are being tested in so many areas.

Around that time I spoke with Susan Shaheen, co-director, Transportation Sustainability Research Center and adjunct professor, UC Berkeley. She was talking about the evolution of transportation network companies, ride-hailing services, carpooling and car-sharing services.

While many people use many of those terms interchangeably, she was explaining the distinctions between them; they are associated with public policy and with specific rules and regulations. Things are moving so rapidly, she said for policy makers it's probably an exciting time, but also frustrating trying to understand what to do and what the best policy strategy is.

Speaking to that challenge is a report that recently came out from the National League of Cities, "City of the Future: Technology & Mobility." <http://bit.ly/1/kzofku>

The report states, "The ultimate goal of cities must be to combine different transit modes into a coherent whole, so that moving from place to place is easy, equitable and enjoyable."

One of the conclusions, however, was that many long-term transportation plans for the cities focus almost exclusively on automobile congestion and how to better accommodate automobile growth. Despite the fact, it goes on, that experts and trends point to a future that will be increasingly multi-modal.

Only 6 percent of the plans consider the effect of driverless technology and more surprising, only 3 percent take into account private transportation network companies, such as Uber or Lyft.

It's exciting to see the transit agencies embracing the transformation, becoming transportation managers of their communities through innovative programs and partnerships. The latest we heard about as we were going to press, was Ride KC: Bridj, a pilot program with Kansas City Area Transportation Authority (KCATA) and Bridj. Representing the evolution of transit agencies, KCATA President and CEO Robbie Makinen said, "KCATA is a place where bus, bike, streetcar and rapid transit come together to create a seamless and borderless transportation

Leah Harnack, Editor



**ZF INNOVATION** Truck, Maneuvering Test during ZF's Trade Press Conference 2014, Aldenhoven, Germany.

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**GENFARE** 



**FORD IS** the exclusive vehicle provider for Ride KC: Bridj because of its commitment to enabling urban mobility through its Ford Smart Mobility plan.

## KCATA and Bridj Launch Pilot Program

Bridj is teaming up with the Kansas City Area Transportation Authority (KCATA) to launch Ride KC: Bridj — a pilot program using a network of locally built Ford Transit vans to provide a new way to access areas of Kansas City that are rich in jobs and housing.

“Today, we are bringing another transit option to the region with the introduction of microtransit,” said Robbie Makinen, KCATA president and CEO. “By combining the intelligence of Bridj technology with capable and flexible Ford Transit vehicles, we are creating a seamless and borderless transportation network for our residents that is easy to use, comfortable and affordable.”

Ride KC: Bridj is scheduled to launch in early March. Powered by billions of data points, Bridj’s platform determines where riders want to go and how to get them there most efficiently. Using the Bridj mobile app, riders can request on-demand shuttle service that they can access via pop-up shuttle stations.

➔ [MassTransitmag.com/12169208](http://MassTransitmag.com/12169208)

## Community Transit BRT Swift Station Opens

► Community Transit’s bus rapid transit (BRT) Swift College station opened just two blocks from the Edmonds Community College.

“We are constantly seeking ways to expand and improve our transit network,” said Community Transit CEO Emmett Heath. “This new Swift College Station will have an immediate benefit for college students and staff, as well as all 5,500 people who ride Swift every day.”

➔ [MassTransitmag.com/12166213](http://MassTransitmag.com/12166213)



**ABOUT 1,500** people board buses each weekday at or near Edmonds Community College.

## Transit Agencies Testing Collision Avoidance System



**THE DRIVER** assistance technology, called Mobileye Shield+ by Rosco Vision Systems, uses four bus-mounted vision sensors to identify and alert bus drivers when pedestrians, cyclists or vehicles are in close proximity to a bus.

► Eight transit agencies across Washington are working together on a pilot project to test and analyze a collision avoidance system that could help bus drivers reduce the number and severity of collisions with pedestrian, cyclists and vehicles.

Member transit agencies are Metro Transit, Community Transit, Pierce Transit, Intercity Transit, C-Tran, Kitsap Transit, Ben Franklin Transit and Spokane Transit.

➔ [MassTransitmag.com/12166437](http://MassTransitmag.com/12166437)



**AZUR WENT** through extensive qualification testing on the STM network.

## STM Introduces Azur Metro Cars into Service

► The Bombardier-Alstom Consortium celebrated with the Société de Transport de Montréal (STM) the entry into service of the new Azur metro cars.

The project generates important economic benefits for Québec with more than 150 Canadian suppliers, including more than 100 Québec companies, participate in the project, whose Canadian content exceeds 60 percent.

➔ [MassTransitmag.com/12167015](http://MassTransitmag.com/12167015)





**THE NEW** seats are manufactured by Kustom Seating Unlimited.

## Metra Debuts New Seats

► Metra announced plans to launch into service the first of 30 railcars featuring a new style of seats with armrests, built-in cup holders and better head, neck and lumbar support.

The new higher-backed seats are stationary, meaning that depending upon the direction of travel, half of the seats will be backward-facing positions.

The new blue-and-gray vinyl seats were purchased last fall after Metra feed-back collected from customers indicated that more than half preferred the new seats to the old ones.

➔ [MassTransitmag.com/12162369](http://MassTransitmag.com/12162369)

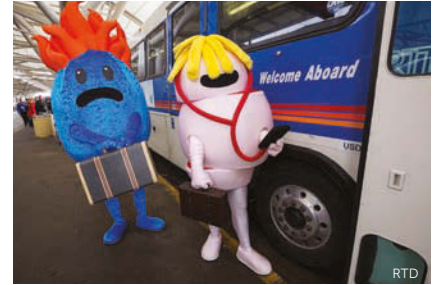
## City of McAllen Receives Electric Buses

► Wireless Advanced Vehicle Electrification (WAVE) has completed a project with the city of McAllen's Transit Department, Metro McAllen (McAllen), to install WAVE technology on two buses that include an all-electric, Zero-Emission Propulsion System (ZEPS) provided by Complete Coach Works (CCW).

WAVE technology transfers power through the air from a charging pad placed in the pavement to the vehicle's under-carriage 7 to 8 inches above, minimizing the need for onboard power storage.

An embedded charging pad has been placed in the asphalt at one of the McAllen stops so that the bus route will be unchanged. The embedded pads will measure about three feet square. The pads are flat and seamlessly blend with the asphalt causing no harm to anyone/anything that pass over it. The bus will arrive over the charging pad every hour, initiating a layover of about 10-15 minutes so that the bus can charge.

➔ [MassTransitmag.com/12162724](http://MassTransitmag.com/12162724)



**RTD URGES** riders to take a lesson from its new colorful friends and be safe around buses and trains.

## Dumb Ways to Die Partners with RTD

► In 2012, Metro Trains Melbourne launched Dumb Ways to Die, a safety awareness campaign that uses humor to create a serious conversation about safety. During their campaign, Metro Trains Melbourne received 75 million pledges to be safe around trains.

Through a partnership, RTD brings this program to Denver to raise awareness, educate, and create discussion about the very real dangers of RTD's buses and trains.

➔ [MassTransitmag.com/12161947](http://MassTransitmag.com/12161947)

## People in the News



**Kevin Desmond**



**Michael Barletta**



**Donna DeMartino**



**Kimberly Cella**



**Odessa Trinkle**

### TransLink

**The TransLink Board of Directors has selected Kevin Desmond as its chief executive officer.**

Desmond is currently the general manager of King County Metro Transit, overseeing a large regional transit system with strong parallels to Metro Vancouver. He's been with King County since 2004, which serves the Seattle metropolitan region with a mix of transit modes, including buses, trains, vanpools and paratransit service. During his tenure, Metro Transit launched light rail and streetcar service, several bus rapid transit lines, grew transit ridership by 44 percent, and rolled out the Orca Card.

➔ [MassTransitmag.com/12168837](http://MassTransitmag.com/12168837)

### Metropolitan Transit System

**The Metropolitan Transit System (MTS) has hired Michael Barletta to oversee all field security and enforcement operations.**

He will supervise 200 transit officers. Previously Barletta served in the San Diego County Sheriff's Department for 30 years. During his tenure, he led the department in multiple areas, including Sheriff's Rural Division where he oversaw law enforcement efforts for 2,200 square miles of San Diego County, the Lemon Grove Sheriff's Station, the Investigations Division and the Human Resources Bureau.

➔ [MassTransitmag.com/12163199](http://MassTransitmag.com/12163199)

### San Joaquin Regional Transit District

**The Sacramento Chapter of Women's Transportation Seminar (WTS) selected San Joaquin Regional Transit District (RTD) General Manager/CEO Donna DeMartino as its Woman of the Year award recipient.**

DeMartino was appointed RTD's first female general manager/CEO in 2001. Under her leadership, RTD has established a bus rapid transit (BRT) system, adopted new bus technologies, and completed significant transit improvements and infrastructure investments, including the downtown transit center and regional transportation center.

➔ [MassTransitmag.com/12159435](http://MassTransitmag.com/12159435)

### Missouri Public Transit Association

**The Missouri Public Transit Association (MPTA) announced the selection of its new executive director, Kimberly Cella, of the St. Louis-based transit advocacy organization Citizens for Modern Transit.**

Cella and her team at Citizens for Modern Transit will partner with Michael G. Winter Consultants to lead efforts on behalf of the statewide transit provider association to ensure the goals of the organization, which include elevating the status of transit in Missouri and building new coalitions to expand the advocacy base.

➔ [MassTransitmag.com/12162587](http://MassTransitmag.com/12162587)

### Rabbitransit

**Rabbitransit announced Odessa Trinkle as its new operations manager for its central operations location in York.**

Trinkle will oversee the day-to-day operations for both the fixed-route bus system, as well as the shared-ride program in York and Adams counties, which provides nearly 200,000 curb-to-curb trips a day for area residents. Prior to this, she worked for 10 years with the Transportation Department of Franklin County serving as its director since 2013, in which she managed the shared-ride program in that area.

➔ [MassTransitmag.com/12164889](http://MassTransitmag.com/12164889)



# Schedule, Under Budget

By **Leah Harnack**

Careful planning and hard work has paid off as Sound Transit prepares to launch new service.

**IT'S BEEN A SEA CHANGE AT** Sound Transit in just the past 10 years since Sound Transit 2 (ST2) was approved. In 2008 the voters approved ST2, a 15-year program that authorized substantial additions to the express bus service, commuter rail service and 36 miles of light rail service.

At that time, Ric Ilgenfritz, executive director of planning, environmental and project development, said the dominant political narrative was, should Seattle have a mass transit system or not?

**CONSTRUCTION AT** the Roosevelt Station, which is part of the Northgate Link Extension.



Photos by Sound Transit

That has shifted dramatically as the agency has rapidly grown and is about to open a huge expansion of the light rail system which will come close to doubling the ridership.

This coming fall Sound Transit will be going back to voters for ST3, which will enable the agency to keep growing to the north, south, east and west.

At the end of 2015, the Sound Transit Board of Directors appointed Peter Rogoff, former head of the Federal Transit Administration, to become its chief executive officer, replacing Joni Earl, who is retiring.

Sixteen years ago Sound Transit was having a very difficult time getting its first rail project off the ground and Rogoff said he was spending a lot of time with the then-new CEO Joni Earl in getting the agency off the ground and back in the good graces of the Federal Transit Administration, Secretary Mineta and the inspector general.

Having worked closely with the agency, Rogoff said he kept a very good working relationship with Earl through all those years since. "I feel a certain kinship to the agency in terms of having been part of its growth and now I'm really excited to be central to its growth."

At the time of ST2, the burden of proof was on Sound Transit to make the case for having a transit system. Now, he said, "It's shifted to we can't do enough, fast enough to satisfy the public's desire."

He continued, "We have people following what we do extremely

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assessed**

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Rental Car  
Sales Tax:

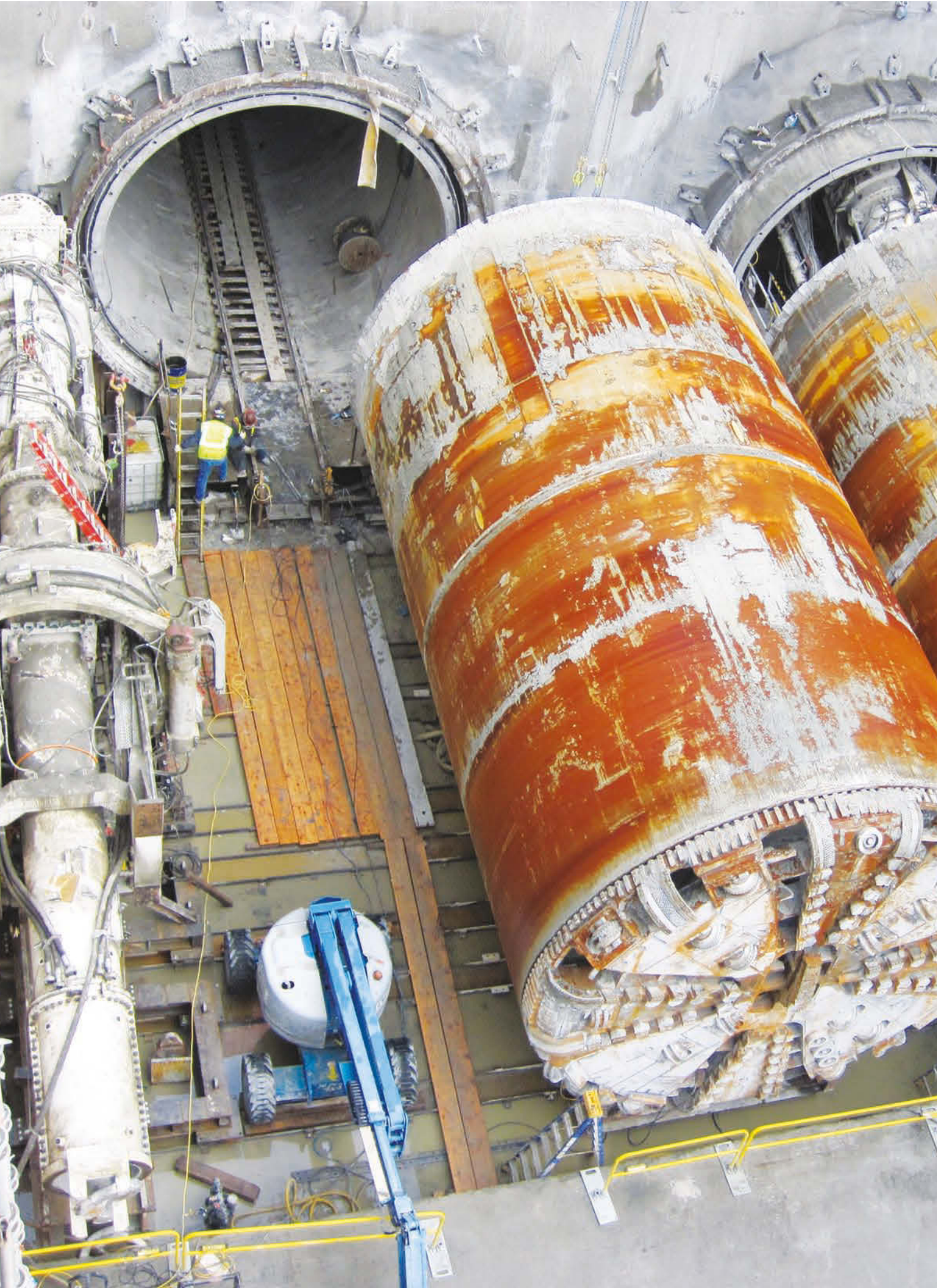
**0.8%**

Motor Vehicle  
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**0.3%**

**TOGO AND** Balto, the tunnel boring machines at Capitol Hill getting ready and being lifted out of the station box.









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closely, not because they're skeptical or opposed, but because they want us to do more and they want it to be outstanding and they want it to happen quickly.

"It's a very, very high-performing agency with a very good and well-deserved reputation.

"It's also in a region of the country that not only believes in transit but needs more of it quite desperately."

Last year the region took in more than 1,000 additional residents every week and those 52,000 residents brought an estimated 40,000 additional cars.

"Traffic here, especially at peak times, is truly punishing," he stressed.

In addition, they are expecting a million more residents by 2040 in the taxing district, which will compound the needs.

**"According** to our recent surveys of the public, there's extraordinarily strong support for expanding rail and bus service – like 85 percent support for it."

—PETER ROGOFF

### Past Experience

Ilgenfritz said Sound Transit has a culture of learning and adapting to continuously improve. Some of the lessons brought from the early capital project delivery experience brought in to ST2 planning, was how they develop the scope of a project, estimate costs and establish schedules.

"We've carried those methodologies forward from the agency's early experience into our system planning and it's paid off," he said.

The primary consultant team for system planning is Parsons Brinckerhoff (PB), who they also used in ST2. Sound Transit develops project concepts working with its board and partner jurisdictions and Ilgenfritz said they task PB with developing the details, project descriptions and then doing conceptual engineering review and based on that, developing cost estimates and preliminary schedules.

Last year the board went through a public process to develop and vet a

candidate project list. In August 2015 the board adopted a candidate project list and the team went ahead and performed the technical analysis on those candidate projects.

"That's where Parsons [Brinckerhoff] and our team completed their first wave of technical work," Ilgenfritz said. "We fed all of that information back to our board in December as a technical matter.

"All of the candidate projects are now pending before the board and it's the board discretion to pick from that list of candidate projects to form a proposed system plan."

At the end of March the board will release the proposed system plan for the final round of public comment.

Ilgenfritz said, "That's when the board will sort of put a stake in the ground and formally propose a financially balanced plan with tax revenues and a time horizon and the capital component."

"With ST3 coming up, the most important discussions that are happening right now are among our 18 board members in coming up with the package that we want to bring to the voters," said Rogoff.

The board is wrestling with which projects to put before the voters and how to get them all done, however, Rogoff said, "We don't have, I think, an extraordinarily hard sell job to with the voters because they experience that traffic every day.

"According to our recent surveys of the public, there's extraordinarily strong support for expanding rail and bus service — like 85 percent support for it."

The most important challenge they face, Rogoff said, is in making the ST3 package real to every individual voter.

"You win these elections one vote at a time.

"You need to be sure that you're talking to the voters in language that is relevant to their daily commute and their mobility for their family patterns and not in a kind of planner-engineer-speak, as sometimes transit agencies fall into."

As they move forward in the planning stage, Rogoff said, "I think the thing that needs to be the organizing principle always, is to improve mobility. And, how we make that happen as quickly as possible.

"Sometimes when you tell a community how long it will take to reach them with light rail, they groan at the number of years it will take, but I want to infuse the notion that it can happen more quickly if everyone partners together and really works hand-in-glove to make it happen more quickly.

"We've seen that in the permitting process nationally, we've seen some success with the President's Permitting Dashboard.

"I've been talking with some partners around the region here just in my first month about how we can take that model and make it applicable for the local permitting and planning process so we can try to get these project in the ground more quickly."

## Modern Engagement

The methods of outreach have dramatically changed since the last time Sound Transit went out to the voters. In 2008 Ilgenfritz said they were just beginning to see the dominant role of social media in reaching out to the public.

"It was just at the beginning of that wave of social media taking over as a primary communication tool and now it's the centerpiece of how we interact with the public.

"In 2008 we had something like 8,000 public comments during the last public review of our proposed system plan," he said. "The first wave of public outreach on this plan last summer, we got over 25,000 comments in a much shorter period of time."

"And that was all online," added Sound Transit Public Information Officer Bruce Gray. They use microsites to elicit feedback from the public and using Facebook and Twitter, push people to those sites to submit comments and pass that on to the board.

"From a communications point of view, it's night and day," explained Gray. "In 2008 we were sending out postcards and glossy mailers to a million residents and now there's still some of that you



**EXCAVATION AT**  
the U District  
light rail station  
in November,  
2014.

**"In 2008**  
we had  
something like  
8,000 public  
comments  
during the  
last public  
review of our  
proposed  
system plan...  
The first wave  
of public  
outreach  
on this plan  
last summer,  
we got over  
25,000  
comments  
in a much  
shorter period  
of time."

**-RIC  
ILGENFRITZ**

have to do by statute, but largely we're using online resources to get the word out and get information disseminated."

There's a formal portal at st3.org that gets recorded and they take comments at public meetings.

"It's a menu of tools that we use to record comments," said Gray.

Ilgenfritz said, "It's a very savvy audience and they're holding us to a pretty high standard. It requires a lot of continuous engagement to work with folks.

"We're a very wired city both in terms of digital culture and caffeine," said Ilgenfritz. "The good news is, all those digital outlets that are following politics and transit so closely are always hungry for content.

"If a post erupts and a debate erupts about a particular topic, we have a good enough relationship with folks that manage those outlets that we can work with them to get our content into the mix."

## University Link Extension

In March Sound Transit will have opened a new segment that connects the two largest employment centers in the state of Washington: downtown Seattle and the University of Washington.

Ilgenfritz said, "There's 45,000 students at the University of Washington and probably close to that many faculty and employees and the two areas are separated by water crossings and a series of very steep hills."

With only one highway connecting the areas, it exists in a state of perpetual congestion because the traffic all comes down to a bridge over a water crossing. "When this segment opens, it's going to create an 8-minute trip where today, 20 to 25 is the norm."

Rider projections are that the University Link will add 71,000 riders to the system by 2030.

Rogoff said, "It's going to open up light rail to literally the densest communities in the state of Washington and connect to our flagship university here.

"My experience at the FTA has taught me that when you connect major employers, universities, hospitals, airports, central business districts, it's always a win."

He added, "If I had a worry about that extension right now, I worry we may have underestimated ridership."

The project is \$115 million under budget and 6 months ahead of schedule. The project includes twin tunnels, each 3.15 miles long and two subway stations, one at the University of Washington and one at Capitol Hill.

It was a complex project that required extensive planning to ensure they would stay on track. Ahmad Fazel, director of Link light rail, said between 2007 and 2009, Sound Transit worked closely with the FTA when it came to planning for the extension. They wanted to ensure they were best prepared for the underground construction.



Gray explained they talked a lot about the geotechnical work and the advanced drilling that went in to the project before things really got going.

One thing they did up front, explained Joe Gildner, ULink project director, was to make sure they had a solid understanding of the hydrogeological conditions. There are a lot of glacial soils that vary widely. "We wanted to make sure we had a good baseline understanding of these conditions, not only for the running tunnels, but also for the subway stations that we were going to be building.

"One of the things we did do in terms of making sure we did baseline these conditions along the entire line, and most prudent orders do that, in order to make sure that the bidders know that we're taking stock of the nature

of the conditions that are likely to be encountered as you go into construction," he said.

Another consideration was the concurrent construction that would be going on at some locations. At the University of Washington, the football stadium was under renovation at the time Sound Transit was building the subway station and there were some conditions about the manner in which they could support excavation before the station was built.

At Capitol Hill, there are a lot of apartments, buildings and businesses in and around the station, which prescribed different ways in which they would engage with the community. Gildner explained that respectful ground rules for different environments all had to be identified up front and inserted into the contract documents so the

contractors knew what the rules were as they did their work.

"The other thing we did," he said, "we packaged this project such that we had our tunnel contractors primarily focus on constructing the tunnels.

"They did excavate the station holes for us ahead of building the stations so they could launch their tunnel boring machines effectively and then we separated out the finish work of the two stations to other contractors so that they could come in strategically and start building those stations while we were still building our tunnels."

The tunnels go under an interstate and there were a number of man-made features that were going to be in the way of the tunnels and the tunnel boring machines aren't geared up to cut through reinforced concrete. "They're geared up

## University Link

### Open for Service

March 2016

**3.15 miles**

Length

**\$1.9  
Billion**

\$813M from  
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**WORK GOING** on near the Capitol Hill station site as part of the University Link tunnel construction.

to deal with glacial soil, so we had to see that as a risk,” said Gildner.

They did an advance contract and removed those man-made elements from the tunnel horizon before the boring machines arrived and went under I-5.

“We had to do everything to protect I-5 so we didn’t damage it, given its importance here in the region,” he said.

Ahmad said some credit goes to their funding partner, the FTA, because it was incessant on doing comprehensive risk assessment on the project. He said they came off thinking ahead and being prepared to accommodate the risks.

**SETTING UP** the tunnel boring machines at the University of Washington Station.



“We did our homework and made sure that we could mitigate some of this risk and by doing so,” explained Fazel, “using contingencies to mitigate that risk caused us to save money and also time.”

The contract packaging arrangements for this project were done differently than Sound Transit’s Beacon Hill tunnel and station on the initial segment.

“We utilized our general contractor construction manager type procurement,” said Gildner. “We did so in order to maximize what we wanted to achieve with our station finish contractors and our systems contractor as it related to that follow-on work that was being done concurrently and as a follow-on to our tunnel work.”

After Fazel and Gildner had explained the construction process, Gray added, “That’s kind of our engineer’s way of saying anything that could go wrong, did not really go wrong on this project.”

Fazel agreed, saying, “It was really good work from engineers and construction staff and a little bit of good luck.”

The Northgate Lake Extension is already under construction and has four miles of tunnels and includes

all the challenges that the University Link had. There are two underground stations and one elevated station next to Northgate Mall.

The budget is about \$2.1 million but that doesn’t include financing costs because it’s not federally funded.

Construction began in 2012 and it will be open for service in 2021.

Speaking of so many projects happening in a short amount of time, Fazel stressed, “We are implementing a plan that we promised to the voters.

“Almost 8 years into it, we have done a good job. We are remaining on schedule to deliver on a promise made in 2008.”

When asked what the biggest challenge facing Sound Transit Ilgenfritz stated, “Figuring out how to do enough to satisfy the people.”

### **An Insider’s Perspective**

Having been the FTA administrator, Rogoff provided some insight on working with the FTA. “I think part of the challenge between transit agencies and the FTA is, transit agencies don’t always understand why FTA makes all of these information requests and requires so much data and material.



## Northgate Extension

Open for Service:

**2021**

Length:

**4.3 miles**

Budget:

**\$1.9 billion**

"When you're on the other side and you're selling projects to Congress and you're selling them to the secretary's office, to OMG and other elements of the White House and you're competing for federal funds against other investments, there's a reason why that data's collected and why agencies are put through a variety of hoops.

"It's not always made clear to the agencies themselves, so people get kind of cynical to why all of these processes are necessary."

He added, "I don't doubt there are some that may be overkill, I think I'll discover that over time."

When speaking of his time at the FTA, there were a number of things that he was really proud of having accomplished.

"At the FTA, I really felt like I had a good imprint, with partners like Brian Farber, of getting the agency to tell its story better.

"I think prior to the Obama Administration, the FTA sometimes tried to hide under a rock a little bit and not promote all the good work it was doing.

"I think that was an important change."

He said he felt he was also able to resuscitate the FTA's important civil rights function and make clear that the administration took civil rights responsibilities seriously.

"I think that has shown itself in how agencies are getting clear guidance on how to comply with Title 6 and environmental justice, ADA, which sometimes would function in the gray before."

He said he believes they made the Triennial Review process more user-friendly and more value-added to the transit agencies, rather than doing just a backward-looking "gotcha" game to doing a forward-looking, value-added discussion of how the federal government and the agency can work in partnerships for the challenges that the transit agency faces in the future.

"I'll discover soon whether that's true because our Triennial Review here at Sound Transit is coming up."

He continued, "... being the transit administrator during the Obama Administration was a very privileged thing to be because there's not one initiative, whether it was reducing greenhouse gases, reducing our dependence on foreign oil, promoting the lives of hardworking people

and making their lives more affordable and more enjoyable, I mean every one of these initiatives that the administration has launched, transit has been at the table.

"That, I don't think, has been historically true for the agency in terms of White House initiatives. **MT**



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# Federal Update: 2016

By **Paul Dean**

## Implementation of the FAST Act Shifts Focus to Congressional Appropriators and U.S. DOT Regulations

**A**S WE TURN THE CALENDAR to 2016, the transit industry is still celebrating the historic passage of the FAST-Act by Congress last December, while digesting the new policy shifts and working to figure out the legislation's impact on day-to-day operations and future development plans.

The enactment of the first long-term surface transportation authorization bill in a decade, along with tax legislation that created permanent parity between the parking and transit portions of the commuter benefit and extended the alternative fuel tax credit, will allow the Congressional transportation authorizing and tax committees to focus on other priorities in 2016. However, the transit community should continue to make their voices heard on Capitol Hill — particularly in the annual budget and appropriations process. In addition, the transportation community should continue to push for a permanent solution to fix the highway trust fund, through either an increased motor fuels user fee, or some other means to raise revenue. Congress' main desire to overhaul the U.S. tax code may provide a compelling opportunity to accomplish this goal.

### The Annual Budget Process

It is important for the transit industry to remember that while the FAST Act sets funding parameters for transportation programs, and provides adequate resources to fund programs at

the specified levels, not a single dollar is available to spend without the passage of the annual appropriations bills. Historically, Congressional appropriators (for the most part) have honored spending levels set by the authorizing committees — especially for programs funded with highway trust fund dollars. However, budgetary rules changes over the years have eliminated any “guarantees.” Furthermore, since the transportation program growth under the FAST Act was in large part created from general fund transfers into the highway trust

fund — rather than a gas tax increase or other revenue source, the “user fee” nature of the transportation program has further eroded. Without these supposed safeguards in place, appropriators may be less willing to honor the program funding levels set by the authorizers.

In addition, a portion of the transit program and the entire interstate passenger rail program are not part of the highway trust fund. These discretionary programs — which are even less protected in the budget process — include the FTA's Capital Investment Grant program, the FRA's PTC grant program, Amtrak and high-speed rail grants, and the popular (and unauthorized) TIGER grant program. The transit industry must work with Congress to ensure that

**IT'S IMPORTANT** to thank your members of Congress for their work and let them know how the FAST Act will impact your community.





# Outlook

## By the Numbers

The FTA's Bus and Bus Facilities program is funded

**\$1.5 billion**  
From the FAST ACT

### Stipulations

Rural providers receive

**10%**

One transit system can receive no more than

**10%**

\$55 million must support acquisition of

**no- or low-emission vehicles**



during the annual budget fights, Congress does not take away dollars that were set aside for rail and transit programs in the FAST Act, and use them to fund other programs or generally reduce the size of the federal budget.

## The U.S. Department of Transportation Regulatory Program

As is the case with many sweeping acts of Congress, the FAST Act provides broad policy goals and general program boundaries, while leaving much of the actual details to the regulators over at the DOT. In addition, believe it or not, the FTA is still working to finalize regulations to implement to National Safety Oversight Program and Transit Asset Management programs, which were authorized several years ago in MAP-21. Over the course of the coming year, transit industry professionals should closely monitor the DOT rulemaking process and provide feedback through the "notice and public comment" opportunities. This is the most effective way to ensure that your advocacy positions are recorded and considered. Here is a summary of some of the most important regulatory issues the DOT will be facing this year:

## Implementation of the Bus Discretionary Program

One of the transit industry's top priorities for the authorization bill was bringing back a discretionary component to the FTA's Bus and Bus Facilities program, and the FAST Act delivered. The legislation provides more than \$1.5 billion in discretionary grants over the 5-year authorization period — but provides little guidance to the FTA on how it should divide the funds among the nation's transit providers. The FAST Act stipulates

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that 10 percent must go to rural providers, no one transit system can receive more than 10 percent of the total pot, and \$55 million of the annual pot must support the acquisition of no- or low-emission vehicles. Beyond that, the bill states that “the Secretary shall consider the age and condition of

buses, bus fleets, related equipment, and bus-related facilities.” The rest of the criteria will be left to the FTA.

The administration will be under a tremendous amount of pressure from Congress and the transit industry to issue the grant criteria to begin the competitive

## By the Numbers

**\$199 million**

will be available in 2017 for PTC implementation

application process as soon as possible, so look for a “Notice of Funding Availability” that should give plenty of details about the exact criteria the FTA is looking for to put together that winning application. Hopefully, there will also be an opportunity for companies to weigh in on the criteria. The ultimate goal, of course, is that every transit provider has an equal opportunity to access these grants. However, the FTA often imposes its policy priorities through the grant distribution process, resulting in awards to properties that meet grant criteria that address the administration’s goals.

## Establishment of Bus Procurement Pools

One of the major priorities for the FAST Act is to ease bus acquisition by creating procurement pools. The legislation provides for the establishment of programs through the state DOTs, non-profit organizations, and the U.S. DOT itself. The DOT will be working to establish its own procurement clearinghouse, while guiding transit properties and bus manufacturers through the process of establishing local, state and regional buying schedules. It will be critical for the transit industry — especially manufacturers and operators, to work together closely with the FTA to determine which procurement pool type works best for them, and develop the criteria for these programs to not only meet the FTA’s procurement requirements and safeguards, but also reach the goal to ease bus acquisition manufacturers while making vehicles more affordable for the customers.

## PTC Implementation

Another positive development in the FAST Act is the authorization of federal funds for the implementation of positive train control (PTC) to increase the safe operation of passenger trains. The legislation makes \$199 million available for rail providers beginning in 2017, to



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go along with other discretionary funds appropriated last year and this year, along with an expansion of federal loan programs to make PTC implementation a reality. Rail providers will need to work closely with the Federal Rail Administration to implement the PTC program over the next year.

There will no doubt be other regulatory issues that the DOT will have to tackle to implement policy changes contained in the FAST Act. From changes to the New Starts Program, tweaks to the safety oversight initiatives, the creation of a new workforce development program and new roles for the FTA research department, it will be a busy year for the rulemakers at the DOT.

### Safety Plans and Asset Management

Not to be forgotten in all the FAST Act excitement, the FTA is still working to implement the safety oversight and asset management program requirement passed by Congress in MAP-21 (which passed in 2012 for those keeping score.) Last fall, the FTA issued "Notices of Proposed Rulemakings (NPRM's)" on both the Transit Asset Management program and the Transit Safety Program. These programs, once fully implemented, will place new regulatory requirements on transit systems to develop annual safety plans, train staff, and track and manage all assets to ensure a state of good repair. This will require considerable staff time and energy. However, as those who have participated in this process to date know, there are many outstanding questions that must be resolved with the FTA before these programs go into effect. Once these issues are resolved, transit systems must quickly prepare themselves to comply with the new regulatory requirements.

In conclusion, despite the groundbreaking and long-term legislative victories of 2015, transit advocates should not consider

taking a rest in 2016 (even if it's well deserved!) As we have seen, there are many critical issues that Congress and DOT regulators must address to implement the FAST Act and ensure that the funding levels are honored. In addition, it's important transit industry professionals — both public and private, to

thank your members of Congress for their work, and let them know how the FAST Act will impact your local community. I urge you all to stay sharp and focused — it won't be long before we must turn our attention to the next authorization round, and fixing that ailing highway trust fund once and for all! **MT**



**Paul Dean** is the director of Dean & Dean Consulting LLC.

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# Merger Management

Some agencies share best practices on how to integrate into one regional system

By Joe Petrie

## **N 2013, LONGTIME BERKS**

Area Regional Transportation Authority (BARTA) Executive Director Dennis Louwerse died, leaving the Reading, Pennsylvania-based agency in need of new leadership. Dave Kilmer, executive director of Red Rose Transit in Lancaster, Pennsylvania, had spent two different stints at BARTA, so the board approached him for help while trying to find a permanent leader. The appointment was set to last six months, but during Kilmer's term, the BARTA board started looking at its long-term options, so one of the items discussed was merging BARTA and Red Rose into one agency.

"We knew that merging transit agencies is something that PennDOT was going to push, so the consensus was let's do this kind of on our own terms rather than theirs," Kilmer said. "If that's the direction they're pushing for, why not look at doing it ourselves?"



LOGO FOR the merged BARTA and Red Rose system.

Kilmer said a special committee comprised in April 2014 of three members from each of the transit agencies boards began meeting on a biweekly basis to look at data systems, articles of incorporation, labor contracts and other details. By July it was

decided they were moving toward a merger, a new authority was created on Dec. 11, 2014 and on Jan. 1, 2015, the South Central Transit Authority (SCTA) began overseeing transit services in Reading and Lancaster under the guise of a 10-member board split between the two communities.

## **A Shared Service**

Red Rose and BARTA joining forces is part of a larger trend among transit agencies looking to streamline operations and reduce costs while providing better overall service.

On July 1, The Victor Valley Transit Authority (VVTA), in Hesperia, California, took over control of Barstow Area Transit in Barstow, California, which consisted of three city routes and two county routes.

Kevin Kane, executive director of VVTA, said the process began in 2011 after the city of Barstow contacted the agency to run service to Fort Erwin. The federal government discontinued its shuttle service from the fort to Barstow and the city asked VVTA to provide the service. In 2012, the agency began a service from Victorville, California, to Fort Erwin, which is about 80 miles one way.

Kane said while the process was underway to start the service, then-Barstow leaders asked if VVTA would be interested in taking over the city's transit service.

"They had one employee who oversaw that who was with MV



**DESPITE MERGING**, federal funding remains separate in York and Lancaster given both cities have their own census area.

Transportation," he said. "Under the agreement approved by Caltrans, our contractor — Transdev — took over the service."

Kane said the planning for the takeover was all done in-house by VVTA, which worked with the city on how it would operate. The two sides reached an agreement in September 2014.

"That was the ring to make the engagement and things were going very well," Kane said. "But along the way, we felt a little bit of consternation from the city council about it giving up direct authority to a board of directors."





Kane said they decided to give Barstow representation on the board and expanded from five to seven members. They also agreed the board would meet quarterly in Barstow.

There were also concerns from city leaders about giving ownership of the vehicles to VVTA, so Kane said they agreed the city would keep them under the first two years of the contract while the new service is evaluated. The merger process went through without animosity, Kilmer said, and of the 20 members split between the BARTA and Red Rose boards, only one dissented to the merger, who ironically enough was the first to contact Kilmer about merging the systems.



**BUSES WERE** not rebranded in the BARTA Red Rose merger due to labor rules.

Kilmer said SCTA is still working at melding the staffs of the former agencies, given two different cultures. Meanwhile, it's also starting to delve deeper into savings by taking advantage of

economies of scale. "We went from buying for a 52-bus fleet to a nearly 100-bus fleet, so if we purchase together it creates better economies and better pricing," he said

Kilmer said they basically did the whole merger on their own. He asked consultant Barbara Gannon to come and assist a little and when the process first started, the two agencies held a board retreat where Kilmer brought in Mike Tann, his old boss at Hampton Roads Transit, who had gone through a merger there.

"One of the nice things we did the first year is we added service," Kilman said. "We added Sunday service in Reading and expanded service to new employer areas in Lancaster."

## A Chance to Start Anew

Integrating the services and technology takes time, Kane said, but VVTA recently signed a contract with Aecom to do a comprehensive analysis of the merger to see how service can be improved. Since the takeover, Kane said VVTA has improved on-time performance, but some of them are unattainable.

"It's interesting how they had operated it as city staff," Kane said. "One thing is they went out and bought new GFI fareboxes, but they didn't buy the backend, so they were basically dropboxes. We're replacing those with Odyssey's so we can finally get the data and reports."

VVTA uses Avail's GPS system, which will also be integrated into Barstow's fleet as well. Cost is an issue with adding all the new equipment.

"We're not going to rush into it," Kane said.

VVTA is also eliminating an \$8 all-day pass offered by Barstow's dial-a-ride service as Kane said people were using it as an unlimited taxi service. VVTA was also surprised to find Barstow only kept records of the first names of paratransit customers. Staff had to go through and contact all the paratransit riders in order to find out their complete information.

"The Barstow City Council was questioning if we would really be improving service or able to improve service, so within the first few weeks of the takeover a survey went out to all area riders," Kane said. "All of the riders saw improvements."

They will likely rebrand as one agency in the next year or so, Kane said.



**VVTA AND Barstow Area Transit** will likely rebrand as one agency in the next year or so.

Unlike a lot of mergers, BARTA and Red Rose were not rebranded. Both still operate in their communities, but under the authority of the SCTA. Only the office staff was consolidated. The legal framework of merging union staff was much more difficult to merge due to existing 13(c) labor provisions.

"These provisions are 50 years old and were developed back when most of the private transit systems became public in order to protect all the employees from losing their jobs when going from

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private to public,” Kilmer said. “There’s still those same types of provisions at the state level too, so it just wouldn’t work; we couldn’t get it to work, so we decided just to merge the administrative staff.”

The two agencies also worked to SCTA’s favor, Kilmer said, because there was no confusion with the public about the change.

“The average rider, they didn’t even know anything happened, which is the best thing,” he said.

Kilmer said one of the biggest challenges in merging the agencies was making sure both boards were comfortable with the concept. They had to see it wasn’t the case of one agency trying to take advantage of another due to financial issues.

“A big thing was making sure that there were adequate protections for both systems,” he said.

“South Central is now the designated recipient of the federal funds for both urbanized areas and they continue to be two separate urbanized areas due to how the census is done, so the other protection is that the money coming in has to be spent in each of those areas, so that gave them a lot of comfort.” Looking into Barstow’s service allowed VVTA to make changes to help its current riders as well.

“We only allowed two grocery bags on our buses and they allowed five,” Kane said. “We changed our policy to allow five and it works fine. They also allowed shopping carts as long as they were controlled. We tried it and it worked out.” Kilmer said SCTA was still able to achieve its goals for saving money. Under Pennsylvania’s state Act 89,

it provides incentive for transit systems to merge and any resulting savings of the merger would allow local communities to forgo funding in the amount of the savings for up to five years. The local match for the agencies is \$780,000 combined, so the local governments save about \$4 million over five years, then at the end of the term, SCTA would start seeing the local match return, which Kilmer said would be like a \$780,000 “windfall.”

“It was real money we ended up saving,” Kilmer said. “We ended up saving by elimination of some of the duplications of responsibilities, some health care savings, some legal savings, we did some joint procurements and now we’re actually saving a little over \$800,000, which is in excess of that goal we had set.” **MT**

**“We ended up saving by elimination of some of the duplications ... and now we’re actually saving a little over \$800,000, which is in excess of that goal we had set.”**

**-DAVE KILMER**



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# Video Surveillance in Public Transportation

By **Andrea Soehnchen**

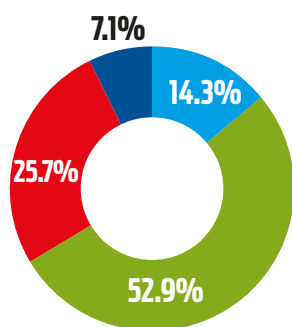
A survey of public transportation organizations from around the world weigh in on their use of video surveillance.

**V**IDEO SURVEILLANCE IS A very common technology used in public transportation. It is largely used for security purposes, although it also has other uses and is a solution highly valued by staff and passengers. UITP, together with Axis Communications, conducted a survey among public transport organizations to get an understanding of the various aspects of video surveillance in public transportation, particularly for security. The survey was conducted between April and September 2015.

The survey results are based on input from 74 responders in 30 countries. Most responders come from Western Europe,

## Type of Surveillance Camera System

- Network/IP cameras
- Hybrid
- Analog cameras
- Don't know



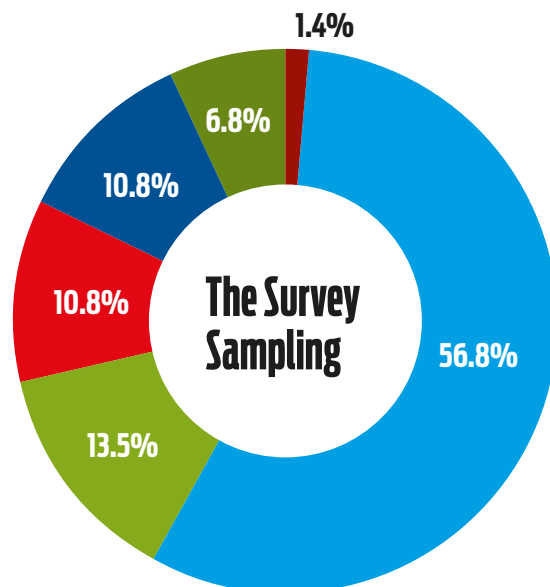
followed by Asia Pacific, Central and Eastern Europe, North America and Latin America. Most responders, 83.8 percent, are from developed countries according to the OECD Market Classification.

The majority of responders are public transport operators, 73 percent. Some public transport authorities were also taking part, along with a very small number of responders that were infrastructure owner/managers or separate station owners.

## Surveillance Equipment

Almost all responders have video surveillance installed today, analogue or network/IP cameras. About two-thirds of respondents report that they have network/IP cameras as part of their surveillance systems and a little more than half of the responders, 52.9 percent, have a hybrid surveillance system, consisting of a mix of analogue and network/IP cameras in place. About a quarter of responders are relying exclusively on analogue cameras.

In the next year, 74.3 percent of responders have investment plans for new surveillance systems. Of those organizations, 85.3 percent will consider network/IP cameras. This clearly shows a preference for network cameras for the future. However, it is important to note that legacy analogue cameras will clearly still have an important



presence in public transportation systems for the foreseeable future. Even without installing network/IP cameras, analogue systems can be converted to network/IP systems by, for example, the use of video encoders.

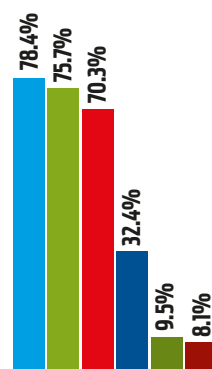
As for the barriers of investing in new technology, responders report other priorities within their organization (30.4 percent) and difficulty in getting funding (20.3 percent) as the two largest categories of obstacles. Approximately three-quarters of responders that replied "No clear business case," have analogue cameras in their surveillance systems today.

## Surveillance Usage

Cameras are currently installed in practically all parts of public transport systems: at stations (81.0 percent), on board rolling stock (75.6 percent) and at depots and rail yards (70.2 percent). Video footage can either be recorded, viewed in real time, or both. The majority of recordings from stations will be from public areas, such as public station areas and platforms — areas where large numbers of customers gather. Depots and rail yards do not typically have passenger presence, however recording here is popular due to the fact that it is where valuable assets are stored.

In general, more than half (52.7 percent) of responders reported

- Europe
- Asia Pacific
- CEEC
- North America
- Latin America
- Other

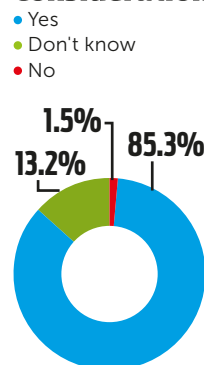


## Positive Effects

- Improved perception of security for staff, passengers and the general public
- Increased actual security and safety for staff, passengers and the general public
- Less criminality
- Fewer injuries, suicides, accidents and other medical emergencies, including fewer false claims
- Less fare evasion
- Other positive effects



## IP/Network Camera Considerations



that video surveillance would be installed on board rolling stock in the coming 12 months, which suggests that onboard cameras will become more common. Other parts of the system will also see more cameras installed and only a quarter of responders do not plan any investments in video surveillance at all in the next 12 months.

Real-time usage of video surveillance is viewing video live (monitoring) or using live video as a tool during an incident. Additionally, video analytics can be added to support the detection of an incident. Today, real-time usage of video footage is noticeably higher in static locations, such as stations, depots and rail yards. Less common is real-time surveillance on board rolling stock with 27 percent of responders using this.

The vast majority of respondents, 86 percent, is using video footage for investigation and evidence collection. Image quality is a key criterion for video surveillance in this case to ensure any evidence is valid in court. It is interesting to note, however, that 67.6 percent of respondents already use video images for detection purposes as well.

Sharing live video with other parties, such as police or other authorities, is very common. The sharing of live video is most frequent with operational control centers followed by central security centers and stations control centers. Police organizations are also a video sharing partner. In some countries a specific transport police force is present. If results are viewed looking at sharing with all police organizations, dedicated to transport or not, the consolidated data on video sharing is in parity with the previous group of control centers.

## Legal Limitations

The legal situations regarding video surveillance vary widely from country to country. Almost 40

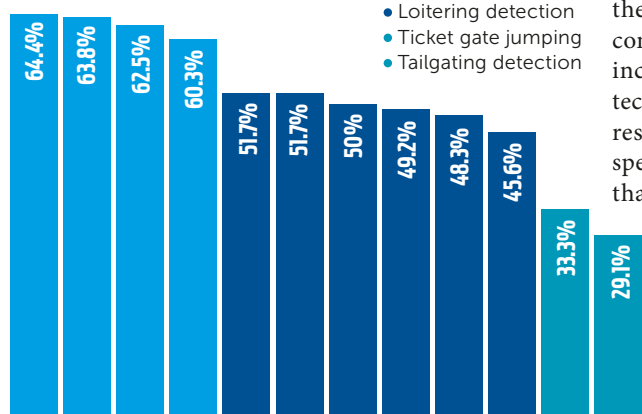
percent of responders reported that surveillance monitoring is a legal requirement. Where it is not a legal requirement, it may still be further regulated, such as surveillance outside the property of the public transport system is not allowed or requires a special permit. For about 20 percent of the respondents, permits for surveillance outside of the property are included in their granted permissions.

In terms of the recording of video, all respondents report that the recording of video footage is allowed, but almost all of those are subject to additional regulation: limited storage/retention time, ranging from 48 hours to 100 days, (41.2 percent), certain areas only (13.4 percent), for police usage only (11.3 percent) and other regulations. Only 10.4 percent of responders have no legal limitations at all.

Using sound input with surveillance is an effective addition during incidents and can add additional evidence material. At the same time, it is sometimes considered more invasive of personal integrity. Sound input is permitted for about two thirds of responders, with no limitations for 12.5 percent of those. However, for the vast majority, there are legal regulations in terms of usage: storage and retention time (40.7 percent), certain areas only (17.5 percent) and police usage only (7.5 percent). For approximately a third, sound input is not allowed at all.

## Analytics Interest

- Graffiti behavior detection
- Fire and smoke detection
- Left-luggage detection
- Overcrowding detection
- Perimeter breach detection
- Intrusion detection
- Face recognition
- Aggression detection
- Rail track access detection
- Loitering detection
- Ticket gate jumping
- Tailgating detection



When video surveillance is used as formal evidence in court, the quality of the material is important. For 66.7 percent of responders the quality of video to be valid evidence in court is regulated in some way, mainly either by law or by police directives. This gives assurance to the public transport organization that video can be used as evidence. Different standards exist in different parts of the world in terms of the quality of images for court use. Local regulations on quality of image and/or sound for court use are widespread and very helpful in maximizing the added-value of surveillance systems. Regulations are also in place to protect the privacy of citizens and staff and this is essential in many cultures for such systems to be accepted.

## Value of Surveillance

For the vast majority of respondents, it is the increase of actual and perceived security, as well as minimizing, deterring and managing various types of criminality, which are the biggest gains with all three categories scoring above 70 percent. A third of responders mentioned helping investigations into crimes, injuries, suicides and accidents, including disproving false claims. Reducing fare evasion was only relevant for a small minority (9.5 percent).

The most common problem that transit operators experience is the difficulty in monitoring the large number of cameras in the system. Further problems concern a wide variety of issues, including poor image quality, technical issues with the system, resource intensive or requiring special competences, and the fact that present system architecture does not allow for easy expansion of the system. Less than 20 percent reported no challenges or negative effects at all.

In terms of image quality, it is interesting to note

that 54.5 percent of responders with analogue systems reported poor image quality as a problem, compared to only 16.7 percent of responders with network/IP systems. However, this observation is not statistically sound due to too few responses from IP-only networks.

Staff is generally very positive towards the use of video surveillance with 78.3 percent indicating positive reactions from staff, especially when usage of the system is well communicated to employees. This goes up to 85.5 percent when including neutral reactions from staff. Not all responders measure the reaction of staff in this matter but of those that do, none reported a negative reaction.

In terms of passenger attitudes, the picture is similar. Almost two-thirds report positive reactions, with this figure going up to 75 percent when including neutral reactions. Of the 75 percent of responders who systematically measure passenger reactions in this area, none reported negative attitudes from passengers.

## Analytics

The awareness of video analytics features in general is very high:

- About 80 percent are familiar with intrusion detection, perimeter breach and face-recognition tools
- About two-thirds of respondents know about tools to detect track access, fire and smoke, left luggage and overcrowding
- Half of the respondents had

heard of graffiti behavior detection, ticket gate jumping alerts

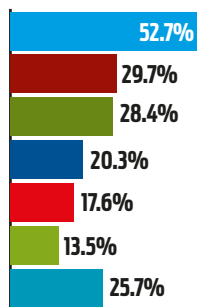
- More than one-third knew about tools for aggression, tailgating and loitering detection.

When it comes to the current use of video analytics, some tools clearly stand out, ranging from 6.8 to 25.0 percent of usage among responders: intrusion detection, perimeter breach detection, rail track access detection, fire & smoke detection and graffiti behavior detection. Future interest in video analytics amongst the responders is high: approximately half of the responders have answered that they are interested in using them moving forward.

- Graffiti behavior, fire & smoke, left luggage and overcrowding detection clearly attract most of the interest
- Perimeter breach, intrusion, face recognition, aggression, rail track access, loitering detection are interesting for about half of the respondents
- Ticket gate jumping and tailgating detection form the last group and are interesting for about 30 percent of public transport operators

## Conclusions

What this data can tell us is that there is a clear tendency toward network/IP cameras in terms of future investment and particularly emerging analytics applications for specific issues, such as graffiti behavior detection. On the other hand, legacy analogue cameras



## Surveillance Investment Plans

- Install on board rolling stock
- Install within and around stations
- Install at depots or rail yards
- Install by the infrastructure
- Install at stops
- Other surveillance camera plans
- No new surveillance camera plans within 12 months

will continue to have an important presence in public transport systems for the foreseeable future.

Real-time usage with analytics is also on the rise as public transportation systems seek to react to security events as and when they happen, with alerts guiding the operators rather than the impossible task of coping with hundreds of live feeds.

With the reported investments foreseen in real time, there will be more opportunity for live feeds to be shared with third parties than is reported today. Despite this drive toward real-time network/IP solutions, recorded footage for review purposes is still very helpful and will remain widely used in the foreseeable future. In terms of regulation, local laws or rules for video to be valid in court is very helpful as it gives assurance that the evidence can be used. Other regulations in terms of usage and storage vary widely from country to country depending on privacy and data protection laws. Laws certainly define the scope of how video surveillance is used in each place but rarely seems to be a barrier for public transport systems.

The survey clearly demonstrates that video surveillance is a widely used technology in public transportation for security but for other purposes, too. A repeat of the survey in the future would enable the tracking of trends and digging deeper.

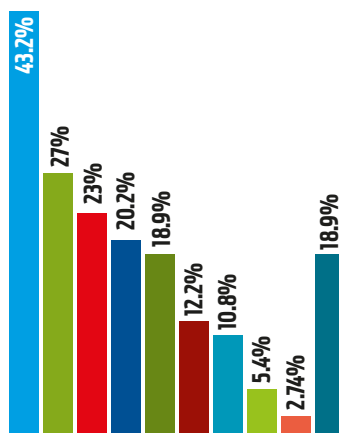
Video surveillance is a solution which is highly valued by staff, as well as passengers. Public transportation systems clearly intend to invest further in these technologies in the coming years, and the technology has huge potential to assist public transportation organizations in real time. Video surveillance will firmly remain a cornerstone technology in public transportation. **MT**



**Andrea Soehnchen** is the business development manager for UITP.

## Challenges with Existing Video Surveillance Systems

- Difficult to monitor and overlook all cameras
- Image quality is poor
- We have had technical issues with the system
- It is resource intensive or requires specialist competence
- Our present system architecture does not allow for easy future expansion
- It interferes with the integrity of the staff, passengers or the general public
- We cannot act on incidents in real time as cameras are only used for recording
- Further education is needed
- Have not been able to use the recorded material as evidence
- We have not experienced any issues







# One day. 192 incidents.

## 192 right decisions.

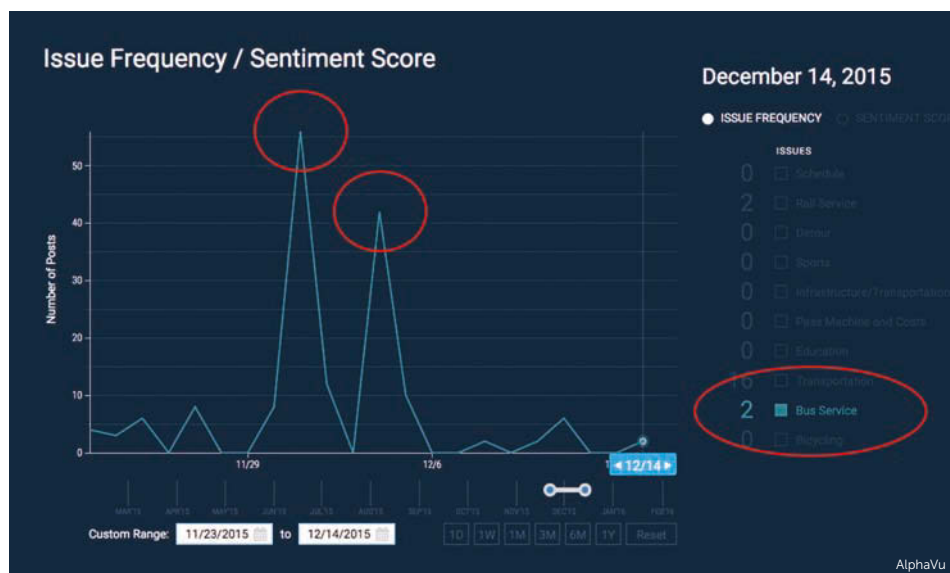
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# Social to the Core

By **Scott Wilkinson**

Why social media should be at the core of your daily executive decision-making process.

**I**F YOU'RE A TRANSIT EXECUTIVE, you likely think of social media as something for your communications and marketing team to worry about. You probably envision them posting a cute picture and getting some Facebook likes for your page.

It's time to dramatically change your thinking, because social media — specifically social media data — should be at the core of your daily executive decision-making process.

For the first time one day last August, 1 billion unique people logged into Facebook within a 24-hour period. That's one in seven people on the planet. More than a billion people communicate on the social chat platform WhatsApp. Seventy-eight million Americans have Instagram accounts. I could go on with the statistics, but the

point should be clear — social media is now the world's primary communication platform.

And why should you care? Because unlike other outreach platforms like television and radio, social media gives you analysis back, in real time. In other words, not only are all of those people — many of whom are your customers — talking to one another, but those conversations yield actionable insights that can help you make better, more informed decisions every day of the year.

What did people think about your speech to the city council? In which segment of the community can you increase ridership? What do riders think of the bus or rail car I manufactured? What's the ROI of my most recent marketing campaign? Outreach to exactly which people will give me the best ROI? How can I improve the

**A TRANSIT** agency that tracks issues its audience is discussing identified a noticeable increase in chatter on bus service on two particular days.

**And why should you care? Because unlike other outreach platforms like television and radio, social media gives you analysis back, in real time.**

public's perception of my products? Is public opinion improving or deteriorating? What's driving that change? Where are people getting their information? How can I get the right information around people causing roadblocks?

Social data, if properly understood and managed, answers these questions, and many more.

For example, one transit agency that tracks every issue its audience is discussing identified a noticeable increase in chatter on bus service on two particular days in December. Normally this would set off alarms because when large numbers of people suddenly talk about buses you must assume it's about a service or product failure, right?

It turns out we could tell this agency in real time that the favorable sentiment of these conversations was also spiking — in a positive direction. That's great news for the communications department, but it's also vital intelligence for CEOs.

As a CEO you must be able to show these successes to your board and explain what drove those successes and how they can be understood and repeated. The same requirement rings true when the trends aren't as positive. You also shouldn't think this applies only to public transit agency executives.

If you manage a transit manufacturing or service company, this data has the ability to improve your bottom line just as it can improve ridership for agencies. This data can tell you exactly what public pressures and incentives the agencies are responding to so you can be more responsive to their needs. Social data will tell you how people are responding to the products and services you provide, and social data will tell you exactly whom you can engage to improve your customers' perception among the public at large. Each of these things helps make your agency customers happier and more



successful, yielding more private sector business.

Marketing teams may have begun to think about these questions and opportunities, but very few of them have been given the opportunity to institute a social data system that answer all of these questions comprehensively, in real time, and in a way that is integrated throughout the organization. The fact is, social intelligence is coming to your door sooner or later.

The benefits of early action are significant. Simply put, executives who get better information make better decisions. Social data can provide you the intelligence you need to create enduring community coalitions, improve your organization's efficiency, enhance support among your board members, and help you gain riders and



**SENTIMENT CAN** also be tracked in real time so agencies can know if conversations are favorable or not.

improve the bottom line. The benefits are undeniable, so if you're not yet social to the core, it's time to get there. In coming articles, I will be discussing more applications and



uses of social data in transit. **MT**  
**Scott Wilkinson**  
 is president of AlphaVu.

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# Meeting Tier 4

By **Steve Cavanaugh**

**Better performance and reliability for passengers while meeting Tier 4 standards.**

**G**O TRANSIT HAS RECENTLY taken delivery of a prototype 4000 THP locomotive, model designation MP-40PHTC-T4. In 2012, Go Transit initiated a development project to convert an existing MP40 locomotive from its fleet, originally built by MotivePower Inc. (MPI) of Boise, Idaho, with a power plant meeting EPA Tier 4 emission standards.

Unit 647 was selected for the conversion. Originally equipped with an EMD 710 Tier 2 engine and a separate head end power plant, a CAT C27 engine, the platform was rebuilt to accommodate dual Cummins QSK 60 Tier 4 emission engines. The conversion was completed by MPI.

Unit 647 was stripped to the deck and fitted with the two QSK60 Tier 4 engines/alternator power modules. The engines utilize SCR technology with diesel exhaust fluid (DEF). A completely new Wabtec Qtron QES control system was designed for the locomotive control system and interfaces with the Cummins' engine control systems.

The original trucks with the four EMD D87 DC traction motors were reused. The twin QSK60 2700 GHP engines generate 5400 GHP combined, which provides 4,000 THP plus auxiliary locomotive power and sufficient HEP power for the coaches. The dual engines can




**UNIT 647** was originally equipped with an EMD 710 Tier 2 engine and a separate head end power plant, a CAT C27 engine, the platform was rebuilt to accommodate dual Cummins QSK 60 Tier 4 emission engines.

be used in combination to provide nominal 2000 THP in econo mode with a single engine or provide get-home capability should one fail. In either mode, the alternators feed a common bus which supplies power to all four traction motors.

The unit has successfully passed all the track worthiness tests at Transportation Technology Center Inc., in Pueblo, Colorado. Go Transit is currently running acceleration/deceleration tests, as well as minimum run time tests on its system. Upon completion of these tests, the unit receives conditional acceptance.

The final test phase is to put the prototype unit into revenue service and monitor performance for seven months. The unit must also demonstrate relevant failure-free

service — no train delays or cancellations — for a defined period to successfully pass and receive final acceptance.

The experience gained from unit 647 will demonstrate engine reliability and control and a completely new remote health monitoring system — CDS (central diagnostic system), which will feed into the design for 16 new MP40PHT-T4AC units equipped with ABB AC traction propulsion technology, scheduled for delivery in 2017/18. The addition of the AC traction equipment will not only bring the benefits of greater adhesion control and improved reliability but helps reduce weight and space required by the DC equipment and allowing more room for the after-treatment equipment. 

## Final Test Phase

The prototype will be monitored for

**7 months**



**Steve Cavanaugh,** P. Eng., is chief rail equipment engineering, Rail Fleet & Facilities, at Go Transit.





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# Advanced Passenger Signage

By **Rick Wood**

How the latest digital technology can transform transit wayfinding for passengers.

**D**IGITAL TECHNOLOGY APPLICATIONS are changing the way we think about signage for the public transportation industry. Technology allows for real-time, accurate information and offers the opportunity to provide more effective wayfinding information than with static information.

Wayfinding is the science of navigation in public spaces.

In transit, wayfinding has traditionally taken the form of static information, such as flags on bus stop poles, system maps in transit centers, station identity names fastened to walls, in-vehicle placards on rail cars and in buses, etc. All of this begins to build an information network for the rider. However, with few exceptions, deployment of a thorough and effective static wayfinding system in public transit has not been successful in the U.S. Why? Primarily it comes down to the cost of deploying the

necessary amount of static information and then maintaining it. When a schedule or route changes, static information must be updated, which requires enormous time and money from agencies, especially when thousands of stops are involved. Digital signage offers exciting solutions for building a robust wayfinding system.

Cognitive load is the intellectual pressure that is placed upon a person during decision-making situations.

Extensive research indicates there are 8 seconds to communicate information clearly and concisely, otherwise passengers become frustrated and dissatisfied and are less likely to turn to public transportation if they have other options.

The transit industry is complex from a logistics and coordination perspective. One of the key strategies to address is striking the correct balance between providing useful wayfinding information for public transit users while respecting their cognitive load. That is, providing only that amount of information a rider needs to complete a task, and no more. Certainly, the more complex the decision-making process, the higher the cognitive load. And to complicate this important topic further, everyone has a different cognitive capacity.

Transit networks are, in essence, a complex puzzle. The job of wayfinding designers is to make that puzzle solvable.

With all the technology touch points available — mobile phones, digital watches, interactive kiosks,



**TOUCHSCREEN KIOSKS** should provide the correct information hierarchy for transit in a way that helps transit riders get the information they want and need.

**TOUCHSCREEN KIOSKS** should focus on giving a rider as much or as little detail about a particular route as that individual is looking for.



**By the Numbers**  
**8 seconds**  
Amount of time it takes to communicate information clearly and concisely





digital signage — one might argue that you can maximize the amount of information conveyed. But this is just not the case. We must take into account what an acceptable amount of information can be provided to an average individual during their decision-making process in order to deliver relevant, useful information rather than lots of information.

### Technology Solutions for Transit Centers and Rail Station

Transit centers, rail stations and airports are busy places with multiple travel options for passengers to consider. Digital solutions, like touchscreen kiosks, are able to provide the correct information hierarchy for transit in a way that helps transit riders get the information they want and need.

What do riders want to know at their point of departure? They want to understand routes — where they go and when they arrive — and to understand how to get to a new location and be confident in their decisions. Touchscreen kiosks should focus on giving a rider as much or as little detail about a particular route as that individual is looking for. The third fundamental

information requirement sought by transit riders is trip planning. Riders are often looking for detailed

directions from Point A to Point B and they want those directions with them to increase their comfort level while on the trip. An added benefit for many riders is being able to see other travel mode options, as well. Maybe they want to ride their bike rather than, or as part of, taking the bus. Regardless, riders like to have a trip plan and that's where including the ability to text or email the trip directly from the digital display or kiosk is another useful tool.

Santa Barbara Metropolitan Transit District (MTD) uses CHK America's ConnectPoint kiosk and has seen a dramatic reduction in the number of questions asked at the customer service windows, freeing staff to handle other responsibilities. MTD Transit Center Supervisor Mel Deaile said, "The kiosk is an invaluable information tool for our customers."

**"The kiosk is an invaluable information tool for our customers."**

**-MEL DEAILE**

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## DIGITAL SIGNAGE

Dallas Area Rapid Transit (DART) Vice President, Chief Marketing Officer Nevin Grinnell stated, "DART is preparing to deploy its first ConnectPoint Interactive Kiosk at Love Field."

"This technology should have an immediate impact on our customers by providing them with an intuitive, useful interface into DART's service from the airport."

### Technology Solutions at Stops

The second most important decision point during a customer's journey is at the bus stop. This has always been a stage where keeping service information current, accurate and user friendly has been difficult and expensive. The majority of bus stops do not have electrical power so providing real-time or service alerts has been a challenge.



**REAL-TIME DEPARTURE** and service alerts are delivered using solar power, and schedule information and service alerts are delivered with battery power.


**"Orlando is the No. one tourist destination in the world and we want to provide our customers what they expect as far as bus stop information, without us incurring expensive infrastructure improvements."**

**-MATTHEW FREIDMAN**

Digital signage can provide a solution at the bus stop. The Digital Bus Stop, based on E-Ink technology, requires no electrical infrastructure improvements. Real-time departure and service alerts are delivered using solar power and schedule information and service alerts are delivered with battery power. The information is also updated remotely; everything is driven by the backend.

Another tool could potentially be a mobile phone, though a recent USA Today article revealed that 38 percent of transit customers want departure information provided to them at the bus stop. Furthermore, a Pew Research Study in October 2015 revealed that only 52 percent of adults with a household income of less than \$30,000 own a smartphone. Other challenges to consider include the expense of data and text charges, inputting location correctly and small screens. These variables add to cognitive load and increase the probability that a mistake could be made.

"CHK has been a great partner during our wayfinding redesign. The natural next step for us to explore is their digital bus stop products, which are based on E-Ink technology. We want to look at all amenity options for our current and new riders. After all, Orlando is the No. one tourist destination in the world and we want to provide our customers what they expect as far as bus stop information, without us incurring expensive infrastructure improvements," stated Matthew Freidman, director of marketing, Lynx.

Advanced digital signage is providing more flexibility to transit agencies and better information to customers. It is essential to use the most effective tools to affect the most positive results. 

**Rick Wood** is president and chief executive officer of CHK America.



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# In Focus: Digital Signage

Digital signage products in transit

## Peerless-AV Floor Standing Totem Portrait Kiosk Enclosures

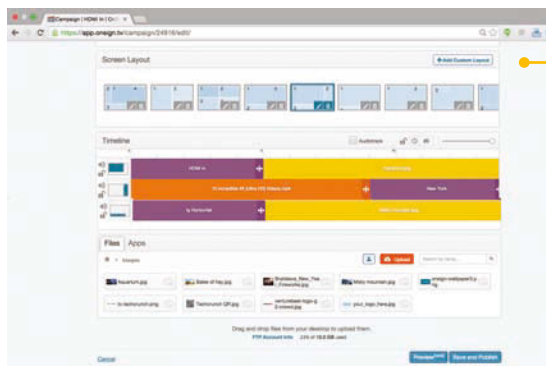
Peerless-AV's new line of totem multi-media kiosk enclosures incorporate a robust feature set, while maintaining a modern, curvaceous, and slim aesthetic look with lean frames and a small footprint. From wayfinding to information sharing, the new line of totem kiosks are ideal for transit applications, housing 40-inch to 55-inch displays in portrait orientation. The enclosures can also feature stereo speakers and amplifiers, Wi-Fi, NFC and proximity sensors, ambient lighting, and tempered glass or Lexan surfaces with anti-glare treatment.

**For more information**  
**contact:** Brian McClimans  
bmccmimans@  
peerless-av.com  
[peerless-av.com](http://peerless-av.com)

## TransitScreen TransitScreen

TransitScreen is a live, real-time display of all of the transportation options at a location. It makes transit information more accessible, viewable and engaging so commuters, visitors, residents and employees can make informed decisions. It is used by governments, property managers and businesses to provide a transportation demand management solution.

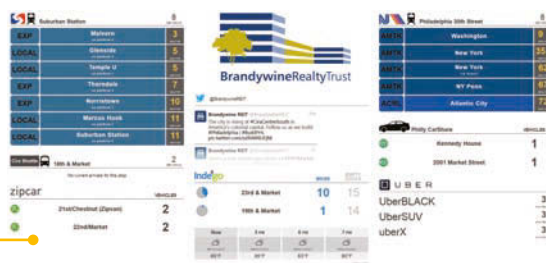
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**contact:** Ryan Croft  
ryan@transitscreen.com  
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## OnSign TV OnSign TV

OnSign TV is a powerful and easy-to-use digital signage platform. Standing out for its real-time monitoring system it is possible to track, view and remote control any screen directly from the Web management console. OnSign TV screens can be installed in hostile environments, including roadside billboards, taxis and buses, reassuring performance even in poor network conditions. This is made possible since all content is cached on the player, so no screen will ever stop.

**For more information**  
**contact:** Ricardo Teixeira  
info@onsign.tv  
[onsign.tv](http://onsign.tv)



## Matrox Graphics Inc. Matrox Maeve H.264 Encoders/Decoders

Matrox Maeve H.264 encoders/decoders let users multiply messages across a network of displays. It streams full HD (1080p60) video and audio at low bandwidth from a host PC, media player or other source to digital signage displays over a standard IP network. Maeve comes bundled with Matrox PowerStream software for remote device management, recording parameter adjustment, including user-definable bit rates between 100 Kbps and 25 Mbps.

**For more information**  
**contact:** Ron Berty  
graphics@matrox.com  
[matrox.com/graphics](http://matrox.com/graphics)

## PRODUCTS

### Luminator Technology Group (LTG) Destination Signs and Passenger Information Systems

Luminator, TwinVision and Axion group are suppliers of destination signs, onboard Infotainment and passenger advisory systems. The LTG platform and shelter signs display arrival prediction information for both bus and rail systems. With more than 80 years in the transit industry, LTG's products are designed to meet the rugged demands of the transit environment.

**For more information contact:** Dan Kelleher  
lmts@luminatorusa.com  
→ [luminatortechnologygroup.com](http://luminatortechnologygroup.com)

→ **View more products at**  
[MassTransitmag.com/directory/information-systems](http://MassTransitmag.com/directory/information-systems)



### BroadSign International LLC BroadSign Cloud-Based Digital Signage Software

BroadSign International is a provider of cloud-based digital signage software. Its automated approach to content management gives digital out-of-home networks an unlimited capacity for growth without the need for extra personnel. Exterion Media has recently converted its network of 2,000 displays in the United Kingdom and the Netherlands to BroadSign's digital signage software.

**For more information contact:**  
Stephanie Gutnik  
stephanie.gutnik@broadsign.com  
→ [broadsign.com](http://broadsign.com)

### TRU-Vu Monitors Inc. VMOB-10.4B

The VMOB-10.4B is a 10.4-inch daylight viewable LCD monitor. It features 400 nits of brightness, optical bonding and protective anti-reflective glass to ensure image quality even on bright sunny days. Designed for long-term reliability, this monitor features TRU-Vu Monitors exclusive TRU-Tuff treatment for maximum shock and vibration resistance, as well as a steel enclosure. The model is also available with larger screen sizes.

**For more information contact:** Herb Ruterschmidt  
herb@TRU-VuMonitors.com  
→ [TRU-VuMonitors.com](http://TRU-VuMonitors.com)



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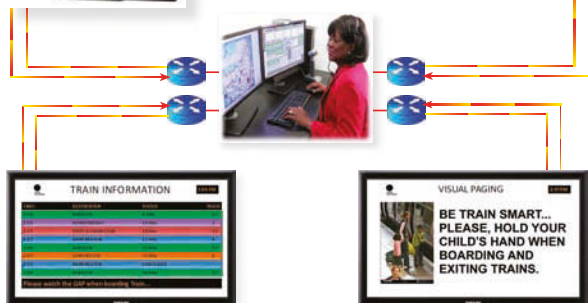
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### CHK America Inc. Connectpoint Digital

Connectpoint Digital is a suite of digital wayfinding signage products that provide a higher level of customized information to meet on-the-go demands. CHK provides clearer, more concise and consistent customer information, distilling complex route and schedule information into wayfinding messages that are easily understood allowing riders to confidently explore transportation options.

**For more information contact:** Rick Wood, RWood@CHKAmerica.com  
→ [CHKAmerica.com](http://CHKAmerica.com)



# Enhancing Shelter and Stop Amenities for Riders

Safety / Comfort / Aesthetics

## North Little Rock, Ark.

**R**OCK REGION METRO HAS TAKEN major steps in the last several months to improve our passengers' transit experience. Following an agency rebranding kickoff event last August, we implemented the first phase of our new GPS-based intelligent transportation system, starting with our 1,600 bus stop signs throughout Pulaski County. The stop signs feature unique stop ID numbers; riders waiting on a bus can text their stop ID to the system number and receive a text with detailed information on their bus arrival time.

The second phase of the ITS implementation took place in late January and early February, with the debut of a new website, [rrmetro.org](http://rrmetro.org), that features live bus-tracking maps, and a related, fully responsive mobile website.

The website launch was followed by the launch of the METROtrack mobile app, which also offers real-time arrival information. Riders can use the app to mark favorite stops and routes, set



**Jarod Varner**  
Executive  
Director  
Rock Region  
Metro

to replace our entire fleet with CNG buses by the end of 2025. The buses, which feature the new brand's gray, green and blue colors, have been well-received by central Arkansians and were made possible by a partnership with the Arkansas Energy Office, Southwestern Energy and local municipalities.

Upon the CNG bus launch, free Wi-Fi services were placed on every bus in the fleet so riders can make the most of their commutes.

Over the spring months, Rock Region Metro will be installing 55 new shelters throughout our system, increasing agency-owned shelters by 55 percent.

Through a \$360,000 TAP grant, the agency's first-ever TAP grant award, 25 of the new shelters will feature solar-powered lighting and bike racks.

Making public transit more appealing to current and potential riders is one of our top areas of focus. We are excited to offer our riders more

convenience, value and comfort and are already researching ways we can make even more improvements beyond these projects.

**Making public transit more appealing to current and potential riders is one of our top areas of focus.**

reminders, get alerts, plan trips and access general information.

The agency recently debuted 15 new CNG buses and is on track with a plan

## Canton, Mich.



**Kevin Chown**  
Outdoor  
Structure  
Sales Manager  
Duo-Gard  
Industries Inc.

**S**INCE DUO-GARD BEGAN BUILDING transit shelters in 1993, our focus has been on rider security, comfort and accommodation. During those 23 years our innovation has been continuous. This means we take a custom approach to create structures that integrate the best in style, materials and amenities that invite riders into the transit experience.

**Riders want to be proud of the structures that populate their community.**

**Safety and Security:** We're adding more closed-circuit cameras, tying them into dispatch to keep a closer eye on rider activity. We provide solar LED lighting systems, which have become more environmentally friendly and lower in cost. Besides helping riders feel more secure, these systems are designed and engineered to complement the overall architectural aesthetic of the structure. Often, riders can now push a button to alert an approaching driver that someone is waiting.

**Comfort:** We're incorporating more and better heating avenues, stepping up from the old twist timers. Air conditioning, common in Europe, is becoming a requested feature for some shelters in the United States.

**Aesthetics:** Contemporary. Traditional. Totally far out and striking. Riders want to be proud of the structures

## BEST PRACTICES

that populate their community. Architectural aesthetics play a critical role. More than ever, we're involved in the design phase so we can make recommendations that help create a signature structure that's inviting as well as functional.

**Branding:** A major aspect of Duo-Gard's transit enhancements involves the addition of branding elements. Whether it's a city's logo, a community's slogan or a region's special symbol, riders appreciate a visually distinctive way of seeing their environment presented. Customers are requesting more branding as a way of setting their transit systems apart. Fritted glass, special coatings and custom-designed plaques are among our offerings.

**Seating:** As more riders become environmentally conscious, recycled materials become more important.

### Architectural aesthetics play a critical role.

We evaluate and integrate upscale materials in resins and woods.

**Wayfinding:** We're making bigger and better signage elements, including more information and more backlighting for visual impact. Separate illuminated pylons now complement a structure.

**Bicycle Accommodation and BRT:** With the emergence of bus rapid transit (BRT) systems, accommodation for bikes has become more important, making that first/last-mile convenience more critical.

Commuters are demanding safe, secure bike parking and storage, right along with their mass transit. Duo-Gard has added new shelter systems for both exterior and interior applications, bike racks, bike rooms and lockers for bus and train stations. Our biking line now includes more than 250 products, and our systems were named a 2016 Top 10 Green Building Product by BuildingGreen.

## Corona, Calif.

**T**HOUGHTFUL AND STRATEGIC DESIGN can transform bland community bus stops that have no relation to their surroundings into welcome fixtures that grow ridership and signal to transit riders, pedestrians and non-riders alike, that they are an integral part of their community.

In recent years, transit agencies and municipalities began to recognize that in addition to providing protection to passengers waiting for their ride, transit shelters can be used as branding opportunities promoting the agency to riders and non-riders alike.

Taking direction from our clients in this effort, Tolar Manufacturing developed a diverse transit shelter portfolio as we work with agencies to develop a distinctive look for their customers and potential customers. Examples include working in concert with our clients to develop branding components in the shelter walls with baked frit or laminated glass, decorative perforated aluminum and route-specific branding.

Custom material shapes are playing more of a role. Tolar Manufacturing has more than 100 custom extrusions that were developed based on client input. Our approach also includes a consideration to ease of maintenance at the stops when designing shelters and related amenities.

Technology plays a big part in what riders have asked for at stops and while static maps and timetables are still important, we also provide agencies with options such as digital information screens, real-time signage, cameras, wireless capabilities and charging stations.

Improved solar technology has also allowed Tolar Manufacturing to power many of these elements with power drawn from the sun, as well as traditional LED illumination. Huge steps have been made in photovoltaic-powered controllers, or solar energy management systems, with data loggers to help monitor historical power draw and anticipate or diagnose any potential performance issues.



**Patrick Merrick**  
Executive  
Vice-President  
Tolar  
Manufacturing  
Company Inc.

Research completed by the Project for Public Spaces concludes that while transit agencies focus on shelters that have low maintenance costs and are resistant to vandalism, riders increasingly want a safe, clean space with good visibility, easy access to the bus, and clear and accurate transit information.

A well-lit, well-designed transit bus shelter, featuring ample seating, prominent route information, useful accessories and design elements that reflect the community, helps create a true sense of place and even ownership for riders.

Thoughtful and strategic design can transform bland community bus stops that have no relation to their surroundings into welcome fixtures that not only help to attract and grow transit ridership, but signal to transit riders, pedestrians and non-riders alike, that they are an integral part of their community.

Validating that an investment in transit amenities by agencies will grow ridership, TriMet conducted a study showing that over a 6-year period of 24 shelters installed, 22 showed higher average ridership after installation of the amenity than before. On average there were 19 more boardings at a stop after the shelter was installed, a 52 percent average increase.

We recognize that many transit riders start their day in a transit shelter before they board the bus to work, school or wherever they are headed. They deserve to spend that time in a comfortable, welcoming space that reflects their community and gives them a sense of ownership. The reports cited above mirror the focus that our team places daily on providing inviting, well-lit, and distinctive passenger amenity solutions to the communities we are fortunate enough to serve.



## Beaverton, Ore.



**Jeff Peters**  
President  
Urban Solar

**ENHANCING TRANSIT STOP AMENITIES** is a proven way to increase ridership as well as public perception. The first thought for most agencies looking to enhance transit stop amenities is to replace shelters, benches or add real-time signage. Often the most overlooked amenity improvement is lighting.

The value of lighting in public spaces — including at bus stops and shelters — has long been understood and well documented. A rider will feel an inherent sense of safety and security, which comes when a person knows they can be seen, as well as clearly see what is going on around them. Often these benefits are viewed only as a means of crime deterrent, but the value of increased ridership and improved public image should not be forgotten.

To have every stop and shelter within a transit operation illuminated would be a

dream for most agencies. Unfortunately, the reality of offering something as basic as light at a bus stop often comes at a great cost, both financially and in terms of time and effort.

Until recently, the only means to providing illumination at a transit stop required trenching of electricity involving permits, construction efforts and sidewalk or roadway disruption.

Since 2008 Urban Solar has been designing and manufacturing solar-powered lighting solutions for transit. With UL safety-certified systems illuminating both stops and shelters around the country, Urban Solar is recognized throughout the transit industry for reliable, safe and high-performing products. Proudly manufactured in Beaverton, Oregon, our Buy

America-compliant products are able to be procured through a number of FTA, security, state and local funding programs.

Urban Solar offers multiple product options. Our PV-Shelter series is designed to integrate with the architecture of your transit shelters, providing security and/or advertising illumination. Our pole mount PV-Stop series is designed to mount to your existing flag poles and provide automatic, or on-demand security lighting, along with options for dusk-to-dawn illumination for stop recognition or bus driver signal notification. These systems can be customized with agency decals and powder-coated to match your agency's colors.

Advances in solar and LED technology have opened the opportunities to add high-output illumination to stops and shelters without the hassle of trenching. Through experience, custom design by location and continued product development, Urban Solar is able to offer the most reliable, highest performing and safest solar lighting products on the market. **MT**

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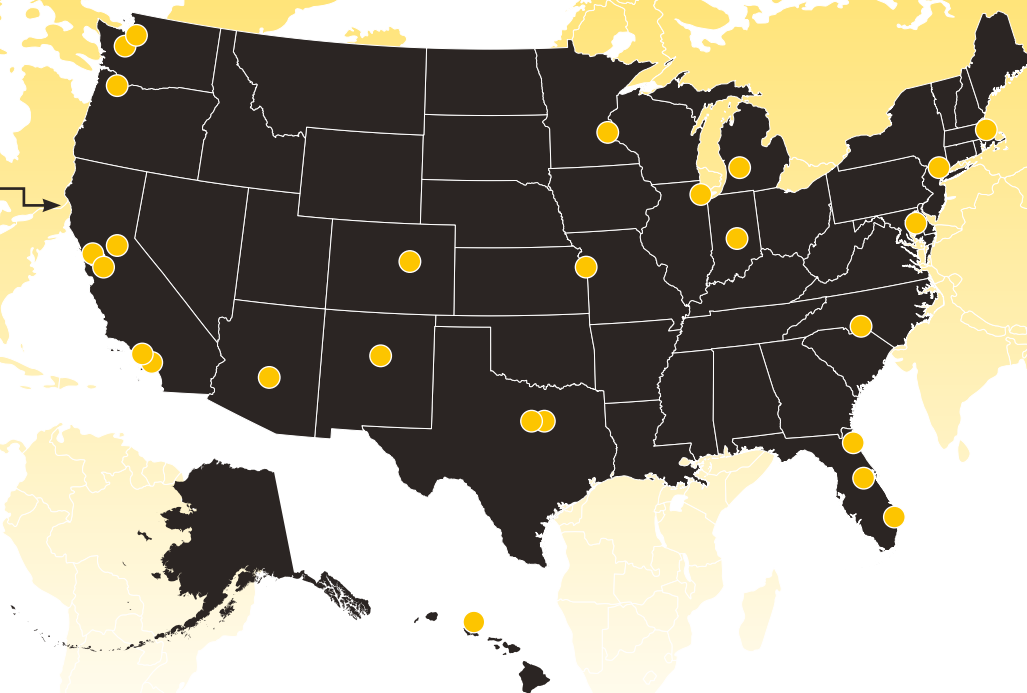
# Last Words

## National View

31  
projects

U.S. Transportation Secretary Anthony Foxx recommends \$3.5B to advance 31 projects in 18 states for FY2017

MassTransitmag.com/12168694



## Discussion

**“The** traditional strategy of adding capacity, especially single-occupant-vehicle capacity on the periphery of our urban areas, exacerbates urban congestion problems. These types of projects are not creating the kind of vibrant, economically strong cities that we all desire.”

**-MAYOR SYLVESTER** Turner

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**Brent Toderian** @BrentToderian

It's very big news that PM @JustinTrudeau has opened the door for proportionate Fed #transit funding, 50% rather than 1/3rd. A game-changer.

## Breakdown Positive Effects from Video Surveillance Systems



↑ 78.4%

Improved Security Perception



↑ 75.7%

Increased Actual Security



↑ 70.3%

Less Criminality



↑ 32.4%

Fewer Injuries, Medical Emergencies



↑ 9.5%

Less Fare Evasion



↑ 8.1%

Other Positive Effects

uitp.org/statistics

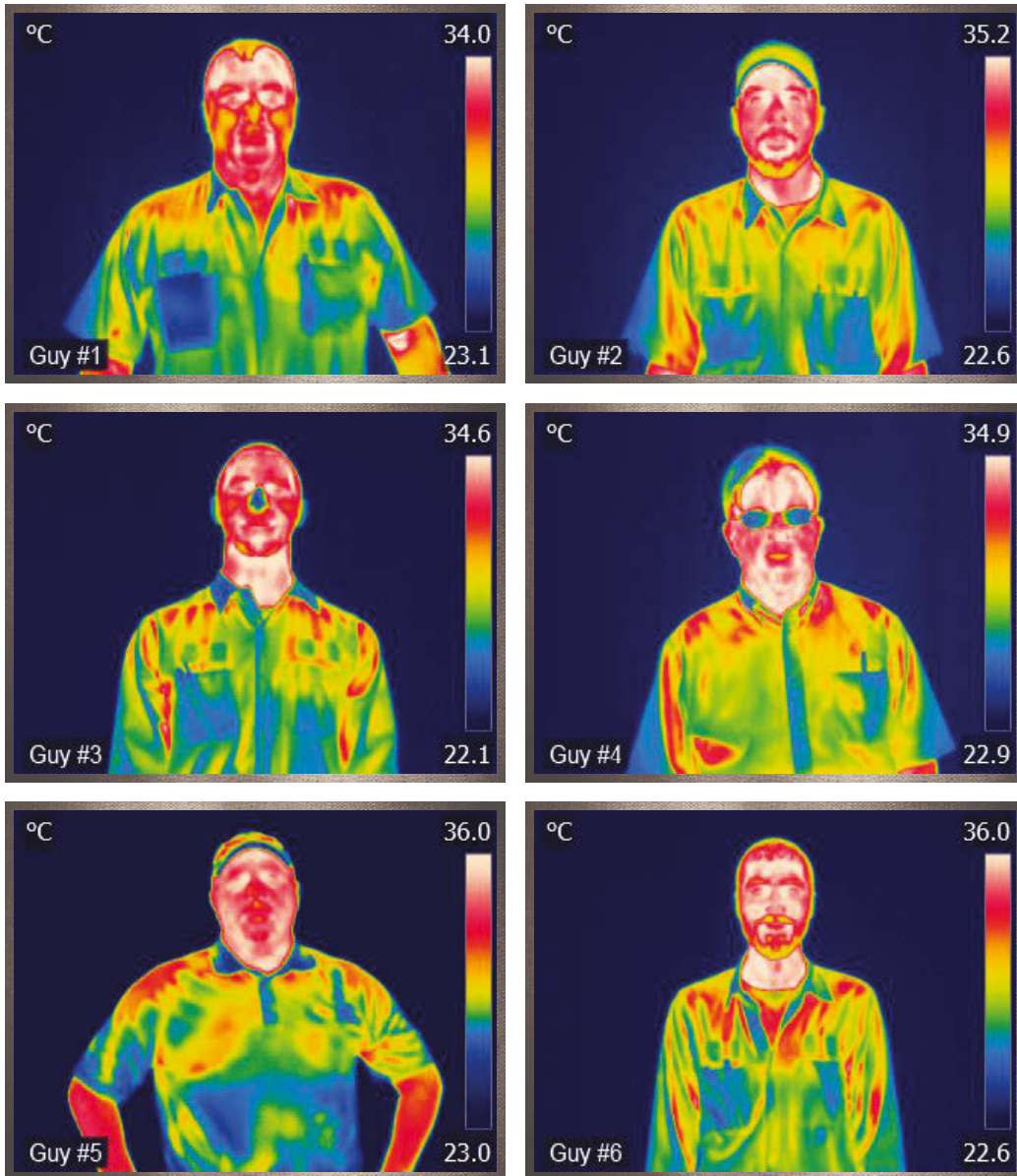
## Snapshot Transit Center Construction

► Work nears completion on St. Louis Metro's North County Transit Center, a new transit center located in Ferguson, Missouri. Nineteen percent of MetroBus and MetroLink riderhip is in North St. Louis County. Phase 1 is scheduled to open in 2016.

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