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**Rail Report**

State of the rail industry and insight of the trends. PAGE 20

# MASS TRANSIT

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HOW WE DID IT

## Modernization: How Caltrain Will Meet Growing Demand

PAGE 12



**Jim Hartnett**  
Caltrain Executive  
Director



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INCREASED RIDERSHIP**

and the \$2 billion CalMod Program will create the potential for its service to grow to meet the region's long-term demands.



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The background of the advertisement is a photograph of a white Siemens TRAMMET light rail vehicle, number 409, stopped at a station platform. The tram's destination sign displays 'AIRPORT' and the number '41'. The front of the tram features the 'TRAMMET' logo. In the background, blurred figures of people are walking on the platform. Overlaid on the image are stylized blue and green wireframe graphics representing a transit network, including tracks, a bridge, and a building structure.

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### Big Data Will Raise the Bar for Rail Services

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### VTA Pilots a Smart Charging System

A four-year "Vehicle to Grid Integration" project will help VTA move to its goal of a fleet of zero-emission vehicles.

➔ [MassTransitmag.com/12409074](http://MassTransitmag.com/12409074)



### Demand Charges, and How to Mitigate Them

Lowering transit system utility bills starts with understanding how they're calculated.

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### The Right Time to be in Transit

While taxi drones and hyperloop often dominate headlines, the importance of bus transportation was renewed while addressing the additional evolving role of transit agencies.

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# The Price of Transit

European cities, including Paris, France, and several cities in Germany, are looking to test free transit.



Public officials eye transit's role in mitigating pollution in urban areas.

**A**s this issue is going to press the 6th annual National Infrastructure Week was coming to an end. And it was happening just as oil prices were topping \$80 and the Administration's infrastructure plan appears to be put on hold as the White House press secretary stated it doesn't appear any specific piece of legislation will happen by the end of the year.

While I was going to write on infrastructure backlog, increased congestion, and decreased funding, other news leading the headlines were about several European cities looking at the potential of offering free public transportation. Paris, France, and several cities in Germany, are looking to test free transit, as well as the country of Estonia.

For European countries, racing to meet the European Union air pollution targets to avoid large fines is one driving factor.

Nine EU members have not met the deadline to meet EU limits on nitrogen dioxide and fine particles and they were given extra time to meet limits or face legal action.

Another driving factor is that more than 130 European cities are affected by life-threatening air pollution, according to the European Commission, costing \$24.7 billion (€20 billion) in health spending each year.

In 2013, the city of Tallinn in Estonia began offering free public transportation to all residents. Now, the government of Estonia is looking to make transit free to residents throughout the country starting July 1.

Head of Tallinn European Union Office Allan Alaküla has said they have earned double what they lost since offering free transportation.

Residents have to be registered as such, and then the municipality receives \$1,180 from your income tax each year to cover costs. Visitors still pay to use transit.

Since implementation, Tallinn has seen a 10 percent decrease in traffic in its city center and a slight increase around the center.

One point worth noting, much of the increase in ridership in the city center isn't due to people necessarily getting people out of single-occupancy vehicles, but rather people hopping on the tram to shorten a walk.

Getting people to leave their car at home will take a more convenient, quicker and more economical option, making a longer or more challenging option free, won't change patterns. However, new ways of generating revenue that come out of these schemes may provide lessons to learn from.

No details have emerged as to how Germany might fund its free transportation. Paris would need an additional \$7 million (€6 million) per year and suggestions have been floated of increased congestion pricing, a new tax and an overhaul of subsidies by businesses to their employees but nothing has yet been determined.

One thing is for certain, when a city the size of Paris takes this step, it shows that drastic changes need to be put in place to address the global issues of pollution and congestion.



Leah Harnack, Executive Editor

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## Courthouse Trolley Station Opens in San Diego

The Courthouse Station is the new downtown terminus for the Orange Line, which runs from El Cajon to downtown San Diego and serves approximately nine million passengers annually. The Orange Line previously terminated a few blocks west at Santa Fe Depot and for a brief time at America Plaza. The Courthouse Station is needed to accommodate future growth of the Trolley system when the Mid-Coast Trolley extension begins operations in 2021.

➔ [MassTransitmag.com/12410710](https://www.masstransitmag.com/12410710)



**THE TROLLEY** will operate from William Hudson Transit Center to Butler Station.

## Main Street Trolley Rail Line Back In Service

► After nearly four years, the Memphis Area Transit Authority restored passenger operations to the Main Street Trolley rail line. It will operate with three trolley cars.

➔ [MassTransitmag.com/12410694](https://www.masstransitmag.com/12410694)

## Flint MTA Opens Your Ride Center

► Flint's Mass Transportation Authority opened the Davison Your Ride service center. The garage will hold 21 El Dorado vehicles. The facility has two tanks, one for propane and one for unleaded gas. It also has lightning protection and a back-up IT server room and generator.

➔ [MassTransitmag.com/12408280](https://www.masstransitmag.com/12408280)



**THE MTA** opened the Davison Your Ride service center with a ribbon cutting ceremony.

## Volocopter Presents Air Taxi Services at Scale

► Volocopter has presented its air taxi infrastructure for cities. The vision integrates air taxi into existing transportation systems and provides additional mobility for up to 10,000 passengers per day with a single point-to-point connection. Co-founder Alex Zosel expects the first full Volocopter air taxi systems with dozens of Volo-Hubs and Volo-Ports to be in place within the next 10 years.

➔ [MassTransitmag.com/12408860](https://www.masstransitmag.com/12408860)



**VOLOCOPTERS** ARE emission-free, electrically powered aircrafts that take off and land vertically.

## TransLink Launches Electric Bus Trial

► TransLink is partnering with Natural Resources Canada, Metro Vancouver and BC Hydro to bring four fast-charging electric-battery buses to the region starting in 2019. This two-and-a-half year integration trial is part of a pan-Canadian initiative led by the Canadian Urban Transit Research and Innovation Consortium.

➔ [MassTransitmag.com/12408070](https://www.masstransitmag.com/12408070)



**THE NYC Transit** Bus Plan incorporates customer feedback and recommendations from transit advocates and technical experts.

## MTA NYC Transit to Reimagine Bus System

► MTA New York City Transit unveiled a comprehensive plan to reimagine New York's entire public bus system and deliver service with immediate and long-term improvements.

➔ [MassTransitmag.com/12409223](https://www.masstransitmag.com/12409223)



## Read More Online

► CalACT named the city of San Luis Obispo Transit Division, SLO Transit, the Outstanding Transportation Agency for 2018. The award honors an agency that has demonstrated achievement in efficiency, effectiveness and customer service.

➔ [MassTransitmag.com/12409934](https://www.masstransitmag.com/12409934)

► Nova Bus announced it has been awarded a five-year contract to supply replacement public transit buses for use in Monroe County, New York, by Regional Transit Service.

➔ [MassTransitmag.com/12409716](https://www.masstransitmag.com/12409716)

► The California State Transportation Agency announced a \$164.5 million investment from the Transit and Intercity Rail Capital Program to support Caltrain service improvements, including replacement of the diesel fleet with electric trains, the addition of Wi-Fi service onboard the new fleet, and enhanced bicycle facilities at stations.

➔ [MassTransitmag.com/12409949](https://www.masstransitmag.com/12409949)

► RATP Dev USA launched Orbyt, a technology platform that keeps passengers in motion, adapting to the different demands and disruption of the transit industry.

➔ [MassTransitmag.com/12409668](https://www.masstransitmag.com/12409668)

► Greater Portland METRO unveiled new, 40-foot low floor buses with modern, friendly features reflecting the agency's vision of a more sustainable future.

➔ [MassTransitmag.com/12410742](https://www.masstransitmag.com/12410742)

► The Charlotte Area Transit System's LYNX Blue Line light rail service experienced a 48 percent increase in ridership with the opening of the Blue Line Extension.

➔ [MassTransitmag.com/12409009](https://www.masstransitmag.com/12409009)

► MV Transportation announced it has been awarded a contract to provide paratransit services by the Baton Rouge Capital Area Transit System beginning Sunday, May 6, 2018.

➔ [MassTransitmag.com/12408641](https://www.masstransitmag.com/12408641)

► Rabbittransit announced it will launch a mobile ticketing application pilot in partnership with Token Transit that gives customers a new and cashless fare payment choice.

➔ [MassTransitmag.com/12408655](https://www.masstransitmag.com/12408655)

► Keolis announced it has been awarded a contract to operate the Orange County Transportation Authority's first on-demand microtransit pilot — OC Flex.

➔ [MassTransitmag.com/12408653](https://www.masstransitmag.com/12408653)

► The first regional account-based virtual transit farecard has reached full launch status for riders for TriMet, C-TRAN and Portland Streetcar passengers. TriMet, INIT, and moovel worked to enable this final development with Google Pay.

➔ [MassTransitmag.com/12408291](https://www.masstransitmag.com/12408291)

► VIA Metropolitan Transit dedicated its new compressed natural gas fueling station — the largest in North America.

➔ [MassTransitmag.com/12408654](https://www.masstransitmag.com/12408654)

## People in the News



Connie Raya



Inessa Vitko



Helene Kornblatt



Stephen Kambol



Michael Booth, AICP

### Omnitrans

**Connie Raya joined Omnitran as director of Maintenance.**

Raya has more than two decades of experience in public transit maintenance gained while working at the Orange County Transportation Authority. She will oversee a department of 108 employees responsible for maintaining a fleet of 188 buses and 25 support vehicles as well as multiple agency facilities. Raya joined OCTA in 1993 in the Commuter Services Department and had advanced through several roles, including fleet analyst and most recently, maintenance resource manager.

➔ [MassTransitmag.com/12405086](https://www.masstransitmag.com/12405086)

### C-TRAN

**C-TRAN hired Inessa Vitko to serve as its next chief operations officer.**

Vitko will lead the agency's largest department, which includes all of its fixed-route and paratransit operators. Vitko comes to C-TRAN after 12 years at TriMet in Portland, Oregon, where she served in multiple roles, including work in budgeting and grants, operations and customer communications. She recently led TriMet's first-ever customer experience department. She holds a master's of public administration and a bachelor's of science in mathematics and statistics, both from Portland State University.

➔ [MassTransitmag.com/12410128](https://www.masstransitmag.com/12410128)

### HNTB Corp.

**Helene Kornblatt joined HNTB Corp. as senior environmental sciences and planning director and Southern California practice leader.**

She also is an associate vice president of the firm. In this position, she is responsible for project delivery and business development for the firm's growing environmental practice throughout California. She has worked on transit projects in Chicago, Seattle, Los Angeles and San Diego. Most recently, she directed a contract for Los Angeles County Metropolitan Transportation Authority supporting the rail and bus capital construction program.

➔ [MassTransitmag.com/12408490](https://www.masstransitmag.com/12408490)

### WSP USA

**Stephen Kambol has been named a senior project manager in the Seattle office of WSP USA.**

In his new position, Kambol will be responsible for management, design and delivery of large-scale rail projects. He has nearly four decades of experience, serving in progressively responsible positions in engineering, management, business development and client service. A transportation engineering specialist, his background has been largely focused on highway and rail projects. Prior to joining WSP, Kambol was the Pacific Northwest rail/transit department manager for an international engineering firm.

➔ [MassTransitmag.com/12403292](https://www.masstransitmag.com/12403292)

### HNTB Corp.

**Michael Booth joined HNTB Corp. as transit planning group director and associate vice president.**

He brings more than 33 years of industry expertise, with a focus on major transportation, transit and infrastructure capital projects, including experience in project management for the Chicago Transit Authority and other transit agencies. In his new role, Booth leads HNTB's Chicago transit planning practice, focusing on service and delivery for key transit and rail clients throughout the region in addition to serving as a project and program manager for various transit projects.

➔ [MassTransitmag.com/12410751](https://www.masstransitmag.com/12410751)

# Modernization

## How Caltrain Will Meet Growing Demand

Caltrain continues to see increased ridership. The \$2 billion CalMod Program will create the potential for its service to grow to meet the region's long-term demands.

By **Leah Harnack**

**S**AN FRANCISCO IS THE MOST DENSELY POPULATED county in California and serves as the region's largest job center, bringing in 150,000 employees each day, according to the Metropolitan Transportation Commission.

The commuter rail line connecting San Francisco to the Silicon Valley is Caltrain, a joint powers authority put together by three counties: San Mateo, Santa Clara and San Francisco.

The passenger rail service started when Abraham Lincoln was in office and while it certainly has changed over time, Caltrain Executive Director Jim Hartnett joked it has been put together with Band-Aids to keep it together.

➔ [More on the creation of Caltrain](https://www.masstransitmag.com/12412869) [MassTransitmag.com/12412869](https://www.masstransitmag.com/12412869)

**HARTNETT SAID** Caltrain provides more bike ridership than anybody in the country and their new EMUs will have increased capacity for bike cars.

Photos by Caltrain







**THE CALIFORNIA** State Transportation Agency announced a \$164.5 million investment from the Transit and Intercity Rail Capital Program, which will help support enhanced bicycle facilities at Caltrain stations.



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**CALTRAIN DEVELOPED** a mobile ticketing option for its three-county ridership. They provide a lot of special event service, including more than 500,000 rides a year to and from the San Francisco Giants games, and they wanted a mobile ticketing option for those that aren't regular Caltrain riders.

### At capacity

In the congested Silicon Valley, Caltrain ridership has been on the rise. "For us, it's a continual demand for more service," Hartnett said. "At commuter hours, we're standing room only."

That change is coming with the Caltrain Modernization (CalMod) Program, a major investment by the Peninsula Corridor Joint Powers Board consisting of three major elements: an advanced signal system that includes positive train control, conversion of the propulsion power system from diesel to electric, and the procurement of new electric multiple unit rail vehicles.

Hartnett said electrification could not come at a better time for them. They were going to need a new fleet anyways with the aging of the fleet and it's better for the environment for them to have an electric fleet.

A key challenge is doing a major \$2 billion upgrade while maintaining existing revenue service, explained John Funghi, executive officer of the Caltrain Modernization Program (electrification). "Basically we try to minimize impact of the riding public for the 65,000 riders that ride the system every day.

"Most of the work is done during off-peak times, with the bulk of the work being

done between 8 at night and 5:30 in the morning. We also do some temporary shutdowns at the weekends."

Some of the challenges in coordination are things like holding back on a concrete pour or accelerating something else, so that the work can be accomplished within the window.

"It's fairly complex and involves a lot of folks, a lot of advanced coordination," he explained. "Track allocation is a big deal for us in order to maintain the overall schedule."

At one time, Caltrain ran through a bit of a greenfield, but there's been major development up to the rail line, so oftentimes they're right in people's backyards, he explained.

Director of Government & Community Affairs Casey Fromson said that as this project goes along 51 miles with a couple dozen communities, it's required a very strong outreach process to ensure people know about the work.

"There's a lot of coordination with the community about how we're actually building the infrastructure, in addition to the riders who are very interested in what the experience will be and the service changes that will come with the modernization project," she explained.



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They've worked closely with community leaders and elected officials through standing community groups that they meet on a monthly basis to provide updates and they have both physical notices and electronic updates for residents.

Fromson said being committed to an inclusive outreach process has meant investing the time and resources to be where the people are to get good feedback on the project.

Key to this communication is keeping people informed of what they're doing, why they're doing it and what it's going to look like after it's done. Funghi said, "I think communication is a big challenge and if we do it well, it will help with the construction and acceptance of the overall line."

### Electrifying benefits

At the end of April of this year, the California State Transportation

Agency announced a \$164.5 million investment from the Transit and Intercity Rail Capital Program, which will support the replacement of Caltrain's diesel fleet, the addition of Wi-Fi onboard the new electric fleet and enhanced bicycle facilities at the Caltrain stations.

The initial Peninsula Corridor Electrification Project had the funds to replace 75 percent of the fleet with electric trains. This additional funding will allow Caltrain to fully electrify its mainline service between San Francisco and San Jose.

The grant will also provide for the lengthening of boarding platforms at some stations, to accommodate longer, 8-car electric trains.

Once fully electrified, they will have better operating characteristics to stop more, to have longer trainsets and to operate more trains.

"Because of the number of stops that we have, it was im-



portant to us to have the operating characteristics that we do so that we could run our same routes more quickly," he said. "It gives us the opportunity to have the combination of running the same schedule in terms of number of stops, but it doesn't take you as long, so you can still have some quick service with more stops or you can have the same service, just going more quickly."

**SINCE 2004,** Caltrain ridership has more than doubled.

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## By the Numbers: CalMod Program Cost

Electrification: **\$1.98 billion**

Advanced Signal System: **\$231 million**

Total: **\$2.21 billion**

The contract for the EMUs is a design-build contract. Hartnett said, "It was a process in terms of here's what we need in terms of characteristics; it's up to them to design it and then build it."

They're currently going through the design process. They did a strong wave of outreach to get feedback from riders on the design elements, gathering more than 15,000 comments over the last couple years.

While the board was making decisions on larger aspects of the

trains, there was rider involvement for many of the design elements.

"It takes time for these projects to come to full fruition. It's our job to bring them along," Fromson said.

The public role of the design is largely complete. Catering to the high-tech riders in the Silicon Valley, later this year Caltrain will role out a virtual reality simulation of what the trains are going to look like.

"We'll be at stations with card-board virtual reality headsets," explained Fromson. "People will be able to 'walk' through the train and get the experience that way."

"Frankly, it's a cost-efficient way to getting to a broad group of people and let them experience it, without necessarily spending all the resources on a physical structure." She added, "We thought it was an exciting way to give people a feel of what the new trains are going to look like."

## Dedicated funding

Caltrain does not have its own taxing authority or any dedicated taxes that went into it, so since that time, Hartnett said it has had to be innovative in terms of how it has funded itself. "Over time we have had to have contributions to subsidize the service from each of the three counties as required under the joint powers agreement, and to seek grants ... for capital and other needs."

Over the years, he said the counties have been constrained on what they can contribute on an annual basis, so it's been difficult to keep up on the state of good repair side of things.

Hartnett said, "We haven't dramatically changed the number of trains we run, we're just able to fill people's needs by how we structure our service ... it's a service people find reliable, generally speaking

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economical, and it gets them to where they want to go in a much more timely manner than if they were driving, or a much more enjoyable manner than if they were driving. For most, it's a lot less costly than if they were driving."

The farebox recovery rate is over 70 percent and with advertising and property they lease along the right of way, he said that gets them to over 75 percent.

"We're very proud of our farebox recovery but it's a question of how far you can go in funding your services and the state of good repair from the farebox," he said. "We're going through our budget process again, as we do every year, and we're looking at whether or not we need to raise fares again."

The state legislature passed a law in 2017 that would allow the Caltrain joint powers agency board to put a measure on the ballot for

a sales tax to support Caltrain. "As is typical in California, because it's not a general tax, it has to get two thirds support collectively in the three counties," said Hartnett. "There are actually seven agencies that would have to approve us putting it on the ballot."

"It's somewhat of an elongated process to get something on the ballot. It requires the three boards of supervisors ... and it requires the three member transit agencies to approve it as well: the Santa Clara County VTA [Valley Transportation Authority] in San Mateo County, it's the San Mateo Transit District and Muni in San Francisco. Each of their boards would have to approve as well, that it's going on the ballot."

### Looking to the future

Caltrain has a business plan underway that is an operational business case study for what they

expect by 2040 to be the actual demand, what it would take operationally and in terms of capital investment to meet that demand. It will also look at what policy decisions would have to be made in order to get there.

"It's a multi-million dollar study that is a real-world one," Hartnett explained. "We have regional support for this to take a really good deep-dive into both a technical and practical perspective."

They're scheduled to have that plan completed by the end of the year and that will set the stage for a regional conversation about what Caltrain will look like. It also will set the stage for a strong narrative to support a sales tax on the ballot in 2020.

"The discussions have been oriented to a 2020 ballot for that sales tax," Hartnett said. "It would be an incredible thing for Caltrain." 

### "We're

very proud of our farebox recovery but it's a question of how far you can go in funding your services and the state of good repair from the farebox."

**-JIM HARTNETT**  
Executive Director,  
Caltrain &  
Chief Executive Officer, General Manager,  
San Mateo County Transit District

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## SPECIAL REPORT

# Rail Fleets

We looked at the latest data to give you an overview of the state of the rail industry and insight of the trends.

### Global View

**A** WORLD RAIL MARKET STUDY IS COMMISSIONED BIENNIALY BY UNIFE, the Association of the European Rail Industry, to show the global trends of the rail market and to forecast its future. According to the latest study, the overall industry is anticipated to grow an additional 2.6 percent CAGR until 2021. The highest growth is expected to be in the urban areas, driven by population growth and expanding metropolitan areas.

A significant trend that has emerged over the past few years has been the digitization of the rail market, leading to an increase in data.

Overall rail supply market has witnessed a **3% growth**, driven primarily by the Asian Pacific region.

The world rail supply market has reached a record-high level at **more than \$187B**.

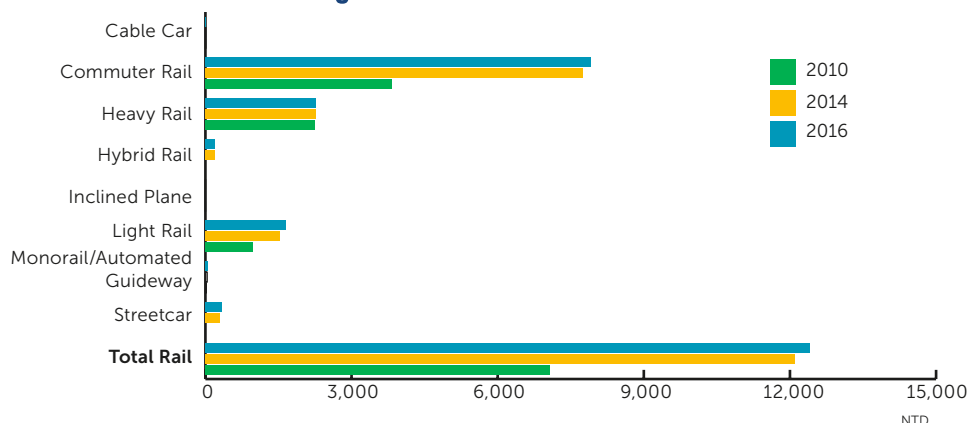
Highest growth rates in the global rail market seen in the **rolling stock and services segments**, accounting for more than 72 percent of the total rail market, 2013-2015.

\*Unife World Rail Market Study  
<http://www.unife.org/component/attachments/?task=download&id=731>

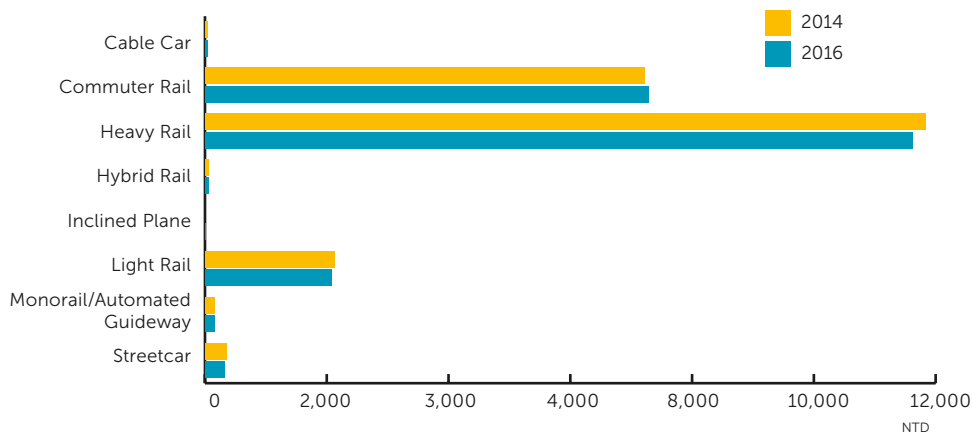
Data for CC, CR, HY, IP, LR, MO, AG, SR and YR from NTD.



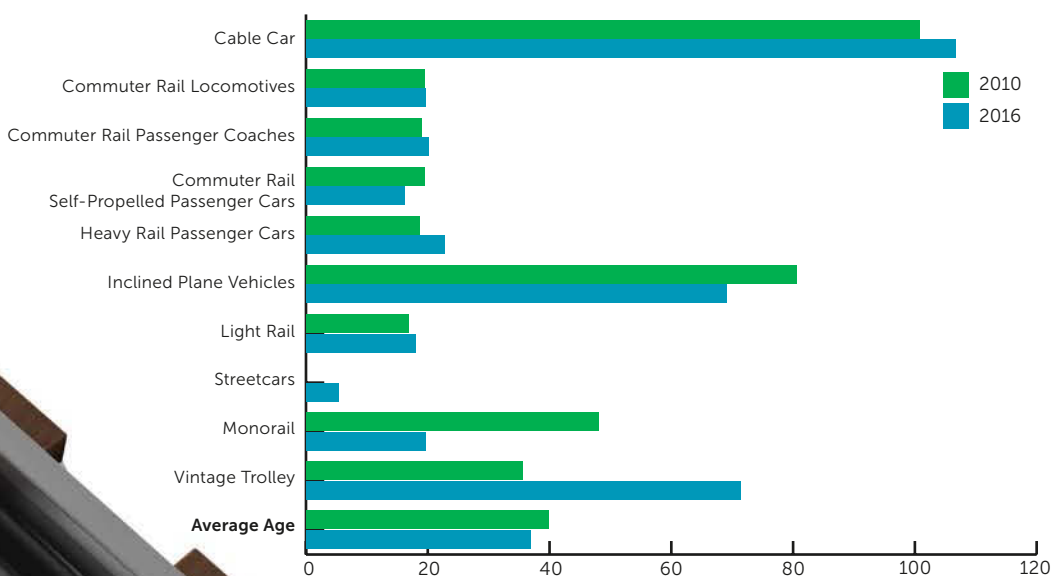
## U.S. Passenger Rail Total Miles of Track



## Active Fleet Vehicles



## Average Age of Fleet



## Terminology NTD Mode Types

**AG:** Automated Guideway

**CC:** Cable Car

**CR:** Commuter Rail

**HR:** Heavy Rail

**IP:** Inclined Plane

**LR:** Light Rail

**MO:** Monorail

**SR:** Streetcar

**YR:** Hybrid Rail

## Number of Crossings in 2016

At Grade: Restricted  
Right-of-Way

**5860**

Street Running  
Crossings

**1905**

Total Crossings

**7765**

Source: NTD

Rail transit and  
grade-crossing fatalities:

**241**

Rail transit and  
grade-crossing injuries:

**8712**

Source: BTS

# Economic Driver

**T**RANSIT AGENCIES ARE LOOKING AT WAYS TO QUANTIFY the wide range of benefits of transit, beyond ridership, including generated tax revenues, real estate development and the many ways in which it contributes to a community's economic vitality.

## "The Economic and Fiscal Impacts of Development near DART Stations"

- Public development produced an economic impact of \$3.36 billion for the Dallas-Fort Worth region
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- Public development created \$1.3 billion in employee compensation
- Public development generated \$105 million in state and local taxes, and \$278 million in federal tax revenue

[dart.org/about/economicimpact.asp](http://dart.org/about/economicimpact.asp)

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## Milwaukee's New Streetcar Will Provide Transit, Economic Development

When Milwaukee city officials envisioned a new streetcar system that would start in downtown area neighborhoods, they not only saw a way to move residents, employees and visitors, they also saw a tool for economic development.

The streetcar system called The Hop is already achieving the goal of city-building, ahead of its expected opening in November 2018. New high-rise office towers and apartment complexes have been announced along the streetcar's initial and expansion routes.

One such project is the new 25-story BMO Harris Bank tower, a \$132.6 million project that will sit along the streetcar line and is expected to be complete in December 2019.

Another project is the \$125 million 44-story mixed-use tower, the Couture. Located along the city's lakefront, it will include a podium for a streetcar stop. That podium also will act as a transit concourse to be served by both The Hop and the local bus rapid transit route, said Ashley Booth, National Streetcar Practice Leader for HNTB

➔ [MassTransitmag.com/12409384](http://MassTransitmag.com/12409384)



## Metro

The Washington Metropolitan Area Transit Authority did a study which highlighted the impact of transit:

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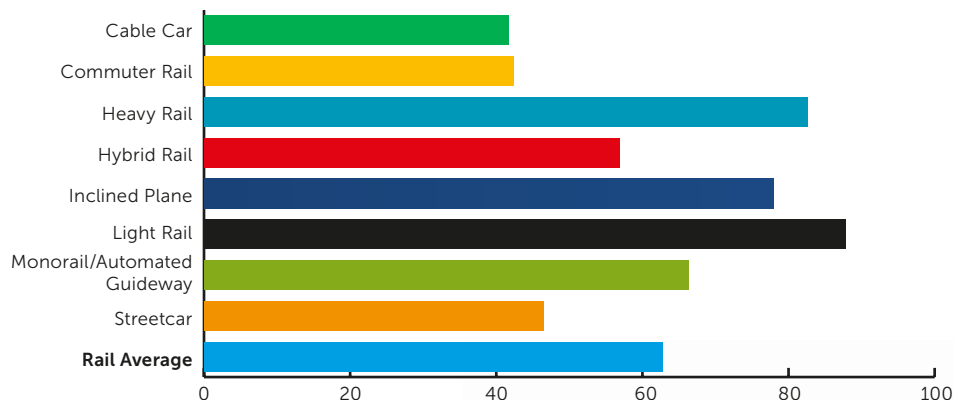
# Energy

**T**HE ENERGY INTENSITIES OF PASSENGER MODES HAVE generally declined over time, largely the result of efficient engines and improved operating efficiencies.

## Energy Consumption

	2016 Bio-Diesel (Gallons)	Diesel (Gallons)	Electric Propulsion (KwH)	2010 Bio-Diesel (Gallons)	2010 Diesel (Gallons)	2010 Electric Propulsion (KwH)
Cable Car			4,068,073			3,853,173
Commuter Rail	425,520	100,106,194	1,763,939,074	2,089,924	91,121,955	1,797,008,302
Heavy Rail			3,760,373,347			3,779,783,589
Hybrid Rail	106,645	1,640,543				
Inclined Plane			377,727			603,490
Light Rail			907,037,737		953,216	749,145,511
Monorail/Automated Guideway			37,047,141			16,132,725
Streetcar			50,909,754			
<b>Total Rail</b>	<b>532,165</b>	<b>101,746,737</b>	<b>6,523,752,853</b>			<b>6,346,526,790</b>

## Passengers per Hour



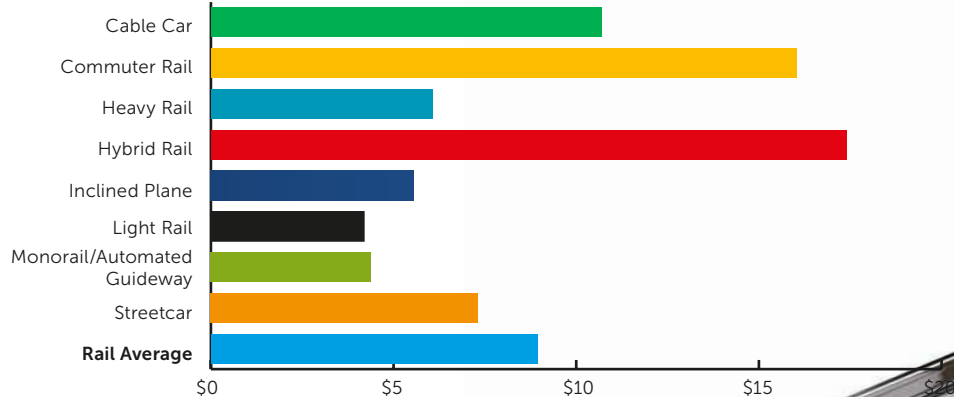
\* List of sources as well as links, available at [MassTransitmag.com/12412868](http://MassTransitmag.com/12412868)

Heavy rail transit produces on average **76% lower greenhouse gas emissions per passenger mile** than an average SOV.

Light rail systems produce **62% less greenhouse gas emissions per passenger mile** than an average SOV

-FTA

## Cost per Passenger







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# Latest in Heavy Rail Vehicles

More agencies are looking to implement heavy rail into their systems as suppliers continue to develop both rail cars and the technology within them.

By **Maile Bucher**

**SIEMENS HAS** worked to implement technology for the upcoming PTC mandate and safety management systems.

with the newest knowledge base and supply chain — and in a way that won't disrupt the reliability or availability of the trains' services."

## Implementing changes

"We are working on a more holistic approach to the traditional servicing model: one that combines our engineering domain know-how with the newest digital technologies to help manage the obsolescence issues that arise," explained Maynard.

Siemens technology aligns with the trend of technology becoming a higher priority among systems.

One concern that has arisen in systems that run through busier cityscape areas in the noise that is generated. Bombardier has introduced a new silicon carbide (SiC)-equipped BOMBARDIER MITRAC TC1500 traction converter. The technology works to reduce areas such as emissions and noise, while also making the propulsion systems more effective.

## HEAVY RAIL CONTINUES

to develop. Technology continues to make rail lines more efficient and can also increase passenger comfort.

Chris Maynard, vice president of Siemens Rail Services business in the U.S. said, "With today's technology on trains changing at lightning speed, organizations are struggling more and more to ensure the new trains and technology are adequately supported



**BOMBARDIER HAS** further developed its BiLevel rail car, the cars were original developed alongside of GO Transit.



“This new energy-saving propulsion technology is the result of a Bombardier-led joint research program that investigated the potential contribution SiC could make toward more sustainable urban transit systems with lower energy consumption and noise levels,” said Patrick Jacob, product marketing manager, MOVIA Metro Products.

As cities lean toward furthering sustainable infrastructure, heavy rail lines become more attractive.

Jacob explained, “The research program, supported by the Swedish Energy Agency, saw Bombardier team up with local partners.”

- The Stockholm Public Transport Authority (customer and fleet owner)
- MTR Tech (fleet operator)
- KTH Royal Institute of Technology (academic partner)

- RISE/Acreo (research institute)

“Following a pre-study phase to establish the potential benefits, a prototype was designed, built and tested at Bombardier’s engineering center in Vasteras, Sweden,” said Jacob. “The BOMBARDIER MITRAC TC1500 traction converter equipped with SiC semiconductors was then tested on a C20 metro train running on the Stockholm Metro.”

The passenger service on the Stockholm Metro Green Line ran from December 2017 to March 2018. Jacob explained that the results from the service showed how SiC technology can benefit customers.

- Energy reductions up to 35 percent
- 19 dB lower noise emissions
- A 51 percent reduction in size in the propulsion system
- 22 percent less weight in the propulsion system

## Safety mandates

With the upcoming Federal Railroad Administration’s mandate on positive train control approaching, safety is a factor that also comes into play with heavy rail.

“By far, the most important development we are seeing is the mandated implementation of PTC — and how to give our customers full PTC capability quickly, safely and without too much change to their existing system,” explained John Paljug, president of Siemens Rail Automation Business for North America. “Right now, we’re having some tremendous success with our product ACSES (Advanced Civil Speed Enforcement System) which, when overlaid with our conventional cab signal systems, provides the four core sought-after PTC functions: civil speed enforcement, positive train



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stop, track speed enforcement and work zone protection in one integrated package.”

Paljug explained that the ACSES product is that it can be implemented onto an agency's current signal system.

“Another sought-after and appreciated feature (especially of our ACSES product) is that it's a fairly easy ‘overlay’ onto an existing cab signal system — requiring intermittent information delivery, and not a continuous stream of information,” said Paljug. “This ‘agnostic’ capability gives customers the flexibility they need for further upgrades — helping to ‘future-proof’ their system moving forward.”

The ability to upgrade a system with ease allows for agencies assets to remain in safe service with greater ease and introduce a longer life cycle.

When it comes to railcars, Bombardier has introduced a new generation of Bombardier commuter rail cars. The BiLevel cars have been operating since 1978 and designed along with GO Transit, now part of Metrolinx. Currently there are more than 1,300 BiLevel cars in operation or currently being ordered by transit authorities across Canada and the United States.

“One of the keys to the success of the BiLevel car has been its ability to meet the changing needs of commuter rail agencies as well as the dynamic regulatory environment,” said Yves Laperrière, chief product engineer, BiLevel and Multi-Level Products, Bombardier.

Bombardier has introduced a new generation of the BiLevel car.

“The newest generation of the popular BiLevel car includes cabs and coaches equipped with a



Bombardier

Crash Energy Management (CEM) system. It offers an enhanced structure, pushback couplers and crumple zones at either end of the car,” said Laperrière. “In addition, the front end of the cab car is designed to withstand and absorb a greater load and the engineers’ cab, which is now positioned 29 inches higher, features improved ergonomics.”

There are currently CEM-equipped BiLevel cars that are running at agencies such as Metro-

**BOMBARDIER** IS currently operating its vehicles for the Stockholm Metro.

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linx in Toronto and Sound Transit in Seattle. The CEM-equipped BiLevel cars are also currently in production for SunRail in Florida.

### Maintenance and life cycle costs

Maintenance and improving life-cycle costs is another consideration that comes into play with the furthered development and selection of rail vehicles. With the transit asset management (TAM) plan being mandated next year, rail companies continue to develop in this area. Siemens has worked to develop new technologies that in the end benefit maintenance departments.

"In addition we are developing diagnostic support for the optimization of not only maintenance, but the improving of efficiency of operations – resulting in

less overall costs to the customer," explained Maynard.

Bombardier has also introduced new technologies that can benefit life cycle of rail vehicles.

"Bombardier developed the FLEXX Eco bogie to meet market requirements, driven by life cycle cost and environmental considerations," said Jacob. "The FLEXX Eco bogie design retains and improves on the overall safety and performance of the conventional bogie and incorporates an inboard bearing wheelset concept, resulting in a compact, lightweight and robust bogie design."

Jacob explained that the major benefits of the FLEXX Eco bogie design include:

- Train weight reduction: 30 percent reduction in total bogie mass compared with a conventional bogie

- Track friendliness
- Reduced track damage and rail wear
- Optimized total cost of ownership
- Reduced energy consumption
- Reduced bogie maintenance costs

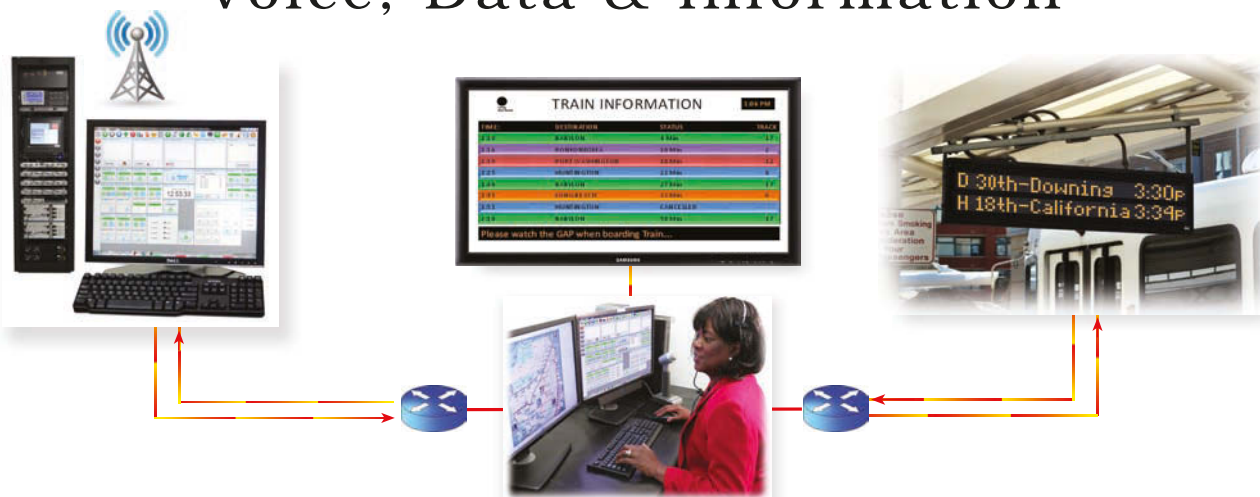
Almost 1,000 FLEXX Eco bogies are in successful operation and/or in production worldwide for commuter, regional and high speed applications," said Jacob. **MT**

**"In addition, we are developing diagnostic support for the optimization of not only maintenance, but the improving of efficiency of operations – resulting in less overall costs to the customer,"**

**-CHRIS MAYNARD**, vice president of Siemens Rail Services

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# Exploring **the Different Aspects of BRT**



**THE CHELSEA** line has stations placed in higher capacity areas.

Transit agencies have to balance the bus rapid transit characteristics they want with what they can afford and with what the cities they operate through can commit.

By **Maile Bucher**

**T**O ACHIEVE THE PERFORMANCE and benefits of its more expensive rail counterpart while maintaining the flexibility of a bus service, BRT employs a number of key characteristics. However, these elements are customized by agencies to best meet the needs of the community.

## **Building on a service**

The Massachusetts Bay Transportation Authority's (MBTA) BRT is the Silver Line, with five different routes along two lines. Each route of the high-capacity bus line was built in a separate phase.

The latest line, the SL3-Chelsea, opened on April 21 of this year. The line provides more efficient service for riders headed to Chelsea, East Boston, Logan Airport, the Seaport District and to South Station by offering fewer stops and traveling in an exclusive bus lane in Chelsea to avoid traffic.

Construction of the \$54.7 million SL3-Chelsea route began in 2015 and was managed by the Massachusetts Department of Transportation's Highway Division and jointly funded by the MBTA and Mass DOT.

MBTA Manager of Transit Planning Scott Hamwey explained that two Silver Line routes started about 15 years ago and one of those, the Washington Street corridor, had a dedicated lane for a significant portion of the route.

"One critique as a result of the transit project was that the dedicated lanes were in places that there was not a lot of traffic," he said. "The places where there was a lot more congestion, we weren't able to have street space from the city in order to provide a faster service in those areas."

Having areas with priority traffic was more expensive to implement, but they're having more success now thanks to a dedicated bus lane pilot project.

"We have a dedicated bus lane piloted a year and a half ago in the city of Everett during rush hour. That was really successful and the city quickly committed to making it permanent." He added, "We started to see a lot more opportunities for those kinds of services."

## **First-time BRT**

In Tulsa, Oklahoma, the Metropolitan Tulsa Transit Authority (Tulsa Transit) is currently in the process of creating its first BRT, Aero, a nod to Tulsa's aerospace industry. The initial route will run along its current Peoria route, one of its highest ridership routes.

The current service along the Peoria corridor is a 30-minute, standard fixed-route service. By August 2019, they anticipate the new BRT service being up and

**MBTA'S BUSES** display the same branding as the original buses that were introduced onto the initial Silver Line.





running, bringing the ride to a 15-minute headway.

"There were a lot of studies that went into that corridor," said Liann Alfaro, Tulsa Transit planning and marketing director. "Since it was already one of our higher-frequency and higher-ridership routes, it looked like it might be the best corridor to look at to put in a new BRT system."

She continued, "Also, after doing some studying and looking at it, there are quite a few people that live off that corridor and there are also jobs available along that corridor."

One in seven Tulsa residents live within a 10-minute walk of the corridor and one-fifth of the city's jobs are within a 10-minute walk of Peoria Avenue.

"Tulsa is really trying to grow and be able to become one of the cool cities. We're looking at better ways to offer different modes of transportation."

## BRT Style

The vehicles operated on BRT routes come in a broad range, from conventional buses to specially designed vehicles utilizing advanced technologies. Agencies consider the size and capacity; door width, placement and quantity; emissions; branding; and any guidance enhancements.

With the initial Silver Line, the MBTA brought in new articulated vehicles and enhanced branding. The buses have more room, a smooth ride and additional space for luggage, as they serve the airport.

The tunnel in the Seaport District that the buses would be operating in required a zero-emission solution, so the MBTA went with a hybrid vehicle. The vehicle operates on electric catenary in the tunnel and then on diesel power for the remainder of the service.



**THE AERO** stations will feature real-time passenger information, including next-bus arrival times.

The Silver Line also has compressed natural gas vehicles, which were introduced when the line first began, but the agency continues to factor in developing bus technology — including electric vehicles.

When Tulsa Transit launches its BRT route, it will have 11 buses. Playing to Aero, the buses will be branded with an arrow, setting them apart from the standard service.

"We've already got all our branding put together and that's how [riders] will be able to tell the difference," said Alfaro.

## Working with municipalities

Part of forming a successful partnership and ensure significant developments is partnering with the cities that routes operate in.

MBTA Director of Operations Planning and Outreach Wes Edwards said part of the work is being more engaged with cities. "They're planning for future capital improvements and identifying how the streets get painted and what the signals look like. All of this supports bus service."

"We're going through a renaissance in how we engage the cities to show how we improve transit services on their own streets."

He said, "Municipalities, they own the streets, sidewalks

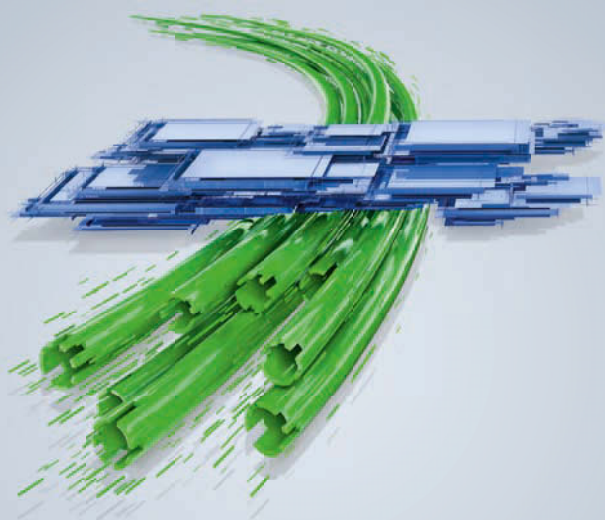


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and a lot of the things that our buses sort of run on. We operate the buses and we help with bus stop labels, but we rely heavily on them when improving the reliability of our system.”

**THE LEVEL** boarding stations along the Aero line will feature bike racks and be easily accessible.



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Projects like the Everett dedicated bus lane pilot highlight the benefit to increasing capacity and reducing congestion on the highways.

“With the Everett pilot I think that the cities saw that there is a huge benefit from building dedicated bus lanes within the transit infrastructure,” he said.

Edwards said that the MBTA is working on both exclusive bus lanes as well stop consolidation, factoring in which aspects of BRT would be the most productive.

Tulsa Transit is looking at the characteristics it can implement along its line to improve the BRT’s efficiency and appeal.

“It will have the level boarding ... and it will have more amenities than we do at our current shelters,” Alfaro said of Aero stations.

The BRT stations will have real-time arrival screens with next-bus arrival times and station-area lighting for improved security. “Some great capital assets will go on the street for this service,” Alfaro said.

Most of the stations will be level boarding, but she said there are a few areas where they may not be able to accommodate level boarding. Level boarding is still being discussed, whether it can be offered at each station, and if not, the station will still look like the others and offer the same amenities as the other stations.

HNTB Corp. is assisting Tulsa Transit with the consultation throughout the construction and development of the BRT.

Tulsa Transit should be breaking ground in December of this year.

“I think this is a good way to ease the choice riders that we currently have to utilize public transportation,” Alfaro said. “Along with that, it is also for our current riders who need our transportation system. It will help them move through the city of Tulsa in a faster way than what we are able to do at this point.

“I think that once this Peoria corridor gets off the ground it will open the eyes of people who don’t use the transit system or understand why the transit system is so important to a city and the economic development.” **MT**



# MIND THE GAP!

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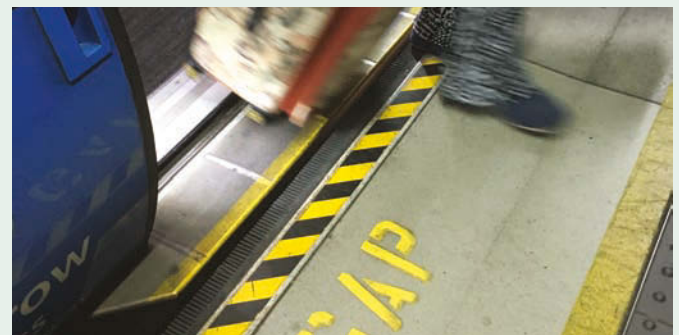


\*Image depicts actual occurrence – Stirling Station, Perth on 6 August 2014.

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Photos by St. Louis Metro

# Improving Asset Management

**METRO TRANSIT** was recognized for successful asset management by the FTA.

The response to the mandate has brought agencies together to share best practices.

“Many transit agencies already recognize that an asset management plan is a best practice for any organization by calling for goal-setting and setting targets to reach those goals. FTA has provided extensive information and technical support to transit agencies since the law was enacted in 2012, and for many years before that. Agencies also are learning from one another. More than a dozen agencies have contributed case studies to FTA’s peer library. FTA also hosts an annual TAM roundtable and regularly provides updates to grantees at industry meetings,” said Williams. “Most smaller agencies already have the basics of their TAM plans underway, and transit agencies have reported their vehicle inventories to the NTD for many years. Those reports can be the start of asset inventories for the TAM plans.”

With the transit asset management rule introduced, how can agencies work to meet this new mandate? The FTA has information in place to assist agencies, including best practices and program examples.

By **Maile Bucher**

**T**HE FEDERAL TRANSIT Administration introduced the transit asset management (TAM) rule to maintain transit fleets, keeping assets in fleets longer and be more effective. “TAM is a business model that prioritizes funding based on the condition of transit assets to achieve or maintain transit networks in a state of good repair. In 2015, U.S. DOT estimated that 40 percent of buses and 23 percent of rail transit assets were in marginal or poor condition, with a backlog of \$90 billion in deferred main-

tenance,” explained FTA Acting Administrator K. Jane Williams. “In July 2016, FTA issued a final rule requiring transit agencies to maintain — and document — minimum TAM standards. The TAM rule aims to address the SGR backlog by requiring transit providers to create TAM plans that help them prioritize maintenance. “Implementing a TAM system requires transit providers to collect and use asset condition data, set targets, and develop strategies to prioritize investments to meet their goals,” she said.



**DARREN CURRY**, Metro Transit, chief mechanical officer explained how Metro Transit utilizes a working philosophy to keep its program moving.

## Setting the philosophy

One such agency that has focused on keeping asset management in the forefront of its program is Bi-State Development, which oversees Metro Transit, in St. Louis. In 2016, Metro Transit was recognized by the FTA as a model for transit asset management. One of the main highlights that was focused on was Metro’s bus maintenance program.

Darren Curry, Metro Transit chief mechanical officer, explained how Metro Transit began restructuring its program. “We introduced that maintenance program back in 2002. In 2002 we sat out on changing our traditional maintenance where you set out to find things that are broken and or wait for something to fail to a more proactive predictive maintenance program. We mapped out the entire lifecycle of a vehicle including the kinds of failures and we pulled component replacement throughout the lifecycle of the vehicle.”



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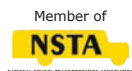
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## TRANSIT ASSET MANAGEMENT

That philosophy, which they started with the bus fleet, they pushed into the on-demand and LRV maintenance programs.

Curry said, "I believe that we were recognized because we were already doing that. When the mandate came out and there was more guidance on what the FTA was looking at, we were pretty much aligned with it."

### Meeting the mandate

To comply with the TAM rule, agencies will develop a TAM plan and submit two reports to the National Transit Database annually. TAM plans include an asset inventory, asset condition assessments and a prioritized list of investments to improve the state of good repair of the capital assets.

"All transit providers, regardless of size, will develop TAM plans," said Williams.

"However, small providers have fewer requirements and most may participate in a group plan through their state department of transportation." She continued, "FTA offers technical assistance to help agencies implement TAM through a comprehensive website that includes FAQs, peer success stories, guidebooks, templates, checklists, archived webinars, and a quarterly newsletter."

For Metro Transit, they're continuing how they've worked in the past and building upon that.

"We're on track," said Curry. "What it did cause for us is we focused on the bigger assets, obviously the railcars and the facilities, although we had already adopted the philosophy of identifying the asset, mapping out the intended life for that asset and developing a predictive maintenance program to get that asset to the end of its



**THE EFFECTIVENESS** of the Metro Transit asset management program depends on a cohesive team.

intended life. Now we're pushing that all the way down to all assets."

### Benefits of TAM

Implementing a successful program for TAM can benefit agencies in numerous ways, including both the productivity of the agencies assets and their man-hours.

"Well-developed asset management systems will optimize capital investment and inform



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**METRO TRANSIT'S** implemented policies for TAM means that assets have longer lifecycles and remain in on the roads longer.



maintenance decisions. Studies have shown that TAM can lower maintenance costs over time," Williams explained. "TAM can also provide safety benefits. We encourage you to reach out to transit agencies to learn about their successes and challenges in developing TAM plans."

Curry said that Metro Transit saw a direct correlation.

"What it did for us is we reduced our whole operating and maintenance costs by about 50 percent. Most of it was the labor savings because it didn't adhere to the old programs. With our parts there were some savings there, in the sense that we were able to identify where it would fail and prevent a catastrophic failure," Curry explained.

This philosophy for Metro Transit includes mapping out lifecycles before the fleet even arrives.

"There is something that is key," Curry said, "it truly begins with your purchasing of the capital asset."

"One thing you don't want to do is buy a lot of the same assets at the same time. The problem is they all require maintenance at the same time."

He explained, "What we did was we acquired capital assets so we were able to balance our maintenance efforts. We've been able to balance our capital cost and our operating cost. That was really our goal initially, getting away from the reach and value, so to speak, so we could forecast out into the future."

He continued, "We always maintain a maintenance program into the future, so we know how many vehicles we'll need in the future. We already know before the vehicle arrives what the lifecycle cost will be."

Metro Transit saw that their total lifecycle cost was reduced and they also were able to lower operating costs and plan component replacements earlier on in the assets life, keeping vehicles in their fleet longer. Curry said that speaks to the sustainability of the program. They replace fleets at 1/15 at a time. Without bringing in a large quantity of a certain vehicle at the same time, Metro Transit can replace the fleets in a staggered fashion.

"This wouldn't be possible without having support from the top, our board donations and Ray Friem [Executive Director of Metro Transit], all the way down to the people that are actually performing the maintenance," said Curry.

"Today we continue to adjust and finalize our plan. That is part of our culture." **MT**



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# Paratransit Innovation & Efficiency

Industry leaders share their experience on innovative programs for providing paratransit services, as well as ways in which they improved their operation's efficiency.

## Las Vegas, Nev.

**T**RANSPORTATION OPTIONS ARE growing, especially with the microtransit opportunities provided by transportation network companies like Lyft, which can provide same-day, on-demand and/or advance scheduled rides as an alternative to available conventional public transportation. As a public transit agency, the Regional Transportation Commission of Southern Nevada wants to stay ahead of the curve and integrate modern transportation solutions to keep our 64 million annual passenger trips moving efficiently.

We wanted to find better ways to effectively transport customers and enhance their experience while saving money to reinvest back into our system.

In an effort to provide more accessible, flexible and cost-efficient residential transit services, the RTC recently launched a pilot program called Ride On-Demand with Lyft, the fastest-growing rideshare company in the United States, for a small select group of Paratransit riders. The Lyft pilot program will allow up to 200 Paratransit customers the ability to enjoy more flexible service and to be more spontaneous by scheduling rides on demand, something they previously could not do.

For the first time in Southern Nevada, Ride On-Demand will provide traditional Paratransit customers with a same-day option. Both ADA and non-ADA service are provided. Lyft educates its drivers on how to assist passengers with collapsible wheelchairs as well as low-vision and hard-of-hearing/deaf clients to



**Tina Quigley**  
General  
Manager  
Regional  
Transportation  
Commission  
of Southern  
Nevada (RTC)

ensure the highest quality of service.

Rides can be scheduled directly through the Lyft app. Customers without access to a smartphone or require a wheelchair accessible vehicle can call RTC Customer Care seven days a week from 7 a.m. to 6 p.m. to request a ride via the program. SafeRide Health's SafeRiderManager System provides a digital platform for the RTC to schedule rides directly onto the Lyft platform.

Not only does this pilot program enhance the customer experience, but it also allows us to save money that we can reinvest back into our transit system.

While Paratransit passengers only pay \$3 per trip, it costs the RTC an average of \$32 for a one-way trip. The pilot program provides increased flexibility for customers, but it does not increase passenger costs. In most cases, the customer continues to pay \$3 one way.

The RTC subsidizes the ride up to \$15 each way, and if the ride costs more than \$18 total, the client has the option to pay the remaining balance or cancel the ride and use their Paratransit existing service.

**Tina Quigley**  
702.676.1500  
@RTCSNV

## Richmond, Va.



**Jonathan Owens**  
Marketing  
& Public  
Relations  
Specialist  
GRTC Transit  
System

**E**STABLISHING RELATIONSHIPS with the best providers is a critical step to improving paratransit efficiencies and offering a variety of mobility solutions. First Transit is the contractor for GRTC's CARE and CARE Plus services, which provide public transportation access to individuals with disabilities who may not be reasonably able to use fixed-route service. First Transit assists with on-site management, corporate support, safety and training implementation, and operations oversight.

Technology plays an essential role in improving efficiencies. GRTC uses Routematch software for scheduling and support. Collaborating with Routematch enabled GRTC to improve system speed and ensure ADA-compliant scheduling parameters for booking trips. As a result, we group more trips going to common destinations together and do not schedule trips lasting more than 90 minutes.

Soon, CARE and CARE Plus customers will also have the option to pay for trips using a preloaded card. When boarding, riders will tap the preloaded card at a validator and ride.

GRTC also implemented a one-year pilot program in August 2017 called CARE On-Demand. GRTC partners with UZURV and Roundtrip to provide CARE customers with additional service options, such as scheduling a same-day, direct, non-stop trip anywhere within the GRTC CARE Service area. Our mission is to provide clean, safe and reliable transportation and to improve mobility and access.

**Jonathan Owens**  
jonathan.owens@ridegrtc.com  
linkedin.com/in/jonathan-m-owens



## York, Penn.



**Richard Farr**  
Executive  
Director  
rabbittransit

**ORIGINALLY FOUNDED IN 1974 BY A** coalition of local governments in York County, Pennsylvania, rabbittransit has grown into a 10-county, 5,062-square mile, regional transportation provider, with most of its growth happening since 2011. From 2011 to 2016, nine counties joined the York-based transit authority and it now manages and delivers shared ride services in all 10 counties.

Regionalization has allowed for administrative efficiencies as it relates to staffing and services. There is currently one regional administrative center for the 10 counties with nine transit depots. The administrative center houses a regional call center that facilitates reservations and application processing for all counties. A centralized dispatching unit is also located at this center to manage the paratransit operations.

rabbittransit has also been able to leverage regionalization for efficiencies in technology. As it continues to modernize its technology infrastructure, only one system per subject area needs to be deployed rather than invest in multiple technologies across multiple counties. Current technology sharing includes a single phone system, electronic complaint system, human resource information system, maintenance software system and paratransit scheduling software.

Rolling stock is shared across all counties, which allows vehicles to be exchanged and moved for repairs as

heavy maintenance is centralized. The collective expertise of a multi-county system allows for an aggressive preventative maintenance program that keeps the fleet operating far beyond FTA standards.

Operators and vehicles are utilized in a more productive fashion. Historically, rural passengers are transported to more urban centers for services, such as healthcare. Operators would wait idle for the passenger to finish their appointment for the return trip. Under the new model, operators are utilized in the area, assisting in better quality of service by helping to reduce wait and ride times, while at the same time reducing paid driver hours for dead time. Operational efficiencies have been found by removing municipal boundaries, allowing the closest vehicle to service the passenger.

### Richard Farr

✉ rfarr@rabbittransit.org

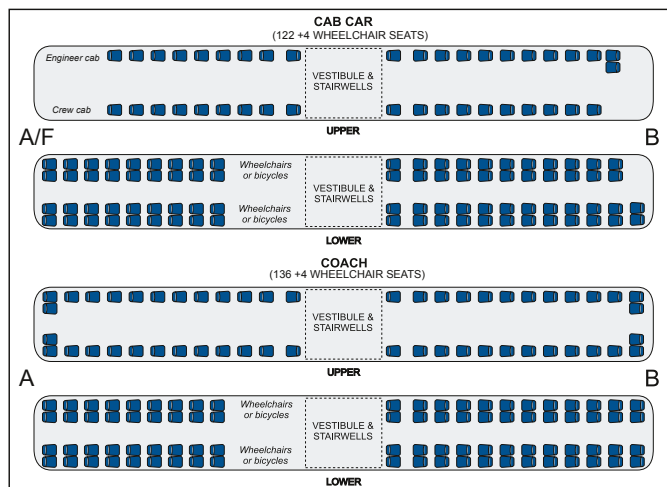
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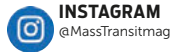
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"At first, no one would get on an elevator without an attendant, the same thing will happen with autonomous shuttles." #EmergingMobility



**Rachel Cole**  
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Quite a statement on the speed with which autonomous vehicle development and adoption is expected: 14 out of 107 sessions at #NPC18 are on future and impacts of AVs: to urban form, transit, social equity.



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ADA Accessibility is coming to Autonomous Vehicles. These shared vehicles are not the same as traditional buses, and vans.

## All-Electric Buses



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## PHOTO OP



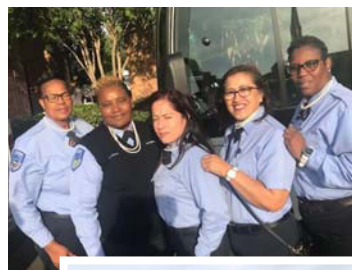
► As the Santa Clara Valley Transportation Authority prepares to roll out its new Proterra all-electric buses, it is teaming up with Prospect Silicon Valley and other Bay Area tech companies to pilot a cutting-edge system that will manage the charging of the new electric buses while reducing the impact on the state's electric grid. The April 19 press conference at VTA's Cerone Bus Yard was aired live on VTA's Facebook page and included remarks from San Jose Mayor Sam Liccardo and VTA General Manager and CEO Nuria Fernandez. [MassTransitmag.com/12409074](http://MassTransitmag.com/12409074)

## INSIGHT



**LANETRANSIT**  
@LANE TRANSIT DISTRICT

LTD's General Manager Aurora Jackson, Director of Public Affairs Edward McGlone, and Assistant General Manager Mark Johnson joined PeaceHealth Rides for its launch. The Bike Share program started April 19.



**RIDEMETRO**  
@HOUSTON METRO

"A handful of our operators have donned their best pearls as they operate a shuttle service for those wishing to attend as Barbara Bush lie in repose. We're honored to be able to participate in the services of a woman who did so much for this city, state, and country."

## PERSPECTIVE



**DART**

► In Oregon, 7-year-old David and his classmates got inspiration from the book "Flat Stanley" by Jeff Brown and took part in a "Flat Stanley" assignment of their own. They sent "Flat David" to experience North Texas with David's aunt Titia Linda so David could share about the adventure with his classmates.

[dardallas.dart.org](http://dardallas.dart.org)



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