



## **CAC Technology & Innovation Ad Hoc Committee**

550 S. Main Street, Orange CA, Room 07

May 18, 2017 | 11:30 a.m. – 1:00 p.m.

### **AGENDA**

#### **1. Welcome**

#### **2. Presentation and Discussion Items**

A. Future of Transportation (*10 minutes*)  
Group Discussion

B. Signal Communications Technology (V2I) (*20 minutes*)  
Kurt Brotcke, Director, Strategic Planning

C. OCTA Leadership Development Academy - Innovation Team Project Discussion (*15 minutes*)  
Ryan Armstrong, Digital Communications Section Manager

D. Autonomous Vehicle Public Policy / Regulations (*20 minutes*)  
Lloyd Sullivan, Dept. Manager, Enterprise Business Solutions

#### **3. OCTA Staff Updates (*10 minutes each*)**

A. On-Demand Service - Lloyd Sullivan, Dept. Manager, Enterprise Business Solutions

B. Autonomous Vehicle Pilot Opportunities - Lloyd Sullivan, Dept. Manager, Enterprise Business Solutions

C. Other

#### **4. Chair / Vice-Chair Remarks**

#### **5. Committee Member Comments**

#### **6. Public Comments\***

#### **7. Adjournment**

*The next meeting date is TBD*

#### **Agenda Descriptions/Public Comments on Agenda Items**

The Agenda descriptions are intended to give notice to members of the public of a general summary of items of business to be transacted or discussed. Members from the public wishing to address the Committee will be recognized by the Chair at the time the Agenda item is to be considered. A speaker's comments shall be limited to three (3) minutes.

Any person with a disability who requires a modification or accommodation in order to participate in this meeting should contact the OCTA at (714) 560-5611, no less than two (2) business days prior to this meeting to enable OCTA to make reasonable arrangements to assure accessibility to this meeting.



**CAC Technology & Innovation Ad Hoc Committee  
Meeting Notes**

February 28, 2017 | 1:00 p.m. – 3:00 p.m.  
600 S. Main Street, Orange CA, Room 103/104

**1. Welcome**

Chairman Roy Shahbazian welcomed everyone to the Orange County Transportation Authority (OCTA) Citizens Advisory Committee (CAC) Technology Ad Hoc Committee meeting at 1:02 p.m.

Dan Kalmick asked everyone to introduce themselves and tell what they think is the nexus of technology and transportation, and what brings them to the committee. He said he is very interested in transportation technology.

Mark Paredes said he is interested in how technology can be integrated into transportation.

Wayne Heidle said he is interested in the driverless revolution. He said he is visually impaired and would love to have a driverless car with his guide dog sitting in the front seat.

Sue Gordon said she believes the transit options are difficult and hard to use and would like to see how technology could make transit simpler and easy to use. She would also like to see more driverless solutions.

Paul Adams said he is interested in the integration of autonomous vehicles, electric vehicles and the new electric trucks.

Brian Cox said he is interested in bicycle connectivity, including the mapping of bicycle routes. He would like to see better solutions and better routes identified with technology. He also mentioned that electric bicycles are coming.

Michael McNally said he is interested in electric transportation. He teaches classes at UCI about transportation engineering.

Roy Shahbazian said he is interested in how to create efficiencies through technological innovations so that we spend less time moving around.

Jeff Thompson said he sees technology in transportation having a broad application, from scheduling trips to autonomous vehicles. He said he believes efficiencies can be created using technology.

## 2. Video

Alice Rogan introduced *Disney's Magic Highway – 1958*, a short movie about the vision of transportation in the future.

## 3. Discussion Items

### A. Mission Statement

Alice Rogan presented the proposed Mission Statement for the CAC Technology Ad Hoc Committee.

Brian Cox suggested the Mission Statement use the term “multimodal transportation.” Jeff Thompson said he believes there should be a range of ideas for this committee to discuss, but to also make sure this committee works through the CAC.

Alice Rogan said this committee will have a spot on the CAC agenda to provide regular updates to the full committee.

A motion was made by Dan Kalmick and seconded by Michael McNally to approve the Mission Statement with the addition of the phrase “multimodal transportation.” The motion was carried unanimously.

### B. Digital Communications for Bus Customers

Ryan Armstrong presented information on upcoming proposed digital communications for bus customers. Ryan showed the current way of navigating the bus system using PDF files and the trip planner through Google. He then showed how OCTA proposes to use technology to make navigating easier and more convenient. He showed the proposed interactive trip planner. He said this will all be left open to potential integration with third party transportation providers.

Jeff Thompson asked how much of the technology needed to implement this is new and how much is existing infrastructure. Ryan Armstrong said he is unsure at this point. Jeff asked if this technology is transferable to other areas of transportation and suggested that funding could be obtained from another area like rail transit in order to get things started.

Dan Kalmick mentioned that in Santa Clara County all four major cell carriers have cell towers on top of the busses. He said they are selling the mobile data and it provides income for the County. He said it benefits the carriers so that they can see where there are dead spots. Ryan Armstrong asked if it is a revenue source to the county. Dan said the county receives discounts from the carriers for Wi-Fi and other things, but they do not actually cut the County a check.

### C. Future of Mobility

Ryan Armstrong presented his own research on transportation's effect on cities, the evolution of automobiles and his view of the long and short term future of transportation.

Michael McNally said he feels there needs to be some acknowledgement that the relationship between millennials and cars is an overstated trend. He said the gas tax is not obsolete. He said eventually we might have a lot more electric vehicles, but right now people are driving gas cars. Michael also said people's acceptance of technology is what brings change, not necessarily the technology itself. He said if you use your car a lot, and most people do, using Uber/Lyft would be too expensive to use on a daily basis and you would be better off buying a car.

Wayne Heidle said he tells students when predicting the future of technology to consider that technology is continually changing and to be careful how they look at the future.

Paul Adams asked if the Department of Motor Vehicles (DMV) is releasing information on the autonomous vehicle program. He said OCTA may want to look at their data. He hears they are willing to share data with committees like this. Ryan Armstrong said OCTA will look into it. Lloyd Sullivan said in regards to vehicle disengagements, Google is leading the testing with over 636 thousand miles driven in the most challenging of areas. He said there have only been 0.2 disengagements per thousand miles using Google's technology. He said General Motors is the second best with 10,000 miles tested and 19 disengagements per thousand miles. Nissan has had 5,000 miles tested with seven disengagements per thousand miles.

Wayne Heidle asked about the Uber driverless cars test in Pittsburg. Lloyd Sullivan said California, in the past, has not been friendly to this technology. When Uber tested autonomous vehicles in San Francisco they were booted out. In Austin when Uber wanted to try the autonomous vehicle program, Austin said drivers need to be fingerprinted. So, Uber left.

### D. Future Meeting Topics

Roy Shahbazian led a discussion with the committee on future meeting topics.

Dan Kalmick said he is most interested in the public policy aspect. He would like to see guidelines made for the county and cities to plan/prepare for technological advances.

Jeff Thompson said he would like to know what "big data" needs are for technology to work. He would like to see a technology master plan.

Paul Adams said he would like to discuss the “last mile” – what happens after you get off of transit. He mentioned how Florida communities use golf carts for the “last mile,” and he would like to see something like an autonomous golf cart to get you from transit or your car to your final destination. Alice asked if that should be driven by the private sector or the public sector. Paul said a partnership, but led by OCTA.

Mark Paredes said he would like to hear more discussion on how this committee could make public transportation more relevant. He asked what we can do to entice people to ride public transportation by using technology, like Wi-Fi or smaller, quicker vehicles.

Michael McNally said he can see autonomous vehicles working with public transit. He said “big data” has only been collected privately. He said the public sector can’t afford to buy the data because it is too expensive. He said he would like to see discussion on how to get the public sector access to “big data.”

Wayne Heidle said the committee can plan now, but needs to stay flexible.

Alice Rogan asked committee members who sit on local jurisdictions’ planning commissions, how open are their cities to making some of these technological changes. Mark Paredes said the City of Garden Grove has moved away from building structures for parking and is focusing on integrating other technologies and maximizing space. Dan Kalmick said the City of Huntington Beach is open to it if framed properly, but still wants to make sure there’s enough space for every car. Jeff Thompson said the City of Tustin is open to hearing about the technological changes, but has more pressing issues. Paul Adams said the City of Fountain Valley is open to multi-modal and has been the leader in signal synchronization.

Michael McNally said the biggest issue he has seen with traffic engineering departments is the issue of liability.

Dan Kalmick said he’d like to see OCTA work with Caltrans on technological issues and have Caltrans move it up the chain to the State and Federal Highway Administrations. Alice Rogan said we could try to get someone from Caltrans to come to a meeting and talk about their plans. Dan suggested reaching out to Las Vegas as well. Alice said OCTA tried to coordinate a call with the City of Houston for today, but it did not work out.

Michael McNally said the City of Irvine is re-instituting their Transportation Commission. He said there needs to be a two-way street between the local agencies and OCTA. Alice Rogan said, as part of the Long Range Transportation Plan (LRTP), there is “blue-sky” outreach and OCTA will be holding several elected officials roundtables.

Roy Shahbazian said this committee needs to keep their finger on the pulse of what is going on in the local jurisdictions. A concept that has come up is the sharing of vehicles. We need to identify the inefficiencies and capitalize on those opportunities. And, he said we should offer a promotion to public transit/vanpool/carpool users to win a ride on newer faster modes of transportation as they come online.

Brian Cox said electric bicycles are becoming popular and he would like to see how we can incorporate pedestrians and bicycles into the new data driven roads in future discussions.

Sue Gordon would like to hear about funding sources for the future technologies.

Michael McNally said he thinks we are locked into the future with our sales tax measures. He said the Measure M's have been wonderful, but maybe now we don't want to go in that direction, but we are locked into that plan for the next 20 years.

#### **4. OCTA Staff Updates**

##### **A. San Clemente Lyft Program**

Lloyd Sullivan gave a brief presentation on the San Clemente Lyft Program. He said many of the bus routes were eliminated in southern Orange County. Now customers who live with 500 feet of an eliminated bus stop are eligible to receive a ride from Lyft that is subsidized so that it costs the customer the same as the cost to ride a bus.

##### **B. Mobile Ticketing & On-Demand Service**

Lloyd Sullivan gave a brief presentation on Mobile Ticketing & On-Demand Service. He said OCTA is trying to partner with private on-demand service providers. He said the mobile ticketing application has been approved by the OCTA Board and is in the implementation phase. There is a program called RideTap that works with transit to provide the rest of the trip from the bus stop to the final destination. He said geofencing would be used to determine if rides are eligible for subsidies. Lloyd then played a video about RideTap.

Wayne Heidle asked if ACCESS would work with RideTap. Lloyd Sullivan said Yellow Cab will be on that application. He said with the application you can select if you want an ADA accessible vehicle and then Yellow cab would be that supplier.

Roy Shahbazian asked if ACCESS could be a supplier. Lloyd said no, because it would be a liability for OCTA. He said in order to prevent the liability there would have to be an agreement to subsidize the ride.

Roy Shahbazian said he heard the Waze application is trying to develop a carpooling aspect. Lloyd Sullivan said he has heard that would happen in

selected areas. He said Uber and Lyft are also creating a carpool application and may be part of the RideTap application.

Paul Adams asked if the RideTap application would work with Metrolink. Lloyd Sullivan said the plan is to have Ridetap work with Metrolink as well as other forms of transit, but we still need to get an agreement in place.

Dan Kalmick asked if the RideTap application would accept debit and/or credit cards. Lloyd Sullivan says yes, the customers would pay using the RideTap application and then they would distribute the money to the appropriate companies and receive any subsidized money from OCTA. Dan asked if cash can be used or is it all done through credit/debit cards. Lloyd said the application will likely have a way to pre-load your account with money whether it is will a credit/debit card or some form of pre-paid cards.

Mark Paredes said he has some concerns about becoming a cashless society. Lloyd Sullivan said there are some companies that make phones just for this application and pre-paid cards can be used as well.

#### C. Other

Alice Rogan asked the committee to think about the following questions before the next meeting:

- What is the ideal transportation system in the short/medium/long-term future?
- What are the hurdles and possible solutions to achieving this ideal transportation system?
- What would you like to see included in an OCTA technology and innovation master plan framework?

#### **5. Chair / Vice-Chair Remarks**

Dan Kalmick thanked the committee members for attending. He was not sure how well received a meeting like this would be and he was happy to see the turnout and positive discussion.

#### **6. Committee Member Comments**

No other comments.

#### **7. Public Comments**

No one from the public spoke.

#### **8. Adjournment/Next Meeting**

The meeting adjourned at 3:07 p.m. Emily Mason will send out a poll to determine the date of the next meeting.

**CAC**  
**Bicycle/Pedestrian Subcommittee**  
**Fiscal Year 2016-2017 Attendance Record**

● = Present      ◎ = Absent      R = Resigned

<b>Members</b>	<b>2/28/17*</b>	<b>5/18/17</b>
Adams, Paul	●	
Cox, Brian	●	
Sue Gordon	●	
Wayne Heidle	●	
Kalmick, Dan	●	
Michael McNally	●	
Paredes, Mark	●	
Shahbazian, Roy	●	
Thompson, Jeff	●	

\*First meeting

*News*  
*Articles*

TECHNOLOGY

# Alstom Presents Latest Signalling Technologies Being Implemented on the Danish Railway Network



SOURCE: ALSTOM TRANSPORT MAR 29, 2017



Alstom and Banedanmark, the Danish railway infrastructure owner, presented to His Majesty the King of the Belgians and His Royal Highness the Crown Prince of Denmark the latest development of signalling in Denmark on the occasion of the King of the Belgians State Visit in the country.

Alstom is currently replacing the existing signalling system in the Eastern part of Denmark with Atlas, its ERTMS solution. This railway network consists of more than 734 km (456 miles) of double track lines and 90 stations. Last summer, Alstom and Banedanmark, successfully tested an ETCS level 2 baseline 3 application, the newest ERTMS baseline, for the first time ever worldwide. Atlas solution for Banedanmark is developed by Alstom teams in Charleroi – the company’s worldwide center of excellence for ERTMS, and implemented with the support of Alstom teams in Copenhagen and Bologna (Italy). The visit to this project of the King of the Belgians is a tribute to the know-how and expertise of Alstom’s specialists in Charleroi.

The presentation took place in Copenhagen’s Traffic Control Centre equipped with Alstom’s traffic management system. The visit, focused on the Danish national signalling programme and on the benefits of the ERTMS deployment, was supported by live demonstration on screens and driving simulators.

“Alstom has taken the initiative for today’s visit. Alstom has also invested in the project with the decision to use the Danish ERTMS-programme to showcase expertise in ERTMS implementation. I have taken note of these initiatives. And I take it as a strong signal of Alstom’s commitment to the project, with the clear determination to make every effort possible to ensure the successful completion of the programme by 2023,” said Ole Birk Olesen, minister for Transport, Building and Housing.



"We are highly honoured by the visit of the King of the Belgians and the Crown Prince of Denmark to our project for Banedanmark. Alstom is one of the global leaders in rail signalling, with nearly three quarters of onboard ERTMS equipment in service and more than 18,000 km contracted. Our Belgian teams in Charleroi have developed 50 years of expertise in train protection solutions", said Marcel Miller, managing director for Alstom in Benelux.

The latest evolutions of Atlas are able to adapt to different traffic requirements, covering networks that operate between 6 and 600 trains per day with a mix combination of freight, regional, suburban or even high speed trains. This results in enhanced operating flexibility for the conventional lines, increasing the capacity of the line while reducing the electrical and signalling equipment along the track. Atlas is interoperable across European rail corridors. In addition, advanced control centres as the one of Banedanmark in Copenhagen allow better monitoring of train traffic and better management of disturbances.

Charleroi site in Belgium is in charge of the full project chain, from development to industrial process and complete tests in laboratory before installation on-site. With over 500 engineers and technicians and more than 135 successful projects in 30 countries, Alstom in Charleroi has a dynamic R&D strategy and benefits from the R&D support of the Walloon region.

TECHNOLOGY

# Autonomous Technology – Driving into the **MASS TRANSIT** Future

BY LEAH HARNACK ON APR 19, 2017



*Easymile's EZ10 is a driverless, electric shuttle that can carry up to 12 people.*

*Photo credit: Easymile*

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Autonomous vehicles are in the news every day with more and more companies — and transit agencies — testing autonomous shuttles to determine their value in solving the first-last mile dilemma. Calstart recently hosted a webinar that provided insight on a future with autonomous mini-shuttles to give transportation professionals an overview of the technology and how some of the current autonomous shuttles operate.

A black graphic with white and red text. At the top, 'MASS TRANSIT' is written in large, bold, red letters. Below it, in white, are the words '[ FOLLOW ] [ RETWEET ] [ LIKE ]'. In the center is a white Twitter bird icon. To the right of the bird, the text 'INDUSTRY NEWS AS IT HAPPENS' is written in white. At the bottom, a white '@' symbol is followed by 'MASSTRANSITMAG' in white.

And for transit agencies that aren't looking at the autonomous arena, Calstart's Michael Ippoliti, director Clean Transportation Solutions Group, pointed out that people are talking about a heaven and hell scenario that the industry needs to consider. The ideal scenario is that autonomous vehicles mean congestion is down, emissions are reduced and commuting is easier for people. The alternative is that there are more and more people with single-occupancy autonomous vehicles, or even cars out there with no one in them, congesting the streets.

"Transit folks will have to start thinking about this," he stressed. "Sharing is transit. We will be facing competition from these new mobility providers. You have the opportunity to step up and leverage these technologies."

Another reason for looking to autonomous is safety. While there's no hard data yet, it is clear safety will improve. While initial systems will not be perfect, even in the current state it is better than human drivers that are sometimes distracted.

## Autonomous 101

Calstart's Michael Ippoliti, director Clean Transportation Solutions Group, provided background information on autonomous basics. One misconception he pointed out is that "connected" and "autonomous" are not the same thing, even though they are often inaccurately interchanged. "Autonomy doesn't require connectivity," he said. Though he pointed out that it is easier, more efficient if autonomous vehicles are connected.

When it comes to autonomous, he said, "To borrow from ZF, there are three elements involved of autonomous: See, Think, Act."

- **Sensors:** Cameras, radar, lidar and sonar provides ultraprecise mapping.
- **Sensor Fusion:** Powerful processors come in to play, which were specifically built for this purpose.
- **Control Decisions:** The software that makes decisions will become a source of brand differentiation.
- **Actuation:** The vehicle acts on the control decisions, manipulating the vehicles. This is one of the areas electric vehicles (EVs) have a benefit because everything is already controlled electrically and by a computer.

There are six levels of automation for on-road vehicles, as defined by [SAE J3016](#).



1. No Automation - The full-time performance by the human driver of all aspects of driving
2. Driver Assistance - The driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment with the expectation that the driver performs all remaining aspects of driving.
3. Partial Automation - The driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and the expectation that the driver performs all remaining aspects of driving.
4. Conditional Automation - The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the driver will respond appropriately to a request to intervene.
5. High Automation - The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a driver does not respond appropriately to a request to intervene.
6. Full Automation - Full-time performance by an automated driving system of all aspects of dynamic driving.

The autonomous shuttles talked about during the webinar are at levels 4 and 5.

## Tomorrow's Vehicles Today

Lauren Isaac, director of business initiatives at Easymile, and Hugh Palmer, VP of product manager at Local Motors, provided information about the vehicles those companies manufacture and Matthew Lesh, chief commercial officer at Coast Autonomous, discussed software.

These driverless shuttles currently operate short distances in a confined space, including train stations, amusement parks, academic campuses, retirement homes, airports, city centers, hospitals and industrial sites.

Easymile's EZ10 is a driverless, electric shuttle that can carry up to 12 people (6 seated, 6 standing). There's a built-in access ramp for passengers with reduced mobility. The shuttle can accommodate one person in a mobility device with 6 seated.

The vehicle operates on a fixed schedule or on demand. They can operate up to 10 hours and the average speed is about 10 mph, though can go faster depending on the risk assessment of the service area.

Palmer provided information on Olli, a shuttle that uses IBM Watson as a human interface to give personality to the vehicle.

Olli is an open platform and is mostly 3-D printed so the vehicle can be upgraded easily for new technology, sensor sets, new sensor locations, other hardware accommodations or to change the interior configuration. The open platform allows it to keep pace with the quickly evolving autonomous innovation.

"The focus for us is not just transportation solutions, but to create an experience," said Palmer. They do that through human machine interfacing (HMI) and IBM is a key partner. With no driver, who becomes the host, Palmer asked.

"The HMI enables us to pull up to a passenger in a ride-hail-type of environment ... talk to the rider by name ... have a relationship with that person," Palmer explained. "It can anticipate where they might want to go. The user can ask questions: 'Where's the best place to get pizza?'"

As with Easymile, Local Motors is focused on accessibility. Palmer said they focus on four areas of accessibility: physical, vision, hearing and cognitive impairment. Some of the things he mentioned included software that would ask a passenger if it forgot something if it senses anything left behind, leading someone with a visual impairment to an available seat and automatically deploying a ramp based on a profile setting within the app.

As an autonomous vehicle company, not a vehicle manufacturer, Lesh said Coast Autonomous is focused on the vehicle and the software in the vehicles. They are looking at autonomous technology improving efficiency, decreasing congestion, providing access to mobility that can't drive or choose not to drive.

A connected environment, he said, can offer a personalized way for people to move about our cities, can help transportation managers efficiently manage their systems and can provide the opportunity to reclaim green space from infrastructure.





# Autonomous vehicles come to Arlington

By Samantha Douty, The Shorthorn staff Apr 13, 2017 Updated Apr 14, 2017 1



Courtesy: Creative Commons

Arlington City Council approved a six-month lease with autonomous vehicle provider EasyMile during the March 28 evening meeting. EasyMile is a French company. Arlington is one of five cities selected for the company's 2017 Autonomous Vehicle Road Trip, USA. Other cities include San Jose, California, Los Angeles, New Orleans and Atlanta.



Driverless vehicles will hit the pavement this summer in the city's entertainment district.

Arlington City Council approved a six-month lease with autonomous vehicle provider EasyMile during the March 28 evening meeting.

The program would use two EasyMile EZ10 vehicles, each with a 12-person capacity. The autonomous vehicles will travel on a designated course throughout the entertainment district to transport people from parking lots to their desired venue during events.

EasyMile is a French company. Arlington is one of five cities selected for the company's 2017 Autonomous Vehicle Road Trip, USA. Other cities include San Jose, California, Los Angeles, New Orleans and Atlanta.

"I think it's an innovative concept and one that is of the future," council member Kathryn Wilemon said. "We are trying them to see how it works."

Wilemon said she can see autonomous vehicles as a form of transportation in the future. There are a lot of changes and they won't happen overnight, but using electric self-driving vehicles will be good for air quality and traffic congestion, she said.

The vehicles have sensors and do not have a designated front or back giving them the ability change directions easily.

The rides are free to passengers and will be a test run for the technology, Wilemon said.

The vehicles can only be used on pathways and parking lots because of Texas laws, said John Dugan, Community Development and Planning director, during an April 6 Transportation Advisory Committee meeting. The lack of regulation prohibits the self-driving vehicles from being used on public roads with other vehicles.

Texas does not have any laws allowing self-driving cars on public roads. Texas is one of 36 states lacking autonomous vehicle laws.

The Arlington Convention and Visitors Bureau is funding the pilot program, Wilemon said. The program is estimated to cost about \$272,159 over two years, according to the staff report.

If residents like the service, the council may elect to continue the service for an additional six months, Wilemon said.

“I love the concept,” said Bryan Roberts, Transportation Advisory Committee member.

He said autonomous vehicles may be the future of Arlington’s public transportation, but he does not want to think in totality.

He said it is a great idea to test the technology out in the real world. He said he and the other committee members need to be open-minded when viewing the technology available.

The future of Arlington’s transportation will be discussed further at the next Transportation Advisory Committee meeting May 4.

@SamanthaDouty

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# Axiomtek's Releases a Multi-purpose Transportation Embedded System



SOURCE: AXIOMTEK MAR 27, 2017



[REQUEST MORE INFORMATION](#)

*The tBOX324-894-F.*

*Photo credit: Axiomtek*

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Axiomtek has announced the launch of the tBOX324-894-FL, its latest multi-functional fanless embedded computer certified with EN 50155, EN 50121, E-Mark, ISO 7637, DNV 2.4 and compliant with EN 45545-2, IEC 60945 for use in a variety of transportation applications. Thanks to the onboard 7th generation Intel Core and Celeron processors (official codename: Kaby Lake-U), the tBOX324-894-FL provides powerful computing performance in a compact size within which a modular I/O design has enhanced the operational efficiency and flexibility. The transportation box PC is equipped with two DDR4-1866/2133 SO-DIMM slots supporting up to 32GB system memory. To suit the need of extensive storage, it is equipped with two swappable 2.5-inch SATA3 HDDs and one CFast slot. The application ready tBOX324-894-FL is an outstanding embedded box PC for

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transportation-related applications such as train management, truck fleet management, transportation controller, data transfer, security surveillance, and onboard infotainment controller in vehicle, railway, and marine markets.

"Axiomtek's tBOX324-894-FL, an all-in-one embedded system for transportation, is designed with a multi-functional concept to elevate the flexibility and expandability without sacrificing the performance. The feature-rich box PC has enabled the adaptability to dynamic harsh environments. The rugged embedded system is also designed to operate in a wide operating temperature range from -40°C to 70°C (meeting the EN50155 Class TX standards) and in high vibration environments. It excels at monitoring, controlling and managing in expanding the application possibilities," said Charlene Chen, a product manager of Product PM Division at Axiomtek.

The all-in-one tBOX324-894-FL features modular I/O design allowing flexibility of different combinations: for example, with four M12 connectors or optionally four RJ-45 for GbE LANs; with three isolated COMs and one isolated CANbus; or with four isolated COM ports. Furthermore, it also comes with four USB 3.0 ports, two audio ports, one VGA, one DVI-I, one remote power switch, one reset button, and three antenna openings. In particular, its three embedded PCI Express Mini Cards and two SIM card slots are supported for 3G/4G, GPS, Wi-Fi and Bluetooth applications. Besides, the onboard Intel Kaby Lake-U processor and the unique thermal design and fasten plate for the system memory can effectively prevent any damage caused by vibration and shock. The significant anti-vibration can endure up to 5Grms with SSD and 1Grms with HDD.

**BUS**

# BYD Opens Hungary Electric Bus Factory

SOURCE: BYD MOTORS INC. APR 10, 2017



[REQUEST MORE INFORMATION](#)

*Insider of the BYD Electric Bus and Truck Hungary Kft.*

BYD opened its first owned bus plant in Europe in the northern Hungarian town of Komarom.

The new plant sees an investment by BYD that will total some €20 million (\$21.20 million) in the three years to 2018. Currently, there are 32 employees of whom 68 percent are factory workers. Eventually it will employ some 300 people, the vast majority being locally recruited Hungarians with a technical background, who will assemble up to 400 electric buses a year on two shifts. Those buses will be exported to customers across continental Europe.

Initial output will be electric buses and coaches but other products will soon follow, including electric forklift trucks and then light commercial vehicles. The plant consists of five buildings: a main office, a battery test and maintenance center, an inspection line and water leak test booth, a bus and truck assembly hall and a paint shop.

It is planned that the Hungary plant will produce the bus chassis for the UK (for assembly into complete vehicles under the BYD ADL partnership) and the newly announced BYD factory in France. There are plans to deliver up to 40 vehicles by the end of this year.

The official name of the business is 'BYD Electric Bus and Truck Hungary Kft'.

Speaking at the official opening ceremony in Komarom, Isbrand Ho, managing director of BYD Europe, told the audience of VIP guests, including — representing the Hungarian Government — Péter Szijjártó,

Minister of Foreign Affairs and Trade, together with other senior officials: "As you can see, we are ready for production which will begin shortly. On time and, I'm delighted to say, on budget".

Ho explained why BYD chose Hungary and Komarom for its new factory: "Firstly because of its central location and its long tradition of engineering excellence but also we are very conscious of the strong heritage of bus making in this immediate area. Now the Government is reinforcing that industry and we are proud to be at the forefront of that movement".

Ho also paid tribute to the very friendly welcome received from the authorities — local and national.

"We are very pleased that BYD, a major Chinese multinational on the cutting edge of new automotive technology, has chosen Hungary as the location for its first fully-owned bus plant in Europe, which will eventually employ 300 people," Péter Szijjártó, minister of foreign affairs and trade, said at the opening event. "This investment demonstrates Hungary's success in attracting both industrial investment and innovation, and the international competitiveness of its auto sector."



Duan Jielong, Chinese Ambassador to Hungary said: "I hope the BYD investment project can achieve mutual benefits and common development and move forward the bilateral cooperation on production capacity inclusive of automotive industry by making full use of the advantages with our joint efforts."



For BYD this more than 66,000 square meter complex is just the first of a series of European production facilities it is planning. The event today follows an announcement just two weeks ago of the acquisition of an 80,000 square metre site for bus making in Beauvais, to the north of Paris.

Ho explained BYD was completely confident that it will need this extra bus making capacity. "The answer is simple — air quality — or, perhaps I should say, bad air quality, something which impacts the citizens of every major city worldwide. Not a week goes past without another report linking the serious detrimental health

consequences of breathing polluted air and most of that pollution comes from road vehicles, largely diesel powered.

"City buses are not only a prime contributor to this but also, since they have totally predictable route patterns, are one of the easiest classes of vehicles to be electrified. Learning from the streets of major Chinese cities where poor air quality is not new, we are targeting our world leading battery technology on the city bus sector, although our ambitions stretch way beyond this humble type of vehicle.

"It is no coincidence therefore that BYD electric buses already make up the largest fleet of zero emission buses at a major international airport — Amsterdam's Schiphol — and the largest fleet of electric city buses - in service on the streets of London", said Mr Ho.

TECHNOLOGY

## BYD Showcases First of its Kind Battery Electric Vehicles at ACT Expo 2017



SOURCE: BYD MOTORS INC. MAY 2, 2017

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BYD showcased the latest advancements in battery-electric buses, trucks and materials handling equipment this week at the 2017 ACT Expo, May 1-4, at the Long Beach Convention Center.

"BYD continues to lead the industry with its advanced battery technologies that make electric buses, trucks and materials handling equipment cost competitive with other alternative fuel vehicle options today," said Stella Li, president of BYD Motors. "BYD provides the safest battery available today in the electric vehicle market; our battery reliability also gives fleet managers the assurance they need that these vehicles will operate just as needed for any service route."

Li continued, "Additionally, our BYD vehicles provide for significant operational cost savings in the range of up to tens of thousands of dollars per year per vehicle over the lifetime of the vehicle."

BYD will showcase several advanced, zero-emission all-electric transportation and equipment applications at ACT Expo 2017 including:

- **BYD 8Y Battery Electric Terminal Tractor:** BYD's class 8 terminal tractor provides 15 hours of continuous operation and offers operational cost savings of more than \$27,000 annually (assuming operations 16 hours a day/seven days a week).



- **BYD 8R Battery Electric Refuse Truck:** BYD's 10-ton payload refuse truck provides 76 miles of range with minimal battery degradation. Fleet managers can expect more than \$13,000 of operational cost savings annually based on service routes of 60 miles per day/five days a week. Manufactured in the City of Lancaster, California, the BYD refuse truck is compliant with FMVSS and CMVSS regulations.
- **BYD K11 60 ft. Articulated Bus:** BYD's 60 ft. battery-electric articulated bus is the latest addition to company's line up of transit buses is the first of its kind available in the U.S. and provides 200 miles of range on a single charge with full charging completed within two to three hours. The 60 ft. articulated bus joins BYD's other industry leading 30, 35, and 40 ft. low floor Buy America compliant transit buses with a 275-mile range.
- **BYD All-Electric ECB 25 Forklift:** BYD's ECB 25 battery-electric forklift provides ultra-fast full-charging completed in one to two hours maximum. The BYD electric forklift can run for two typical shifts on one charge and can be opportunity charged, whenever and wherever. The electric forklift also comes with BYD's industry-leading 10-year full replacement battery warranty.

All BYD battery electric technologies displayed at ACT Expo can charge at 40 kW, 80 kW, 100 kW, or 200 kW rates, requiring between one and five hours of charging time depending on the model and selected charger. Even after 12 years of use, BYD's battery capacity is projected to remain above 70 percent of the original capacity.

BYD customers are saving thousands of dollars in annual maintenance costs, due to these all-electric vehicles requiring lower maintenance on propulsion systems, fewer fluids to change, less brake wear due to cutting-edge regenerative braking technology, and fewer moving parts.

BYD designs their vehicles to fit in seamlessly to any fleet with an advanced vehicle-to-grid system allowing the vehicle to deliver power back to the grid, to a load, or to another vehicle without any disruptions. Committed to job creation in Southern California, BYD employs more than 600 skilled workers at its manufacturing facility in the city of Lancaster, Los Angeles County, California.

TECHNOLOGY

## CA: Bay Area Company Pushes Toward Driverless City Buses

LOUIS HANSEN ON MAY 3, 2017

SOURCE: MCCLATCHY

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May 02--In an early push to bring autonomous driving to public transit, Burlingame-based electric bus maker Proterra this month will begin testing autonomous features on buses running through Reno, Nev.

The pilot program will be among the first in the country to introduce driverless technology into a metropolitan transit system, and will include a suite of sensors and other hardware and software to collect data.

One key piece of the transit system -- the bus driver -- will remain behind the wheel.

Proterra enters the field as transit agencies begin to look at ways to bring autonomous features into service. Bus routes offer advantages -- regular, predictable circuits -- and challenges -- dense urban streets, along with heavy and unpredictable vehicle and pedestrian traffic.

The pilot program brings driver-assist technology found in luxury vehicles to the common city bus. It's a trend expected to spread far and wide. An IHS Automotive study last year estimated that by 2035, nearly 76 million vehicles worldwide would have some level of autonomy.

A pilot program in Las Vegas is also testing driverless technology on short routes, said Art Guzzetti, vice president for policy at the American Public Transportation Association. Several other cities, including Oakland, Phoenix, Tampa and Jacksonville, Fla. are developing plans for autonomous service, he said.

"It's a trend at the very early stages" Guzzetti said.

The technology still faces challenges getting vehicles to communicate with each other and sensors placed on infrastructure. Regulators are still developing a legal framework to allow the safe introduction of autonomous technology to U.S. roads.

In Reno, the first phase of the pilot project will focus on collecting data with advanced cameras and sensors on the bus, and a network of lidar and other data-gathering hardware installed along the route. Researchers recently installed equipment on a Proterra bus that runs along a main commercial district in Reno.



Eventually, researchers plan to use the information to develop and bring to market a driverless system for transit buses.

Researchers say the goal is to make public transit more efficient and safe. Ultimately, it could push drivers out from behind the wheel into different, customer service roles.

Transit authorities may prefer to have a driver on board for safety and service, said Matt Horton, chief commercial officer of Proterra.

"We're not going to move any faster than our customers want us to," he said.

The project is a collaboration with researchers at the University of Nevada Reno and the German Fraunhofer Institute for Transportation and Infrastructure Systems IVI, along with the Regional Transportation Commission of Washoe County, which includes Reno.

Proterra builds all-electric buses with ranges tested up to 350 miles on a charge. The startup has sold more than 100 vehicles to transit authorities across the country, including the Santa Clara Valley Transportation Authority and services in Seattle, Chicago and Philadelphia.

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TECHNOLOGY

## CA: SLO's New High-Tech Buses have Wi-Fi, Hand Sanitizers and More

GABBY FERREIRA ON MAR 7, 2017

SOURCE: MCCLATCHY

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March 06--Three high-tech buses are joining San Luis Obispo's fleet, marked by an unveiling this Thursday, the city said Monday in a news release.

The environmentally friendly buses, which are replacing three 16-year-old buses, will feature a new paint scheme, Wi-Fi, hand sanitizers and an "onboard video infotainment system," among other amenities, the city said. The buses were built by the California-based Gillig Inc. and feature better fuel economy and the newest emission reduction technology, according to the city.

The city purchased the buses with the aid of a \$1.1 million grant from the federal Congestion Mitigation and Air Quality Improvement Program, facilitated by the Federal Transit Administration, SLO Regional Transit Authority and the San Luis Obispo Council of Governments.

The buses will be unveiled in a ceremony at Mission Plaza from 4:30 to 6 p.m. Thursday. After that, they will be parked on Chorro Street at Higuera until 9 p.m. for the Downtown SLO Farmers Market, transit assistant Megan Cutler said.

Gabby Ferreira: 805-781-7858 [📞](#), [@Its\\_GabbyF](#)

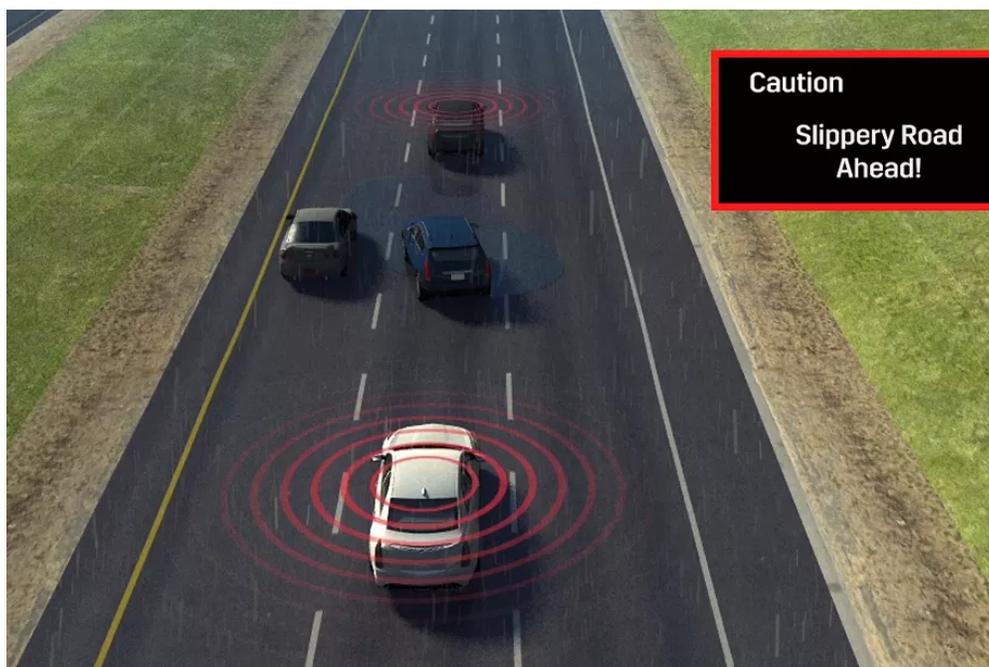
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# Cadillac's CTS sedans can now 'talk' to each other, which may make driving way less deadly

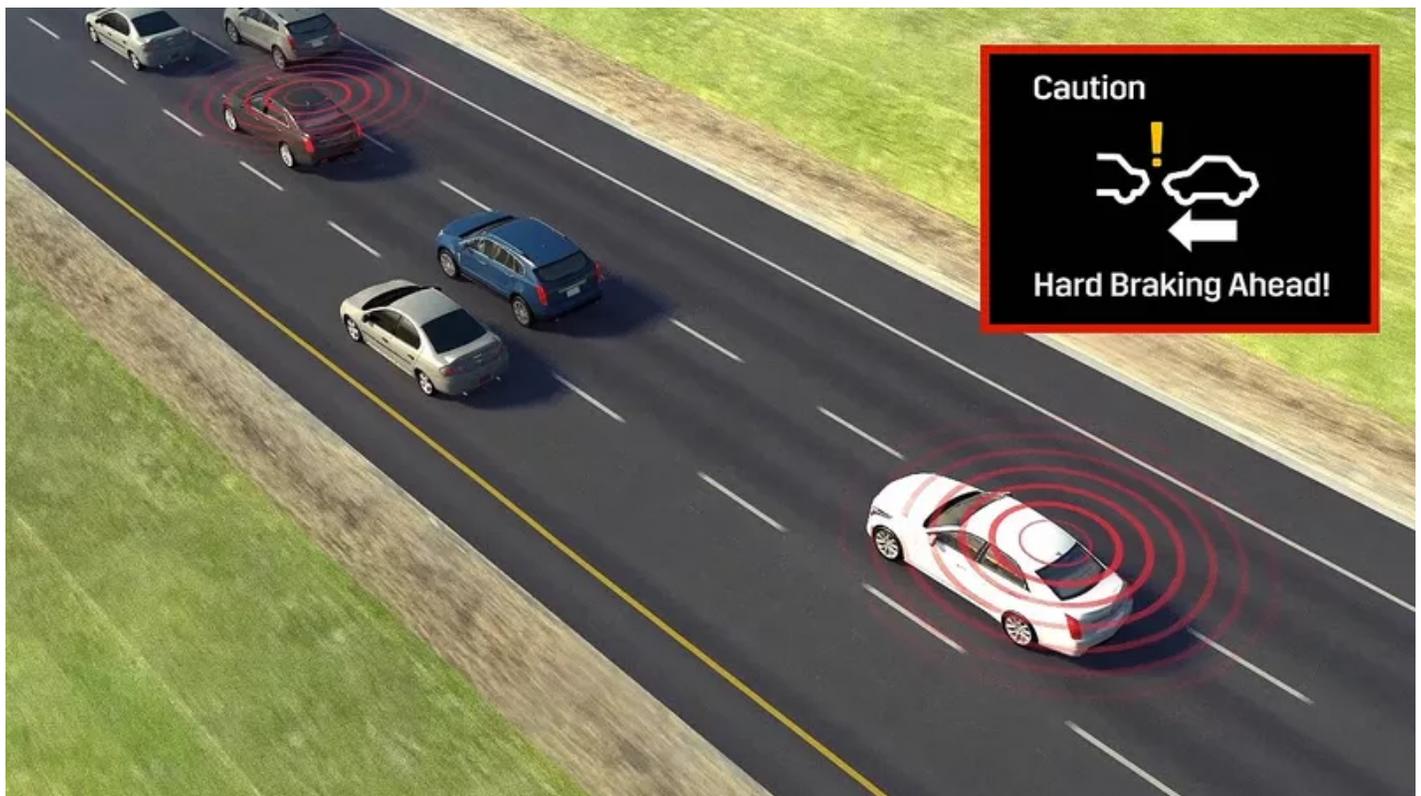
*Alert drivers to upcoming hazards*

by [Andrew J. Hawkins](#) | [@andyjayhawk](#) | Mar 9, 2017, 12:14pm EST



General Motors announced today that all of its new 2017 Cadillac CTS sedans would come equipped with “vehicle-to-vehicle” technology that will allow them to communicate with other similar models and detect potential upcoming hazards, like slippery roads or disabled vehicles. For example, when one CTS has a hard braking situation or swerves to avoid an object in the road, that information is communicated to other CTS sedans behind it to alert those drivers to those conditions.

The Cadillacs will use a high-speed, low-latency medium called dedicated short-range communications (DSRC) to communicate with each other. The specification is similar to Wi-Fi, but transmissions happen on the 5.9GHz band rather than on Wi-Fi’s 2.4GHz frequencies, using the 75MHz of spectrum the FCC specifically set aside for vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communications.



GM says that when one of its Cadillacs approaches an intersection, the technology will scan the area for other vehicles and track their positions, directions, and speeds, warning the driver of potential dangers that might otherwise be invisible. Each vehicle can handle 1,000 messages per second from vehicles up to nearly 1,000 feet away. Drivers will be alerted to upcoming hazards on two screens, the vehicle's instrument cluster and on the heads-up display behind the steering wheel. Cadillac said recently it plans to begin [selling its next-generation in-vehicle user experience system](#) in the CTS starting in March, as well as the 2018 XTS and ATS models.

### ***"CADILLAC WANTED TO BE A PIONEER IN THIS SPACE."***

"Cadillac wanted to be a pioneer in this space, offering V2V technology to our customers," Matthew Kirsch, engineering group manager for automated driving and active safety, told *The Verge*.

Soon enough, all cars sold in the US will be required to include V2V technology for safety purposes, if [the Department of Transportation's new rule](#) on it goes into effect. The DOT says the radio technology will offer a farther range than radar or camera sensors, in addition to not being as impaired by obstacles or other vehicles.



Other manufacturers say they plan on including V2V technology in their vehicles, including [Mercedes-Benz in the 2017 E-Class](#). But so far, GM is ahead of other automakers in rolling out production-ready models with V2V capabilities. “We really wanted to get this technology out there,” said Steve Martin, Cadillac’s product and technology communication head. “We wanted to give our customers something straight out of box to rely on.”

Drivers can chose to disable the alerts if they find they are being inundated with too much information, Martin said. But even if their vehicle’s alert system is turned off, their Cadillac will continue to communicate with other models so other drivers will continue to get the benefit. The vehicles are also equipped with firewalls and cyber security provisions to prevent hacking and protect the driver’s identity.

For now, the Cadillac CTS will only be able to communicate with other CTS models, meaning its usefulness in avoiding road hazards will be limited. But if other automakers also utilize DSRC communications, then eventually these vehicles will be able to “speak” with a variety of different makes and models. “When we’re all talking on same communication [spectrum], we all benefit at that time,” Kirsch said.





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## Capital Metro demos robot bus

The Capital Metropolitan Transportation Authority [showed off a robot minibus](#) last week that could be the future of linking low-density areas to the agency's mass transit network.

Along with RATP Dev, the parent company of Capital Metro contractor McDonald Transit Associates, the agency demonstrated a single Easymile EZ10 self-driving shuttle in a University of Texas parking lot last Thursday and Friday.

The electric vehicle is capable of carrying up to 12 passengers and reaching speeds of 25 miles per hour.

"If we were to acquire these in the future, which we're talking years from now because of policies and approvals that would have to be in place, we are looking at putting them in our Mobility Innovation Zones," Capital Metro spokesperson Mariette Hummel told the *Austin Monitor*, referring to the areas that will lose fixed-route bus service under the agency's long-term service plan known as Connections 2025. She added, "It's just one of the options that we're looking at there."

Connections 2025, approved by the Capital Metro Board of Directors [last month](#), envisions the reduction of inefficient bus lines, particularly in west and Southwest Austin. Backlash over those proposed cuts pushed the agency's planners to include accommodations for the Mobility Innovation Zones. Each one will feature tailored transit solutions, though specific proposals have yet to be outlined. In addition to the EZ10, other options include small electric shuttles and partnerships with transportation network companies.

Ironically, Capital Metro demonstrated the self-driving minibus on Friday, which according to an agency tweet also happened to be Transit Operator Appreciation Day.

"An autonomous vehicle like this could potentially, if the technology develops in a couple of years, could be a cost effective way to get people from those low-density areas to our buses and to our rail," Hummel explained. "So in that sense, it's not replacing operators at this point. It's bringing in more potential riders."

The self-driving EZ10 may seem like a piece of science fiction, but dozens of transit agencies and services across the globe are already utilizing the technology. For the most part, it is deployed on college campuses or in business parks. In most cases, they do not operate in mixed traffic with other cars.

When asked what the barriers are to that level of service, operation engineer Vasilis Karavidas said simply, "The law."

As for costs, the EZ10's price tag is a hefty \$250,000.

TECHNOLOGY

# Cardtek to Explore the Potential of Wearable Wallet Technology



SOURCE: CARDTEK MAR 27, 2017

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Cardtek has announced that Co-Founder and General Manager of Digital Payments, Erdal Yazmaci, will be speaking at the 10th annual Smart Card Alliance Payment Summit being held at the Renaissance Orlando at SeaWorld, March 27-30. Yazmaci will speak on Thursday, March 30th at 10:45 am and will discuss how contactless fare payment technology is being used to modernize payment processes for the transit and ticketing industries.

“There are a number of industries that are currently transitioning to more modern payment systems that leverage the use of NFC-enabled wearable wallets,” Yazmaci said. “The transit industry, in particular, is an excellent example of how NFC-enabled wearables can be used to build ‘open-loop’ payments systems that not only speed transaction times, but also enhance consumer convenience and security.”

In addition to discussing the impact of wearable wallets on the transit industry, Mr. Yazmaci will also spotlight similar applications in the ticketing and loyalty industries — and will provide a detailed look at how Cardtek architects its solutions for these verticals.

“People also need to understand that wearable wallets aren’t without their own challenges and limitations as well,” Yazmaci said. “I’ll be spotlighting these for Summit attendees as well, helping them steer clear of any potential pitfalls.”

Yazmaci co-founded San Jose-based Cardtek in 2001 and has overseen a number successful digital payment and EMV projects in Europe, North America, and the Middle East. He is an expert on EMV, NFC and digital payments and has provided over 40 subject-related trainings globally.

The Payments Summit is a premier industry event, covering all things payments — including FinTech, EMV chip technology, mobile wallets, NFC, contactless, open transit systems, wearables and more. The conference is produced by the Smart Card Alliance and is expected to host approximately 1,000 attendees and 90 exhibiting companies.



SECURITY

# Code Blue Introduces New EmerComm Technology



SOURCE: CODE BLUE CORPORATION MAR 28, 2017

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When does an emergency phone evolve into something more? For **Code Blue Corp.** it begins with rethinking how the device functions and interacts with other systems from the ground up.

With the rollout of EmerComm, a new device operating system, **Code Blue** is challenging the idea of what an emergency communication product can be. With advanced security and functionality, EmerComm brings intelligence to the edge by giving emergency phones and other communication devices the capabilities of a full computer. This means creating a system that views its platform as an agnostic system of sensors and indicators, with phone functionality just one of the many layers it is capable of managing.

"The Internet of things provides tremendous potential for innovation and growth, but as we have seen in the consumer marketplace there remains a deep security issue that safety devices must overcome," CEO David Cook said. "With EmerComm, Code Blue is building what might be called the Emergency Communication of Things (ECoT), a platform that provides our customers with the same kind of flexibility and durability that they receive from our Help Points."

Using this new operating system, Code Blue will be able to offer new products that provide a wide range of applications and functionality. EmerComm will be available in select models beginning this summer, with a larger rollout coming in 2018.



# Could Elon Musk's L.A. tunnel plan work in Vancouver?

Former City of Vancouver chief planner calls the idea to ease congestion 'dumb and dangerous'

By Chad Pawson, CBC News | Posted: Apr 28, 2017 7:45 PM PT | Last Updated: May 01, 2017 9:21 AM PT



Elon Musk, right, pitched his idea to create underground tunnels in L.A. to solve traffic congestion at TED 2017 in Vancouver on April 28, 2017. TED's head curator Chris Anderson is seated on the left. (Mike Femia/TED)

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Most people, when they're sitting in gridlock get frustrated. But innovator Elon Musk gets ideas.

The man behind Tesla, the electric car maker, and SpaceX, the aerospace manufacturer, used the **TED 2017** conference in Vancouver on Friday to share details of one of his newest ventures, **The Boring Company**, a concept to build underground tunnels for cars.

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Traffic is driving me nuts. Am going to build a tunnel boring machine and just start digging...

5:05 AM - 17 Dec 2016

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It shall be called "The Boring Company"

6:15 AM - 17 Dec 2016

4,637 18,508

"One of the most soul-destroying things is traffic," Musk told TED's head curator Chris Anderson in a 30-minute Question-and-Answer session.

So why not find a way to make cars fly, Anderson asked. Musk replied that flying cars would create more stress.

"If there are flying cars going all over the place, that is not an anxiety-reducing situation," he said.

Rather, Musk's vision to ease traffic would involve sending cars underground, where they would speed through tunnels, first in Los Angeles and then in other cities.

Drivers would descend into the tunnels on a platform called a "skate." After that, the cars would move along tracks at speeds up to 200 km/h.

"You can alleviate any degree of congestion with a 3D tunnel network," he said referring to **a visualization** he showed at the conference.

## The Boring Company | Tunnels



### 'Dumb and dangerous'

Vancouver has its own traffic congestion problem, but former City of Vancouver chief planner Brent Toderian, said Musk's idea is "dumb and dangerous."

"At best it strikes me as the classic silver bullet, the classic easy fix to a tough and complex problem," Toderian said.

"It shows a profound lack of understanding about cities, about traffic, about people and probably about geology too."

For one, tunnelling is incredibly expensive, something Musk admits.

He aims to make tunnels narrow, roughly 3.6 metres in diameter, and develop boring equipment that can dig and reinforce the tunnel at the same time.

In order to make the concept viable, Musk said the technology behind tunnel construction would have to improve.



**Elon Musk**   
@elonmusk

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But Toderian argued that even if the tunnels could be built, they would be no more successful at solving traffic congestion than building more highways. More roads just encourage more people to drive, he said.

"It shows a lack of understanding about how transportation congestion actually works," Toderian said.

Toderian advises cities around the world on congestion problems and advocates for tolls, better land use, reduced car dependency and adding infrastructure for transit, walking and biking.

"It's just puttering along, but we're making good progress."

- Elon Musk on his new venture, The Boring Company

"Those things don't take new technology, just political will," he said, adding that he worries ideas like Musk's distract politicians and planners.

Musk didn't disclose any details about the The Boring Company's progress in tunnelling, adding the projects consumes about three per cent of his time.

"It's just puttering along, but we're making good progress," he said.

- **How congested is Vancouver traffic? Depends whom you ask**
- **Report blames Metro Vancouver congestion on province's 'systematic underfunding of transit'**
- **Dozens line up for Tesla Model 3 in Vancouver**



# Denso's MDrive Car Share Study Reveals Promise for Electric Car Sharing

**DENSO**

SOURCE: DENSO INTERNATIONAL AMERICA INC. APR 11, 2017

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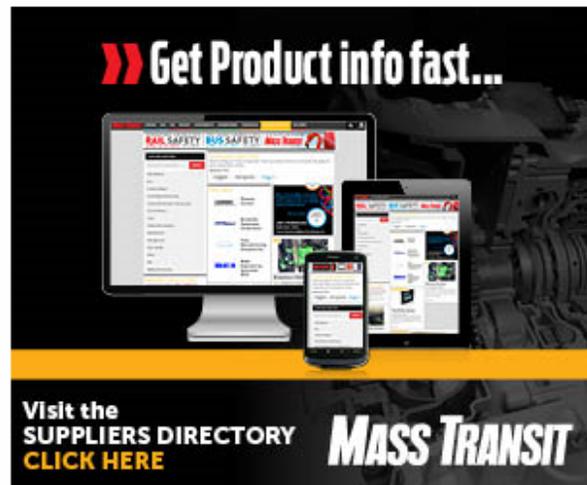
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Electric vehicle car sharing could be the future of transportation for some: Denso International America Inc. has announced the results of MDrive, the first study to focus on car sharing for people who live, work or frequent one location. In partnership with the University of Michigan-Dearborn and Detroit-based NextEnergy, an energy and technology accelerator, the study identified the potential impact electric vehicle car sharing could have on the future of mobility, personal transportation, and vehicle design.

The study involved 30 University of Michigan-Dearborn students living at The Union at Dearborn, who shared three Ford Focus Electric vehicles for a six-month period. The students used a custom app to reserve, access, share, and drive the vehicles anywhere within the continental United States, in exchange for their detailed feedback on the experience. Onboard diagnostics equipment gathered real-time data, while dashboard cameras captured video of the user experience. Students also provided feedback and suggestions for technologies most needed in future car share vehicles via short surveys and online forums. Denso researchers then identified common benefits and challenges experienced by users to inform design of future car sharing technologies.

"Our study reinforced the idea that Electric Vehicle Car Sharing is an increasingly viable personal transportation alternative, and groups who share common interests stand to benefit the most," said Michael Bima, a lead engineer in the North American Research and Engineering Center at Denso International America. "For car sharing to reach its full potential, manufacturers and car share service providers need to address the efficiency and convenience for the end user — drivers should be able to quickly and easily access the vehicle, adjust their settings, and be on their way. Vehicle range and charging become areas of focus when you add electric vehicles, as well."



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Denso will present the study results at the Society of Automotive Engineers' World Congress Experience 17. In addition to showcasing one of the study's cars in Denso's booth (#3002), participants including Matt Felice — a new Denso employee who drove to his interview using the shared vehicle — will be on-hand to discuss the experience.

"Mobility continues to change and reshape the automotive industry," said Pat Bassett, vice president of engineering and research at Denso International America. "While there's a lot of excitement about new technology in the space, we recognize the importance of getting it right in addition to getting it done quickly. To Denso, that means hiring the best engineers, and sharing knowledge with other leaders in the space. MDrive is exactly the type of research we need to bring us into a new era of mobility in a safe, smart way."

TECHNOLOGY

# FL: JTA Demonstrates Driverless Vehicles in Jacksonville

AMANDA WILLIAMSON ON MAR 9, 2017

SOURCE: MCCLATCHY

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March 09--Jacksonville residents and officials boarded a driverless vehicle Wednesday to experience what likely will be the future of transit here.

The rounded red-and-black vehicle navigated its way seamlessly through the parking lot across from Intuition Ale Works on East Bay Street. It slipped past a concrete pole without bumping the obstacle -- and when a reporter accidentally stepped in front of the oncoming vehicle, it stopped.

All without a driver, without rails and without a guide.

Jacksonville Transportation Authority executives are turning to driverless vehicles to replace the aging and limited Skyway rail system and worked with a vendor to offer a demonstration for those interested. The Easy Mile EZ10 allowed approximately 100 potential customers to see, touch and ride a vehicle that utilizes the next generation autonomous technology.

What these residents seemed to care about most, however, wasn't the new technology, but the reliability of the system. They wanted to know could it get them from where they are, to where they want to be -- and a lot of times, they said, that isn't on the current Skyway route.

"The opportunity to perhaps expand the mass transportation here in Jacksonville," Lamar Campbell said when asked what drew him to the demonstration. "The Skyway doesn't go to many places. It's very expensive to maintain, and expansion is a tremendous burden on taxpayers."

"We know right now our transit doesn't nearly reach all areas," said Jennifer Kennedy, a traffic engineer in Jacksonville.

Though she's never been in an autonomous vehicle before, she believes the smaller vehicle will allow more versatility and allow JTA to reach further into the city.

She isn't wrong.



Future plans for the Skyway will include removing the guide beam from current infrastructure and creating access points along existing routes. These points will allow the driverless vehicles to leave the elevated pathway and merge onto roadways on dedicated lanes. This way, JTA can expand into areas such as Riverside, Brooklyn and San Marco without constructing additional structures within the communities.

According to Brad Thoburn, JTA vice president of planning, development and innovation, the authority plans also decrease the wait times for customers at each stop from every six to eight minutes, to every two to three minutes. As a result, JTA will have to invest in more driverless vehicles, but they come at a much smaller price tag than the approximately \$5 million it costs to replace an existing Skyway vehicle.

The transportation authority has not announced a time line, cost or specifics for moving forward with the expanded system. It has also not decided which vendor or automated vehicles to use, but executives believe it is well-situated to take advantage of the rapidly-developing technology.

Last month, the board approved moving into the development phase of the project, which JTA has named the Ultimate Urban Circulator.

"The [Ultimate Urban Circulator Program] will help drive economic growth through enhanced mobility, connectivity, sustained economic growth and vibrancy for Jacksonville," said Nathaniel Ford Sr., CEO of JTA.

Staff writer Sebastian Kitchen contributed to this report.

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# GA: Cobb Approves Millennial-Centric Express Bus Route to Midtown

BEN BRASCH ON MAR 3, 2017

SOURCE: MCCLATCHY

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March 02--Cobb commissioners on Tuesday approved what they hope will be a faster way to get to the heart of Atlanta.

CobBLinc's Route 10X was designed to zip college students and others from as far as Kennesaw to Midtown in order to link different metro Atlanta college campuses.

The line will include Cobb's colleges, Windy Hill Road at U.S. 41, the Braves' new SunTrust Park and the Cumberland Transfer Center, before ending at the Midtown MARTA station.

March 2018 is the earliest 10X could start, the county said.

This plan started in 2013 when Marietta partnered with Kennesaw State University, what was then Southern Polytechnic University (now a KSU site) and Life University in Marietta to study transportation needs.

The analysis concluded there needed to be a transit route focused on connecting Cobb's students, who don't have the option of taking a MARTA train, to different campuses.

Cobb County is working with Waze to help improve traffic

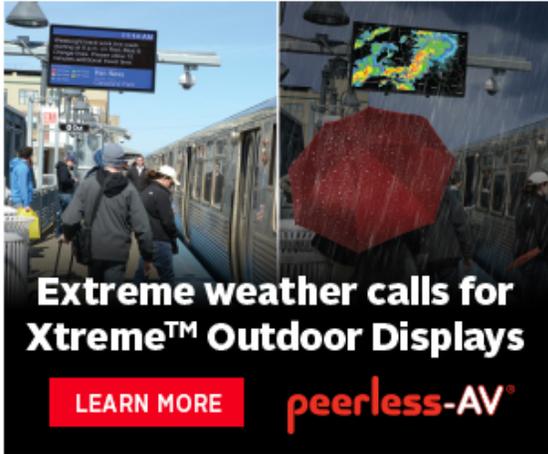
Commissioners also hope the bus line will alleviate stress on the existing Route 10, which the county says has one of highest riderships of any transit route in the southeast and certainly the busiest CobBLinc route.

As far as differences between the two lines, 10X starts at KSU's main campus whereas route 10 begins at the Marietta Transfer Center. Route 10 didn't include a SunTrust Park stop.

And 10X also goes down to the Midtown station as opposed to route 10's end at the Arts Center MARTA station one stop away. One quick stop may not seem like a big deal, except that the Midtown stop services Georgia Tech.

The project was proposed in December 2015 and received a grant of \$5.6 million early this past summer. In November, the county committed \$1.4 million.

The 12-bus route will of course be open to the general public looking to navigate the congested U.S. 41/I-75 corridor.



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TECHNOLOGY

## GA: Gwinnett Transit Teams up with Google to Make Commuting Easier

TYLER ESTEP ON MAR 14, 2017

SOURCE: MCCLATCHY

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March 13--Gwinnett County Transit has teamed up with Google to make things a little bit easier for commuters.

According to a news release from the county, the Google Transit smartphone app will now allow Gwinnett County Transit schedule data to be accessed via Google maps.

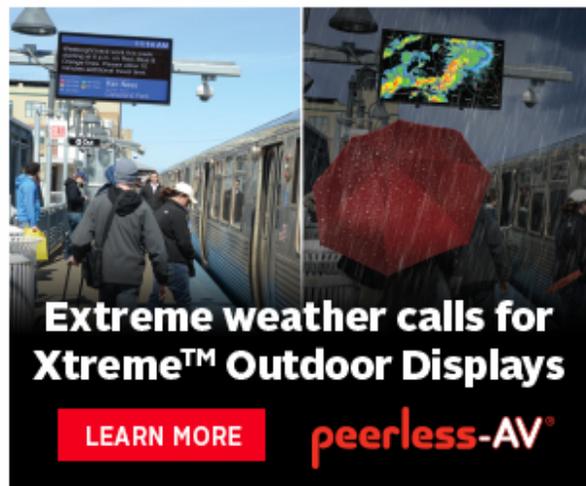
"By inputting their starting and ending points, Google will provide transit options available near those locations," the news release said. "Commuters also can access customized route data with multiple travel options."

Karen Winger, director of the Gwinnett County Transit Division, said the new tool is "really helpful for a transit rider who is perhaps going to a new destination."

To access the tool, search "Google Transit" then click "Transit — Google Maps." A new screen will appear and users can then type in starting and ending points for their trip.

"Gwinnett County Transit is very excited to offer this tool," Winger said in the news release. "We ask for riders to use Google Transit for their next trip and let us know what they think."

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TECHNOLOGY

# Global Forecast for Smart Transportation Markets to 2021

SOURCE: REPORTLINKER APR 13, 2017

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The smart transportation market size is expected to grow from \$72.05 billion in 2016 to \$220.76 billion by 2021, at a Compound Annual Growth Rate (CAGR) of 25.1 percent during the period 2016–2021. The major drivers for an upsurge in demand for the smart transportation market include the rising urban population and demand of integrated security & safety system for transportation. Investment in legacy systems precluding the Return of Investment (ROI) is one the restraining factors that affect the growth of the market.

**Passenger information solution is estimated to have the largest market share**

The passenger information solution is expected to have the largest market share during the forecast period. Passenger information solutions make an important link between commuters and transit service providers. Keeping commuters informed with their current journey information is one of the top most priorities of the transit agencies. Passenger information solutions provide real-time information of the transit services, such as current location, estimated arrival & departure time, and causes for disruption.

**Asia-Pacific is expected to grow at the highest CAGR during the forecast period**

As per the geographic analysis, Asia-Pacific (APAC) is expected to grow at the highest CAGR during the forecast period. The competition in this region is fragmented and smart transportation solution providers are looking at expanding the base of their operations to most of the countries in the region, as a result of business strategic moves, such as improved infrastructure and implementation of various smart city projects. The government in this region is spending heavily on the transport infrastructure and working on Public-Private Partnership (PPP) model to ramp up the smart transportation projects.

In the process of determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews were conducted with key industry personnel.

REQUEST MORE INFORMATION



The break-up profile of the primary discussion participants is given below:

- By Company Type: Tier 1 (44 percent), Tier 2 (37 percent), and Tier 3 (19 percent)
- By Designation: C-Level (65 percent) and Manager Level (35 percent)
- By Region: Europe (44 percent), APAC (18 percent), North America (33 percent), and Rest of World (RoW) (5 percent)

The various smart transportation solution and service vendors profiled in the report are as follows:

- **Alstom SA** (Levallois-Perret, France)
- **Cisco Systems Inc.** (California, U.S.)
- **Cubic Corporation** (California, U.S.)
- **General Electric Company** (Massachusetts, U.S.)
- **IBM Corporation** (New York, U.S.)
- Indra Sistemas S.A. (Madrid, Spain)
- Kapsch TrafficCom AG (Vienna, Austria)
- **LG CNS Co. Ltd.** (Seoul, South Korea)
- Q-Free ASA (Trondheim, Norway)
- **Siemens AG** (Munich, Germany)
- Thales Group (La Defense, France)
- TomTom International B.V. (Amsterdam, Netherlands)
- WS Atkins (Epsom, U.K.)

### **Research Coverage**

The global smart transportation market has been segmented on the basis of solution types, services, and regions. A detailed analysis of the regions has been done to provide insights into the potential future business opportunities in different regions. In addition, product portfolio analysis and vendor strategy analysis are some of the other MarketsandMarkets analysis included in the report.

# Grays Harbor Transit Buses Now Tracked By GPS For Riders

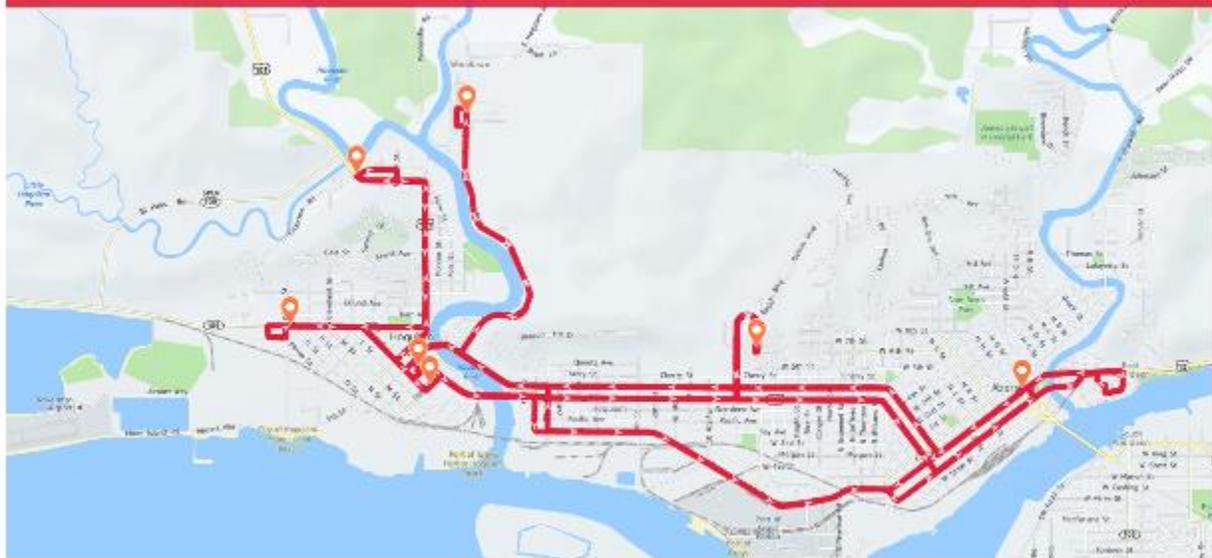


By KXRO News | May 3, 6:28 AM



GRAYS HARBOR TRANSIT

↔ 20



Grays Harbor Transit is now tracking their bus routes by GPS.

In a release, they tell KXRO that GPS Bus Tracking by Route officially launched on Tuesday.

Bus information will be displayed in real time for rider convenience.

The program is available on computers, smart phones, and tablets, or anything with internet access. The software is ran through a website, and not through an app.

The tracking software allows riders to;

- Select your bus route
- Find your location on the map
- Find the bus in real time that is heading to your location. The bus indicators show direction of travel and displays green if the bus is moving and red if the bus is stopped.
- Riders can also select a pinpoint on the route to show the posted departure times at that particular stop.

Grays Harbor Transit says that they are still correcting minor glitches as the program is launched.

Instructions are on the Grays Harbor Transit website ([www.ghtransit.com](http://www.ghtransit.com)) on how to load it on your mobile device as a quick launch icon.

Link is: <https://transit.unitegps.com/gh>

RAIL

# IL: First Step to New CTA Rail Cars: Build the Factory in Chicago

CORILYN SHROPSHIRE ON MAR 16, 2017

SOURCE: MCCLATCHY

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March 16--Construction is expected to begin in Chicago this week on a Chinese state-owned rail company's assembly plant that will produce up to 846 new rail cars for the Chicago Transit Authority.

The project will return CTA rail car manufacturing to Chicago after a 50-year absence, according to the city. CRRC Sifang's American subsidiary, CRRC Sifang North America, won the \$1.3 billion contract last year to build the new 7000 Series over 10 years. The cars will have a combination of forward- and rear-facing seats as well as single seats and some facing the aisle.

CRRC Sifang will invest \$100 million in building a 380,944-square-foot manufacturing facility on 45 acres in Chicago's Hegewisch neighborhood on the Southeast Side.

Production will begin in early 2019. The facility will begin testing the new car prototype later that year and the cars will hit the rails by 2020.

The facility will employ about 170 workers, according to a statement from CCRC. The company will spend \$7.2 million to train the workforce, according to a statement from Mayor Rahm Emanuel's office.

The Chicago assembly plant is part of the company's larger plan to "become internationalized," said Li Yongle, vice president of CRRC Qingdao Sifang, under the CRRC corporate umbrella.

"We recognize the United States as an important and strategic market for the Sifang," he said through an interpreter. "It will support other project plans in the U.S., including projects for metro cars and high-speed trains."



The company already has a contract to build rail cars for Boston's transit system and aims to use the new Chicago plant if it wins bids to manufacture rail cars for San Francisco's Bay Area Rapid Transit system, known as BART, and a double-decker coach car project for Metra, Li said.

The company plans to assemble "major components" of the cars at the plant, including the trucks, doors, the heating and cooling system, brakes, stainless steel car body shell and a new propulsion system designed for a smoother, quieter ride. Assembly parts will be sourced from the U.S., China and other areas, according to Li.

The CTA's first order of 400 new cars will replace its oldest rail cars, which date back more than 30 years. Once the new cars are in service, the CTA will have one of the youngest fleets of any U.S. transit agency, according to the CTA.

The Chinese company's \$1.309 billion bid came in \$226 million lower than one submitted by Canadian-based Bombardier, which appealed the CTA's decision to pick the Chinese firm. The decision was upheld last year after being reviewed by the CTA.

"This new facility represents a major investment in Chicago that will bring economic development to the Southeast Side, while creating good-paying jobs for hundreds of workers," said Mayor Rahm Emanuel in a news release.

The new rail cars will have LED lighting and 37 or 38 seats each and be a hybrid of the previous 5000 Series and the 3200 Series currently seen on the Brown and Orange lines. Both federal and local funds will pay for the project, with the local money coming from a previous bond issue.

Li said his company still is negotiating possible tax incentives for building the facility in Chicago. A spokesman from the mayor's office said there are no city incentives but the company could be eligible for a county property tax credit.

crshropshire@chicagotribune.com

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TECHNOLOGY

# Keolis Canada and NAVYA to Demonstrate their Autonomous Shuttles at the UITP Summit in Montreal



SOURCE: KEOLIS APR 12, 2017

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Keolis Canada and NAVYA have announced that they will officially present their autonomous electric shuttle project at the UITP Global Public Transit Summit, being held in Montreal May 15 to 17. In September 2016, in Lyon, France, Keolis launched experimental testing of NAVLY, the world's first public transport service using autonomous electric shuttles. Since then, it has tested a number of other autonomous shuttle projects in major cities, including Las Vegas in January. The shuttle epitomizes the transport of tomorrow, and both Keolis Canada and NAVYA welcome the collaboration of the Ville de Montréal.

"This is a great progress for us, as we have been evaluating the Quebec market for some time. The UITP Summit is the perfect venue at which to present the product, which offers a solution for the initial and final stages of a trip. Keolis will also play a visible role at the Summit. We believe that electric vehicles represent the future of public transit, and we are delighted to have the opportunity to test this new autonomous vehicle here as a Canadian first. The enthusiasm for the project is already contagious," said Patrick Gilloux, president and chief operating officer of Keolis Canada.

"We know there is keen interest in Quebec for innovative mobility solutions such as autonomous electric shuttles," stated Christophe Sapet, CEO of NAVYA. "We are pleased to have deployed more than 35 vehicles to date and transported more than 130,000 passengers world-wide, and Canada is an important step ahead in our international development. We look forward to the Montreal demonstration of this product, which is a viable response to the problems faced by cities today: congestion, pollution and parking."

"Montreal is actively preparing for the emergence of autonomous and electric vehicles. The new institute to study and promote electrification and intelligent transportation will draw on Montreal's many assets as a city of innovation. We have what it takes to become a global leader in the mobility of tomorrow, and I applaud the contribution of Keolis Canada and NAVYA in this field," stated Denis Coderre, Mayor of Montreal.

### **The autonomous electric shuttle**

Environmentally-friendly and providing flexibility in its management, the autonomous shuttle enables communities to better adapt their transit offering to the needs of citizens while controlling the impact on infrastructure and reducing traffic and pollution. With a capacity of 15 passengers, it also facilitates the transportation of personnel, visitors or service agents on private sites, improves access and mobility, and optimizes employee work time. Ideal for urban areas, airports, industrial sites, amusement parks, hotel complexes and hospitals, it has been designed to help organizations and businesses improve performance by streamlining the flow of movement.

# **LIGHTNING SPEEDS** World's fastest hover train could take commuters from Liverpool to Manchester in **SEVEN** minutes

Rail bosses considering super speedy train that could link to HS2 and provide the fastest transportation seen in Europe

By Margi Murphy

6th March 2017, 10:37 am | Updated: 6th March 2017, 5:19 pm

**4**

COMMENTS

**A LEVITATING train that could get the 30 miles from Liverpool to Manchester in just seven minutes is being considered by rail bosses.**

Transport company Direct City Networks (DCN) is developing a plan for “the world’s fastest underground system” running between Liverpool and Hull.



Central Japan Railway's Maglev train, which is levitated and propelled by magnetic forces, is seen at an 18.4 kilometre test track in Tsuru, west of Tokyo, June 10, 2004

The proposal has been submitted to Transport for the North, the Government body tasked with improving transport links in the region.

If approved, the DCN300+ will travel through a new tunnel stretching across the North.

Initial plans show that the Maglev could travel between Liverpool and Hull within 29 minutes.



If approved, the train will use the superfast MagLev system.

MagLev trains hover above the tracks thanks to [magnetic levitation technology](#).

The reduction in friction means it can gain speeds of up to 350mph.

In comparison, the average Boeing passenger jet achieves speeds of around 550mph.

The massive speed reduction comes from an integration with the Northern Powerhouse Rail, the proposed high-speed rail link.

DCN want to initially link Manchester and Leeds with a MagLev connection, which could be extended to Liverpool and Hull.

Instead of long “trains” the system could shoot passenger pods or capsules down the line, according to [plans seen by the Liverpool Echo](#).

Rather than using long trains or carriages, the system would instead use passenger pods, or capsules.

DCN has worked with [billionaire Elon Musk’s Hyperloop](#), which plans to build tunnels that shoot magnetic pods between destinations at over 600mph.

But the chiefs at Transport for the North might need a little more persuasion.

A spokesperson for Transport for the North said: “TfN has been provided with information by Direct City Networks (DCN) PLC regarding a proposal to initially link Manchester and Leeds with a high speed ‘MagLev’ connection, with the possibility of this being extended to Liverpool and Hull.

“We have responded to DCN, highlighting several areas where we think substantive additional development work would be needed before any proposal could be given more detailed consideration.

“Our current priorities include the preparation of a long-term Strategic Transport Plan for the North and development of the Northern Powerhouse Rail proposals, which will identify plans for infrastructure needed to transform the region’s economy by offering fast, frequent and reliable transport around the North for both passengers and freight.”

**BUS**

## CA: Long Beach Transit Debuts Battery-Electric Buses

APR 4, 2017 **SOURCE:** EVERYTHING LONG BEACH

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On Friday, March 31, Long Beach Transit released three battery-electric buses into regular service on the complimentary, downtown Passport route. The zero-emission buses are a first for Long Beach and a milestone for the transit agency.

LBT's new battery electric buses are designed to travel approximately 150 miles on a full charge. The buses will be charged overnight at LBT headquarters much like compressed natural gas (CNG) buses are fueled when they return to the headquarters after their service day. Since the buses release no emissions, each bus can reduce LBT's daily carbon footprint.

LBT will be releasing the next seven battery-electric buses as each becomes cleared for service and as the charging infrastructure to support them is complete.

Read the complete article at <http://www.everythinglongbeach.com/long-beach-transit-debuts-battery-electric-buses/>



# MA: Self-Driving Trikes Pitched to Solve Boston Transit Woes

MEGHAN OTTOLINI ON MAR 6, 2017

SOURCE: MCCLATCHY

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March 04--MIT brainiacs are urging City Hall to tackle Boston's brutal traffic with wild, outside-the-box ideas -- like a futuristic, autonomous electric tricycle -- as officials prepare to unveil Mayor Martin J. Walsh's long-term transportation plan next week.

"Most trips in the city are one-person, low-speed, short distance. It doesn't make any sense to put one person in a 4,000-pound vehicle to move across Boston a couple of kilometers," said Kent Larson, co-director of MIT's City Science Initiative.

"We should have lighter-weight systems that supplement these more conventional mass transit systems," Larson said.

Among the forward-thinking options the city should be considering, he said, is a self-driving, covered tricycle that Hub residents can hail remotely whenever they need a ride.

"You call for the vehicle, it comes in a bike lane to wherever you are, you can drive it to your destination, or if you're elderly or disabled you can move autonomously to your destination," Larson said.

"Then you just get out wherever you end up and it goes on its way and pre-positions itself to pick up the next person," he said.

Larson's suggestions come on the heels of Boston's recent ranking as the nation's eighth-worst city for traffic and just days before Walsh releases the final Vision and Action Plan of Go Boston 2030, an initiative aimed at laying out a "bold transportation future spanning the next 15 years."

The plan, which will be unveiled Tuesday at the Boston Public Library, includes 57 transportation projects and policies meant to "expand access, improve safety, and ensure reliability," according to a press release yesterday.



A draft report posted online indicates goals will include decreasing unscheduled delays and slashing the average commute time by 10 percent. It also calls for putting a train, bus route, Hubway station or car-share within 10 minutes of every home in the Hub.

In addition to increasing access, the city is also working with the MIT Media Lab to explore harnessing the technologies of tomorrow -- including the "bike-like Uber" project and a dynamic shuttle system that would alter its route and schedule based on rider demand.

And though Larson said the lab has tested the cutting-edge electric tricycles in Taiwan and they'd be ready in a few years with proper funding, the mayor's office has not yet reached out about developing a pilot program.

"You would design a fleet of those vehicles to meet the demand at rush hour, and at off-peak, you have excess vehicles that can move packages autonomously," Larson said. "So it deals not only with the transportation issues related to moving people, but also this increasing challenge of moving packages in the city."

A new approach to public transportation was music to the ears of commuters who say they're at their wits' end dealing with delayed subway trains and frequent breakdowns.

Vince Pisegna, a local attorney, said the constant issues "make you think about not taking public transportation anymore."

Tom Seminara, who rides the MBTA's Orange Line twice a day, said he's also fed up with mishaps lengthening an already difficult commute.

"There's always crowded trains," he said, "and at least weekly there's some sort of a mechanical problem."

According to the city, Tuesday's unveiling will include an interactive exhibition with a model "Mobility Hub" aimed at providing participants with a better understanding of "how transit, bicycling, walking, and innovation fit together in a larger mobility framework."

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TECHNOLOGY

# MA: Sen. Warren Endorses Hyperloop Plan

GEORGE AUSTIN ON MAR 22, 2017

SOURCE: MCCLATCHY

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March 22--A proposal to locate a route for a new form of transportation between SouthCoast and Boston has been endorsed by U.S. Sen. Elizabeth Warren.

Warren recently sent a letter to Somerset Select Board member Holly McNamara in support of McNamara's plan to bring the Hyperloop -- a speedy system of travel for people and goods using pods, magnetic levitation propulsion and low-pressure tubes -- to the Northeast.



McNamara and Somerset-Berkley Regional High School graduate John Myron as a team submitted a plan to the Hyperloop One Global Challenge, which asked people around the world to submit location proposals for the transportation, the brain child of tech inventor and investor Elon Musk, founder of SpaceX and cofounder of Tesla. Out of roughly 2,600 submissions, Hyperloop picked 35 semifinalists, including the plan submitted by McNamara and Myron for southeastern Massachusetts, specifically Somerset. Their proposal is the only one in the Global Challenge that would locate the transportation in the northeastern United States.

"Massachusetts is a center for education, innovation and progressive policies, and the Commonwealth has always been at the forefront of forward-thinking policies," Warren wrote in a letter to McNamara dated March 10. "It is now time for Boston and Massachusetts as a whole to once again innovate, inspire and lead the South Coast of Massachusetts, some of which played the integral role in the formation of the United States. Hyperloop would bring the area back to its roots as an industry leader."

McNamara is working on the Hyperloop proposal as a private citizen, not as an elected official in her town. She has been following the start-up company behind the concept since 2014. The transportation would be similar to high-speed rail and faster than flight, making it possible to get from Massachusetts to Washington, D.C., in less than an hour, McNamara said.

At last week's Somerset Select Board meeting, colleagues David Berube and Steve Moniz voted to support McNamara's efforts. The resolution states that the Hyperloop is a creative and innovative concept. The resolution calls on state and federal delegations to support the project.

McNamara said if her proposal is chosen as one of the first corridors for the Hyperloop transportation, a feasibility study would follow -- and at no cost to the town, according to Berube.

McNamara stressed that by approving the resolution, the Select Board was supporting a discussion about the Hyperloop for the area and the concept. She said no commitment has been made to build or spend money on anything.

McNamara abstained from the vote, noting it would be a conflict of interest for her to vote on her own project.

"I think it's a great idea," Moniz said. "We'll be floating around in tubes, I imagine, like the Jetsons, in the future."

McNamara said she believes Hyperloop transportation could revitalize the whole state, not just Somerset and neighboring communities.

"Our vision is to bring this whole thing to the east coast, but we have to start smaller," McNamara said.

McNamara said the Hyperloop would be looked at as a supplement to other forms of transportation, not a replacement. She said the Hyperloop would have no polluting emissions and would be solar-powered. She said the cost for people to use the Hyperloop would compare to the price of a bus ticket.

"It really will revolutionize transportation in time," McNamara said.

McNamara and Myron went to Washington, D.C., recently to try to secure endorsements for their Hyperloop proposal. The endorsement by Warren was announced at last week's Select Board meeting.



McNamara and Myron have also received the endorsement of state Rep. Patricia Haddad (D-Somerset) and Sen. Michael Rodrigues (D-Westport). McNamara said resolutions also are being considered in Fall River and New Bedford.

The idea got the attention of President Donald Trump, who "asked for more information" on the technology during a recent meeting with Musk and other industry leaders.

Hyperloop One expects to name a handful of finalists for the corridors in May.

\_\_\_ (c)2017 The Standard-Times, New Bedford,

Mass. Visit The Standard-Times, New Bedford, Mass. at [www.southcoasttoday.com](http://www.southcoasttoday.com) Distributed by Tribune

# Monterey-Salinas Transit gets a new smartphone app.

David Schmalz Mar 23, 2017 1



Nic Coury

Lisa Rheinheimer shows how Transit took the colors for MST lines and incorporated them into its app.



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Lisa Rheinheimer stands in the Monterey Transit Plaza, her iPhone in hand, and watches the next bus on the “Jazz” line approach on her phone, in real time.

Rheinheimer, the director of planning and marketing for Monterey-Salinas Transit, is using the app Transit, which MST has been beta-testing over the last month, and which is now ready for download. The app brings the capability of allowing riders to know exactly where buses are at any given time.



Rheinheimer says studies have shown that for riders who know exactly when their bus is arriving, “The perceived wait is shorter. It feels like less [of a] wait because they know where the bus is.”

The app allows users to set alarms based on the location of a bus. For example, the app lets a rider set an alarm that will notify them 15 minutes in advance of a bus’ arrival to the nearest stop. As Rheinheimer wheels through the app’s capabilities, she says, “It’s almost like Garmin [GPS], but for transit.”

The app is free to download, and costs MST nothing; all they do is provide the information to Transit. The ridesharing taxi service Uber is also linked on the app. Transit is also supported in other regions, as well as in eight other countries.

If all goes as planned, MST will also roll out a service in April that allows riders to text or call from a cell or a landline to get the arrival time of the incoming bus.

Yet for riders with a smartphone, the app is the best option: They can see where any bus is, any time.

# New changes coming to Transpo that would modify how passengers catch the bus

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by Heather Black, WSBT 22 News | Thursday, March 2nd 2017

ST. JOSEPH COUNTY – Passengers who ride local transit will soon have to change the way they catch a ride on the bus.

Transpo is going from passengers flagging down the bus to designated stops.

There was an informational meeting held Thursday night.

There is a grace period that starts March 3.

April 3 is the day when passengers can only be picked up by the bus if they're at a designated stop.

This change has been in the works since 2012.

Although, it was last October when new signs were placed at 820 stops throughout Mishawaka and South Bend.

Transpo says the changes are to improve arrival time and safety for passengers and drivers.

---

the general manager and CEO of Transpo says this will also help gather information to make sure they have the right amount of bus stops.

“Making sure we have stops convenient for majority of our passengers. But we should see in the next couple of years an opportunity to maybe reduce that number even more. Or make sure that we’re providing the most efficient service as possible,” said David Cangany.

Transpo will also be adding new shelters. Most of them will replace the old ones at the South Street Station.

Passengers can keep up with routes through the Google Maps app. There may be a few changes of routes in the next 30 days.

You can go to <http://www.sbtranspo.com/> for more information on routes and the new plan.

# New MIT Study will Explore Future of Transportation

SOURCE: MIT ENERGY INITIATIVE APR 11, 2017

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Energy demand for transportation — which today accounts for approximately one-fifth of the world's energy consumption — is expected to rise substantially as a growing middle class in emerging economies demands greater access. But how will such demand be addressed in the years ahead?

As part of MIT's five-year Plan for Action on Climate Change, the MIT Energy Initiative (MITEI) has launched a major study — "Mobility of the Future" — to explore how consumers and markets will respond to potentially disruptive technologies, business models, and government policies. The scope of this study is ground transportation with an emphasis on the movement of people.

"It is well recognized that transportation is the most challenging economic sector to decarbonize," said Robert Armstrong, director of MITEI and a professor of chemical engineering. "Our three-year 'Mobility of the Future' study is tackling complex questions of how technology advances, consumer choice, new business models, and government policies could change the trajectory of mobility to fundamentally alter the carbon intensity of the future transportation system."

There are many potentially disruptive forces at work in the mobility space, all of which could shape the landscape. MITEI has organized a multidisciplinary team from across MIT to examine the complex interactions among these elements and their implications for the future.

The study team will explore the potential for widespread deployment of advanced powertrains, such as advanced internal combustion engines, hybrid-electric vehicles, all-electric vehicles and fuel cell vehicles. The study will also examine the consequences of using electricity and fuels such as natural gas, e-fuels, biofuels, and hydrogen to power these vehicles.



Other areas of focus will include research into new mobility business models such as ride hailing and car sharing, and demographic changes such as greater urbanization and the growing middle class in many developing countries. Researchers will use agent-based modeling systems to examine how people travel in metropolitan areas and how these consumers' mode choice decisions are influenced by congestion and government policies. These decisions depend on many factors including city characteristics, infrastructure, personal income, travel needs, and availability of options including personal car, bicycle, public transportation, and ride hailing services. The team will also gather data to better understand people's attitudes regarding car ownership and usage, and how these attitudes vary across different cultures and age groups.

Researchers will explore how various government policies — such as those regarding emissions controls and congestion mitigation — can impact prosperity, adoption of alternative modes of transportation, and emissions. The study will also address the important topic of vehicle automation, with a focus on how government policy affects the introduction and use of these technologies.

The study is supported by energy, automotive, and infrastructure companies who are providing industry perspectives on mobility problems that require solutions. Sponsors include Alfa, Bosch, BP, Chevron, ExxonMobil, Ferrovial, General Motors, Saudi Aramco, Statoil, and Toyota Mobility Foundation.

While there is a particular focus on the U.S., E.U., and China, data collection for the study is global in scope. Dalia Research, a Berlin-based mobile research company, is contributing to the study and has already completed surveys with 43,000 participants from across 50 countries to measure perceptions and attitudes toward vehicle technologies, mobility services, and regulations.

"The 'Mobility of the Future' study brings together academia and industry to identify the most compelling questions about the future of mobility and define scenarios that we will simulate with our modeling tools to understand the consequences," said William H. Green, a professor of chemical engineering who is the study's faculty chair. "The multi-disciplinary MIT team brings together all of the vital skills for this important study, including city and transportation planning, civil engineering, mechanical engineering, chemical engineering, and economics. We look forward to sharing findings that we hope will inform industry, city planners, and government policies."

TECHNOLOGY

# NV: Proterra to Test Self-Driving Bus in Downtown Reno

DAVID R. BAKER ON MAY 3, 2017

SOURCE: MCCLATCHY

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May 02--Companies from Uber to Ford are racing to deploy self-driving taxis on city streets, perhaps within five years.

Other robot vehicles may not be far behind.

Proterra, the Burlingame electric bus company, has partnered with the University of Nevada, Reno to develop and test autonomous buses in the heart of Reno's downtown.

Step one involves outfitting a Proterra battery-powered bus with the sensors needed to scan the street. That work is already under way at a facility near the city's airport. Then the bus, driven by a human, will spend day after day plying a route along Reno's Virginia Street, picking up passengers and gathering data on the pedestrians, traffic and streetscape.

In step two, engineers from the university and Proterra will use that data to see how different self-driving algorithms would perform if given control of the bus. Eventually, one of those programs will be allowed to steer, under the watchful eye of a driver.

"We're taking a 'crawl, walk, run' approach for the downtown corridor, said Richard Kelley, chief engineer with the university's Advanced Autonomous Systems Innovation Center. "For the live test, we want to make sure the vehicle can see before we give it the steering wheel."

Proterra isn't the only company eyeing this future.

French company EasyMile, for example, is already testing autonomous shuttle buses in San Ramon's Bishop Ranch office park. Another French firm, Navya, tested robotic shuttles in Las Vegas in January. And Tesla, whose massive battery Gigafactory lies east of Reno along Interstate 80, has also discussed creating an autonomous bus.

Proterra CEO Ryan Popple says the idea has obvious appeal, as a way to improve safety and make public transit more reliable and efficient.

He's not convinced, however, that autonomous buses will ever go without some kind of human supervisor, even if that person doesn't do the driving. Robot school buses, for example, would probably need someone to supervise the students.

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"You're going to need a human being there to take care of the people," Popple said. "You might not need that with freight, but passengers are the most precious cargo you can carry."

The Proterra project will be the first to take advantage of the Living Lab, a partnership of the university, the Washoe County Regional Transportation Commission, two state agencies and the cities of Reno, Sparks and Carson City. Companies and researchers developing autonomous vehicles will be able to test their creations on streets and highways selected by the partnership.

The Regional Transportation Commission already runs Proterra buses. One is being equipped with cameras and lidar, the laser version of lidar used in most self-driving cars. Figuring out the right places to mount it on a full-size bus, however, is a little trickier.

"You can just throw a lidar on top of a car, and you're good," Kelley said.

Self-driving buses have other unique considerations.

For example, Popple notes that any automated bus would have to carefully monitor passengers entering and exiting the doors. To comply with the Americans with Disabilities Act, the bus would also need to work with passengers using wheelchairs or walkers.

"Personally, I'm not comfortable yet with the idea that an ADA passenger could get on an autonomous vehicle, and that we could code for every possible disability," Popple said. "You need to be able to move everyone, whether they're physically or mentally disabled, or they're really young, or they're a senior."



And yet, Popple believes that electric, autonomous buses will become an integral part of urban life, eventually.

He argues that they will be cheap enough to buy and operate that passengers will be able to use them for free, with cities simply baking the costs into their annual budgets. Those costs will be at least partially offset by the savings on insurance, should self-driving buses prove to be as safe as expected.

That said, Popple doesn't want to rush the tests.

When the Reno project advances to the point of letting the buses drive themselves, they will face intense scrutiny, particularly if they screw up. He points to the furor that erupted in December, when one of Uber's self-driving cars was caught on video rolling through a red light in front of the San Francisco Museum of Modern Art.

"In our market, we can't just put a vehicle out there, and then have a bus run a red light," Popple said. "I probably would have heard from my mother. 'Ryan! What are you doing? There's a bus running out of control!'"

David R. Baker is a San Francisco Chronicle staff writer. Email: [dbaker@sfchronicle.com](mailto:dbaker@sfchronicle.com) Twitter: @DavidBakerSF

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TECHNOLOGY

# OH: Technology Improves SARTA Experience

ROBERT WANG ON APR 5, 2017

SOURCE: MCCLATCHY

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April 04--CANTON -- Stark Area Regional Transit Authority dispatchers since 2011 have been able to monitor the real-time locations of all buses on a computer screen with GPS technology, installed at a cost of \$2 million to \$3 million.

Each bus, tied to a cellular network, continuously transmits how many people are on the bus and other ridership statistics back to headquarters.

For the past two years, riders of SARTA's ride-by-appointment ProLine service have gotten automated phone calls or texts telling them their vehicle is five minutes away.

These are among the technological improvements SARTA has made the past eight years.

SARTA Executive Director Kirt Conrad has used millions of dollars in federal grants aggressively to implement the latest technologies in software, hardware, batteries to fuel vehicles and energy to improve his agency's efficiency in delivering transportation services and improving riders' experiences.

He said these are among the additional upgrades:

--As people schedule their ProLine rides online or by phone, SARTA's sophisticated routing software determines which vehicle can most quickly and efficiently (with the least number of miles driven or in the least amount of time) pick them up, and it immediately adjusts routes as it gives turn-by-turn directions to drivers. Conrad said, "It allows us to much more efficiently schedule and get more riders per hour on those vehicles. It also allows us to communicate better with our passengers, so they know exactly when a bus is going to be picking them up."



--Rather than try to talk over radio chatter and noise, bus dispatchers and the drivers can communicate with text messages, which the driver can see when they have stopped at a bus stop on a display by the fare box. If the driver has a malfunctioning fare box, the driver can enter a code in their console, and the dispatcher can send a supervisor to assist.

--A mobile app allows riders with smartphones to plan their travel and see the real-time location of the bus they're waiting for.

--By utilizing GPS tracking of buses, a dispatcher who realizes a bus is running behind schedule can re-route other buses to pick up riders, sparing them from delays.

--Each bus is equipped with eight cameras that can store months of video images to document accidents or incidents between riders and drivers. Conrad said law enforcement has asked to see video recorded from a bus camera to determine if it captured images of a crime. Video has allowed SARTA to refute apparently false complaints from passengers about drivers.

--Each bus carries upgraded radios, at a cost of more than \$1 million, with minimized dead spots. Conrad said that when he started as SARTA's executive director in 2009, "about half the fleet didn't have a working radio in the vehicle." Also, an area around Massillon had dead spots, he said. If a bus broke down there, the driver would call for help with a cellphone.

--SARTA is buying buses that run on hydrogen fuel cells, which do not emit pollutants, and it has about 40 buses that run on natural gas.

--Some buses and all four SARTA transit centers offer free WiFi.

Conrad said data collected from the fare box on buses allow SARTA to determine which routes are serving areas effectively. He said that five years ago a SARTA employee would sit on a bus all day and count how many riders got on, and where, and how many got off, and where. That no longer is necessary.



"I can tell you exactly how many people get off the downtown stop at any point in time," Conrad said. "I can tell you exactly how many people ride each bus each trip or part of a route."

Conrad said SARTA is looking at self-driving vehicles technology and might work out agreements with Uber and Lyft, the ride-hailing companies, to coordinate bus service with pickups through the ride-hailing apps.

He said the GPS system has gone down about 10 times for a few hours each time due to apparent software glitches. While the system was down,

SARTA staff manually scheduled people for ProLine rides. He said no one from outside SARTA is allowed public access to its servers that schedule service or communicate with vehicles.

Reach Robert at 330-580-8321 [📞](https://www.facebook.com/robert.wang) or [robert.wang@cantonrep.com](mailto:robert.wang@cantonrep.com).

On Twitter: [@rwangREP](https://twitter.com/rwangREP)

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# Proterra Begins First Autonomous Bus Program in the United States



SOURCE: PROTERRA MAY 2, 2017



*The autonomous vehicle pilot will deal with real road conditions from the perspective of public transit systems, and emphasize the most challenging aspects related to mass transportation, which include dense and dynamic environments, degraded conditions, and a need for swift emergency response.*

**Photo credit:** Leah Harnack/Mass Transit



Proterra has announced the company is initiating the industry's first autonomous bus program with the University of Nevada, Reno and its Living Lab Coalition partners that includes the Regional Transportation Commission of Washoe County (RTC), the Nevada Department of Motor Vehicles, the Nevada Governor's Office for Economic Development, Fraunhofer Institute for Transportation and Infrastructure Systems IVI, and the cities of Reno, Sparks and Carson City, Nevada. This program represents Proterra and the partners' commitment to technology leadership and to establishing safer mobility solutions that will help build public confidence in the safety of eventual autonomous mass transit.

An advertisement for Mass Transit Career Center. At the top right is the "MASS TRANSIT" logo with a red double arrow. Below it, the words "Career CENTER" are written in a large, bold, black font. Underneath is a graphic of a transit sign with the text "TAKE THE BEST ROUTE TO YOUR NEXT CAREER MOVE" and icons of a person walking, a handshake, and a person sitting at a desk. At the bottom, a black box contains the text "Opportunities Await Start Your Search" and a red button that says "CLICK HERE" in yellow letters.

Unlike other programs to date, this autonomous vehicle pilot will deal with real road conditions from the perspective of public transit systems, and emphasize the most challenging aspects related to mass transportation, which include dense and dynamic environments, degraded conditions, and a need for swift emergency response. The pilot will also explore a new set of robotic perception algorithms that are required to address these conditions, and focus on tight cues from multi-modal sensors and new multi-modal localization and mapping. Rather than solely detect traffic, the Living Lab will focus on predicting traffic flows and plans to enhance safety. The University's current work focuses on the problems of vehicle perception, navigation control, path planning and vehicle-to-vehicle as well as vehicle-to-infrastructure research.

"Autonomy is key for safety, efficiency and reliable transportation systems at scale. Our shared vision is to have robust, long-term autonomy to enable safer modes of transit," said Carlos Cardillo, PhD director of the Nevada Center for Applied Research at the University of Nevada, Reno. "In the pilot, we plan to research and develop a robust set of algorithms for localization and mapping, object detection in the domains of multi-modal fusion and recognition of intent to ultimately advance robotic perception and move systems closer to our simultaneous goal of enhancing safety. The project involves University researchers in advanced-autonomous systems, computer sciences, synchronized mobility, robotics and civil engineering."

The Living Lab program will include three main phases of research and development. Phase 1 focuses on data collection, vehicle instrumentation and intelligent transportation system assessment; Phase 2 on data mining, communications and algorithms development; and Phase 3 on licensing and commercialization. In the first phase, RTC's state-of-the-art electric bus, manufactured by Proterra, will operate on specific city routes to sense and gather data, which will inform technology and systems development. The pilot is supported by the Knowledge Fund, an innovative funding mechanism developed by the State of Nevada to spur research, knowledge-intensive and innovation-driven economic development, and Research & Innovation at the University of Nevada, Reno.

"As more and more communities take steps to integrate autonomous vehicles, we will continue to advance mobility solutions that best meet those evolving needs, while embracing the highest safety standards on the market," said Ryan Popple, CEO of Proterra. "We see the Living Lab pilot as a way to support ongoing safety improvements, encourage technology develop in autonomous vehicles, and better understand complex road dynamics."

SUSTAINABILITY

# BP And Clean Energy Partner To Expand U.S. Renewable Natural Gas Transportation Fueling



SOURCE: CLEAN ENERGY MAR 27, 2017

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BP p.l.c. and Clean Energy Fuels Corp. have announced that BP will acquire the upstream portion of Clean Energy's renewable natural gas business and sign a long-term supply contract with Clean Energy to support the firm's continuing downstream renewable natural gas business. The deal enables both companies to accelerate the growth in renewable natural gas supply and meet the growing demand of the natural gas vehicle fuel market.

Renewable natural gas fuel, or biomethane, is produced entirely from organic waste. As a fuel for natural gas vehicle fleets, including heavy-duty trucks, it is estimated to result in 70 percent lower greenhouse gas emissions than from equivalent gasoline or diesel fueled vehicles.

Under terms of the agreement, BP will pay \$155 million for Clean Energy's existing biomethane production facilities, its share of two new facilities and its existing third party supply contracts for renewable natural gas. Closing the transaction is subject to regulatory approval. Clean Energy will continue to have access to a secure and expanding supply to sell to the growing customer base of its Redeem™-branded renewable natural gas fuel through a long-term supply contract with BP.

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The advertisement features a dark background with a yellow horizontal bar. It shows a desktop monitor, a tablet, and a smartphone, all displaying a website interface with various product listings and navigation elements. The text is in white and yellow, with 'MASS TRANSIT' in a large, bold, white font.

"Demand for renewable natural gas is growing quickly and BP is pleased to expand our supply capability in this area," said Alan Haywood, chief executive officer of BP's supply and trading business. "BP is committed to supporting developments towards a lower carbon future and, working with Clean Energy, we believe we will be well-positioned to participate in the growth of this lower carbon fuel in the U.S."

Clean Energy, in turn, will be able to expand its Redeem customer base at its North American network of natural gas fueling stations, allowing customers to take advantage of the ease and affordability of switching to a fuel that is both renewable and can significantly reduce greenhouse gas emissions compared with diesel.

"We started our Redeem fueling business from scratch less than four years ago and have grown it into a significant enterprise," said Andrew Littlefair, Clean Energy's president and chief executive officer. "This transaction will help to take it to the next level. BP's investment in and focus on renewable natural gas supply will ensure that Clean Energy can meet the growing demand of our customers for low carbon, renewable fuel."

Clean Energy will buy renewable natural gas fuel from BP and collect royalties on gas purchased from BP and sold as Redeem at its stations. This royalty payment is in addition to any payment under BP's contractual obligation.

RAIL

# Siemens Charger Clean Diesel-Electric Locomotives to Begin Operation on Capitol Corridor this Month

SIEMENS

SOURCE: SIEMENS MOBILITY DIVISION APR 20, 2017



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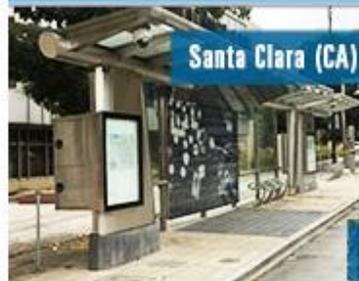
*Siemens Charger Clean Diesel-Electric Locomotives.*

*Photo credit: Siemens*

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Amidst vintage rail cars at the California State Railroad Museum, the public got its first official look at one of the newest locomotives soon to be on the rails: the Siemens Charger Clean Diesel-Electric Locomotives. The California-built, environmentally-friendly Charger locomotives will begin operation of revenue testing on the Capitol Corridor service before the end of this month. Officials on hand for the 2017 California Passenger Rail Summit, taking place in Sacramento April 18-19, celebrated the arrival of the clean locomotives.

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**Power**

The Charger locomotive is powered by a high-performance, environmentally friendly, 4,400 horsepower-rated Cummins QSK95 diesel engine, and are designed to operate at speeds up to 125 miles per hour.

**Rider Experience**

The powerful diesel-electric operation allows for better acceleration, cleaner emissions, and low noise levels for passengers on-board and waiting at the platform. The Chargers also feature an attractive streamlined design and smoother traction control which results in better ride quality for passengers.

**Cleaner Rail Travel**

The Charger locomotives are equipped with electronically-controlled regenerative braking systems that use energy from the traction motors during braking to feed the auxiliary and head-end power systems to minimize fuel consumption. Also, the new Charger locomotives, using the QSK95 Cummins engine, provide a 16% improvement in fuel efficiency over the non-Tier 4 certified locomotives that the Charger will replace in Washington and California.

The Charger locomotives are expected to begin a 30-day period of revenue testing on the Capitol Corridor before the end of April. Once testing is complete, they will begin service on the Capitol Corridor and San Joaquin routes.

"These Chargers will help provide California's passenger rail services with a fleet of locomotives that meet very stringent emission standards," said Caltrans Director, Malcolm Dougherty. "Not only will they make for a more sustainable transportation system, but are also expected to improve reliability and help efforts to double current statewide ridership of 5.4 million passengers by 2040."

The locomotives are the first high-speed passenger locomotives to receive Tier IV emissions certification from the Federal Railroad Administration (FRA). The new locomotives, six in all for Northern California, are part of a larger, multi-state procurement. Siemens is building the Charger locomotives out of its nearly 1,000-person rail manufacturing hub in Sacramento, California for transportation agencies in California (Caltrans), Illinois (IDOT), Washington (WSDOT) and Maryland (MTA). Additional states served by the procurement are Oregon, Wisconsin, Missouri, Michigan and Iowa. Each Buy-American compliant locomotive costs approximately \$6 million — funding for the California locomotives came from Federal Recovery Act Funds and California Proposition 1B Infrastructure Bonds.

Siemens Rolling Stock President Michael Cahill stated, "Unveiling the first of these locomotives built in California, for California, is a testament to the hard working employees in Sacramento who designed, engineered and manufactured these state-of-the-art rail vehicles. We're proud to bring the latest technologies to life for Capitol Corridor riders and help usher in the next generation of clean, smart and efficient rail travel in California."

According to Capitol Corridor Joint Powers Authority (CCJPA) Managing Director, David Kutrosky, "These diesel-electric locomotives will result in a better overall experience for our passengers. They are cleaner and quieter, and offer a smoother ride. We're excited to debut these Sacramento-built Tier 4 engines on the Capitol Corridor."

# Sound Transit Light Rail Trains to Run on Clean Energy Beginning 2019

SOURCE: SOUND TRANSIT APR 20, 2017



*Photo credit: Sound Transit*

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Sound Transit has executed an innovative 10-year agreement with Puget Sound Energy (PSE) that will allow Link light rail trains to run on 100 percent clean energy starting in 2019. The agreement, the first of its kind in Washington state, will enable Sound Transit to purchase wind energy directly from PSE's Green Direct program.

"Sound Transit continues to demonstrate that being a sustainability leader can be done both with minimal expense and maximum positive impact on our economy," said Dave Somers, Sound Transit board chair and Snohomish county executive. "This agreement allows us to make Link light rail service carbon neutral while improving regional air quality and investing in local clean energy projects."

"This innovative agreement with Puget Sound Energy sets Sound Transit as a leader in providing clean energy services," said Sound Transit CEO Peter Rogoff. "By operating Link light rail on green power starting in 2019, Sound Transit will offer transit users a carbon-neutral option for leaving their cars behind and help reduce the region's greenhouse gas emissions."

Sound Transit's 2015 Sustainability Plan and the voter-approved Sound Transit 3 ballot measure commit the agency to reducing greenhouse gas emissions, expand the use of renewable energy and make all facilities and electricity carbon-neutral by 2030. The agreement will also help the agency lower its exposure to future utility price increases, potentially reduce long-term operating costs, and stabilize 42 percent of its electricity production charges over the duration of the contract. There is no capital cost for entering into this agreement.

A collaboration between Puget Sound Energy, PSE customers, the World Resources Institute and World Wildlife Fund, Green Direct is a new program that allows customers to partner with PSE to achieve their environmental goals. The program paves the way for constructing wind-power facilities and offer users another energy-efficient option for purchasing safe and reliable electric service. Green Direct was approved by the Washington Utilities and Transportation Commission on Sept. 29, 2016.



MAINTENANCE

# Stertil-Koni Battery-Operated Cabled Mobile Column Lifts with Touch Screen Control Technology Now Shipping



SOURCE: STERTIL-KONI APR 11, 2017



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*ebright on cabled motor column lift.*

*Photo credit: Stertil-Koni*

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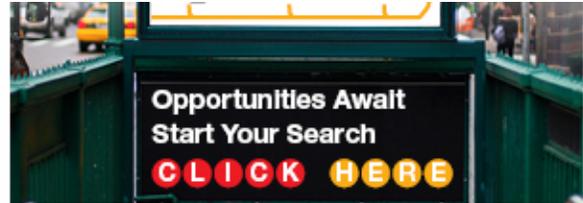
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Stertil-Koni has announced that it is now shipping battery-operated cabled mobile column lifts with the company's full-color, touch screen control technology, known as the ebright Smart Control System, to customers across North America.

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The graphic features a stylized city street background. At the top right, it says 'MASS TRANSIT' with three red chevrons. Below that, 'Career CENTER' is written in large, bold, black letters. Underneath, a black-bordered box contains the text 'TAKE THE BEST ROUTE TO YOUR NEXT CAREER MOVE' in red and white. Below the text are three icons: a person walking, a handshake, and a person sitting at a desk.

First deployed on Stertil-Koni wireless mobile column lifts in 2015, the enhanced ebright Smart Control System provides intuitive, ease-of-use with maximum visual information about the lifting process – all at the fingertips of the person who needs it most — the busy technician on the shop floor.



Stertil-Koni President Dr. Jean DellAmore noted, "Stertil-Koni has brought the very best in digital control and operator information to fleet maintenance shops across North America with our distinctive, 7-inch, full-color touch screen console. It provides the intuitive features of a smartphone or a tablet directly to the operating panel of our vehicle lifts. Now, Stertil-Koni is bringing this same technology to our more economically priced wired mobile column lifts, which also showcase the best in heavy duty hydraulic lifting, but use interconnecting communication wires rather than wireless connectivity."

From a broader perspective, the ebright Smart Control System is an extension of the concept of human-machine-interface (HMI), providing greater control of the vehicle lift in a very familiar, electronic notepad-style delivery system.

The approach delivers the following:

- Intuitive controls with actual data about the lift in action
- Tracking of specific operations and information codes;
- Relevant information available at a glance;
- Actual lifting height displayed;
- Adjustable lowering speed via touch screen;
- Visual display of maximum programmable lifting height; and
- Warning and maintenance service alerts.

Concluded DellAmore, "From delivery vans and pumper trucks to school buses and municipalities, from fire engines to airport tugs to Class 8 tractor trailers and utility trucks, we lift them all. Now, with the delivery of the ebright Smart Control System on our cabled mobile columns, Stertil-Koni lifting systems are even easier to operate."

TECHNOLOGY

# SystemX Launches the "Safe Autonomous Land Transport" Project with its Partners SNCF and Alstom



SOURCE: ALSTOM TRANSPORT APR 9, 2017

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Friday April 7, 2017 marked the launch of the Safe Autonomous Land Transport project (TAS) by SystemX in partnership with SNCF and Alstom. The project aims to provide proof of concept of the automation of a driver's observation functions, accompanied by a practical demonstration.

The functions of observation are key to the safe operation of a transportation system: distinguishing between road signs, spotting a pedestrian on a platform, monitoring defects on a passing train, or recognizing objects on tracks with very high operational security levels. The project will draw on the scientific expertise of the Technological University of Compiègne (UTC).

The objective of the TAS project is to design a system of environmental perception, based on a combination of complementary sensors (radars, Lidar cameras, etc.). At first, this system and its environment will be modeled in a laboratory to test the technological choice criteria of the sensors and carry out preliminary virtual validation using an iterative approach. This will be followed by life-sized site tests on a SNCF locomotive between Villeneuve Saint-Georges and Montereau.

"The integrated multi-stakeholder research model that makes up the essence of the IRTs is perfect for this type of project, which requires scientific support with a view to industrialization. At SystemX, our teams have recognized expertise in the field of artificial intelligence and methodologies for the processing of images applied to transport, as well as expertise in virtualisation and simulation to validate and certify the security of these types of systems. Our agility and speed of execution will enable us to produce an automaton in less than 18 months, then carry out its functional demonstration on site within 24 months at most," explained Eric Perrin-Pelletier, managing director of SystemX.



### **Boosting the competitiveness of the railway system**

Pierre Izard, chief technology & rail systems officer, SNCF, said: "The research project in which SNCF is engaged alongside the IRT SystemX and its industrial partners is at the heart of the strategy for the technological renewal of the railway system. It enables us to prepare the train of the future by investing, from today, in the detection of obstacles and signalling. Safety is SNCF's priority, and the partnership launched today with the IRT SystemX will reinforce this priority for the train of tomorrow. This research dynamic, of which we are proud to be a part alongside our engineers, will contribute to the efficiency of the railway system, as well as its development."

### **Reinforcing transport system performance with the help of new digital technologies**

Pascal Cléré, senior vice president of Alstom's Digital Mobility division and president of System X, said: "Alstom is pursuing its digital transformation by gradually changing its portfolio of traditional solutions, but also by developing completely new solutions to address the emerging needs of operators and mobility users. These solutions are developed within a dedicated ecosystem, fuelled by a process of open innovation. Alstom has decided to associate itself with the development of the IRTs, in particular that of SystemX, which is closely related to its activity. The IRT provides Alstom with scientific support for the execution of its projects, and in particular here, to imagine the driving of the future, which will one day go as far as to acquire full autonomy."

TECHNOLOGY

# SystemX Launches the "Safe Autonomous Land Transport" Project with its Partners SNCF and Alstom



SOURCE: IRT SYSTEMX APR 13, 2017



**REQUEST MORE INFORMATION**

The institute of technological research (IRT) SystemX, in partnership with SNCF and Alstom, has launched a 24-month project in the domain of guided land transport with the aim of automating the observation functions of a train driver. The IRT will provide the scientific support needed to carry out this very complex project. The intended solution will combine different types of sensors, offer an advanced feature of Artificial Intelligence (AI) and will be tested virtually in the laboratory through total modelling.

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INTERNATIONAL

# The First Full Scale Passenger Hyperloop Capsule Is Being Built

SOURCE: HYPERLOOP TRANSPORTATION TECHNOLOGIES INC. (HTT) MAY 1, 2017

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Hyperloop Transportation Technologies (HTT) has begun construction of the world's first full-scale Passenger Hyperloop Capsule. This first capsule is the culmination of over three years and thousands of hours of design, research and analysis.

Construction is underway for delivery and an official reveal in early 2018 at HTT's R&D center in Toulouse, France for integration and optimization. The capsule will then be utilized in a commercial system soon to be announced from the ongoing negotiations and feasibility studies currently taking place around the world.

HTT's passenger capsule is being built in collaboration with Carburess S.A. The final specs for the capsule are:

- Length: 30 meters (98.5 feet)
- Diameter: 2.7 meters (9 feet)
- Weight: 20 tonnes
- Passenger capacity: 28-40
- Speed: Up to 1223 km/h (760 mph)

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The advertisement features a dark background with a yellow horizontal bar. At the top, the text 'Get Product info fast...' is written in white with a red double arrow icon. Below this, there are images of a desktop monitor, a tablet, and a smartphone, all displaying a website interface. At the bottom, the text 'Visit the SUPPLIERS DIRECTORY' is in white, followed by a yellow 'CLICK HERE' button and the 'MASS TRANSIT' logo in white.

"We are building the world's first full scale passenger hyperloop capsule," HTT CEO Dirk Ahlborn said. "We are taking a passenger first approach to guarantee that safety is always our number one concern. It has been crucial in our development to go past the simple requirements of freight in order to build a better and safer system for everyone."

"This is a fascinating project utilizing our expertise and technology around the world," said Carbures Cofounder and Chairman Rafael Contreras. "We are pleased to work in this innovative, global, and important project."

"Carbures is a consolidated leader in the structural composites world with over 15 years of experience," said HTT Board Member Ramón Betolaza. "With over 1000 employees, eight manufacturing plants and five engineering centers, they are the perfect partner for HTT."

Carbures works on a global level with fuselages for the aviation industry. Their global positioning is especially well placed for the growing number of regions, including France, Czech Republic, Slovakia, Indonesia, and the United Arab Emirates, currently working with HTT to develop Hyperloop systems with more regions to be announced soon.

"We have some of the best global talent as part of our team," said HTT Chairman Bibop Gresta. "Tapping into this expertise ensures we are able to build not just faster, but better. Hyperloop comes to life because we're building this company in a smarter way."

WAMU, APR 13

# These High-Tech Armbands Could Save Metro Workers' Lives On The Tracks



Martin Di Caro 



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Metro is turning to technology to protect employees after a string of incidents where speeding trains imperiled track workers and inspectors. The advance warning technology is designed to add an extra layer of safety to the transit system's rules governing the operation of trains along stretches of track where blind spots and other hazards endanger personnel.

Metro is testing the Protran Technology in the giant S curve between the Reagan National Airport and Braddock Road stations, where a speeding train nearly ran down two federal track inspectors in October. The close call led Metro to impose an around the clock speed restriction, slowing trains and frustrating commuters for months.

New Jersey-based Protran manufactures a bidirectional line of defense: track personnel wear armbands that flash and beep when a train approaches, and train operators are warned by flashing signals along the wayside. Depending on how fast the train is moving, track workers would have 15 to 30 seconds to get to safety.

"So far we've identified sixteen locations where we intend to install these boxes," said Patrick Lavin, Metro's chief safety officer, in an interview aboard a Blue Line train in the "hot spot" south of the airport station.

“You are trying to identify the most hazardous locations, severe curves, blind spots, portals, and areas called turbulent vortexes that have a lot of air movement and potentially create hazards for employees,” Lavin said.

The close call in October was the most egregious in a string of incidents that called into question Metrorail’s ability to protect the hundreds of workers and inspectors on the tracks during this time of extensive rebuilding. So far in 2017, Metro says it has investigated three instances of trains entering restricted areas, and four reported incidents of trains passing wayside workers at speeds exceeding the 10 mile per hour limit. It is unclear how many qualified as close calls — meaning lives were placed in grave risk.

Protran, combined with strict adherence to existing procedures, can dramatically reduce safety violations, Lavin said.

“There’s always a remote possibility but the goal is to eliminate as much as possible the hazards that employees face. We plan on expanding the technology further in the future,” Lavin said.

Metro received a \$1.9 million grant from the Federal Transit Administration. The transit agency hopes to have Protran installed at its most hazardous track locations by the end of 2019, beginning with the current testing zone south of the airport.

Peter Bartek, Protran’s founder, said 15 U.S. transit systems use his technology. None has had a fatal incident, and close calls have been significantly reduced.

“The wearable device gets turned on prior to the worker going out on the right of way, and once he goes out on the right of way there is a series of wayside lights that automatically light up on the track. That gives a level of advance warning to a train that may be approaching his direction,” Bartek said.

# Transportation Planners Brace for Driverless Vehicles



By Lee Voss April 14, 2017 2:00 AM

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Getty Images

ST. CLOUD — As transportation planners look toward the future, they're tasked with trying to predict what our transportation system will look like. Industry experts are suggesting significant changes on how we get to our destinations over the next few decades with the advent of autonomous vehicles and car sharing.

St. Cloud Area Planning Organization Executive Director **Brian Gibson** says car sharing would create on-demand transportation and eliminate the need for car ownership. That would reduce the need for parking lots and parking ramps.

Gibson says autonomous vehicles would take the human element out of driving and change our road system...

*“ Lanes can be narrower. We might need fewer lanes because we can pack more vehicles into the existing lanes. We don't have to allow for reaction time. Vehicles are all talking to one another and they're reacting based upon what the other vehicles in their environment are experiencing. So, the potential impact to infrastructure could be really, quite substantial.*

Gibson admits we are in the beginning stages of this technology, but industry experts predict it could become reality in the next decade or two. That presents challenges to transportation planners who must predict what our road system will be years into the future.

TECHNOLOGY

# TX: Uber Claims it Will Having Flying Cars in Texas and Dubai by 2020

CAROLYN SAID ON APR 26, 2017

SOURCE: MCCLATCHY



Uber Elevate

Photo credit: Uber

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April 26--Jeff Holden, Uber's chief product officer, hates the phrase "flying cars."

But he took to a Dallas stage on Tuesday to announce that Uber will offer a flying-car taxi service in the Dallas-Fort Worth area and Dubai by 2020 -- something he said "fits cleanly into our mission" and Uber's focus on "big bold bets."

"It's natural for Uber to turn its eyes to the air: push a button, get a flight," he said to an audience of several hundred people gathered for a three-day summit



called Uber Elevate. "Urban aviation can replace long-distance commutes."

Uber is among a bevy of well-funded companies pursuing the sci-fi vision of flying cars. Google co-founder Larry Page has a Mountain View startup called Kitty Hawk led by Sebastian Thrun, who launched Google's self-driving efforts. French aerospace giant Airbus is working on the idea, as are several smaller players.

Uber's approach is different, however. Rather than creating its own flying machines, it wants to partner with other companies, both for the aircraft and the infrastructure. What Uber brings to the party is its 60 million riders, who one day could see an option to hit "Uber Elevate" in their ride-hailing app to call a drone.

Somewhat ironically, Holden said Uber also would bring its expertise on working with government and communities, because it already has relationships with regulatory authorities. That seemed to ignore the company's history of clashing with regulators worldwide.

For that matter, plenty of observers noted that Uber may be relieved to have a chance to focus on futuristic visions instead of the present controversies engulfing it, such as a lawsuit over its self-driving car project and accusations of toxic workplace culture and sexism. A judge ruled Tuesday that Anthony Levandowski, head of Uber's self-driving effort, must testify in the lawsuit filed by Waymo.

Uber has inked deals with five companies working on aircraft development: Aurora Flight Sciences, Pipistrel, Bell Helicopter, Embraer and Mooney. It also has agreements with real estate companies -- Texas' Hillwood Properties and Dubai Holdings -- to start scouting places for "vertiports;" Holden said it's identified four sites in the Dallas-Fort Worth area. And Chargepoint, the largest operator of electric-vehicle charging stations, will figure out how to top off the batteries.

The proposed vehicles look more like drones than cars. Technically they are electric VTOLs (vertical takeoff and landing, pronounced vee-toll). They fly themselves straight up into the air like a helicopter -- meaning they can more easily take to the skies from dense urban environments -- but then fly forward like a small aircraft.

Uber looked into actual helicopters for local transit but rejected them as too expensive, noisy, fuel-consuming and otherwise impractical, Holden said.

In October, Holden published a 99-page white paper outlining Uber's vision of air transit, including vehicles that would travel 100 to 150 mph, eventually making it cheap enough for the masses to use as daily transport.

"Just like artificial intelligence, flying cars have been promised for decades but are arriving now," he said on Tuesday.

Plenty of big obstacles remain, such as creating a new air traffic control system and persuading regulators, experts said.

The idea that the VTOLs may be autonomous is actually a plus, said Karl Bauer, executive publisher of Kelley Blue Book and Auto Trader. "Normally it requires years of training to learn to fly. But if you've got computer-controlled flying devices that are all talking to each other, the average Joe can just tell it where to go and it flies itself."

**MASS TRANSIT**  
**40**  
TOP  
**UNDER 40**  
THE BEST AND BRIGHTEST

**DEADLINE:**  
**FRIDAY,**  
**MAY 19, 2017**

**WHO'S**  
**YOUR TOP**  
**CANDIDATE?**

**NOMINATE**  
**TODAY!**

How realistic is Uber's projection of sky taxis by 2020? It wouldn't be the first tech company to plant a stake in the ground, er, air, with an overambitious timetable, but that's not necessarily a bad thing, some experts said.

"I love that Uber's a big cheerleader in this space," said Missy Cummings, director of Duke University's Humans and Autonomy Laboratory and a NASA researcher. "It's great that they're trying to generate excitement. But the big hurdles are safety and certification. We're not ready for you to jump in your own drone and hop over to Oakland."

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TECHNOLOGY

# US: State of the States 2017: The Future Is Automation

APR 13, 2017 SOURCE: MCCLATCHY

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April 01--Traditionally, even tech-savvy governors have left specific mentions of IT-centric initiatives out of their annual addresses to the legislatures and citizens of their state. But over the past few years, that tide has shifted. Technology has increasingly snared a larger percentage of the limelight, indicative of its growing prominence in policy conversations.

Vulnerabilities across the cyberspectrum have propelled IT security to the forefront, with many state leaders announcing the development of, or progress on, multi-agency cyberinitiatives to confront the growing threat to government and citizens alike. Broadband is getting plenty of executive attention too -- an acknowledgement of the importance of high-speed connectivity across both urban and rural areas. And that attention is followed by investment, with many governors citing proposals for new money for broadband.

Education always takes center stage during state of the state speeches, as is the case this year. Science, Technology, Engineering and Math (STEM) curriculum continues to get a boost, signaling a growing awareness of the needs of today's and even more so, tomorrow's, economy. Many governors detail plans to beef up computer science curriculum as well as STEM teaching expertise in their states.

What emerged this year more than ever was the growing realization that the economy, and therefore the workforce, is undergoing a fundamental change. Notably, but not surprisingly, policymakers now understand that jobs of the future require more training and education. What governors aren't saying explicitly is that technological advances in robotics and automation are responsible for the change. But it's exactly these trends that are driving investments in preparing the workforce for careers in highly skilled industries. Savvy governors are pairing those investments with incentives to keep skilled workers within their borders.

2017 State of the State Analysis



Alabama

Stars:

Address date: 02/07/2017

To sum it up: Alabama Gov. Robert Bentley has two years left in office and said he intends to make additional strides in job creation and growth -- something the state has improved upon since he was elected in 2011. Bentley made mention of companies "like Polaris, in Huntsville ... hiring 1,700 Alabamians and creating hundreds of positions for technicians, programmers and welders," and of health-care reform and tackling infant mortality -- something Indiana has done (and Ohio will soon do) using data analytics, but Bentley did not elaborate on how Alabama would approach the issue. He did mention, however, that the recently formed Alabama Council on Opioid Misuse and Addiction will continue to build on existing efforts to combat opioid abuse and present "innovative ideas to put an end to this deadly epidemic." Bentley also mentioned the Alabama Transportation Rehabilitation and Improvement Program, a "first-of-its-kind infrastructure program" that has completed more than 700 projects, and that the state is addressing obstacles in education, health care, access to technology, job growth and economic opportunity that exist in Alabama's approximately 55 rural counties. The most tech-heavy part of Bentley's address was aimed toward giving children the best education possible. "Technology should know no boundaries," he said, adding that his Great State 2019 plan includes a slate of initiatives "aimed at delivering connectivity to even our most remote and rural schools."

[Read the governor's address here](#)

**RAIL**

# WA: Wind Power to Fuel Sound Transit Light-Rail Trains

MIKE LINDBLOM ON APR 20, 2017

SOURCE: MCCLATCHY

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April 19--Sound Transit will buy 10 years of wind power to replace a dirtier mix of electricity where its trains run in SeaTac, the agency announced Tuesday.

The supply for light rail, along with Angle Lake and Sea-Tac/Airport stations, currently comes from Puget Sound Energy, where coal and natural gas together provide 59 percent of the portfolio.

But the contract for 2019-28 will replace those fossil fuels under PSE's new Green Direct program.



"When we reduce our own carbon footprint of that transit service, we're creating an even larger benefit for the region," said Amy Shatzkin, sustainability manager for Sound Transit.

Other early subscribers include Western Washington University, King County, REI, Target, the cities of Anacortes, Bellevue, Snoqualmie and Mercer Island, and 116 Starbucks stores.

All together, their commitments allow PSE to order 130 megawatts from wholesale wind farms that a developer is planning in Thurston and Lewis counties, said Heather Mulligan, the utility's market manager for renewables.

The Skookumchuck Wind Energy project would be built on Weyerhaeuser land southeast of Olympia, by RES Americas.

These are new resources that aren't expected to generate windfall profits, PSE says.

"This is purely to serve our customers. They've been asking for us to supply more options for renewable energy. We're hoping this project will meet that demand," Mulligan said. PSE already owns three wind farms in Eastern Washington.

Sound Transit will spend 5.1 cents per kilowatt hour in 2019 for wind, compared with 4.7 cents in 2017 for general power -- so there's a slight premium.

However, the agency may eventually save money, Shatzkin said. The deal locks in a 2 percent yearly inflation rate, so if other power rises 2.7 percent per year through 2028, Sound Transit staff say, they'll break even. Forecasts range from 2.4 to 4.8 percent, Shatzkin said.

Light-rail trains within Tukwila and Seattle rely on Seattle City Light, which uses 99 percent renewables, mainly hydropower.

Sounder commuter trains run on diesel, though the agency is working to reduce emissions, Shatzkin said.

Eight older-model Sounder locomotive engines have been overhauled since 2013, with three more scheduled this year, for a fuel savings of 2,000 gallons annually per engine. Tracksides electricity is supplied at the Lakewood base, to reduce diesel use between trips.

Sound Transit has set a goal of a carbon-neutral operation by 2030.

Its wind power deal doesn't include energy for Lynnwood, Overlake and Federal Way extensions during 2023-24, but Shatzkin said opportunities may arise.

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**BUS**

# York Region Transit to Pioneer Electric Bus Trial



SOURCE: THE CANADIAN URBAN TRANSIT RESEARCH AND INNOVATION CONSORTIUM (CUTRIC) MAR 27, 2017

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The Regional Municipality of York confirmed its involvement in the Pan-Ontario Electric Bus Demonstration and Integration Trial by approving the purchase of six fully battery electric transit vehicles to operate in the town of Newmarket, Ontario. The Canadian Urban Transit Research and Innovation Consortium (CUTRIC) brought York Region Transit together with funding partners, research teams, technology tools, and manufacturing stakeholders. The York Region project is unique as it is the first time an e-bus project is being supported by a power provider, Newmarket-Tay Power Distribution Limited (NTPDL). They have pledged to purchase and maintain the overhead on-route charger in Newmarket to power the transit vehicles.

"This two-year trial will test and evaluate electric buses manufactured by two Canadian bus manufacturers, New Flyer Industries in Manitoba and Nova Bus from Quebec," said CUTRIC Executive Director & CEO Josipa Petrunic. "It is a groundbreaking collaboration with partnerships between York Region, transit manufacturers, charging station manufacturers and local power distributor, Newmarket-Tay Power Distribution Limited."

"This project is the first of its kind collaboration that has a power distributor, Newmarket-Tay Power Distribution Limited, that plans to purchase and operate an on-route charging station," said Petrunic. "The design and delivery of this interoperable charging system for on-route charged e-buses is a true partnership."

The Regional Municipality of York will purchase six electric powered heavy-duty transit buses from two Canadian transit vehicle manufacturers (four buses from New Flyer Industries of Winnipeg, Manitoba and two buses from Nova Bus, of St. Eustache, Quebec). As part of this trial, overhead-charging stations will be designed and manufactured by Siemens and ABB Group. Both manufacturers will produce the pole mounted pantograph system that uses an open protocol known as the OppCharge protocol — first jointly developed by Siemens and Volvo Bus Corporation. The protocol standardizes the design of the robotic off-board pantograph that connects the charging station to the bus, communications between the bus and the charger, and performance metrics of the overall system.

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The trial aims to encourage long-term job growth in e-bus manufacturing and overhead charging system design and development in Canada in the future.

York Region Transit is joining a consortium of partners in several jurisdictions in Canada that have collectively sought financial support from the Government of Canada, the Province of Ontario and several municipal jurisdictions. The trial will integrate proposed neutral third-party vehicle and system analyses by the National Research Council of Canada, the University of Ontario — Institute of Technology, York University, Brock University, University of Quebec in Trois-Rivières, and the University of Victoria. St. Clair College will also help to lead the development of a training program for e-bus and charging system maintenance staff.

“Our research estimates immediate Green House Gas (GHG) reductions calculated at approximately 988 tonnes of CO<sub>2</sub> per annum as a result of the trial on the transit routes in Newmarket,” affirmed Petronic. “This trial will deliver on-the-ground testing and results that will prove the viability of electric buses in reducing GHGs from transportation sources and offer a direct solution to help Ontario meet its climate change objectives,” states Petronic.

“CUTRIC is very happy to have helped foster this industry-led collaboration in low-carbon mobility innovations, and zero-emissions transportation solutions put into practice in York Region,” closed Petronic. “These projects prove Canadian innovators are ready to support Canada's climate change commitments with emissions-reducing transportation technologies.”