

ZERO-EMISSIONS

Fleet Transformation  
Starts at the Top PAGE 16

Special Report:  
U.S. Bus Fleet Report PAGE 20

# MASS TRANSIT

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## Santa Cruz Metro BOUNCES BACK FROM COVID-19 PANDEMIC

The agency plans to transition to 100 percent, zero-emission buses, double ridership and develop 175 affordable housing units over the next decade. PAGE 30



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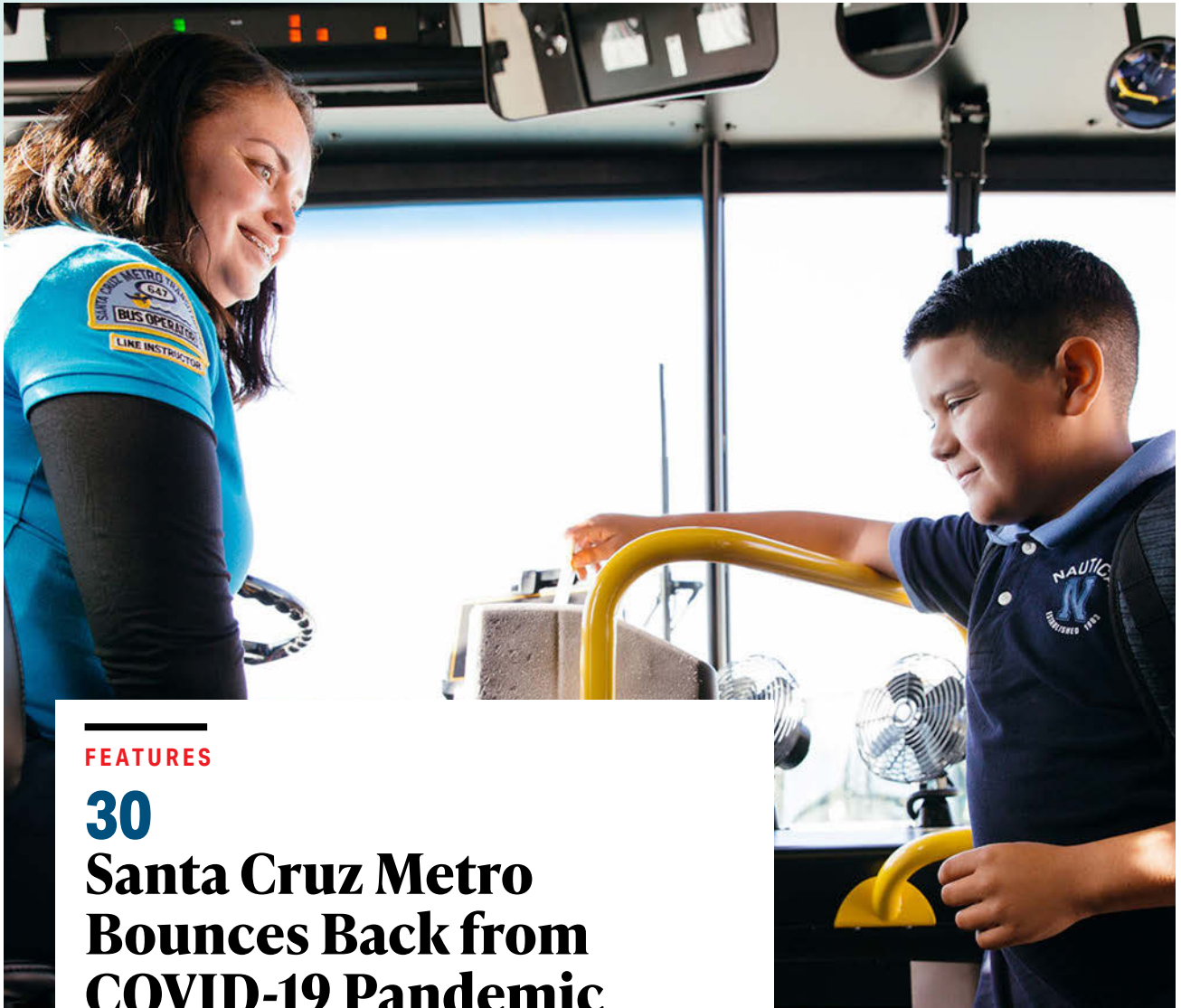
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## Santa Cruz Metro Bounces Back from COVID-19 Pandemic

### SANTA CRUZ COUNTY, CALIFORNIA

The agency plans to transition to 100 percent, zero-emission buses, double ridership and develop 175 affordable housing units over the next decade.

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## Why Zero-Emissions Fleet Transformation Starts at the Top

While most agencies are beginning their zero-emissions fleet transformation bottom up, a successful transition begins at the top with organizational commitment, structure and a change management approach.

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[MassTransitmag.com/53056362](https://www.masstransitmag.com/53056362)

### To serve all Americans, focus on fleets in the EV transition

► While EVs of all types are a critical ingredient for a future of low-carbon mobility, we must not lose sight of the importance of transitioning the nation's fleets to zero-emission vehicles.

[MassTransitmag.com/53056365](https://www.masstransitmag.com/53056365)

### OP-ED: Stopping a highway with a calculator

► Developing a clear standard and a consistent way to measure and calculate carbon emissions will better inform which projects and services should benefit from funding.

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# The City of Light is Banning E-Scooters

Voters approved a ban on e-scooters that will start Sept. 1 in a move that could signal a shift in sentiment toward certain micromobility modes.

**F**ollowing an April 2 referendum vote, Paris, France, will banish shared battery-powered scooters from its city streets starting Sept. 1, 2023. In a city where there are 1.38 million registered voters, slightly more than 103,000 cast ballots and more than 91,000 of those favored an e-scooter ban.

There is a lot to unpack here, not least of which is a decision impacting one of the world's largest cities was made by 7.4 percent of its voters. Poor voter turnout aside, the larger question is what this ban could mean for micromobility in other urban areas.

The story of Paris and e-scooter rentals is one that seems to be firmly set on a learning curve. E-scooter rental companies have been operating in Paris since 2018, and the city restricted licenses in 2020 to three vendors after the number of scooters grew to 20,000. The city also pushed for operators to institute speed restrictions around areas with heavy pedestrian traffic, implemented a fine on users who did not park e-scooters in designated places and banned e-scooters from city parks.

The voter-approved ban does not include personal e-scooters, only those that can be rented from the city's vendors Lime, Dott and Tier. Proponents of the ban cited the clutter of Parisian sidewalks from ditched e-scooters, the expense to rent a scooter for a short distance and brought into question how "green" the transport mode actually is.

However, the one aspect proponents of the ban heavily pushed was safety. One high-profile case in 2021 involved an Italian woman who was killed after a collision with an e-scooter being ridden by two individuals – a practice that is not allowed. The Paris Police Department does not track e-scooter accidents specifically, but it does track incidents involving motorized personal transport devices, which includes e-scooters, as well as motorized skateboards and hoverboards. This group of devices was involved in more than 400 incidents in 2022 according to police reports.

The three e-scooter operators pushed back on some of the negative claims and highlighted the positive impacts e-scooters bring to the City of Light. Lime pointed to its own safety report for Paris that found two percent of incidents involved pedestrians while study's on micromobility across Europe have found safety incidents involving scooters are 0.015 per 1 million kilometers ridden. Dott noted in cities where parking is allocated for scooters, 96 percent are parked correctly. Dott also pointed out e-scooters are successfully regulated in cities, including Berlin, Brussels, Helsinki, Lisbon, London, Madrid, Oslo, Rome, Stockholm and Warsaw.

A final point on this topic involves usage. A report conducted by the firm 6t on behalf of the city of Paris found 19 percent of shared scooter trips in the city replaced a motor vehicle trip. This is also double what 6t found in a 2019 study. Lime believes this increase can partially be credited to the improved infrastructure the city of Paris has added, including an increase in bike lanes.

I don't live in Paris, and I can't fairly assess if the impending ban will be a good or a bad thing for mobility in the city. However, it will serve as a precedent for other municipalities. I hope that before bans enter the conversation, all possible steps to limit accidents and improve safety are explored.

“

Poor voter turnout aside, the larger question is what this ban could mean for micromobility in other urban areas.

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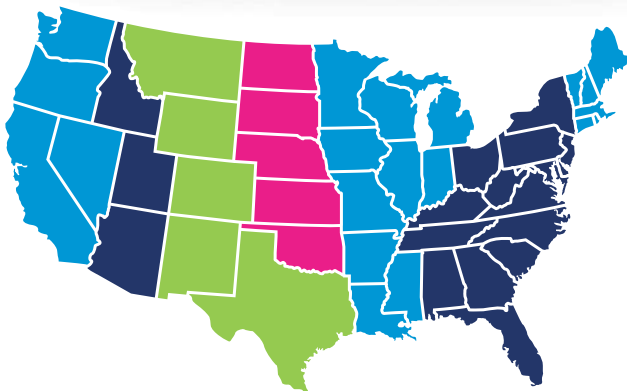
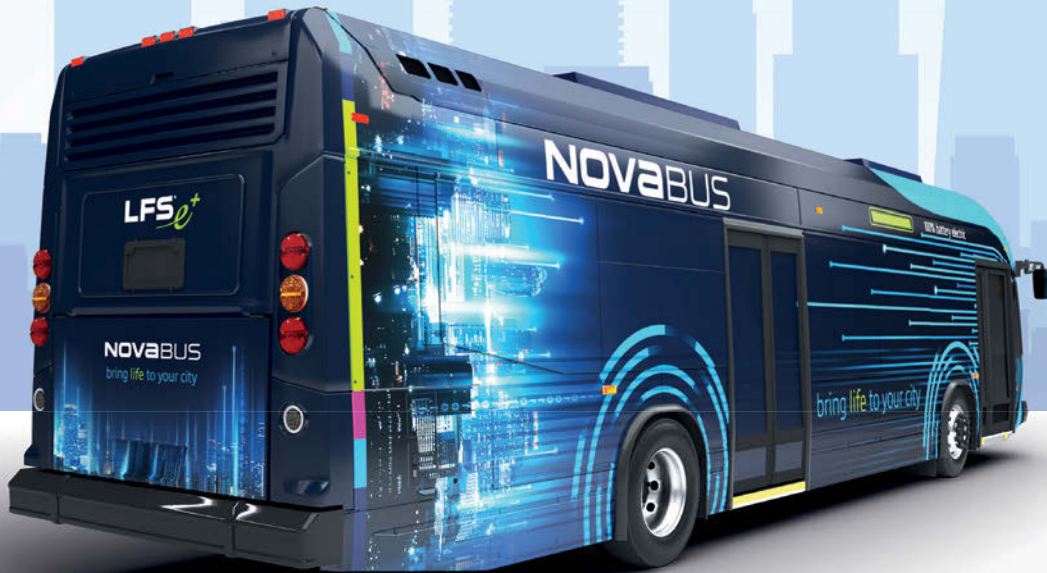


*Mischa Wanek-Libman*

Mischa Wanek-Libman,  
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# People & Places



Left to right: Rutgers Director Dr. Ali Maher, UITP Secretary General Mohamed Mezghani and UITP Board Member and NJ Transit President and CEO Kevin S. Corbett sign the agreement and formalize the partnership.

UITP

## UITP, NJ Transit and Rutgers CAIT partner to open UITP's first North American Regional Training Center

The International Association of Public Transport (UITP) opened its first North American Regional Training Center (RTC) in New Jersey made possible through a partnership with New Jersey Transit (NJ Transit) and Rutgers Center for Advanced Infrastructure and Transportation (CAIT). UITP currently has nine RTCs around the world, where transportation training is provided through uniform standards and best practices for all areas of public transportation. NJ Transit committed to sponsoring four training programs annually, providing guest speakers for programs when possible and leveraging its experience in the delivery of public transportation throughout the area. Rutgers CAIT will act as a key partner by coordinating with UITP and NJ Transit to provide necessary logistics and administrative support, as well as provide marketing of the training courses and hosting the training sessions.

[MassTransitmag.com/53028847](http://MassTransitmag.com/53028847)

## British Columbia providing C\$479 million to TransLink to stabilize finances

► The government of British Columbia is contributing C\$479 million (US\$348.47 million) to TransLink to help address the agency's financial

challenges, maintain service levels and support its planned expansion efforts. The funding commitment from the provincial government is in response to requests made by TransLink's Board of Directors and the TransLink Mayors' Council on Regional Transportation. While long-term projections anticipate

finances to improve, the contribution from the provincial government will help stabilize TransLink's finances in the short term and allow the authority to continue to advance capital projects, increase service on TransLink's busiest routes through strategic service reallocation, expand RapidBus lines to relieve congestion in high-growth corridors, increase active transportation investments and support transit-oriented communities.

[MassTransitmag.com/53028677](http://MassTransitmag.com/53028677)

## Moab, Utah, launches city's first transit service

► Moab, Utah, marked the launch of the city's pilot transit service that will operate as Moab Area Transit (MAT), a fare-free, fixed-route and on-demand service designed to offer transportation options in Moab to residents and visitors. The Moab Area Transit program includes an on-demand micro-transit service that will provide door-to-door transportation to and from any location within the broader service area. Transportation will be provided using 13 MAT-branded passenger vans. MAT also includes a fixed-route service that will bring riders to pre-determined destinations along Main Street. This route will provide regular stops between the Fairfield Inn north of town to the Utah State University Moab campus at Aggie Boulevard. One goal of the service is to reduce downtown traffic congestion and encourage visitors to leave their cars at their hotels. The city has a permanent population of more than 5,300 but hosts millions of visitors annually who come to visit nearby National Parks.

[MassTransitmag.com/53042285](http://MassTransitmag.com/53042285)



The city of Moab celebrated the launch of MAT. City of Moab/Moab Area Transit



## PEOPLE IN THE NEWS

### Massachusetts Bay Transportation Authority (MBTA)



**Phillip Eng** has been appointed by Massachusetts Gov. Maura Healey to be the Massachusetts Bay Transportation Authority (MBTA) general manager. Eng, an engineer with a 40-year transportation career, began his role on April 10 after relocating to Massachusetts from New York state. Eng will be tasked with improving safety and reliability across the system and restore the public's trust in the MBTA. He said he is focused on finding "innovative solutions to complex problems" and committed to supporting MBTA employees to deliver service improvements.

[MassTransitMag.com/53042604](https://www.masstransitmag.com/53042604)

### King County Metro



King County Metro Council unanimously approved **Michelle Allison** as the agency's general manager. Allison was previously deputy general manager and now becomes only the second woman to lead King County Metro. Allison is leading King County Metro as it celebrates its milestone 50th anniversary in 2023, and the agency is carrying energy and enthusiasm forward as it heads into the next 50 years. Allison will guide King County Metro toward a community-led vision of making transit everyone's first choice for getting where they need to go.

[MassTransitMag.com/53027163](https://www.masstransitmag.com/53027163)

### Victor Valley Transit Authority (VVTA)



The Victor Valley Transit Authority (VVTA) Board of Directors unanimously selected **Nancie Goff** as its new CEO after an extensive nationwide search. Goff will replace long-time CEO Kevin Kane, who is retiring after 24 years of providing valuable service to the agency. Goff previously served as chief operating officer, where she was integral to the merger between VVTA and Barstow Transit in 2016. This achievement led to the expansion of services to the community, bus upgrades, technology, equipment and passenger shelters for transit riders in Barstow, Calif.

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## People & Places

### Sound Transit



Sound Transit has appointed **Maria Doucettperry** as its chief diversity, equity and inclusion officer, a position in which she will play a crucial role in overseeing strategies ensuring Sound Transit embodies its values in all facets of serving the public and in its internal operations. Doucettperry comes to Sound Transit after serving as director of equal opportunity and Title IX at the University of Nevada, Reno. In this role, she oversaw compliance with federal and state mandates related to equal opportunity, nondiscrimination and gender equity. She developed and implemented comprehensive policies, procedures, systems and training programs on equity, diversity and inclusion for university faculty, staff and students.

[MassTransitMag.com/53028526](http://MassTransitMag.com/53028526)

### Community Transit



Community Transit has named **Geoff Patrick** as its first chief communications officer where he will oversee communications, marketing and community engagement. Patrick comes from Sound Transit, where he has worked for 20 years. In that time, he served as Sound Transit spokesperson and oversaw community outreach for the ST2 and ST3 ballot initiatives, contributing to voter approval of a \$72 billion expansion of light rail and ST bus service in King, Pierce and Snohomish counties. Patrick also led multi-agency coordinated communications for the 2010 launch of One Regional Card for All, the Puget Sound region's electronic fare card.

[MassTransitMag.com/53029310](http://MassTransitMag.com/53029310)

### Central Ohio Transit Authority (COTA)



The Central Ohio Transit Authority (COTA) has named **Monica Tellez-Fowler** as its new chief operating officer. Prior to joining COTA, Tellez-Fowler was the deputy CEO/treasurer of Clark County Public Transit Benefit Area Authority (C-TRAN) in Vancouver, Wash. During her time at C-TRAN, Tellez-Fowler was responsible for more than \$100 million in annual operations and capital budgets and represented the authority on a \$3.5 billion Interstate 5 bridge replacement megaproject across the Columbia River on the Washington-Oregon border.

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## People & Places

### PATH begins nine-car operations on Newark-World Trade Center line

► The Port Authority of New York and New Jersey (PANYNJ) began running peak service trains on its PATH Newark-World Trade Center line with an additional car on March 23. While the debut of nine-car trains is a first in PATH's 100-year history, more trains of the same length will be rolled out gradually during the next 12 months. Nearly all peak service trains on the Newark-WTC line will consist of nine-car trains in early 2024. The PANYNJ Board of Directors approved the addition of nine-car trains in 2019 as part of the PATH Improvements Plan, which includes increasing capacity on the Newark-World Trade Center line by 40 percent and all other lines by 20 percent. To support the extended trains, PANYNJ ordered 72 railcars from Kawasaki, which delivered the first two from the order to PANYNJ in September 2022.

[MassTransitmag.com/53042289](https://www.masstransitmag.com/53042289)



Phase II of the pilot will expand to upwards of 1,000 buses on 57 routes in all five boroughs of New York City.

Matt Zaller/MTA

### MTA's Open Stroller Pilot begins Phase II

► The Metropolitan Transportation Authority has entered Phase II of its Open Stroller Pilot, which expands to upwards of 1,000 buses on 57 routes in all five boroughs. The second phase of the Open Stroller Program will retrofit all local and select buses operating out of six depots by fall 2023 with

designated stroller spaces. Dedicated stroller space allows riders with young children to board without needing to fold their strollers first. The additional buses participating in the Open Stroller Program will be identified with a stroller decal on the outside of the bus, and the interior designated space will be identified with a similar decal.

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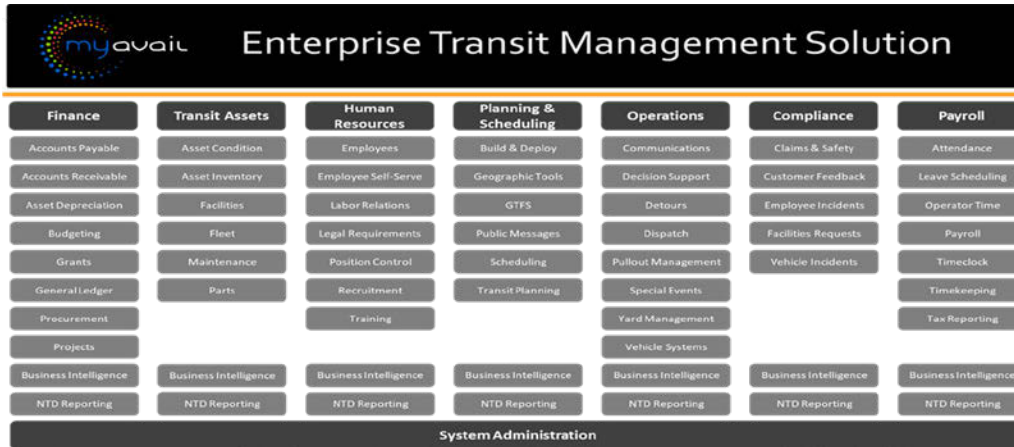
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# Doing more with less



The screenshot displays the myAvail Enterprise Transit Management Solution interface. At the top left is the myAvail logo. The main title is "Enterprise Transit Management Solution". Below this, there is a grid of functional modules organized into seven columns: Finance, Transit Assets, Human Resources, Planning & Scheduling, Operations, Compliance, and Payroll. Each column contains several sub-modules, such as "Accounts Payable" under Finance and "Asset Condition" under Transit Assets. At the bottom of the grid is a "System Administration" bar. To the right of the screenshot, there is a caption: "A screenshot of myAvail ETMS. Avail Technologies, Inc."

The world recently marked the third year of the COVID-19 pandemic, which has had enormous impacts on the transit industry. Perhaps one of the biggest impacts is the decimated staffing levels that 80 to 90 percent of transit agencies are experiencing.

As conference season gets in full swing, dealing with staffing shortages and recruitment challenges is a common topic of interest. During these conversations and sessions, a common theme I hear is how do I do more with less staff? How can my agency become more efficient and minimize downtime?

The answer to this question is to leverage your technology solutions to not only automate daily operations but to also help make sense of the vast amount of data now available. Transit service has experienced an amazing transformation in both the availability and adoption of technology in a relatively short time span. However, there is so much data available that it's harder than ever to separate the proverbial wheat from the chaff.

## Are you comfortable in understanding and making full use of the massive data and information available within the transit industry?

One definition of data management is the practice of collecting, organizing, processing and accessing data where it is then utilized for strategic decision-making to improve business outcomes. Sounds good, but how do you get to that ideal situation? Fortunately, there are agencies leading

the way in data-driven decision making, staffed with individuals well suited to navigate this new technology landscape.

The important takeaway here is that a centralized approach to data management will lead to better decision making, increased productivity and identifying industry trends. Simply stated, the goal of the *myAvail Enterprise Transit Management System (ETMS)* is to help you make sense of the available data and to leverage the information to best meet your needs.

myAvail is an agile product that promotes adaptive planning, collaborative cross-departmental development and continual improvement. As the illustration shows, this system is a sophisticated blend of our in-vehicle hardware network coupled with the Planning & Scheduling and Operations suites you are most familiar with, our enterprise resource planning (ERP) functionalities (Payroll, HR, Finance, etc.) and our enterprise asset management (EAM) modules (Asset Inventory, Maintenance, Parts/Work Orders, etc.).

## Why is it important to take a centralized approach to data?

Ask yourself these questions:

- What data does your agency depend upon monthly or yearly?
- What does it take to process and compile the data?
- What is the confidence level of the data?
- Lastly, if you had to pull a comprehensive report on a moment's notice

and you needed ridership, revenue, and employee information, could you pull it off?

Many agencies live this nightmare on a regular basis. Obtaining usable data from multiple sources/systems can be time-consuming and burdensome. Often, disparate software systems or departments working in silos make this a very difficult task.

Instead, a centralized approach for gathering usable information would give many CEOs a higher level of confidence and peace of mind.

## How do we begin a transition to enterprise thinking?

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## About the author



**David Mugica** is director of business development at Avail Technologies.

### OCTA Board approves RFP for study to examine longer-term south coast stability solutions

► The Orange County Transportation Authority (OCTA) Board approved issuing a request for proposals (RFP) for a two-year, \$2 million South Coast Rail Infrastructure Feasibility Study and Alternative Concepts Analysis that will assess existing and future risks and identify challenges to the maintenance and operations of rail service along the coastal rail line through Orange County. The approved RFP would be the first phase of a two-phase study that would see OCTA working with partners to analyze the issues threatening track stability and guide future planning efforts to find effective solutions. OCTA says the first phase of the study will involve key stakeholders and technical experts. Collaboration with local, state and federal partners will be more firmly established throughout this planning process.

[MassTransitmag.com/53028476](https://www.masstransitmag.com/53028476)

### Durham Region Transit collaborating with Abilities Centre's Pathways program on transit awareness

► Durham Region Transit (DRT) is collaborating with the Abilities Centre's Pathways program on a 12-week program designed to introduce participants to everyday community settings while teaching participants important functional skills, which includes transit awareness. DRT staff facilitate sessions to help participants build their confidence and learn how to use DRT public transit. The one-day session outlines DRT's services, website, apps and the PRESTO fare payment system. Participants then board a bus and learn transit operators are approachable, and they are encouraged to ask questions or make requests if needed. Participants also learn to identify their stop locations, pull the bus cord to request a stop, pay fares, use the ramp, identify where to sit on the bus if they have reduced mobility or use a mobility device and much more.

[MassTransitmag.com/21295649](https://www.masstransitmag.com/21295649)

### MORE NEWS AT A GLANCE

► Southeastern Pennsylvania Transportation Authority awarded a \$714.2 million contract to Alstom to replace its fleet of aging trolleys with fully ADA-compliant vehicles.

[MassTransitmag.com/53026618](https://www.masstransitmag.com/53026618)

► Beep is partnering with the North Carolina Department of Transportation (NCDOT) to expand NCDOT's Connected Autonomous Shuttle Supporting Innovation program.

[MassTransitmag.com/53028825](https://www.masstransitmag.com/53028825)

► Foothill Transit granted Keolis North America a four-year extension of its yard maintenance and operations contract from the agency's Pomona, Calif., yard.

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► Sonoma-Marín Area Rail Transit awarded a three-year base contract with two one-year options to The Routing Company for on-demand services and transit connections.

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# Connecting transit providers to the future with Formula 1-derived antenna technology

## Many experienced companies already operate in the mass transit connectivity industry, what does McLaren Applied bring to the field?

With more than 30 years at the cutting edge of motorsport, including NASCAR, Formula 1 and IndyCar, McLaren Applied brings a unique perspective to vehicle connectivity.

As a result of the uniquely demanding environment in which our customers compete, we haven't simply been required to develop a vehicle connectivity solution. Rather, using the enviable R&D budgets of top tier motorsport, we have created the highest bandwidth, most reliable, most energy efficient and lowest maintenance solution possible.

Until recently, this technology would arguably have been overkill for public transit or commercial applications, but that's rapidly changing. Passengers and customers already have far higher connectivity expectations and, standing as we are on the cusp of a connectivity revolution, with the Internet of Things, autonomous cars and software-defined vehicles all on the horizon, there is now a clear need for McLaren Applied's advanced technology.

## What sets McLaren Applied's hardware apart from existing antenna solutions?

Our 5G intelligent edge antenna hardware is not only smaller, lighter and more durable than many existing solutions, but offers built-in functionality that the vast majority cannot.

The Halo 300 doesn't just provide significantly better performance than a traditional 5G solution, but the built-in edge computing capability, eSIM technology, dual modems and WiFi allow it to simultaneously connect to any data network providers at a given time. This



allows our Fleet Connect software to provide true multi-network, multi-signal aggregation by using multiple cellular data networks, all base stations and optional WiFi networks within range to provide zero or near zero disruption in service. In this way McLaren Applied has, to all intents and purposes, solved the hand-over disconnect problem.

A CANBUS interface and the ability to support additional applications offer futureproof expandability, while the single wiring harness ensures unrivalled ease of installation, greatly reduced energy consumption and lower maintenance.

## How does software play a role in giving the Halo 300 an edge over the competition?

The remarkable performance and reliability of our 5G intelligent edge antenna hardware provides the foundation on which our state-of-the-art Fleet Connect software can perform.

Fleet Connect uses the patented process of aggregation to rapidly switch between the strongest network signal providers at any given moment, splitting transmitted data across these networks in real time and reassembling it in the cloud en route to its destination. By operating in this way, Fleet Connect delivers far better performance than conventional alternatives, reducing blackspots and providing a consistent high-bandwidth connectivity stream.

## What are the benefits of this combination to operators and passengers?

Any moving vehicle application, and

mass transit operators in particular, could find remarkable time and cost savings in the provision of a reliable uplink for real-time remote monitoring, vehicle diagnostics, fleet optimization, tracking and management.

A dependable high-bandwidth WiFi connection, meanwhile, enables passengers to enjoy more comfortable, productive journeys. Recent studies have shown that this sort of connectivity plays an increasing role in trip satisfaction, not only attracting new passengers but retaining current ones too. With both regular commuters and the occasional traveler expecting to be able to work, stream and communicate whether travelling by bus, car, train or plane, it's a trend we only expect to continue.

## You mentioned being on the cusp of a connectivity revolution, what kind of opportunities will this technology enable going forward?

The key thing to understand about the coming connectivity revolution is that none of us currently knows the full extent of the opportunities it provides. What we do know, however, is that they will be data driven. McLaren Applied has therefore not only sought to solve today's problem, connectivity, to allow for future expansion to address both anticipated and as-yet-unknown problems as well.

For example, some Halo 300 versions feature built in micro location technology, enabling vehicle tracking down to the centimeter. This not only offers incredible fleet monitoring benefits today, but will be vital for the accuracy of autonomous applications in future, allowing vehicles to safely maneuver in any environment. This is just one example of the opportunities that 5G intelligent edge antenna technology opens up, and of the necessity for fleet managers to consider how to futureproof their vehicles.

### About the author



**Jimmy Morgan** serves as business development manager, Connected Intelligence for McLaren Applied. A long-time

technology professional, Jimmy specializes in the delivery of innovative on-board and infrastructure hardware and software solutions for the transport industry.



# Why Zero-Emissions Fleet Transformation Starts at the Top

While most agencies are beginning their zero-emissions fleet transformation bottom up, a successful transition begins at the top with organizational commitment, structure and a change management approach.

BY CRAIG CIPRIANO, CONTRIBUTOR

**D**ecarbonizing our transportation system is one of the top challenges of our time and comes with several considerations, including social equity, resiliency and safety. To this end, an increasing number of government agencies and fleet operators across the country are transitioning their fleets to zero-emission vehicles (ZEVs) to minimize their carbon footprint. California took the lead, with New York and other states quickly following suit. The federal government has provided financial incentives to governments and public agencies who successfully convert 100 percent of their light-duty non-emergency vehicle fleets to ZEVs

by 2035 and 100 percent of their medium- and heavy-duty vehicle fleet to ZEVs by 2040.

## Why zero-emission technology had a slow start

Despite these ambitious plans, to date, the incorporation of zero-emission technology, most notably, of battery electric and hydrogen fuel cells, has been slow, primarily due to the complexity and expense of installing the needed charging/fueling infrastructure, as well as power requirements and the anxiety of fleet operators around these developing technologies. These problems were further exacerbated by the COVID-19 pandemic, which



CHARGE





**One of MTA's New Flyer XE60 electric buses being charged at the Michael J. Quill Depot in April 2022.**

Photos: Marc A. Hermann / MTA

disrupted supply chains and slowed production.

### **New York City: A case study**

With 2035 and 2040 looming, fleet operators know the time is now to overcome these challenges to ensure a successful transition to zero-emission technology. New York City Transit (NYC Transit) learned from its pilot program getting the friction points out of implementation was critical, and that began by solidifying its organizational structure to be set up for success.

NYC Transit's journey to a zero-emission bus fleet began in 2018

with a pilot of 10 electric buses. This small pilot, which involved two facilities and a limited number of routes, provided insight on how this technology would integrate into its operations and what would have to change to achieve this. Initially, the pilot was managed by the organization's chief maintenance officer, who had fleet and procurement expertise.

Within a short time, a few clear challenges emerged:

- Each bus manufacturer had its own proprietary charging protocols.
- Limited battery range could not support approximately one third of its existing schedules.



MTA electric buses on display as part of an event outlining plans to redevelop the Jamaica Bus Depot in Queens to support electric buses.

## Zero-Emission Fleets

That meant it was necessary to explore other options or wait for the technology to improve to maintain service reliability.

- The pilot yielded important data on the impact of temperature on battery usage and range and brought into focus the complexity and know-how needed to

build both in-depot and on-street charging infrastructure, as well as the amount of power needed to draw from the utility company.

- To maintain reliable service, the team needed to build redundancy and resiliency into its charging strategy.

As NYC Transit contemplated next steps and the long-term vision and strategy to transition to 100 percent ZEVs, it recognized a limited pilot project was vastly different from a full fleet transformation. Without organizational buy-in and an organizational framework, NYC Transit was simply not positioned for success. There was also a pressing need to engage its workforce and other stakeholders from the outset, and in a coordinated manner, to enable them to fully participate and contribute to a successful transformation.

To successfully transition the entire fleet, NYC Transit needed to implement a change management process at the top that prioritized driving change at an organizational and employee level.

To begin addressing these issues, the program moved from underneath the chief maintenance officer to a newly created Zero Emission Program Management Office, reporting directly to the office of the president. This organizational change demonstrated leadership commitment at the highest level while creating an autonomous, focused and empowered project management team. The new program management officer was charged with program planning, program leadership and coordination of existing work streams managed by multiple areas of the organization, but all accountable to the program manager. New project workstream owners were selected and given the resources to empower them to deliver across the various disciplines of power, infrastructure, fleet, procurement, funding, operations planning, workforce development, commu-

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nity relations, policy, information technology and operations.

Another key decision was to maintain accountability within the business/fleet operator (i.e., the Bus Department) because success would ultimately be measured by the “business owner’s” adoption of the electric fleet.

Significantly, the new Program Management Office also formalized lines of communication, engagement and training at all levels of the workforce and with key external stakeholders. Ultimately, all these entities can make or break the success of the program, so it’s critical to schedule periodic meetings with the project leaders and the governance committee, labor unions and external stakeholders such as local fire departments and government partners.

### Why engagement matters

While the initial focus of the transition may be the implementation of new technology, workforce participation and evolution are critical to the ultimate success of the program. The transition from diesel mechanics to electrical maintainers, from facility electricians to electrical and power engineers, and from fleet command centers to fleet and power control centers are integral parts of this journey. Some essential areas of engagement include:

- Workforce training starting before or concurrently with the delivery of the first all-electric bus.
- Emergency training and coordination in the case of incendiary battery damage and thermal events to include local fire departments, road and tow truck crews and bus operators.
- High-voltage training for diesel mechanics and facility maintainers.
- Operational training for operators to convey that electric vehicle have steeper acceleration and braking profiles than diesel buses.
- Additional education, so depot staff can learn both the importance and nuances of battery charging.

This does not happen overnight or even within one year, but establishing a top-down organizational structure and strategic change management plan is a critical first step to successfully transitioning to an equity-focused, resilient and sustainable zero-emissions fleet. **L**

### About the author



**Craig Cipriano** is the senior vice president, national director of Zero Emissions Mobility at STV and

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# Special Report: A Look at U.S. Bus Fleets

The annual report marrying news and data to understand the health of U.S. bus fleets.

COMPILED BY MISCHA WANEK-LIBMAN,  
EDITOR IN CHIEF



Image: 252149003 | Phochi, 12275849 | Quacdesign | Dreamstime

**T**ransit agencies across North America continue to grapple with the disruption brought on by the COVID-19 pandemic but remain nimble in their approaches to community engagement, ridership retention and overall service recovery and growth initiatives.

Several systems, including Edmonton Transit Service, Chicago Transit Authority, Metropolitan Transportation Authority, TransLink and Southwest Ohio Regional Transit Authority are reporting steady gains in ridership in late 2022 and into 2023. These systems are also making note their bus services have been driving these increases.

A policy brief released in March from the American Public Transportation Association (APTA) offers a national view of ridership trends. Overall, transit ridership has reached more than 70 percent of pre-pandemic levels, which is a significant gain when compared against the lowest levels that represented 20 percent of pre-pandemic ridership.

APTA's brief notes smaller cities have been more successful in seeing ridership levels return. The brief credits this to a possible

## Active Vehicles in the United States

Active vehicles remained similar year over year with the exception of vans, which saw a more than 14% decrease in active vehicles between 2020 and 2021.

Source: NTD 2021 Vehicles

## 3,210 miles

Number of fixed guideway and high intensity busway route miles in U.S.

Source: National Transit Summaries and Trends 2021

lack of teleworking options for riders in smaller cities and points to office return data that suggests “proportionally more workers in smaller cities are working in offices than in larger cities.”

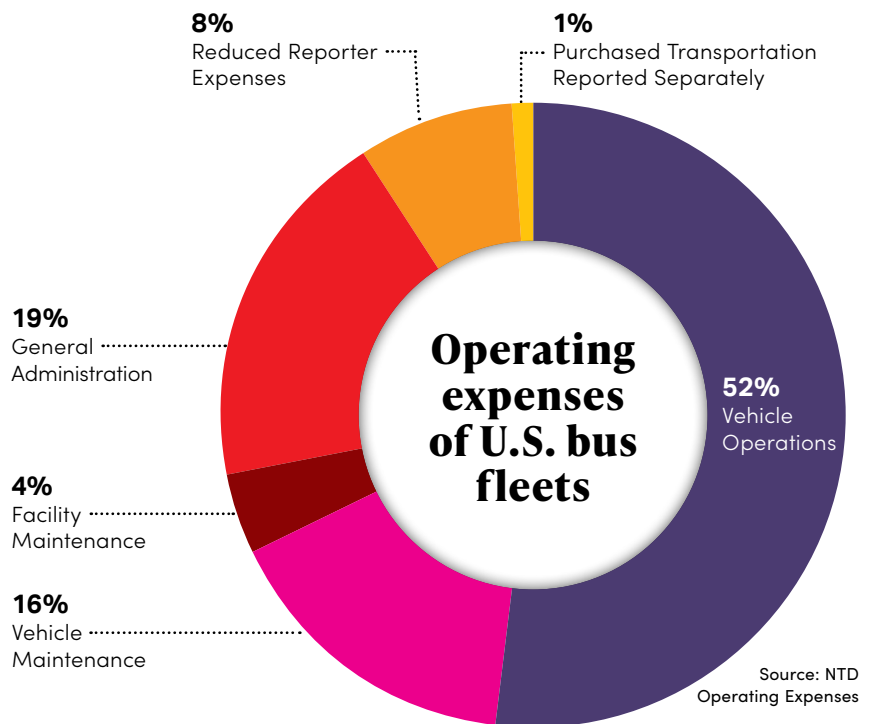
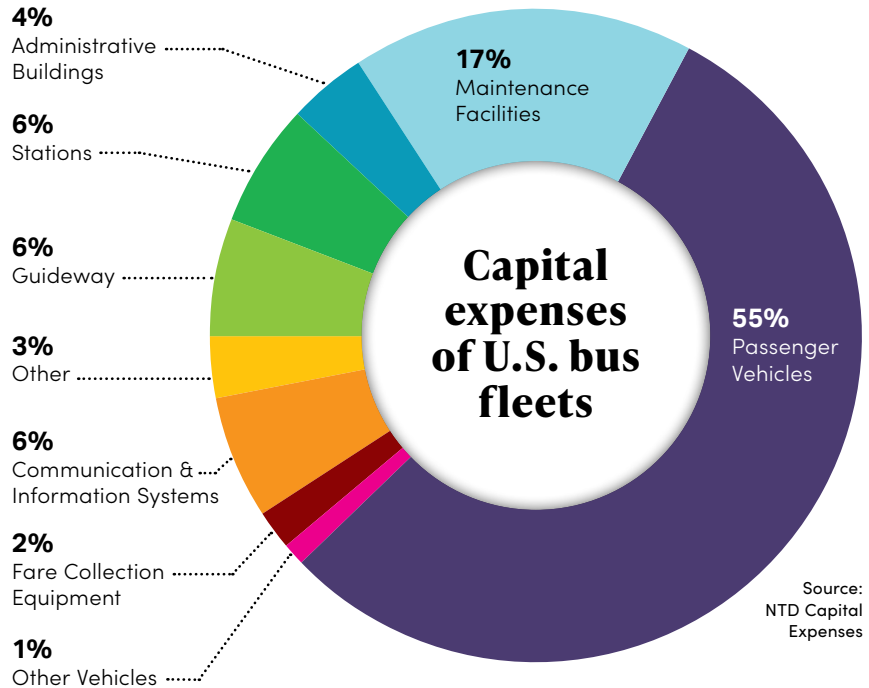
The brief also says bus modes were able to retain higher levels of ridership versus rail modes because bus modes serve more essential workers in general. Breaking modes out further, demand response has achieved 71 percent of pre-pandemic ridership levels followed by bus and trolleybus ridership at 70 percent.

The brief concludes agencies focused on serving historically marginalized communities could see ridership growth. This includes support for hourly, late night and early morning workers by reinvesting in equitable transit.

While ridership has been a key metric for the industry, there are efforts among agencies to move away from ridership as the priority performance indicator. At the South West Transit Association 2023 Annual Conference held in Aurora, Colo., Regional Transportation District General Manager and CEO Debra A. Johnson and VIA Metropolitan Transit President and CEO Jeffrey Arndt outlined their agencies’ efforts to focus on value versus volume.

VIA Metropolitan has developed a performance dashboard that is accessible to the public through the agency’s website. It measures six metrics, including ridership, on-time performance, collision rates per 100,000 miles driven, complaints per every 10,000 passengers, miles before mechanical failure and cost per boarding. The tracking of these metrics are means to communicate operating performance while increasing accountability and transparency.

At RTD, Johnson explained value is the focus of the agency’s current strategic plan. The plan includes four strategic priorities – community value, customer excellence, employee ownership and financial success – and clear metrics that will result in a successful outcome. The first three priorities – community value, customer excellence and employee ownership – involve establishing a baseline and then increasing it by five percent. The fourth priority, financial success, is broken into two success outcomes that include RTD spending less money than it receives and establishing that the community believes it sees value in RTD’s spending.



## Terminology

### NTD Mode Types

- RB** – Bus Rapid Transit
- CB** – Commuter Bus
- DR** – Demand Response
- DT** – Demand Response Taxi
- TB** – Trolleybus
- VP** – Vanpool
- MB** – Bus

Numbers reflected in this report used information within the National Transit Database for the modes listed.

# Options for Powering Vehicles

Zero-emission fleets continue to develop

Image: 257185422 | iMast3r | Dreamstime



The U.S. zero-emission rubber-tired fleet traveled **25.5 million active miles** in 2021. The number of active zero-emission vehicles in the U.S. grew by 20% from 2020 to 2021.

Source: NTD 2021 Revenue Vehicle Inventory

In *Mass Transit's* recent "2023 Mobility Outlook" survey, 44 percent of respondents answered that their agency planned to award a battery electric bus contract in 2023 and 11 percent reported a hydrogen fuel cell bus contract would be awarded this year, while 31 percent reported a contract for diesel vehicles would be awarded.

Smaller agencies are beginning their zero-emission journey with electric vehicles delivered or put into service for the first time at Oakville Transit in Ontario and Santa Maria Regional Transit. The city of Annapolis, Md., ordered its first two electric transit buses in early February, and Foothill Transit launched Los Angeles County's first three hydrogen fuel cell buses into revenue in early December.

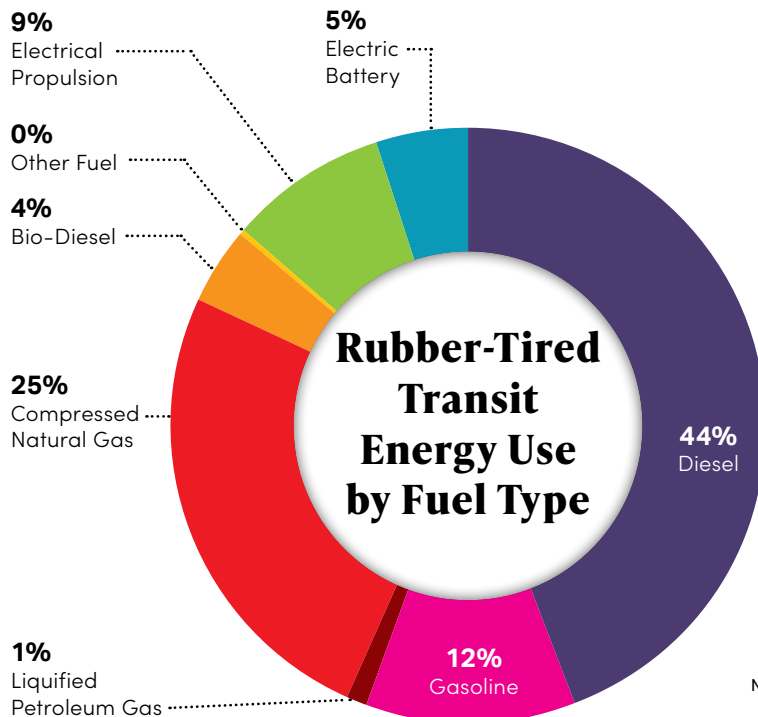
CALSTART, which produces an annual report tracking the adoption of zero-emission vehicles, calls the pace set during the past year by North American transit agencies steady, with small market gains a significant development.

CALSTART's "2023 Zeroing in on ZEBs" report determined the total count of full-size battery-electric and fuel-cell electric transit buses in the U.S. has grown to 5,480—a 66 percent increase since 2021. The total count of small ZEBs grew by 261 from 2021 – an overall increase of 42 percent year-over-year, though the growth rate is 31 percent less than the rate recorded in 2021.

Canada has also experienced year-to-year growth in full-size and small ZEB adoptions. As of September 2022, the number of ZEBs across the country has grown to 859. The adoption of ZEBs grew by 34 percent from 2021, showing progress toward achieving net-zero emissions goals by 2050.

CALSTART also recognized the policy and funding sources in both countries have aided the adoption of ZEBs. In the U.S.

more than 1,100 zero-emission vehicles were slated to be purchased using funds awarded through the Federal Transit Administration's Low and No Emission Grants and Bus and Bus Facilities Grants programs. In Canada, the Zero Emission Transit Fund was established in 2021, which will allocate C\$2.75 billion (US\$2.04 billion) to ZEB projects over five years with the federal government aiming to deploy 5,000 electric transit vehicles.



Source: NTD 2021 Fuel and Energy



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# Fleet Age **Varies**

## Boosted investment assists with renewal, but supply chain issues remain

Data included in the NTD shows the percent of active vehicles that meet or exceed their useful life has been steady, with articulated buses seeing a significant improvement. As with the zero-emission transition of fleets, available federal funding has assisted in keeping fleets within useful life spans. However, current supply chain issues, particularly within the small bus market, are threatening the progress made. *Mass Transit's* "2023 Mobility Outlook" survey found 45 percent of respondents said their agency's bus fleet required the most immediate investment to achieve State of Good Repair goals while 71 percent of agency respondents reported having experienced a vehicle order cancellation or delay in delivery during the past year.

According to the Community Transportation Association of America (CTAA), small bus transportation providers have faced price increases and growing wait times in delivery of vehicles. As of fall 2022, the estimated backlog was 20,000 vehicles – a number that is expected to increase in 2023.

CTAA, with the American Public Transportation Association and the American Association of State Highway and Transportation Officials, have requested assistance from the federal government to make more small bus chassis available to the market and streamline procurement regulations. The associations expressed concern agencies would not be able to leverage the significant funding available at the federal level if steps are not taken to increase chassis availability. [L](#)

### Percentage of active vehicles that meet or exceed the useful life



**17%**

of buses



**6%**

of articulated buses



**23%**

of cutaways

Source: NTD Vehicles 2021

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# Have We Outgrown Paratransit?

Let go of the concept of perfecting paratransit and revamp services that are inclusive and account for the expectations and needs of the disability community.

BY CHRISTIAN KENT, CONTRIBUTOR

**B**efore the passage of the landmark Americans with Disabilities Act (ADA) in 1990, access to public transit for people with disabilities was extremely limited, mainly because of indifferent and erroneous assumptions about the numbers, needs, capabilities and aspirations of people with disabilities. Today, access to transit is vastly improved, and industry statistics reflect this accordingly.

Since 2000, local bus fleets nationwide have moved from 81 percent to 100 percent accessible, and millions of customers with disabilities are making use of fixed-route transit who could not have done so before. The original intent of requiring complementary paratransit service was to bridge that gap, extending the equivalent of fixed-route transit to people with disabilities who could not make use of an otherwise inaccessible system, yet the demand for paratransit service has grown exponentially since its inception, despite North America achieving a mostly accessible fixed-route transit network.

The question is, do we need more paratransit or is it time for something else?

Among the ADA's many strengths is it was developed with significant input from the disability community, and it requires ongoing engagement with the community for any changes being contemplated that could affect them. However, count (and few you will find) the number of people with disabilities who are involved in decisions regarding the deployment of service or its evolution into other offerings that might better meet the needs of the target constituency.

In the past 33 years, we have often attempted to “perfect” paratransit without asking if there was something better or if the disability community's expectations had changed. There are many reasons for this:

- The regulations themselves have been clarified but not changed.
- We have been motivated to apply sophisticated technology not previously available to resolve long-standing paratransit problems.
- Our tendency to plan services for people with and without disabilities separately.

While the first two reasons are understandable, the third is harder to defend, except perhaps to attribute it to the law of inertia.

By operating paratransit service in its current form, we are preserving a 1990s artifact that offers only a half-portion of what is available today, such as only “next day service” instead of the “just-in-time”

service being enjoyed by customers of transportation network companies, shared rides that are typically not commingled with riders of other (mainstream) services, as well as trip time negotiation.

Efforts to perfect this version of service also fall short – now we have technology that more precisely informs the customer of how late the ride will be. That applies updated algorithms to the same population of trips to be scheduled, still with a “next day” orientation, and that only offers service where fixed-route transit exists, even as agencies begin to replace fixed-route service with on-demand.

Customers with disabilities overwhelmingly desire equity and inclusion. They want to go about their lives in a manner similar to those around them. To achieve this,



Pickup is CapMetro's on-demand public transit service that is supported by an app developed by Via.

Via

we must ascribe to the philosophy of “one system” that serves everyone – one in which accessibility for all is in the genetic material that makes up whatever we create. The one “system” does not (and should not) be interpreted as one “entity.”

If there is one thing we have learned from the pandemic, it is the transit industry alone cannot meet the expansive demand for service that comes from our very diverse society. Partnerships are the name of the game, and transit agencies must work effectively with their human services counterparts, among others, to maximize the number of options available to customers while keeping costs sustainable.

We have heard in recent years transit agencies are faced with the reality they are not merely transportation providers, but also

mobility integrators. Partnerships with TNCs are one form of this, and as agencies move to replace low-performing fixed-route service with on-demand service, a new mobility option has emerged, and since paratransit service is, by definition, on-demand – then should we not be aiming micro-transit services to accommodate demand that heretofore had to be served by paratransit? With micro-transit being offered with same-day (perhaps same-hour) service, customers with disabilities can now be afforded service that is by design substantially better than traditional ADA paratransit and at a lower cost to the agency.

By incorporating accessibility into these new modes of transit, we are “building back better” with an accessible infrastructure that

should reduce the dependency on paratransit for future generations. The vision of a single “system” accessible to all is one that has been discussed for many years but is often viewed as aspirational. The prevailing belief has been it would take such a costly investment in infrastructure that it could only be achieved in the very distant future, but the future is now. Between the federal funding that has been made available for infrastructure renewal and the rethinking of the deployment model of fixed-route transit, there has been no better time to revisit the concept of universal design in our nation’s transit systems.

To do this, we need a new approach. First, it is vital that representation from the disability community be included in the

“

By operating paratransit service in its current form, we are preserving a 1990s artifact that offers only a half-portion of what is available today.”

**Christian Kent**



design of microtransit and other emerging modes of transit – not just for paratransit. Such representation is also sorely needed in leadership positions at transit agencies from which strategic decisions are made. Second, we need to commit to making accessibility an integral part of all our service offerings. This includes ensuring accessibility of the new kinds of vehicles that are being designed for transit, such as the autonomous vehicle and those with renewable energy. Third, we must think holistically about the transit ecosystems we create in our communities and how services can complement one another as they collectively respond to overall demand.

Transit agencies must be willing to partner much more often and embrace the mobility integrator role. This means partnering with social service organizations and

small businesses that provide transportation and related services; identifying and sharing grant funding sources with these partners, and broadcasting numerous options to the public to create the most accessible, navigable environment for everyone. Finally, we must remember ADA paratransit was never meant to be the mode of choice for people with disabilities, but rather a guarantor of mobility when other options fell short. Everything we do to empower our customers with disabilities is very much in the spirit of the ADA, and there is nothing in the regulations that prohibits going above and beyond minimum requirements.

So, to the question at hand – have we outgrown paratransit? The answer is – mostly yes.

Because of paratransit, millions of people with disabilities have been able to “live their best

lives,” engaging in all of life’s activities and being “seen.” Some form of paratransit service may always be needed because of: (1) the special assistance provided by our many professional paratransit operators; (2) the accessible fleets that are funded by transit agencies more than any other source and (3) because of the inaccessibility of the infrastructure around transit (i.e., sidewalks, curb cuts, and other path of travel barriers) that will continue to take years to resolve, but there is a difference between maintaining paratransit as the primary option for customers and the brighter prospect that paratransit is a *de minimus* option among many others available to people with disabilities, many of which will offer more than what paratransit can deliver. This is the equitable future we should all be working to achieve. **L**



**About the author**

**Christian T. Kent** is principal at Christian T. Kent, Transit Management Consulting, LLC.

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# Santa Cruz Metro bounces back from COVID-19 pandemic

The agency plans to transition to 100 percent, zero-emission buses, double ridership and develop 175 affordable housing units over the next decade.

BY BRANDON LEWIS, ASSOCIATE EDITOR



**T**he COVID-19 pandemic affected the Santa Cruz Metropolitan Transit District (Santa Cruz Metro) in a multitude of ways. During the height of the pandemic, Santa Cruz Metro lost 90 percent of its ridership, as well as approximately 20 percent of its bus operators, causing service to be disrupted.

Michael Tree was named CEO of Santa Cruz Metro in March 2022, as the agency was still navigating through the height of the pandemic and finding its “new normal.” According to Santa Cruz Metro Board Member and Former Chair Larry Pageler, Tree was hired due to his extensive expertise and knowledge of public transit, as well as his proven track record in increasing connectivity for the public.

During his first year as CEO, Tree has put together a plan for the agency that is focused on three key areas:

- No more tailpipes for Santa Cruz Metro buses, as the agency looks to transition to 100 percent, zero-emission battery-electric and hydrogen buses by 2037.

Santa Cruz Metro whale tail battery-electric bus.  
Santa Cruz Metro

## One Ride At A Time



- Double the agency’s ridership to seven million rides within five years.
- Develop 175 affordable housing units by 2030.

The Santa Cruz Metro Board decided to convert all the agency’s compressed natural gas (CNG) buses to hydrogen and battery-electric buses in 2021. Tree notes the residents who live in the state of California are conscientious of the environment, which lends support to the agency’s long-term zero-emission plans.

“The people in California are very vocal when it comes to the environment. They’re sophisticated and discerning customers, and the public was making it clear in this day and age, there were better options for the environment than hybrid diesel and CNG,” Tree said. “We’ve had riders tell us they’re happier now more than ever riding Santa Cruz Metro because the buses are zero-emissions. Riders have told us the zero-emission buses fit their values better.”

Santa Cruz Metro’s riders are not the only stakeholders to enjoy the transition to hydrogen and battery-electric buses, so have the drivers.

“I think the drivers appreciate the fact that when they touch the accelerator, the bus is moving,” Tree stated. “You can’t put your foot down heavy with an electric bus or you’re going to drain the battery really quick. However, you’re going to get some instant feedback. I think it takes a little while to get used to an electric bus, but I’ve heard lots of drivers say they’d prefer to drive a battery-electric bus or a hydrogen bus than the other buses in our fleet.”

Santa Cruz Metro currently has four battery-electric buses in operation and is expecting five more battery electric buses to be delivered in June. A hydrogen station is in the final stages

of planning and engineering, and the agency anticipates procurement of 19 hydrogen buses in the near future.

According to Tree, the decision to use more hydrogen buses as opposed to battery-electric buses is a mitigation step against a potential natural disaster.

“We’re prone to natural disasters,” Tree said. “Whether it be fires or earthquakes, so the board’s anticipating some event in the future will probably take away our electricity for quite a while. Having a hydrogen fleet will allow us to power a hydrogen station with a generator and keep the fleet available for assistance in the community during the emergency.”

Tree notes the hydrogen buses take a lot less time to fuel compared to the charge time of battery-electric buses. The hydrogen buses also stay in service longer daily.

The agency has a goal to completely transition from CNG to zero-emission buses by 2037. Santa Cruz Metro Board Chair Shebreh Kalantari-Johnson explains the next 13 years will need to strike a balance in both the monetary outlay of the transition, as well as the time outlay on operators.

“The cost of transitioning each bus is about \$1.3 million, so we have to piece together a lot of different sources of funding to be able to acquire those buses,” Kalantari-Johnson said. “We’re bringing on 28 buses in the next 12 months, which is quite a number of buses. We also have to keep in mind our workforce, so to transition our workforce and train our workforce with a new technology, we have to be mindful of that and do that in incremental steps.”

### Ridership recovery

During the height of the pandemic, Santa Cruz Metro lost



**A young boy paying for fare while boarding a Santa Cruz Metro bus.**

Santa Cruz Metro

90 percent of its ridership. Currently, the agency has approximately 3.5 million riders annually, which is nearly 75 percent of its pre-pandemic ridership level. Tree aims to have the agency double in ridership within the next five years.

The agency’s Reimagine Metro survey allowed Santa Cruz County residents to provide feedback to the Santa Cruz Metro Board of Directors on what they would like to see offered on Santa Cruz Metro to get them to ride. Tree said it was clear from the survey the public wanted an easier to use and a faster, more reliable service.

Santa Cruz Metro ridership includes commuters and students and the agency has implemented several measures to help increase ridership in the post-pandemic era, including the One Ride at a Time campaign, which aims to showcase the environmental benefits of transit, encourage bus ridership and protect Santa Cruz County’s natural resources, and Youth Cruz Free, a pilot program that launched March 1 that allows students to use their student ID cards as a transit pass, in order to increase access and encourage ridership for youth through the end of high school.

Kalantari-Johnson said the Youth Cruz Free pilot program will be key to boosting ridership.

“I personally met with some youth groups last fall, and they said they would ride the bus, but they had two issues: Frequency and money, so this pilot program is so critical because if we shift the behaviors and thought processes of young people, then we shift the cultural norm around buses. You get young people to ride buses, then the rest of us are going to be more inclined to ride the bus.”

Tree notes approximately 10 percent of Santa Cruz Metro riders are under the age of 18, despite making up nearly 20 percent of the population of Santa Cruz County.

“We want to give youth freedom with moving around the region, and this is a great start for a population that loves Santa Cruz Metro,” Tree said.

### **Operator shortage**

Santa Cruz Metro lost approximately 20 percent of its bus operators at the start of the pandemic, and has struggled to fill that void as ridership has begun to return, but it hasn’t been for lack of trying, according to Tree.

“We put in place a \$4,000 hiring bonus, which has been very popular,” Tree noted. “We also put in place a referral incentive program, so if a Santa Cruz Metro employee refers someone who then becomes a bus driver at Santa Cruz Metro, the employee is given a \$2,000 incentive.”

Tree explained how the agency has adapted its hiring process over the past couple of years.

“It used to be that potential applicants would wait a month or two until the next hiring cycle came up,” Tree said. “Now, if applicants apply, within a week, they receive a call back and are being interviewed and brought on board almost immediately. Applicants are immediately able to give two weeks’ notice to their current employer. If they’re unemployed and get on board Santa Cruz Metro, we will take them through a customer service academy while they’re waiting for the next entrance into their training.”

Santa Cruz Metro works with various community groups to better serve the community through services. The agency most recently in March distributed 200 free passes to riders, as well as 72 additional passes to community organizations affected by flooding at the Santa Cruz County Fairgrounds.

In 2021, Lani Faulkner founded Equity Transit, a social welfare organization that advocates for a robust and affordable transit system, a clean environment, affordable housing, safe walkable streets and opportunity access throughout Santa Cruz County. Equity Transit is one of many community organizations that is partnering with Santa Cruz Metro to support environmentally smart public transit, safe streets and walkable cities.

Faulkner said the pandemic showed leaders how critical the services are to daily life.

“What the pandemic made aware to so many of us who work in transportation is we lost para-transit workers and people who could drive the buses, and that was



critical for people who didn't have cars," Faulkner said. "They were critical to our essential workers, critical to people that had to get to their doctor's appointments and could no longer do so if those buses were not available."

The agency's goal is to have a fully staffed bus operator roster, which consists of 150 operators, by the end of 2023. Kalantari-Johnson believes there are opportunities within the unemployed and Latinx communities to fill a lot of the positions.

"We're working with a Latinx population in Santa Cruz County throughout our county," Kalantari-Johnson said. "They seem to be underemployed, specifically those who are predominantly Spanish-speaking residents and have limited English skills. I think part of it is the perception [where] people think their English is not

up to par, so they won't be able to interview. We've shifted our interview process to accommodate those with limited English, so they can feel comfortable working with Santa Cruz Metro."

### Affordable housing

Santa Cruz Metro does not think of itself solely as an agency; it thinks of itself as an essential service in Santa Cruz County. As part of that initiative, Santa Cruz Metro wants to be a part of solving the housing crisis issue in Santa Cruz County.

According to a recent study done by the National Low Income Housing Coalition, Santa Cruz County has the second most expensive rental market in the United States with housing wages at \$60.35, trailing San Francisco, Calif., by \$1. According to the study, housing wages are defined as an estimate of the hourly wage full-time workers must

earn to afford a rental home at the U.S. Department of Housing and Urban Development's fair market rent without spending more than 30 percent of their income.

Data from the Santa Cruz County Community Dashboard shows 53.7 percent of Santa Cruz County residents spend 30 percent or more of their household income on rent (rent plus utilities). The dashboard also shows seven percent of Santa Cruz County households are considered overcrowded, which is defined as a household where there are more people than rooms of all types, excluding bathrooms.

"The reason why affordable housing is so essential in Santa Cruz is because of the fact Santa Cruz is one of the most expensive communities to live anywhere," Faulkner said. "A bus driver who works in Santa Cruz County does not make the same kind of income

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as somebody who works in Silicon Valley. It is so expensive that our teachers, our nurses, our bus drivers can't easily afford to live here."

The agency has a goal of developing 175 affordable housing units in Santa Cruz County by the end of 2030. Currently, there are 248 affordable housing units under various stages of development with multiple project partners, and 128 net-zero units are planned as part of a redevelopment project at Santa Cruz Metro's Pacific Center. The project is planned to begin construction in 2024 and also includes retail and office space.

Two other projects are also under development that include the redevelopment and construction of 60 affordable housing units as part of a redevelopment project at the Santa Cruz Metro transit center in Watsonville, Calif., approximately 20 miles from Santa Cruz County.

Tree noted the talk of housing comes up in every public meeting he attends about Santa Cruz County.

"We're honored the public is viewing us as a community partner, not only for the public transit, but for the housing, and their symbiotic; they go together with transit-oriented development," Tree said.

While the agency has three lofty goals it would like to hit in the future, Tree is excited to see what the agency accomplishes by the end of 2023.

"By the end of 2023, I would think we will meet the goal of being fully staffed and having all of the pre-COVID-19 service back on the street," Tree said. "We'll have probably blown through the four million ridership mark on our way to seven million. I think we will have gotten close to putting shovels in the ground on 128 affordable housing units and the redevelopment of the Santa Cruz Transit Center. I think by the end of 2023, we'll be nearing \$200,000 of financial support for improving the environment. I think we'll have ordered 19 hydrogen buses and we'll have probably substantially completed a hydrogen station, so when those 19 hydrogen buses arrive, they can begin being fueled, so that's a pretty exciting 2023." L



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# Ready for Rail: A Look at 2023's Big Projects

Following a dip in activity due to the pandemic and other delays, 2023 may serve as a ramp up to a flood of new projects coming online during the next few years.

BY MISCHA WANEK-LIBMAN, EDITOR IN CHIEF

**P**repare the giant scissors and ready the extra-long ribbons – North America transit agencies are set to open 320 miles of new rail service by the end of 2023. Following well documented delays due to supply chain and pandemic related issues, this year appears to be the year projects get back on track – pun intended – as the industry prepares to experience a boom in new rail projects set for delivery during the next three years.

By the end of 2023, there could be as many as 12 rail transit projects open if final testing and project reviews go according to plan. Here's a look at where ribbons could be cut and where riders could start to board this year.

## **LIRR begins service to Grand Central Madison**

The year started off strong with the delivery of the Metropolitan Transportation Authority's (MTA) largest capital project: Long Island Rail Road (LIRR) service to Grand Central Madison. The project, also referred to as East Side Access, involved the construction of more than 40 miles of new tracks, rebuilt Harold Interlocking and opened Grand Central Madison as a new terminal to accommodate LIRR trains.

The 700,000-square-foot Grand Central Madison is the first major new rail terminal to open in the United States in 67 years and the first extension of the LIRR in 112 years since service began to Penn Station in 1910. The new terminal has eight tracks and four platforms on two new levels, all designed with passive



**In December, stakeholders celebrated the substantial completion of a portion of the South Coast Rail project at Freetown station.**  
MBTA



North American transit systems are aiming to bring 320 miles of new rail into service by 2023.

wayfinding to help orient returning users through subtle color shifts by location. All tracks and platforms are fully separated from Metro-North Railroad, ensuring neither railroad causes delays to the other.

The opening of the new terminal and start of LIRR service means there are an additional 500 station stops in Brooklyn and Queens during peak periods.

“Grand Central Madison is a public transportation feat that will shorten commutes, giving commuters time back in their busy lives to spend with their families, friends and communities,” New York Gov. Kathy Hochul said. “Grand Central Madison will dramatically expand service and operate more reliably for commuters and reduce overcrowding at Penn Station.”

### Honolulu aiming for summer opening

One of the most anticipated rail projects that could open in 2023 is the first segment of the Honolulu Authority for Rapid Transportation’s (HART) rail line. Honolulu Mayor Rick Blangiardi dedicated a portion of his State of the City speech delivered in mid-March to the project where he shared the line should be operational in July 2023.

“When we took office, there was no single issue that had been more consistently and passionately raised by voters than rail and what was then a historically-troubled project,” said Mayor Blangiardi. “As we embrace the challenge embodied in building the toughest segment of rail — through the airport, down Dillingham Boulevard and through the downtown corridor — we are ready for our riders to embrace rail. Our long-awaited rail system is scheduled to commence interim operations in July, with service from East Kapolei to Aloha Stadium.”

Lori M.K. Kahikina, executive director and CEO at HART, joined the Rick Hamada Program, a local radio show and podcast, at the end of March and explained HART is aiming to turn the line over to the Honolulu Department of Transportation Services in late May and believes the project opening in July is achievable.

Segment 1 is currently trial running and will include eight stations in a system that will also integrate with Honolulu’s

bus system. While trial running is occurring, HART is also working to fix the eight columns in the first segment with cracks in the hammerheads. The hammerheads, which are still structurally sound, are expected to be reinforced by rebar to extend their longevity.

### Brightline extension to Orlando

Brightline is preparing to expand its intercity operations to Orlando, which will add 170 miles to its network and will connect West Palm Beach and Orlando in about two hours. The extension is 90 percent complete, with construction spanning four different zones that saw 490,000 crossties laid and two million spike and bolts installed in a 36-month timeframe.

Train testing in early March saw Brightline reach 130 mph between Orlando International Airport and Cocoa, Fla., making Brightline the fastest train in the state, as well as the southeastern U.S.

The company also highlighted its new Orlando area maintenance facility, which it calls Basecamp. The \$100-million, 135,805-square-foot facility sits on 62-acres and will be able to service up to 16 trains at a time.



Basecamp features a truck shop where coach and locomotive trucks can be disassembled, cleaned and rebuilt, a drop table, a parts warehouse, wheel true facility, two fueling islands and a train wash.

“This world-class facility has everything under one roof to maintain our trains, will provide highly paid highly skilled jobs to the region and will be a bustling hub for train maintenance, maintaining eight of our 10 trains here nightly,” said Brightline Executive President Infrastructure Michael Cegelis.

**HART is aiming to turn the first segment of its rail project over to Honolulu DTS at the end of May and have the rail line in operation by late July.**

Honolulu Authority for Rapid Transportation

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**Brightline's maintenance facility near the Orlando International Airport Station, Basecamp, is two football fields long and can service up to 16 trains.**

Brightline

## Basecamp by the Numbers

**24/7**

hours the facility  
expects to operate  
when the Orlando  
station opens

**175**

number of people  
expected to be  
employed

Before the extension to Orlando opens, Basecamp has been commissioning new Brightline trains and service existing trains. The company says the facility will operate 24/7 when the Orlando station opens and will employ 175 engineers, conductors, technicians and inspectors.

## South Coast Rail returns rail service

Following a decades long absence, commuter rail will return to Middleborough, East Taunton, Freetown, Fall River and New Bedford, Mass. with the opening of Phase 1 of Massachusetts Department of Transportation's (MassDOT) South Coast Rail late in 2023. Phase 1 will provide a one-seat trip from southeastern Massachusetts to Boston in less than 90 minutes.

In December 2022, MassDOT, Massachusetts Bay Transportation Authority (MBTA) and other state officials marked substantial completion of the project's first major construction package. The package included the construction of two new stations in Freetown and Fall River, construction of the Weaver's Cove layover facility, upgrades and modernization work on more than 12 miles of track that were previously used for freight, as well as work on nine bridges, 11 culverts and 10 grade crossings.

The second major construction package to build South Coast Rail's New Bedford Line, upgrade the Middleborough Secondary and construct brand-new stations in East Taunton, Middleborough, two in New Bedford, a layover facility and the Phase 1 signal and communication systems, is on track toward being substantially complete.

This March, MBTA launched a safety education program ahead of the opening of Phase 1 to remind residents of proper safety protocols with more trains using the corridor. [L](#)

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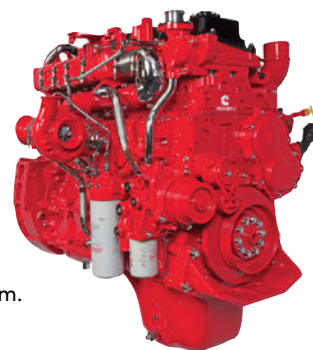
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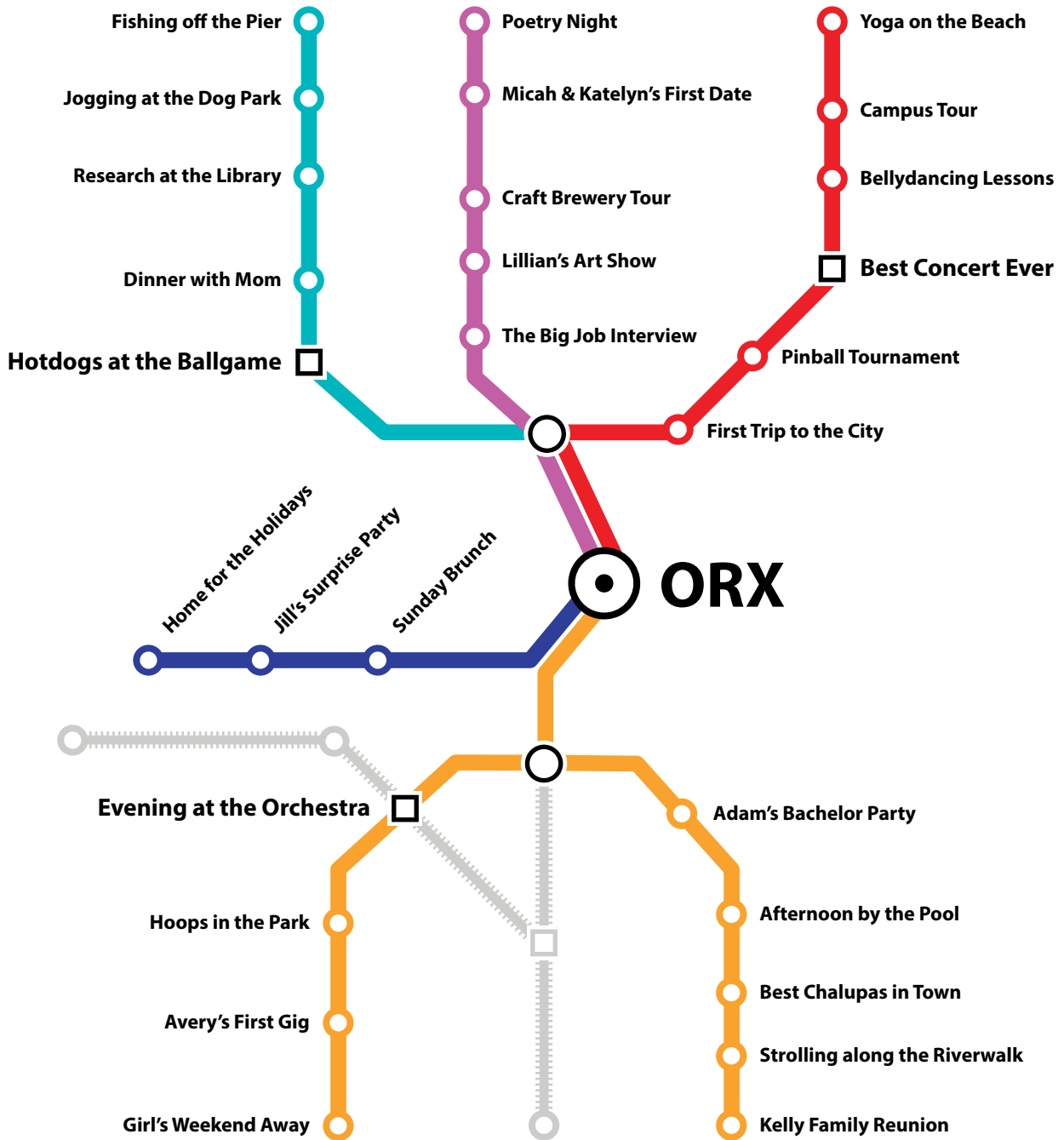
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