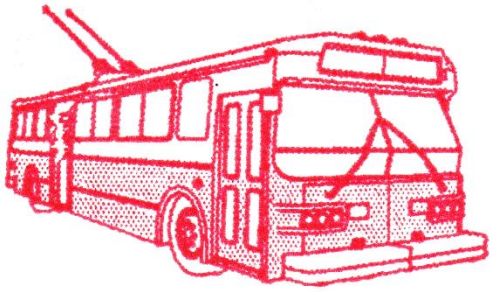
Bob Clark's *ELECTRIC*
TRANSIT TALK



VOL. 49 JANUARY 2025

Seattle Trolleybuses To Get Super Batteries

Seattle's trolleybuses are getting new batteries that will extend their off-wire capabilities to about to three times their current capacity. Following the successful installation of these new batteries on four test buses, operator King County Metro will begin upgrading the entire fleet of 174 trolleybuses. The four buses involved in the pilot, two 40-foot trolleybuses and two 60-foot trolleybuses, all exceeded 1,000 miles in operation with the new battery packs installed.

The $26 million contract was announced by power systems manufacturer Kiepe. On-board battery chargers will provide so-called "In Motion Charging" or IMC. IMC allows the vehicles to recharge their batteries while being driven under overhead wire.

"The IMC technology allows these electric buses to travel over seven miles between overhead wire connections, relying on space-saving batteries that charge during sections of overhead line operation," according to a news release from Kiepe. "This extended range and efficiency will support King County Metro's commitment to provide eco-friendly public transportation as well as the city's broader environmental goals."

Metro spokesperson Al Sanders indicated that the batteries on the entire fleet were due to be replaced anyway, having been in place since the current fleet was phased in between 2015 and 2017. "Our buses have reached their mid-life and it's time to replace the batteries in our trolleys," Sanders said. Kiepe, the manufacturer of the trolley propulsion systems, has developed new battery packs that will make the trolleys perform even better. "The current batteries provide 26 kwh, and the new packs will provide 72 kwh – nearly triple the energy capacity." (continued on P. 2)

Province puts forth New Proposal for Green Line LRT in Calgary

In December, the Province of Alberta released a "reimagined" plan for Calgary's Green Line LRT line that it says is longer and less expensive than what the City of Calgary had planned.

The Province contracted AECOM to identify and assess an alternative that avoids tunnelling in downtown Calgary. Based on the AECOM report, the Province has now put forward to the City of Calgary a new Green Line alignment from Seventh Avenue to Shepard.

"This new Green Line route saves more than a billion dollars in tunnelling costs," said Devin Dreeshen, Minister of Transportation and Economic Corridors, in a statement. "This alignment adds five more stops, will be 76 per cent longer and will serve 60 per cent more Calgarians – all within the same budget. The ball is now in Calgary City Council's court to approve this alignment and to begin construction on the Green Line in 2025."

The report suggests the downtown section of the Green Line should be elevated, not tunnelled, and should be shorter, cutting out Eau Claire and instead ending at Seventh Avenue to integrate with the existing Red and Blue Lines. The province says that could save more than $1 billion compared to the City's longer downtown route proposal involving tunnels.

The City opted in 2016 to go for the tunnel option – by far the costliest of those considered. In September of last year, the provincial government threatened the cancellation of the Green Line project, which it said was billions over budget and would not serve enough of the population. Without the province's support for the Green Line, Mayor Jyoti Gondek said the City (con't on P. 2)

etc

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Edited by Retired Employees of the Edmonton Transit Service

Seattle Trolleybuses (continued from Page 1)

Although not yet part of Metro's plans, having longer off-wire capabilities on the trolley fleet could open up new opportunities for the network, potentially allowing buses to be permanently assigned to routes that are mostly on-wire but have segments where there are no overhead wires, or adding new segments to existing trolley routes. "The new battery systems do offer greater range and may allow for Metro to operate new trolley routes partially on-wire and partially off-wire," Sanders said. "However, additional testing and assessment are needed to determine the feasibility of this type of operation for specific routes."

While the new batteries represent a change that most riders won't even notice, the upgrades could prove incredibly beneficial to Metro as they attempt to use every tool in the toolbox to meet the County's ambitious climate goals while still serving riders with irresistibly good transit. The King County Council has set of goal of electrifying the bus fleet and reaching 100% zero-emission vehicles by 2035.

[Source: The Urbanist, September 21, 2024]

Calgary Green Line LRT

(cont'd from Page 1)

could no longer move ahead with the project, and City Council voted to stop the project on September 17th.

Characterizing that decision as unfortunate, Dreeshen said that the Province would work with City officials on an alternate plan, which resulted in the current proposal.

Mayor Jyoti Gondek indicated on January 15th that a Council decision on the proposed alignment may be possible by the end of the month.

[Sources: CTV News, December 13, 2024, Global News, January 15, 2024]

Surrey Langley SkyTrain Construction gets Underway as Three Large Contracts Awarded

In August, the government of British Columbia awarded three large contracts for the $6 billion Surrey Langley Skytrain Project. The project, which began construction in 2024, is a 16 km extension of the SkyTrain Expo Line that will be the first rapid transit expansion south of the Fraser River in 30 years. Many of Canada's largest contractors and engineering firms including Pomerleau, AECON, Atkins-Realis and Ledcor are getting a piece of the action.

The extension will operate along an elevated guideway and include eight stations and three transit exchanges. Once complete, residents in the region will be able to travel between Langley City and Surrey Center in approximately 22 minutes, and between Langley and downtown Vancouver in just over an hour.

"The populations of Surrey, Langley and other communities across Metro Vancouver are growing quickly, and we are committed to building infrastructure to meet these needs," said British Columbia Minister of Transportation and Infrastructure Rob Fleming. "This project will transform how people get around, helping create a more affordable, livable and greener future for people in the region."

The extension is to be completed in one stage by late 2028; the anticipated in-service date is late 2029.

[Sources: Mass Transit Magazine, August 20, 2024; Journal of Commerce, September 20, 2024]

California to have Fully Connected Zero-Emission Rail Network by 2050

A $310 billion State Rail Plan recently released by California Governor Gavin Newsom calls for providing mobility to every region of the state with a fully integrated, zero-emission rail network that connects seamlessly with other transportation modes. The fully interconnected, zero-emission network is to be completed by 2050.

The plan was released after Newsom joined local leaders on January 6 to inaugurate the track-laying phase of California high-speed rail, which will serve as the backbone of the network.

"California is building a clean transportation system for the future. Our vision is simple: By 2050, every Californian should be able to choose rail as a way to get to their destination, near or far. Our rail plan is ambitious, but as the world's fifth largest economy bursting with talent and innovation, we're ready to take on this challenge," Newsom said.

In June 2024, the first self-powered, zero-emission passenger train in North America arrived in San Bernardino County. In August, Caltrain launched California's first electric rail system on the San Francisco Peninsula, and full electric service along the San Francisco-San Jose corridor began in September.

The state envisions passenger rail and transit, which combined currently serve only two percent of miles travelled in California, to increase to 20 percent of all miles travelled by 2050, thus shifting nearly 200 million daily passenger miles from highways to the rail and transit network and significantly reducing road congestion and carbon pollution. [Source: Press Release from the Office of Governor Gavin Newsom, January 7, 2025]

In Memoriam – Lorna Stewart

Staff and volunteers alike greatly appreciated Lorna. She is pictured here with volunteer and transit historian Douglas Cowan at the ETS exhibit at Edmonton's Klondike Days, July 1999.

It is with great sadness that we report that Lorna Stewart, long-time transit advocate and former Director of Community Relations for the Edmonton Transit System and former Director of Edmonton's DATS (Dedicated Accessible Transit Service), passed away in Victoria B.C. on December 25th following a battle with cancer.

With a background in public administration and health and safety, Lorna moved to Edmonton in 1989, where she became involved with the Sierra Club and eventually the Edmonton Transit System Advisory Board. Her interest in public transit and in helping and improving the community led her to a career as she took on the role of Director of Community Relations at ETS in 1998. Her enthusiasm and seemingly boundless energy enabled her to bring public transit into the hearts and minds of the community in Edmonton in a way that had never been seen before. She was a driving force behind many initiatives and events that improved transit's visibility, including an annual ETS Community Conference; an enhanced school education program; numerous public forums on LRT, transit changes and improvements; annual historical transit tours; an enhanced annual exhibit at Edmonton's Klondike Days exhibition; and anniversary events like the 60th Anniversary of Trolleybuses in Edmonton. She helped to create a transit presence at community events like the Fringe Festival and the annual Lunar New Year procession. Transit promotional initiatives like Captain Cow-Mute came to life under her leadership. She worked hard to draw the interest and energy of the community for the improvement of public transit and encourage citizen involvement, and this spawned the founding of local advocacy groups like the Citizens for Better Transit.

Lorna moved from her position at Community Relations to become Director of DATS, Edmonton's dedicated accessible transit service, during a shuffling of roles after Charles Stolte became transit manager in 2006. Long passionate about improving transit services for people with disabilities, Lorna excelled in this position as well.

Lorna was a member of a number of transit related organizations including CUTA and LTRT (Left Turn - Right Turn). She served as the inaugural chair of CUTA's Accessible Transit Committee and championed the creation of the Canadian Code of Practice for Determining Eligibility for Specialized Transit.

After her retirement from DATS at ETS in 2015, she moved to Victoria, where she was able to pursue her passion for gardening and continue her involvements with transit. She also more recently worked with TransLink in Vancouver as the Manager of Access Transit Planning to implement its Custom Transit Service Delivery Review and Fare Gate Access program.

Lorna touched the lives of all who knew her and made a measurable positive impact in creating a better world, stronger communities and better workplaces. A memorial service will be held on March 1, 2025 in the Sequoia Centre at McCall Gardens, 4664 Falaise Drive, Victoria, BC, beginning at 2:00 pm.

Edmonton Radial Railway Society offers Christmas Streetcar Rides

Volunteers at the Edmonton Radial Railway Society, an organization dedicated to preserving Edmonton's streetcar history, brought back their popular Christmas Streetcar for the 2024 holiday season.

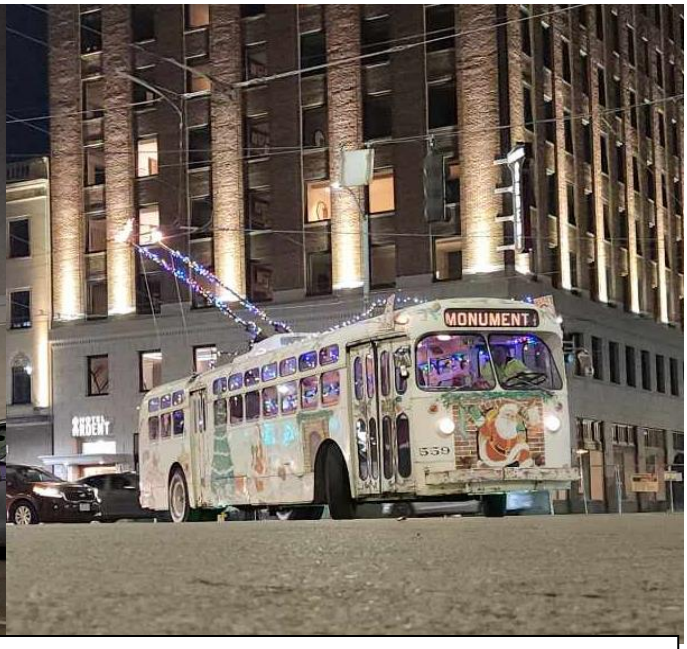
45-minute round-trip streetcar rides were offered across Edmonton's High Level Bridge, offering participants a unique holiday experience aboard a seasonally decorated restored vintage streetcar. The ride was designed to awaken the spirit of Edmonton's past, a time when streetcars were a primary mode of transportation prior to 1951.

The public streetcar rides were offered Saturdays and Sundays between December 7th and December 22nd; tickets were required at $8 per person. Charters were also possible.

The streetcar was fully adorned inside and out with holiday decorations, creating a warm and festive atmosphere for passengers. As the streetcar crossed the High Level Bridge, passengers could enjoy exceptional views of the river valley and Edmonton's skyline, taking in the holiday lights.

The ERRS also offered streetcar rides at Fort Edmonton Park during the Edmonton Christmas Market, November 28th to December 15th. [Source: ToDo Canada, November 5, 2024]

ABOVE: Edmonton Radial Railway Society's Car No. 33, a 1912 streetcar built by the St. Louis Car and Foundry, was fully decked out for Christmas runs across Edmonton's High Level Bridge. The car is as old as the bridge itself. An original Edmonton streetcar, it was retired from active service in 1951, restored by the ERRS and returned to service in 2010. [Photos: ERRS]



ABOVE and BELOW: With a little help from Santa, Dayton's brightly decorated Christmas Trolley got underway, taking part in the Children's Parade at the end of November and appearing numerous times in December, offering rides to the public along with a healthy dose of Christmas cheer. Like Rudolph's nose, the trolley cast a glow as it moved along the streets. The interior came complete with a fireplace, a Christmas tree, seasonal lighting and even a special chair for Santa. [Photos: Dion McElrath (above), Chevez Simpson (below)]

Return of Christmas Trolley makes Christmas Special in Dayton, Ohio

Dash away! Dash away! Dash away all—so reads the signage on the back of the RTA's historic Christmas Trolley, a 1948 Marmon-Herrington TC-48 trolleybus decked out in a Christmas livery and complete with a Christmas tree, a fireplace and Santa in the interior.

The vintage trolleybus made its first official appearance of the season in the Dayton Children's Parade on November 29th. It then appeared at a series of public events at Wright Stop Plaza between November 30th and December 23rd, complete with Santa. Free rides were offered, and local transit historian Tom Morrow was on hand to provide information and answer questions about the vintage vehicle.

The 76-year-old Marmon-Herrington, coach 559, is one of five operable trolleys of its kind in the world today. It last ran on Dayton streets in 1988, after which it was transferred to San Franciso Municipal Railway in California. It made the 2,300-mile journey back to Dayton in 2021 after RTA CEO Bob Ruzinsky re-acquired it for Daytonians to enjoy once again.

RTA's maintenance department worked long and hard on the mechanical restoration of the trolleybus, with technicians Michael Baldwin and Ryan Lovelace leading the project. Despite challenges posed by the age of the equipment, they were successful in getting everything operational. Following testing and some additional touches to the exterior of the coach, it was ready for the Children's Parade.

Many Daytonians recalled childhood experiences when seeing the historic vehicle roll along Dayton streets again. Baldwin himself said he recalled riding aboard the Christmas trolley when he was about ten or eleven years old.

Dayton, a city of about 138,000 in Ohio's Miami Valley, has long been famous for its trolleybuses. Once a privately owned enterprise run by W. W. (Bill) Owen, Dayton's transit system had a number of Christmas trolleys over the years as well as trolleybuses that were specially painted and decorated for other occasions. Coach 559 is one that has survived.

[Sources: WYSO, December 19, 2024; Dayton Local, November 18, 2024]

Seattle's King County Metro buys 120 Battery Vehicles for Vanpooling Program

Metro boasts one of the largest public vanpool programs in North America. Every workday, almost 1,000 Metro vanpools hit the roads of King County, keeping thousands of single-car trips off of congested roads. Vanpooling is similar to carpooling. Commuters share the driving and have a common schedule and route to work. With a Metro Vanpool, all costs are included in one low monthly fare. This includes the van, fuel, insurance, maintenance, roadside assistance, tolls and even an emergency ride home if you need to leave work early.

And this great vanpooling program just got greener! King County Metro is adding 120 electric vehicles to the vanpool fleet. The new seven-passenger Tesla Model Y vehicles have a range of about 330 miles and will join nearly two dozen electric compact vanpool cars already on the road. Following this procurement, almost 10 percent of Metro's vanpool fleet will be electric.

[Source: kcemployees.com, January 3, 2025]

New Trolleybuses Bring Changes to Bucharest, Romania

The arrival in 2024 of an order of new Solaris Trollino trolleybuses with 20 km off-wire capability is bringing about changes to trolleybus operations in the Romanian capital of Bucharest.

Changes to the system are being made that maximize the benefits of using electric vehicles by replacing, wherever possible, the diesel buses operating on overlapping routes. High demand diesel bus lines that were operating in the city centre, such as the 133, 201 or 336, have been cancelled, and trolleybus lines now cover these services.

Diesel route 336 and trolleybus line 61 provide an excellent illustration of these changes. For decades, 87% of the two routes overlapped. The lack of 500 meters of overhead wire needed to reach the Complex Comercial Apusului in a densely built residential area made it impossible to operate trolleybuses on the very popular 336 bus line. Thanks to the off-wire capabilities of the new Solaris vehicles, trolleybus line 61 now encompasses the full extent of the old route 336.

In the case of former diesel bus lines 201 and 133, they were incorporated into trolleybus lines 90 and 97 by extending the latter into unwired areas. The extension of line 97 also resulted in a disused section of trolleybus overhead being reactivated. Some service frequency improvements have also resulted from these changes.

A most recently noted change involved the creation of a new trolleybus line number 63 to replace diesel bus route 136 on most of the route between Pod Izvor and Autogara Militari. About half of the new route is under overhead wire, and significant parts of Iuliu Maniu Boulevard are now served only by trolleybus lines.

Some changes are also being eagerly anticipated in the southern part of the city. In May of 2022, a fire destroyed an electric substation that supplied power for the trolleybus and tram network in the Piața Sudului area, causing both trolleybus and tram operation to be severely curtailed. Only one of three trolleybus lines in the area is still operational. It is hoped that 2025 will bring the restoration of the substation and that all three lines can then receive new trolleybuses. Extensions of these lines are highly necessary, as they currently do not reach the city centre.

The civic government has expressed the intent to acquire more new trolleybuses using European funds from the Recovery and Resilience Plan.

[Sources: Urban Transport Magazine, August 20, 2024; London Reconnections, September 4, 2024]

Trolleybuses deemed Good Fit for Tallinn, Estonia

Both Tallinn Mayor Jevgeni Ossinovski and Deputy Mayor Kristjan Järvan believe that trolleybuses would be a more suitable form of electric transport than the tram for that city’s most populous district, known as Lasnamäe.

The Lasnamäe canal tramline, planned as early as the 1970s and 1980s for Laagna Tee, is no longer seen as a viable idea today. If Tallinn proceeds with its development strategy to transition all public transport to electric vehicles by 2035, as outlined in the city's vision, it would be more reasonable to introduce trolleybuses on the canal route, say city leaders.

At a press conference, Ossinovski stated that the Lasnamäe (express) tram was designed with "a completely different public transport ideology" in mind, which no longer aligns with modern needs. "There was an assumption that people would walk half a kilometer to the canal to board a tram. But when we look at how convenient the current bus connections are, the desire for a tram simply isn't there," Ossinovski explained. “Electrifying public transport in Lasnamäe is a good and important idea, and trolleybuses would be the right solution for this in the future," he said. (continued on Page 7)

TALLINN, ESTONIA (continued from Page 6)

Modern trolleybuses will be able to operate partially without overhead wires, charging their batteries on long, straight arterial roads. Laagna Tee, being particularly long, would be an ideal route. "A long arterial road and the capacity of existing substations make the infrastructure required for battery-powered trolleybuses a feasible investment. These trolleybuses could also exit Laagna Tee, go off-wire, and make stops closer to residents' homes," Järvan added.

The city does face one challenge: articulated trolleybuses would exceed the length currently permitted by existing regulations. To address this, Järvan has approached Minister of Infrastructure, requesting an amendment to regulations to allow longer vehicles on the road. "We have tested 24-meter-long trolleybuses in Tallinn and are confident that they can be successfully used on high-demand routes without issue," Järvan explained. [Source: ERR News, Dec 6, 2024]

Hess to provide New Trolleybuses for Salzburg and Innsbruck

Swiss manufacturer Hess is providing more trolleybuses for the Austrian market. The manufacturer closed a framework agreement to supply up to 80 vehicles for two Austrian cities by 2032. The first, Salzburg Linien, operator of a network of 11 trolleybus lines active since 1940, already has 42 vehicles supplied by Hess in operation, and they will be joined by eight more this February.

The second city, Innsbruck, previously operated trolleybuses from 1944 to 1976 and from 1988 to 2007. The system was closed when the city decided to shift its focus to the improvement of its tram network. With the need to electrify bus operations worldwide, Innsbruck is considering reintroducing trolleybuses owing to their superior reliability and performance characteristics when compared to battery buses. The total conversion of bus service to electric operation is expected by 2035.

The new framework agreement provides up to 60 trolleybuses for Salzburg and up to 20 vehicles for Innsbruck. Some of the vehicles will be of the LighTram 19 DC model—18-metre articulated trolleybuses with a capacity of 156 passengers. Some 24-metre vehicles have also been ordered. All of the trolleybuses will be equipped with battery packs for off-wire operation and In Motion Charging.

The cooperation between the two cities for the purchase of the vehicles allows for economies of scale, resulting in a reduction in the purchase cost per vehicle.

Salzburg

Under the agreement, Salzburg has already ordered the 12 18-metre trolleybuses for 2027 delivery. These vehicles will make it possible to increase frequencies on lines 9 and 10 and to complete plans for the extension of line 12.

The trolleybus service in Salzburg is highly appreciated by transit users. The end goal of the municipal administration is to attract more riders by increasing the frequency of trolleybus service to at least 7.5 minutes, with a minimum 5-6 minute standard on the busiest lines. Expanding the fleet is the only way to make this possible.

Innsbruck

Bus electrification in Innsbruck is being planned for routes C (Luigienstrasse-Sieglanger), F (Airport – Rum Kaplanstrasse), J (Pascherhofer-Nordkette), M (Mentilberg-Aldrans), R (DEZ South-Rehgasse) T (Rum Station-Vols Cyta South), and probably Route 404 (Central Station-Axams-Grimens). The frequency of the lines is typically about 15 minutes, with enhanced peak hour service on line 404.

If all unfolds accordingly, Innsbruck would be—after Salzburg and Linz—the third Austrian city to have new-generation Hess vehicles. [Source: Sustainable Bus, December 5, 2024]

☞ The Czechian city of Liberec is undertaking a study to determine the feasibility of introducing trolleybuses. The vehicles would operate initially on a single route.

☞ Ostrava celebrated the anniversary of public transit service on September 7th with a huge line-up of vintage trolley and motor buses. Ostrava has the largest collection of historic trolleybuses in the country. Public transit service in the Czechian city dates back to 1894.

☞ In November, the 110th anniversary of the world's oldest trolleybus system in Shanghai, China, was commemorated by applying a special paint scheme on a trolleybus operated on Route 14, the city's oldest route.

☞ Quito, Ecuador has ordered 60 trolleybuses from Chinese manufacturer Yutong. They will begin arriving in 2025. [TM]

Officials from Salzburg Linien Verkehrsbetriebe GmbH stand proudly in front of a new Hess trolleybus. [Photo: Sustainable Bus]

New Recall of Proterra Battery Buses Announced

In October, the U.S. Federal Transit Administration (FTA) issued a safety advisory covering approximately 483 battery electric buses produced by Proterra from 2019 to 2022. The National Highway Traffic Safety Administration issued a recall of the vehicles effective September 5, 2024. The recall comes on the heels of a flurry of reports of fires and a host of other problems experienced by transit agencies who have implemented battery buses over the past eight years.

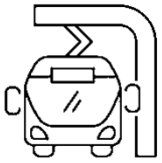
According to the NHTSA report, Proterra Catalyst vehicles manufactured from 2019 to 2021 and Proterra ZX5 buses produced from 2020 to 2022 were involved in several incidents in which a radiator fan electrical circuit overheated, emitting smoke and/or causing a fire.

Phoenix Motorcars, which acquired Proterra's Transit Bus Division after the company filed for Chapter 11 bankruptcy in 2023, will issue a free software update to the owners of vehicles subject to the voluntary recall. The update will slow the speed of the radiator fan in an effort to reduce the equipment's temperature.

The first report of this issue with Proterra buses came on July 12, 2021, when a bus exhibited smoke. A software update that was issued on March 2, 2022 failed to resolve the issue.

The Proterra Catalyst is no longer manufactured, but Phoenix Motorcars continues to manufacture the ZX5. NHTSA records show that four additional recalls for other issues are in effect for the former Proterra ZX5. These include 1) Failure of an inverter causing loss of power steering, predisposing the vehicle to the risk of crash; 2) sudden failure of the windshield wiper motor; 3) sudden and unintentional engagement of the parking brake, increasing the risk of a crash; and 4) the steering gearbox may suddenly become loose, causing a loss of steering. [Sources: Smart Cities Dive, October 16, 2024; MSN, October 17, 2024]

Battery Bus News



Two New Battery Buses for Toronto

The Toronto Transit Commission (TTC) officially commissioned two new battery buses in September, 2024.

In 2023, the government of Canada and the City of Toronto made a joint investment of $700 million towards the electrification of the TTC's bus fleet. The two new eBuses are the first of 340 battery-electric vehicles that will be received by the TTC by the end of 2026.

On September 30th, former Deputy Prime Minister and Minister of Finance Chrystia Freeland announced: "Our government knows improving public transit is essential to ensuring our economy reaches its full potential. That is why we are delivering unprecedented investments in sustainable transit infrastructure. Today's arrival of new all-electric buses—just one of the many ways we are helping the TTC grow—will make Torontonians' commutes quicker and cleaner."

Once all 340 vehicles are received, the TTC will have a total eBus fleet of 400. The funding also supports the installation of chargers and related infrastructure in seven bus garages.

"These two new battery buses and the additional eBuses that will be received by 2026 are significant contributors to our goal of being completely zero-emission by 2040," said Greg Percy, TTC interim CEO. "We are proud to be bringing new, clean, quiet vehicles to customers and employees across the city of Toronto."

The new battery buses are being manufactured by New Flyer Industries of Canada and Nova Bus. Once all 340 eBuses are received, battery buses will make up 20 percent of the TTC's bus fleet. [Source: TTC, September 30, 2024]

Battery Bus Fire in Hamden, Connecticut blamed on Moisture

The National Transportation Safety Board (NTSB) has determined that moisture in the high voltage lithium-ion battery system was the probable cause of a July 23, 2022 incident where a battery bus caught fire multiple times in Hamden, Connecticut.

In the first incident, quick action by the Fire Department resulted in the bus being pushed outside of the maintenance facility before any flames were visible. The problem appeared to have been resolved, but flames erupted from the rear of the vehicle later that day, and fire personnel had to return to the site. The vehicle burned for several hours on the CTransit parking lot. Two transit maintenance workers suffered smoke inhalation and had to be treated at a nearby hospital.

Two days later, smoke and an orange glow were again observed coming from the right rear wheel well of the burned out bus, prompting a third call to the Fire Department.

The National Transportation Safety Board concluded that the workers' injuries resulted from the fact that CTransit did not have an appropriate safety protocol for dealing with the risks posed by lithium ion batteries. After the fire events in Hamden, the Federal Transit Administration published a handbook on battery bus deployment that provides guidance for managing risks associated with high-voltage fires, including outdoor bus storage and providing isolation areas should a fire occur.

The Hamden incident is one of a number of fires reported in recent years at properties operating battery buses in North America. The risks associated with high capacity lithium ion batteries are often poorly understood. High voltage lithium-ion battery fires can burn hotter and longer than other types of vehicle fires and are difficult to extinguish. They require a specific firefighting approach that relies on the application of water to cool the high-voltage batteries. Stranded energy in the batteries presents a risk of battery re-ignition.

[Sources: Mass Transit Magazine, April 1, 2024; https://www.ntsb.gov/investigations/Pages/HWY22FH011.aspx, accessed January 16, 2025]

Seattle Shows Flexibility on Composition of Future Electric Bus Fleet

In 2017, when King County Metro in Seattle set itself the goal of electrifying its entire bus fleet by 2035, it envisioned a network comprised of electric trolleybuses and battery buses. A large part of the plan relies on the implementation of battery bus technology. But today, if we exclude the electric trolleybuses, only 4% it's 1,200 buses are fully electrically powered, despite the fact that 2035 is only ten years away.

An auditor's report released in June of last year identified several major hurdles that could stand in the way of Metro achieving its goals. The first of these was that the number of battery bus manufacturers in the US has declined in the past five years, and those remaining struggle to meet demand. Another major issue was the reliability of battery buses. In March 2024, Metro reported that only 50% of its current New Flyer battery buses were available for service on any given day. The auditor also stated that current battery-electric bus technology is unsuitable for use on workhorse routes — like Seattle's RapidRide lines. And a fourth major issue is the length of time it takes—six to eight years—to put the utility infrastructure in place for battery buses at the depots.

The auditor's report recommended more diversification of vehicle types as one means to address the issues. Diversification could be achieved in many ways. It might mean more use of trolleybuses and adopting In Motion Charging. It can also mean considering the addition of other vehicle types to the fleet.

Despite the environmental challenges posed by hydrogen fuel cell buses—that is, most current hydrogen production involves rather "dirty", greenhouse gas-producing processes—Metro will be giving them a try. Four will be added to the fleet for evaluation beginning in 2026. The longer range possible with fuel cell buses might be useful on frequent, all-day routes; that certainly has been the experience in nearby Snohomish County, where they are currently on trial. But Metro is also looking at en route wireless induction charging and en route overhead chargers that might improve the prospects for battery buses. So the final composition of Metro's fully electrified bus fleet is not set in stone; Metro has the needed flexibility to make things work. [Information Sources: The Urbanist, June 18 and May 29, 2024]

Seattle brings New Bus Manufacturer to North America

King County Metro has contracted with European bus builder Solaris to buy up to 16 of the company's zero-emission buses. This marks Solaris' first contract with a U.S. transit agency and helps realize the company's hopes to expand into the North American market. The partnership also reflects an effort to increase the number of transit suppliers and alleviate bus manufacturing shortages.

Poland-based Solaris has been a supplier of zero-emission buses for over a decade and manufactures electric trolleybuses, battery buses and hydrogen fuel cell buses. Solaris buses are in service in over 30 countries, and the company was recognized in 2017 and in 2024 with Europe's Bus of the Year award.

Metro will initially buy four battery buses—two 40 foot models and two 60 foot models— with the option for up to 12 more. The first of these vehicles is scheduled to arrive in 2026. The buses are designed specifically for the North American market and feature the most progressive battery bus technology developed by Solaris.

"Metro has been a national leader in transitioning to a zero-emission fleet, reducing greenhouse gas emissions, lowering maintenance costs, and improving air quality," said King County Executive Dow Constantine. He praised the role that electric trolleybuses and battery buses are playing in delivering a clean-energy transportation network for tomorrow. "Expanding the number of manufacturers who can produce these vehicles for North American markets benefits not only our region, but transit agencies throughout the country. This agreement between King County Metro and Solaris is a critical next step."

Comprehensive testing of these Solaris products will allow Metro to evaluate the company's ability to meet the requirements of the North American market and has the potential to add a new competitor to the North American battery, trolley and hydrogen bus scene.

[Source: Metro Matters (King County Metro), December 23, 2024]

New Canadian Battery Bus Investments

☞ BC Transit is launching 10 new battery buses that will travel routes across Greater Victoria beginning in early 2025. These are part of a plan to add some 900 new buses to fleets operated by BC Transit, including 120 battery buses currently on order, and 105 diesel-electric hybrid buses. [Source: Victoria News, Dec. 10, 2024]

☞ $850,000 has been provided by the Canadian Zero Emission Transit Fund to allow 8 Ontario communities to investigate the requirements for the successful implementation of battery buses. The communities are: The Town of Collingwood, the Town of Halton Hills, the Town of Coburg, the Municipality of Chatham-Kent, the City of Windsor, the City of Kingston, the Town of Milton and the City of Thunder Bay. [Source: Electrical Business, December 9, 2024]

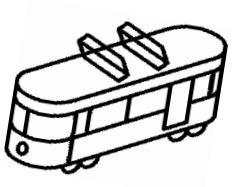
☞ Thanks to $50.3 million from the Federal, Provincial and municipal governments, the city of St. John's, New Brunswick will begin its phase-out of aging diesel buses with the purchase of eight diesel-electric hybrid and nine battery-electric buses. [Source: Infrastructure Canada, December 19, 2024]

New York MTA buys 265 More Battery Buses

265 more 40-foot battery buses will soon be helping to reduce greenhouse gas emissions for New York's Metropolitan Transit Authority. The purchase builds on 60 battery buses that are presently in service as well as 205 battery buses slated to arrive in late 2025.

The new 40-foot buses will reduce greenhouse gas emissions by upwards of 90 metric tons annually per bus and feature new lightweight electric traction drive systems that allow significant energy recovery during braking. New charging infrastructure is also being installed at Jamaica Depot using automated pantographs. "New York City Transit has the largest bus fleet in the country, and we are charging forward with a plan to transition that fleet to cleaner, zero-emission buses," said New York City Transit President Demetrius Crichlow. [Source: Metro Magazine, January 13, 2025]

Electric Streetcar News



Kansas City Streetcar receives Final Cars

Delivered by Silk Road Transport, the last of an order of eight streetcars from manufacturer CAF in Elmira, New York arrived in Kansas City in December. Some shop testing must be completed before each vehicle can be placed in service. The eight new vehicles are numbered 807-814.

The arrival these cars means that KC Streetcar is now ready to operate full service on its expanded system, including the Main Street and Riverfront extensions. According to Tom Gerend, Executive Director of KC Streetcar, Kansas City can now "embrace an expanded era of modern, accessible, efficient, and fare-free public transit." [Source: Passenger Transport -APTA's News Center, December 18, 2024]

Mesa Arizona Council approves Streetcar Study

Mesa residents could one day hop onto streetcars to take them to places like Sloan Park, Mesa Riverview, the Asian District and into neighbouring Tempe to Mill Avenue and Arizona State University, as Mesa Council voted in December to approve studying the feasibility of extending the Tempe streetcar system 4.4 miles into Mesa.

The study, which will look at things like project cost, traffic and construction impacts, and ridership projections is being funded by a $16-million federal grant. Council's decision on whether to move forward with laying the tracks, putting in the overhead wires and buying streetcars would be about two years away.

Streetcars began operating in neighbouring Tempe in 2022, travelling to 14 stops on a 3-mile route considered one of the largest transit ridership centers in the region. According to Valley Metro, which operates the system, the streetcars have the potential to boost economic development, improve air quality and provide transit options for underserved areas in Mesa. Transit Director Jodi Sorrell said that the composition of the area in question for the expansion is such that it would be ideal for investment and redevelopment. Data showed the population in the study area of Tempe and Mesa is projected to grow by 55% in the next 20-25 years, and that households with one to no cars comprise about 58%. Employment also is anticipated to grow by 45% in the next 25 years.

While some citizens have voiced objection to the streetcar line, claiming it would not be a good investment in an area that currently suffers from low transit ridership, a number of citizens spoke favourably to Mesa Council about the idea. Gennie Frasanella said she was one of 58% of households in the study area with one or no car. "I'm here to tell you about my excitement for the extension of the streetcar," she said. "I take Valley Metro to work very frequently. The more places that transit can take you and the closer you are to transit, the more likely you are to use it, and consequently, the more that ridership will go up."

Most councillors who supported undertaking the study agreed that more information is needed before going ahead with anything. Councilwoman Jenn Duff, who represents downtown and the area south of it, said the No. 1 concern for residents in the 2050 Transportation Master Plan was congestion. "I can say in Dobson Road, particularly, we don't have any land to add additional lanes," she said. "All we can do is have some form of transit that carries more people in a smaller space. I don't want to wait until we're L.A. in the west part of Mesa—the densest part of Mesa—before we start doing something," she said. "I don't want to be living with massive congestion and public safety issues, and the find that people do not have transit options." [Source: East Valley Tribune (Mesa, Ariz.), December 16, 2024]