TRANSIT TALK

VOLUME 38

Solingen, Germany Leads by Example
Electric trolleybuses to replace all diesel service in future

Nestled in the hills at the edge of the Rhine river, the city of Solingen operates the largest electric trolleybus system in Germany. Six trolleybus routes traverse the city, served by a fleet of 50 trolleybuses. The transit system also operates a fleet of 46 diesel buses, but that is about to disappear. Plans are to convert all diesel routes to trolleybus operation, and to achieve this without any significant expansion of the overhead power infrastructure.

In the 1960's and 70's, many cities gave in to transit consulting firms pushing for the conversion to cheaper diesel buses, but Solingen now considers itself fortunate not to have paid them any heed. The retention of a sizeable trolleybus system provides an excellent opportunity to provide environmentally neutral transportation in a world where climate change and emissions reduction are of growing importance. And that without the expense of having to erect an overhead network at today's prices.

Solingen's plans are to be realized with a system known as "In Motion Charging"--IMC for short--a term coined by Kiepe Elektric, the firm that developed the system. High capacity batteries are charged when trolleybuses are running under wire, and those batteries later provide power to operate the vehicles offwire to provide transit service in areas without overhead wires. Transit manager Conrad Troullier explains: "We want to transition from a system of two bus types to an environmentally sound 'one-bus system'". (con't on page 2)

Vancouver Celebrates 70 Years of Electric Trolleybus Operation

On August 16, 2018, the Vancouver electric trolleybus system began its 70th year of operation. The occasion was marked by multiple public excursions in a vintage 1954 CCF Brill trolleybus during the months of August and September, a vehicle preserved by the local Transit Museum Society (TRAMS) and which served as part of the active fleet until 1984.

Vancouver has always shown its pride in operating a large electric trolleybus system as a sign of its commitment to environmental sustainability and responsibility and its willingness to invest in quality of life for its citizens. As electric vehicles, not only do trolleys not produce any tailpipe emissions, but they also are remarkably quiet in operation. Grid connected vehicles like trolleybuses, that draw their power from overhead wires instead of batteries, represent the most energy efficient form of electrically powered transportation. (con't on page 2)

ALSO IN THIS ISSUE *more electric trolleybus news and*

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Solingen, Germany to Go 100% Electric (continued from Page 1)
Trolleybuses will Replace Diesel Buses

In Solingen, the main streets in the city core are all 'electrified', that is, they are equipped with overhead wires for trolleybuses. Even the city's diesel buses travel at least 30% of their routes under wire. With the IMC system, drivers of the new "battery trolleys" would raise their trolley poles on entering the wired portion of their route, then lower them as they leave the wired section. The batteries would then provide traction power. These transitions happen seamlessly, at the push of a button.

IMC technology is slated to debut next year on route 695, a line connecting two outlying districts with the city core. At the present time, four of the future "battery trolleys" are running about Solingen on test, mostly as regular trolleybuses. But one of the current trolley routes has been extended to areas without lines at each end, so the battery technology is being employed regularly.

Solingen's trolleybus expansion is a key topic of discussion at the E-Bus conference taking place in that city on November 21st and 22nd.

German Federal Government sees Future of Urban Transit in Trolleybus

The "hybrid trolleybus" (a trolley that charges traction batteries under wire and then uses that stored energy to travel offwire for a portion of its route) is a "market-ready option for electrifiying city bus networks", was the official answer to a question posed recently in the German parliament; "it has the advantage of the reliability and economy of pure trolleybuses, and the flexibility of battery buses". A recent study completed for the German ministry of transport concluded that trolleybuses with traction batteries "could represent a significant component of a strategy for the complete electrification of urban bus networks in Germany".

The first steps towards an all electric bus system in Solingen were supported as a research project with 15 Million Euros by the Federal ministry of transport. And local funding sources have brought offwire trolleybus operation to the German cities of Eberswalde and Esslingen. But other cities in Germany will need to erect trolleybus overhead, and that is the costly part according to Martin Schmitz, Technical Director of the Organization of German Transport Authorities. "The most efficient way to supply electrical energy to vehicles is through overhead wires. However, the infrastructure costs to erect them run about 1 million Euros per km," he says. But in areas with frequent service where the overhead is well used, the energy efficiency and environmental advantages of a "hybrid trolleybus" pay for themselves.

Currently, the German city of Marburg is awaiting a preliminary study to see if it is viable to bring trolleybuses with IMC to its streets.

And even in the German capital Berlin, the idea of introducing trolleybuses with traction batteries for offwire service has resonated with planners. Pure battery buses are not really a workable technology for a large-scale bus operation such as that in Berlin or other large cities because pure battery buses have to recharge largely at night. Charging, say, 1300 buses at night requires the power production capacity of a large power plant, and that is, in most cases, just not viable. But trolley vehicles that can charge batteries on sections of overhead while in service provides a workable alternative.

Berlin's transit authority, BVG, recently developed a plan for building a "hybrid trolleybus" network in the suburb of Spandau. The plans propose an initial network of about 25 km with 41 vehicles. From 33 to 55% of each route would be under wire.

While no action has yet been taken on the Berlin plans, BVG spokesperson Petra Reetz told reporters that the future belongs to electric buses.

[Information Sources for above news from Germany: Frankfurter Allgemeine Zeitung, November 7, 2018; VDV Das Magazin, Ausgabe 3, 2018; der Tagesspiegel, December 11, 2017]

Vancouver Celebration (continued from Page 1)

Electric trolleybuses first went into service in Vancouver in 1948 using 44-passenger CCF Brill trolleybuses that served Fraser and Cambie Streets. The rubber-tired electric vehicles replaced rail-based electric streetcar service in the years that followed. The last streetcar, on the 14 Hastings East route, ran on April 22, 1955.

The Vancouver system is powered largely by hydroelectricity and is the third largest trolleybus system in North America after Mexico City and San Francisco. 262 trolleybuses, 74 of which are larger articulated vehicles, operate on 13 routes under a network of overhead wires spanning some 315 km. Vancouver has the proud distinction of operating the only electric trolleybus system in Canada.

[Sources: Vancouver Courier, August 16, 2018; The Buzzer Blog, various dates; TRAMS; facts and figures from various internet sources.]

Under the warm glow of evening streetlights, 1954 CCF Brill trolleybus No. 2416 takes passengers on an excursion to celebrate 70 years of trolley service in Vancouver, September 15, 2018. At the helm, Angus McIntyre. [Photo: D. Lam]

Historic Vancouver Brill 2416, maintained and operated by the Transit Museum Society, contrasts sharply with modern automobiles as it makes its way through downtown in celebration of 70 Years of Electric Trolley Service earlier this year. [D. Lam]

Prague's new electric buses charge under twin overhead trolley wires using a pantograph along a portion of their route; the remaining portion of the route is covered using the stored energy from traction batteries. [Photo courtesy DPP]

Solaris Trolleybuses for Kaunas, Lithuania, Romania and Italy

Solaris Bus & Coach has recently established its position as a European leader in trolleybus production with an order of 85 Trollino Model 12 trolleybuses for the public transport operator of Kaunas in Lithuania. The delivery of the zero-emission vehicles will be carried out over a period of 15 months. The order is valued at approximately 30 Million Euros.

Solaris also recently signed a deal for the supply of 50 articulated Trollino Model 18 trolleybuses to Cluj Napoca in Romania, as well as another deal for 80 similar vehicles of the same model for Milan, Italy.

The trolleybus vehicles for Kaunas will feature seating for 27 passengers, with a full capacity of up to 85 passengers per coach. The entrance will be equipped with a 2+2+2 door arrangement and a kneeling function to lower the right hand side of the trolleybus when it arrives at a stop. For greater travel comfort, the vehicle passenger compartment will be air-conditioned. The environmentally friendly trolleybuses are equipped with an asynchronous 150 kW traction motor**.**

Solaris has provided over 220 trolleybuses to cities in Lithuania. It is about to complete an order of 150 vehicles for the system in Vilnius, part of which included a deal for 41 Trollino Model 12 trolleys agreed upon in December 2017. 100 Solaris vehicles are already in operation in Kaunas.

Another big player on the European trolleybus scene is Iveco Bus. This company recently launched a new line of trolleybus vehicles, among them the 18 metre articulated Crealis model equipped with In Motion Charging. For this, they received the 2019 Sustainable Bus Award in the urban vehicle class.

[Sustainable Bus, www.sustainablebus.com, accessed October 11, 2018]

Prague to Expand Electric Buses

Prague Public Transit Company (DPP) continues to develop ecological electric bus transport. The city is expanding its use of electric buses after a successful trial phase. DPP has announced that the entire length of bus line 140 will be electrified by 2021 at the latest. The vehicles will be trolleybus type vehicles, but with a pantograph style current collector on the roof rather than traditional twin trolley poles.

Prague Public Transit Company (DPP) board of directors approved fully electrifying the bus line in April of this year. The project calls for fully emission-free operation of articulated electric buses on the route that runs from Palmovka to Letňany and then to Čakovice and Miškovice.

During the first phase of testing, the "dynamic charging concept" (also known as In Motion Charging) was explored. This allows the vehicle to charge a battery from overhead electric cables while it is running. Thus, the bus can run offwire for distances without the need to be in contact with overhead cables on its entire route. The tests carried out since October 2017 established the technical requirements for using such electric buses on the entire line. The test phase also included training for drivers.

An important outcome is that the electric buses were able to operate reliably in winter conditions.

"We uncompromisingly support environmentally friendly transport. We have chosen the route of gradual electrification of bus transport, where we can partly use our existing power infrastructure for streetcars. In the future, a large part of main bus lines can be electrified this way, thereby greatly reducing the negative impacts (noise and emissions) of bus traffic on the environment and the city's inhabitants," Prague Mayor Adriana Krnáčová said in a press release.

Deputy Mayor Petr Dolínek was also enthusiastic about the project. "Transport causes the largest share of air pollution in Prague, so we have to use all methods to reduce emissions. I personally prefer rail transport, but it is not possible to cover all of Prague's traffic demands (continued)

Prague Electrification (continued)

by subway, streetcar or train. … So the electrification of buses is a logical path. Dynamic recharging enables us to electrify long main bus lines," Dolínek said.

Currently, about 1 kilometer of an overhead contact line in Prosecká Street has been installed for the test phase that began last October. The approved plan calls for the extension of the overhead line to several other sections of route 140. The project also includes the construction a substation in the Klíčov garage and other infrastructure. A recharging station at Prosecká Street used for the test phase will be modified, and another will be created at Letňany.

DPP CEO and board chairman Martin Gillar said that documentation for the project was being prepared, and a tender for 15 articulated vehicles would take place. An EU subsidy could cover up to 85% of the costs.

The DPP is also preparing for the electrification of route 207 between Ohrada and Staroměstská, which would use recharging stations instead of overhead wire. [Source: Prague TV (online), April 12, 2018]

Biel, Switzerland to Renew Trolleybus Fleet

Half of the trolleybus fleet in Biel, Switzerland has reached its life expectancy and is now being replaced with new, state-of-the-art Swisstrolley Model 5's built by Hess AG. Cost of the purchase will be around 10 Million Swiss Francs. The new vehicles began arriving at the end of April this year.

"With this fleet renewal, our transit operation in Biel will acquire one of the most modern vehicles in Switzerland," said Christopher Kneuss, Director of the transit operation.

Instead of the diesel auxiliary propulsion unit used for offwire operation in previous vehicles, the new trolleys will have a battery for wireless electric operation over short distances. The new trolleys will be able to negotiate their way around road construction projects and detours during parades and festivals without having to resort to a diesel back-up system or replacement diesel buses. "In this way, the transit operation will be able to reduce its emissions as well as noise and make a bigger contribution to the quality of life in Biel. We are moving away from internal combustion engines completely and to a transit system that is fully environmentally friendly and in sync with the strategies of the local council," Erich Fehr, chief administrator, explained.

The new trolleybuses are also fully low floor, which offers better accommodation for persons with reduced mobility. [Source: Bieler Tagesblatt, April 23, 2018]

Skoda Equipped Trolleybuses for France

The Czech firm Škoda Electric recently obtained a contract for the demanding Western European market. Two trolleybuses equipped with traction batteries will be delivered to the French city of Limoges, with an option for another four vehicles included in the contract. The new vehicles will start operating in France in the first half of next year.

This order is the result of a collaboration with CNHI-Iveco to create a brand new type of trolleybus. "These vehicles are battery-power assisted, and they are therefore able to operate at longer distances on routes without overhead wiring; their biggest advantage is the ability to charge while "in motion" using a standard trolley line. Thanks to this, our trolleybuses will operate in battery bus mode on unwired portions of the routes in Limoges" says Pavel Kuch of Skoda Electric**.** He also added that "the trolleybuses will feature a Crealis tram-look design; they will be equipped with air-conditioning and a high capacity battery system capable of up to 15 kilometres offwire".

This is not Škoda's first success in the Western market. "We have already participated in the delivery of vehicles to Italy, Spain, Sweden and Portugal," noted the sales manager of Škoda Electric**.** The city of Limoges is about 400 kilometres south of Paris; it is home to about 135,000 people and is one of three progressive cities in France that use modern trolleybuses as part of their urban transit systems. The other two cities are Lyon and St. Etienne.

A catalogue of Skoda Electric's products can be found online at: https://www.skoda.cz/data/catalog/6/66/3812.pdf

In other news from France, the city of St. Etienne has now announced plans to acquire at least 22 new trolleybuses with similar "In Motion Charging" offwire capability. The city has plans to return electric trolleybuses to two routes, M6 and M7, in future. These routes are currently served by diesel buses.

The French city of Lyon has also announced plans to acquire new trolleybuses--at least 20 articulated vehicles in the near future--and it is planning the conversion of four diesel bus routes to trolley operation in 2022, with the conversion of another two routes to follow in 2024.

[Information Sources: Skoda, www.skoda.cz, September 4, 2018; R C DeArmond, International Trolleybus News, September 2018]

BATTERY BUS BOONDOGGLE

PROBLEMS PLAGUE BATTERY BUSES

In recent years, there has been a groundswell of interest in battery electric buses across North America, and the number of battery buses on city streets has grown steadily. Transit Talk has filled many pages with news about battery bus acquisitions, all of which have been seen in a positive light as a step towards creating clean fleets that do not depend entirely on fossil fuels,

While battery vehicles are by no means a new invention (battery taxis and cars traversed the streets of cities in the late 1800s and early 1900s), the application of new battery technology combined with modern electronics is considered to be "in development". Battery buses have operated successfully in many applications in recent years, and little has surfaced about problems and shortcomings. But recent reports now drive the point home that battery buses are by no means a good fit in every application, and they cannot necessarily be used as a direct replacement of existing proven technologies. Whether problems are associated with specific designs, makes and models, or improper application of the technology altogether, it is becoming clear that more developmental work is needed if battery vehicles are to play a major role in providing reliable public transportation.

In the past, transit agencies have always sided with proven technologies when making vehicle choices. The electric bus of choice was always the trolleybus, powered from the grid through overhead lines. Diesel buses have long been the internal combustion technology of choice because of their proven track record. But in the case of battery buses, one must ask if we are moving too quickly.

Such a question is raised by the experience in Southern California, where officials had hoped that battery buses would mean jobs and provide a quick and easy path to cleaner air. Los Angeles Metro, the second largest transit system in the U.S., was counting on battery buses to be able to meet its 12 year deadline for the conversion to a non-fossil fueled fleet. One battery bus builder even set up shop in California and has been awarded more than $330 million in contracts and grants in recent years for its battery-powered buses, forklifts and trucks. That same company was set to be a prime supplier of battery buses to LA Metro.

But the first five battery buses purchased by Los Angeles Metro were pulled off the road after less than five months of use. Metro staff called them "unsuitable," and unreliable for more than 100 miles. Those very battery buses that were heralded as a salvation are now revealing a host of performance and mechanical problems.

An investigation by the *LA Times* found battery buses stalled on hills, they required service calls much more frequently than older motor buses and they had unpredictable driving ranges that fell far below advertised distances. In fact, a federal testing center and transit agencies across the United States logged driving ranges dozens of miles short of company claims, limiting the routes the battery vehicles can handle and requiring passengers to shuffle onto replacement motor buses when the batteries run low. The problems Los Angeles experienced relate to vehicles from one particular manufacturer. But are such problems really limited to those particular vehicles, or are we just now seeing the tip of the iceberg? According to the *LA Times*, to an extent the bus industry has "struggled" to build battery buses "that run as reliably and cheaply as the fleets they seek to replace."

Some transit officials say problems are to be expected as new technology makes its debut on busy city routes, and that environmental benefits are worth the gamble. But critics, including some within the LA Metro staff, have questioned further massive public investment in the company that has been their battery bus supplier.

The bus manufacturer has rebutted reports of poor performance and recurring mechanical problems, claiming to have received overwhelmingly positive feedback from other transit systems, and it asserted that brake problems were the result of drivers braking too hard. However, the *LA Times* states that government emails and bus inspection records show that multiple agencies have confronted this particular supplier on quality and range issues. Officials in Anaheim, Antelope Valley, Denver, Long Beach, Albuquerque and Columbia, Montana have all reported problems.

In Los Angeles, problems were evident right from the start: On a sunny morning in spring 2015, the first five battery buses were rolled out for an Earth Day ceremony outside the Los Angeles County Metropolitan Transportation Authority headquarters. Then the buses were quietly sent back to the factory. The *LA Times* reports that "internal memos show the buses required an extensive campaign of retrofits, modifications and upgrades to correct irregularities." More problems arose when they returned months later to carry paying passengers for the first time, daily Metro logs show. White smoke poured out from the rear wheel of #1005. Bus #1004 wouldn't start on its second run of the day, and on its next run needed assistance from a service truck. Bus #1001 limped back to the depot when its battery dropped to 15% charge after just 68 miles, failing to complete its route. Then, logs show, #1005 stalled on the road. That was only the first 10 days.

In the following months, transit logs show the buses repeatedly stalled on city hills, including a downtown incline a little more than a mile from the manufacturer's Los Angeles headquarters. Once, a driver radioed that his bus was unsafe, rolling backward.

Though Metro was promised a range of 155 miles per charge, Metro records show the buses never went further than 133 miles, and some were forced back to the garage to recharge after as little as 78 miles. Factoring in breakdowns and other service interruptions, Metro reports show drivers realized no better than an average of 59 miles between charges. Most months, according to Metro records, the buses managed fewer than 400 miles between road calls, requiring emergency service or a return to the garage 10 times as often as the regular bus fleet.

Experts consulted by the *LA Times* said these issues are common to battery vehicles, and all manufacturers have had to contend with insurmountable hills and quality control issues at new plants. The loss of battery power over time is also inherent with battery technology, as are power drains. Heaters and air conditioners can sap 20% to 50% of the power, said Rajit Gadh, Director of the Smart Grid Energy Research Center at UCLA. And buses will also lose more range as its batteries degrade--as much as 30%.

Battery-powered buses also require special handling by drivers and careful selection of the routes they are put on, industry experts said. Bus manufacturers may tout ranges that exist only in theory, said Michael Lewis of the University of Texas at Austin's Center of Electromechanics. Both experts said the buses can't be swapped for current conventional vehicles without careful planning to reduce distances, speeds and hills.

That constraint is evident at Soltrans in Solano County, where transit officials limited battery buses to routes of 80 miles or less. After watching a battery bus crawl slowly up a hill, they decided to keep it off steep grades.

None of the 65 battery buses LA Metro ordered are yet on the road in full daily service. Metro and the supplier are currently designing a strategy to use chargers en route to extend the range of the vehicles. The replacement buses Metro ordered in exchange for the ones it returned in 2016 have yet to pass federal durability testing. There is no plan yet on how LA Metro will meet its self-imposed deadline to electrify its entire fleet. Before stepping down in September as Director of Vehicle Technology, John Drayton told directors that converting the entire fleet hinges on something yet elusive — "a battery bus with an honest 250-mile range."

It is interesting that in the early 1990's, LA Metro had plans to build a large electric trolleybus system. The proposal was viable despite the high initial outlay required to build the infrastructure, according to a study by Booz, Allen and Hamilton. Those plans were shelved, however, at the promise of "new technologies" like fuel cells being cheaper and "just around the corner". As a stop gap measure, CNG vehicles were purchased, and so Metro had to deal with the teething problems that those vehicles presented as a new technology. And now Metro finds itself in the midst of a battery bus debacle. Simply building a proven electric trolleybus system according to its original plans back in 1993 would have made things so much simpler!

[Condensed from an article that appeared in the Los Angeles Times, May 20, 2018, with additional commentary and background information provided by ETC.]

MORE BATTERY BUS NEWS

Albuquerque to Pull Plug on Problem-Plagued Battery Buses

The city of Albuquerque, New Mexico had intended to equip its Rapid Bus project, ART, with environmentally friendly battery buses. But a string of reliability problems with the 15 vehicles it has received to date has the city switching to conventional buses.

Albuquerque is pulling the plug on the contract to supply 60-foot battery buses for the Albuquerque Rapid Transit project. Mayor Tim Keller announced the city's plans to reject and return all of the battery vehicles, built by a California-based North American subsidiary of an international firm. The original order was for 20 vehicles. In October, a hold had to be placed on the project due to equipment malfunctions.

"When we started running the buses on test runs, we found major problems with the battery range, the brakes and some electrical issues," Keller said. "They seem to be things that were already on the 'to be fixed list,' but they started getting worse." Keller said city officials have no confidence that the issues regarding battery life, an initial problem with the buses, are "something we can overcome." Keller said the city has now placed an order for 10 conventional buses with a "well-established American company that makes buses all the time."

The contract for battery buses calls for vehicles that can operate for 275 miles, but city officials have said the buses can't go more than 177 miles before they need recharging. The range is even less in the summer heat. Moreover, Keller said, the batteries heat up when they are charged or used. "We believe there's not even close to adequate fire protection," he said. "Right now, it would vent right in the middle of the bus, and we would not be able to pull those out. They're already heating up so they can't take a charge. They're not properly stored or cooled." Keller said the batteries are stacked in a metal shelf and when overheated could cause a fire.

The supplier also failed to construct supplementary charging stations along the route promised as part of an agreement with the city some months ago to address the problem of battery life. A resolution with the manufacturer could end up in court, Keller said.

Mechanics also discovered last month that the center and rear brakes on buses had zero air pressure, yet the vehicles still were able to move, relying on front brakes alone. There were also wiring problems described as "phantom electrical issues". A spokesperson for ABQ Ride's maintenance department described proposed fixes offered by the manufacturer as "half measures".

The battery bus manufacturer issued a statement saying that its vehicles are safe, and claiming that Albuquerque harbored the intent to move away from clean transportation technology. A more recently released statement from the manufacturer blamed drivers for the brake problems.

[Sources: Albuquerque Journal (Albuquerque, N.M.) at www.abqjournal.com, November 13, 2018 and November 20, 2018]

Seattle adds Four Battery Buses, Pierce Transit Three

Seattle's King County Metro has now launched its electric bus test and evaluation program. Four Xcelsior CHARGE battery-electric, heavy-duty transit buses built by a Winnipeg-based firm have been acquired on lease.

Metro has made a firm commitment to reduce transportation-related greenhouse gas emissions in the greater Seattle area, and to reach full zero-emission fleet status by 2040. The four leased battery buses and depot chargers will support KCM's goals.

"King County Metro is accelerating the transition to a clean-energy future, not only in the greater Seattle area but across North America with a low and no-emission fleet," said Manager Rob Gannon.

King County Executive Dow Constantine has set a goal to reduce transportation greenhouse gas emissions by preparing Metro to increase transit service through 2020 with no net increase in greenhouse gas emissions, a goal that should double transit use in Seattle by 2040. This goal builds on an extensive track record of Metro's evolution to low and no-emission buses. In 2002, Metro was the first to adopt sixty-foot diesel-electric hybrid transit buses, and since then has introduced 1,332 hybrid electric buses to its fleet. Nearly 90 percent of Metro's fleet has been updated to include either all-electric or hybrid-electric vehicles, including a large electric trolleybus fleet.

On October 17th, Pierce Transit in the South Sound community introduced three electric buses on its routes 11 and 41. The vehicles were purchased with a federal "low or no" emissions grant. Pierce was the first agency in the area to use CNG buses in the 1980's, and believes that fleet diversification adds security in the event of a supply disruption of one specific fuel type.

[Sources: BusRide, Nov 20, 2018; Pierce Transit, Oct. 18, 2018]

Toronto marks 80 Years Since first PCC Streetcar

A storied piece of Toronto's transit history rolled through downtown on September 23rd, TTC's PCC car 4549. PCC cars, short for President's Conference Committee--the streetcar's original design committee back in 1929--were icons of North American transit for decades. The first PCC cars entered service in Toronto in 1938.

For four hours, the vintage streetcar that had shuttled passengers throughout the city for nearly six decades briefly returned to the Queen Street track. The streetcar was filled with members of the public who had the opportunity to ride it for free from 10 a.m. to 2 p.m. Passenger Oliver Setka said he wanted to ride the PCC even though he didn't have a specific destination. "I love these. It's history. It reminds us of the way things were," he told reporters.

The TTC's restored and preserved PCC Car No. 4549 en route on September 23rd. [Photo Paul Bateson]

Car 4549 was built and delivered to the city in 1951, and it was the last PCC streetcar ever ordered by the Toronto Transit Commission. The vintage car is one of two PCC streetcars currently in the TTC's possession.

At its peak, the PCC fleet in Toronto numbered 740. It was one of the largest fleets in North America. The cars remained in service in Toronto until 1995. A restored PCC streetcar from Toronto is in regular operation at Fort Edmonton Park in Edmonton. [CBC News and Global News, September 23, 2018]

Milwaukee Streetcar Operations Begin

Transdev, a global company specializing in multi-modal mobility solutions, commenced full operation of the Milwaukee streetcar on November 2nd following an official grand opening that began a weekend long, citywide celebration. Mayor Tom Barrett and a host of city leaders and dignitaries took an inaugural ride as part of the ceremony along with thousands of Milwaukee residents.

Transdev has a five year contract with Milwaukee's Department of Public Works to oversee all aspects of service operations including system performance, customer care, and safety. Under Transdev's oversight, vehicle maintenance will be managed by Brookville, the manufacturer of the streetcars.

The streetcar line runs 2.5 miles through downtown and will be served by a total of five vehicles. The new streetcar line is expected to drive development along the route, connect neighborhoods and communities, and strengthen business clusters.

"We are proud to serve Milwaukee--a forward-thinking city now incorporating streetcars as part of its vision for improved mobility and for the continued development and revitalization of its city center," said Yann Leriche, CEO of Transdev North America. "We have a strong team in Milwaukee and are committed to providing first-rate service," said Duane Eskierka, President of Transdev's Transportation and Performance business unit." I look forward to the enhancements and improved efficiency we will implement over time to benefit passengers. We are committed to continuing to build a strong partnership with the Milwaukee Department of Public Works and to helping them achieve their goals."

[Source: TransDev, November 2, 2018. www.transdevna.com]

Adelaide, Australia Welcomes back Streetcars

Streetcars began trundling along Adelaide's North Terrace again recently for the first time in 60 years.

The first car left the Adelaide Entertainment Centre at 7:03 am on the morning of October 12th--seven months after the line was originally meant to open and two-and-a-half months after the second "set in stone" opening date of July 29.

Transport Minister Stephan Knoll said the surprise start was done so South Australians did not get their hopes up for streetcar service to commence only for them to be dashed again. "We've gotten through a difficult period, we've managed to deal with the issues that have arisen and it's fantastic that today streetcar services are starting towards the East End of Adelaide," Mr Knoll said. The extension will "bring vibrancy back to the East End" that has suffered since the Royal Adelaide Hospital moved to the city's West End last year, he said.

About 10 people caught the first service. "It's a really nice experience for my young sons to ride the streetcar," one woman said.

The 1-kilometre streetcar extension, which was promised by the previous Labor Government and was originally slated for completion in March at a cost of $90 million, had been plagued by delays. A July 29 opening date which Mr Knoll said was "set in stone" was also moved after a mysterious signalling issue which required that experts from overseas be flown in to fix.

All of Adelaide's streetcar services apart from the one between the city and Glenelg stopped in 1958. The Glenelg line was extended to Morphett Street in 2007 and Hindmarsh in 2010.

Minor works such as landscaping and installing bollards along the new line will continue for several months.

[Source: Oct 12, 2018, ABC News Austrailia]

Erie, Pennsylvania Looks at Streetcars

The challenge for Erie, Pennsylvania, is how to establish an iconic connection between downtown and the city's bayfront, according the a recent report entitled "Erie Refocussed". The report is being prepared in a final version for the City by the Urban Land Institute, and the conclusion is "that a streetcar could play a major role in rebuilding downtown".

According to Brian Pitzer, Executive Director of "All Aboard Erie", a local group advocating for improved public transit, "streetcars are about more than just transportation. They are also about significant economic development. Where streetcars run, economic development almost always follows."

Pitzer cites the permanence of streetcar infrastructure as a huge plus in drawing businesses and riders. "Buses are out of sight, out of mind, but streetcars are always there. They are not going to shift routes overnight," Pitzer said. He said that streetcars are making a huge comeback in large cities like Dallas, Kansas City, Seattle, Portland, Detroit and Cincinatti. Whether they will appear in Erie remains to be seen, but the proposal is for a streetcar line between Union Station and Dobbins Landing. [Source: Erie Times News, October 23 and October 25, 2018]

Tampa's TECO Line launches Fare Free Service

Now you can ride the 2.7 mile long TECO streetcar line in Tampa, Florida for free! The Hillsborough Area Regional Transit authority (HART) ushered in fare-free streetcar service on October 12th, calling it a "New Era of Transit" in Tampa. In addition, the service hours have been extended as well as frequencies increased in an effort to make the streetcar a more attractive and user-friendly service to bring citizens to work, events, restaurants and other entertainment. [Source: HART, October 11, 2018]

Construction Contract Awarded for Orange County Streetcar Line Construction

An important service for Santa Ana, California that has been on the drawing board since 2006, it looks like the much-talked-about OC Streetcar will finally become a reality. A contract was awarded in late September to Corona based Walsh Construction for $220.5 million to build the 4.1 mile streetcar line between the Santa Ana Regional Transportation Centre and Harbor Boulevard in nearby Golden Grove. Included along the route are Santa Ana's busy downtown, government offices and courthouses, schools and colleges. Siemens has already been contracted to provide six streetcars for the line. Groundbreaking had not taken place as of this announcement. The streetcar is slated to begin operations in 2021. [Source: Costa Mesa Daily Pilot, September 27, 2018]

SEPTA to buy Green Power

Philadelphia's transit authority SEPTA is hoping to convert 10 to 20% of its energy consumption to renewables like solar or wind power. The transit agency uses about 480,000 megawatt hours of electricity a year for its trains, streetcars, trolleybuses and facilities. A sustainability plan adopted in 2011 set a goal of reducing greenhouse emissions. In addition, SEPTA drew criticism for investing in a gas powered generating station in Nicetown which it was said was just adding to the pollution from its diesel buses.

Without spending any more money on energy, SEPTA is requesting proposals that would allow it to purchase renewable energy sources by November 2019 at a fixed price for the next 10 to 20 years. "Committing to 10 to 20% renewables is significant," agreed Peter Winslow, a member of the environmental group 350 Philadelphia. [Source: Philadelphia Enquirer, October 18, 2018]

Canadian General Transit News Coverage

Canadian Federal Government offers Assistance in Wake of Greyhound Closure

On October 31st, Greyhound Canada ended bus service in Western Canada and Northern Ontario to the dismay of many communities. Canadian Minister of Transport Marc Garneau has announced that his government is prepared to provide assistance to affected provinces to find alternative transportation solutions. If necessary, gap funding could be provided on a cost-shared transitional basis until other solutions have been implemented.

A number of private transportation sector operators have expressed interest in replacing many of the services abandoned by Greyhound, such that the government now estimates that 90 percent of the affected areas will be covered with alternative bus services. Gap funding is intended to address transportation needs in areas that will not have alternate service.

In addition, the Federal government hopes to engage Indigenous communities and provide support for Indigenous-owned companies such that they can work on developing transportation solutions for their communities. [Source: Canadian Minister of Transport, October 31, 2018]

BC and Canadian Federal Governments Commit to Transit, but Plans Change

The Canadian Federal Government and the British Columbia Provincial Government re-affirmed their commitment to more than $3 billion to fund the proposed Broadway Subway (extension of the Millennium Skytrain line under Broadway) in Vancouver and LRT for Surrey in an announcement made on September 4th, as Prime Minister Justin Trudeau and Premier John Horgan joined Vancouver's Mayor Gregor Robertson and Surrey's Mayor Linda Hepner on the campus of Simon Fraser University. No exact funding dollars were announced, however.

Two months later, on November 15th, it was announced that Metro-Vancouver mayors had agreed to suspend development of Surrey LRT in favour of a Skytrain extension to Langley. TransLink has been asked to put forward a business case for building the line. It is believed that the Federal and Provincial governments would transfer funds planned for Surrey LRT if a business case could be made. [Sources: CBC News, September 5 and November 15, 2018]