



November 2022

PEOPLE. COMMUNITY. ECONOMY. ENVIRONMENT.

Electric Edition

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GM Notes ~ David Braun

Don't be shocked! This edition is all about our electric buses and infrastructure.

In 2019 we began considering electric buses as a means of replacing our aging 2003 vehicles with more modern and efficient vehicles. Thanks to federal and state grants supported by Senators Durbin and Duckworth, Congressmen Davis and LaHood, and state leaders, we were able to begin our journey to electrifying our fleet. As a relatively new and emerging technology, it took some time to complete the procurement process and have buses delivered, with the first four arriving in December 2021.

Nationwide, electric buses are promoted to the public for the environmental benefits they provide by reducing the use of fossil fuels and reducing emissions. We recognize other benefits that are more centered on the benefit to our community, our operation, and the overall quality of life in the Bloomington-Normal area.

- Electric buses are quiet - After the initial start-up, during which the fans and other equipment come to life and make about 10 seconds of noise, the buses make very little noise. This reduces noise and vibration created by buses with combustion engines and improves the quality of life along the routes where the buses operate.
- Electric buses will improve our operational costs - We will save an average of 7,500 gallons of diesel fuel per electric bus per year. By reducing our use of diesel fuel, we also lower our cost of operating and allow the fuel we would have used to be used for other commercial purposes. Besides lower fuel costs, electric buses have fewer component costs, require less maintenance, and have a longer life cycle. While initial cost is almost double that of diesel buses, the life cycle cost of electric buses is much more attractive. Savings can be used to offset cost increases in the future or can be used to expand our services.
- Electric buses are more modern looking – An attractive, modern public transit system makes a city look viable, as employers know that employees and their families have an alternative to personal vehicles. Companies investing in growth consider public transportation a critical part of an area's infrastructure. Demonstrating an investment in modern equipment makes our communities more inviting.

This issue of Get Connected will explore our electric buses, known challenges, and plans for the future to electrify our fleet for the benefit of our customers and the residents of our community.

Electric Bus Details

While electric buses have been available for over 30 years, past versions were manufactured by specialty vehicle makers and not mass produced. Technology was lacking, and the range of miles as a result of the limited battery capacity made them most effective for downtown shuttles or very short trips.

Each new order and area served has helped to develop emerging technology to lessen the gap between electric and diesel buses. The Federal Government's recent investment in no or low emission vehicles for public transit will double the number of electric buses operated in the U.S. within the year and will significantly improve future electric vehicle technology. As the technology improves, it will be more reliable when introduced for commercial trucking and commercial transportation.

Our buses are manufactured by Proterra, a company with more than 10 years of experience manufacturing heavy-duty electric transit vehicles. They have over 1,300 buses being operated by more than 135 transit agencies in the U.S. and Canada.

We received our first order of four 35' Proterra buses last December as our inaugural fleet of electric buses and have taken the past nine-months to "commission" the vehicles into service. We will receive eight more 40' Proterra buses by the end of this year, purchased with grants from the State of Illinois and the Federal Transit Administration. By the end of 2024, we will have a total of 22 electric buses, over 50% of our fleet!



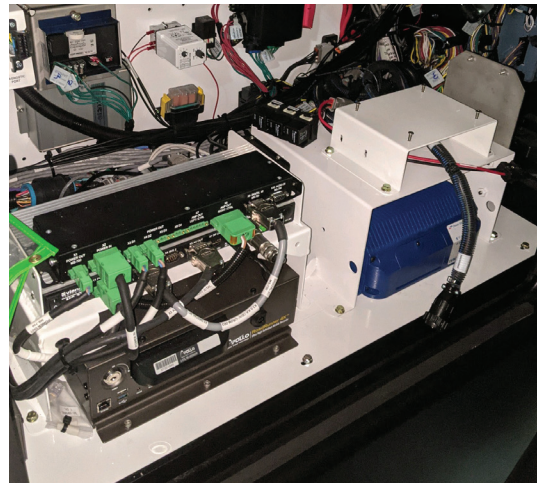
Connect Transit 2021 Electric Bus

As mentioned, electric buses are an emerging technology that will continue to improve. Some of the improvements in future buses include:

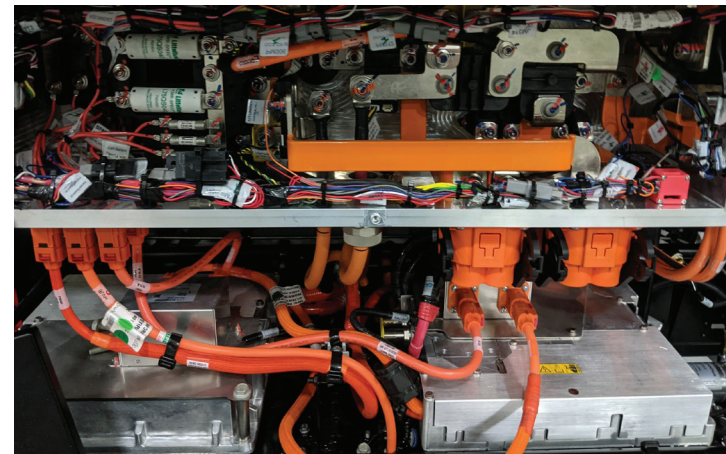
- Each bus uses 2 KWh per mile, equivalent miles per gallon to 18.2 MPGe. We use up to 90% of the battery capacity during a service day.
- Software improvements to extend battery range. 35' buses have a 440-Kilowatt hour (KWh) battery, 40' buses have 660 KWh battery, and future bus deliveries will have 763 KWh battery.
- Current buses have an electric motor on each rear wheel. Future buses will have one electric motor and a transmission that will improve efficiency.
- Current buses have a supplemental diesel heater powered by a small diesel engine and a 5-gallon fuel tank. Future buses will use a heat-pump application to reduce the need for a supplemental diesel heater.

Range is key when considering electric vehicles. We have been studying all aspects of our service and operations that could help maximize their range. We've learned that, in addition to battery size, the vehicle operator is a major contributing factor to range and battery life; specifically, their use of regenerative braking and the HVAC system. We hope to continue to study the vast amounts of data produced by the buses to continue improving range through operational procedures.

We have installed state-of-the-art charging infrastructure to accommodate our growing electric fleet. Our 1.5-Megawatt charger will allow us to charge up to 40 vehicles, 20 at a time and then 20 sequentially, overnight. The charger was installed and commissioned in late September. We are rolling out our electric buses each day in regular service. Keep an eye out and you might see them out on the road!



Internal Technology Compartment



High-Voltage Distribution Box



Roof-Mounted Electric HVAC



1.5 Megawatt Charger

Notable Bus Features

Our Proterra buses have the following customer and driver friendly features:

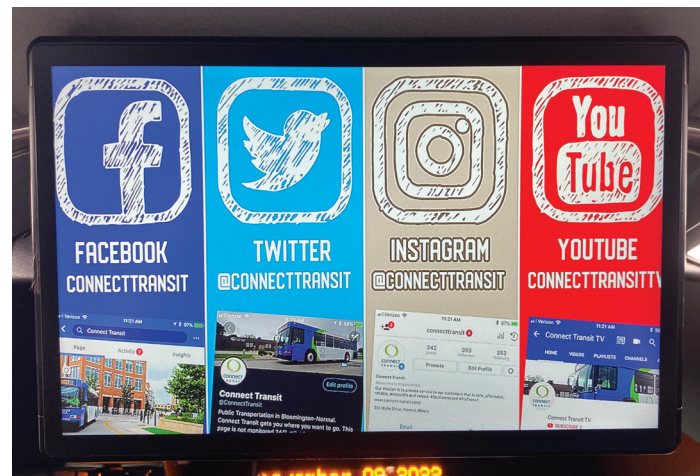
- Passenger seats have USB ports for charging mobile devices.
- Wi-Fi to allow people to use our network when riding.
- A ramp that allows people using mobility devices to enter safely.
- Two wheelchair positions to securely carry passengers using wheelchairs or scooters.
- Quantum Securement Stations that allow passengers using a wheelchair to control their own securement, rather than requiring Operator interaction.
- An "infotainment" system to communicate with passengers.
- Independent front suspension for a better ride quality (when compared to other buses, trucks, or school buses).
- A kneeling feature that reduces the height of the front step and makes boarding more comfortable for people with limited mobility.
- Because the buses will be quieter than a regular bus, a pedestrian safety feature called Mobileye, will notify the Operator if a pedestrian or cyclist is in a position to make contact with a bus and will audibly warn a pedestrian about an approaching bus.
- Bus Operator features include:
 - Driver barrier to protect Bus Operators from illness or assault.
 - Heated seats to reduce the need for heat to reach the driver's compartment and improves battery efficiency.
 - Adjustable drive and brake pedals to improve access to Operators who are smaller in stature.



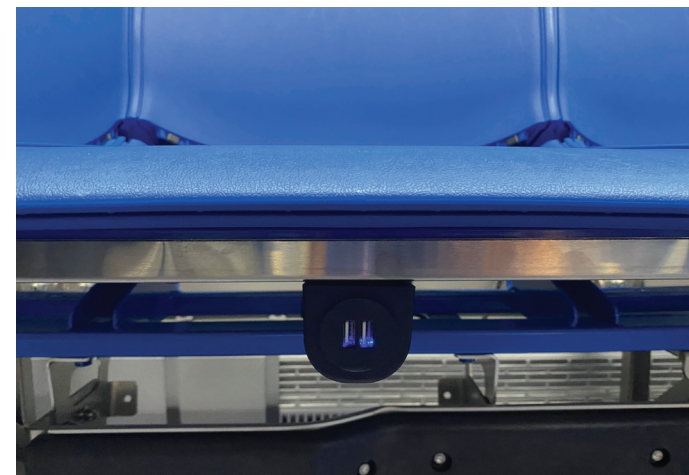
Quantum Wheelchair Securement Stations



Driver Barriers



1 of 2 Infotainment Centers on Each Bus



USB Ports Under Seats

20th Annual Stuff the Bus

This year Connect Transit, ATU 752, and Children's Home & Aid are celebrating the 20th anniversary of Stuff the Bus! Each year several organizations and the community come together to stock the Crisis Nursery here in Bloomington-Normal by participating in this event. Last year our bus weighed 6.2 tons with all of the donations gathered, we would love to out do that this year! The most needed items are size six diapers and Gentlese formula (the purple can). We are very aware of the nation-wide formula shortage, and are encouraging the donation of gift cards so formula can be bought at a later date. Other acceptable items include new toys, clothes, personal hygiene items, and wipes. See the dates below and help make the 20th Annual Stuff the Bus a huge success!



- Monday, November 28 - Normal Walmart
- Tuesday, November 29 - Bloomington Walmart
- Wednesday, November 30 - Kroger on College
- Thursday, December 1 - Kroger on College
- Friday, December 2 - Bloomington Walmart
- Saturday, December 3 - Normal Walmart and Sam's Club

We will be at each location 10am-8pm. We hope to see you there!



Electric Bus and Charging Infrastructure Celebration - September 27

On September 27, we held an Electric Bus and Charging Infrastructure Celebration to showcase our 4 Proterra electric buses and charging infrastructure capable of charging up to 40 buses at a time! Over 90 people gathered at our Wylie Dr. office to join in the upbeat celebration of our electrification. We were honored to have several special guests speak at our event. Congressman Rodney Davis, who spearheaded the efforts to help fund our electrification, was our keynote speaker. He was joined by Bloomington Mayor Mwilambwe, Normal Mayor Koos, IDOT's Deputy Director Shoun Reece, and Connect Transit Board Chair Ryan Whitehouse. The event concluded with the unifying "plug in" to signify the City of Bloomington and Town of Normal coming together to improve the quality of life in our communities through Connect.



NOW HIRING!

Please join us for an onsite job fair and open house! Interviews and hiring done on the spot. Please bring a valid driver's license with you. See details below:

When:
November 12: 10am-2pm
November 16: 4pm-7pm

Where:
Connect Transit
351 Wylie Dr.
Normal, IL 61761

Positions and Hourly Starting Wage:
Mechanics - \$25.62
Bus Operators - \$22.04
Service Technicians - \$20.34

Each position qualifies for a \$3,000 sign-on bonus! We hope to see you there!

Dear Connect Abby,

Why are you buying electric buses if the diesel buses are so much less expensive? That doesn't seem like a good use of money.

Sincerely,
Lower Taxes

Dear Lower Taxes,

We've been lucky enough to receive very competitive state or federal grants to pay for all of our electrification. Most of these grants can only be awarded to us if we use them for electric buses. Plus, this is money from the Federal and State Governments. We are proud to be the reason that your federal and state taxes come back to our community in Bloomington-Normal, instead of going to a different public transportation system!

Hope this helps! See you on the bus!

Connect Abby

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