**Test and Deploy CAV Transit Technologies on CTfastrak**

The CTDOT owns and operates an ideal facility for piloting and deploying connected and automated vehicle (CAV) transit technologies – the CTfastrak bus rapid transit (BRT) corridor. This facility is a nine-mile, bus-only, fixed guideway in central Connecticut that connects four municipalities, including the state's capital city of Hartford, West Hartford, Newington and New Britain. Success with CAV transit technologies along the CTfastrak corridor has the potential to further advance the development, capability and marketability of these technologies, while also enhancing safety, improving service and creating additional efficiencies for CTfastrak. The CTDOT will continue to prioritize the CTfastrak corridor and other facilities for testing and deploying CAV transit technologies.

Over the next few years the CTDOT and its assembled team, including the Federal Transit Administration (FTA), Center for Transportation and the Environment (CTE), New Flyer Industries, Robotic Research, Inc., University of Connecticut (UConn), and the Capital Region Council of Governments (CRCOG), will be working collaboratively to advance a first in the nation, state-of-the-art, pilot project that tests the performance and operation of full size, automated, and battery electric buses (BEB) in revenue service on CTfastrak . This demonstration project will deploy three 40' New Flyer Excelsior Charge BEB equipped with increasing levels of driving automation capable of up to high automation (SAE level 4). Automated driving capabilities demonstrated will include steering, accelerating and braking, precision docking at CTfastrak station platforms and platooning.

The automated buses deployed as part of this project will always have a safety attendant behind the wheel to monitor operations and take over driving responsibilities as necessary. The buses will be operated and maintained by the Hartford division of CTtransit, which is a brand name for transit services operated by private transit providers under contract with the CTDOT. Extensive testing will take place without passengers at an off-road test facility and on CTfastrak prior to the buses operating in service for passengers.

Traffic signals along the CTfastrak fixed guideway will also be updated in order to broadcast signal phasing and timing (SPaT) data and MAP data. This broadcasted SPaT data and MAP data will be integrated with the automated driving system (ADS) on the buses to enhance safety and operations through intersections. Additional connected vehicle (V2X) technologies will also be incorporated at select intersections along the CTfastrak corridor to further enhance safety, alerting the automated bus of any potential red-light crossing violations ahead.

The CTDOT is advancing the CTfastrak CAV bus project to:

- Safely test various capabilities of driving automation levels on full size buses in revenue service;
- Enhance safety and efficiency for boarding and alighting at stations with automated precision docking;
- Evaluate the potential for platooning to right-size the future of the CTfastrak vehicle fleet while still maintaining service needs;
- Improve safety and efficiency at CTfastrak intersections by upgrading various traffic signal equipment and installing new V2X roadside equipment;
- Demonstrate performance of electric transit fleet;
- Accelerate the research, development and marketability of CAV technologies for transit use; and to
- Generate and share data to benefit various transportation agencies, industry and improve other CAV deployments