

ACCELERATING INNOVATIVE MOBILITY (AIM) GRANT



ENHANCING LIFE WITH AUTOMATED TRANSPORTATION FOR EVERYONE (ELATE)

WESTERN RESERVE TRANSIT AUTHORITY

**IN PARTNERSHIP WITH SANTA CLARA VALLEY TRANSPORTATION
AUTHORITY AND CALSTART**



**U.S. Department of Transportation
Federal Transit Administration**

PROJECT SUMMARY

Automation Level(s): 4

This project will demonstrate two use case scenarios for a purpose-built, common-spec prototype Accessible Automated electric Vehicle (AAeV) in two varying communities (Mahoning Valley, OH, and Santa Clara Valley, CA). The prototype AAeV will be manufactured according to the shared key performance parameters developed by a cohort of 14 transit agencies under the leadership of CALSTART. The prototype AAeV will be a Level 4 vehicle with zero emissions, designed to operate in all climate conditions and will be capable of accommodating 9 to 15 passengers and two wheelchairs. The vehicle will also be compliant with the Federal Motor Vehicle Safety Standards (FMVSS), Buy America, and Americans with Disabilities Act (ADA) requirements.

With less than a quarter of the vehicle volume today in downtown Youngstown as compared to 50 years ago, Western Reserve Transit Authority's (WRTA) project will capitalize on existing roadway capacity to incorporate improved pedestrian and bicycle facilities, autonomous transit shuttles, transit waiting environments, green infrastructure, streetscaping, and wayfinding, so as to efficiently connect major regional anchor institutions impacting economic resurgence in the region, including Youngstown State University and Mercy Health Center, with WRTA's Transit Center in downtown Youngstown, the hub for WRTA's fixed routes.

Located in the heart of Silicon Valley, the Santa Clara Valley Transportation Authority (VTA) project will focus on veterans with disabilities and incorporate into the vehicle improved passenger management functionality. The VTA project is to better understand the AAeV passenger management functionality and interaction between the disabled and senior population. VTA will demonstrate the AAeV between the Veterans Administration Palo Alto Health Care system and the Palo Alto Transit Center, serviced by Caltrain, SamTrans, VTA, and private company and Stanford University shuttles.

PROJECT GOALS

- Demonstrate safe operation of SAE Level 4 Automated Driving System (ADS) capability on urban and arterials in mixed traffic
- Quantify the economic implications for transit and paratransit operators related to scaled-up Level 4 AAeV operations in terms of capital and operating costs
- Collect and analyze data related to the energy implications of ADS and in-vehicle edge computing platforms for electric vehicle drivetrains and charging infrastructure
- Demonstrate remote passenger monitoring and interaction, interoperation of Level 3 and Level 4 ADS and AAeV vehicles
- Increase community transit access for seniors, student, and individuals with limited personal mobility
- Prove out automated vehicle performance in different climate, terrain and use cases
- Prove out automation effectiveness; rider experience and crashworthiness
- Grow the number of deployments for AAeVs beyond the initial two vehicles included in this project

VEHICLE INFORMATION

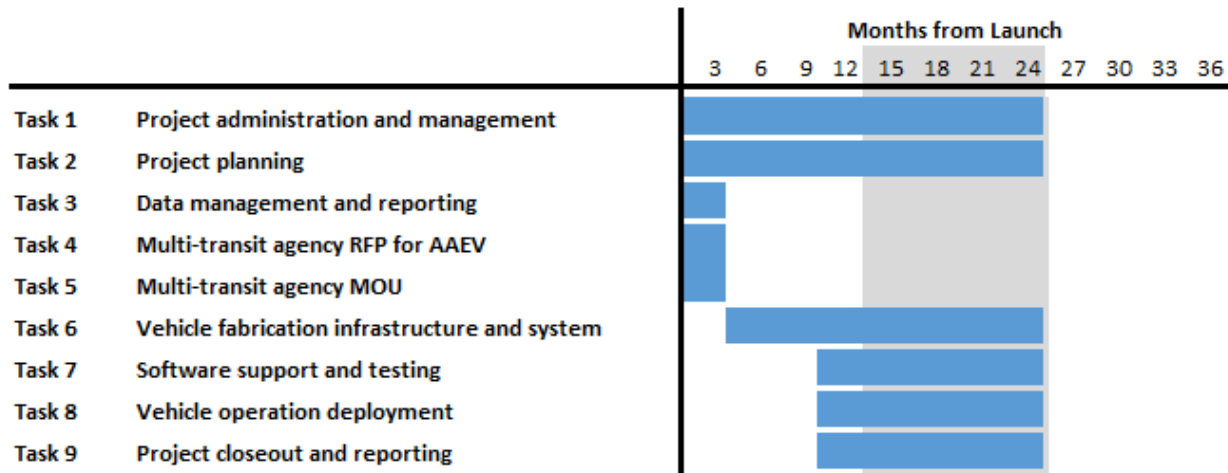
The vehicles developed and deployed for this demonstration will meet CALSTART's key performance parameters, which specify that the vehicles will be automated (Level 4); zero emission (e.g., electric or hydrogen fuel cell powertrain); compliant with FMVSS, Buy America, and ADA requirements; designed to operate in all climate conditions; capable of accommodating 10 to 14 passengers and up to two wheelchairs; and capable of operating at 20 mph minimum and to accelerate to and maintain 55 mph. A request for proposals (RFP) for the vehicle was released in mid-March 2021.

DATA COLLECTION, MANAGEMENT & SHARING

Due to the number of vehicles involved in the proposed demonstration and to investigate the distribution and intensity of intended vehicle interaction scenarios, this project will select a set of strategic locations for data collection. These locations will include intersections, junctions, passenger pickup and drop-off areas, and the connected vehicle testbed corridors. These strategic locations offer the most dynamic and challenging operational scenarios and conditions that will provide the most valuable data sets.

PROJECT STATUS & SCHEDULE

The project has an estimated 24-month duration, with tentative closeout estimated by March 2023.



BUDGET

FTA AIM Grant Funding	Non-Federal Cost Share	Total Amount
\$2,331,000	\$520,000	\$2,851,000