



Florida Department of Transportation Research

Toward a Florida Automated, Connected, Electric and Shared (ACES) Transportation System Roadmap: Phase I

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Project Number

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Current Situation

Although the first electric vehicles appeared in the late 19th century, late 20th-century technologies overcame limited range and speed issues, resulting in today's fast-growing EV market. With advances in computers and sensors, driver assistance and automation have increased and created the vision of fully automated, self-driving vehicles. Connected vehicle technologies are gaining momentum with the deployment of vehicle-to-infrastructure deployments. In the early 21st century, a variety of on-demand, and shared transportation services appeared, with electric bicycles and scooters for example. These emerging transportation paradigms – automated, connected, electric, and shared (ACES) – are rapidly evolving and influencing infrastructure, communities, commerce, and the economy. The fast pace of change suggests a need for increased coordination and collaboration among research, development, testing, deployment, demonstration, evaluation, and educational initiatives in the ACES arena. As part of its ongoing ACES efforts, the Florida Department of Transportation (FDOT) sought a process to coordinate ACES activities across the state and promote collaboration.

Research Objectives

The research objective was to develop and demonstrate tools that can serve as the foundation of coordinated ACES activities in Florida. The researchers also conducted outreach events with stakeholders to introduce and encourage use of the tools.

Project Activities

The project's primary tasks were to create

- (1) An inventory of past and present ACES projects as well as initiatives in Florida,
- (2) An ACES stakeholder database for the state, and
- (3) An ACES website to foster collaboration and coordination among existing and potential stakeholders, including public agencies, local government, private industry, academia, infrastructure providers, transportation professionals, and special interest groups.

The researchers convened a Florida ACES Leadership Group, composed of faculty from Florida's universities and FDOT Central Office representatives. This group provided guidance for the structure of the ACES roadmap, such as the design of the Florida ACES database and activity viewer, outreach activities, and special university initiatives, as well as potential future efforts.

Key information of current ACES projects, EV charging stations, and bike-share services, were included the database, which is visualized in the activity viewer (<https://flaces.netlify.app/#/>).

The researchers developed a four-pronged outreach plan to engage and collaborate with the stakeholders. The plan consists of an engagement kit, an email newsletter, and social media activities. Demonstrations, presentations, webinars, and a kick-off meeting were conducted to introduce stakeholders to the project and products. A special university initiative meeting was held to share available resources and promote collaboration.

Project Benefits

The products and processes developed in this project will assist the community of ACES practitioners and professionals to keep pace with the rapidly evolving technology.

For more information, please see www.fdot.gov/research/.



This autonomous shuttle is part of the vision of Florida's self-driving future.