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REGIONAL TRANSPORTATION PARTNERSHIP

CAV Readiness Study

Is Central Florida ready for CAVs on public roads?

Cars and trucks with connected and automated vehicle (CAV) technology are slowly starting to appear on public roads throughout Central Florida.



The CAV Readiness Study is being conducted to assess the readiness for the arrival and integration of connected and automated vehicles (CAVs) on public roads in Central Florida.

CAV Readiness Study Objectives

- Review CAV industry best practices
- Evaluate existing local CAV capabilities
- Provide knowledge base for increasing planning expertise
- Engage stakeholders

Prepare for CAV integration

Geographic Reach

- MetroPlan Orlando leads transportation planning in Orange, Osceola and Seminole counties.
- MetroPlan Orlando also determines how federal and state transportation dollars are spent in the region.









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What is a Connected Vehicle?

A connected vehicle (CV) is equipped with a wireless communication device that allows it to share vital information quickly with other vehicles, the roadway infrastructure and mobile devices.

CVs send and receive information. Several examples of how CVs transmit and receive information are demonstrated in the following graphic.

Drivers remain in full control of CVs, which may or may not have automated vehicle capabilities.

Advanced cybersecurity measures are being tested to ensure that CVs operate in a safe and secure manner that protects the privacy of users.



Notifies the driver if there is a sudden-braking vehicle ahead (or several vehicles ahead).

Lane Change Warning/ **Blind Spot Warning**

Warns drivers when changing lanes if there is a car in a blind spot.

Source: USDO



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4072-2019102



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What is an Automated Vehicle?

An automated vehicle (AV) has one or more safety-critical functions controlled by something other than direct input by a human driver.



AVs detect their surroundings using a variety of onboard sensors.

- Radar (radio waves)
- LiDAR (light pulses)
- High Definition Cameras (video)
- Ultrasonic Sensors (sound waves)
- Combination of Multiple Sensor Types
- Global Positioning System (GPS) Data
- Dead-Reckoning in tunnels, urban canyons

An advanced control system merges these information sources to interpret data to detect the following.

- **Optimal Navigation Paths**
- Traffic Signals
- Traffic Control Signs
- Obstacles
- Pavement Markings









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What is a connected and automated vehicle?

A connected and automated vehicle (CAV) will combine connected vehicle (CV) and automated vehicle (AV) capabilities. CAVs will be able to communicate with other things in the transportation environment. CAVs will automatically perform required safety actions after receiving information and/or an alert from other vehicles, the infrastructure or a mobile device.



Benefits

- Improved safety fewer crashes
- Enhanced mobility in dense urban areas
- More efficient commuter and freight travel
- Reduced congestion, delays and daily commute times
- Minimal environmental impacts









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Agency and stakeholder collaboration is essential

Roadway Infrastructure and Site Development

Most local agencies are taking a measured approach due to the rapid, and sometimes unpredictable, evolution of devices and technologies.

Staffing Proficiency

The maintenance and operation of CAV infrastructure will require new skills for both signal maintenance personnel and the maintaining jurisdictions.

Future Potential: Agencies might get together as a region-wide CAV consortium to discuss best practices and advancements in signage, pavement markings, technology, operations, site design and other developments.



System & Network Capabilities

CAV infrastructure will rely heavily on high-speed and lowlatency data exchange, and also require a robust and stable backhaul communications network be maintained by transportation agencies.

Future Potential: Most jurisdictions in



Future Potential: Agencies have an opportunity to develop a region-wide CAV training program to promote consistency between county and city jurisdictions on testing, equipment, software and deployment.



Potential Locations for CAV Testing

Potential locations for CAV testing are preferred where minimal infrastructure improvements might be needed so that early deployment success can be achieved.

Future Potential: To facilitate

partnerships and the advancement of CAV testing locations, jurisdictions might get together to pool their resources/ knowledge and share best practices.



the region have fully implemented or are moving towards the use of high-speed, fiber-optic cable networks.

Training Plans

Training plans have been developed or are planned for learning how to configure and operate CAV technologies, and also leverage data.

Future Potential: The Florida Department of Transportation (FDOT) is planning to train jurisdictions how to configure and operate CAV systems, and also capture and store data.



Equity Challenges

Maintaining equity is necessary to ensure that the broadest possible cross-section of Central Floridians have an opportunity to see, touch and experience the positive benefits of CAVs.

Future Potential: Agency collaboration would help ensure that all community members and sectors have equal access to the benefits of CAV technologies.











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How will CAVs impact future urban development?

CAV technologies have the potential to transform roadways, parking systems and land use patterns.

These technologies also offer the promise of increasing safety and mobility for users and improving efficiency in system operation.





Source: FSU Florida Planning and Development Lab

Impacts of CAVs on Built Environment

- Smaller and more efficient rights-of-way
- Demand for drop-off areas close to destinations
- Reduction in traffic signage and signalization
- Safety and mobility in bike and pedestrian networks
- Location, form and amount of parking
- More efficient parking and rights-of-way

Potential Steps for Jurisdictions to Accommodate CAVs

- Consider CAVs in streetscape and roadway design
- Identify how to establish separated CAV infrastructure
- Develop drop-off area standards
- Evaluate use of excess right-of-way
- Revise parking requirement codes





