

# The State of CATV in Florida

## Introduction

In the past few years, the state of Florida has started to emerge as a major developmental industry of the connected and autonomous vehicle technology (CATV). It is because of roles within legislation, looser restrictions on testing and operation, has played a huge part in Florida's rise to the top. Because of these changes it has allowed for further development within the Florida industry. The Florida Department of Transportation, with the help of partnerships with the likes of the cities of Orlando, Tampa, Miami, Gainesville, as well as several major universities and organizations, has accepted the task of CATV technology employment. The new employment will help to enhance the safety features of the passengers, operators, and other outside features like pedestrians and cyclists. Because of these new technologies several major companies, Ford, Voyage, Transdev, and Starsky Robotics, have come forward with funding these programs.

As more technology is being developed more concerns are coming to light, increasing the amount of liability, licensing, and security privacy, ethics, and workforce impact kinks that still need working out.



## Stakeholders

### Ford

Ford is currently trying to launch a Smart Mobility Project. This project consists of making the Miami-Dade County its testing site for self-driving vehicles. Miami is one of the most congested cities in the US, and Ford believes that this makes it the perfect city for the CATV technology.

Under this project, the company has high hopes that self-driving cars will be used for commercial use by 2021. The company is also trying to gauge the public's interest with using this new technology.

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### Florida Turnpike Enterprise

The agency is a partner in the construction of a \$42 million testing course, along with a few other companies and organizations in the Florida area. A new bill has been passed authorizing the funding and development of the project.

### Florida Department of Transportation

The Florida Department of Transportation (FDOT) has taken on the large role of

reducing the concerns of this CATV technology. Legislation has changed, which removed restrictions on the operations and testing of CATV technology allowing FDOT to begin project.

These projects are aimed to inform drivers and pedestrians alike to allow the technology to make an informed decision based on the environment around them. FDOT is also leading a project in implementing a number of leading technologies to ensure safety.

### Florida Polytechnic University, University of Central Florida, University of Florida

These universities have been heavily involved with in testing and breaking innovations with the CATV technology. The FDOT has hopes of implementing a safety application on the University of Florida campus. The universities are also of use to the Florida Turnpike Enterprise which has called for the construction of a 2.2-mile oval test track.

## Legislation

The three major pieces of legislation and more being added have pushed emphasis on loosening restrictions concerning the testing and operation stages of CATV.

HB 1207 and HB 7027 serve as the boundaries for CATV use. HB 1207 set the stage by sharing the safety developments and testing of the CATV on public roads across the state. The bill points out the refrain from prohibiting or regulating autonomous technology. The bill points to refrain from prohibiting or regulating CATV technology. This bill also explicitly states that the operator of an autonomous vehicle causes

the technology to engage whether or not the is a physical person present or remotely. This bill also states that a human operation must be present in the vehicle in case something goes wrong, however this was overturned in the HB 7027 which eliminates this requirement altogether. HB 7027 allows for CATV on public roads with persons holding a valid state driver's licenses for testing purposes only.

Legislation continues on the issues of liability and insurance. HB 1207 states that before testing can start there must be an insurance, surety bond or proof of self-insurance to the Department of Highway Safety and Motor Vehicles of five million dollars. The bill continues to say that the original manufacturers will not be liable if bodily injury occurs unless the defect was present in the vehicle as it was manufactured.

HB 353 goes on to state that “[a]ll fully insured autonomous vehicles must be uninsured and underinsured vehicle coverage as required by s. 627.727, personal injury protection coverage as provided by 627.736, and liability coverage in the amount of at least \$500,000 for combined bodily injury liability and property damage liability or at least: a) one hundred thousand dollars for bodily injury to, or the death of, two or more persons in any one accident; and c) fifty thousand dollars for damage to, or destruction of, the property of others in any one accident.”

July 1, 2018 HB 353 also states that all autonomous vehicles require , “1. Primary automobile liability coverage of at least \$1 million for death, bodily injury, and property damage; 2. Personal injury protection benefits that meet the minimum coverage amounts required of a limousine under ss. 627.730-627.7405; and 3. Uninsured and underinsured vehicle coverage as required by s. 627.727” (HB 353, 2018).

Safety has not been mentioned in much detail in CATV legislation until recently. The HB 1207 bill recently passed had very vague ideals for safety features, however clear ideas were not passed until HB 7027. Definitions for CATV technology and driver-assisted platooning technology for trucks are outlined in HB 353. The bill continues to require further study on the use and safe operation of platooning technology, allowing for the launch of a project in conclusion of the study.

The newest additions of the CATV policy in Florida has just been introduced to the house earlier this year by state representative Jasion Fischer. The new bill, HB 311, is aimed to preserve Florida status as the CATV technology testing base. If passed, this new bill would eliminate the need for an on-hand operator to control the fully autonomous car, and legalize driverless cars that would run on software systems alone. A similar bill was proposed by State Senator Jeff Brandes, and is currently under review in the committee for infrastructure and Security.

The bills have been proposed with a hope that the state roads would become safer and that the widespread acceptance of CATV technology would be encouraged. These bills also attempt to address the companies that want to conduct business in Florida, but are currently prohibited due to regulations of driverless vehicles on public property. Once these regulations are lifted, there would be an increase in economic opportunity for the state.

Although Florida has started to provide the path for the integration of CATV onto public roads, there are still several factors that need to be addressed in terms of legislation to aid these projects. While much emphasis is being placed on opening the doors for more CATV opportunity, there is still much to be done when addressing potential issues within the workforce, privacy breaches, and security concerns.

## Projects and Initiatives

Several projects have already been implemented in Florida. Among these are the US 90 Single Phase and Timing in Tallahassee (SPaT) and traffic management. Traffic management will start to have a critical role in accommodating the future of CATV technology. These technology projects connect the vehicle technology to infrastructure capabilities allowing FDOT staff the ability to gain experience in the operation of this technology. This project plans to include 20 signals by 2020, and is calling for the installation of roadside units to broadcast SPaT information to corresponding vehicle units.







The Osceola County Connect Vehicle Signal project is currently happening. This project allows for Dedicated Short Range Communication equipment to be tested at 2 intersections with the county. This will allow work staff to gain experience with the new equipment.

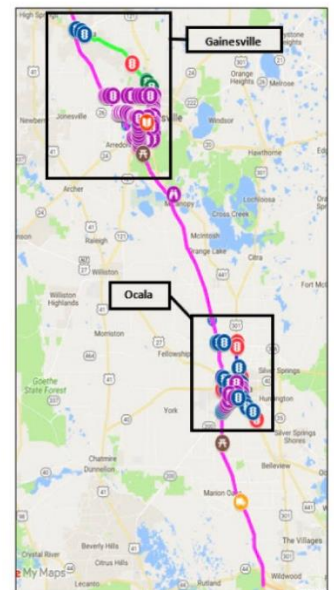
Another major project that is continuing is the Voyage at the Villages. It is a system of 750 miles of roads within a retirement community. The community allows residents to call self-driving cars to their drives with a mobile app, allowing them to travel throughout the community. Because of the terms of this community it allows for the cars to be driven in a predictable, slow moving environment, testing the full abilities of the technology.

Many more projects are continuing to be designed and implemented. These projects include I-75 Florida Regional Advance Mobility Elements (FRAME) in both Gainesville and Ocala. The goal of this FRAME technology is to help get information to drivers in real time once an incident occurs. To continue with this goal, FRAME plans to implement emerging

technologies such as Connected Vehicle (CV) technology that includes Roadside Units and On-board units to help conduct traffic. See Figure 1 for more information.

### Legend

-  Traffic Signal w/ Roadside Units (RSU) – for Signal Phase and Timing (SPaT)
-  Traffic Signal with Pedestrian Crossings w/RSU – SPaT, Ped-Safe
-  Traffic Signal on Transit Route w/RSU – SPaT and Transit Signal Priority (TSP)
-  Traffic Signal on Transit Route w/Ped Crossings w/RSU – SPaT, Ped-Safe, and
-  Railroad Crossing w/RSU – SPaT and RR
-  Weigh-in-motion
-  Rest Area
-  University of Florida
-  Paynes Prairies
-  Arterial Detour Corridors
-  I-75 with RSU at Every Mile
-  Arterial Detour Corridor needing communications







*Figure 2*

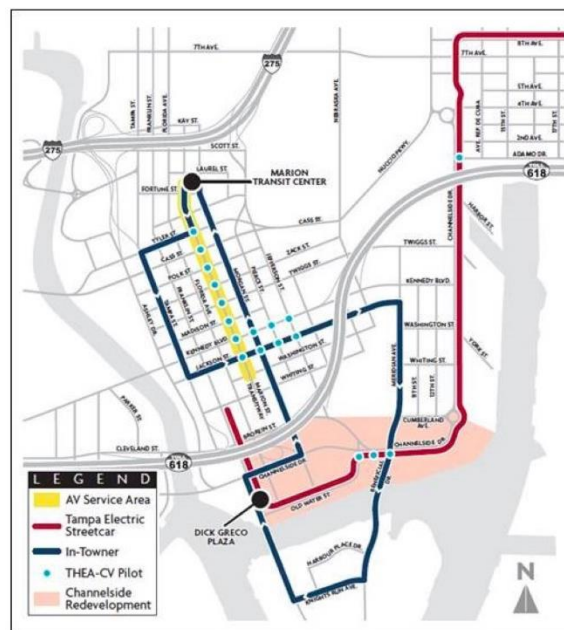
The city of Gainesville Innovation District with the University of Florida campus and student and house is currently in the planning stage for an Auto-Bus, an autonomous transit system.

The Tampa Connected Vehicle program (CV) is funded through a competition held by the United States Department of Transportation. This program calls for the application of CV technology in and around the Tampa area. There is a heavy focus on safety and increased mobility for different modes of travel for all parties involved.

The citing of Orlando Greenway/Pedestrian Safety program is also seeking out the CV technology. This project hopes to decrease congestion among people, cars, and goods. This project will implement the technology through short-range communication, on-board and roadside units, audible basic safety messages, data link control, and advanced sensor technology.

The SR 434 Connected Vehicle Deployment plan intends to implement Connected vehicle technology and Signal Performance (SPM) in Seminole county. The technology uses roadside unit (RSU), signaling Phasing and timing (SPaT), and transit signal priority. In downtown Tampa, FDOT is looking to enforce Autobus transit running from 6 am

to 7pm. These shuttles will allow for low-speed services allowing the connection of the Marion Transit Center with the employment parking. Look to Figure 3 for further details.



*Figure 3*

Another Project that is currently in the planning stages is the Orlando Smart Community that will help to provide safety to pedestrian traffic. There are different aspects of this project that will contribute to the benefit of the community.

The working parts are PedSafe. PedSafe is a pedestrian and Bicycle collision avoidance system run by the Florida Department of Transportation (Figure 4). This technology will utilize the CV technology to signal controller capability. The part of the Orlando Smart Community is GreenWay, a project to connect the Advance Sensor Technology, Conditional Transit Signal Priority (TSP, Adaptive Deployment Traffic Signal Interface with the Track Positive Train Control (Sunrail). Smart Parking technology with Signal Performance Metrics (SPM), Integrated Corridor Management (ICM), and

## Signal Control Analytics and Visualization (Figure 5).

This will allow for better management of 1000 traffic signals within a region. The third aspect of the project is the SmartCommunity, a program that will connect people and places (Figure 6). This technology will use ridesharing products to link people and cars. This project is said to give benefits for low income and underserved populations.

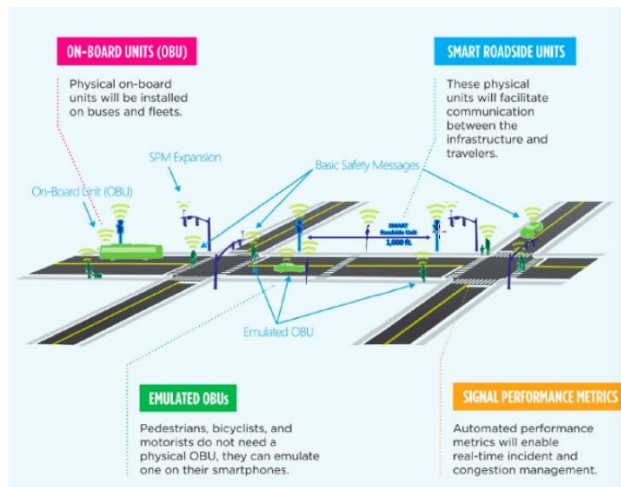


Figure 4

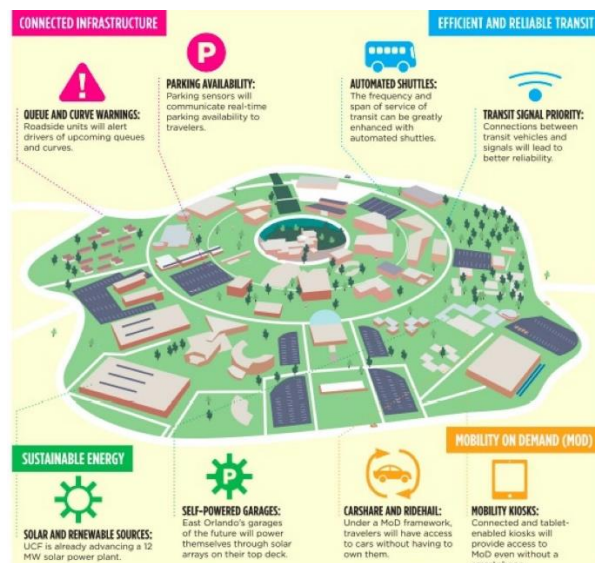


Figure 5

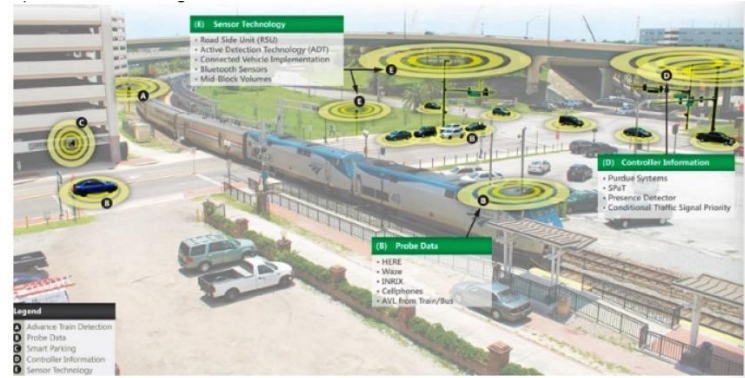


Figure 6

The Bike and Pedestrian project is another major upcoming program whose goal is to reduce potential accidents. The Florida Department of Transportation hopes to lead CV, pedestrian, and bicycle safety application at thirteen intersections and seven crossings on the University of Florida campus (Figure 7).

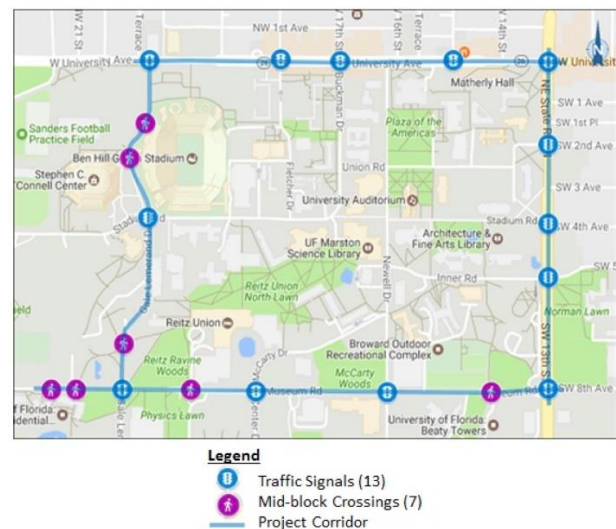


Figure 7

The Central Florida AV Proving Ground is another continuing growing project that the US Department of Transportation approved. The Proud Ground is set to become the nation's premier ground for the continuing development of CATV technologies.