

***Planning for C/AV Deployment:
Public and Private Sector Coordination***

AMPO Connected and Autonomous Vehicles (C/AV) Working Group
Meeting 4: March 5-7, 2018 in Orlando, FL

The AMPO C/AV Technical Working Group held its fourth and final meeting from March 5-7, 2018 in Orlando, Florida. The objectives of the meeting were to:

- Share initiatives in Florida involving partnerships between the public and private sectors
- Discuss the relationship between the public and private sectors and identify how to establish effective partnerships and coordination practices between them.

During the meeting, the AMPO C/AV Technical Working Group heard presentations from:

- The Central Florida Autonomous Vehicle Partnership (CFAVP)
- The City of Orlando
- The Florida Department of Transportation (FDOT)
- The Florida Turnpike Enterprise
- LYNX, the public transit provider for Orange, Seminole and Osceola counties
- SUNTRAX
- The University of Central Florida (UCF)

The following is a brief summary of initiatives shared by the presenters. The presentations in their entirety can be found on the AMPO C/AV working group web page¹.

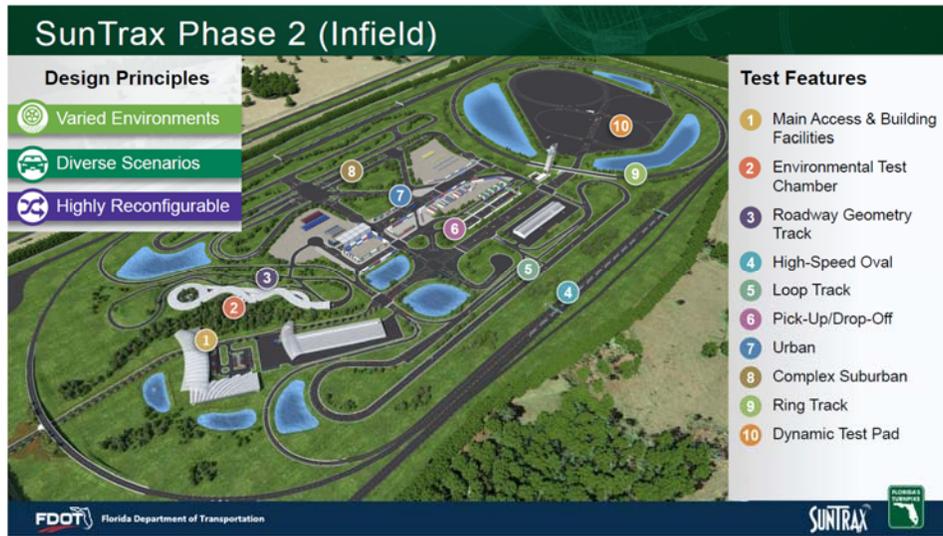
The City of Orlando's Smart and Sustainable City initiative is helping to accomplish their vision to "become the most environmentally friendly, socially inclusive, technology-enabled, and economically vibrant city in the southeast" and "one of the most sustainable and resilient cities in the nation."² The initiative is building partnerships and employing information and communications technology to enhance infrastructure, livability, workability, sustainability, and resilience. They were one of five cities nationwide recognized as 2017 Smart Cities Council Readiness Challenge winners. As part of this program, they developed a smart cities roadmap and framework, which include focus areas of public safety, solid waste, energy and green building, and transportation. Within the transportation focus area, their activities include:

- Partnering with General Motors, the FDOT, the American Automobile Association, and the UCF on research and development for in-vehicle navigation systems.
- Achieving bronze level Bicycle Friendly Community designation from the League of American Bicyclists through implementing thirty bike share stations with 300 bicycles, over 350 miles of urban trails, bike lanes, and signed routes, and six bicycle repair stations.
- Deploying electric vehicles for the City Hall motor pool and electric vehicle charging stations within the city

¹<http://www.ampo.org/resources-publications/ampo-work-groups/connected-and-autonomous-vehicles-working-group/>

² Chris Castro, "Smart ORL: The Future of Urban Sustainability" (presentation, AMPO Connected and Autonomous Vehicles Working Group Meeting, Orlando, FL, March 5-7, 2018).

the development of Automated Driving Systems. Phase 1 of the initiative is underway and construction of Phase 2 will begin at the end of this year. Both phases are expected to open in 2020.



Source: SUNTRAX⁴

In addition to the initiatives it is partnering in above, the FDOT is also leading several C/AV efforts. The Florida Turnpike Enterprise, part of the FDOT, is underway with:

- A 143-mile pilot project for driver assistive truck platooning
- The Coastal Connector: Florida's Next Generation Corridor is a high level study evaluating new transportation corridor alternatives
- The seven-mile Colonial Parkway Future Technology Corridor, includes smart intersections, incident detection systems, fully connected vehicles, automated vehicle detection, and dynamic/adaptive signals.

The FDOT also has several connected vehicle data initiatives, including:

- ITS input quality assurance
- Automated traffic signal performance measures and intersection movement counts
- A data sandbox to facilitate data sharing and collection
- A regional integrated corridor management system

After learning about the project level efforts, the working group heard from the UCF about their research on general crash avoidance effectiveness estimation, crash reduction prediction, and specifically connected vehicle technology and its safety benefits under fog conditions and reduced visibility conditions. Their research shared that since nearly 90% of crashes are caused by driver physiological conditions or driver error, there are opportunities for connected vehicle technology and driver assistive to reduce, but not eliminate crashes. Their findings include:

⁴ PAUL SATCHFIELD, "SUNTRAX: Accelerating the Future of Transportation" (presentation, AMPO Connected and Autonomous Vehicles Working Group Meeting, Orlando, FL, March 5-7, 2018).

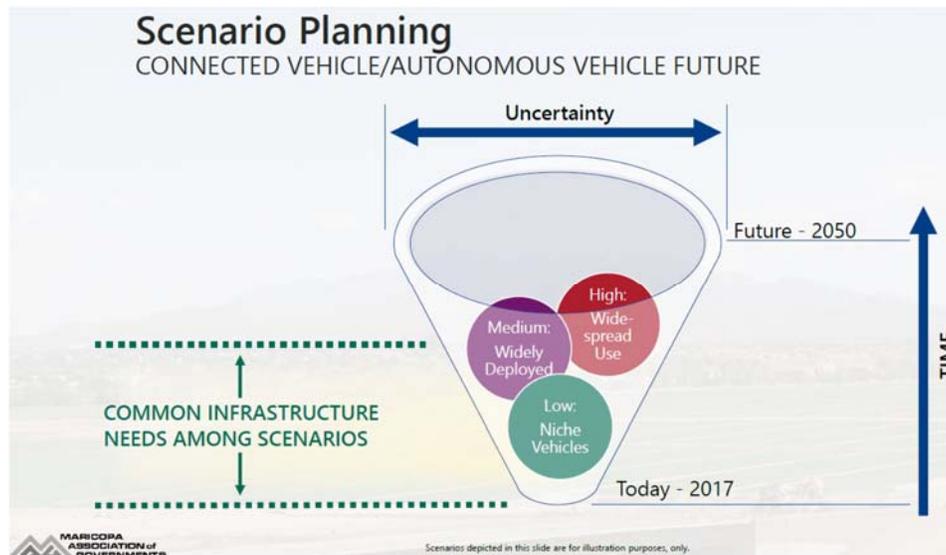
- The connected vehicle and driver assistance technology perform better for heavy trucks than light vehicles avoiding 40.88% of heavy vehicle crashes compared to 32.99% of light vehicle crashes
- None of the tested connected vehicle and driver assistance technology had an effectiveness greater than 70%.

After the presentations, the working group discussed the role of the MPO in C/AV technology. MPOs play a critical role in transportation planning and the economy as over three quarters of the population live under the boundaries of an MPO. In carrying out transportation planning, they help share community values, concerns, and impacts and serve as a venue for building relationships and partnerships by bringing stakeholders together for dialogue and engagement. While the message from the private sector to transportation agencies has generally been to do nothing more than maintain infrastructure in good condition and provide data on events such as closures and construction, the MPOs confirmed the approach discussed in their previous meetings:

- Maintain an environment that fosters innovation
- Establish a desired vision of the future transportation system with C/AVs
- Based on the vision, identify actions (i.e., policies and investment decisions) within the metropolitan planning process and products to support the desired future
- Through scenario planning and exploratory modeling, understand plausible deployment scenarios and their range of implications and risks to the transportation system, specific modes, and the behavior of transportation
- Educate and inform MPO policy boards, other relevant decisions makers, and MPO stakeholders on C/AV status and critical issues
- Help ensure equity, safety, and traffic operations are maintained

The working group identified additional strategies including:

- Do not prematurely select a preferred technology (e.g., 5G vs. DSRC)
- Expand MPO staff skills to include expertise in planning for and managing emerging technologies
- Make investment decisions that support both the current and future transportation system
- To help address uncertainty, explore the future in incremental transitions—for example, looking at the next five years, up to ten years in the future, and finally the full twenty years out.
 - This could be visualized as a cone of uncertainty with the narrowest part of the cone representing the present and the greatest overlap of potential future scenarios. The height and width of the cone would represent time and uncertainty respectively
 - Scenario planning may help narrow the cone
 - Potential investment decisions could be identified as projects common to all or most of the cone or projects at the narrow end of the cone that support both the current and future transportation system
 - Needs at the widest end of the cone could be thought of more generally by program type or corridor need (e.g., capacity improvements along a corridor within certain mileposts)



Source: Maricopa Association of Governments. Scenarios depicted are for illustrative purposes only

The working group then discussed the relationship between the public and private sectors and how to establish effective partnerships and coordination practices between them. To be most effective, they felt that transportation agencies (federal, state, regional, and local levels) should establish regular coordination practices among themselves and other agencies (e.g., transit and land use agencies, emergency response, and academia) and stakeholders to keep informed on the status of C/AVs in their region and the nation. Based on the presentations, they identified key private sector partners to coordinate and build partnerships with, including:

- Automakers/original equipment manufacturers
- Tier one suppliers
- Technology manufacturing companies
- Technology firms
- Freight and logistics companies
- Developers
- Proving ground operators and designers
- Toll operators

In building partnerships, the working group specifically identified the need for collaboration between MPOs, transit agencies, and the private sector to begin discussing the future of transit as C/AV technology is deployed. There are some predictions that C/AVs will remove the need for transit and therefore feel further transit investments should be a low priority. However, others feel transit will continue to play a critical role in providing mobility for transportation users and shaping land use, and see C/AV technology as helping to expand transit access by improving first and last mile connections. In these discussions, MPOs can help share the value that transit provides to mobility and equity.

The working group discussion continued by identifying what they as transportation agencies need from the private sector. Their needs were primarily related to data sharing opportunities. The private sector and new technology can generate an immense amount of data. For example, new technology could provide real time data sources such as windshield wipers turning on and off as well as

non-real time data like origins and destinations. As discussed during previous working group meetings, addressing data quality, security, and privacy concerns continue to be a concern. The working group suggested the development of a national voluntary repository of aggregate and secured data. Through this repository, data would be scrubbed of personal information, secured, and not be vulnerable to Freedom of Information Act requests.

This is the final paper in a series of four whitepapers that will be developed by the AMPO C/AV Working Group over the course of 2017-18. Each of the whitepapers and related meeting materials will be made available on the AMPO website and can be found at www.ampo.org. Following the completion of the whitepaper series, AMPO will develop a national framework for regional C/AV planning that will be shared and vetted at a workshop with C/AV stakeholders. The framework will be provided on the AMPO website in 2019.