# ITS Infrastructure Integration of CAV and MaaS

Introduction

Transportation is on the verge of dramatic change with the introduction of connected and automated vehicles (CAV) and mobility as a service (MaaS), also referred to as mobility on demand (MOD). As private industry identifies new market opportunities to deliver transportation automation and services, infrastructure owners and operators are working to understand what their roles and responsibilities will be in the future and during the ensuing transition period.

The ENTERPRISE pooled fund program is a leader in the research, development and application of ITS innovations to advance transportation system management and operations. ENTERPRISE initiated this project to begin exploring how CAV and MaaS might impact operations, especially as it relates to ITS infrastructure.

Photo Source: USDOT
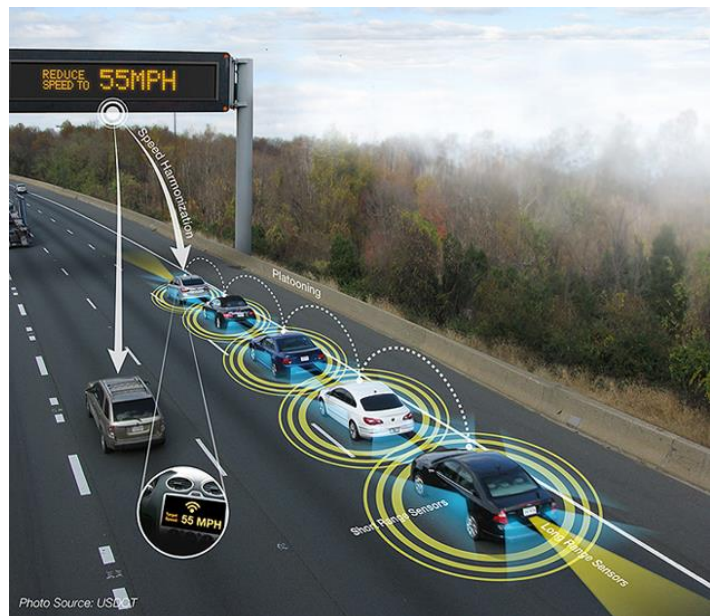
Project Summary

Research was conducted to identify likely scenarios for CAV and MaaS deployment based on businesses and services currently available and projected in the marketplace near-term, as well as agency experiences from pilot testing and early deployment.

The scenarios established a common reference point for ENTERPRISE members to then discuss during a series of workshops the potential impacts on operations. Such impacts were expected to include the need for new software and hardware, the availability of new data and data sources, the development of new operations and operating procedures, and the introduction of new knowledge, skills and abilities for staff.

The project report presents key research findings and workshop discussions, as well as recommendations for further investigation.

MOBILITY ON DEMAND

The Federal Transit Administration's (FTA) Mobility on Demand (MOD) Initiative is helping communities nationwide incorporate the latest technology into their public transit services, with the goal of making them more effective, efficient, and equitable.

Urban, suburban, and rural communities alike will benefit from better first and last mile connections, improved paratransit services, smart congestion management, and more.

FTA's MOD Sandbox Program is helping the industry find ways for public transit and other shared mobility providers to work together to create:

- More options for individual mobility
- Increased impact and productivity of public transportation
- **SAFETY FIRST** Enhanced safety
- Better connectivity in communities
- Greater accessibility for those with disabilities or low incomes

#TransportationTuesday

Photo Source: USDOT

Conclusion

At the conclusion of the final project workshop, ENTERPRISE members discussed potential actions their agencies could take to stay engaged, continue learning and plan for the changes that CAV and MaaS will have on ITS and traffic operations. Changes in public and private sector roles in transportation make it challenging to understand who should assume a leadership role in these activities. This is evident in the stronger role that the private sector will play in services offered for MaaS, as well as the features and capabilities that vehicle manufacturers will offer for CAV.

ENTERPRISE members agreed that CAV and MaaS are unlike traditional DOT activities. Both involve new stakeholders, new business models for both capital and operating costs, new challenges with security and data ownership, new approaches to funding and operating and new approaches for planning and forecasting transportation needs. The introduction of CAV and MaaS raises many questions about what infrastructure will be needed in the future, and who will deploy, own and operate it. Studying the impacts is relatively easy but understanding and implementing changes to address potential impacts is more difficult.

One action there was strong agreement on is the need to begin, or in some cases continue, the conversation about CAV and MaaS among transportation stakeholders, particularly those involved in ITS and traffic operations. In addition to the stakeholder engagement through scenario planning efforts, many states have established public/private advisory groups on the topic of CAV and/or MaaS to discuss broader transportation, societal, economic and environmental impacts. Some of these groups also have smaller working groups dedicated to traffic operations and related topics.

Stay Engaged

In addition to state and local level actions to stay engaged, agencies may also wish to monitor or become involved in national activities such as:

- Cooperative Automated Transportation (CAT) Coalition
- AASHTO Committee on Transportation System Operation (CTSO)
- ITS America MOD Alliance
- TRB Standing Committee on Vehicle-Highway Automation (AHB30)
- NCHRP Project 20-102: Impacts of Connected Vehicles and Automated Vehicles on State and Local Transportation Agencies

The impacts of CAV and MaaS on ITS and traffic operations are not entirely clear at this time. However, this project provided ENTERPRISE members with background information on the anticipated outcomes of CAV and MaaS and facilitated discussions about the potential impacts both may have on ITS and traffic operations. Those impacts are presented in the project report as a starting point for agencies to continue their education and engagement on the subjects of CAV and MaaS so they might prepare for future changes to ITS and traffic operations.