DriveÔhio

Advancing Smart Mobility



ELECTRIC

ADVANCED AIR

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Smart mobility on the ground, in the air, everywhere

CONNECTED

AUTOMATED

Ohio's Transportation **Technology Evolution Active Traffic** Traffic ITS Signals **Technologies** Management (ATM) CV/AV 0 0 Fixed Time Actuated Vehicle Detection Ramp Metering Freight Applications Interconnected

Traveler Info Systems Incident Management Info

Networks

High Occupancy Vehicle Lanes Variable Speed Limit

Automated Shuttles Wirelessly Coupled Vehicles

ON THE GROUND: CONNECTED & AUTOMATED







The Details: Connected Marysville

- 30+ roadside units, ALL signalized intersections (Marysville first city in U.S.)
- Recruiting 400 private drivers to have onboard units installed on vehicles
- Measure effectiveness of 4 safety applications: curve speed warning, pedestrian conflict warning, red light violation warning, and lane closure/reduce speed warning
 Drive Ohio



US-33 additional research efforts

- Connected Intersection Validation / Verification Testing
 - Connected Vehicle Pooled Fund Related
- ITE CTI 4501 Connected Intersection Guidance Document
 - Two intersections 1100 feet apart in different municipality jurisdictions
 - TSC Manufacturer involvement
- Connected Roundabouts
 - LiDAR & Cameras
 - Early Prediction

Drive **Ôhio**







Rural Automated Driving Systems

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TIVA

The Goals

Demonstrate how **connected and automated semi trucks and passenger vehicles** could improve safety for drivers, passengers and other travelers in **rural settings**

Help define technology needs and limitations and inform the **safe scaling** of future deployments





Rural Challenges



Curvy, hilly terrain

Limited sight distances



Shaded tree canopies, limited internet



The Details: First Rural Tests

- Will collect data from trucks used in business operations on public roads
- Passenger vehicles will operate in Athens and Vinton counties (narrow, hilly, unmarked roadways)
- On road presently through 2023













LOOKING FORWARD





ITS America National V2X Deployment Plan

- Released in April 2023 at ITSA Conference & Expo
- Combination of Efforts from IOOs and OEMs
- Signalized Intersection Focused
- <u>https://itsa.org/advocacy-material/its-</u> <u>america-national-v2x-deployment-plan/</u>





ITSA V2X Plan 10 yr IOO Goal

- Install RSUs and supporting infrastructure and systems on 250,000 intersections, or about 75% in the US.
 - Equip 85% of all signalized intersections in metro areas with populations greater than 400k people,
 - Equip 60% of all signalized intersections in "midsize communities", populations between 50,000 and 400,000.
 - Equip 20% of all signalized intersections in "rural communities", communities with fewer than 50,000 population





ITSA V2X Plan 5 yr IOO Goal

- Installations of RSUs and supporting infrastructure and systems on 100,000 intersections, or about 40% of the long-term targets, as follows
 - Equip 35% of all signalized intersections in "large communities"
 - Equip 25% of all signalized intersections in "midsize communities"
 - Equip 8% of all signalized intersections in "rural communities"





ITSA V2X OEM Plan Goals

- Within 3 years:
- A "coalition of the willing" deploys,
- Expected applications utilizing C-V2X or Uu, include:
 - V2I/I2V applications;
 - Basic V2V communications;
 - Some VRU focused applications (e.g. road work zone alerts, school bus or school zone alerts, emergency vehicle proximity alerts, and vehicle-to-cyclist alerts);

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ITSA V2X OEM Plan Goals

• Within 5 years

- Potential for deployment in more production vehicles that utilize the installed infrastructure base and presence of V2X equipped VRUs;
- Potential for a NHTSA "If-Equipped" standard
- Within 5-7 years:
 - Acceleration of buy-in started during development of a NHTSA "if-equipped" standard;
 - V2X included in NHTSA NCAP providing an incentive for "wait and see" OEMs to deploy.
- No earlier than 8-13 years:
 - All models are equipped with C-V2X, especially if an FMVSS is mandated.





ITSA V2X Plan Needs

- Funding ~\$6.5 Billion
 - Current Grants cover small percentage
 - State IOO developed Plans
- OEM Commitment / NHTSA Involvement
- Federal commitment Upcoming FHWA National Deployment Plan development





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