



***Saving Lives with Connectivity:
Accelerating Vehicle to Everything (V2X) Deployment***

**Connected Vehicle
Acceleration Zone (CVAZ):
Deployment Concept**

October 7, 2025

Webinar Protocol

- Please mute your phone during the entire webinar.
- You are welcome to ask questions through the Q&A Section.
- The webinar recording and the presentation material will be made available by ITS America.

Disclaimer

This presentation was created and is being presented by the Maricopa County Department of Transportation. The views and opinions expressed in this presentation are the presenters' and do not necessarily reflect those of the U.S. Department of Transportation (USDOT). The contents do not necessarily reflect the official policy of the USDOT.

The U.S. Government does not endorse products or manufacturers. Trademarks or manufacturers names appear in this presentation only because they are considered essential to the objective of the presentation. They are included for informational purposes only and are not intended to reflect a preference, approval, or endorsement of any one product or entity.

Except for the statutes and regulations cited, the contents of this presentation do not have the force and effect of law and are not meant to bind the States or the public in any way. This presentation is intended only to provide information regarding existing requirements under the law or agency policies.

Welcome



Joe Cottrell, PTOE, PE
CVAZ Deployment Lead
Maricopa County Department of Transportation



Virginia Lingham, PE
CVAZ GEC Project Manager
WSP

Webinar Agenda

- Overview of the Saving Lives with Connectivity: Accelerating V2X Deployment Initiative
- Project Background and Overview
- Use Cases
- Next Steps
- Q&A



SAVING LIVES WITH CONNECTIVITY: ACCELERATING V2X DEPLOYMENT INITIATIVE

Initiative Goals

01

Deploy, operate, and showcase integrated, advanced interoperable deployments.

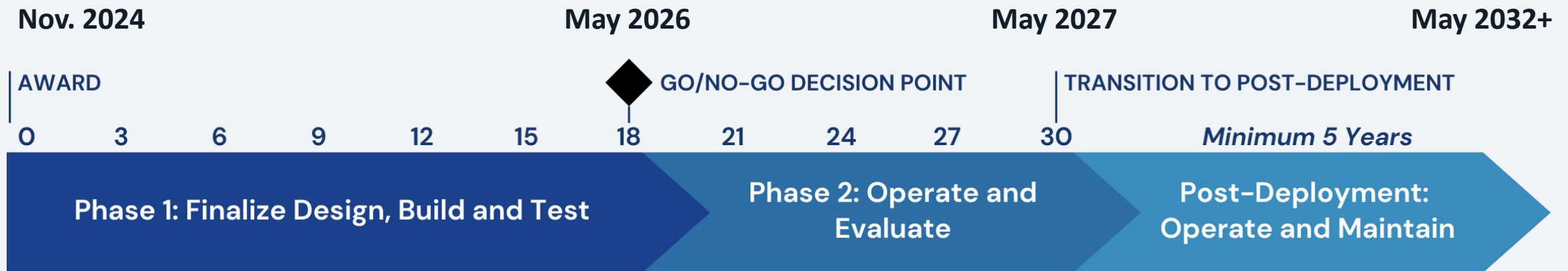
02

Inform and educate the ITS community and the general public regarding these impacts.

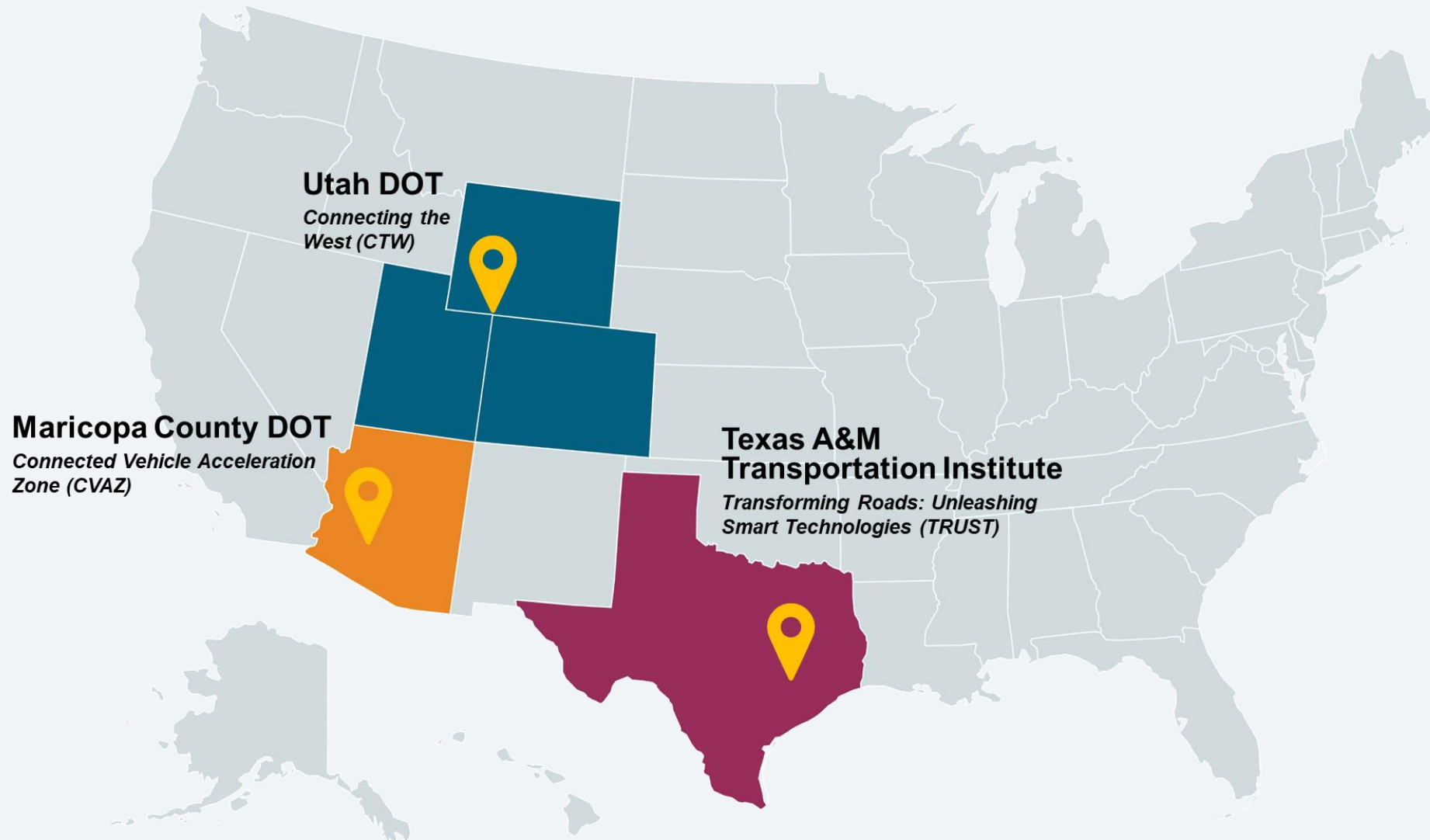
03

Support the development, evaluation, and documentation of a suitable reference implementation.

Structure and Phasing



V2X Accelerator Sites





BACKGROUND & OVERVIEW

Foundational Building Blocks



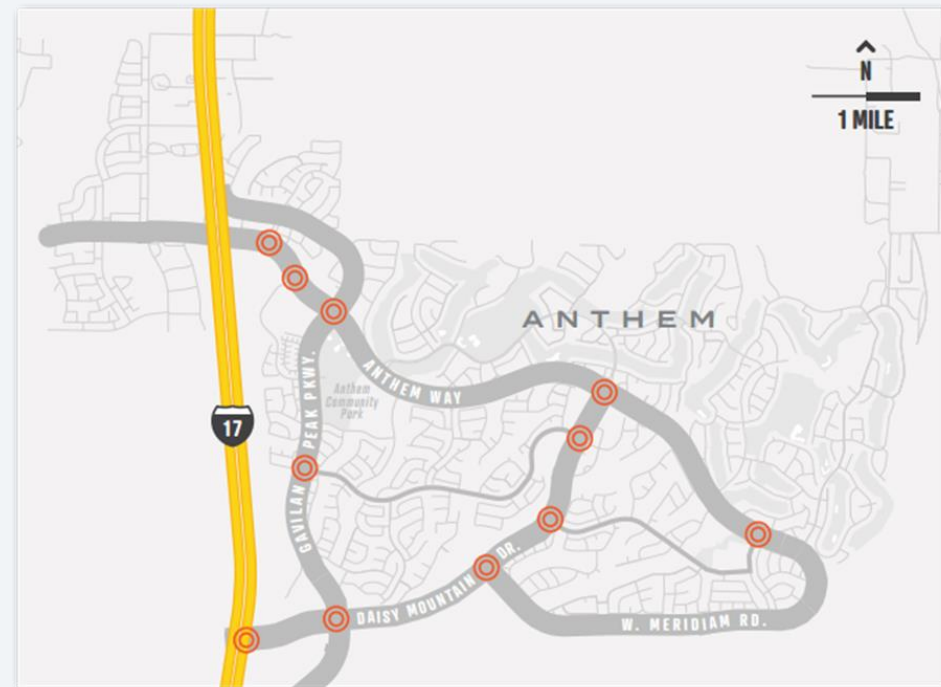
Additional Connected Vehicle Efforts

Maricopa County has more than a decade of connected vehicle leadership.

SMARTDrive ProgramSM



Anthem Test Bed (11 Connected Intersections)

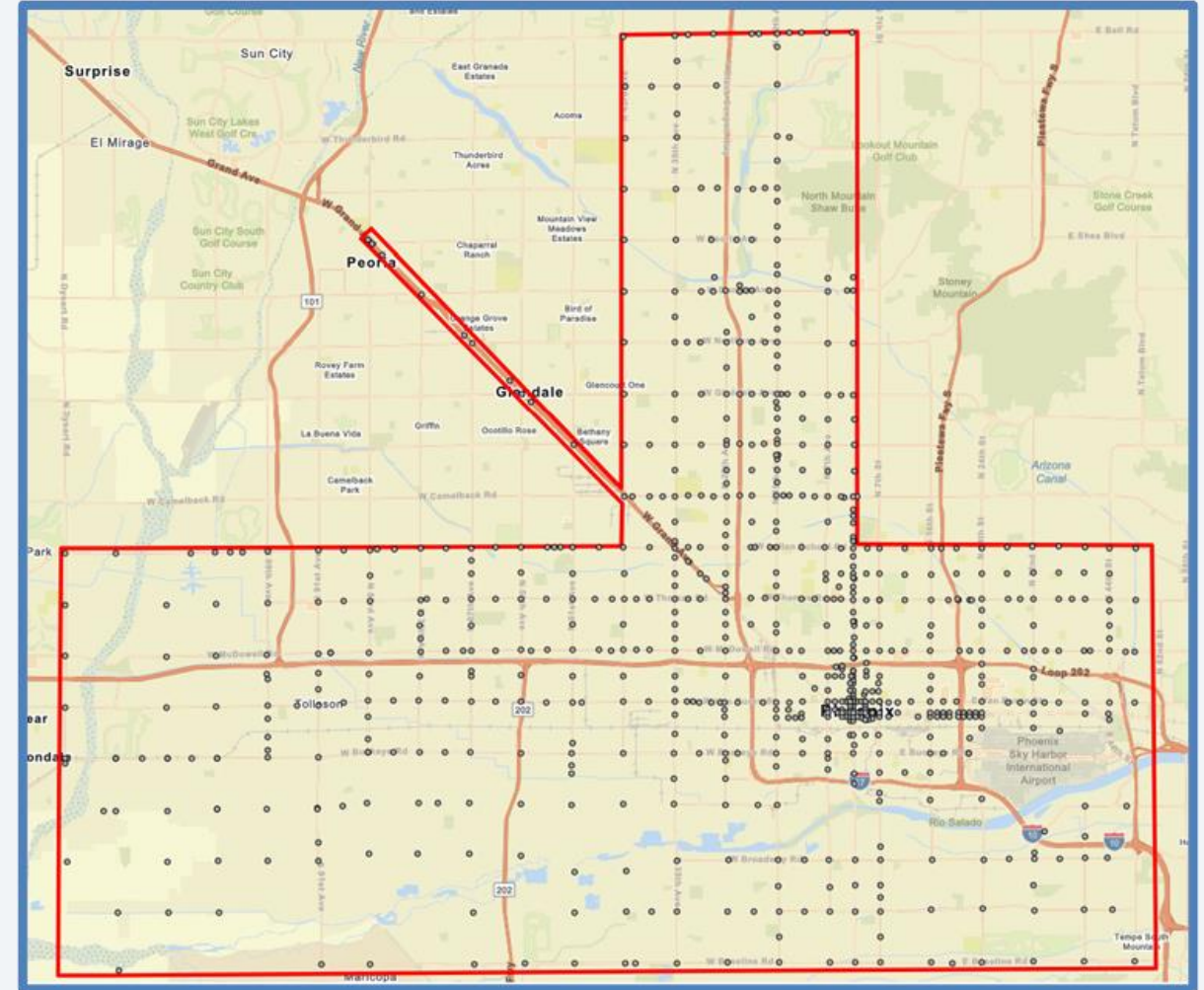


The Transportation Challenge

- Maricopa County is one of the fastest growing counties in US and more than 70% of Arizona's crashes occur in Maricopa County.
- Arizona has the second highest rate of VRU fatalities in the US.
- Congestion impacts quality of life, emergency response, and goods movement.
- Traditional roadway improvements cannot keep pace with regional growth.

Deployment Area

- 265 square miles of Phoenix metro region
- Focused on the central core
 - Phoenix
 - Avondale
 - Tolleson
 - Portions of unincorporated Maricopa County
 - US60/Grand Avenue



Partnerships

- **Transportation Agencies:** Owner-operator of future system
- **Academia:** Research and technology support
- **State & Regional Partners:** Governance and policy guidance
- **Private Industry:** Technology deployment experts



Goals & Objectives

- **Primary Goal:** Save lives and reduce serious injuries.
- Performance measures are being developed for output (activities) and outcomes (results).

Enhance Roadway Safety

Improve Mobility & Efficiency

Data Collection & Future Readiness

Knowledge Transfer & Workforce Development

Economic Sustainability

Replicability



CVAZ USE CASES

Justification for Change

Stakeholder	Identified Need	Operational Concept
Emergency Responders	Reduce emergency response times.	Emergency Vehicle Preemption (EVP).
Transit Operators	Improve bus schedule reliability.	Transit Signal Priority (TSP).
Freight Operators	Reduce freight corridor congestion.	Freight Signal Priority (FSP).
Vulnerable Road Users (VRUs)	Increase pedestrian and cyclist safety.	VRU safety alert messages and intersection prioritization.
TMCs	Real-time system-wide data visibility.	V2X Hub aggregates live traffic data.
Local Jurisdictions	Improve traffic signal efficiency and reduce congestion.	Signal optimization based on vehicle presence.

System Components

Direct V2X

- Roadside Units (RSUs)
- Roadside Processors (RSPs)
- Onboard Units (OBUs)

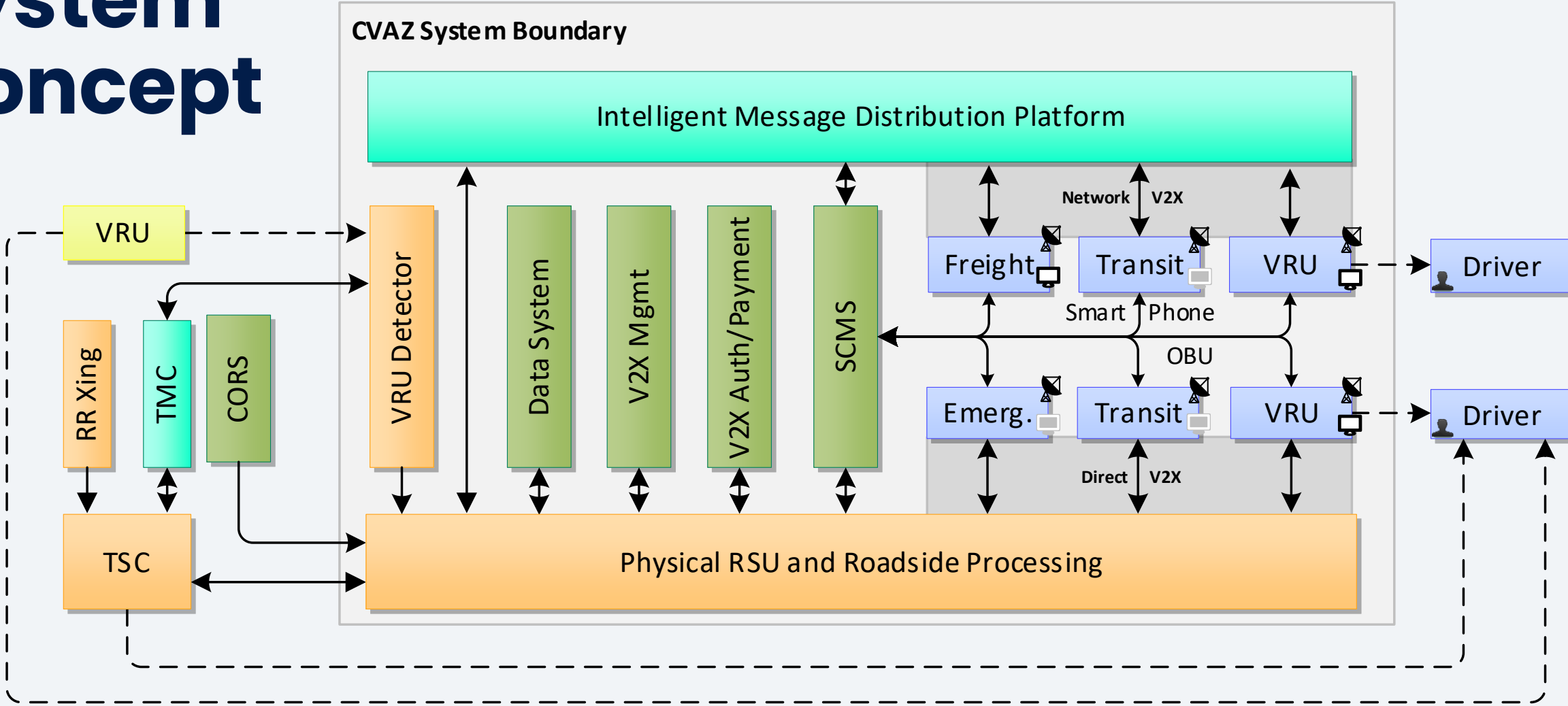
Network V2X

- Message Exchange Platform (MEP)
- Smartphones

Support Systems

- Security Credential Management System (SCMS)
- V2X Management System
- Data System

System Concept



Center

Roadside

Ped

Vehicle

Support

GNSS Interface

HMI (required)

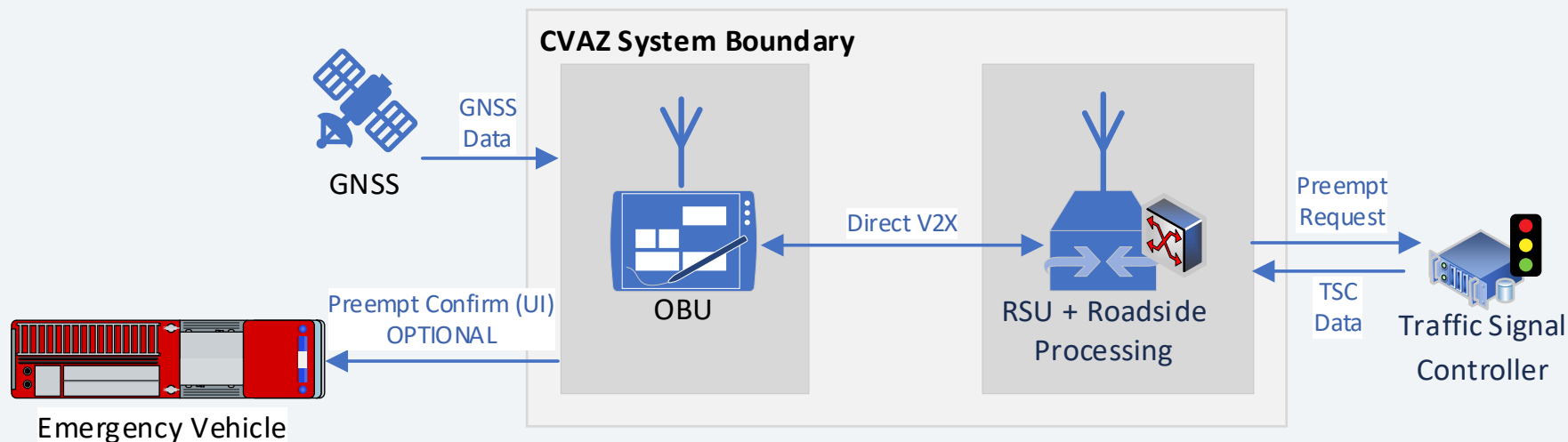
HMI (optional)

Use Cases

- **Emergency Vehicle Priority (EVP)** – faster response, reduced crash risk at intersections.
- **Transit Signal Priority (TSP)** – improved bus reliability and efficiency.
- **Freight Signal Priority (FSP)** – smoother freight movement, reduced congestion impacts.
- **Pedestrian and Road User Safety (VRU)** – alerts for vulnerable users.

Emergency Vehicle Preemption

- Provides a high level of priority for emergency responders by interrupting the current signal operations to provide service to the emergency vehicle movement.
- The OBU will be integrated with the emergency vehicle's onboard systems, enabling the lights and siren system to activating the EVP application.

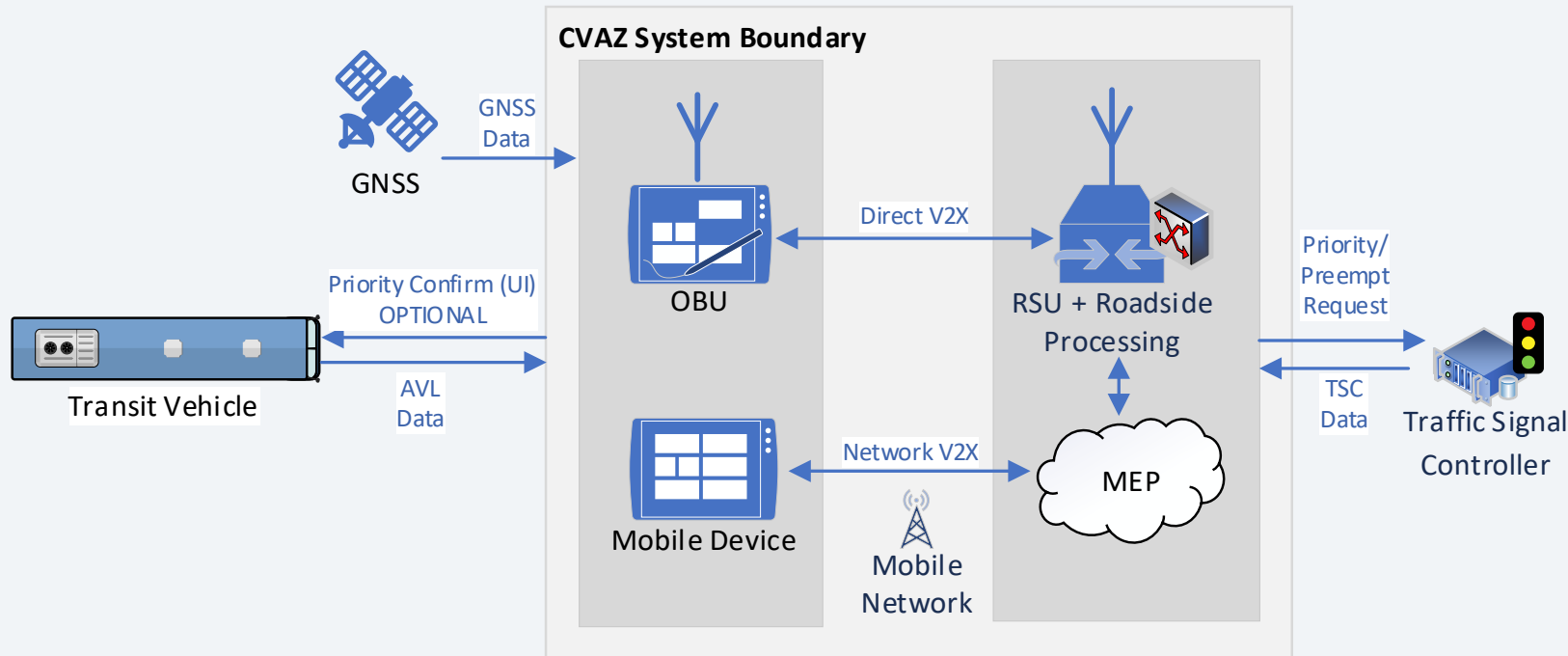


What does this change?



Transit Signal Priority

- Provides priority for transit vehicles based on agency business rules for signal priority.
- The OBU will be separate from the transit system network.

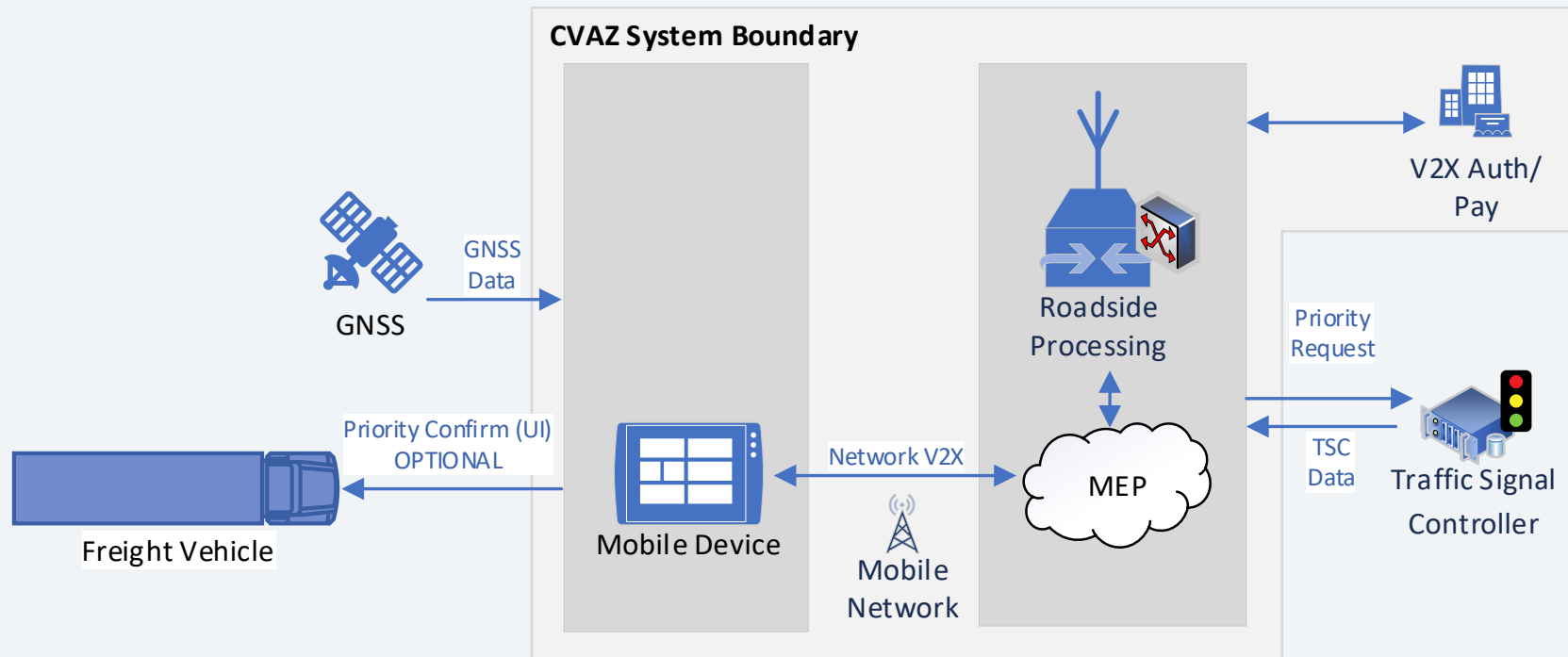


What does this change?



Freight Signal Priority

- Provides priority for freight vehicles based on agency business rules for signal priority.
- The application may run on a mobile device to allow flexibility in terms of request activation (on/off) and interchangeability (vehicle).

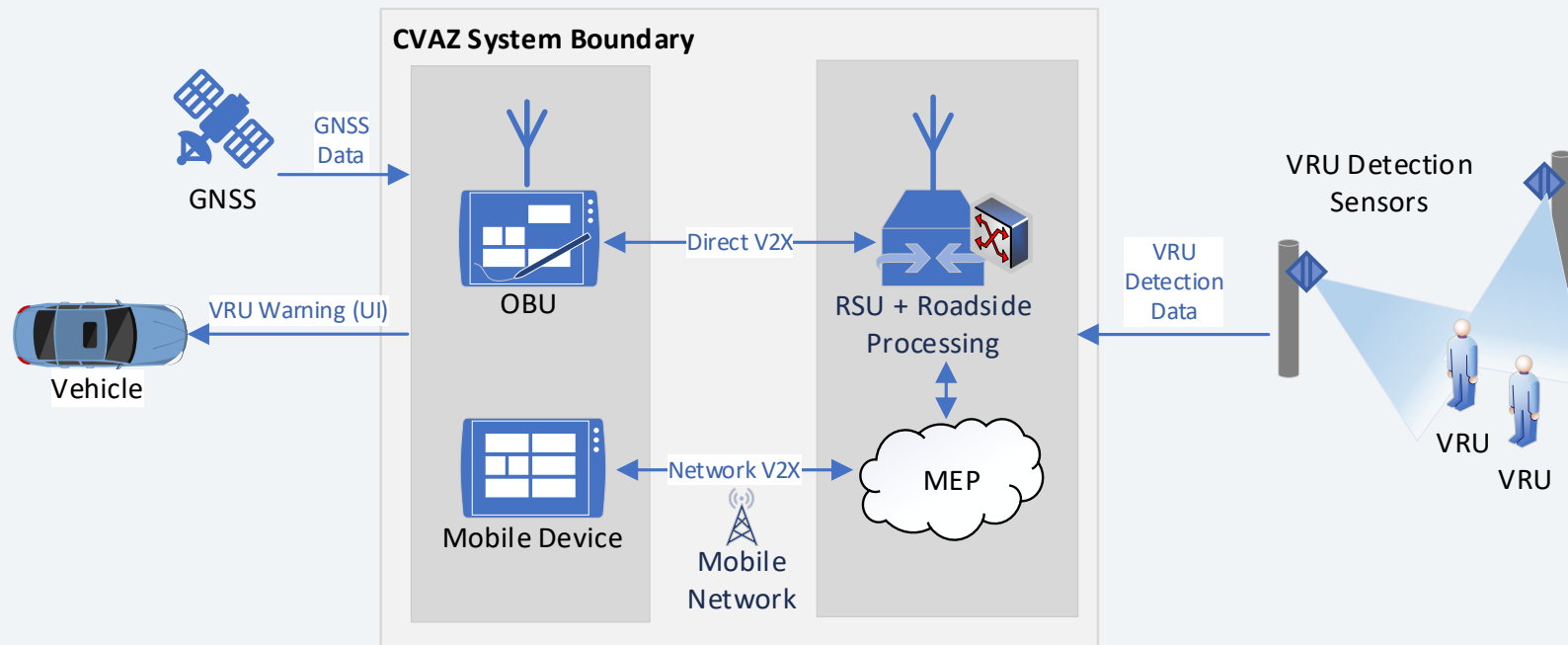


What does this change?



Vulnerable Road Users

- Provides in-vehicle alerts/warnings of the presence of VRUs (detected by infrastructure-based sensors).
- The application will run on both OBU and smartphones and provide audible/visual interface with drivers.



What does this change?



System Deployment

Scale of Deployment

- 750 signalized intersections
 - ~670 planned for EVP
 - ~240 planned for TSP
 - ~65 planned for FSP
 - ~75 planned for VRU
- 400 connected vehicles
 - Emergency response vehicles
 - Transit vehicles
 - Freight vehicles



NEXT STEPS

Current Status

Current Status

- Procurement and systems engineering activities underway.
- Systems engineering and planning for field installation and deployment.
- Early testing of use cases in pilot corridors.

Next Steps

- Continue outreach and engagement with stakeholders and the public.
- Scale use cases to more vehicles and intersections.
- Expand deployment across new corridors in Maricopa County.

Anthem Test Bed

DRIVE Arizona

Loop 101 Mobility CV Deployment

Durango Test Bed

Intelligent Freight & Transit Signal Priority Project

CONTACT FORM + WEBSITE QR CODE

Vendor/Partner Contact Form



Project Website





Q&A

Q&A

- Please keep your phone muted.
- Please use Q&A chatbox to ask questions.
- Questions will be answered in the order in which they were received.



Contact

Joe Cottrell, P.E., P.T.O.E.

CVAZ Site Deployment Lead
Maricopa County Department of
Transportation

joe.cottrell@maricopa.gov

S. Usman Ali, P.E., PTOE, RSP

CVAZ USDOT Agreement Officer
Representative (AOR)

Federal Highway Administration
usman.ali@dot.gov