Texas A&M Transportation Institute
3135 TAMU
College Station, TX 77843-3135

979-317-2863
http://tti.tamu.edu

TECHNICAL MEMORANDUM

TxDOT IAC – Technical Support to the CAV Task Force

DATE: August 11, 2025

TO: Zeke Reyna, Emerging Technology Team Lead, STR, TxDOT
Rose Guajardo, Strategic Management Analyst, STR, TxDOT
Cis
COPY TO: David Florence, Assistant Research Engineer, TTI
TTI_Reports@tti.tamu.edu
Tim Hein, Research Development Office, TTI

FROM: Robert Brydia, Research Supervisor
Senior Research Scientist, Texas A&M Transportation Institute

RE: Texas CAV Full Task Force
July 15, 2025, Meeting Notes

Attendees: 75 in-person, 38 virtual

Voting Members and Task Force Administrators Present (In Person or Virtual):	
Aiden Ali-Sullivan	Waymo
Alison Pascale	Volkswagen Group of America
Amit Bhasin	University of Texas Center for Transportation Research
Anne O'Ryan	AAA - Texas
Bob Brydia	Texas A&M Transportation Institute
Brian A. Moen	City of Frisco
Brian Kelly (proxy for Brian Steiner)	Cisco
Captain Oscar Luna	Texas Department of Public Safety
Darran Anderson	Texas Department of Transportation
Erika Kemp	Texas Department of Transportation
Greg Winfree	Texas A&M Transportation Institute
Jeremiah Kuntz	Aurora
Jordan Coleman (proxy for Dan Goff)	Kodiak Robotics

Lewis Leff	City of Austin
Mark Worman	Texas Department of Insurance
Michael Sanders	Lone Star UAS Center of Excellence and Innovation
Natalie Bettger	NCTCOG
Roland Luna	Texas Department of Motor Vehicles
Zeke Reyna	Texas Department of Transportation

I. Welcome and Voting Member Roll Call – Zeke Reyna, TxDOT

- Thank you for joining both in person and virtually to this meeting of the Texas CAV Full Task Force meeting
- We are looking forward to an exciting meeting today

II. Opening Comments – Darran Anderson, TxDOT

- Due to recent events there is a heightened awareness of Flood Identification and Warning Systems – our connected community has opportunity to weigh in with technologies and solutions that can help so I encourage you to engage with us as well as other in the state.
- We are excited about the topics of today's agenda which address the latest advancements in Driver Out, each of our Subcommittee's intentions for the coming year, as well as an update on activities within the state related to this Task Force. We are looking at them from a safety as well as mobility perspective which is critical and at the forefront of our minds

III. State and Federal Update – Zeke Reyna, TxDOT

- Federico Rodriguez, TxDOT Federal Affairs

NHTSA's National AV Framework

As part of USDOT's "Innovation Agenda," in April 2025, Secretary Sean Duffy unveiled plans for the release of a National "AV Framework." The Framework (*not released as of this writing*) includes three principles:

- Prioritize the safety of ongoing AV operations on public roads.
- Unleash innovation by removing unnecessary regulatory barriers.
- Enable commercial deployment of AVs to enhance safety and mobility for the American public.

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NHTSA's National AV Framework (cont.)

The first actions under the Framework included "modernizing Federal Motor Vehicle Safety Standards (FMVSS) to blaze a path for the safe commercial deployments of AVs while improving both safety and mobility for the American people."

- NHTSA maintains its Standing General Order on Crash Reporting for vehicles equipped with certain advanced driver assistance systems (ADAS) and automated driving systems (ADS).
- NHTSA plans to expand the Automated Vehicle Exemption Program (AVEP) to now include domestically produced vehicles.

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Recent Congressional Interest in AVs

In June 2025, the House Energy and Commerce Committee's Subcommittee on Commerce, Manufacturing, and Trade held a hearing titled *"Looking Under the Hood: The State of NHTSA and Motor Vehicle Safety."*

- Hearing focused on evaluating NHTSA's role in bolstering vehicle safety, promoting vehicle choice, and supporting innovations as Congress considers the next surface transportation reauthorization bill. Committee members inquired on topics such as ADAS and AVs.
- Texas Congressman Marc Congressman Veasey asked witnesses about a provision in H.R. 1, the One Big Beautiful Bill Act—the 10-year AI moratorium on states—and how that might affect states' approach to AV regulation.

- Madeleine Pelton, TxDOT State Affairs
  - 89th Legislative Session: AV Legislation
  - TX SB2425 by Senator Robert Nichols, Chairman of Transportation Committee was added as an amendment to SB2807 by Senator Hagenbuch
    - Although it establishes regulatory deployment to guide deployment and oversight of Level 4 and 5 AVs in Texas, it is designed to support interagency coordination, provide clear expectations for industry and ensure public safety as AV technology advances.

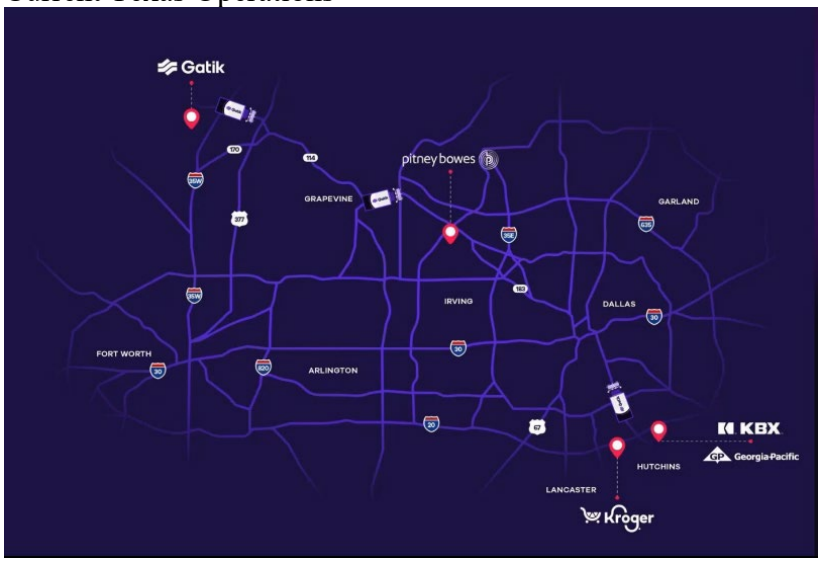
        - Under this legislation, which will go into effect this September, AV companies intending to operate fully autonomous vehicles must submit operational information to the Texas Department of Motor Vehicles prior to deployment
        - Formal authorization from DMV will be required before a vehicle may operate on public roadways in Texas
        - Requires companies to submit First Responder interaction plan to the Texas Department of Public Safety to ensure appropriate protocols are in place for law enforcement and emergency personnel prior to authorization.
        - DPS and DMV are granted enforcement authority under this bill's framework, including the ability to suspend or revoke authorization, if necessary, for safety or compliance reason.
        - DPS is authorized to issue traffic citations directly to AV companies.
        - Clarifies that AVs classified as commercial motor vehicles are subject to enforcement under existing motor carrier laws.
        - AVs that operate as part of a transportation network company are subject to applicable TNC laws and insurance requirements.
        - This bill aims to create clear pathways for AV companies to operate in Texas while enforcing the importance of public safety, agencies, and regulators.
- Roland Luna, Texas Department of Motor Vehicles
    - SB2807 and SB2425
        - Provides authority to DMV to ensure entities or persons receive and maintain authorization to operate an automated vehicle
        - Provides authority to DMV to suspend, revoke, or cancel the autonomous vehicle authorization under certain circumstances.
        - We will be required at the agency to develop a number of SOPs, forms, and agency polices
        - We are working through the process now to develop rules and anticipate that these rules will be adopted in the next few months and posted for public comment.
        - An important provision of the bill is that we ensure that all entities affected by the rules will have 90 days to comply.
- Captain Oscar Luna, Texas Department of Public Safety
    - Working collaboratively with DMV to develop rules in the safety aspect
    - Will review AV operator's submissions for safety before being certified by DMV
    - Desire to safeguard against creating regulatory or provisional rules that might become burdensome or impede progress.
- Alex Hammond, Texas Department of Licensing and Regulation
    - We have jurisdiction over existing TNC statutes so that any transportation network company that operates in Texas, we have authority with regard to registration with regard to AV companies.
    - In conversations with Tesla regarding RoboTaxi launch
    - Our TNC statute does not change under SB 2425 and our rules regarding our TNC statute will largely be unchanged.
    - There will be some updates to conforming language such as references to human drivers.

IV. Updates on Driver-Out Deployments Data

- Jeremiah Kuntz, Aurora
  - Who is Aurora?
    - We develop fully autonomous 18-wheeler trucks.
    - We operate on the I-45 between Palmer and Houston and from Aledo to El Paso.
    - We've announced a new lane being mapped out and developed from El Paso to Phoenix.
    - Fifty vehicles
  - Commercial Launch: First Driver Out - April 27th
    - Between Palmer and Houston on I-45.
    - No driver behind the wheel.
    - Our CEO rode in the back of the vehicle.
    - Extremely successful route with no issues, no MRMs.
    - The vehicle made it from gate to gate.
    - We flipped the load and sent it back from Houston to Palmer, again without incident.
    - We streamed live it within the company and watched it live as it maneuvered on the highway.
  - Continued Operations utilizing small subset of our fleet capable of fully autonomous function.
    - Have added a human back in the vehicle as an observer at the request of PACCAR, (one of our business partners).
    - Two different types of drivers
      - Safety Operators – licensed CDLs whose hands hover the wheel ready to take control and dis-engage autonomy, if needed.
      - Safety Observers – licensed CDLs who sit in driver's seat but do not stand ready to take control of the vehicle.
  - We are slowly building the autonomous subset of our fleet with Safety Observers
  - Currently, we do not operate in heavy rain, nor nighttime conditions but are looking to unlock those as ODDs, as well as other routes.

- Clint Kneip, Gatik
  - Head of First Responder Engagement and Fleet Compliance
  - New to the Task Force
  - Retired California Highway Patrol – Commercial Enforcement Program – oversaw autonomous vehicles, both passenger as well as trucking.

- Current Texas Operations



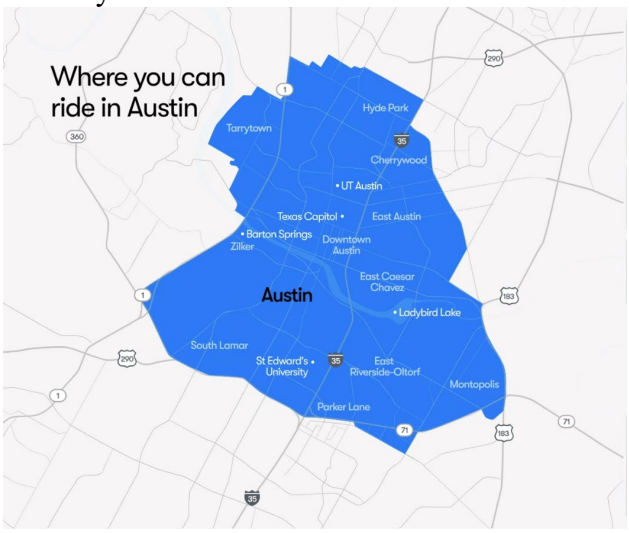
- My primary responsibility is to engage with all First Responder agencies where we will be deployed by offering training on how to interact with our vehicles.

- Jordan Coleman, Kodiak
  - Scaling Driverless Trucks with Atlas Energy Solutions: Deployment in the Permian Basin
    - Solving operational challenges – Kodiak's driverless technology helps Atlas address challenges with driver recruitment, high labor costs, and demanding operating conditions, strengthening its competitiveness
    - Customer-owned driverless deployment – Atlas Energy Solutions operates its own fleet of Kodiak-equipped semi-trucks.
    - Revenue-generating driverless operations today – delivering day and night in most weather conditions.
    - Integrated with Atlas's 42-mile Dune Express conveyor system for end-to-end automation.
    - Commitment from Atlas to order initial 100 trucks secured after Kodiak exceeded key performance and operational milestones in March 2025
  - "We plan to be adding additional autonomous trucks to the fleet with the goal of going to a significantly higher number. We're really excited about what we've seen" ~ John Turner, Atlas, President and CEO

- Christine Garcia, Tesla
  - Professional Background:
    - Began career as EMT/Firefighter, followed by collision reconstruction with San Diego Police Department along with commercial vehicle enforcement
    - Spent time on roadways investigating fatal DUIs and other fatal collisions that could have been prevented
    - Brought experience of previous investigations to Tesla as fuel for new passion to improve autonomous technologies on our roadways so we can reduce fatalities and provide mobility to those who need it.
    - Recently worked on First Responder Action Plan with City of Austin
  - Tesla launched Robotaxi in Austin in June of 2025 – going very well
    - Operating north of 71, south of Colorado River and between Highway 1 and 183
    - Just expanded operational design domain for 2.5-mile corridor on I-35 that runs 7 miles north.
    - Plans to expand in Texas to every major city.

- Operating about 11 Robotaxis on roadways
- We have Safety Monitor inside car that has limited functionality of vehicle – emergency stop or pull over function if critical safety event may occur.

- Noelle Duong, Waymo
  - Deployments
    - WAYMO ONE – Phoenix, San Francisco, Los Angeles
    - WAYMO ONE x Uber – Austin, Atlanta
    - Coming Soon – Miami, Washington D.C.
  - Where you can ride in Austin



  - Making roads safer for all, today
    - Compared to an average human driver over the same distance in our operating cities, the Waymo Driver had:
      - 88% fewer serious injury or worse crashes (15 fewer)
      - 79% fewer airbag deployment crashes (94 fewer)
      - 78% fewer injury-causing crashes (223 fewer)
  - Beyond where we operate commercially, Waymo also conducts testing in other cities to learn about different driving conditions, weather, different road configurations. Currently, this year, we've tested "Road Trips" in ten cities with humans behind the wheel.

- The Texas cities where we've conducted these Road Trip are Dallas, Houston, and San Antonio.

V. Subcommittee Topics

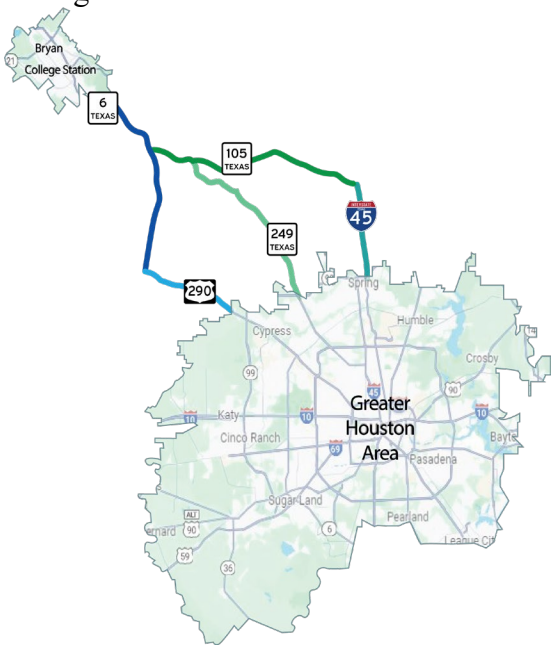
- **Data, Connectivity, Cyber Security, and Privacy – Chair: Brian Steiner, Cisco**
  - Practical and Private CAV Data Exchange
    - While data exchanges exist and have been discussed, few concrete projects are actually leveraging the data collected by AVs to assist IOOs and vice versa. This opportunity would determine what data can and should be shared to support both entities and adhere to security and privacy.
  - Objectives
    - Create a plan to develop a functional data exchange
    - Identify critical data elements to transfer between IOOs and AV companies and the associated potential benefit.
    - Determine appropriate communication medium and transfer methods for data.
    - Explore methods to ensure private and reliable data exchange for potentially sensitive transportation data.
- **Education, Communication, and User Needs – Chair: Greg Winfree, TTI**
  - Community Engagement and User Need Exploration
    - Autonomous vehicles exist in urban and rural spaces in different capacities. In the urban context communities find robotaxi services, autonomous shuttles, and autonomous freight. In the rural space communities interact with autonomous agriculture equipment and, perhaps, autonomous freight too. This presents an opportunity to develop a public involvement campaign plan to explore what communities need to know about autonomous technologies and how they fit into their environment.
  - Objectives
    - Construct a framework for a public involvement campaign revolving around realistic use cases.
    - Identify opportunities for communities and autonomous vehicle companies to learn about each other.
    - Explore methods to reach disparate communities to discuss connected-autonomous technologies.
    - What experiences and needs are unique to urban and rural communities?
    - Document user needs and user stories that involve autonomous technologies.
- **Freight and Delivery – Chair: Dan Goff, Kodiak**
  - Multi-Modal Autonomous Freight Considerations and Coordination
    - The need to bring products to market often involves numerous modes of transportation and any number of transfers. As AVs continue to proliferate across the system, these transfer needs may change. This opportunity examines how autonomous freight transfer between modes could take place in the future particularly at in-land and seaports.
  - Objectives
    - Identify the challenges posed by transition between different modes of travel to autonomous freight.

        - Develop challenges and potential solutions for the interaction experiences for an autonomous freight fleet.
        - How can coordination be improved for mode transitions, especially at ports.
- **Licensing and Registration – Chair: Roland Luna, TxDMV**
    - Remote Driving Licensing Oversight and Implementation
        - Texas Senate Bill 2807, which is going into effect on September 1, 2025, includes provisions for additional information pertaining to the licensing and registration of autonomous vehicles. This opportunity will examine those needs and the impacts to state procedures.
    - Objectives
        - Explore impacts of Senate Bill 2807 on the Texas DMV and identify the impacts of licensing requirements for individuals, businesses, employees, passengers, and remote operators, across the entire ecosystem of AV vehicles.
        - Identify additional technology aides for CAV credentials, licensing, and registration such as a decentralized technology like blockchain.
        - Identify potential impacts of this legislation on future individual autonomous vehicle ownership.
- **Safety, Liability, and Responsibility – Chair: Oscar Luna, TxDPS**
    - Risks and Mitigation Strategies for Human and Connected-Automated Vehicle Interactions
        - The realm of AV and human interactions can be complicated, especially in the area of emergency response. Significant progress has been made in developing first responder guidelines and action plans. In response to SB 2807, this opportunity will review the recently completed first responder guide, update with new information, and develop templates for AV companies to comply with the legislation in coordination with the Texas Department of Public Safety.
    - Objectives
        - Review and update first responder guidebook.
        - Develop templates for first responder interactions
        - Develop case studies around potential challenges to improve safety during the interaction.
        - Provide guidance on how to better communicate with human road users and ADS to improve safety.
- **Future Workforce and Economic Opportunity – Chair: Amit Bhasin, UTCTR**
    - Urban and Rural Workforce Connectivity, Certification, and Communication
        - Rural vs. Urban communities have different needs, expectations, and interactions with AVs. This provides an opportunity to examine the need for certifications, educational programs, and skills necessary for these different ecosystems. This also includes the economic benefit of AVs in different community types.
    - Objectives
        - Identify the workforce needs specific to various types of AVs encountered in rural and urban communities in all population density environments.
        - What job types and skills are different by community type (rural vs. urban)?
        - Examine certification and licensing needs for these technologies.

- Investigate how CAV deployments can impact economic development in rural areas through improved connectivity and economic function.

VI. Connectivity Minute

- Texas Trust update - Robert Brydia, TTI
  - What is the Current Status of V2X?
    - Equipment – Sending information into the "air" is available.
    - Standards – Messaging standards exist and continue to evolve.
    - Vehicles – Few can receive (only a few very high-end models).
    - Prospective Users – No direct reception. A few cellphone apps.
  - USDOT National Goals
    - Safety, Mobility and Connectivity - Deploy integrated applications to substantially improve safety, mobility, efficiency, environmental impacts, equity, and ROI
    - Outreach & Education - Inform and educate ITS community and the general public regarding these impacts
    - National Blueprint - Support development and documentation of at-scale national deployment of interoperable connectivity
    - Support development and documentation of at-scale national deployment of interoperable connectivity
  - Deployment Region



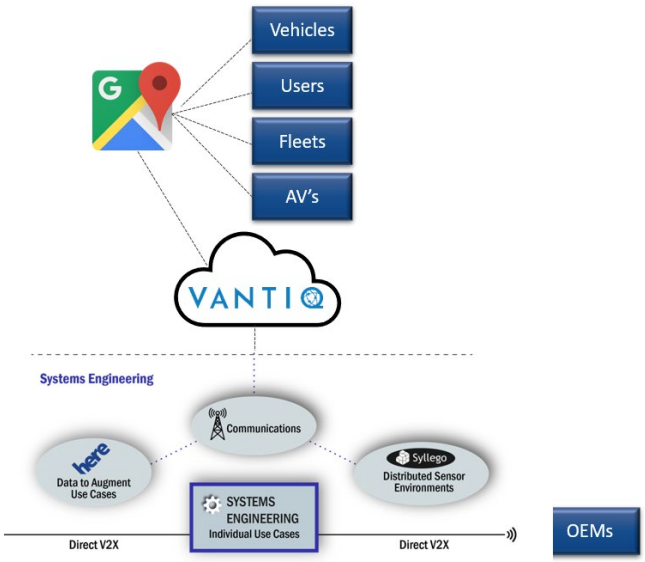
  - Applications in College Station
    - SPaT-Enabled Intersections for VRU Identification and Protection
    - Traffic Signal Preemption and Priority
    - Transit Fleet Integration
    - Every Day a Gameday
    - Enhanced Highway Construction Worker Safety
  - Applications in Houston
    - Roadway Flood Warning
    - Houston SPaT-Enabled Intersections

- Right Turns on Red Warning
- Red Light Violation Warning
- Wrong Way Driving
- Emergency Vehicle Response Time and Safety

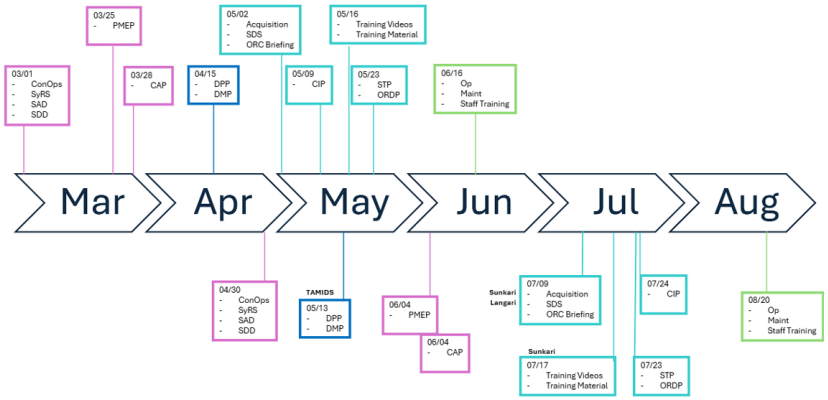
- Applications on NHS
  - Incident Management / Hurricane Evacuation
  - Adverse Weather Events / Flooding
  - Construction events
  - Curve speed warning
- V2X Use Case Communications

College Station SPaT-Enabled Intersections	DIRECT
Traffic Signal Preemption and Priority	DIRECT
Transit Fleet Integration	DIRECT
Every Day a Gameday	NETWORK
Enhanced Highway Construction Worker Safety	DIRECT
Roadway Flood Warning	NETWORK
Houston SPaT-Enabled Intersections	DIRECT
Right Turns on Red Warning	DIRECT
Red Light Violation Warning	DIRECT
Wrong Way Driving	NETWORK
Emergency Vehicle Response Time	DIRECT
Incident Management / Hurricane Evacuation	NETWORK
Adverse Weather Events / Flooding	NETWORK
Construction events	DIRECT
Curve Speed Warning	DIRECT
Transit Fleet Integration	DIRECT

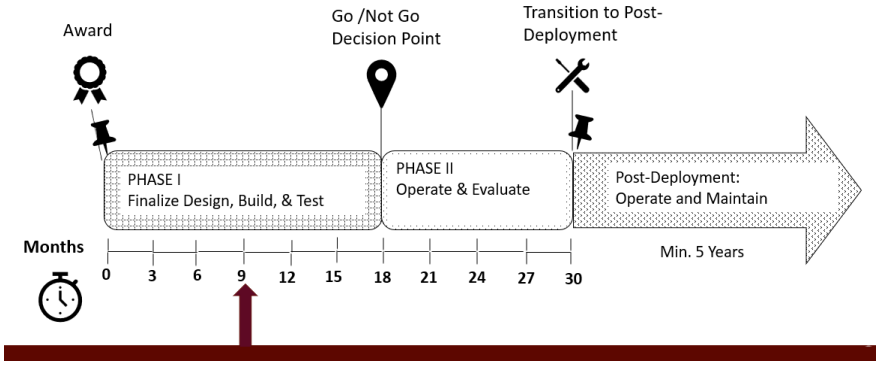
- Systems Architecture



- Project Timeline

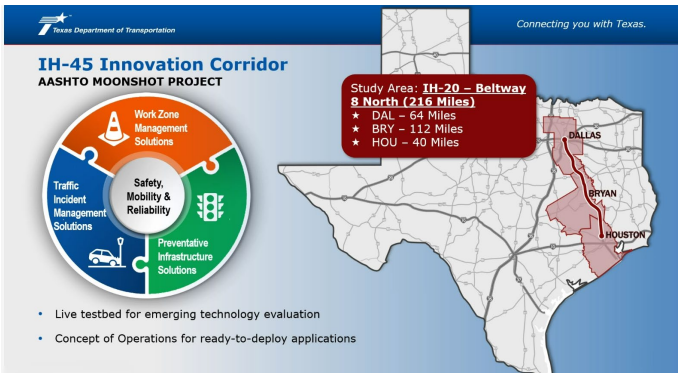


- Project Schedule

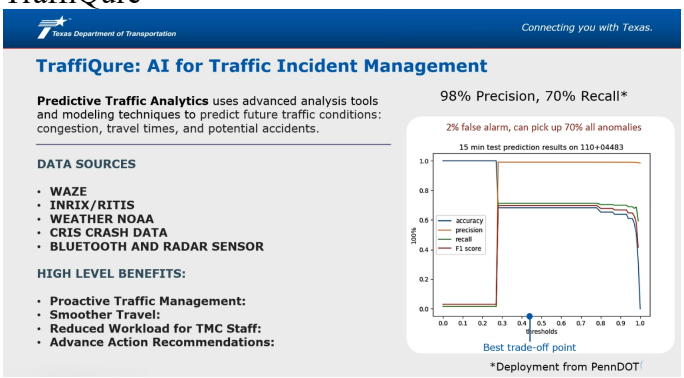


- Partners

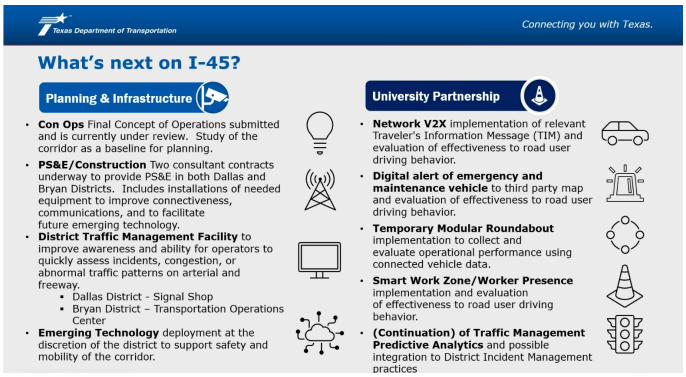
- I-45 update - Brandi Bush, TxDOT
  - IH-45 Innovation Corridor



- TraffiQure



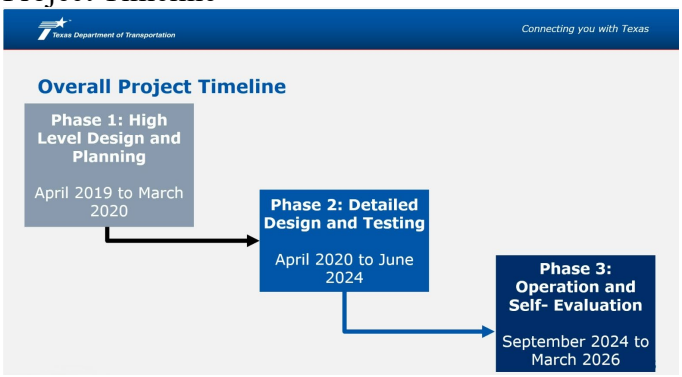
- The Future of I-45



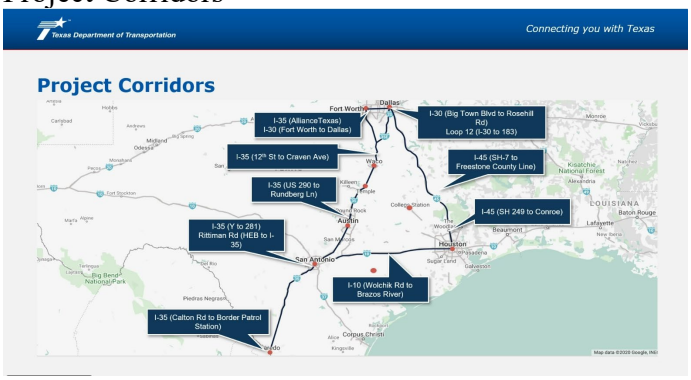
- DriveWyze Results/Messaging Strategy and Visioning project - Erika Kemp, TxDOT
  - Commercial Vehicle Alerts

- Texas Connected Freight Corridors (TCFC) update - Jiamming Ma, TxDOT - TRF Division
  - Core Team – TxDOT, FHWA, TTI, SWRI, UTCTR

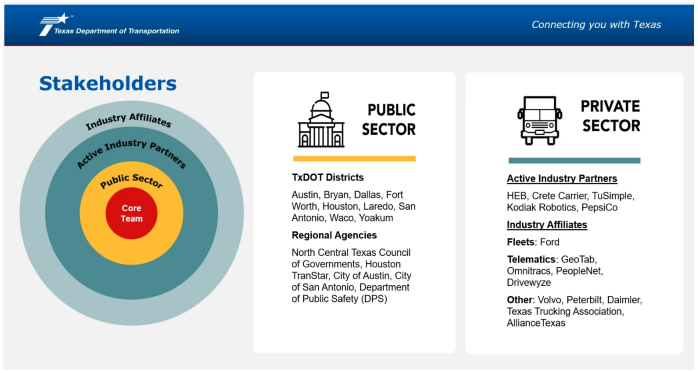
- Project Timeline



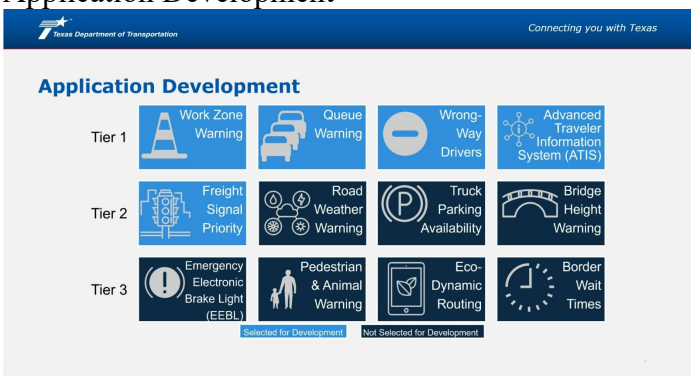
- Project Corridors



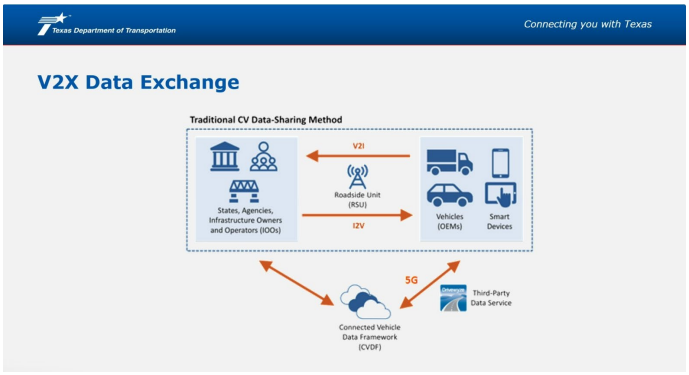
- Stakeholders



- Application Development



- V2X Data Exchange



- Deployed equipment status
  - Over 70 RSUs installed in the field
    - AUS, BRY, DAL, FTW, HOU, LRD, SAT, WAC, YKM
    - Coordinating RSU integration with HOU, WAC, BRY and YKM
  - 30 OBUs to be distributed to our Freight Partners and FOD
    - Updating the OBU Connected Vehicle Graphical User Interface (CV GUI)
  - Procured an SCMS vendor in July 2024
  - Started enrolling RSUs and OBUs onto the SCMS

VII. Next Steps and Closing Comments – Erika Kemp and Darran Anderson, TxDOT

- Upcoming Events
  - ITS World Congress – August 24 – 28, 2025, Atlanta, Ga
  - Automated Transportation Symposium – November 3 – 6, 2025, Tempe, AZ
  - UTCTR – Texas Autonomous Trucking Research Symposium – Tuesday, December 2, 2025, 8AM – 7 PM, AT&T Conference Center, Austin, TX (ctr.events@utexas.edu)
- Next Full CAV Task Force Meeting – Thursday, December 4, 2025, TxDOT Stassney Office

VIII. Adjourn