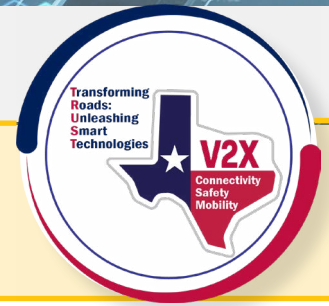


Saving Lives with Connectivity: Accelerating Vehicle to Everything (V2X) Deployment



USE CASE #15

Emergency Vehicle Response Time and Safety

WHAT IS VEHICLE-TO-EVERYTHING (V2X)?

V2X functions like a group chat for the road. It allows cars, traffic lights, and other road users to communicate in real-time by sending messages to each other, and each message can carry different safety and roadway information.



Ambulance driving on a road with a blue car passing in foreground. (source TTI)

USE CASE #15 DESCRIPTION

When emergency vehicles respond, every second counts. Ambulances and fire trucks must reach their destinations quickly and safely, but traffic and red lights can delay them and raise risks for everyone. V2X technology lets V2X-equipped intersections adjust in real time so emergency vehicles can get through faster.

WHAT CAN I EXPECT FROM THIS USE CASE?

As a general road user, you may still notice the usual momentary disruptions when an emergency vehicle passes. Traffic signals will continue to operate normally. However, at select intersections in the Houston region, this technology helps emergency vehicles move more efficiently by providing green lights as they approach an incident.

HOW DOES IT WORK?

An emergency vehicle submits a request to a V2X-equipped intersection asking for a green light. The request is sent as a V2X message to the intersection, where it is received and approved. This process is known as Emergency Vehicle Preemption.

2023 Texas logged 4,291 DEATHS

250,489 and INJURIES

2024 Houston Fire Department responded to

416,000+ incidents

In most cases, crews arrived within



11 minutes

USER STORY

The Challenge: You are driving an ambulance with a patient in critical condition, but heavy traffic and red lights are slowing you down.

V2X Solution: V2X-equipped intersections receive your request to extend the green light and adjust the signal timing to let the emergency vehicle pass.

Outcomes & Benefits: You reach the hospital faster and safely, helping your patient get the care they need while keeping everyone on the road safe.

Emergency Vehicle Response Time and Safety

TEXAS TRUST PROJECT

The Transforming Roads: Unleashing Smart Technologies (TRUST) project is a federally funded initiative led by the Texas A&M Transportation Institute (TTI).

TTI, in partnership with state, local, and industry partners, is implementing V2X technology in Houston and Bryan-College Station through 15 real-world use cases that demonstrate how V2X can enhance safety, mobility, efficiency, and economic growth. TRUST aims to develop solutions that work across different technologies and regions, while sharing insights to help create a national blueprint to accelerate V2X adoption and implementation nationwide.

USE CASES

LOCATION:

GREATER HOUSTON AREA

- 10. Roadway Flood Warning
- 11. SPaT-Enabled Intersections
- 12. Right Turn on Red Warning
- 13. Red Light Violation Warning
- 14. Wrong Way Driving Detection
- 15. Emergency Vehicle Response Time and Safety**



LEARN MORE ABOUT TEXAS TRUST & V2X

For more information on Texas TRUST and to explore V2X educational resources, project updates, and use cases, please visit: <https://v2xtexastrust.com/>

For a list of supporting references used in these materials, visit: [V2X Use Case Sources](#).



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