

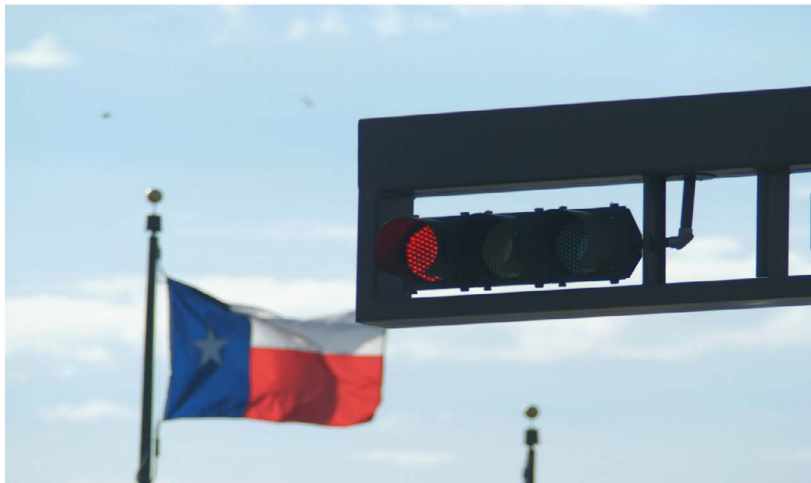
Saving Lives with Connectivity: Accelerating Vehicle to Everything (V2X) Deployment



USE CASE #13 Red Light Violation Warning

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.



A red traffic light glows above roadway with the Texas flag waving in the background. (source TTI)

USE CASE #13 DESCRIPTION

Running a red light at an intersection can result in severe or even fatal consequences for everyone involved. These crashes often occur when drivers fail to recognize or respond to a changing signal in time. This use case highlights how V2X technology can deliver real-time, in-vehicle alerts to drivers approaching an intersection on a red light, helping them stop safely and avoid dangerous situations.

WHAT CAN I EXPECT FROM THIS USE CASE?

At select intersections, V2X-equipped vehicles will receive an alert if the driver is about to enter a red light. These warnings are designed to give drivers enough time to stop safely and reduce the risk of running a red light, keeping everyone safer at intersections.

HOW DOES IT WORK?

V2X-equipped intersections broadcast V2X messages containing signal timing and intersection layout information. V2X-equipped vehicles use this information, along with vehicle speed and position, to determine whether they are at risk of running a red light. If so, the vehicle issues an alert to the driver.

HOUSTON, 2022

Disregarding traffic signs or signals contributed to

22% of
SERIOUS
INJURIES



14% of
TRAFFIC
DEATHS

Texas 2022

1,023
people killed in
intersection-related
crashes statewide



USER STORY

The Challenge: You are heading home after a long day and get lost in thought as you approach a busy intersection. You don't notice the signal turn red.

V2X Solution: As you approach the intersection, your vehicle receives signal timing information and warns you if you're about to run a red light, giving you time to slow down and stop safely.

Outcomes & Benefits: You brake in time, avoiding a dangerous violation and a potential crash with crossing vehicles or pedestrians.

Red Light Violation Warning

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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