



INNOVATION / TECHNOLOGY DEPLOYMENT SUMMARY

Pedestrian Detection and Alerts on Cesar E. Chavez Border Highway

CHALLENGE

The Cesar E. Chavez Border Highway (SL 375) has been experiencing unique safety challenges due to unauthorized pedestrian crossings from the U.S.-Mexico border (Figure 1). CRIS data from 2017–2023 documents 57 traffic crashes and 28 fatalities resulting from pedestrian crossings along SL 375. Existing warning systems, including static and dynamic signs, are losing effectiveness because they remain active regardless of actual pedestrian presence. This results in diminished driver alertness and an increased risk of traffic crashes.



Figure 1. Pedestrians crossing the Border Highway. Source: [elpasotimes.com](https://www.elpasotimes.com)

SOLUTION

This innovation implements advanced pedestrian detection technologies (Figure 2). These technologies accurately and swiftly identify pedestrians approaching the highway, enabling real-time activation of warning systems like flashers and dynamic message signs (Figure 3). The goal is to improve road safety by providing timely and relevant warnings to drivers, thereby reducing the likelihood of fatal or injury crashes.



Figure 2. Silent sentinel camera and solar trailer.

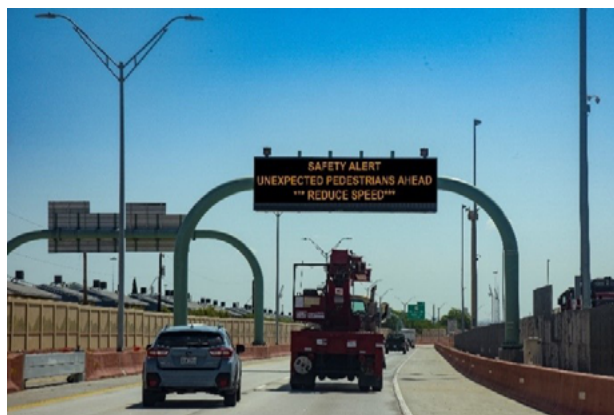


Figure 3. Example of a dynamic message sign (DMS) alert.

TxDOT GOALS



Deliver the right projects



Focus on the customer



Foster stewardship



Optimize system performance



Preserve our assets



Promote safety



Value our employees



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PROACTIVE APPROACH

This project proactively addresses the road safety issue with innovative technology, collaboration with local and federal agencies for data and support, and continuous evaluation and adaptation of technologies for optimal pedestrian detection and alerting.

BENEFITS

The benefits of this innovation include enhanced road safety with real-time pedestrian detection; increased driver responsiveness due to dynamic, situation-specific warning signals; potential applicability of the technology to other locations with similar pedestrian safety challenges; and better integration with existing road safety infrastructure to elevate overall safety standards.

KEY TASKS

- Collaborate with law enforcement agencies to gather insights on unauthorized trespasser incidents.
- Test and evaluate different pedestrian detection technologies.
- Assess the performance of selected technologies in real-world conditions.
- Continue discussions with vendors whose technologies have been tested and explore the feasibility of additional testing with vendors offering broader technology applications.

DATA SOURCES

The data sources for this project are TxDOT's CRIS crash data, U.S. Border Patrol data on unauthorized trespasser incidents, and vendor-supplied technology data and demonstrations.

Resources

[El Paso District \(txdot.gov\)](https://www.txdot.gov)

[Crash Data and Analysis: CRIS Query Tool \(txdot.gov\)](#)

[ITS Map: El Paso District dynamic message signs](#)

[Texas Pedestrian Safety Action Plan: Statewide Summary \(txdot.gov\)](#)

[Texas Strategic Highway Safety Plan: Vulnerable Road Users](#)

[Developing Countermeasures to Decrease Pedestrian Deaths: Guidebook \(utexas.edu\)](#)

Contact

Eduardo Perales, P.E.,
Director of
Transportation
Operations

Ph: (915) 790-4356

[Send an email: from our Contact Us page.](#)