



INNOVATION / TECHNOLOGY DEPLOYMENT SUMMARY

Access Management Analysis Using Connected Vehicle Data

CHALLENGE

The Wichita Falls District is designing a 3.87-mile widening project on US 82 between Holliday and Wichita Falls. The project aims to match the existing four-lane with a two-way left-turn lane cross-section throughout the corridor. This rapidly developing suburban/rural area experiences high traffic volumes (7,500–11,500 annual average daily traffic in 2022) and concerning safety issues (114 fatal or suspected serious crashes from 2018 to 2022, based on CRIS data). The challenge involves leveraging available data to conduct a comprehensive access management review early in the design phase.

SOLUTION

This project explored using connected vehicles (CV), private probes, and crash data to identify and recommend access management strategies during the critical 30 percent PS&E design review stage.

PROACTIVE APPROACH

The Wichita Falls District recognized the potential of non-traditional data sources to gain valuable operational and safety insights early in the design process. By visualizing and layering CV, probe, and crash data, the district was able to:

- Confirm existing observations, such as high traffic speeds and truck volumes;
- Identify new areas of concern, such as intersections/driveways with high turning movements;
- Locate crash cluster zones.

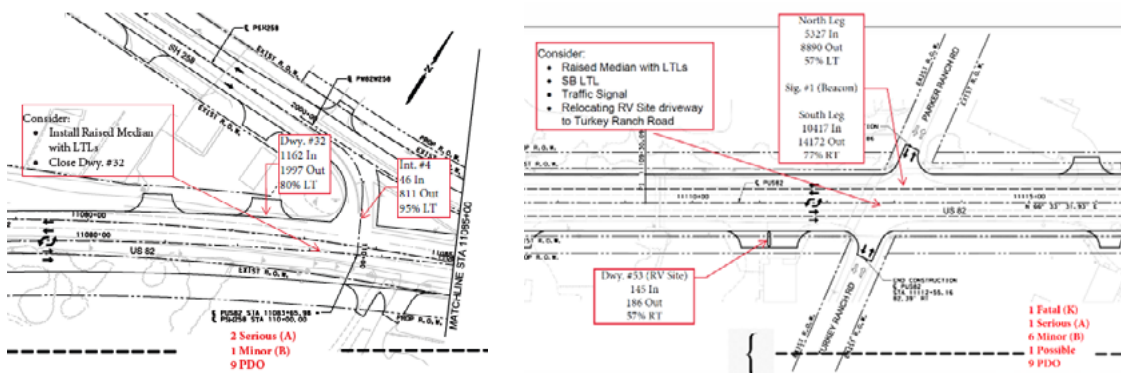


Figure 1. Examples of access management considerations for design plans.

TxDOT GOALS



Deliver the right projects



Focus on the customer



Foster stewardship



Optimize system performance



Preserve our assets



Promote safety



Value our employees



Access Management Analysis Using Connected Vehicle Data

These insights informed data-driven access management recommendations incorporated into the 30 percent design plans (Figure 1). This proactive approach has the potential to significantly improve the safety and efficiency of the US 82 widening project.

BENEFITS

- **More Comprehensive Review:** Integrating data analysis into the early design phase allows for a more complete assessment of access management needs.
- **Data-Driven Decisions:** By analyzing CV, probe, and crash data, the project provides a data-driven approach to evaluating driveway and intersection locations and their interactions, leading to informed design decisions.
- **Enhanced Safety and Efficiency:** Ultimately, this approach aims to improve highway safety and efficiency by strategically managing access points.

KEY TASKS

- Meet with district staff and perform preliminary site visits.
- Compile CV, probe, and crash data.
- Inventory existing driveways and perform analysis.
- Review 30 percent of PS&E plans.
- Develop design considerations, by analyzing different data sources, including:
 - Heat map of turning movements (Wejo) (not pictured)
 - Average and 85th percentile speeds (INRIX) (see Figure 2).
 - Crash clusters by severity (CRIS) (see Figure 3).
- Perform final site visit.
- Build awareness by presenting at the 97th Annual Transportation Short Course.

DATA SOURCES

Data sources for this project include connected vehicle (Wejo), private probe (INRIX), and TxDOT's Crash Report Information System (CRIS) data.

INRIX Speeds (10/21, Mon-Fri, 9-11am)		
DIR.	Ave.	85 th percentile
NE	61.9	66.5
SW	62.0	67.4

Figure 2. INRIX average and 85th percentile speeds.

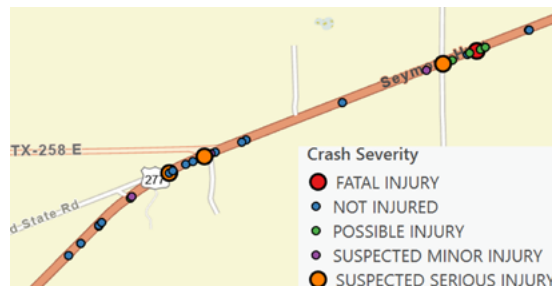


Figure 3. CRIS crash clusters by severity.

Resources

[Wichita Falls District \(txdot.gov\)](http://txdot.gov)

[US 82 The Gap Improvement Project \(txdot.gov\)](http://txdot.gov)

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

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