INNOVATION / TECHNOLOGY DEPLOYMENT SUMMARY

Automated Lane Closure Alerting Using Smart Work Zone Technologies

Texas Department of Transportation™

CHALLENGE

US 287 is one of the highest-volume high-speed facilities managed by the Childress District. It is a major freight corridor through the district, and commercial fleet vehicles represent a high percentage of the total traffic volume on the facility. Crashes, particularly those occurring in or around work zones, can cause significant queues. Encountering unexpected queues is particularly hazardous for heavy trucks because of their limited maneuverability and increased stopping distance. The challenge is to provide a mechanism for automatically alerting travelers of lane closures caused by incidents or crashes through third-party applications such as Waze or Google Maps.

SOLUTION

This innovation focuses on providing automatic notifications to alert the driving public of lane-closing incidents on US 287. Upon arrival at an incident, Childress District maintenance supervisors can activate a device installed in their vehicle to provide an automated lane closure notification to private navigation tools and applications.

PROACTIVE APPROACH

This innovation explores the potential of using an automated hazard beacon (available as a commercial, off-the-shelf technology) to provide notifications. Once activated, the automated hazard beacon transmits its GPS location and "ON" status using cellular technology to a data collection site. This generates a hazard alert and location on the Waze app within minutes.

BENEFITS

The benefits of this innovation include automated notification of hazards to private navigation tools as well as posting of alerts on the travel application within minutes.

KEY TASKS

This innovation is currently under development. The next steps for the district in this deployment include the following:

• Install the hazard alert beacon in a supervisor vehicle used by TxDOT to assist at incident scenes.

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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- Conduct operational field tests on the effectiveness and timeliness of the alerts produced by the hazard beacon.
- Develop standard operating procedures for integrating the use of the hazard beacon on all lane-closure incident responses.

DATA SOURCES

The primary data source for this innovation is an automated hazard alert beacon (see Figure 1). Cellular technology is used to provide the coordinates of the beacon to the cloud, where the vendor identifies the beacon as a hazard. Alerts are provided via a standardized data exchange for use by third-party traveler information applications (see Figure 2).

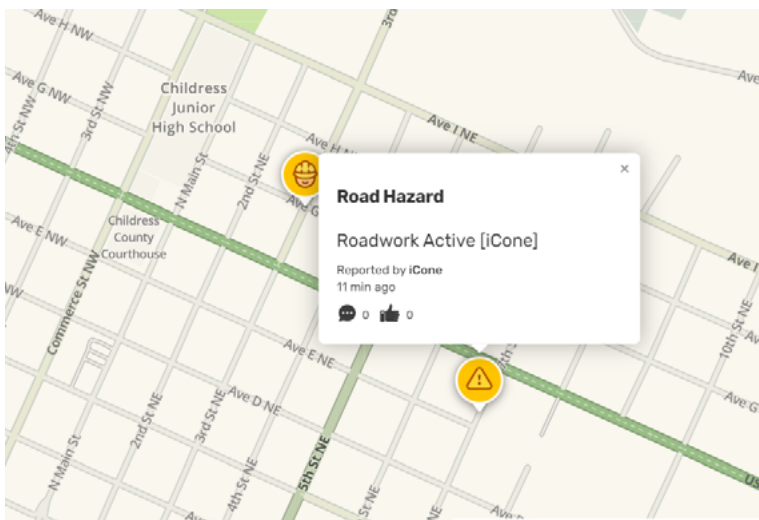*Figure 1. Hazard alert beacon deployed near US 287 in Childress, Texas.*

Figure 2. Waze alert showing location of hazard beacon in Childress, Texas.

Resources

[Childress District (txdot.gov)](#)

[Highway Conditions: DriveTexas.org](#)

[ITS Deployment Evaluation: Reduced speed / Lane closure (dot.gov)](#)

Contact

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