



Wrong-Way Driving Detection in One-Way Work Zones

CHALLENGE

The Pharr District has a considerable number of two-lane roadways. To maintain access to adjacent properties, the district frequently uses a one-way work zone where one direction of flow is maintained, and the other direction of flow is detoured to alternate routes. Because of the configuration of the network, these detours can be substantial – up to 10 to 12 miles. Due to the length of the detours, drivers will enter these one-way routes in the wrong (or closed) direction of travel.

SOLUTION

This project involves adding temporary wrong-way driving (WWD) detection and on-site notification to one-way work zones using trailer-mounted sensor technologies (Figure 1). This helps to detect vehicles traveling the wrong direction in the defined area in a one-way construction zone. The system is contained in a mobile platform to allow easy maneuverability in the work zone.

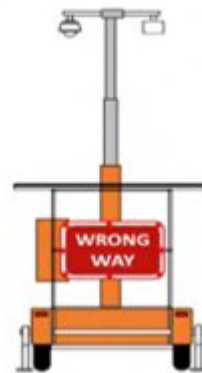


Figure 1. Trailer assembly with temporary wrong way detection and notification system.

PROACTIVE APPROACH

The system continuously monitors the travel lane(s) of the construction zone to detect any vehicle traveling opposite to the designated direction of flow. Upon detecting a vehicle traveling the wrong way in the work zone, the system activates light-emitting diode (LED) flashing lights embedded in the border of a static WRONG WAY (R5-1a) sign. The LED-enhanced signs are positioned to notify wrong-way drivers that they are traveling against the direction of flow in the work zone. Once activated, the flashing LEDs remain active for a user-defined period, not to exceed 10 minutes, even if there is an active detection and warning response. After the time has elapsed, the flashers deactivate and the system returns to the monitoring mode.

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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BENEFITS

The system is expected to reduce WWD events in one-way construction zones. Active notifications will help wrong-way drivers take corrective action if traveling the wrong way.

KEY TASKS

- Review TxDOT-approved WWD detection technologies.
- Develop draft traffic control plans to identify appropriate locations and placement of a temporary WWD detection and notification system (see Figure 2).
- Incorporate temporary WWD detection and notification system into the traffic control plans for an actual work zone.
- Deploy and monitor the effectiveness of the system in an actual work zone.

DATA SOURCES

Data sources include sensors used to detect wrong-way events and activate flashing WRONG WAY signs.

Resources

[Pharr District
\(txdot.gov\)](https://www.txdot.gov/pharr-district)

[Crash reports and
records \(txdot.gov\)](https://www.txdot.gov/crash-reports-and-records)

[ITS Map: Pharr District
\(its.txdot.gov\)](https://www.txdot.gov/its-map-pharr-district)

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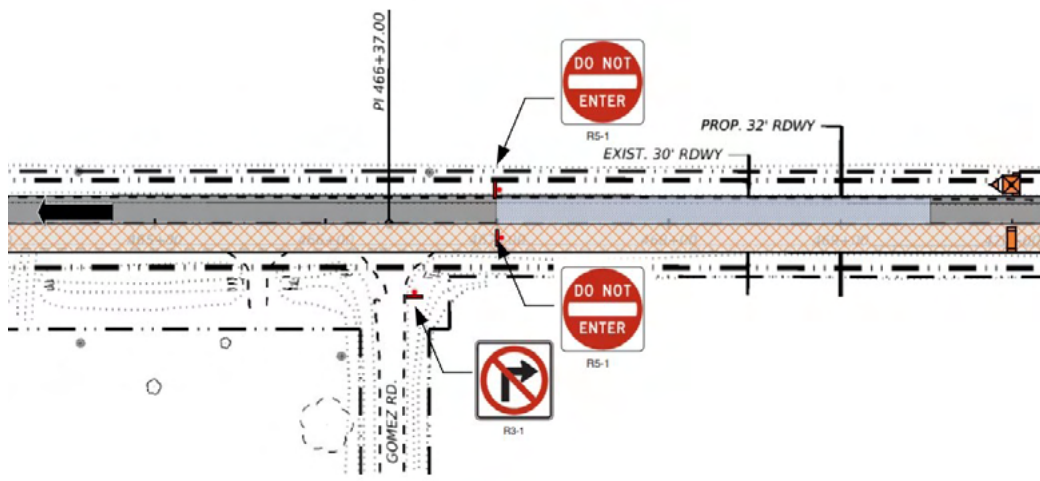


Figure 2. Example of traffic control plans.