

Wrong-Way Driving (WWD)

Rapid Facts



Occurs almost daily:

359 people in the US die in WWD crashes every year.

This number has remained stable while overall traffic fatalities have decreased.

High fatality rate:

27x more likely to result in a fatality than other types of crashes.

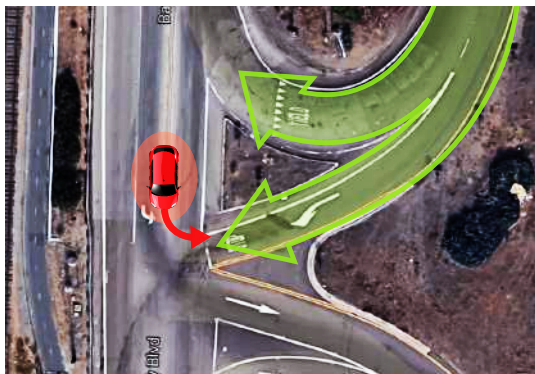
WWD crashes happen at high speed and are more likely to be head-on.

Underreported:

10% of WWD witnesses report the incident to authorities.

WWD is more prevalent than indicated by 911 calls or crash data.

National Transportation Safety Board, [Highway Special Investigation Report – Wrong-Way Driving](#), 2012.



What causes WWD?

Poor lighting: 78% of fatal collisions occur between 6 p.m. and 6 a.m. when visibility is low.

Problematic roadway design and markings: Primary origin is exit ramps due to confusion for ramp exit and lack of signage.

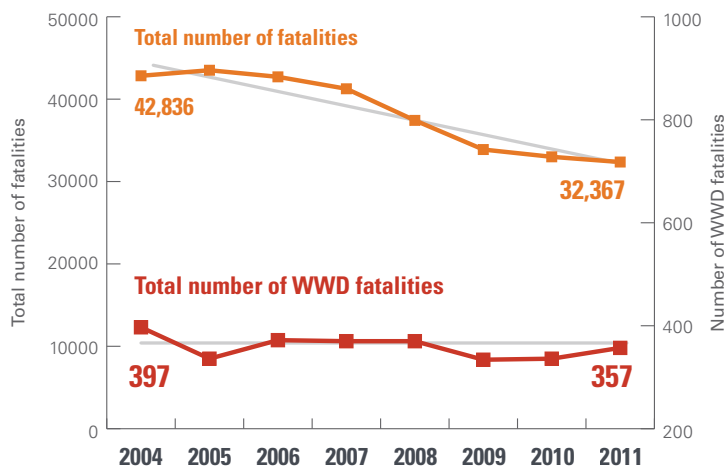
Driver issues: 75% of incidents involve alcohol / drug impairment. Others include distracted driving, driver inexperience or cognitive issues.

Current treatments are ineffective

Treatments include adding WW and DO NOT ENTER signage, raised pavement markings and added retroreflectivity. WWD incidents and fatalities are not decreasing.

Experimental countermeasures

States have deployed new countermeasures that use a variety of technologies and off-the-shelf components with varying success.



US overall traffic fatalities vs. WWD fatalities

Arkansas' \$3.1 million sign, pavement marking and ramp reflector upgrades had **no effect on the number of crashes.**

Texas' 22-month study of LED enhanced signs found a **38% reduction in WWD events.**

Nevada's project used radar detection, video analytics, LED flashing light bars, and TMC alerts. Preliminary results showed the systems were **80% effective in stopping WW drivers.**

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WWD systems add layers of safety and reduce response times

Relying on wrong-way drivers to self-correct or on other drivers to report them is dangerous and wastes valuable time. Multiple points of safety lower the risk of a fatal crash.

- ✓ Research shows that adding **high-intensity LEDs** to signs improves self-correction.
- ✓ **Detection and alert technologies** that notify authorities can help reduce the time to intercept wrong-way drivers, alert other drivers and deploy first responders.



Vehicle detection and alert systems are up to

80% effective in stopping wrong-way drivers.

Nevada DOT, [Wrong Way Driver System](#), preliminary research press release.

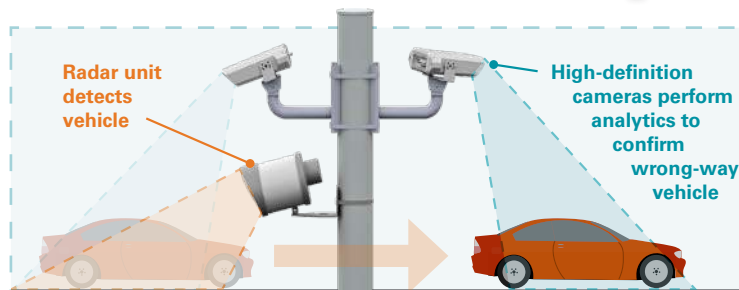
Carmanah offers a portfolio of reliable, highly visible and compliant WWD systems.

This new advanced solution is based on detection and alert technology from [our Nevada project](#).

While some manufacturers rely on a single type of detection technology, Carmanah uses both radar and video cameras for detection and decision-making analysis. These multiple sources of data and analysis provide a highly accurate determination, allowing you to respond to the event promptly and with confidence.

WW100
24-Hour Flashing Warning Sign
Cost-effective flashing sign to enhance existing ramps/roadways.

WW400
Vehicle Detection and Alert System
For problematic locations with high WWD crash rates.



Superior confirmation technologies and analytics

The WW400 uses a dual technology confirmation system. Distinct, real-time algorithms are performed on the radar and video data to ensure the accuracy of a WWD event.