

# Wrong Way Driving

## Road Safety Audit Prompt List

### Purpose

This document contains a Road Safety Audit (RSA) prompt list intended to focus specific attention on Wrong Way Driving (WWD) issues and contributing factors. The prompt list has been developed in a similar framework to the broader RSA prompt lists contained in Chapter 8 of the FHWA RSA Guidelines document. Like the original lists, the Wrong Way Driving prompt list is intended to help the RSA team identify potential safety issues, avoid overlooking important factors, and proactively identify potential issues. The prompts are only an aid to the RSA team and they are not intended to cover all conditions or circumstances an RSA team may encounter.

Numerous studies of the contributing causes and issues surrounding WWD crashes, conducted primarily by State departments of transportation since the 1960s, indicate that WWD crashes are much more likely to result in fatalities or severe injuries than other highway crash types and highlight several factors that must be acknowledged by any WWD-related RSA. Categorically, there are significant human factors and environmental conditions generally associated with WWD crashes. Various research efforts have found the following correlations:

- » A substantial percentage of wrong way drivers are impaired by alcohol.
- » Over-representation of certain driver age groups, such as older drivers (particularly those over the age of 70) and younger drivers (under the age of 25).
- » The majority of WWD crashes that result in a fatality occur at night, when visibility of roadway attributes and signs are diminished, and a disproportionate number occur on the weekend, which potentially coincides with elevated levels of alcohol consumption amongst the driving population.

Based on this information, RSA teams should carefully consider the conditions under which to conduct an RSA that includes review of WWD crashes. The RSA should consider the potential for various human factors, such as impaired driving, older drivers with diminished eyesight, and inexperienced drivers prone to driving mistakes, to affect WWD crash potential.

Additionally, environmental factors, such as nighttime conditions or elevated traffic activity related to events on weekends, may affect safety within the RSA site. For instance, it may be critical for WWD-related RSA teams to involve user groups comprised of drivers in the most vulnerable demographics and schedule field reviews to coincide with the prevailing crash periods, including nighttime, weekends, and closing time for drinking establishments. Given the elevated severity potential of WWD crashes, the RSA team is encouraged to consider the perspective of critical RSA partners, including law enforcement and emergency response agencies, whose knowledge of localized conditions and vulnerable user groups may be critical to developing mitigation strategies, outreach approaches, and enforcement policies.



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# Wrong Way Driving RSA Prompt List

## Master Prompt List

Scope of Project, Function, Traffic Mix, and Road Users	Design	Signs and Markings	Time of Day Conditions	Seasonal and Temporary Conditions
Proximity of freeway access and intersections	Alignment	Positioning (conspicuity)	Lighting	Weather
Older, unfamiliar, intoxicated drivers	Spacing	Visibility (day and night)	Visibility	Construction
Changes in traffic volume and mix	Visibility	Clutter	Peak vs. off-peak traffic conditions	
	Sight lines	Confusion		
	Lane configuration	Supplementary signs and pavement markings		

## Detailed Prompt Lists

### Scope of Project, Function, Traffic Mix, Road Users

Does the study area include all critical freeway access points and other intersections in close proximity?

Is there reasonable expectation of older (over the age of 70) or younger (under the age of 25) drivers in the study area?

Is the study area located in proximity to or along a corridor with drinking establishments?

Is there a significant population of drivers who may be unfamiliar with the facility, particularly during nighttime conditions?

Are there notable differences in traffic activity during nighttime conditions, as compared to daytime conditions?

### Design

Are any exit ramps located adjacent to entrance ramps (i.e., a partial cloverleaf design)?

Does ramp alignment reinforce appropriate access to ramps and deter WWD?

Do local roadways or driveways intersect near interchange ramps?

Is the spacing between ramps and/or intersections adequate to allow drivers to clearly identify the correct direction to travel?

Are entrance and exit ramps separated by pavement markings, median, or other physical separation? Is the median or other physical separation conspicuous?

Do medians, channelization, or other physical barriers prohibit or deter wrong way access to the freeway ramps?

Does guardrail, or any other traffic barrier along or between ramps, obstruct visibility of the respective ramps?

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## Wrong Way Driving RSA Prompt List (continued)

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Could the layout and/or number of lanes on exit ramps contribute to potential driver confusion when approaching from the mainline roadway?

Does vehicle queuing or spillover between ramps or intersections affect sign visibility or driver behavior?

Is the corner radius at an exit ramp designed to deter wrong way entry by turning vehicles?

Is the paved width (total of lanes and shoulders) of the ramps adequate for turning movements of design vehicles, but to the point of creating potential wrong way confusion?

Do any paved shoulders along the ramps detract from lane channelization?

Does horizontal or vertical curvature affect visibility of interchange ramps or signs?

Are sight lines on ramps and at ramp termini appropriate for the location, traffic, and vehicle speeds?

Are traffic signals or other traffic control devices configured to reinforce the proper travel directions for ramps?

### Signs and Markings

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Are signs at both entrance and exit ramps positioned to be conspicuous to drivers approaching from all directions?

Do parked vehicles, pedestrian activity, vegetation, other signs, or roadside objects affect the visibility of regulatory signs, warning signs, or geometric conditions at entrance and exit ramps?

Are DO NOT ENTER, WRONG WAY, and ONE WAY signs provided on freeway exit ramps? What sizes are the signs? What height are they posted? Are signs double-posted? Are the signs in adequate condition?

Are supplemental signs provided on the approaching roadways (i.e., warning or regulatory signs to deter left and right turns from a roadway onto an exit ramp)?

Are appropriate wayfinding or guide signs provided at freeway entrance ramps?

Could any steps be taken to draw driver attention to entrance ramps when approaching an interchange?

Are dynamic warning systems (such as actuated Wrong Way signs) provided on any exit ramps?

Are signs or other visual cues to deter WWD provided along the length of the exit ramp and at the junction of the exit ramp and freeway?

Does the presence of non-warning or non-regulatory signs contribute to sign clutter or driver confusion?

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## Wrong Way Driving RSA Prompt List (continued)

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Are any directional arrows or other pavement markings provided on exit ramps?

Are dashed markings (i.e. skip markings) or reflective pavement markers provided to guide left-turn movements at the proper locations?

### Time of Day Conditions

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Is lighting provided at exit ramps locations? Is lighting functional?

Are signs and markings that are clearly visible at night (i.e. illuminated or sufficiently retro-reflective) provided at ramps?

Are signs mounted at heights and positions consistent with where drivers will be looking?

Does sun glare at certain hours of the day affect driver visibility of exit ramp signs or markings from any approach?

Do area traffic generators experience unique volume peaks at unusual hours or days?

### Seasonal and Temporary Conditions

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Does crash data suggest any trends that may indicate seasonal contributing factors?

Does inclement weather affect the visibility of signs or geometric conditions at or approaching interchange ramps?

Have freeway construction or other temporary conditions impacted the visibility or retention of adequate signs at exit ramps?

### For more information on Road Safety Audits

Federal Highway Administration  
FHWA Road Safety Audit Guidelines  
Publication No. 33 FHWA-SA-06-06  
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<http://safety.fhwa.dot.gov/rsa/guidelines>

