

Wrong Way Driving: New Focus on a Persistent Problem

National Perspective

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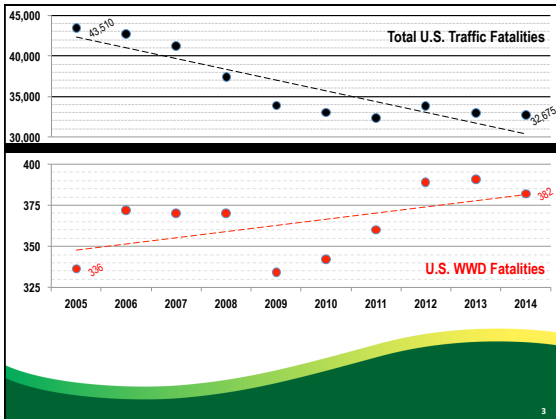


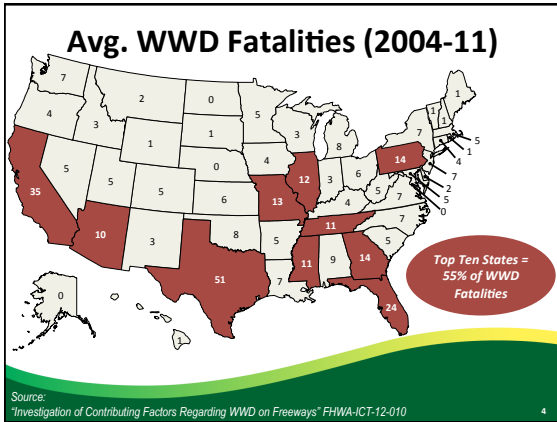
An Important Issue

- Between 300-400 people killed each year
- Freeway system is statistically safest part of highway network



WWD crashes have many times higher severity outcomes compared to other crashes





A Familiar Problem

- “Wrong Way” discussion in AASHO/AASHTO literature from **50** years ago to present
 - WW appears less than 20 times in 1965, twice that number by 1984, and triple by 2011
- Familiar strategies that remain relevant today
 - Intersection geometric details
 - Raised channelization and islands
 - Signs and markings to simplify/clarify decisions

Opportunity for a National Effort

- NTSB Special Investigation a “catalyst” for more action
- Spurring national groups (FHWA, ATSSA, AASHTO, TRB, NHTSA, GHSA, etc.) to work together on this issue

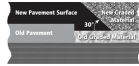
Opportunity for a Coordinated Effort

- Engineering (geometrics & traffic control)
- Enforcement (driver impairment)
- Education (what to do when witnessing a wrong-way driver)
- Vehicle manufacturers (in-vehicle driver support)



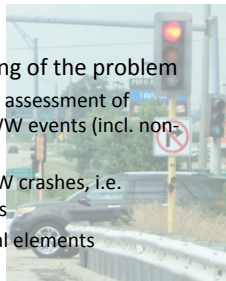
Similar Challenges – Similar Lessons

- Paved Edge Drop-Off crashes
 - SafetyEdge
- Cross-Median crashes
 - Cable Median Barrier
- Highway-Rail Grade Crossing crashes
 - Operation Lifesaver
 - Section 130



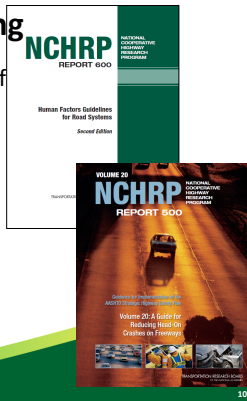
Reframing the Issue

- Complete our understanding of the problem
 - Generally, a more thorough assessment of frequency and severity of WW events (incl. non-crashes)
 - Differentiating origins of WW crashes, i.e. Entries vs. U-turns vs. others
 - Driver profile and behavioral elements
 - Impaired driving dimension
 - Driver age factors



Reframe the Thinking

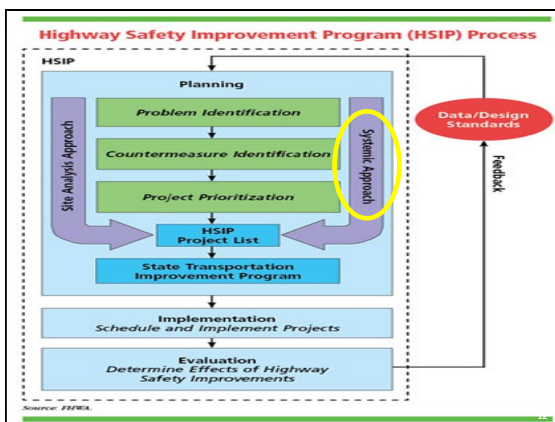
- As designers, avoid trap of “drivers fault”
- Apply pertinent Human Factors knowledge
- Implement treatments and strategies to address the problem proactively



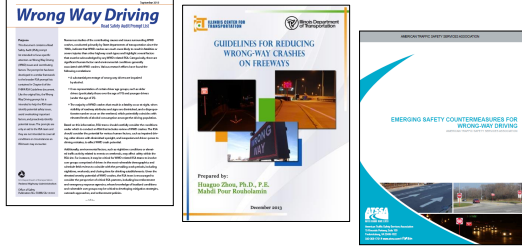
Reframe the Approach

- A risk-oriented approach that is informed by data
 - Certain designs or traffic control scenarios?
 - Critical intersection volumes?
- Widespread deployment of effective but underutilized countermeasures (aka **SYSTEMIC**)





New Resources to Address WWD



FHWA Resources *Wrong Way Driving*

Road Safety Audit Prompt List

- Road Safety Audit (RSA) Prompt List for WWD
 - Focuses the interdisciplinary RSA process to WWD
 - Includes master and detailed prompts that speak to documented WWD circumstances
- Updated information about WWD on FHWA website at: http://safety.fhwa.dot.gov/intersection/other_topics/wwd/



“Champion” State Efforts: Illinois & Texas

Illinois

- National WWD Summit & Proceedings (2013)
- Guidelines for Reducing WWD (2014)
- Workshop for Reducing WWD (2015)

Texas

- TxDOT San Antonio District WWD Task Force (est. 2011)
- North Texas Turnpike Authority WWD Task Force (est. 2009)
- Texas A&M TTI research on WWD and Connected Vehicle



National Partnership Efforts

- Emerging Practices w/ ATSSA
 - Includes 10 case studies from across U.S. on WWD efforts
 - <http://www.atssa.com/Communications/ResearchCaseStudies.aspx>
- Research through NCHRP Project 03-117
 - Primary objective to address inconsistencies and gaps pertaining to MUTCD (P.I. Melissa Finley, Texas A&M TTI)
 - Targeting a late 2017 completion



NCHRP NATIONAL CENTER FOR HIGHWAY RESEARCH AND DEVELOPMENT



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State Highlights: Michigan

- Conducted a systemic analysis
- 60% of WWD associated with “parclo” style interchanges (only ~20% of interchanges)
- Prioritized treatments to these locations as funds available



Photo courtesy of Michigan DOT

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State Highlights: Rhode Island

- Undertaking a \$2M project to upgrade signing and striping at 200+ ramps and WWD detection systems at 24 high-risk locations
- Detection system notifies Rhode Island State Police and triggers display on overhead message signs



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State Highlights: Florida



Wrong way pilot projects on I-10 in Tallahassee and on several highways in south Florida

- Phase 1 – Oversized signs and additional pavement marking wrong way arrows
- Phase 2 – Mainline wrong-way vehicle detection and alert technology
- Phase 3 – Ramp wrong-way detection and LED blinker signs on ramps
- Phase 4 – SunGuide software enhancements



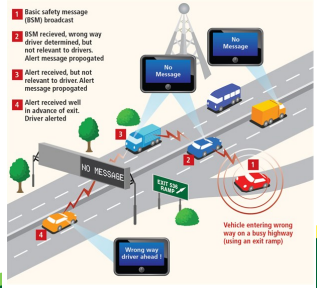
Emerging and New Strategies

- Enhanced Retroreflective Signing and Pavement Markings
- Low(er) Cost ITS-based treatments
 - Can tie in with TMC, local law enforcement

Connected Vehicle Technologies

Intelligent Transportation Systems
Joint Program Office

- V2I and V2V applications are an ideal system to address WWD



Thank You!

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