

# Implementation of Wrong-Way Driving Countermeasures for Arterials and Freeways

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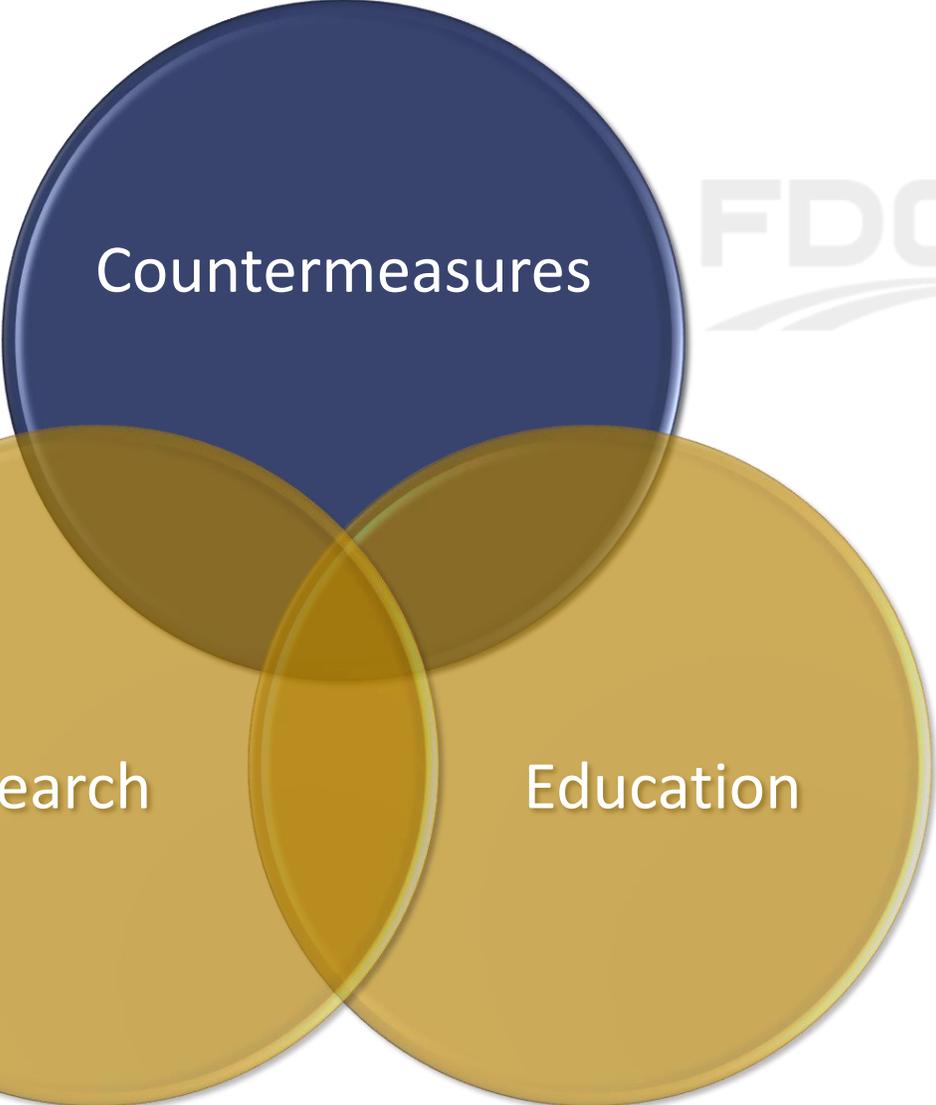
# Outline

- Wrong-Way Driving (WWD) Initiative
  - Timeline
  - FDOT Research
  - Wrong Way Vehicle Detection System (WWVDS)
  - Freeway Deployments
  - WWD Dashboard
  - Success Stories
- FDOT Arterial Research

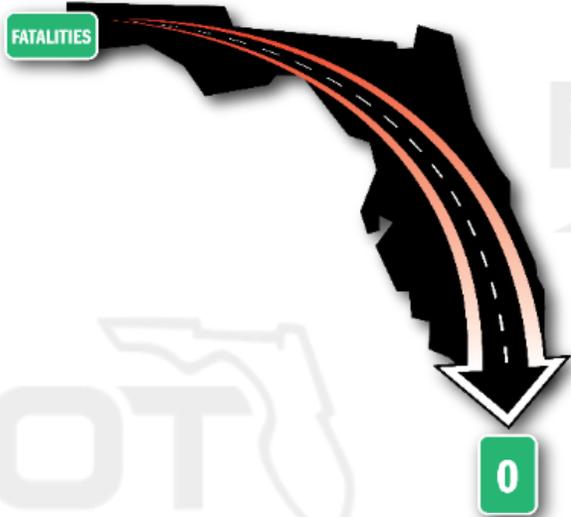


An infographic with a red header that reads "If you see a wrong-way driver:". Below the header, there is a black box with yellow text that says "WRONG WAY DRIVER REPORTED USE EXTREME CAUTION". Underneath this are four black buttons with white text: "Use Caution", "Reduce Speed", "Pull Over", and "Call 911". At the bottom left is the FDOT logo and the URL "fdot.tips/wrongway". To the right of the main infographic is a smaller graphic with the FDOT logo and a map of a highway interchange. Below the map, it says "Wrong-Way Driving on the Interstate" and "What you need to know!".

# FDOT's Wrong-Way Driving (WWD) Initiative



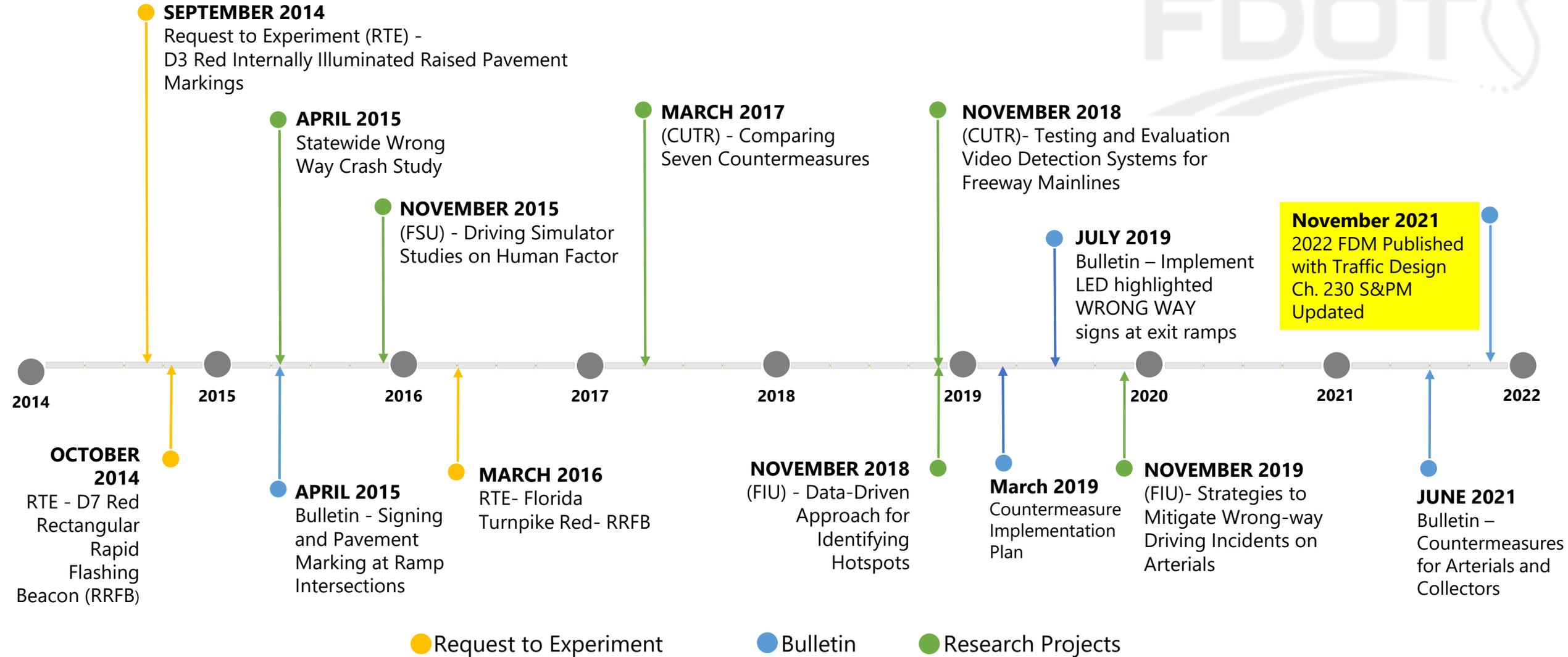
## FDOT's Vision Zero target



## FDOT's Vital Few

<b>Safety</b> 	<b>Mobility</b> 	<b>Innovation</b> 	<b>Workforce</b> 
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# FDOT's WWD Timeline & Initiatives



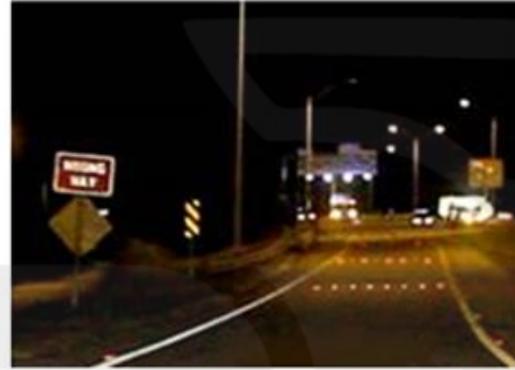
# Countermeasures Evaluated



Updated Signing and Pavement Marking



Red Rectangular Rapid Flashing Beacons



Internally Illuminated Raised Pavement Markers



Light-Emitting Diode (LED) Highlight WRONG WAY signs



Blank-out signs that flash "WRONG WAY"

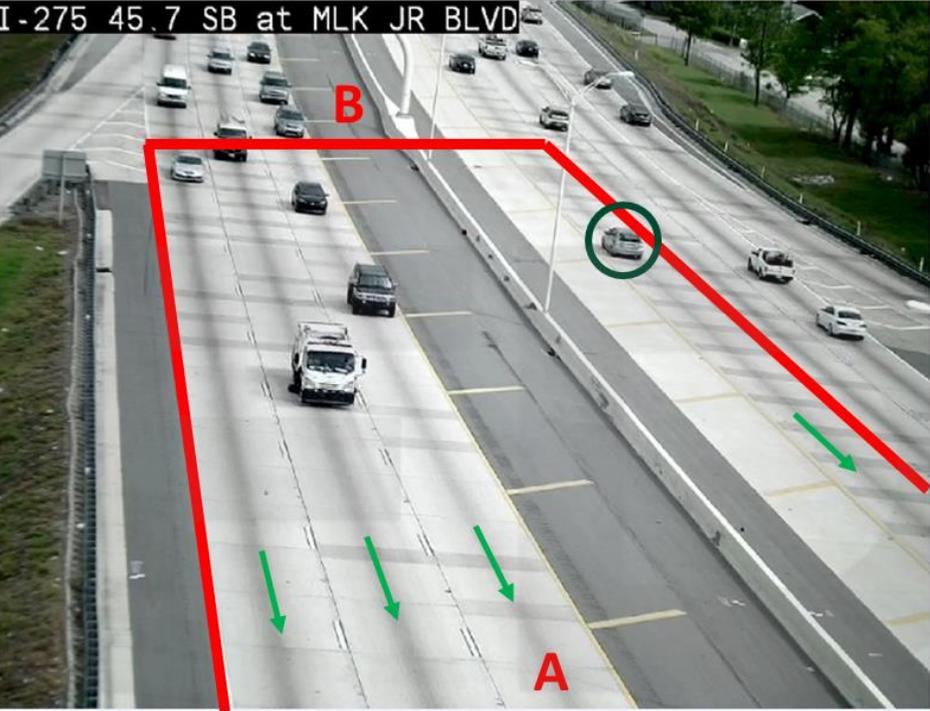


Delineators along exit ramps



Wig-wag Flashing Beacons

# Video Analytics - WWD Detection on Freeway Mainlines

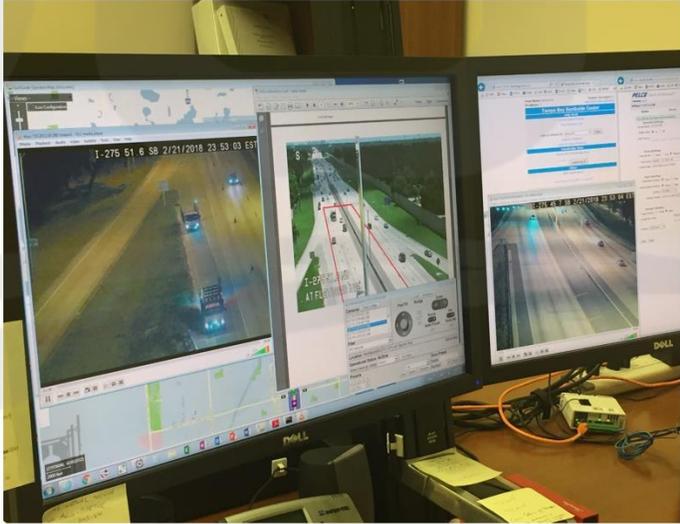


- Completed research on video analytics for detecting WWD vehicles
- FDOT tested best performed system on the Howard Frankland bridge in the Tampa Bay Area



 WWD vehicle  
 Direction of an arrow represents the correct driving direction

Correct Driving Direction is **B to A**, WWD Direction is **A to B**



Fixed Camera ROI Calibration and Adjustment



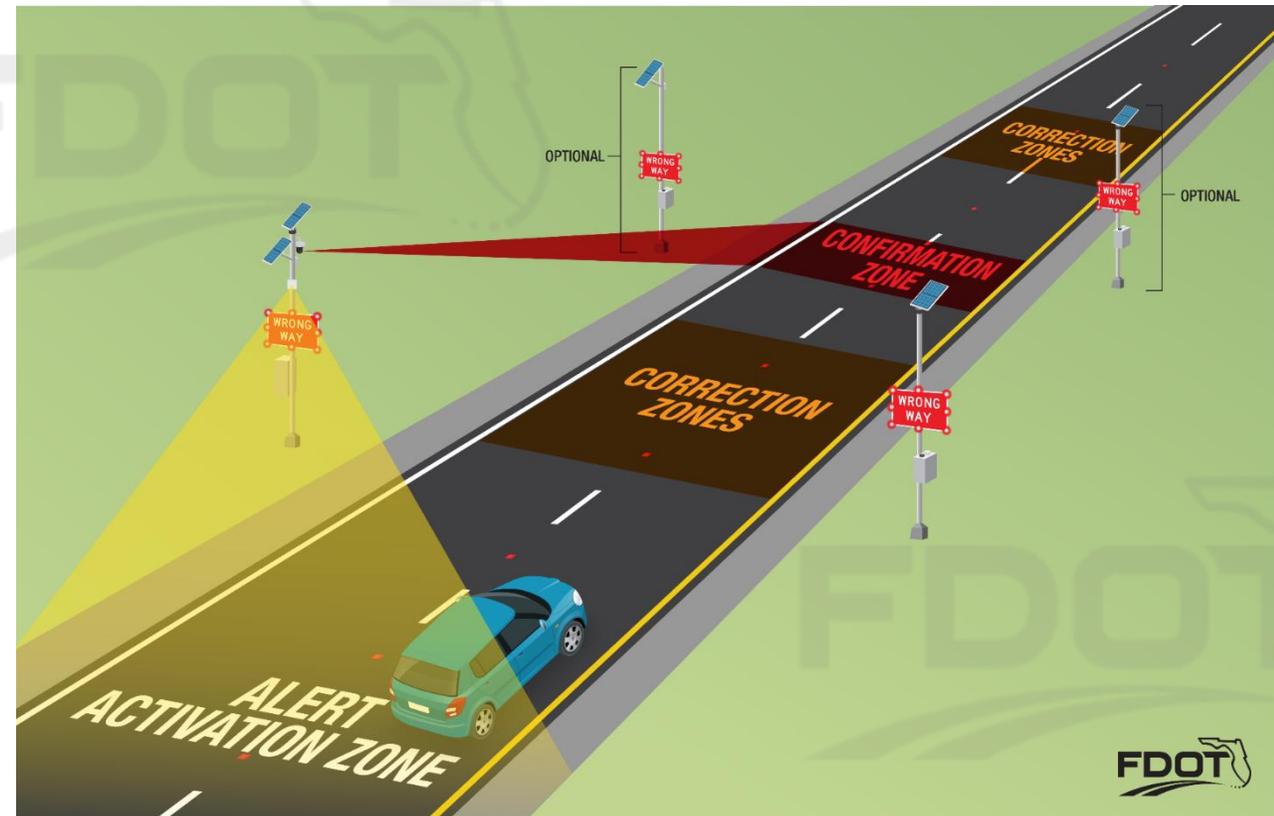
Field Installation of Fixed Cameras

# Wrong Way Vehicle Detection System (WWVDS)

## January 2022 Standard Specification

### 660-2.2.1.4 Wrong Way Vehicle Detection Systems

- Produces an alarm
- One or more detection zones
- Mainline or Ramps
- Must include shoulder monitoring



**660-2.2.1.4 Wrong Way Vehicle Detection Systems:** Wrong way vehicle detection systems produce an alarm output when a vehicle is detected traveling in the wrong direction and may consist of more than one detection zone and may use any of the technology types. For both mainline and ramp installations, the detection system must monitor all lanes for one direction, including shoulders. The wrong way detection system must not interfere with other vehicle presence or traffic data detection systems.

# Reasons for Partnership with Roadway Design

- Arterial research identified roadway characteristics we could target to mitigate large portion of crashes
- Research identified crashes occur very close to point of entry so if we can correct the point of entry, wrong-way driving may be largely reduced

## WWD Freeway:

- Draw more media attention
- Often involve more vehicles
- Can cause extended closures
- Result in more fatalities per crash

## WWD Arterial:

- WWD crashes are more frequent on arterial streets than freeways



# Thank You!

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## *Freeway Dynamic Message Signs*



## *Wrong-Way Driving Initiative Video*



<https://www.youtube.com/watch?v=c8BAMdHT6GE>