



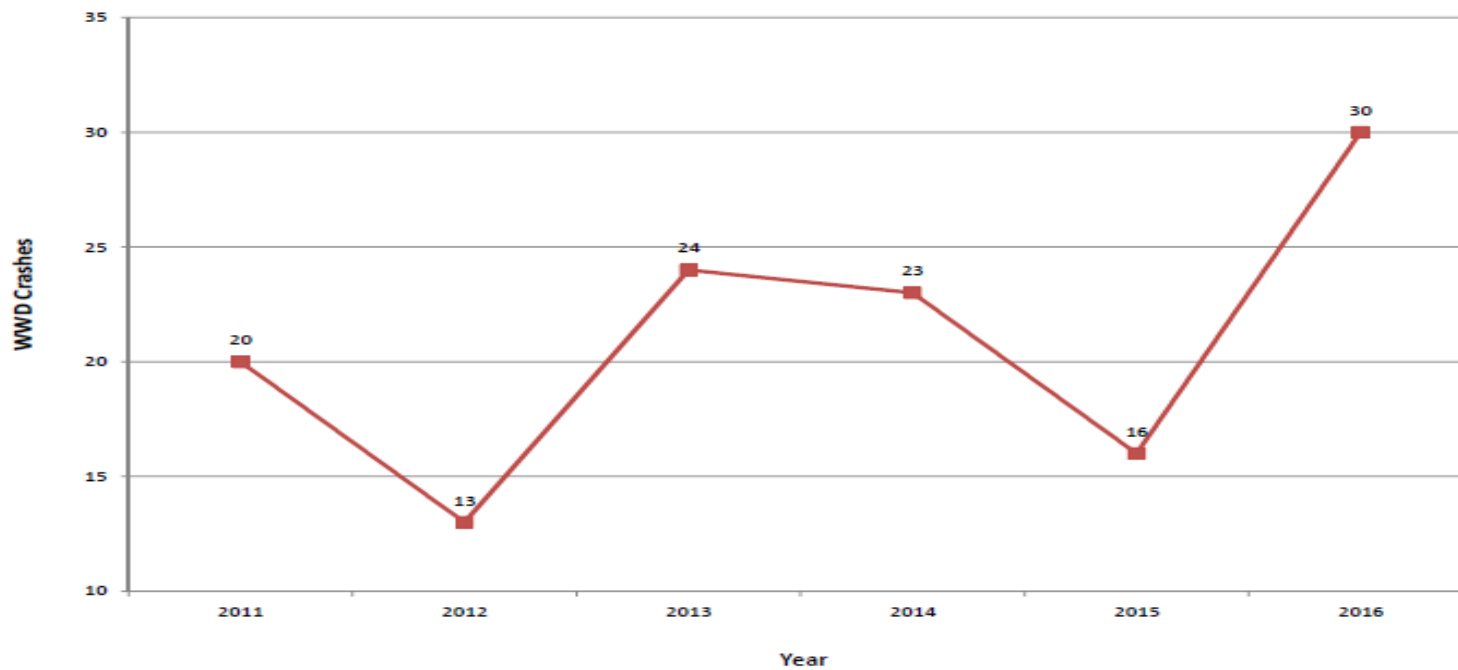
**Arizona DOT
Wrong-Way Driving (WWD)
Detection and Warning System
Pilot Deployment**

The Why



WWD Serious Injuries/Fatalities

WWD Crashes by Year
(2011 - 2016)



Wrong Way Signing

- Installing lowered and oversized signs



Pavement Markings

- Directional arrows on ramps
- Raised pavement markers (RPMs)
- Adding RPMs to HOV stripe



Deployed Wrong Way Driver Detection Systems



Successful Mitigation of a WWD

- WWD confirmed with CCTV cameras
- Traveling public is notified
- State Troopers coordinate response



Relying on 911

- Visual confirmation is attempted
- Relying on 911 calls leaves our Troopers scrambling and the traveling public in danger



Lack of detection leaves State troopers scrambling



Challenges

- No data on entry points
- Unable to identify systemic problems with layout of traffic intersections
- Notification to State Troopers is largely accomplished through calls to 911

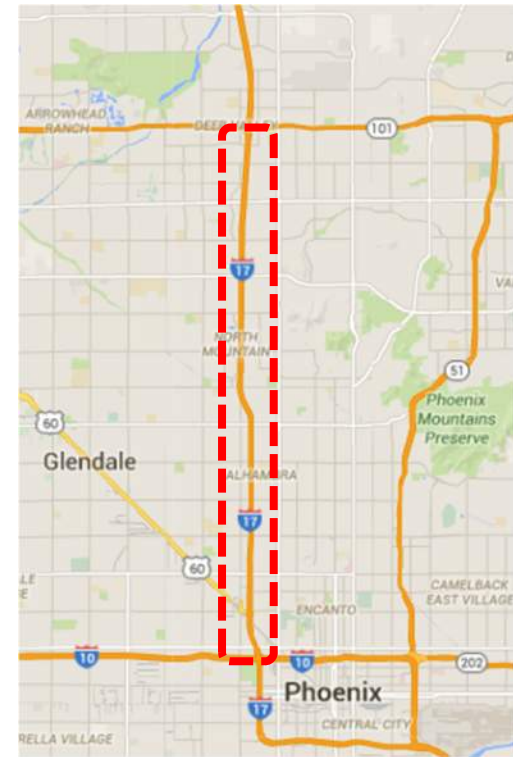
WWD Pilot Deployment

- **Detection** of a WWD on or entering the freeway
- **Notification** – ADOT TOC and DPS
- **Track** - Automatically position and activate CCTV cameras
- **Warning** - activate DMS WWD messaging

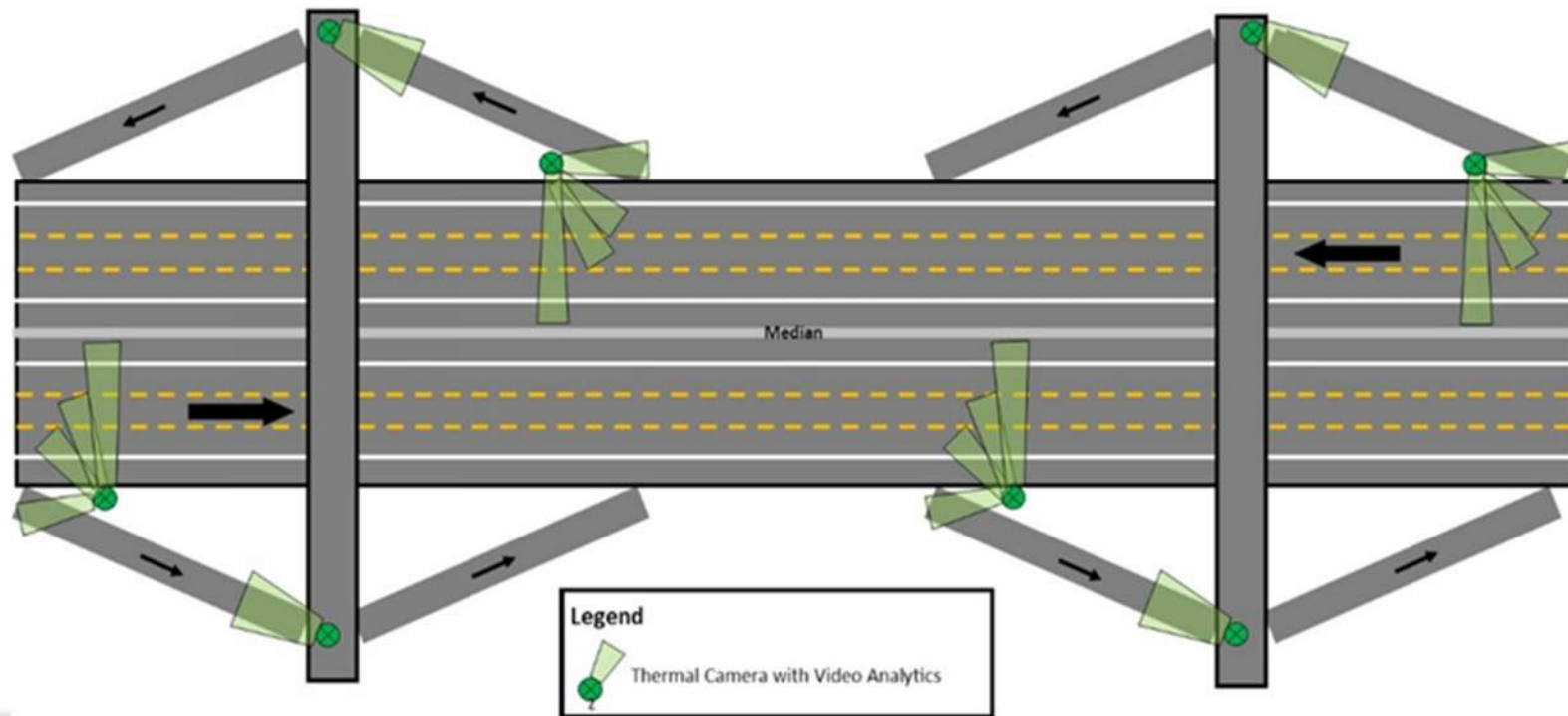


Project Area

- ▶ I-17 between I-10 and SR-101
 - Freeway mainline
 - Exit ramps
 - Freeway-to-freeway ramps
- Location identified from DOT/FHWA research study (SPR-741)



Detection Element



Detection Element



Detection Element

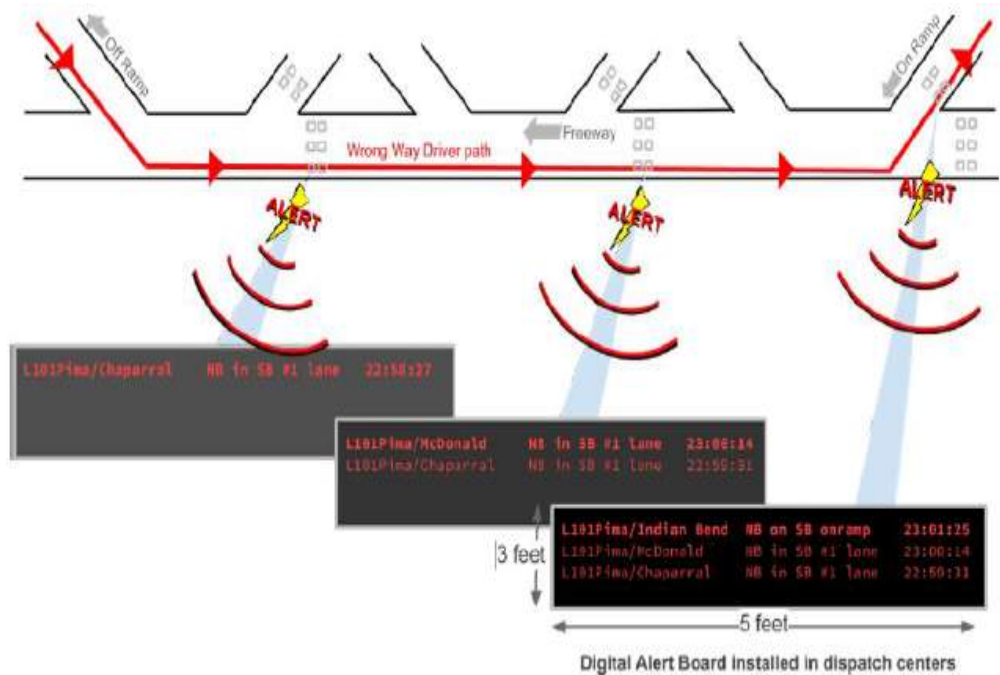


Detection Element



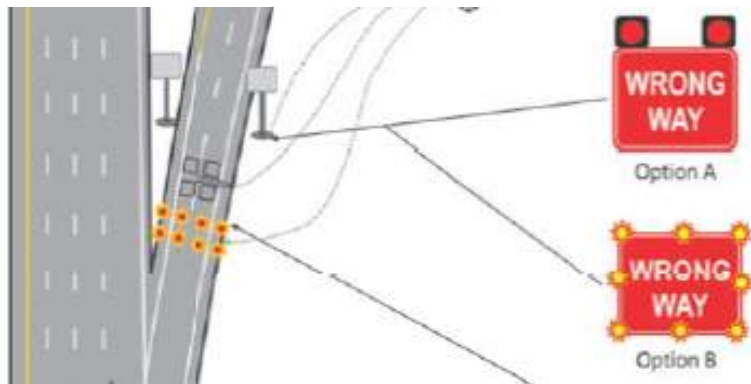
Notification and Track Elements

- Digital alert with video (TOC and DPS)
- Desktop alert notification
- Email notification
- CCTV Cameras Pre-positioned



Warning Element

- Warning to the errant driver (ability to self-correct)
- Dynamic Message signs automatically activated
- Upstream ramp meter signals will be turned red



Warning Element



Project Costs and Schedule

- Construction - \$3.4 Million
- System Integration (DSS) - \$600K
- Estimated Completion Date – December of 2017

Thank You!

