

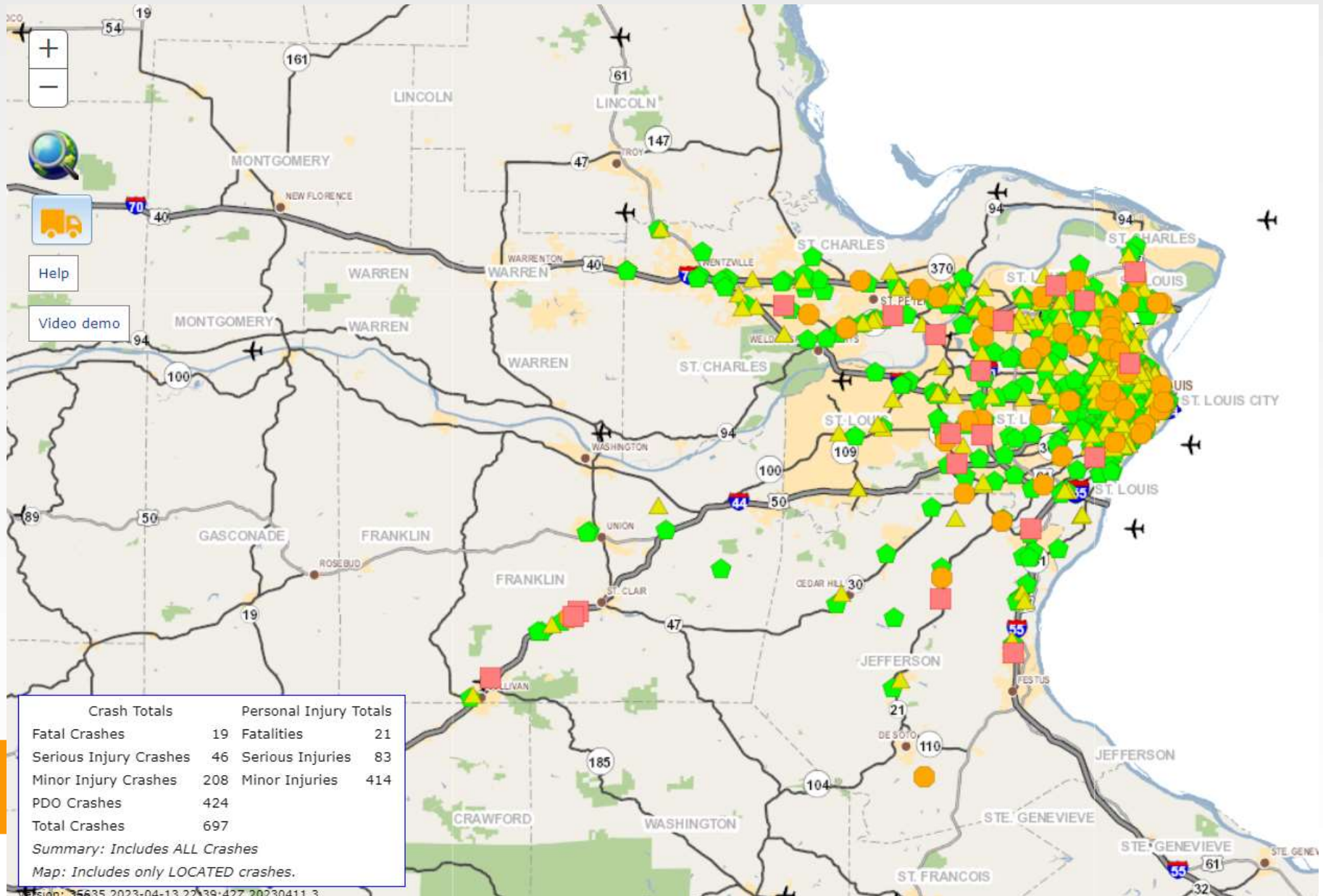
# Wrong-Way Driving Solutions

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**Traffic Operations Engineer**

**Missouri Department of  
Transportation**





# Why Do They Occur



Side-by-side (partial cloverleaf) highway entrances and exit ramps



Any poorly lit entrance and exit ramp



Frontage roads / slip ramps

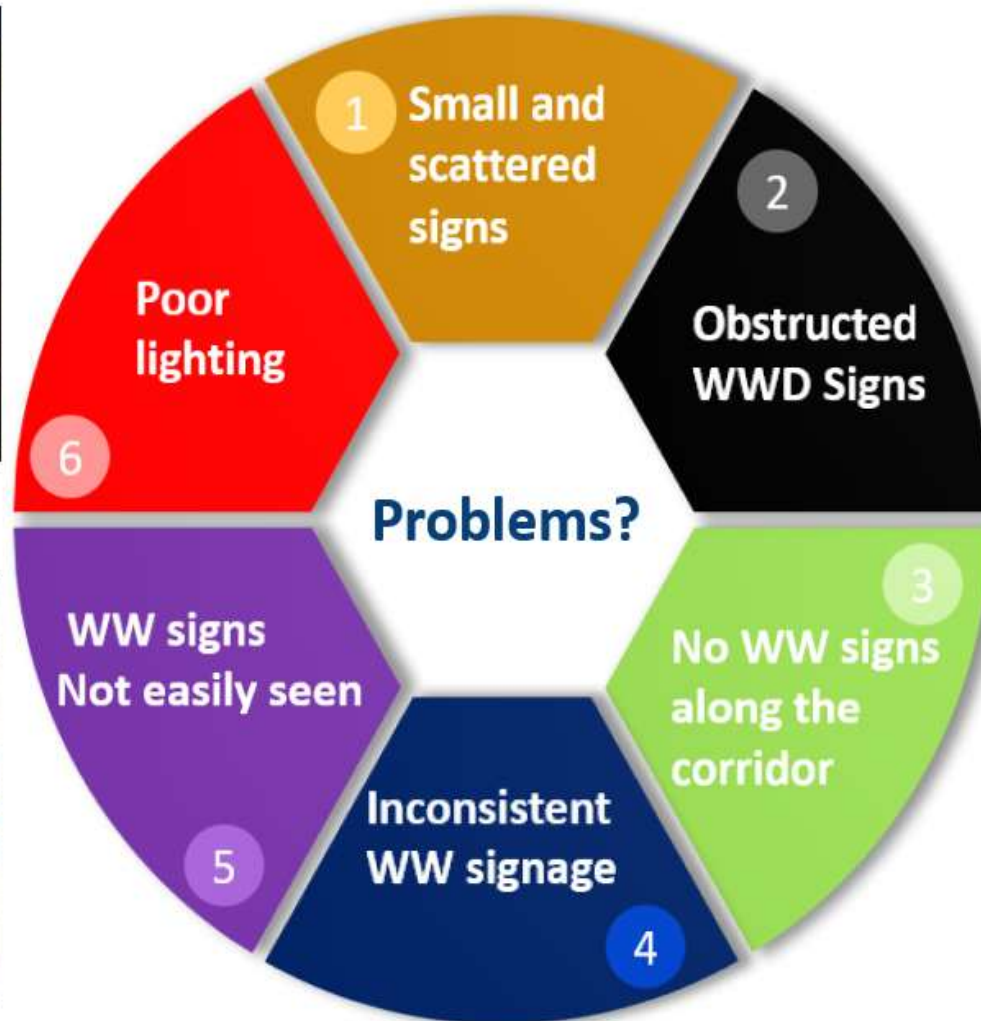


Diamond interchanges

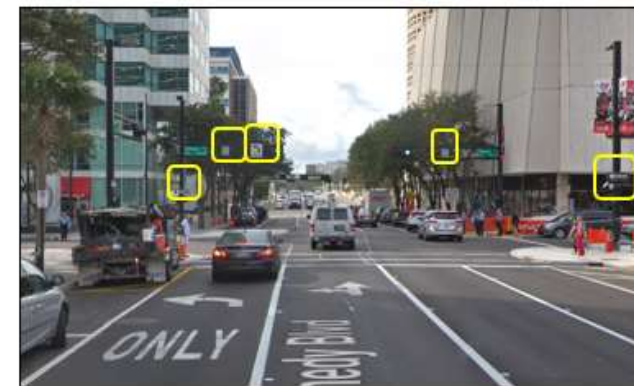


Exit ramps near side streets

# Existing Conditions



What the Right-Way Drivers see



What the Wrong-Way Drivers see

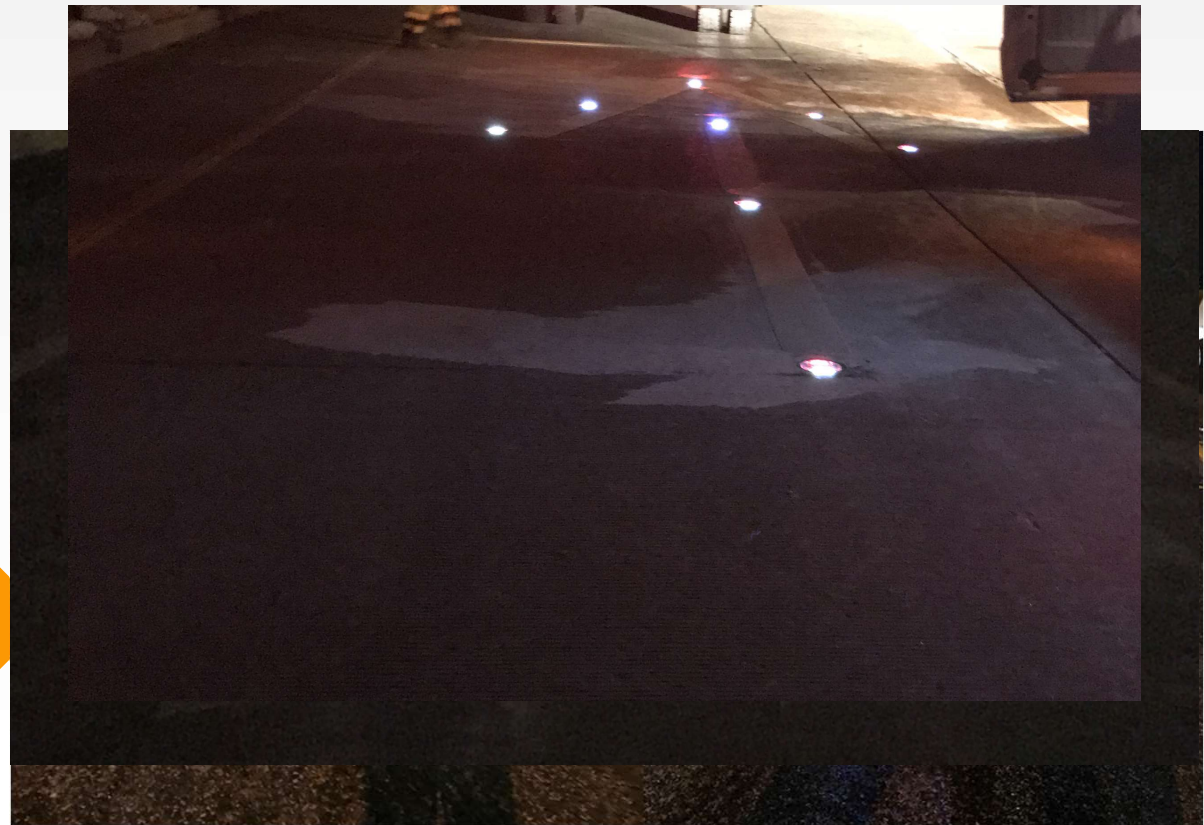


# Countermeasure Toolbox





# Innovative Pavement Markings



# Enhanced Signs & ITS



DETECTION



CONFIRMATION



NOTIFICATION



WARNING



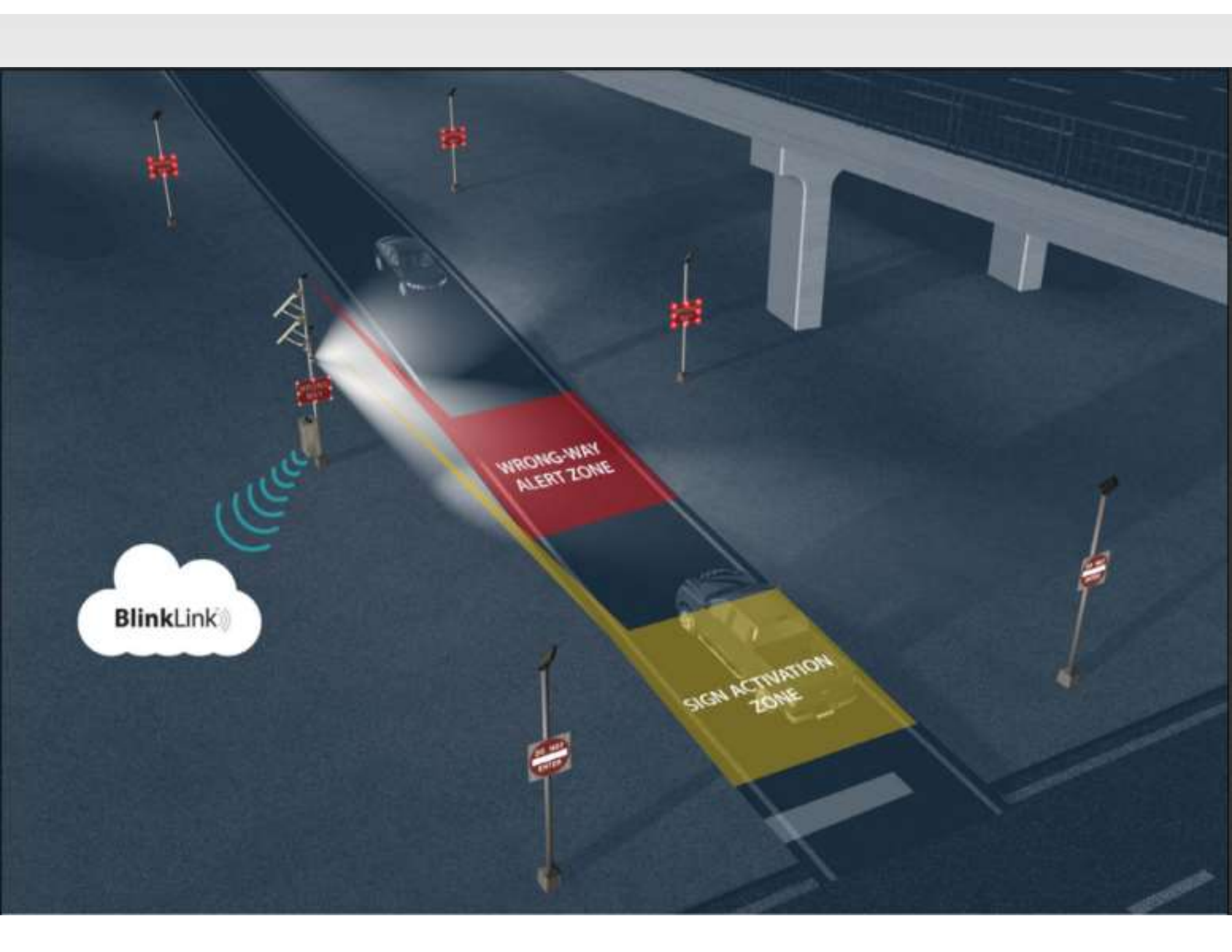
SURVEILLANCE



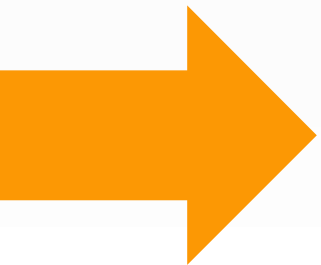
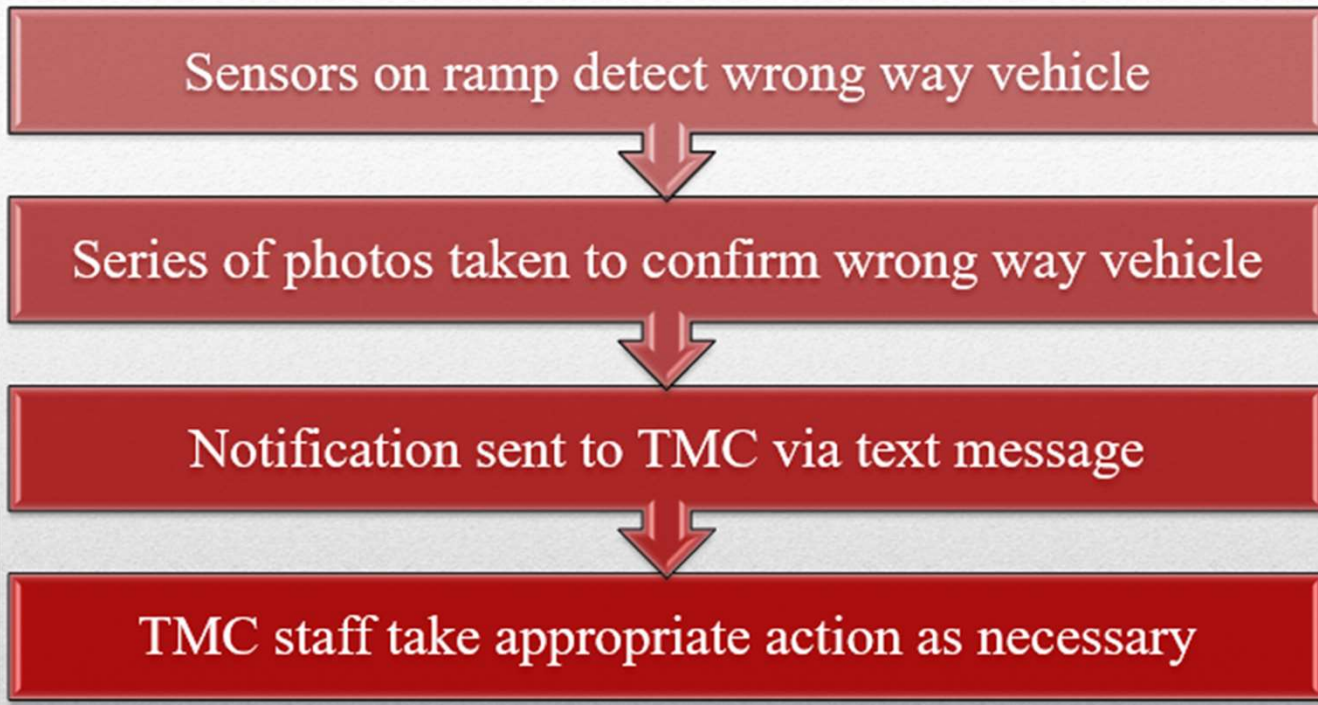


WRONG-WAY  
ALERT ZONE

SIGN ACTIVATION  
ZONE



# How does the system work?





Correct Traffic Flow: 

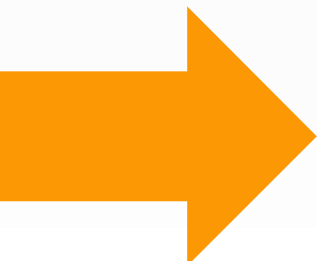
BlinkLink  
cideo.com

System: St Clair Rest Area - WB Ramp Alert Time: 8/23/2021 9:30:38 AM Powered by TAPCO



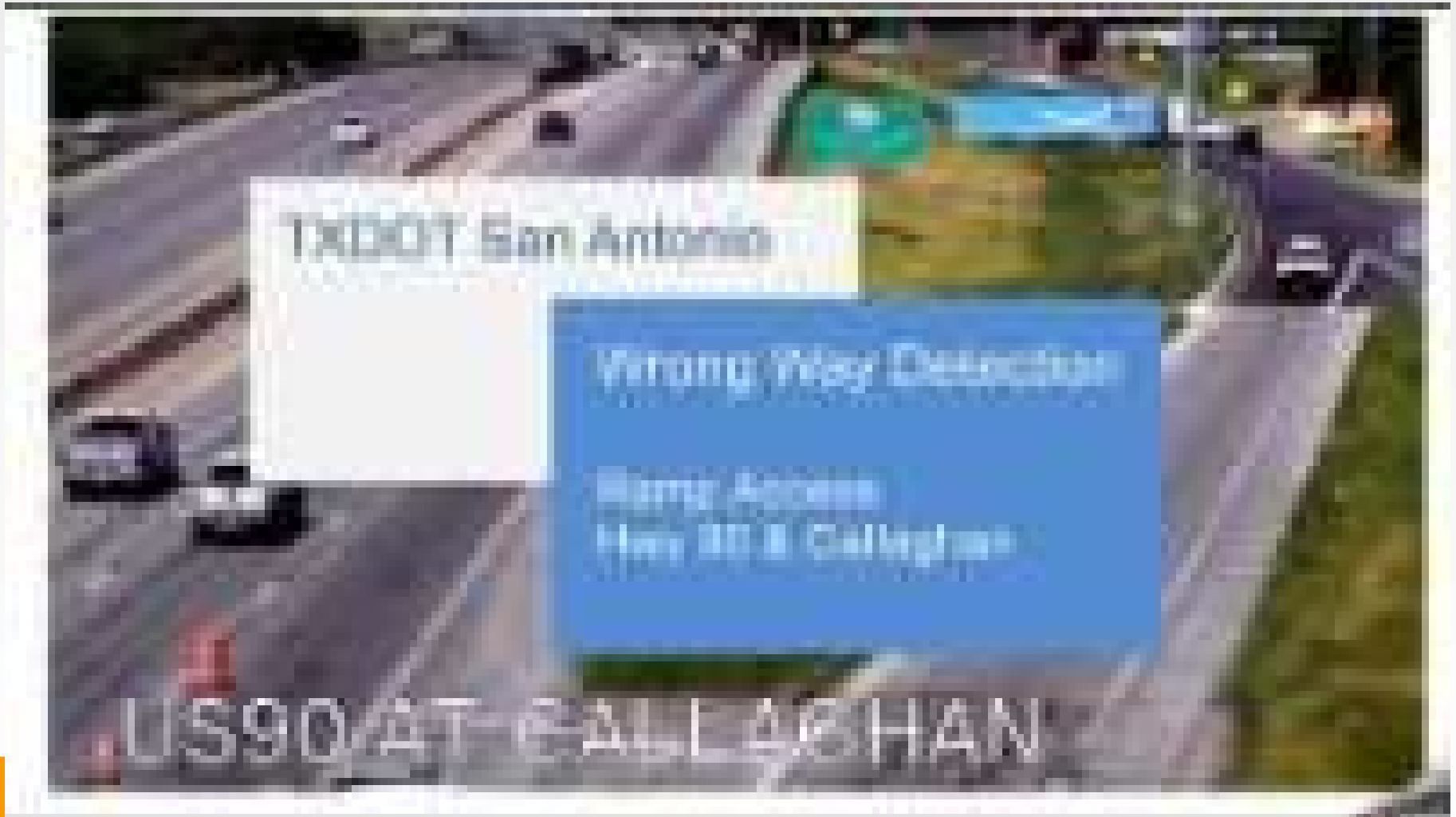
# Video Analytics

- ▶ Intelligent Video Analytics in the camera enables detection and data in addition to high quality video image – “rich independent metadata stream”
- ▶ On-board intelligence enables automated real-time incident detection
- ▶ Opportunities to deploy specialized “data only” cameras (nodes) without image output
- ▶ Cameras deliver multi-purpose functionality;
  - ▶ Excellent video 24/7
  - ▶ Automated incident detection
  - ▶ Data collection for historical analysis



A screenshot of the Bosch VCA (Video Content Analysis) software interface. The window title is "Configuration Manager". The interface is divided into several sections:

- Left Panel:** A list of camera configurations with columns for "Name" and "URL". The selected camera is "44 AT LAFAYETTE - TEST".
- Top Menu:** Includes "General", "Connectivity", "Camera", "Recording", "Alarm", "VCA", "Network", and "Service".
- Sub-Menus:** Under "VCA", there are options for "Main Operation", "Tamper Detection", "Tasks", "Metadata Generation", "Metadata Inspection", and "Camera Trainer".
- Configuration List:** A list of settings for the selected camera, including "Operating mode profile #1", "Pre-profile", "Scenario", and "Analysis type".
- Video Feed:** A live video stream from the camera showing a road intersection. The text "44 AT LAFAYETTE - TEST" is overlaid at the top of the video. A car is visible on the road, enclosed in a red detection box. Two green dashed boxes are also present on the road surface.
- Bottom Panel:** A status bar showing "3 devices total", "3 devices online", "1 device selected", and "08 local".



## Anticipated Benefits

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**Provide  
real-time  
alerts to  
road users**

**Adapt to  
other  
situations  
e.g., EMS**

**Reduce  
frequency of  
WWD  
incidents**

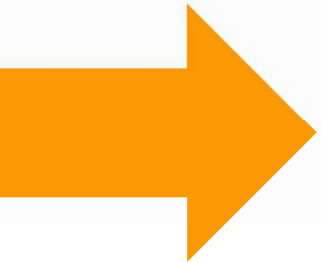
**Improve  
incident  
response  
time**

**Reduce  
traffic  
violations**

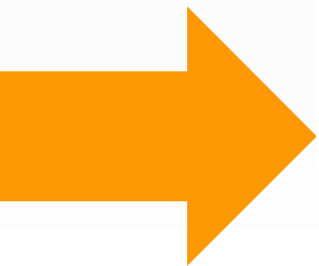
# LESSONS LEARNED



- ▶ False Detections
- ▶ Notification to Local Law Enforcement and Missouri State Highway Patrol is done by calling 911???
- ▶ Confirmation of Wrong Way Drivers along Freeway









# Thank You!

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