



# Texas SHSP Emphasis Areas (EA)

## Roadway/Lane Departure EA Team Meeting

Thursday, November 18, 10:00 am



[www.texasshsp.com](http://www.texasshsp.com)



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Facilitators  
Olivia Thomas (TTI), Recorder

# Agenda



- Welcome & Introductions
- SHSP Overview, Requirements & Process
- Roadway/Lane Departure Analytics
- Strategies & Countermeasures (*Double Down on What Works*)
- Next Steps

# EA Team Representation

- TxDOT, and TTI
- FHWA - TX
- MPOs (H-GAC, NCTCOG)
- Law Enforcement (Dallas Sheriff's Office)
- North Texas Tollway Authority
- Union Pacific
- EMS
- Private Sector (High Friction Surface Treatment Assoc., Walter P Moore)





# Mission of EA Teams

- Stakeholders & subject matter experts with common interest in this area of transportation safety
- Identify evidence-based strategies & countermeasures
- Work together & separately to advance the implementation of countermeasures
- Track progress and evaluate outcomes
- Address challenges and opportunities



# SHSP Requirements

- Data-driven problem identification
- Performance-based
- Evidence-based strategies & countermeasures
- Five-year updates
- Regular evaluation

# Texas SHSP Update Process

Executive  
Committee

Texas SHSP Update Review & Approval

Management  
Team

Strategic  
Objectives

Comprehensive Crash  
Data/Trends Review

Emphasis  
Area  
Teams

Emphasis Area  
Crash Data Review

Countermeasure  
Review

Action  
Plans

# SHSP Emphasis Areas

## Prevent Crashes

Roadway Departures [1]  
Pedestrians [2]  
Intersections [3]  
Impaired [4]  
Distraction [5]  
Older [6]

## Reduce Severity

Restraints / Gear [7]  
Speeding [8]  
Roadway Departure [1]  
Intersections [3]

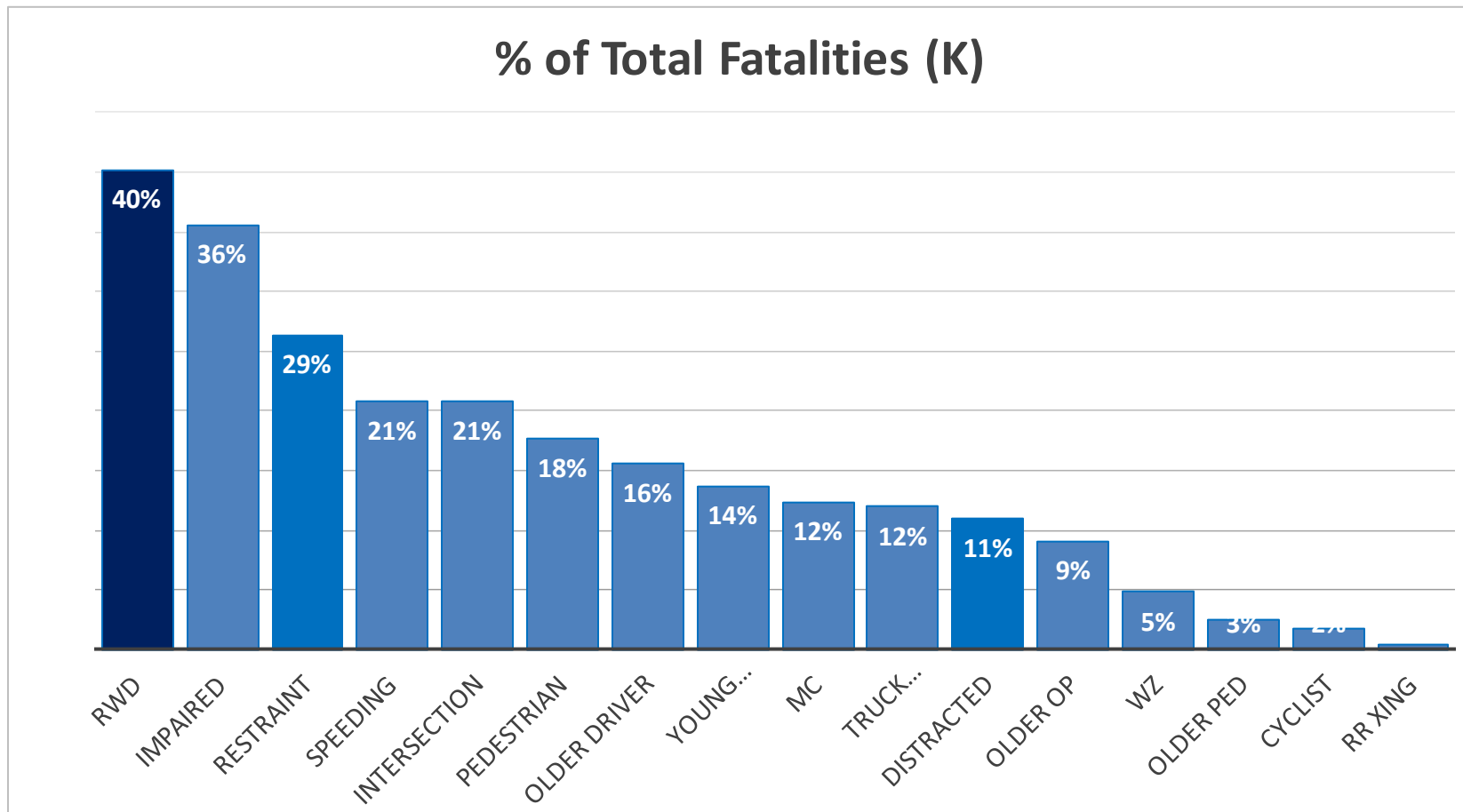
## Enhance Emergency Response

Traffic Management  
&  
Crash Response [9]

Include younger road users in all applicable Emphasis Area

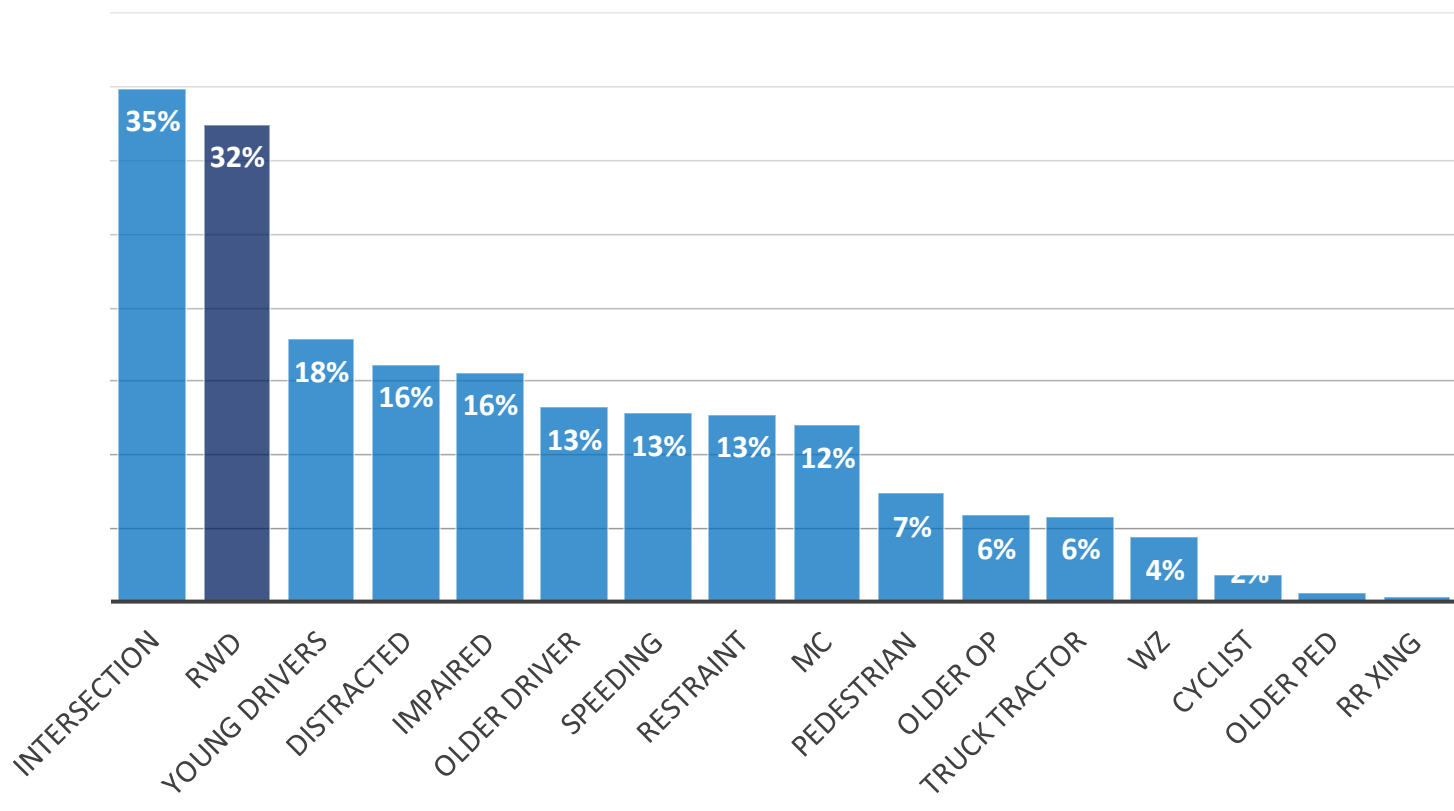


# Fatalities



# Serious Injuries

% of Serious Injuries (A)



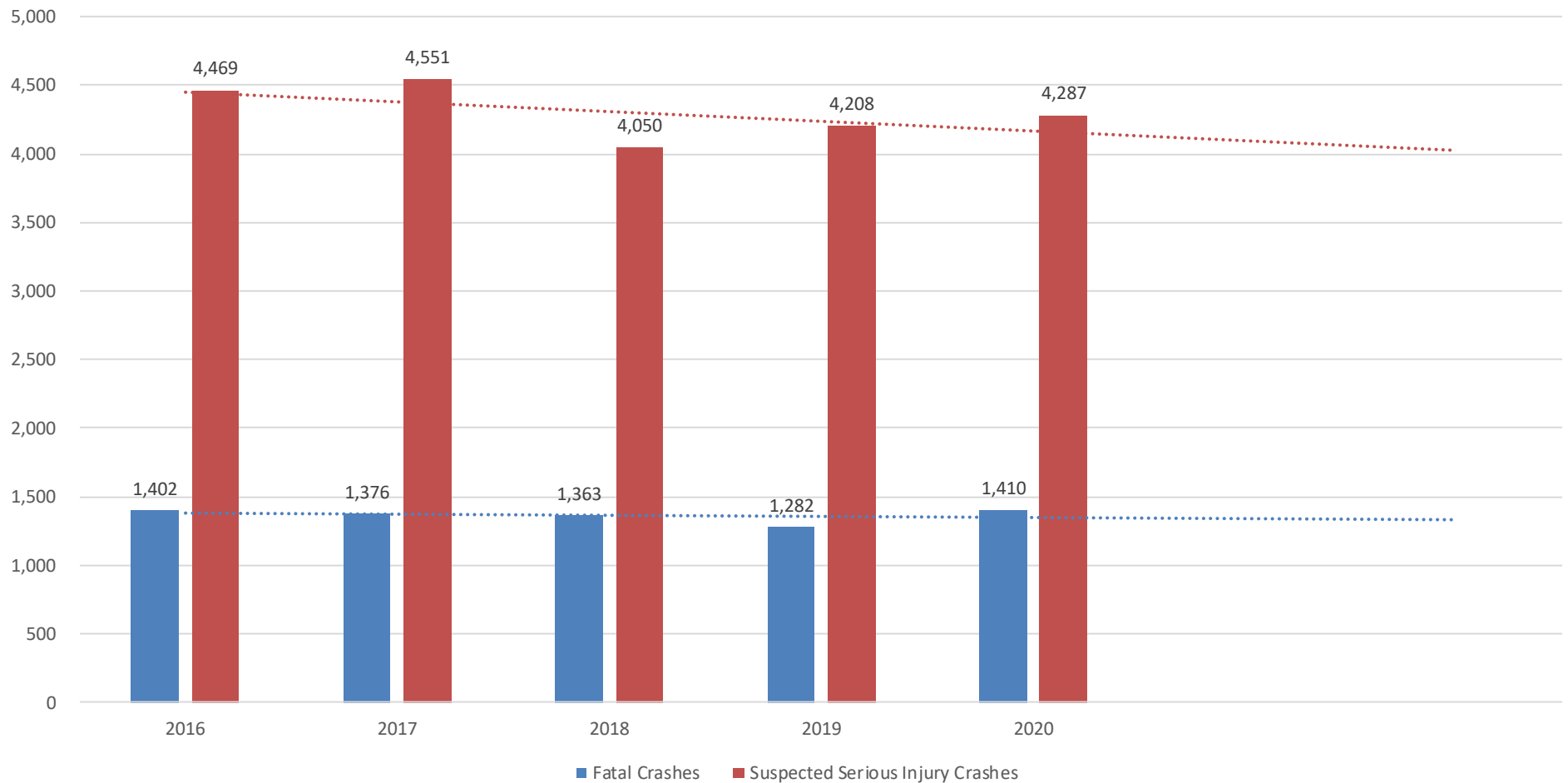
# Roadway/Lane Departure Crash Definition



A crash is defined as a roadway/lane departure crash if it involved:

- A single vehicle crash where the first harmful event occurred in the median, on the shoulder or off the roadway or
- A crash involving two vehicles both traveling straight in opposite directions, and one was traveling the wrong way in the lane, but not trying to pass another vehicle

# Fatal and Suspected Serious Injury Crashes





# Roadway/Lane Departure & Other Crash Factors

Of the 28,000+ Roadway/Lane Departure KA Crashes

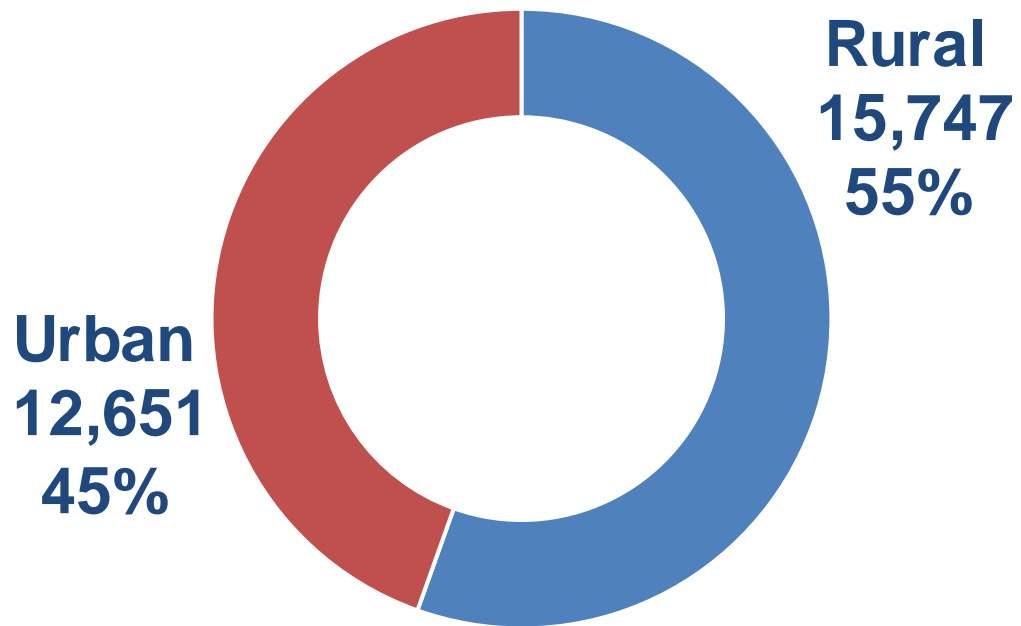
- 26% also speeding crashes
- 30% also impaired driving crashes
- 12% also distracted driving crashes



# Roadway/Lane Departure & Other Crash Factors

- 51% occurred in dark lighting conditions
- 73% of the vehicles leaving the road involved the vehicle hitting a fixed object
- 84% occurred on roads with dry surface conditions
- 73% occurred during clear weather conditions

# Rural/Urban



# State Roads & City/County Roads

City & County Roads

State Roads

34%

66%



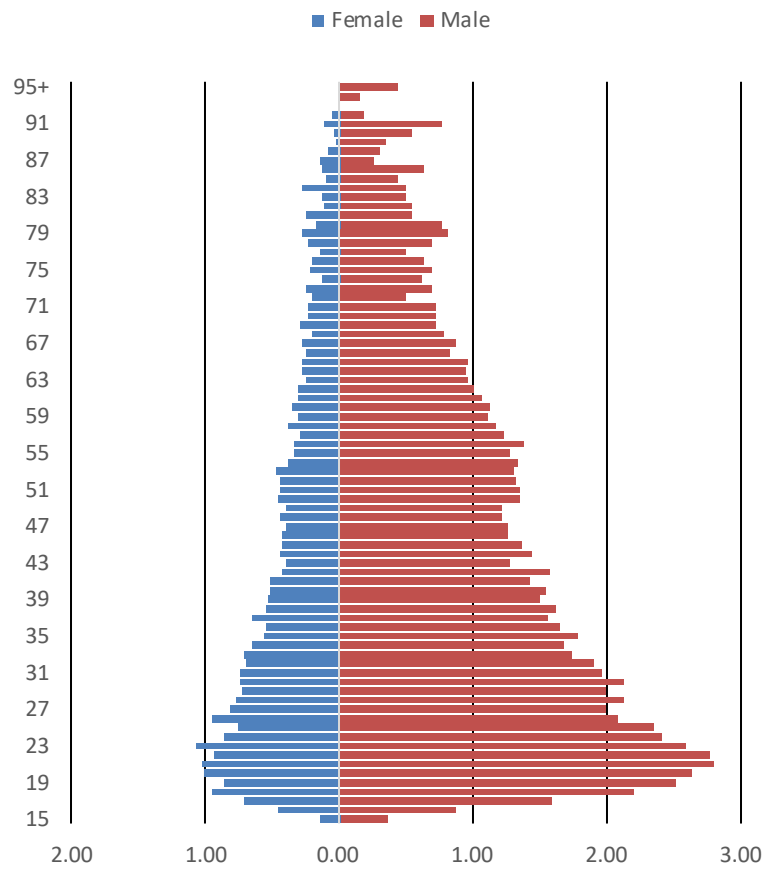


# Driver /Population Ratio



Ratio of Driver Age & Gender by Population by Age & Gender

$$\frac{\text{Roadway/Lane Departure Crash Drivers @ Age \& Gender}}{\text{All Roadway/Lane Departure Crash Drivers}} \div \frac{\text{TX Population @ Age \& Gender}}{\text{Total Population}}$$





# Review 2017 Strategies

Determine if 2017 Strategies should be continued, modified, or deleted

Consider new strategies

Consider programmatic approach

# 2017 Strategies

1. Analyze run-off-the-road and head-on crashes and roadway characteristics using the new safety methodologies (e.g., Highway Safety Manual and systemic approaches).
2. Keep vehicles from encroaching on the roadside or opposite lane.
3. Minimize the consequences of vehicles leaving the road.
4. Minimize the likelihood of crashing in adverse conditions.
5. Identify and address behavioral characteristics associated with roadway departure.
6. Improve emergency response time in rural areas.



# Countermeasure/Action Survey

- ✓ = Countermeasure is being implemented
- ? = No evidence of implementation from the surveys
- ? \* No evidence of implementation but an action plan was developed for the 2017 SHSP



## Strategy #2: Keep vehicles from encroaching on the roadside or opposite lane.

### Adjourn

- ? Revise roadway configuration to provide additional paved recovery area (e.g., convert four-lane roadways to three-lane roadways with design features compatible with surrounding land use context).
- ✓ Conduct public information campaigns to explain the purpose and how to navigate the roadway safely.
- ? Establish target speeds and use engineering techniques to manage speeds in areas experiencing or susceptible to roadway and lane departures.
- ? Educate drivers about driving around trucks (e.g., avoiding trucks).



## Strategy #5: Identify and address behavioral characteristics associated with roadway departure.

- ? \*Provide consistent curve treatments and advisory speeds for similar conditions.
- ? \*Encourage adoption of truck driver health checkups and driving restrictions.
- ? Encourage adoption of laws that allow automated speed enforcement.
- ? Encourage adoption of laws that change medical card requirements for truck drivers.
- ? Encourage adoption of laws that require automated recording systems for trucks to monitor driving hours.



# Programmatic Strategies

Current SHSP  
Focuses on Actions

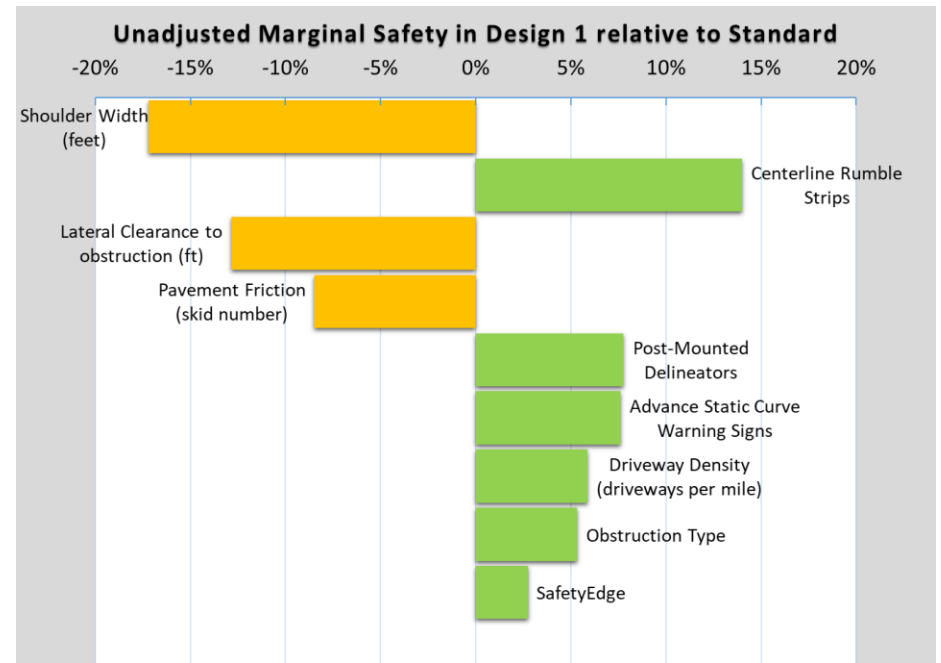
Should we add  
programmatic  
strategies agencies  
can adopt first

# TxDOT Safety Scoring Tool

## Safer By Design

The tool allows comparisons of different roadway design, traffic and roadside on safety performances

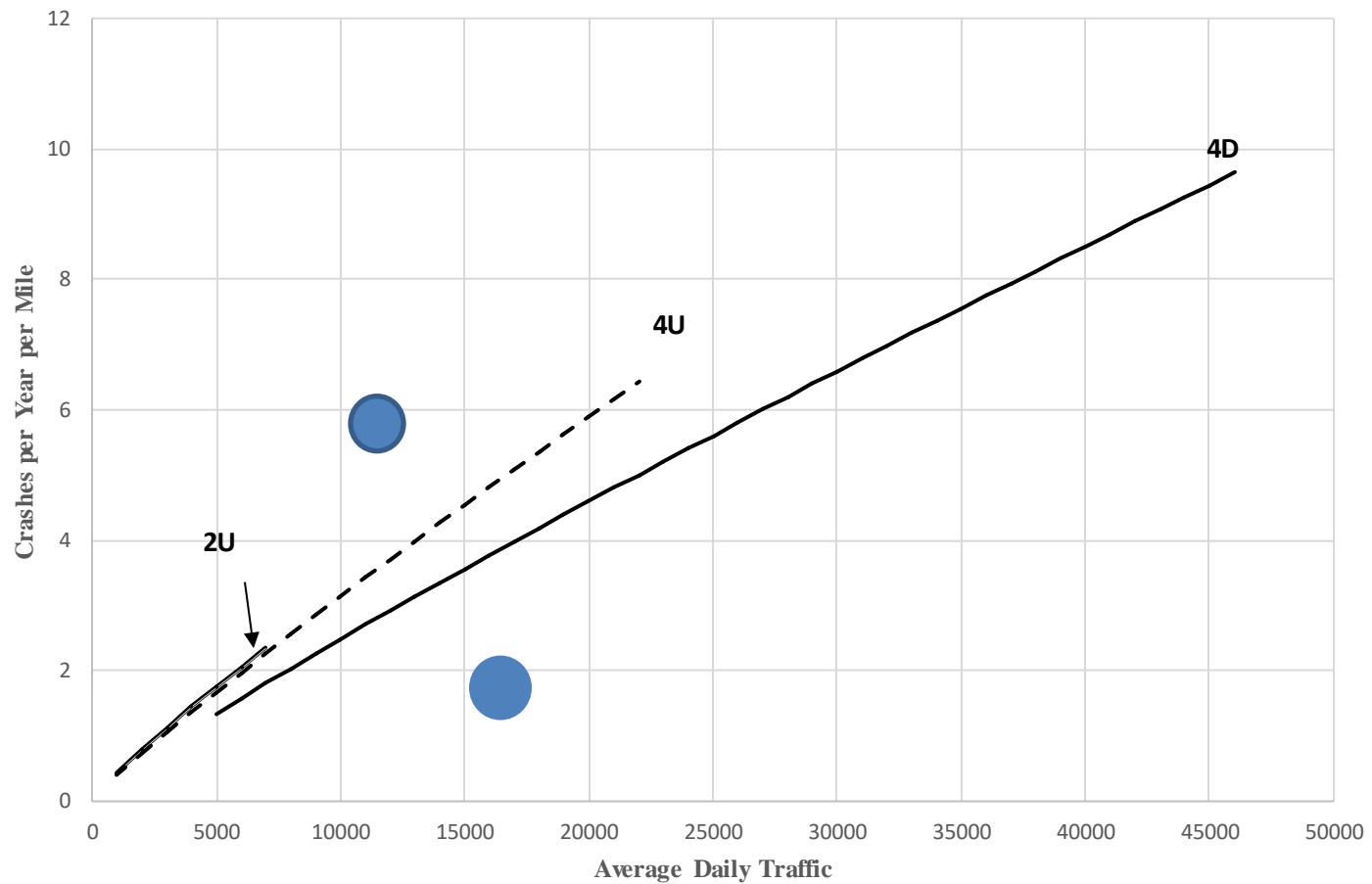
Systematically Applied on every rural non-freeway Project



Winner:  
2021 National Roadway Safety Award  
FHWA & RSF



# Network Safety Screening



# Systemic Approach Program

## Systemic Approach for Horizontal Curve Safety

### Input data

Variable	Value	Notes
AADT	6,000	Enter average daily traffic volume on curve, veh/day (range: 100-6,000)
Lane width	12	Enter average width of lanes, feet (range: 9-13)
Shoulder width	4	Enter average shoulder width in both directions, feet (range: 0-10)
Truck percentage	16%	Enter percentage of trucks in the daily traffic volume, % (range: 0-41)
Curve radius	120	Enter radius of the horizontal curve, feet (range: 115-1,500)
Deflection angle (*see calculator below)	74	Enter deflection angle of the horizontal curve, degrees (range: 1-136)

### Output

Lane width weight	9	Weight for lane width as a risk factor
Shoulder width weight	13	Weight for shoulder width as a risk factor
Truck percentage weight	7	Weight for truck percentage as a risk factor
Curve radius weight	11	Weight for curve radius as a risk factor
Deflection angle weight	13	Weight for deflection angle as a risk factor

<b>Total weight</b>	<b>53</b>	<b>23rd Percentile</b>
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# FHWA Proven Safety Countermeasures

## ROADWAY DEPARTURE



Wider Edge Lines



Enhanced Delineation for Horizontal Curves



Longitudinal Rumble Strips and Stripes



SafetyEdge<sup>SM</sup>



Roadside Design Improvements at Curves



Median Barriers



# Next Steps

1. February EA Meetings
  - a. Finalize strategies/objectives
  - b. Discuss and finalize countermeasures/action steps
2. Action plan development assignments
3. Establish final meeting date in late March/early April
3. Submit final draft plan to TxDOT for review



**Adjourn**

