



UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE
SHOCK, TRAUMA AND ANESTHESIOLOGY
RESEARCH CENTER
National Study Center for Trauma & Emergency Medical Services



Snapshot of Final Analysis

2016 -- Pedestrian Fatality Review:

*Identifying Contributing Factors and
Systemic Countermeasures to Avoid Non-motorist Fatalities in Maryland*

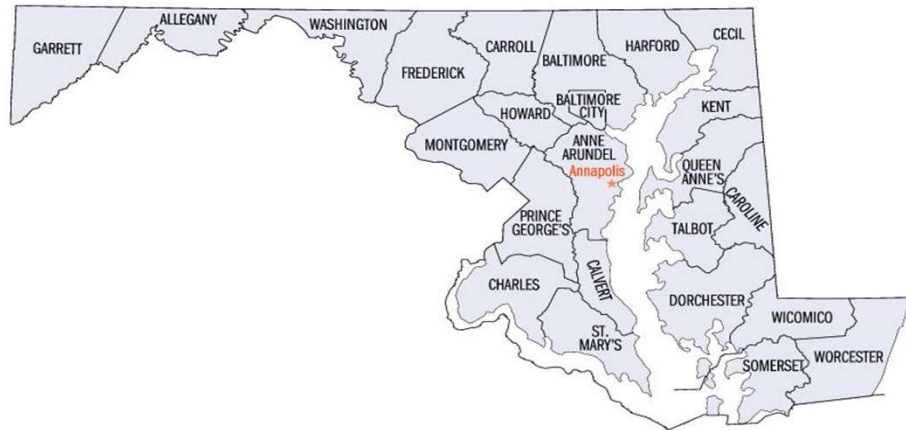
Presented To: TPB Transportation Safety Subcommittee
Metropolitan Washington Council of Governments (WashCOG)
June 8, 2021

NSC Team: Kim Auman, Kartik Kaushik, Mark Scarboro, Alexis Aviles, Erica Zimmerman

Prepared By: The National Study Center
Prepared For: MVA-MHSO Pedestrian/Bicycle Program Area

Project Overview

- Review crash reconstruction reports of all of Maryland's 2016 Pedestrian/Bicyclist fatalities (n=127). To take a “deep dive” into crash causation using detailed information beyond limited information provided in the standard crash reports.
- *Goal:* Identify frequently occurring contributing factors and potential countermeasures
- Monthly meetings were held to discuss cases in specific counties (5 to 8 cases per session)
- *Phase 2:* Analyze standard crash report database to determine how many identified contributing factors in fatal pedestrian crashes also occur in non-fatal pedestrian crashes.



Multidisciplinary Review Team



Sources of Information

Prior to Review:

- *Detailed Crash Investigation Report – little black box for pedestrian/bicyclist fatal crashes*
- *Standard Crash Reports*
- *Medical Examiner Reports – toxicology results*
- *Media Reports*

At the Review:

- *Presentation by Investigating Officer (whenever possible)*
- *Video surveillance – when available*
- *Google maps -- aerial and street view images*
- *County crash maps – prepared by Washington College*

Contributing Factors

Human:

Speeding, Impaired / Distracted, Crossing Mid-block, Dark Clothing

Environment:

Dark, Rainy / Wet Road, Vegetation, Obstructed Sight Lines

Engineering:

Posted Speed, Lack of Crossing Opportunities, Lighting

Vehicle:

Tinted Glass, Visual Obstructions, Headlights, Vehicle Type

Contributing Factor Classification

Certain - Case review and evidence support high confidence the contributing factor was a primary contribution to the pedestrian impact and fatal outcome (established beyond doubt).

Probable - Case review and evidence support moderate confidence the contributing factor was a primary contribution to the pedestrian impact and fatal outcome (likely to happen).

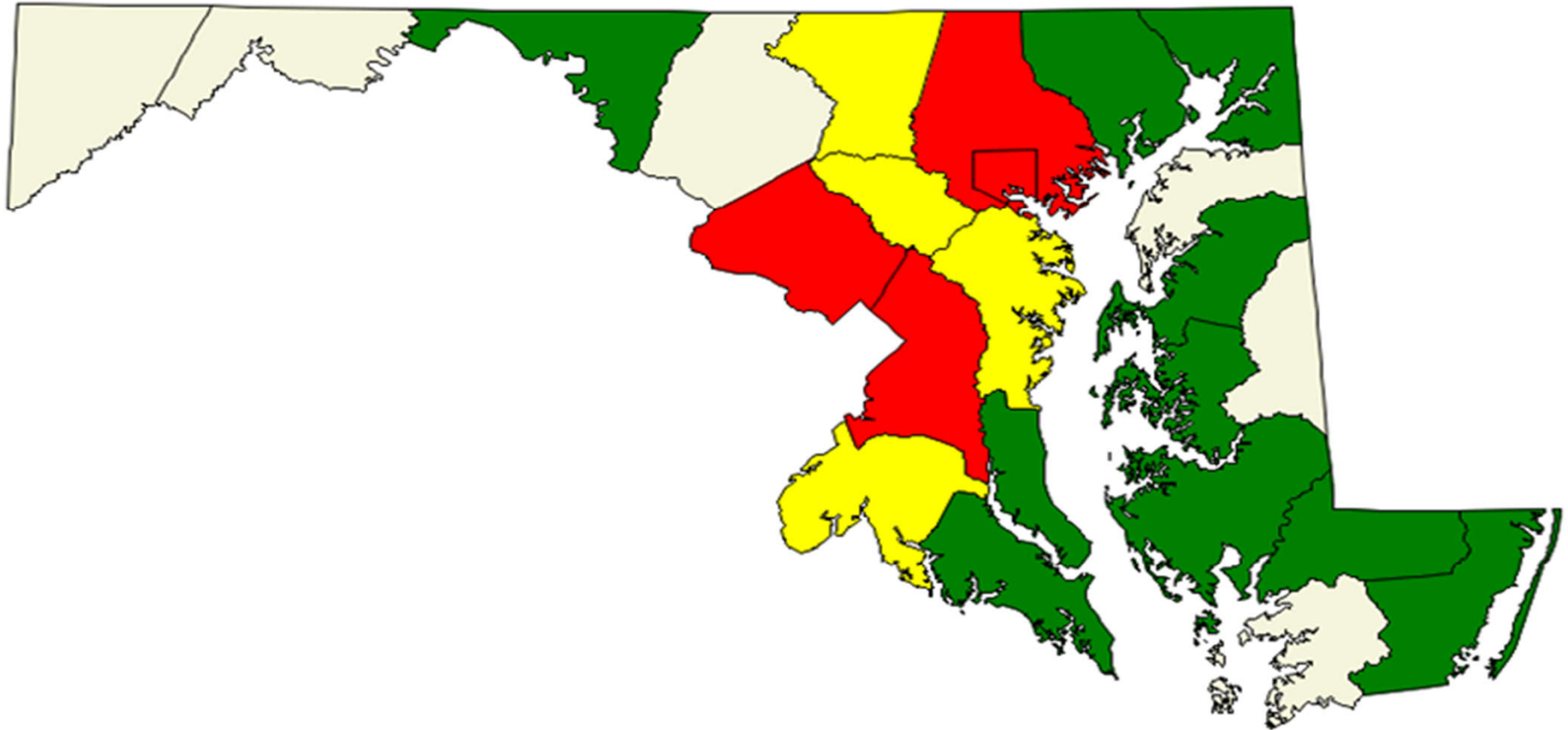
Possible - Case review and evidence support minimal confidence the contributing factor was a primary contribution to the pedestrian impact and fatal outcome (may or may not have occurred).

2016 Pedestrian Fatal Crashes:

- 127 Fatalities
 - 123 Pedestrians on Foot or Bicyclists
 - 4 Other
 - 1 wheelchair related was included in review
- 124 Fatalities identified for review
 - 108 (87.1%) cases reviewed
 - 107 reviews completed
 - 1 crash had 2 pedestrian fatalities
- **108** Fatalities reviewed

2016 Pedestrian Fatal Crashes:

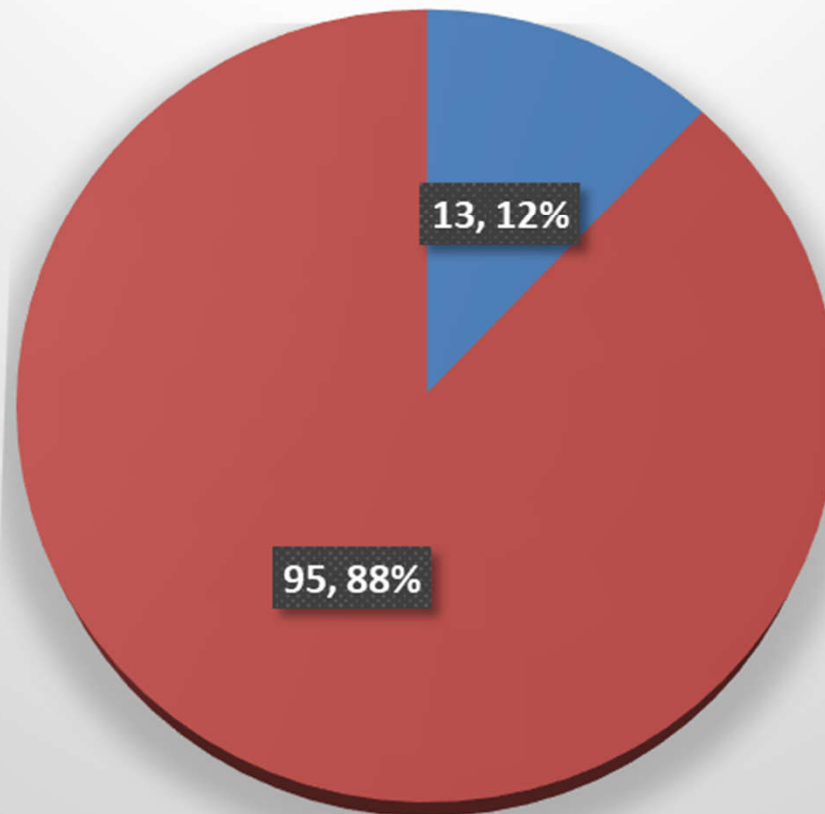
2016 Maryland - Ped/Bike Fatality Review
Cases by Jurisdiction
n=124



Fatalities 0 1-5 6-10 >10

2016 Pedestrian Fatal Crashes:

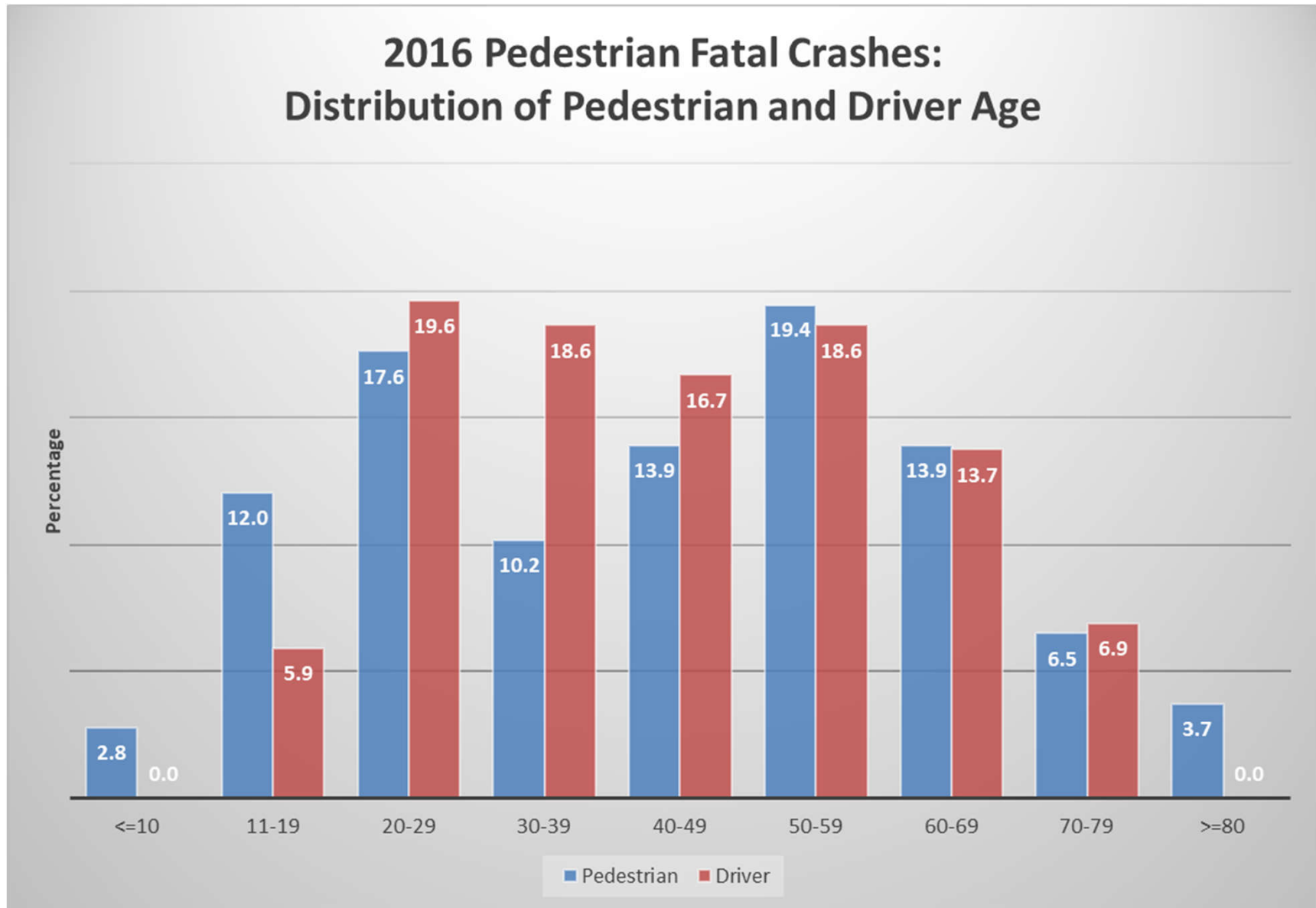
Pedestrians/Bicyclists Among Reviewed Cases



n=108

■ Bicyclists ■ Pedestrians

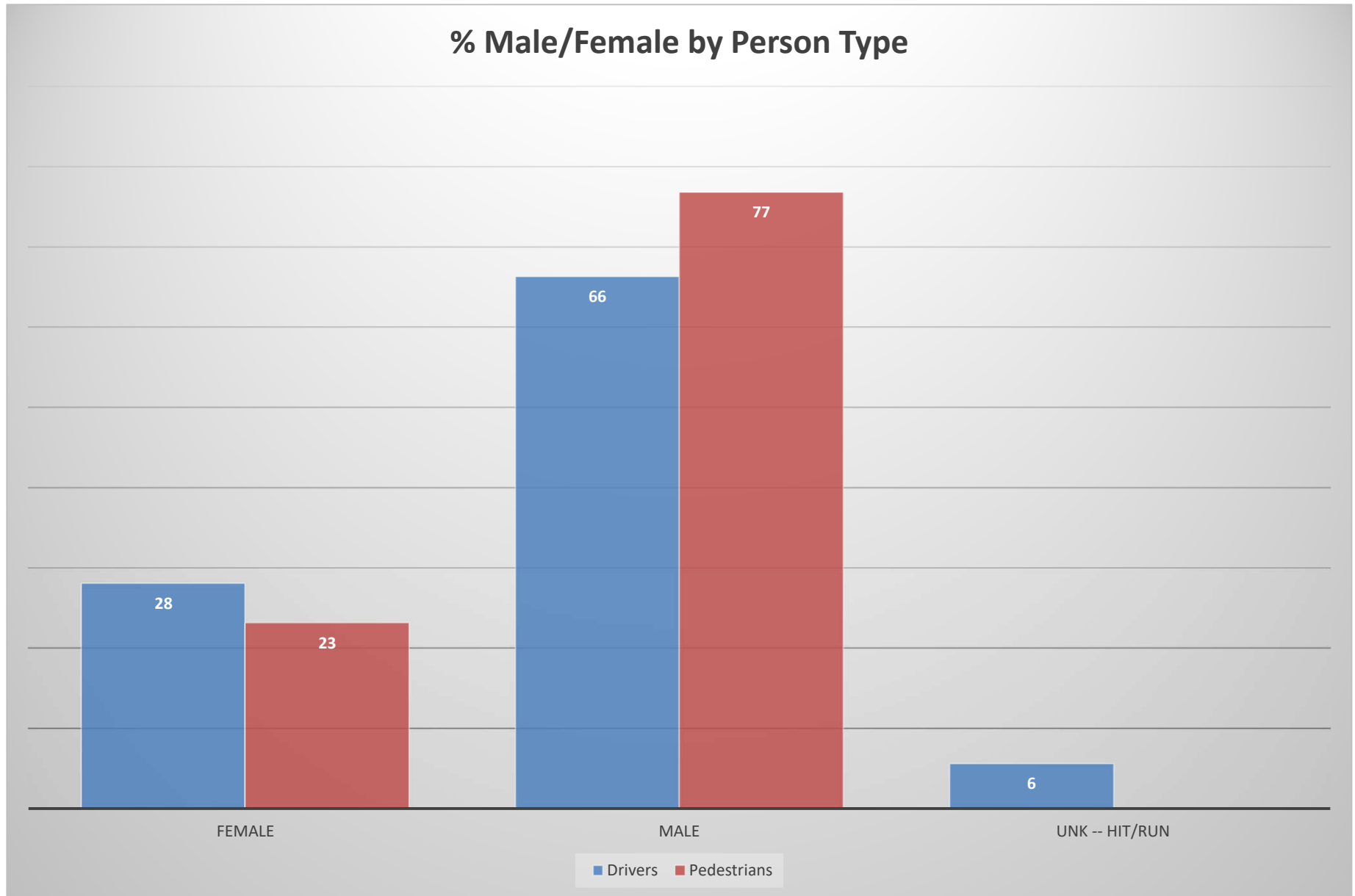
2016 Pedestrian Fatal Crashes:



Pedestrians n=108; Drivers n=101 (1st Vehicle) 6 unknown age

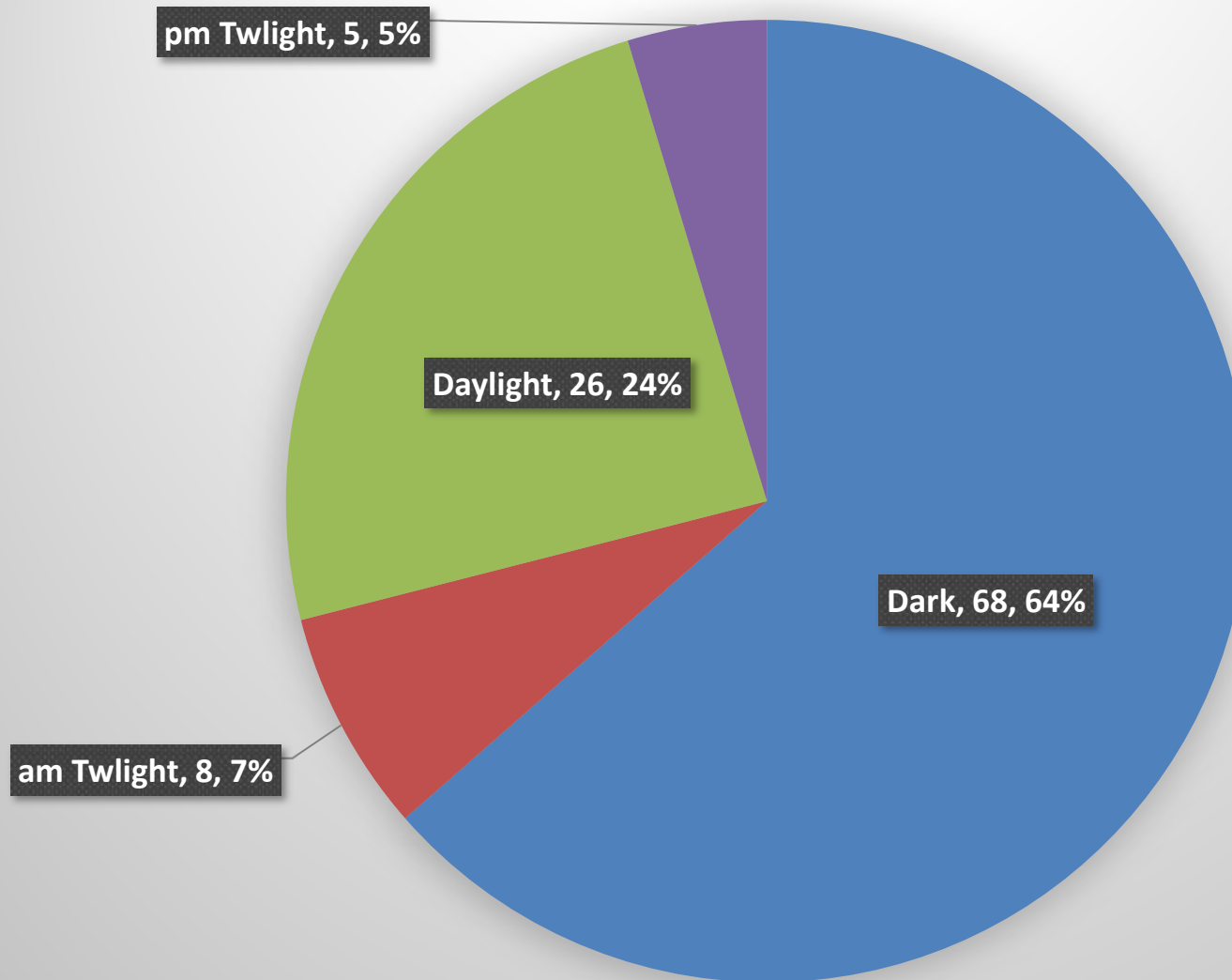
2016 Pedestrian Fatal Crashes:

% Male/Female by Person Type



2016 Pedestrian Fatal Crashes:

Lighting at Time of Crash



2016 Pedestrian Fatal Crashes:

Vehicle Body Type

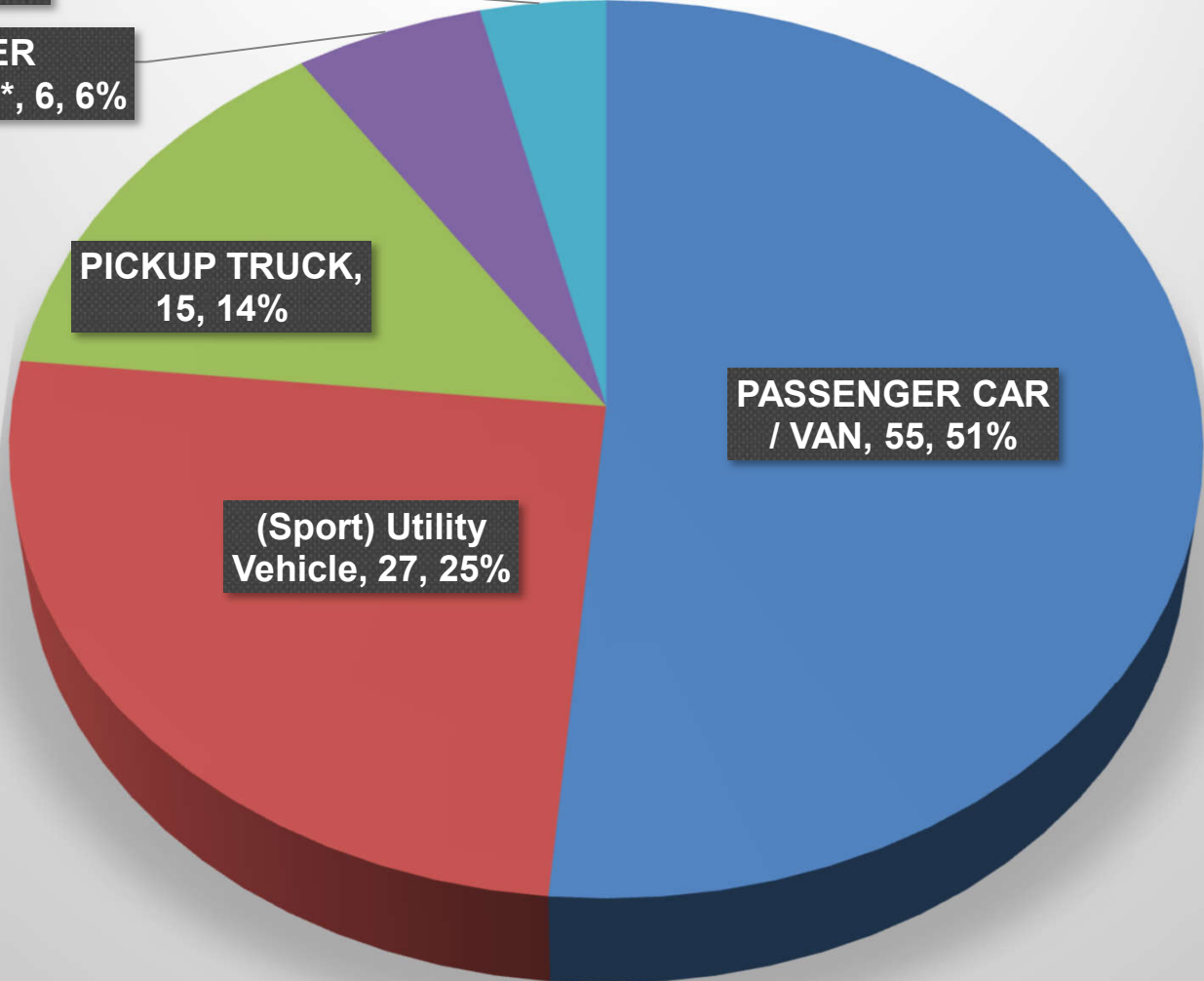
UNKNOWN, 4, 4%

OTHER
VEHICLES*, 6, 6%

PICKUP TRUCK,
15, 14%

(Sport) Utility
Vehicle, 27, 25%

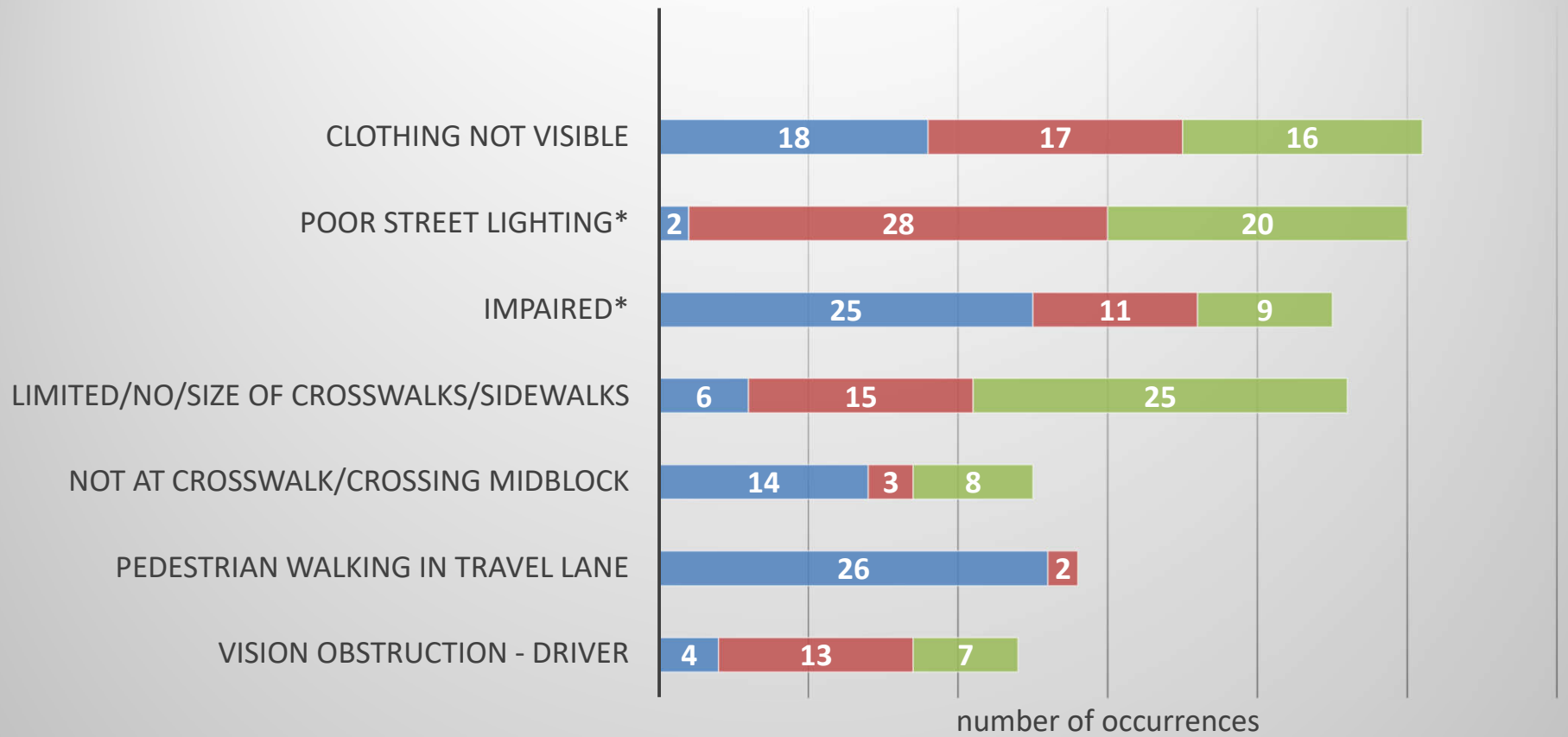
PASSENGER CAR
/ VAN, 55, 51%



* Other Vehicles Include: medium/heavy truck, other light truck , transit bus, truck tractor

2016 Pedestrian Fatal Crashes:

Top Contributing Factors By Classification Confidence Level



* 1 record with undetermined classification not included

■ Certain ■ Probable ■ Possible

290 Contributing Factors

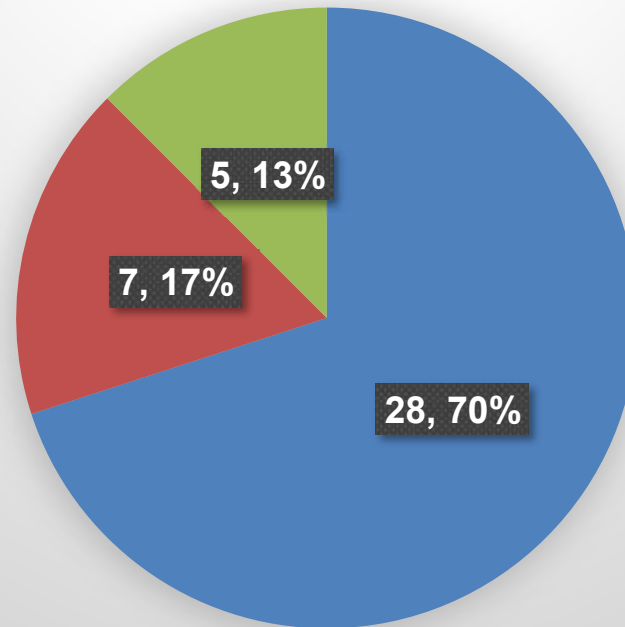
2016 Pedestrian Fatal Crashes:

Impairment Contributing Factor

- **43.0%** (n=46) of the fatal pedestrian crashes involved alcohol and/or controlled dangerous substances
- **37.0%** (n=40) pedestrians were impaired
- **5.6%** (n=6) drivers were impaired

2016 Pedestrian Fatal Crashes:

Impaired Pedestrians (n=40)

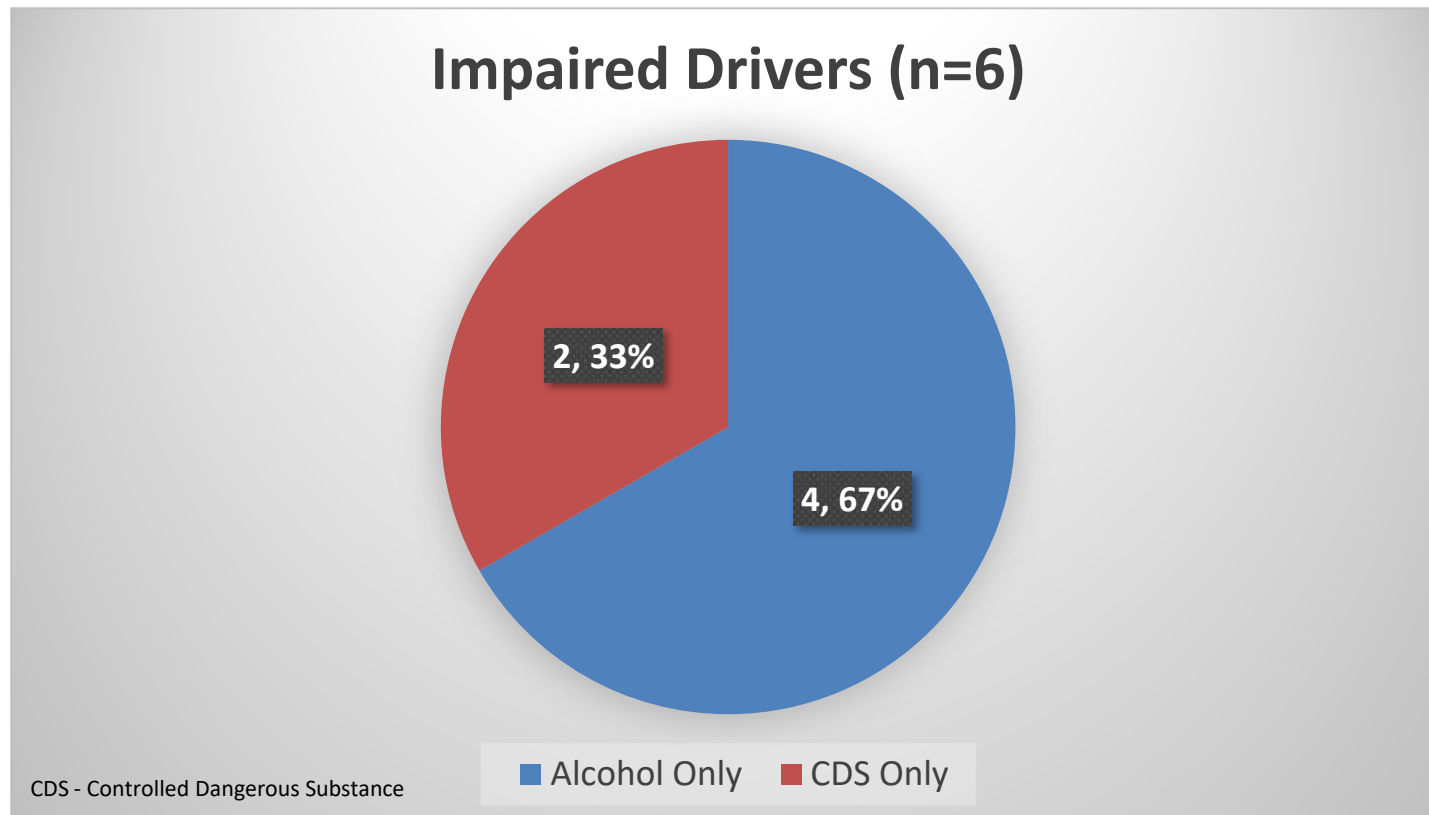


■ Alcohol Only ■ CDS Only ■ Alcohol & CDS
CDS - Controlled Dangerous Substance

Impaired Pedestrian Summary

- **70%** Alcohol Only
- **17%** Controlled Dangerous Substance (CDS) Only
- **13%** Alcohol & CDS Combination

2016 Pedestrian Fatal Crashes:



Impaired Driver Summary

- 67% Alcohol Only
- 33% Controlled Dangerous Substance (CDS) Only
- No Alcohol & CDS Combination

2016 Pedestrian Fatal Crashes:

- **Education Countermeasures**

- Drivers:

- Increase driver awareness of pedestrian safety. Be vigilant pedestrians can be hard to see.
- Reckless driving charges – mandated drivers training course

- Pedestrians/Bicyclist:

- Enhance ped/bicyclist understanding of their visibility to drivers -- wear light colored and reflective clothing
- Understand dangers of impaired walking / biking

- Community:

- Work with businesses to provide reflective clothing/materials for workers and patrons

2016 Pedestrian Fatal Crashes:

- **Engineering Countermeasures**
 - Evaluate/Increase/Change lighting on roadways
 - Insert/update pedestrian infrastructure &/or signage
- **Environmental Countermeasures**
 - Monitor and maintain vegetation around pedestrian crossing area
- **Enforcement Countermeasures**
 - Increase enforcement of
 - speeding laws and drivers' responsibilities to pedestrians ; ped/bike safety laws – vehicle on roadway



Thank you



Any
Questions?