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MPO TAC Meeting #2
March 6th, 2019

BEND AREA TRANSPORTATION SAFETY ACTION PLAN (TSAP)



MEETING AGENDA

- Introductions
- Meeting Goals
- Discussion: Crash Data Analysis
- Discussion: Emphasis Areas & Potential Outcomes
- Next Steps



INTRODUCTIONS

- Name
- Organization
- What are your interests related to safety in Bend?



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MEETING GOALS: DESIRED OUTCOMES

- **Focus on non-infrastructure outcomes**
 - TAC members & stakeholders share ideas and work to develop recommendations
- Discuss and confirm emphasis areas
 - TAC members to think about how these emphasis areas relate to their roles
- Develop understanding of potential outcomes
 - What are infrastructure outcomes
 - What are non-infrastructure outcomes

What the data
means to you

Why your input
matters

Share your
input

MEETING GOALS: DESIRED OUTCOMES

- Infrastructure Outcomes
 - Changes in roadway infrastructure, environment, or operations
 - Example: Warning signs, Systemic crashes, hot spot crash areas
- Non-Infrastructure Outcomes
 - Education
 - Example: Educational campaigns about driving in snow/ice conditions
 - Enforcement
 - Example: Targeted enforcement on key corridors or at specific times, red light cameras, automated speed enforcement in crash areas
 - Policy
 - Example: Adopt a policy requiring an intersection control evaluation prior to implementing intersection control projects



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WHAT THE DATA MEANS TO YOU?

- Data helps you:
 - Understand key issues and factors
 - Understand emphasis areas
- Data leads us towards program aspects of the TSAP
- *TSAP is data informed, but not data restricted*



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WHY YOUR INPUT MATTERS?

- *TSAP is data informed, but not data restricted*
- Crash data does not tell the whole story
- Your input helps us understand **risk factors**



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SUMMARY OF EMPHASIS AREAS

- Roadway Characteristics
 - Light conditions
 - Snow/ice
 - Intersection crashes
- Behavior
 - Speeding
 - Alcohol/drug use
- Vulnerable Users
 - Motorcycles
 - Pedestrians
 - Bicycles
 - Younger Drivers



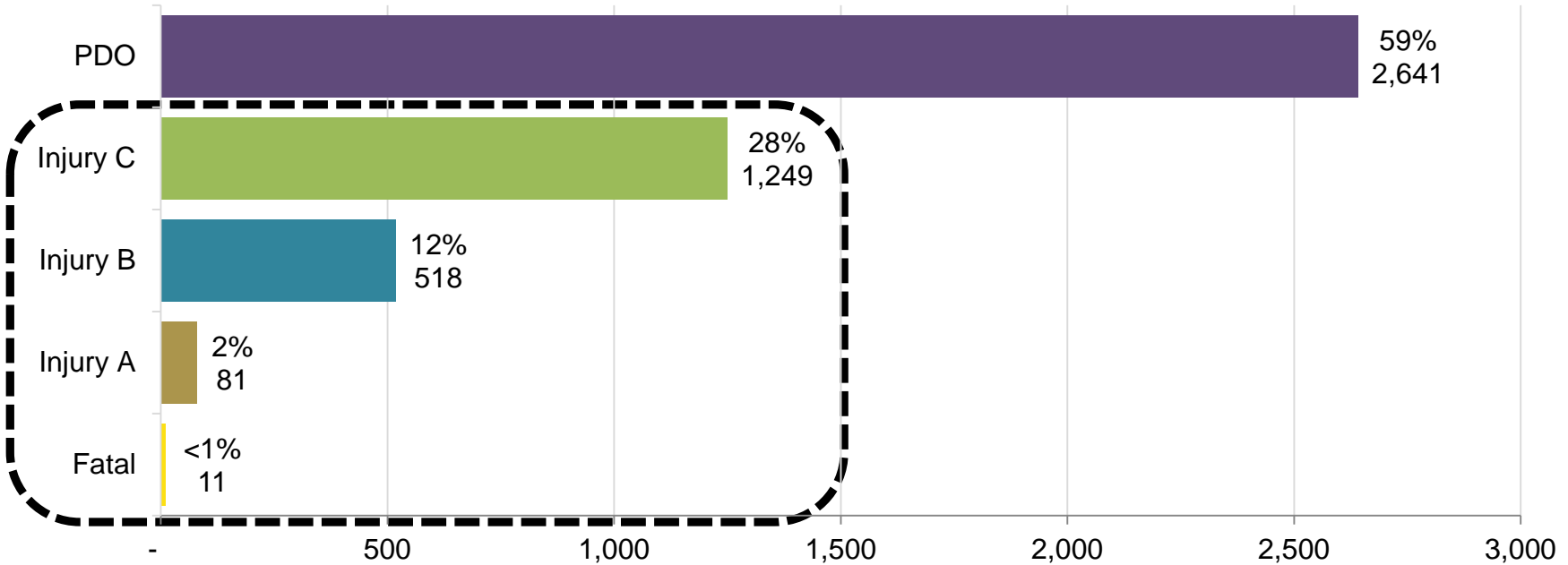
CRASH DATA ANALYSIS REVIEW (2012-2016)

- Severity
- Trends by Time
- Roadway Characteristics
- Crash Characteristics
- Behavioral Characteristics
- Vulnerable Users



BEND CRASH ANALYSIS

CRASH SEVERITY



Approximately 40% of all crashes resulted in some level of injury



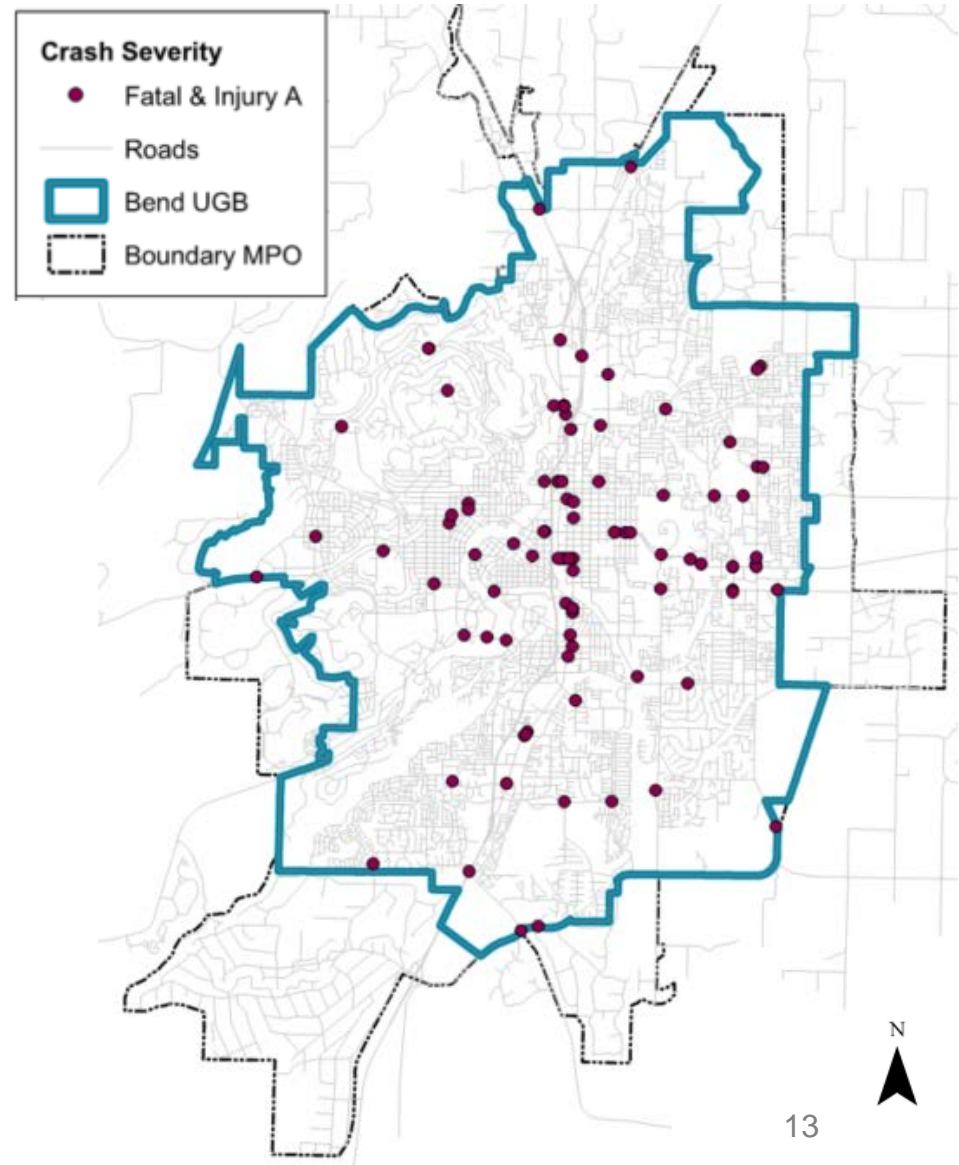
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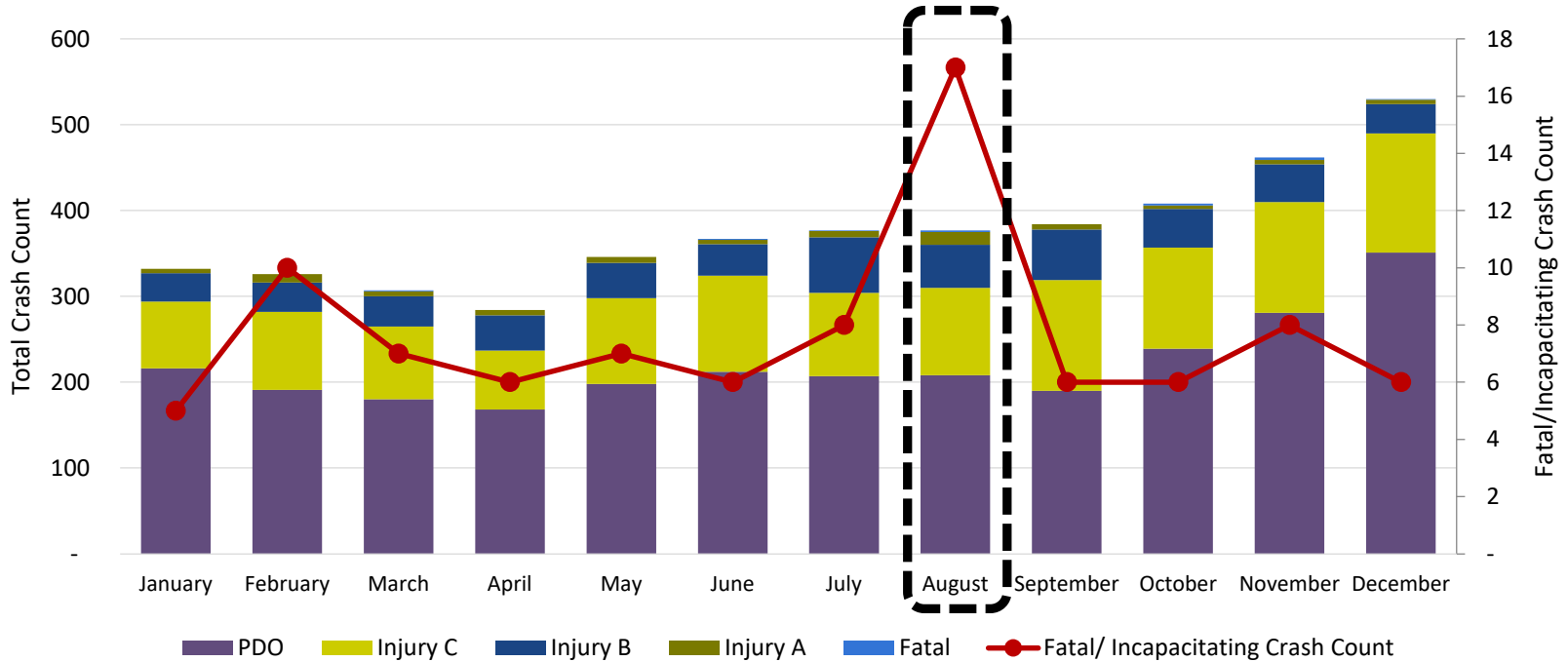
BEND CRASH ANALYSIS

CRASH SEVERITY



TRENDS BY TIME

MONTH



Highest # of fatal/incapacitating crashes occurred in August



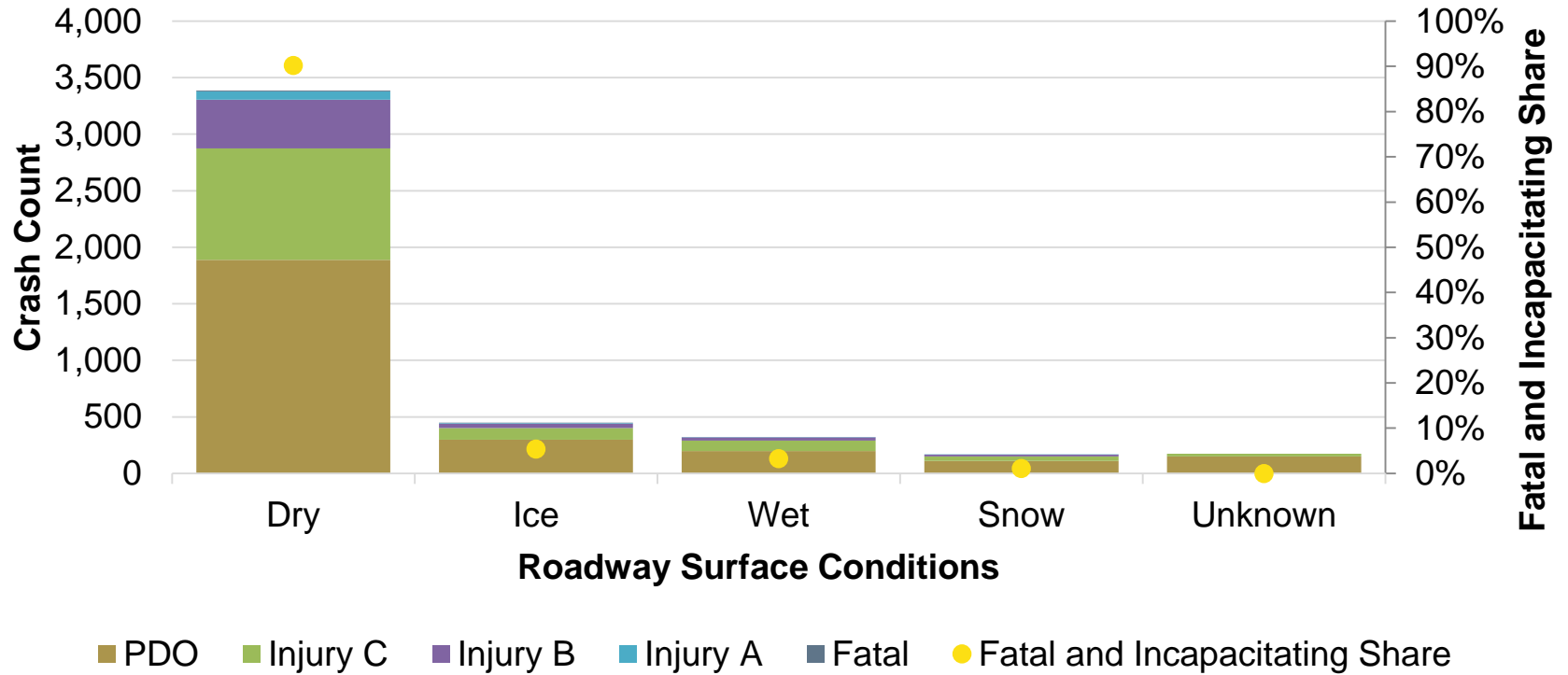
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ROADWAY CHARACTERISTICS

ROAD SURFACE CONDITIONS

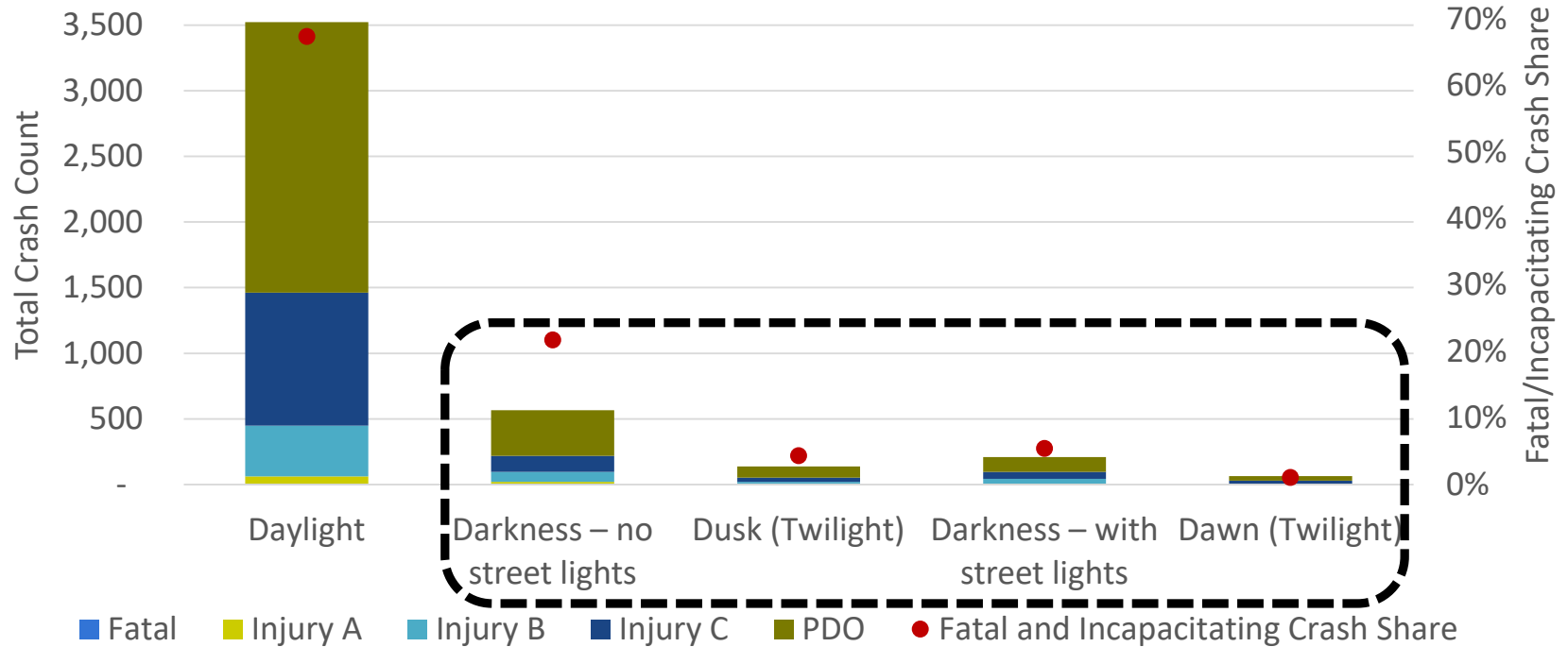


6% of fatal/incapacitating crashes occurred on snow/ice



ROADWAY CHARACTERISTICS

LIGHT CONDITIONS



33% (14 crashes) of fatal/incapacitating crashes occurred in dark, dawn, or dusk conditions



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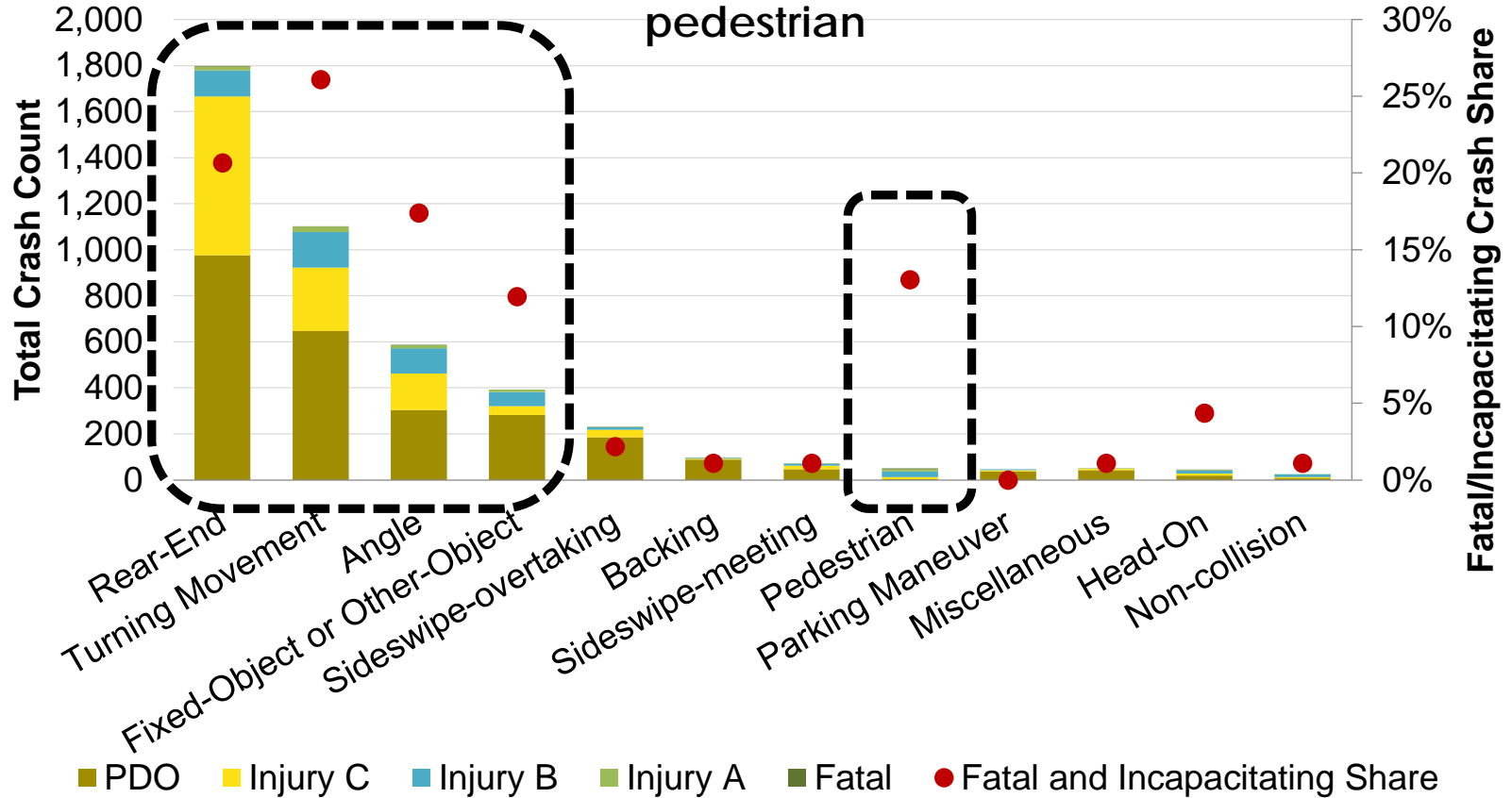
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CRASH CHARACTERISTICS

COLLISION TYPE

64% of fatal/incapacitating crashes were rear-end, turning movement, or angle

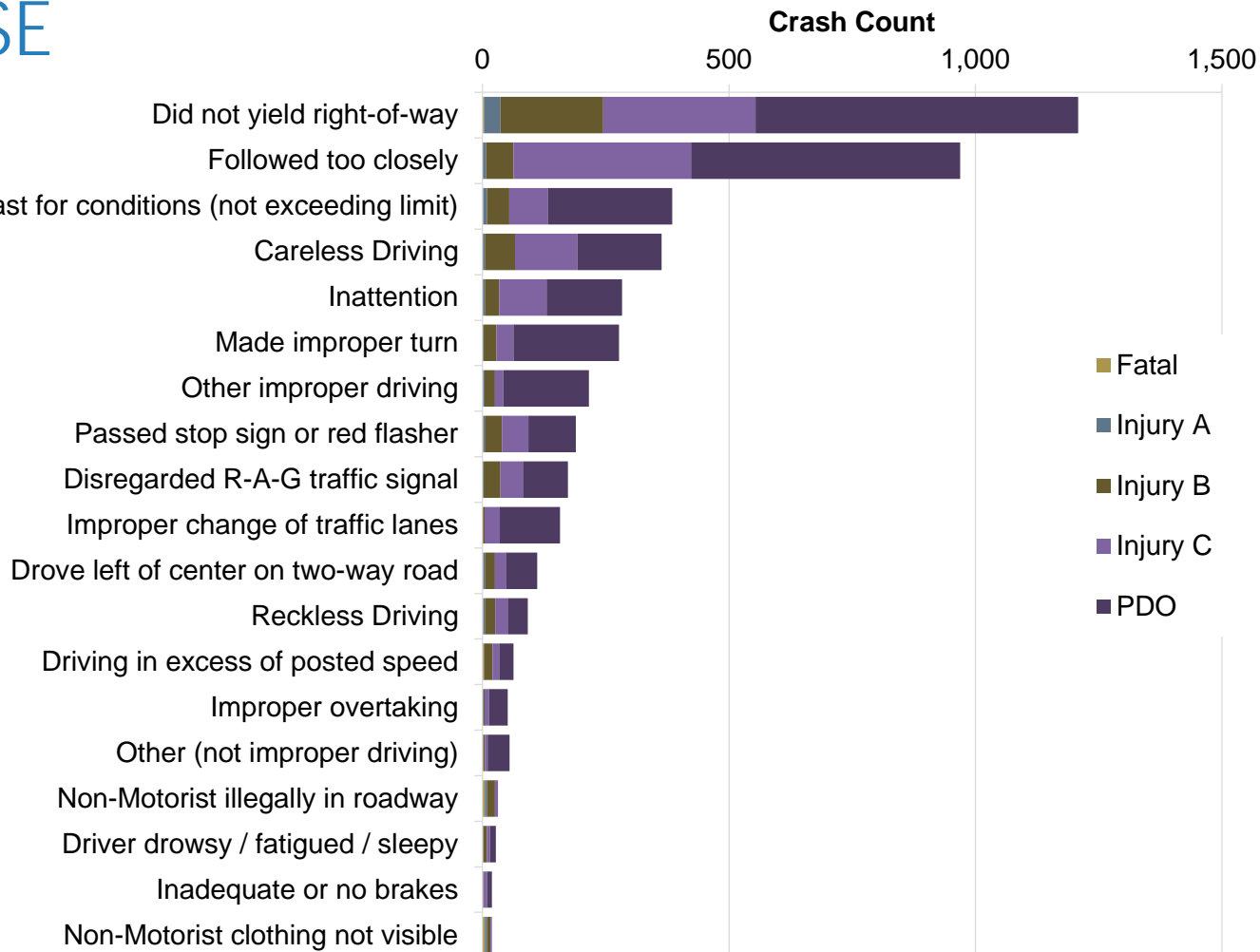
13% of fatal/incapacitating crashes were pedestrian



CRASH CHARACTERISTICS

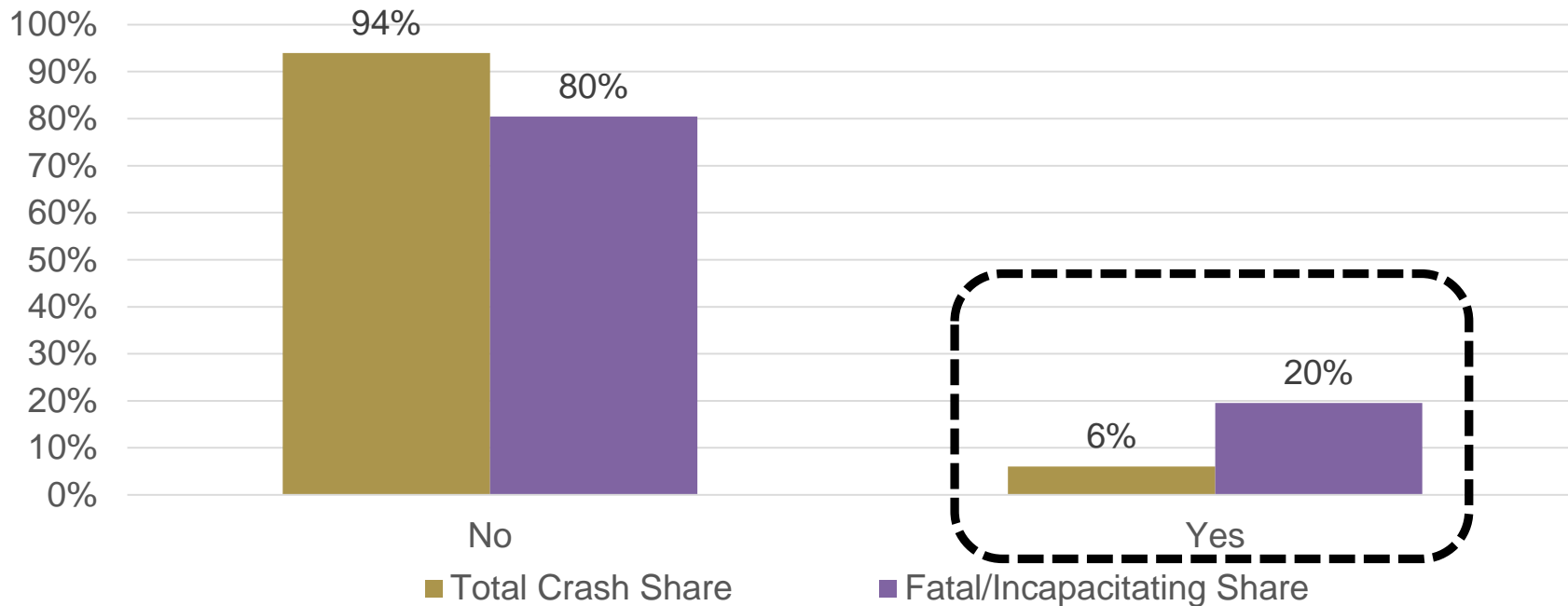
CRASH CAUSE

21% of fatal/incapacitating crashes involved aggressive driving (speed or following too closely)



BEHAVIORAL CHARACTERISTICS

ALCOHOL/DRUG USE



20% of fatal/incapacitating crashes involved alcohol or drugs



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MOTORCYCLE

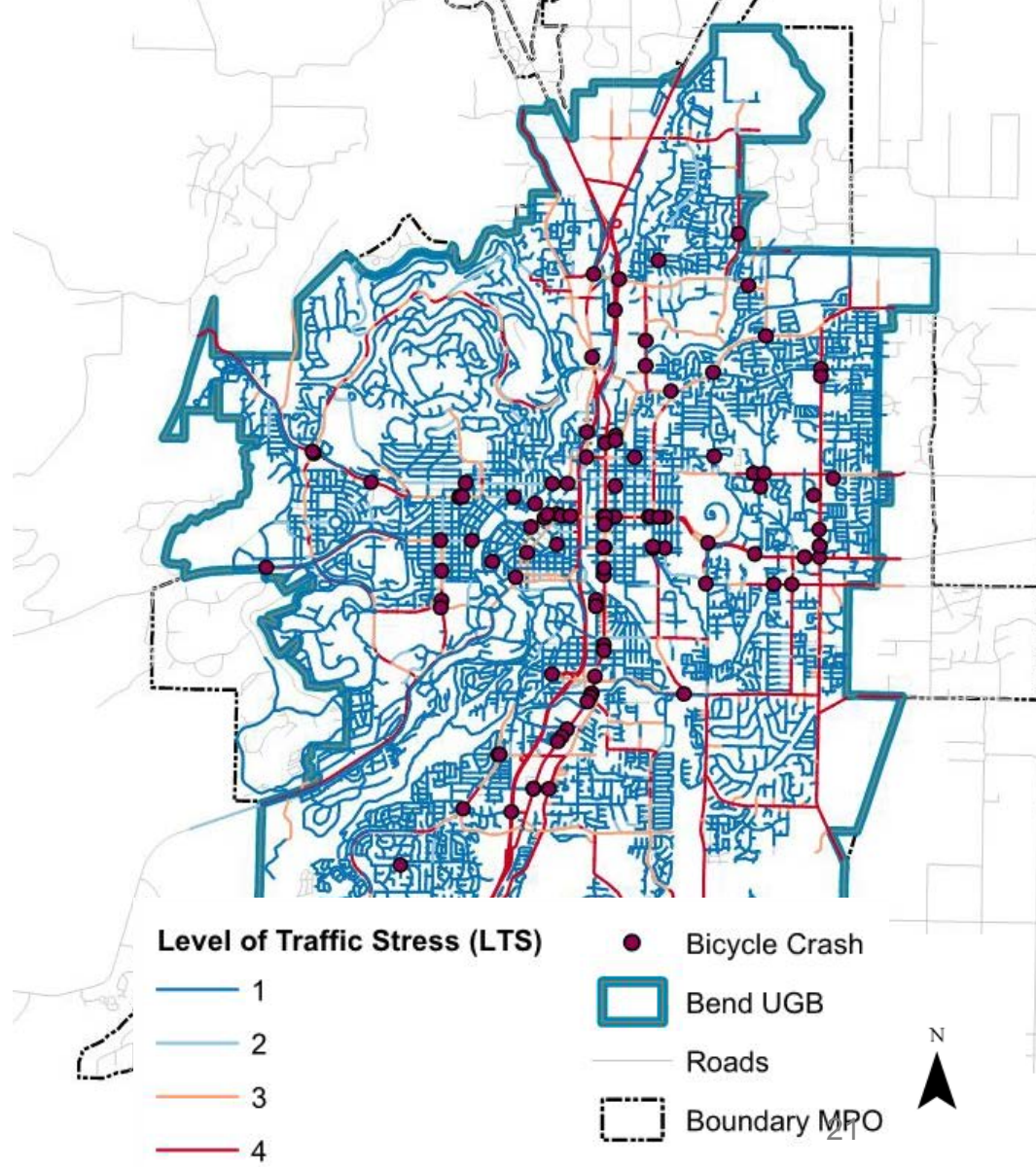
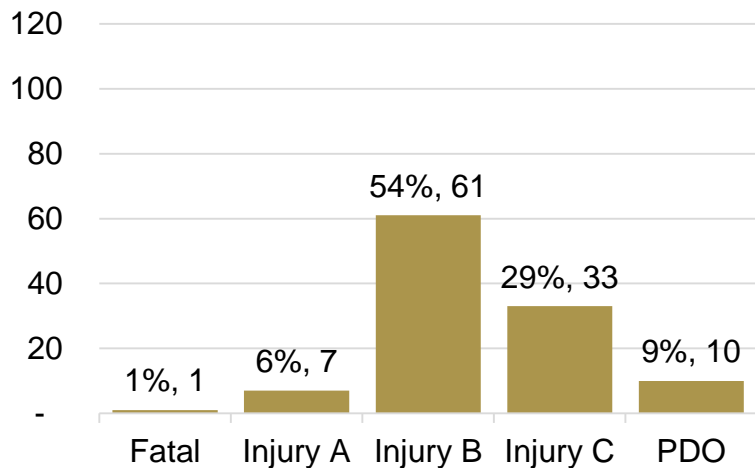
- **16% of fatal/incapacitating crashes** involved motorcycles
- **85% of motorcycle crashes resulted in injury or fatality**
- Most common motorcycle collision types:
 - Turning movement, rear-end, and non-collision crashes



VULNERABLE USERS

BICYCLISTS

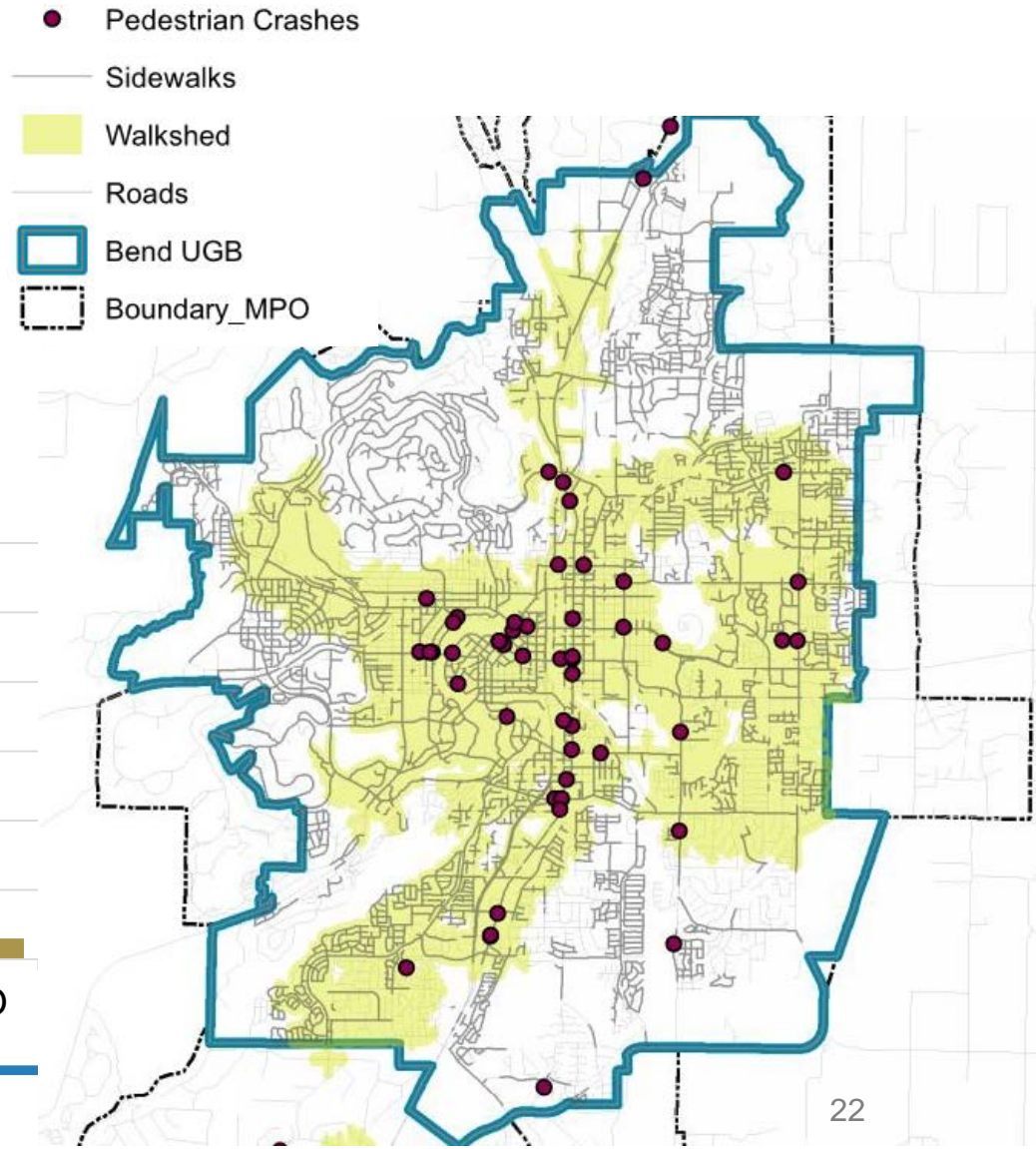
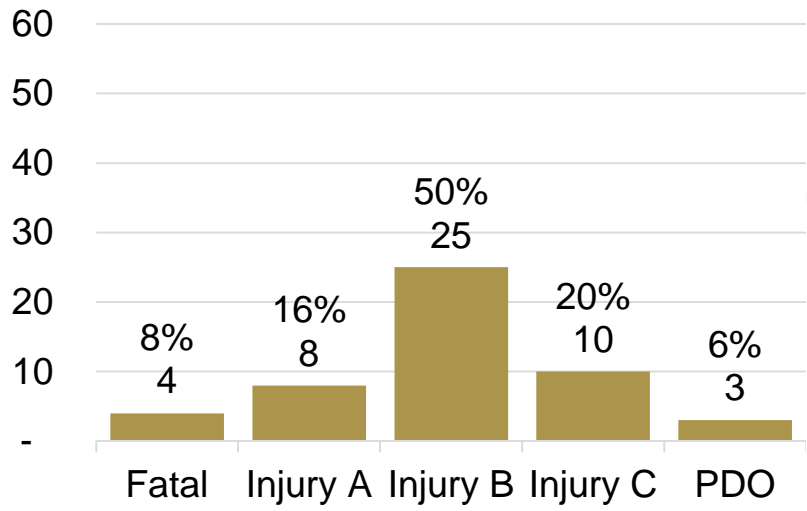
Bicyclist crashes account for 9% of fatal/incapacitating crashes in Bend



VULNERABLE USERS

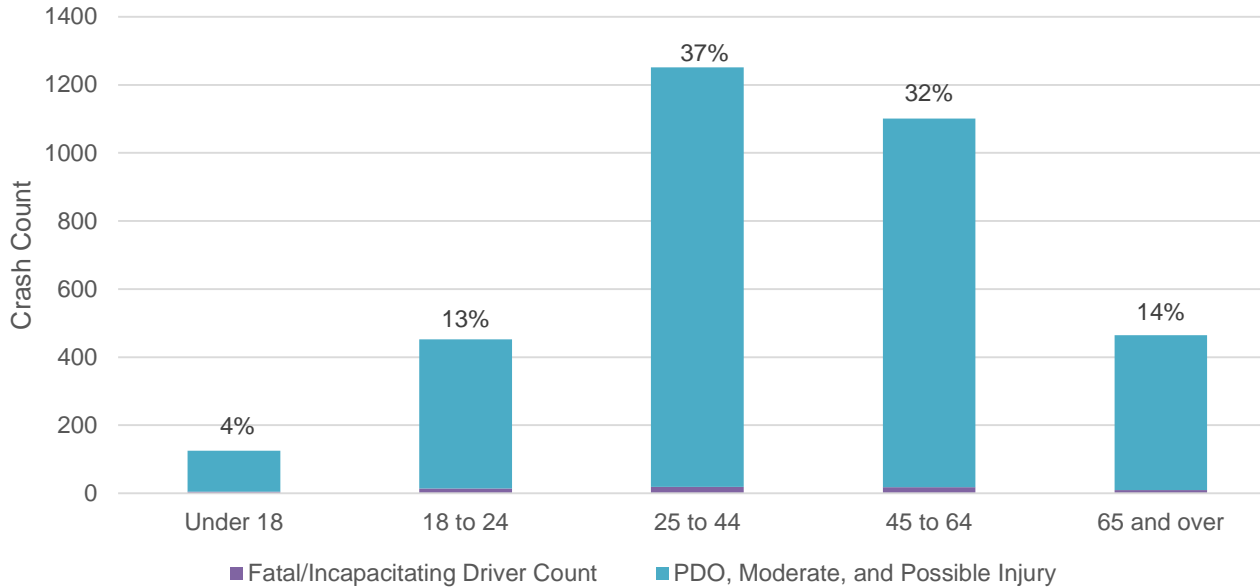
PEDESTRIAN

Pedestrian crashes account for 13% of fatal/incapacitating crashes in Bend



VULNERABLE USERS

YOUNGER DRIVERS



29% of fatal/incapacitating crashes involved drivers under age 25



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SUMMARY OF EMPHASIS AREAS

- Roadway Characteristics
 - Light conditions
 - Snow/ice
 - Intersection crashes
- Behavior
 - Speeding
 - Alcohol/drug use
- Vulnerable Users
 - Motorcycles
 - Pedestrians
 - Bicycles
 - Younger Drivers



SHARE YOUR INPUT

- Do these emphasis areas make sense based on the data?
- Are there other areas more important?
- Are there items you expected to see but were missing?
- Other thoughts?

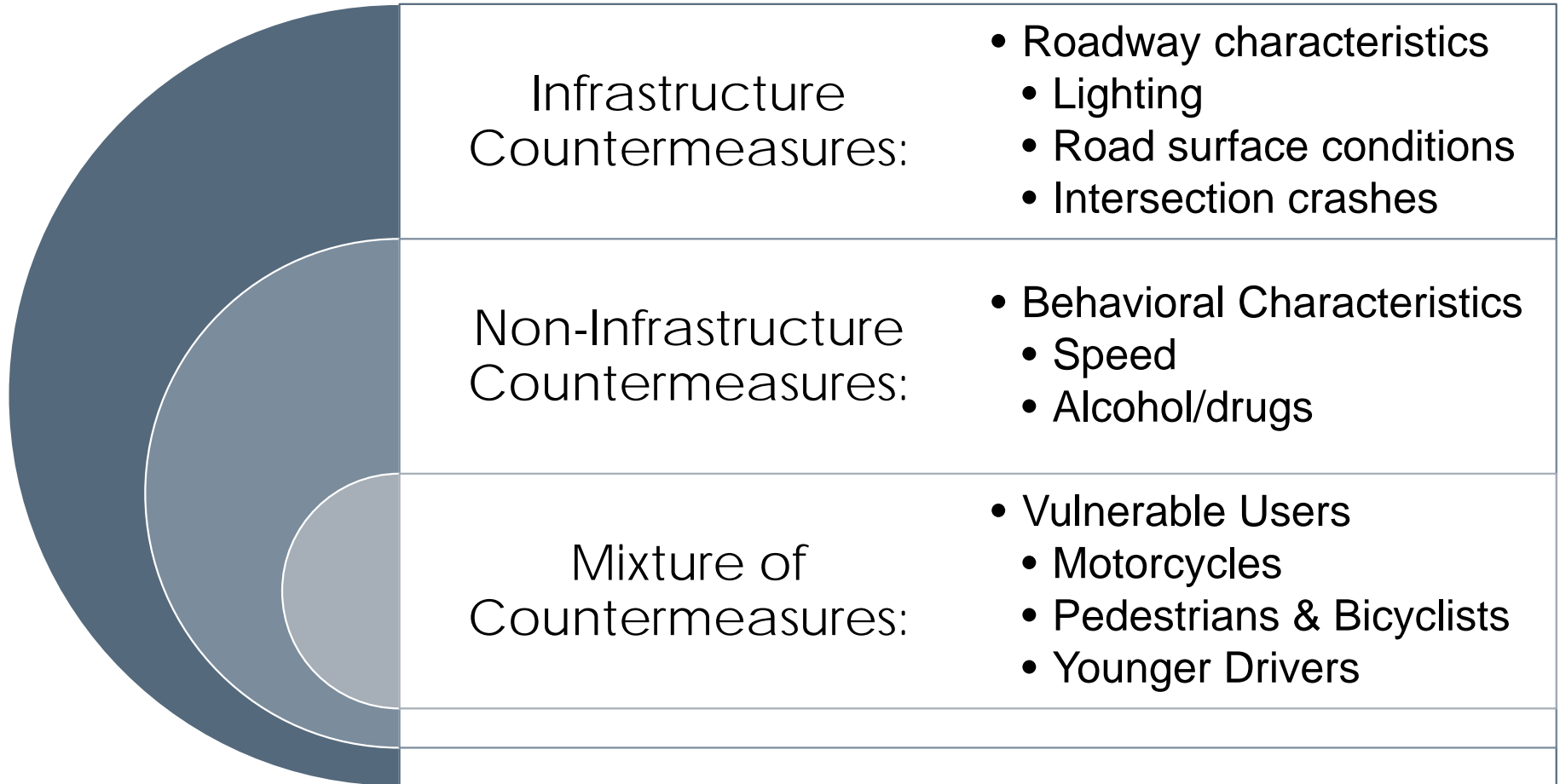


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EMPHASIS AREAS & POTENTIAL OUTCOMES



POTENTIAL OUTCOMES

EMPHASIS AREA

Infrastructure (Engineering) Solutions

- Example of potential infrastructure outcomes
 - i.e., Install curve warning signage

Non-Infrastructure (Behavioral, Program) Solutions

- Example of potential non-infrastructure outcomes
 - i.e., Program: Addressing aggressive driving

General Format of Discussion



WHAT WE WANT TO GET FROM THIS CONVERSATION

- **Share your thoughts:**

- What ideas do you have to address this issue?
- What programs does your agency already do?
- How can coordination and communication be improved?
- Other thoughts?



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EMPHASIS AREAS & POTENTIAL OUTCOMES

- Roadway Characteristics
 - Light conditions (dark, dawn, or dusk);
 - Road conditions (snow, ice);
 - Intersection crashes

Ideas?

Programs

Coordination

Communication



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LIGHT CONDITIONS

Infrastructure (Engineering) Solutions

- i.e., Install lighting at key locations (curves, locations with crash history, intersections, etc.)
- i.e., Install reflective panels on sign posts
- i.e., Increase delineation (recessed pavement markers; post delineators)

Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Policy: Design standards: Include lighting at all pedestrian crossings; all roundabouts; etc.

Additional ideas?



ROAD CONDITIONS

Infrastructure (Engineering) Solutions

- i.e., Install high friction pavement at key locations
- i.e., Install variable speed limits

Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Maintenance programs
- i.e., Enforcement: Targeted in certain conditions
- i.e., Education: Driving in snow/ice

Additional ideas?



INTERSECTION CRASHES



Infrastructure (Engineering) Solutions

- i.e., Install roundabouts
- i.e., Install backplates with retro reflective borders at signals

**Additional
ideas?**



Non-Infrastructure (Behavioral, Program) Solutions

- i.e. Require intersection control evaluation prior to intersection improvement



EMPHASIS AREAS & POTENTIAL OUTCOMES

- Behavioral Characteristics
 - Aggressive driving (including speed);
 - Alcohol/drug use;

Ideas?
Programs
Coordination
Communication



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AGGRESSIVE DRIVING

Infrastructure (Engineering) Solutions

- i.e., Design roadway to encourage appropriate speeds
- i.e., Install Dynamic Speed Feedback Signs

Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Increased penalties for repeat offenders
- i.e., Enforcement: targeted in key locations and times
 - Summer months, weekend, late afternoon

Additional ideas?



POTENTIAL OUTCOMES

ALCOHOL/DRUG USE

Infrastructure (Engineering) Solutions

- *Alcohol/drug use is primarily addressed through behavioral programs and enforcement*

Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Evaluate the potential effectiveness of legislative approaches
- i.e., Education

Additional ideas?



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EMPHASIS AREAS & POTENTIAL OUTCOMES

- Vulnerable Users

- Pedestrians;

- Bicyclists;

- Motorcycles;

- Younger Drivers

Ideas?

Programs

Coordination

Communication



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PEDESTRIAN

Infrastructure (Engineering) Solutions

- i.e., Install enhanced pedestrian crossings with warning beacons and pedestrian refuge islands
- i.e., Reduce speeds along corridors or in specific locations with high pedestrian activity

Non-Infrastructure (Behavioral, Program) Solutions

- i.e., High visibility enforcement
- i.e., Education for pedestrians
- i.e., Education for motor vehicle drivers

Additional ideas?



BICYCLIST

Infrastructure (Engineering) Solutions

- i.e., Install bicycle lanes or wide shoulders on certain routes
- i.e., Provide bicycle crossings on key routes across busy roads

Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Promote bicycle helmet use with education
- i.e., Education for pedestrians
- i.e., Education for motor vehicle drivers

Additional ideas?



MOTORCYCLES



Infrastructure (Engineering) Solutions

- *Motorcycle safety is primarily addressed through behavioral programs and enforcement*



Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Motorcycle helmet use laws
- i.e., Education for motorcyclists

Additional ideas?



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YOUNGER DRIVERS



Infrastructure (Engineering) Solutions

- *Younger driver issues are primarily addressed through behavioral programs*



Non-Infrastructure (Behavioral, Program) Solutions

- i.e., Education

Additional ideas?



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SUMMARY OF DISCUSSION

- Any topics we did not cover?
- Any other questions?



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DISCUSSION & NEXT STEPS

- **Kittelson:**
 - Share meeting summary of outcomes discussed
 - Draft recommendations
 - Develop infrastructure project and systemic safety recommendations
- **TAC Meeting #3 (early June):**
 - Discuss draft plan, including infrastructure projects
- **Questions?**
 - Ashleigh Ludwig (aludwig@kittelson.com)
 - Brian Ray (bray@kittelson.com)
 - Jovi Anderson (janderson@bendoregon.gov)
- **TAC & Stakeholders:**
 - Share any comments by March 12th

