

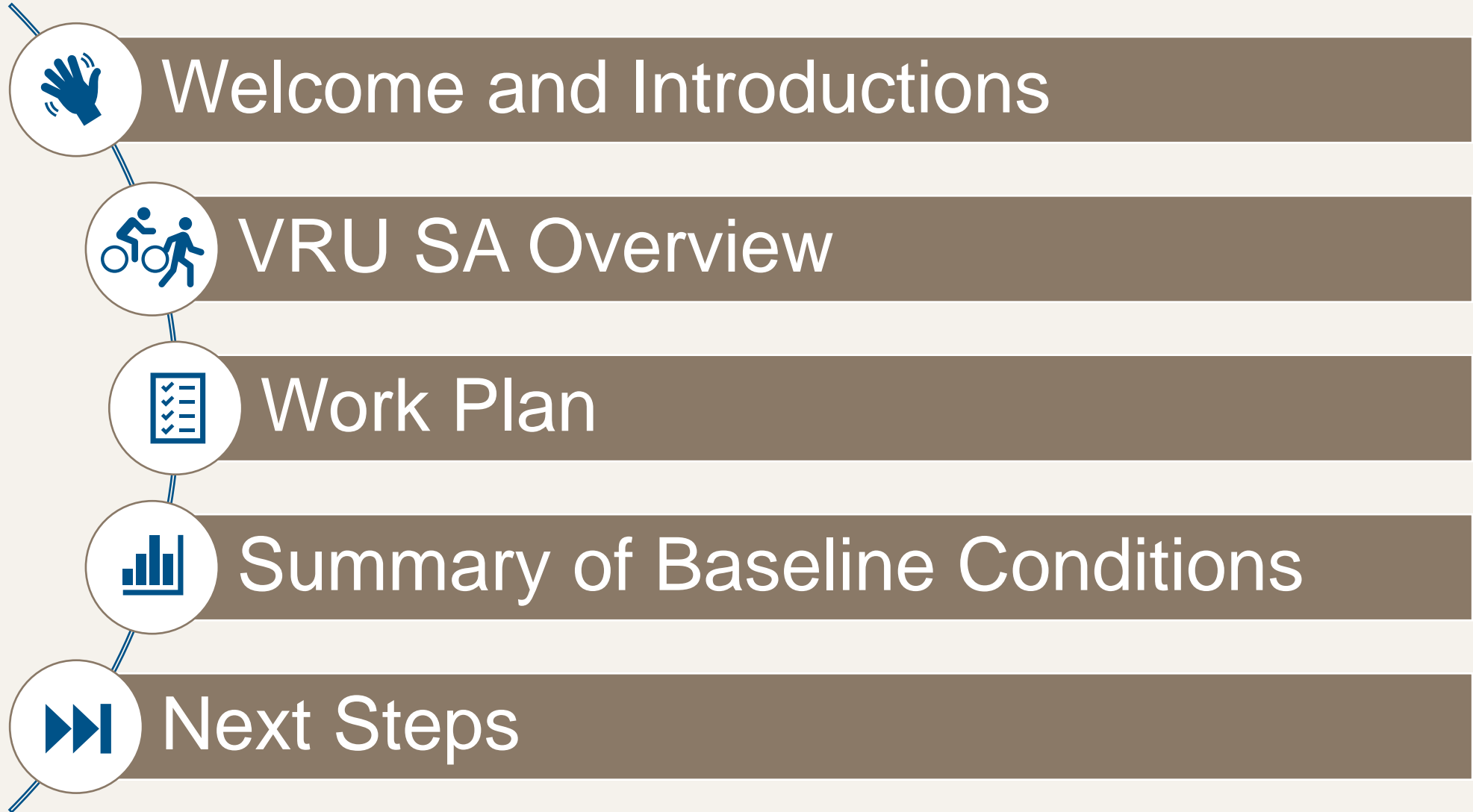
# MDT Vulnerable Road User Safety Assessment



**Advisory Committee Meeting #1**

April 24, 2023

# AGENDA





# VRU SA Overview

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- Federal Requirements
- Previous MDT and Local Efforts



# What is a Vulnerable Road User?

## Non-motorist

- Fatality Analysis Reporting System (FARS) person attribute code:
  - (5) Pedestrian
  - (6) Bicyclist
  - (7) Other Cyclist
  - (8) Person on Personal Conveyance
  - Or equivalent





# Federal Requirements for VRU SA

- Required under IIJA

- **Quantitative analysis** of VRU fatalities and serious injuries

**Must** include:



Crash characteristics



Demographics of location



High-risk areas

*May* include:



Indicators: volumes, land use, infrastructure



Demographics of individuals involved



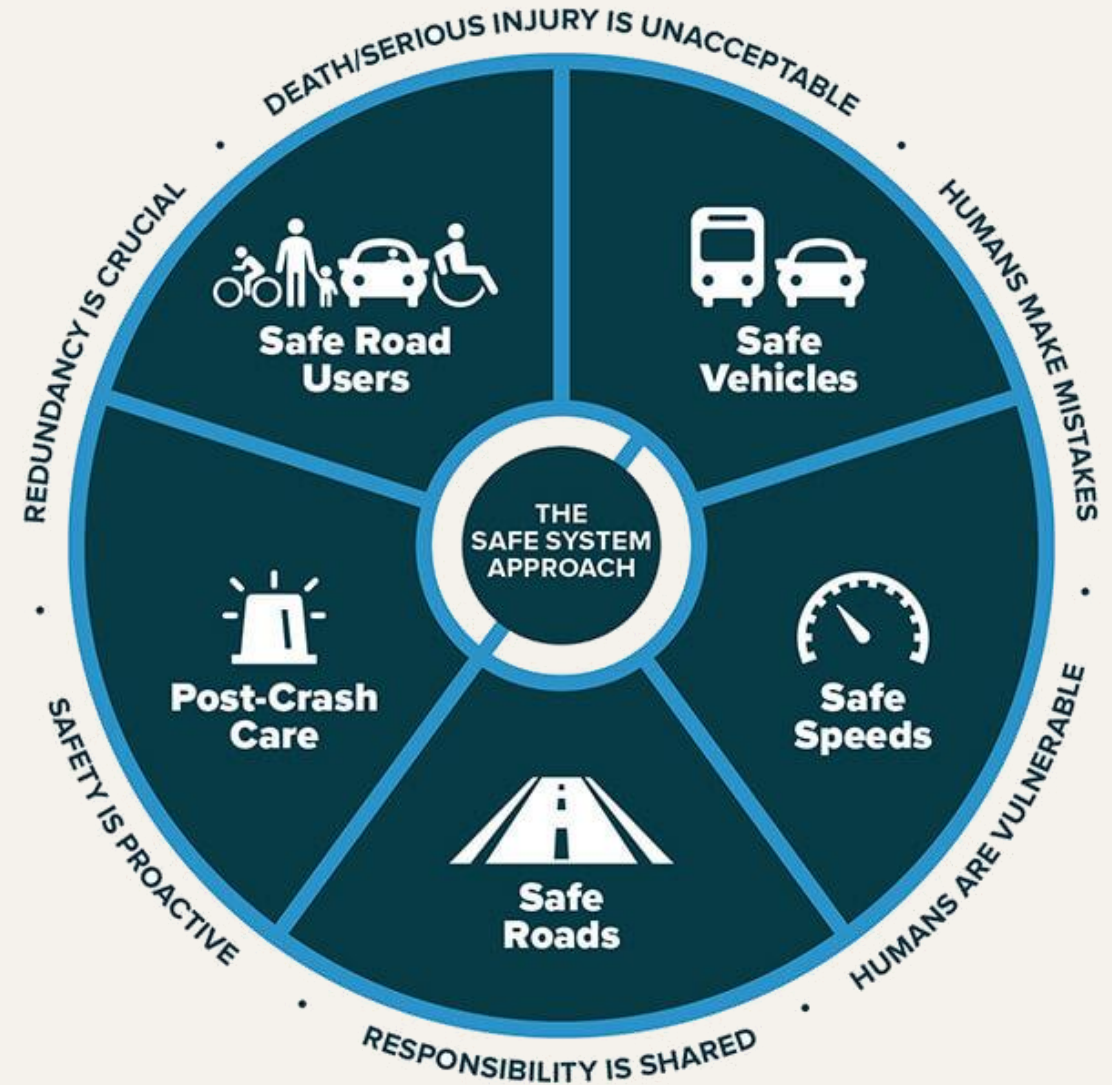
Tribal areas

- Program of **projects or strategies** to reduce safety risks to VRU in **high-risk areas**



# Federal Requirements for VRU SA

- Consider **Safe System Approach**
- **Consult** with local governments & MPOs representing **high-risk areas**
- Draft complete by **mid-October 2023**
- Incorporate/update in CHSP





# Previous MDT and Local Efforts

MDT Plans and Programs	Vulnerable Road User	
	Safety	Infrastructure
TranPlanMT	✓	✓
CHSP / HSIP	✓	✓
STIP	✓	✓
Highway Safety Plan	✓	
Pedestrian and Bicycle Plan	✓	✓
ADA Transition Plan	✓	✓
CTSPs	✓	✓



# VRU SA Work Plan

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- TASK 1: Project Management
- TASK 2: Data Analysis, Evaluation and Assessment
- TASK 3: Consultation
- TASK 4: Strategy Development
- TASK 5: Plan Development





# VRU SA Work Plan



## • **TASK 2: Data Analysis, Evaluation and Assessment**

- Document Review
- Crash Data
- Demographic Data
- Systemic Analysis for High-Risk Areas



### **DELIVERABLES:**

- Baseline VRU safety analysis summary



# VRU SA Work Plan



## TASK 3: Consultation

- Advisory Committee
  - CHSP Representatives



### DELIVERABLES:

- Meeting summaries

**Meeting #1:** VRU SA Overview, Baseline Summary of Issues and High-Risk Areas (*Today*)

**Meeting #2:** Strategies and Recommendations (*July*)

**Meeting #3:** Draft VRU SA (*September*)





# VRU SA Work Plan



## TASK 4: Strategy Development

- Research potential strategies
- Select, define, and organize advanced strategies
- Prepare summary



### DELIVERABLES:

- Strategy identification summary





# VRU SA Work Plan



## TASK 5: Plan Development

- Compile work from previous tasks into a concise document
- MDT, AC, and FHWA Review

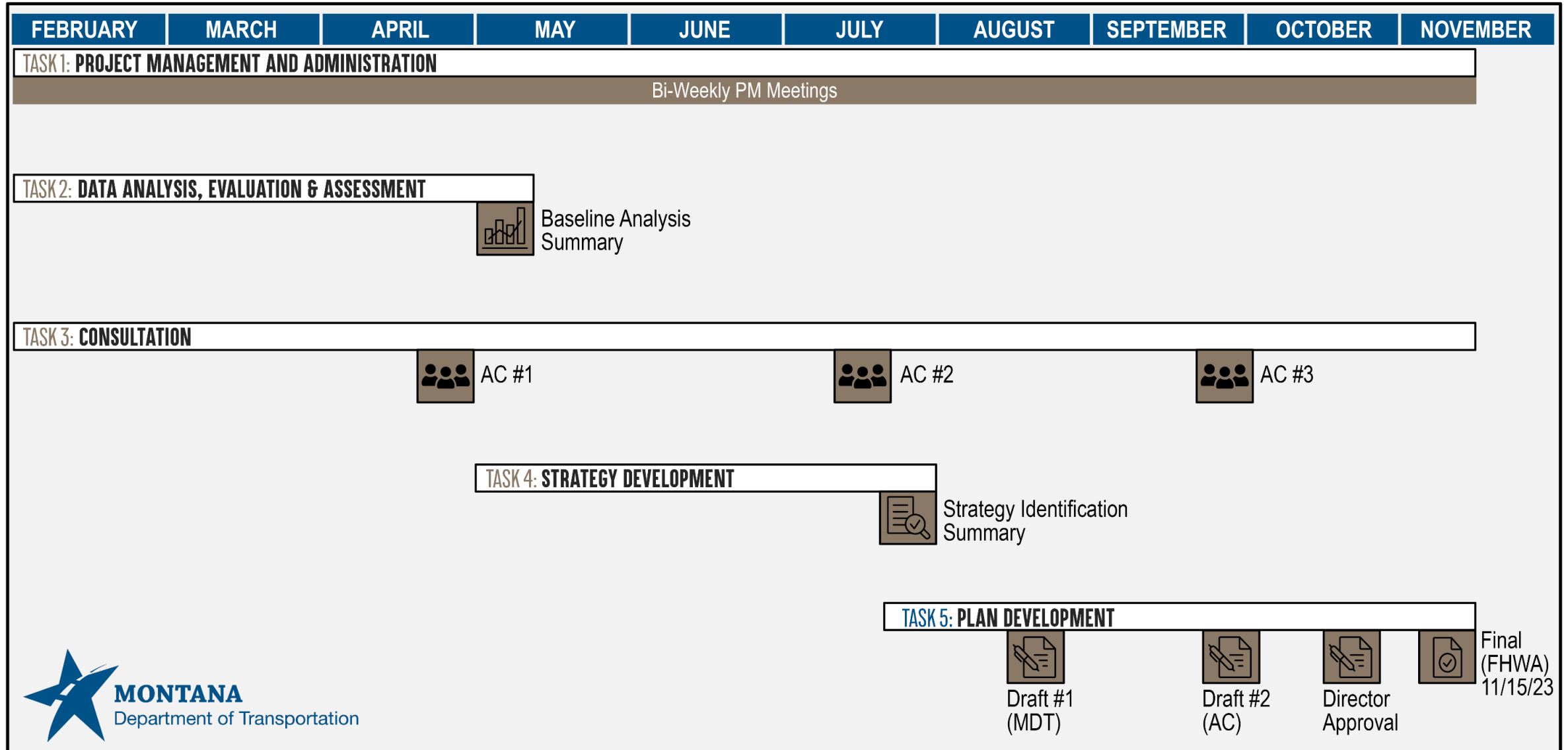


### DELIVERABLES:

- MDT Draft
- AC Draft
- Final VRU SA (to FHWA)



# VULNERABLE ROAD USER SAFETY ASSESSMENT SCHEDULE





# Summary of Baseline Trends

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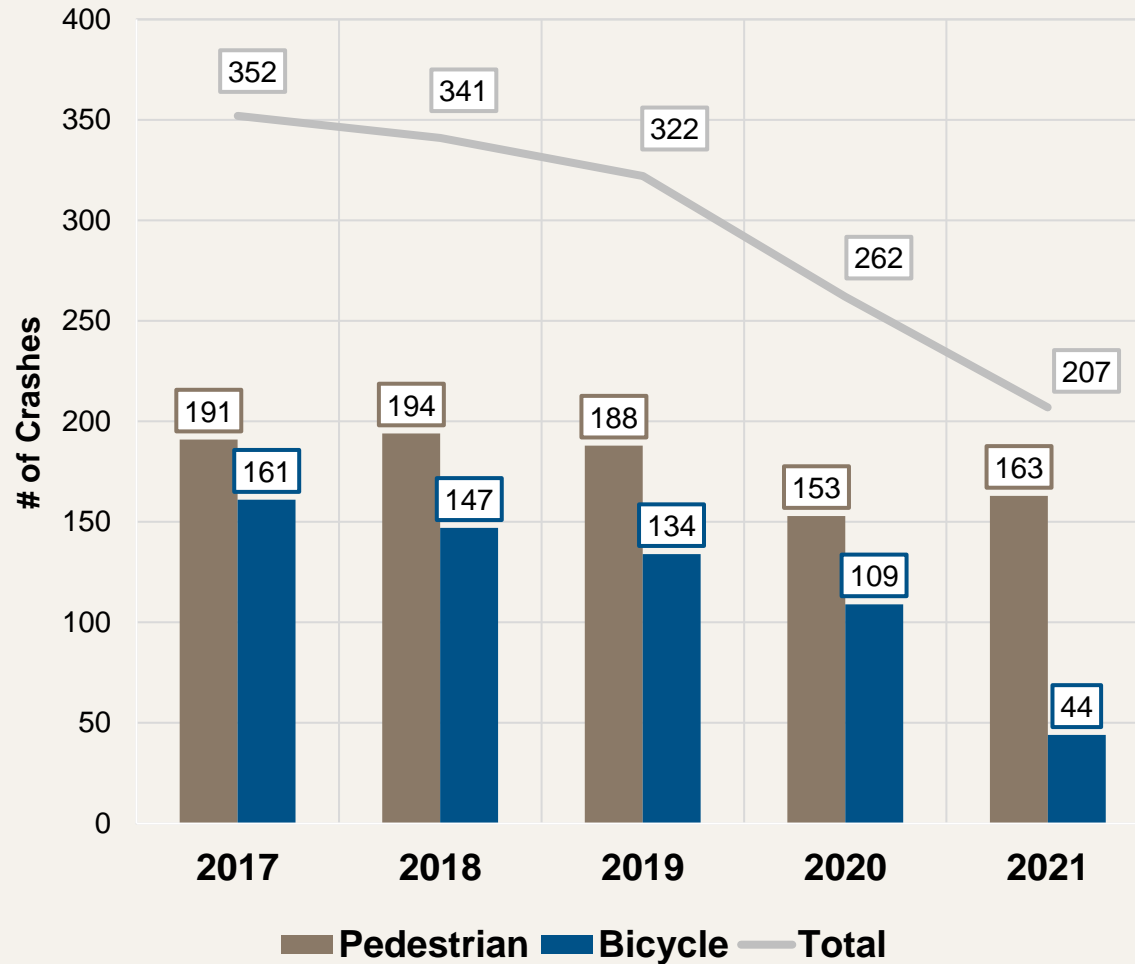
# Crash Record Characteristics

- **Review Period:** 2017-2021 (5 years)
- **Data Source:** MDT crash records database
- **Non-motorist involved crashes only:** 1,484 total crashes
- **Data reflect officer observations**

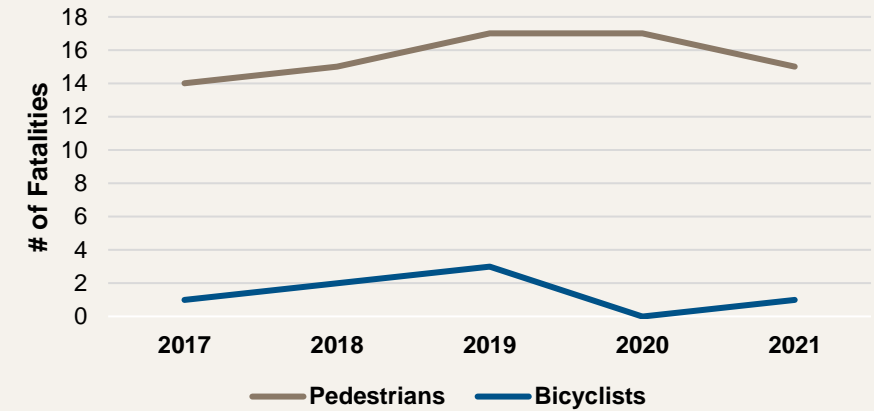


# Crash Record Characteristics

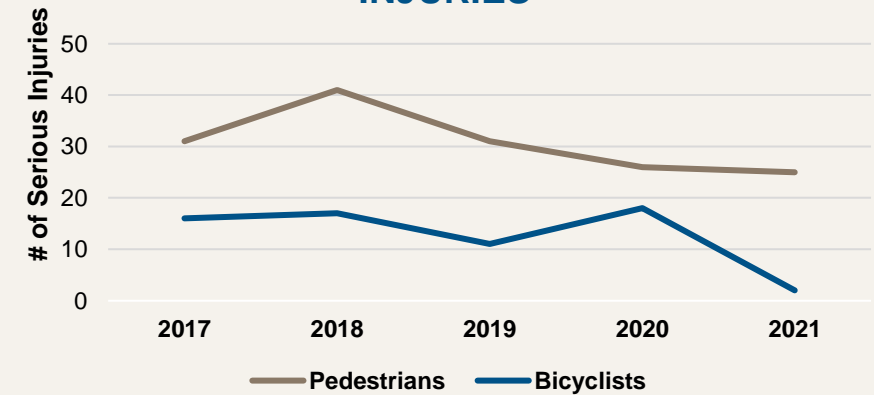
## NON-MOTORIST CRASHES



## NON-MOTORIST FATALITIES



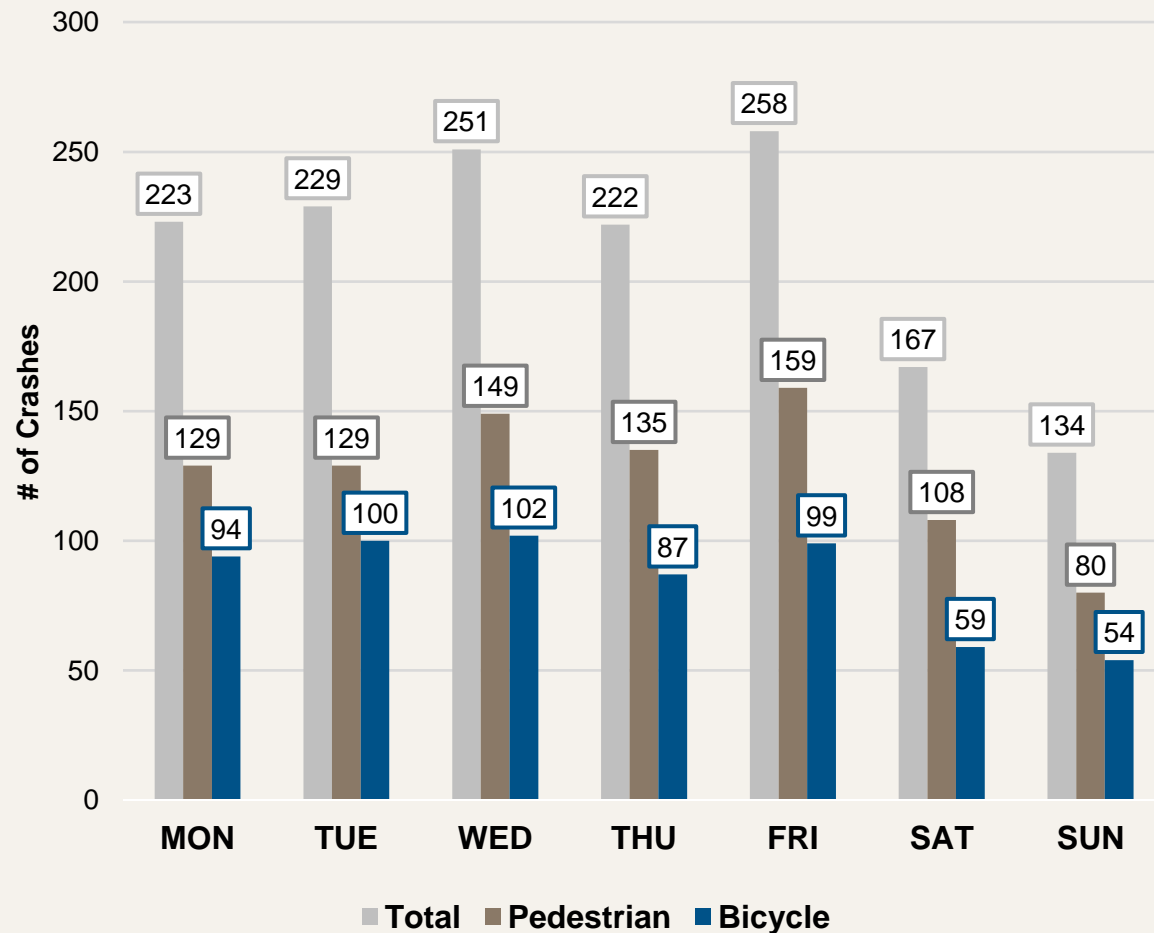
## NON-MOTORIST SUSPECTED SERIOUS INJURIES



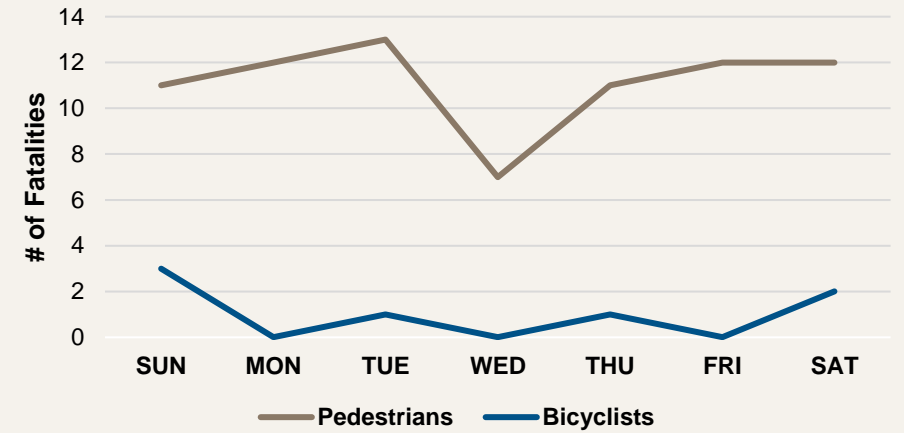


# Crash Record Characteristics

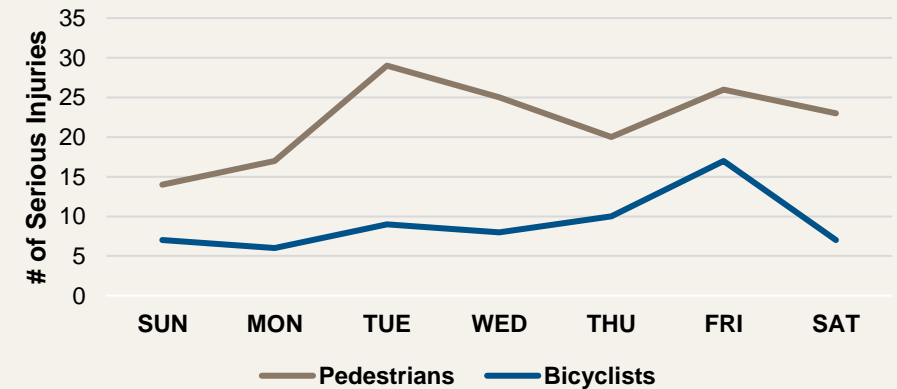
## NON-MOTORIST CRASHES



## NON-MOTORIST FATALITIES



## NON-MOTORIST SUSPECTED SERIOUS INJURIES

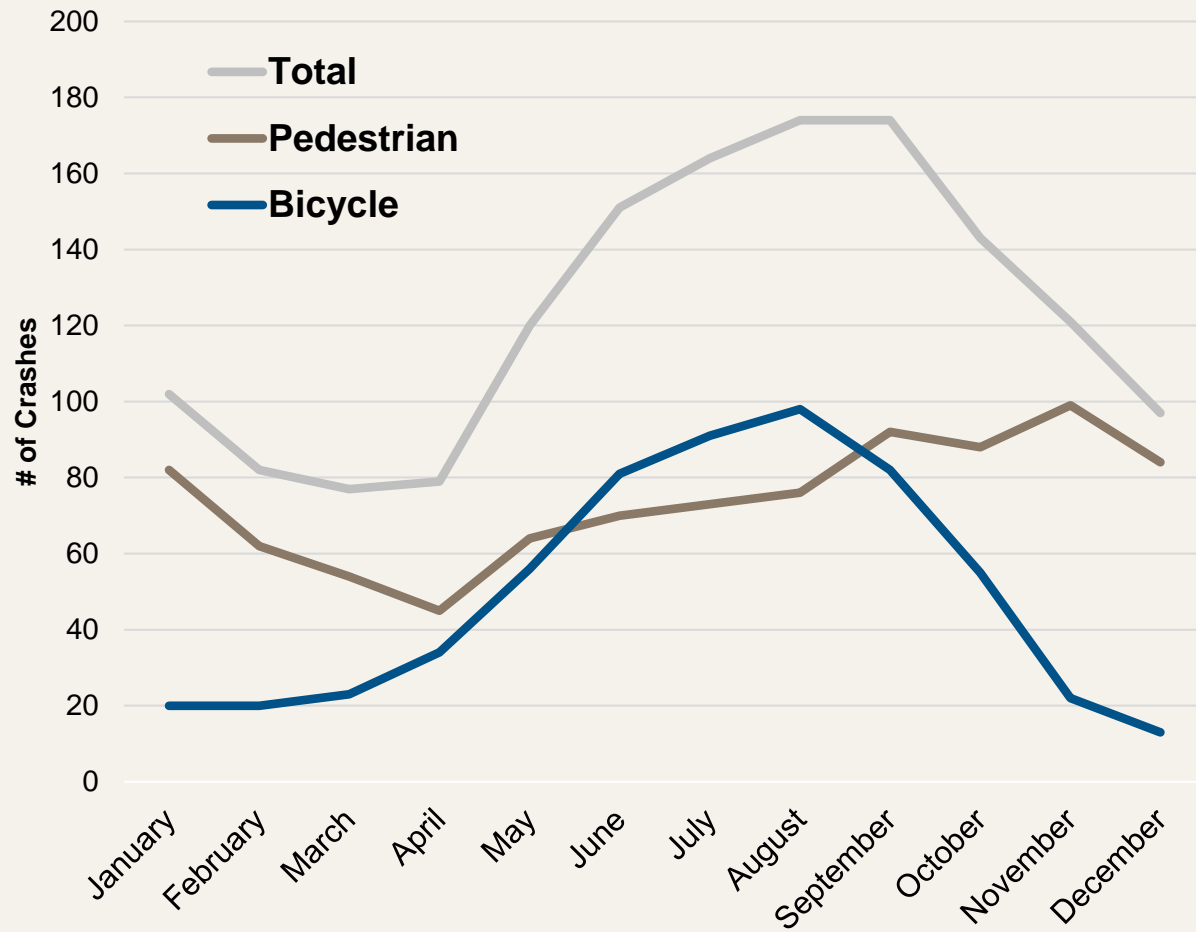




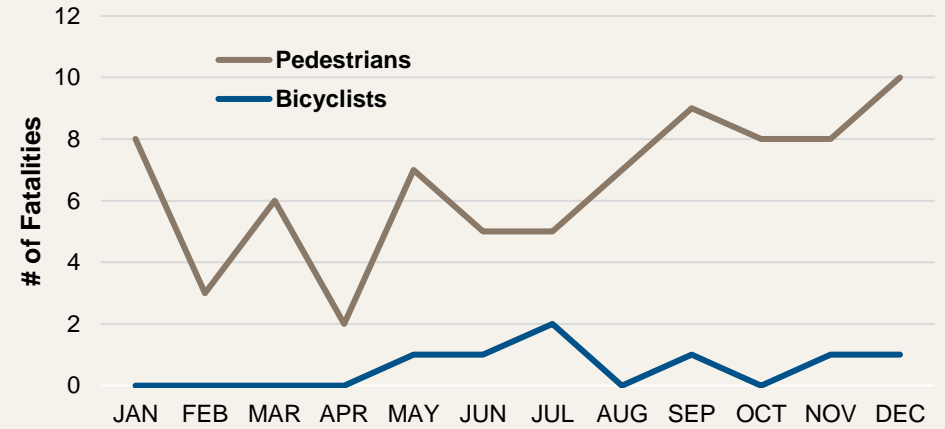


# Crash Record Characteristics

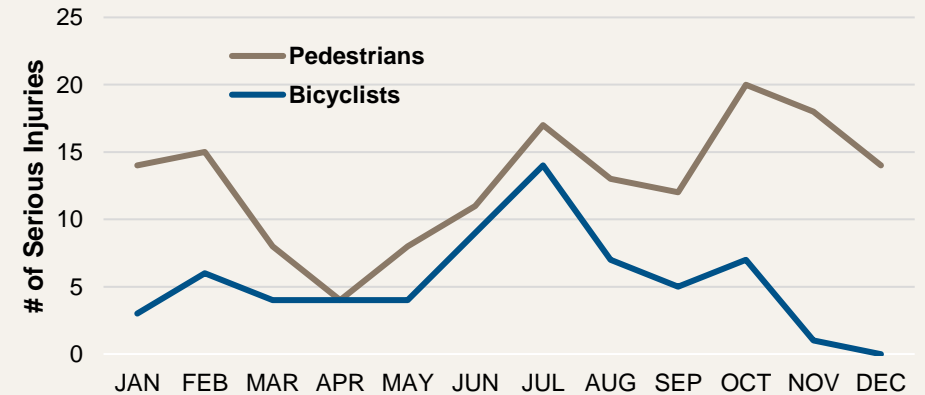
## NON-MOTORIST CRASHES



## NON-MOTORIST FATALITIES



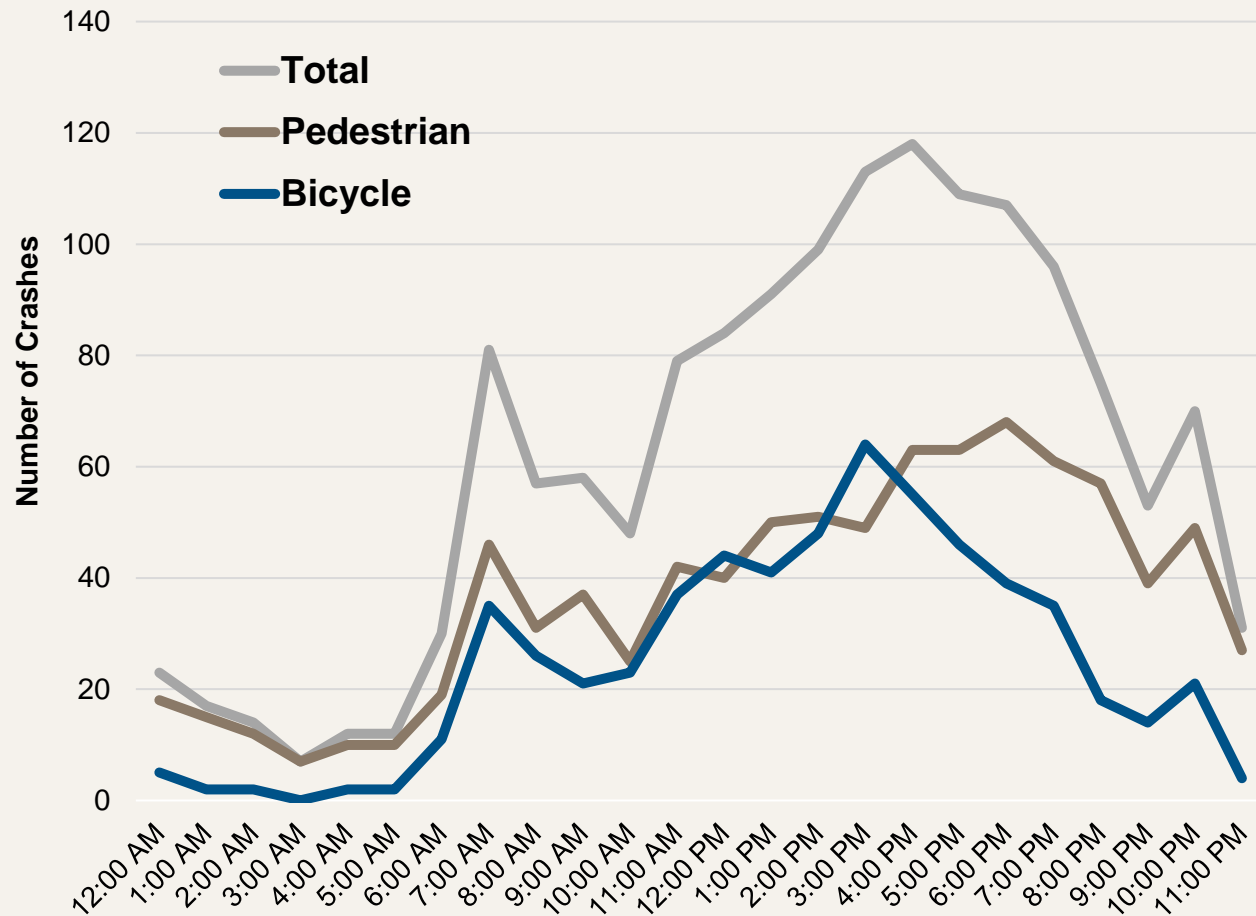
## NON-MOTORIST SUSPECTED SERIOUS INJURIES



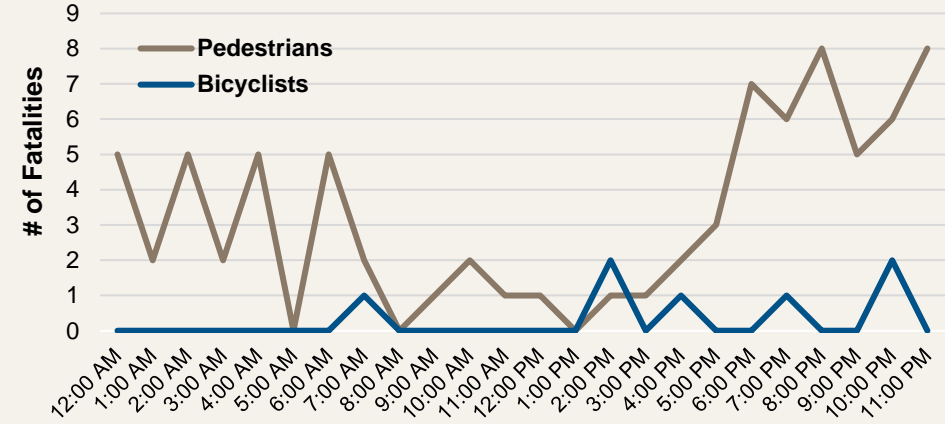


# Crash Record Characteristics

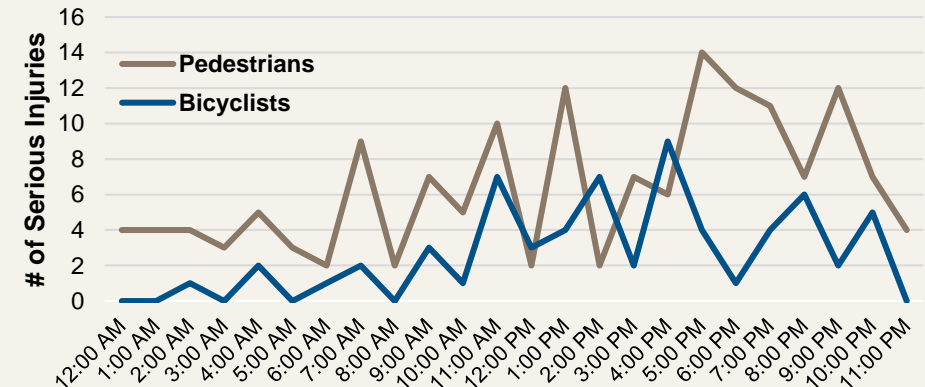
## NON-MOTORIST CRASHES



## NON-MOTORIST FATALITIES



## NON-MOTORIST SUSPECTED SERIOUS INJURIES

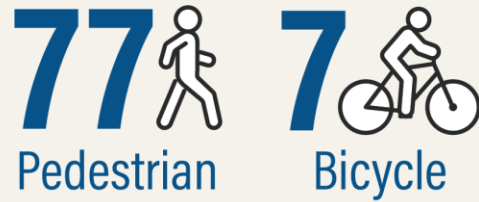




# Crash Record Characteristics

Of the 1,384 Non-Motorists Involved in Crashes...

## Fatalities



## Minor/Possible Injuries



## Suspected Serious Injuries



## PDO/Unknown





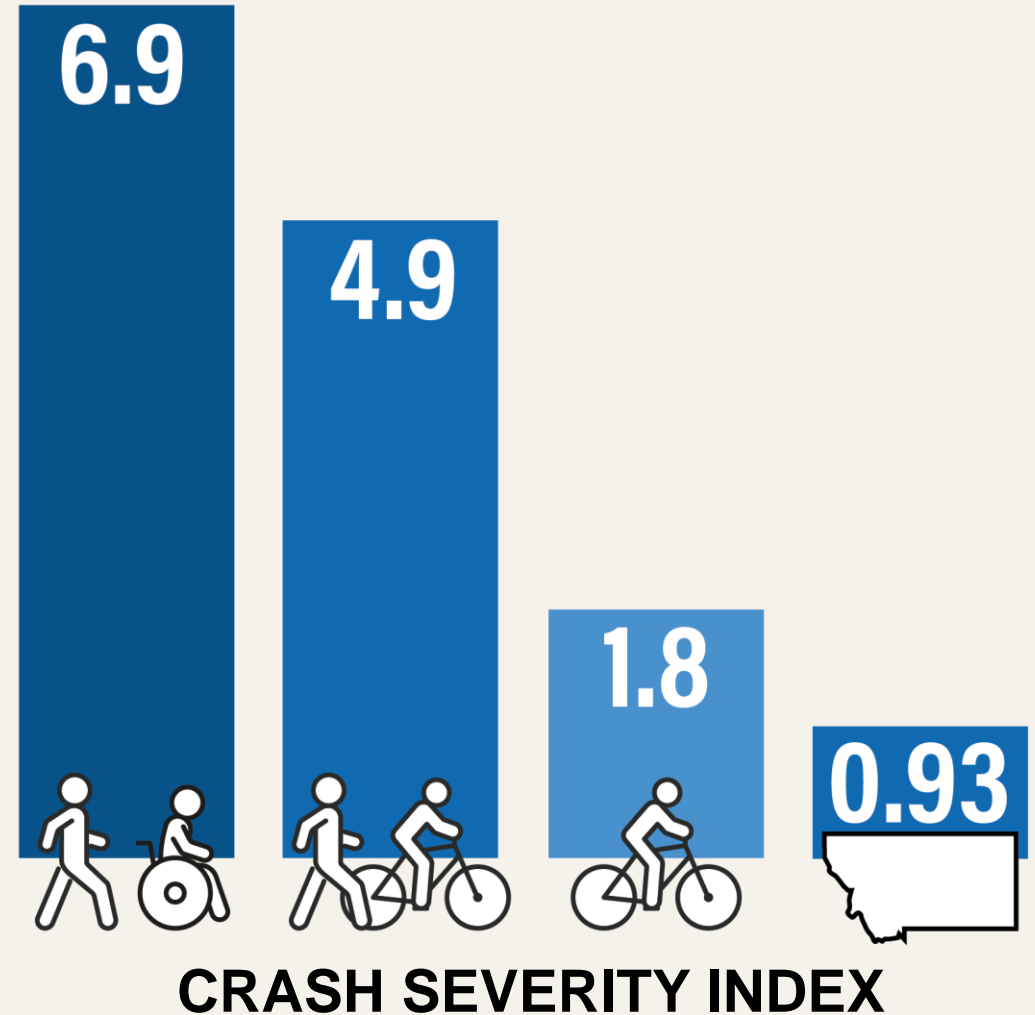


# Crash Record Characteristics

Q: What is a Severity Index?

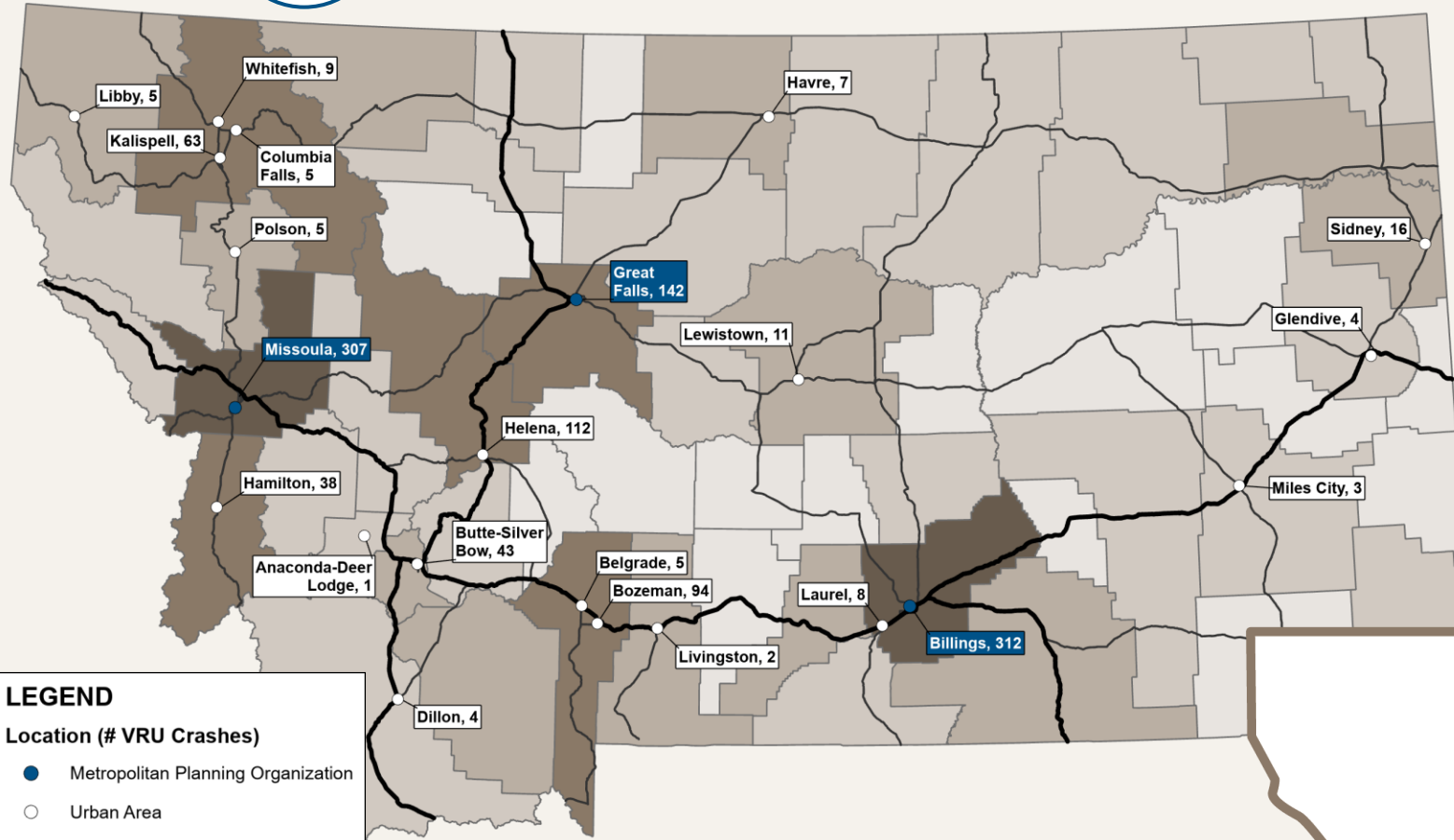


A: Numerical comparison with severe crashes weighted more heavily compared to property damage only crashes.





# Crash Record Characteristics



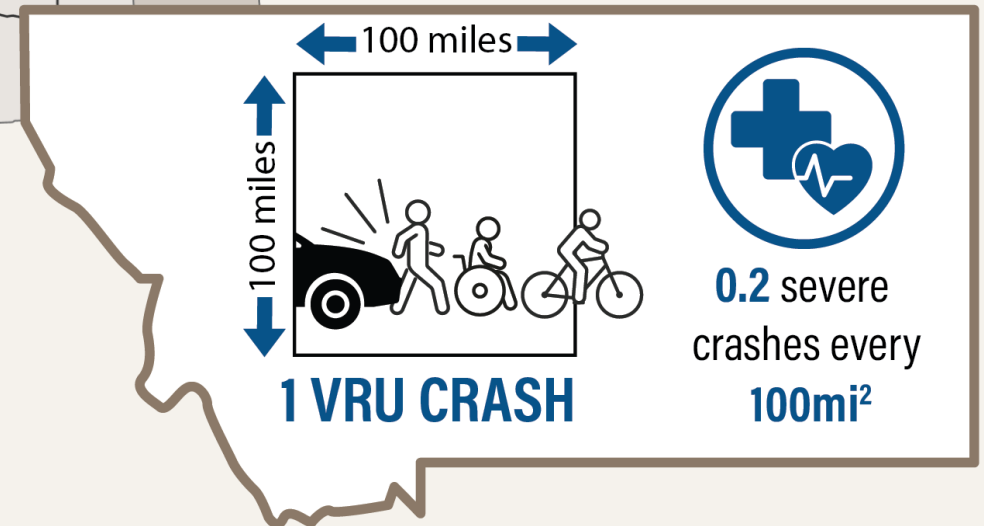
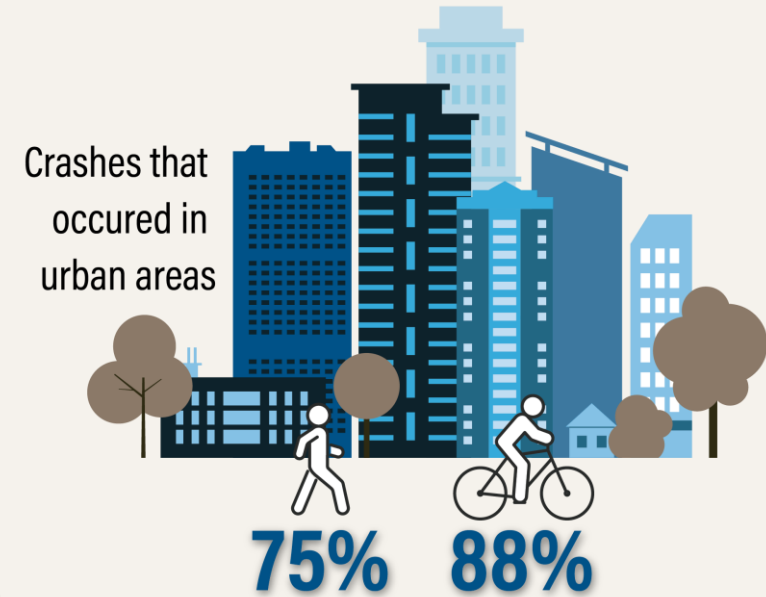
**LEGEND**

Location (# VRU Crashes)

- Metropolitan Planning Organization
- Urban Area

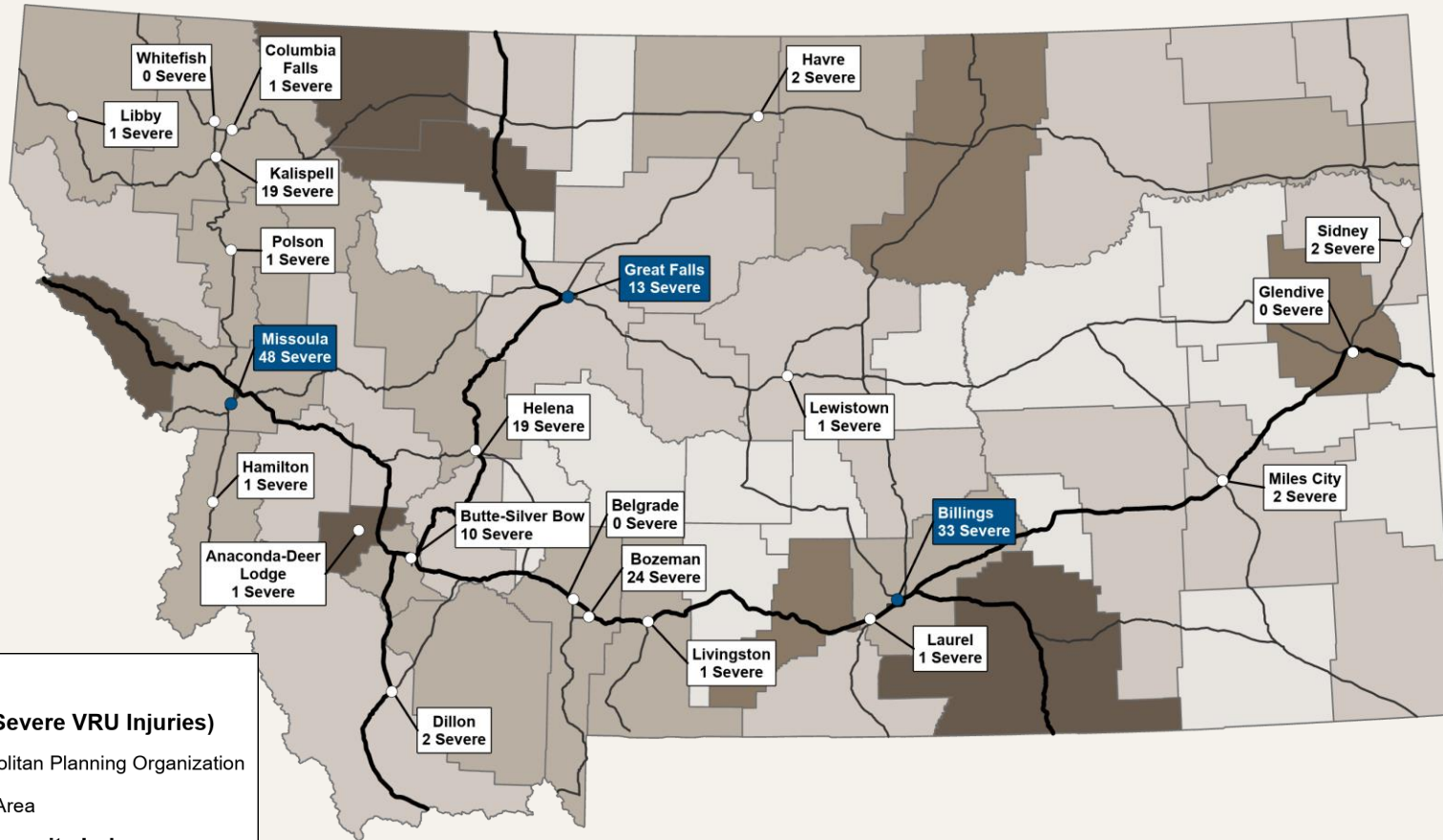
Total VRU Crashes

0
1 - 5
6 - 20
21 - 50
51 - 150
151+





# Crash Record Characteristics



**LEGEND**

**Location (# Severe VRU Injuries)**

- Metropolitan Planning Organization
- Urban Area

**VRU Injury Severity Index**

- 0
- 1.0 - 3.0
- 3.0 - 6.0
- 6.0 - 12.0
- 12.0 - 24.0
- 24.0+

Crashes that occurred in urban areas




**61%**  
were severe





# Crash Record Characteristics

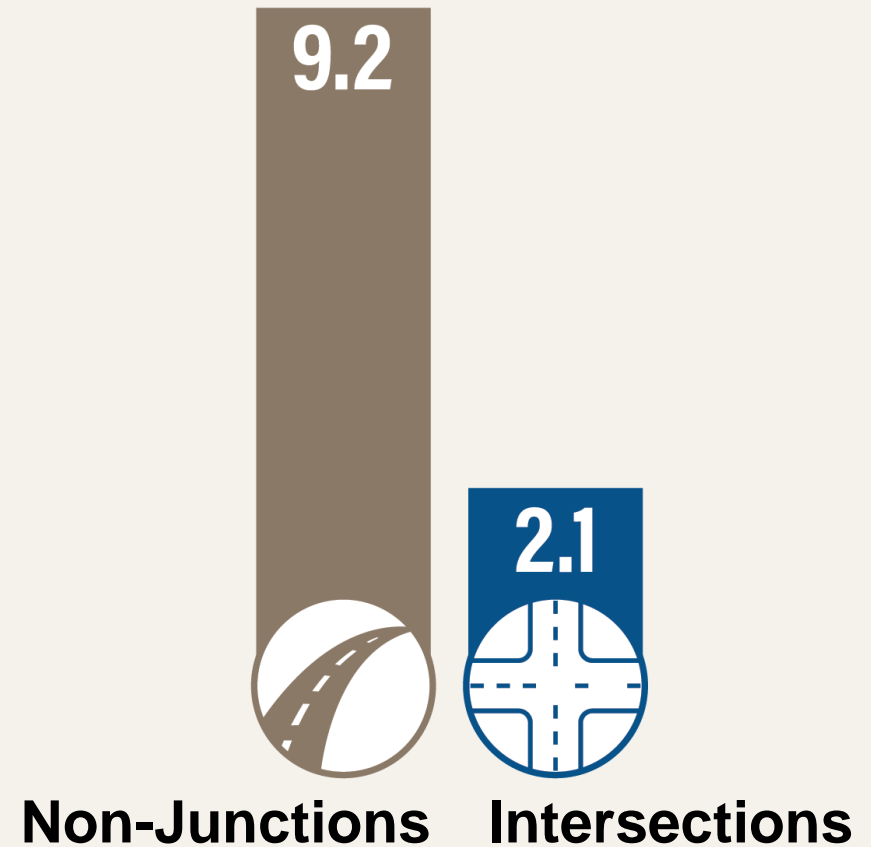
46% of  crashes

67% of  crashes occurred at intersections

63% of **urban**  crashes

18% of **rural**  crashes occurred at intersections

## Crash Severity Index

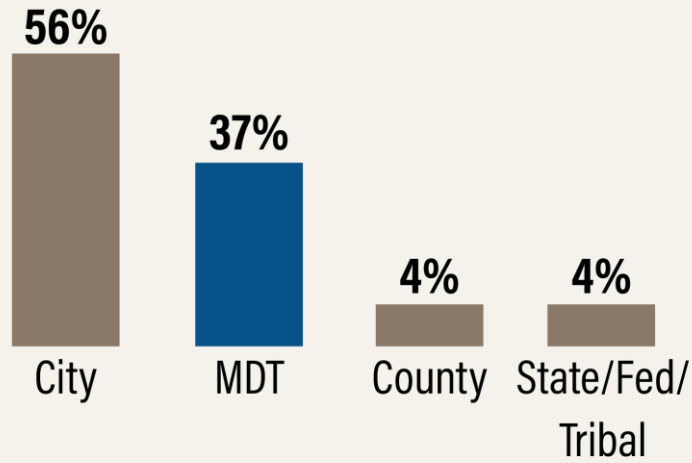




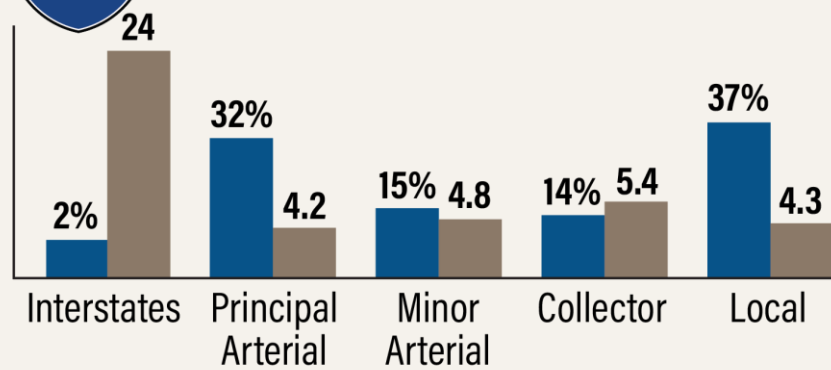
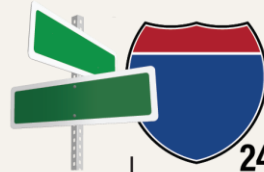
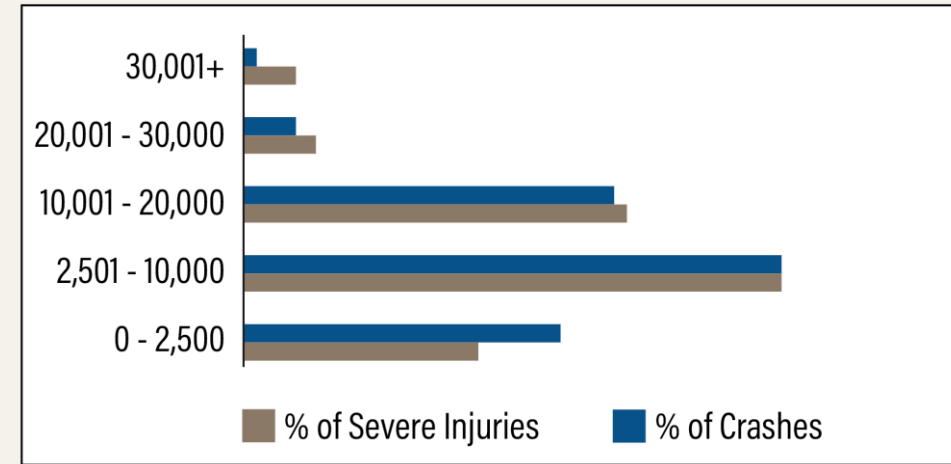
# Crash Record Characteristics

## Non-Motorist Crashes

Occurred on Routes Owned By:



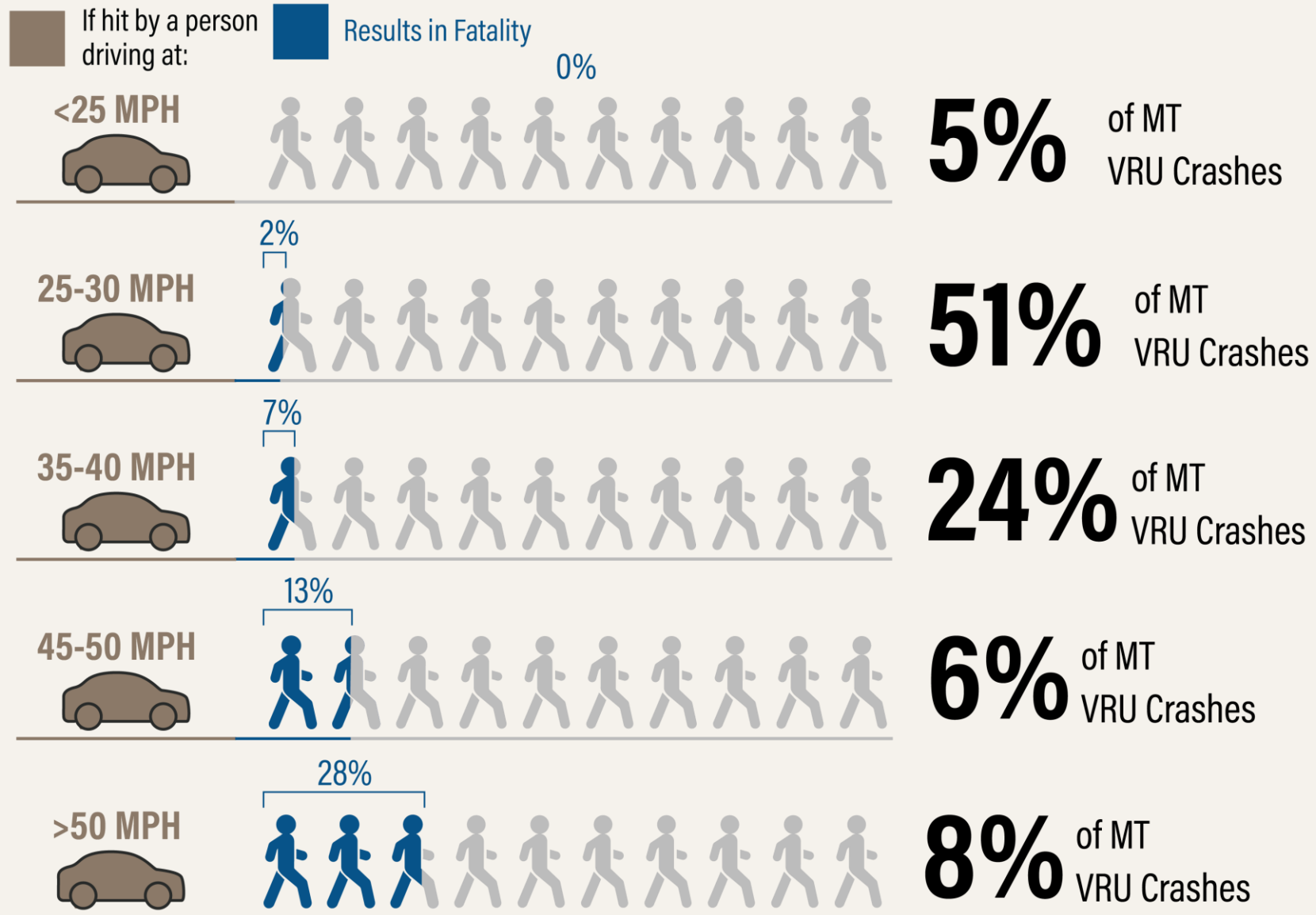
## Roadway AADT (2021)



■ % Crash Occurrence      ■ Crash Severity



# Crash Record Characteristics



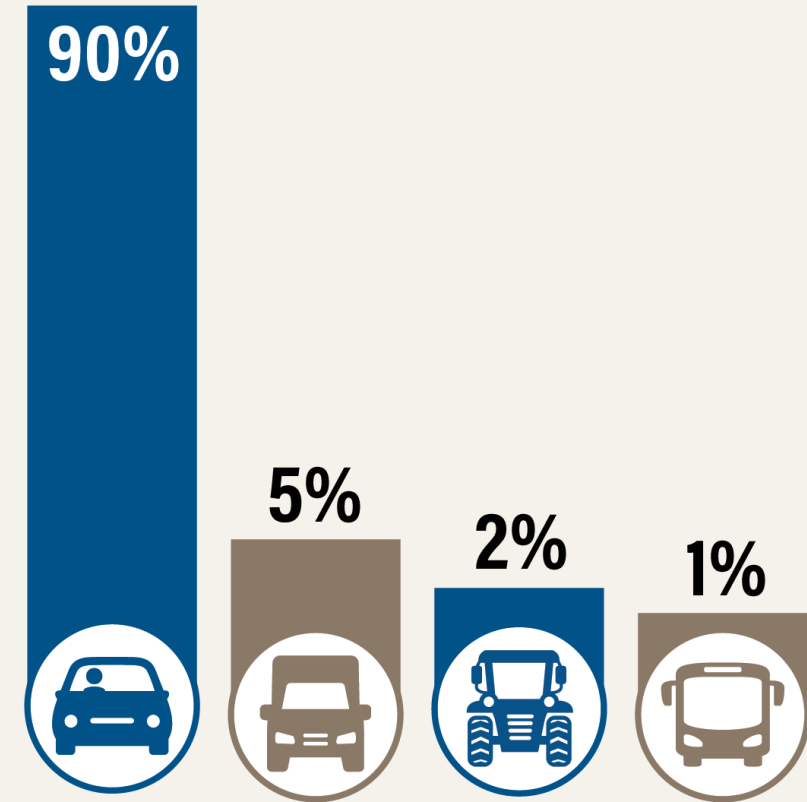
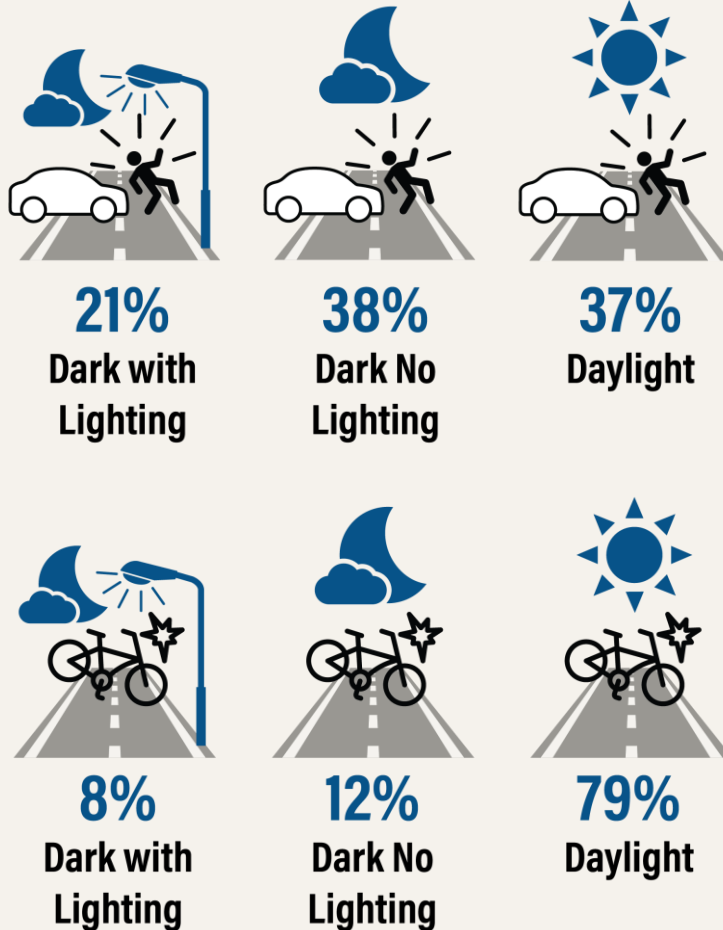




# Crash Record Characteristics

## Lighting Conditions

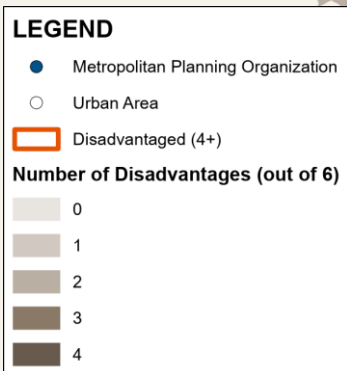
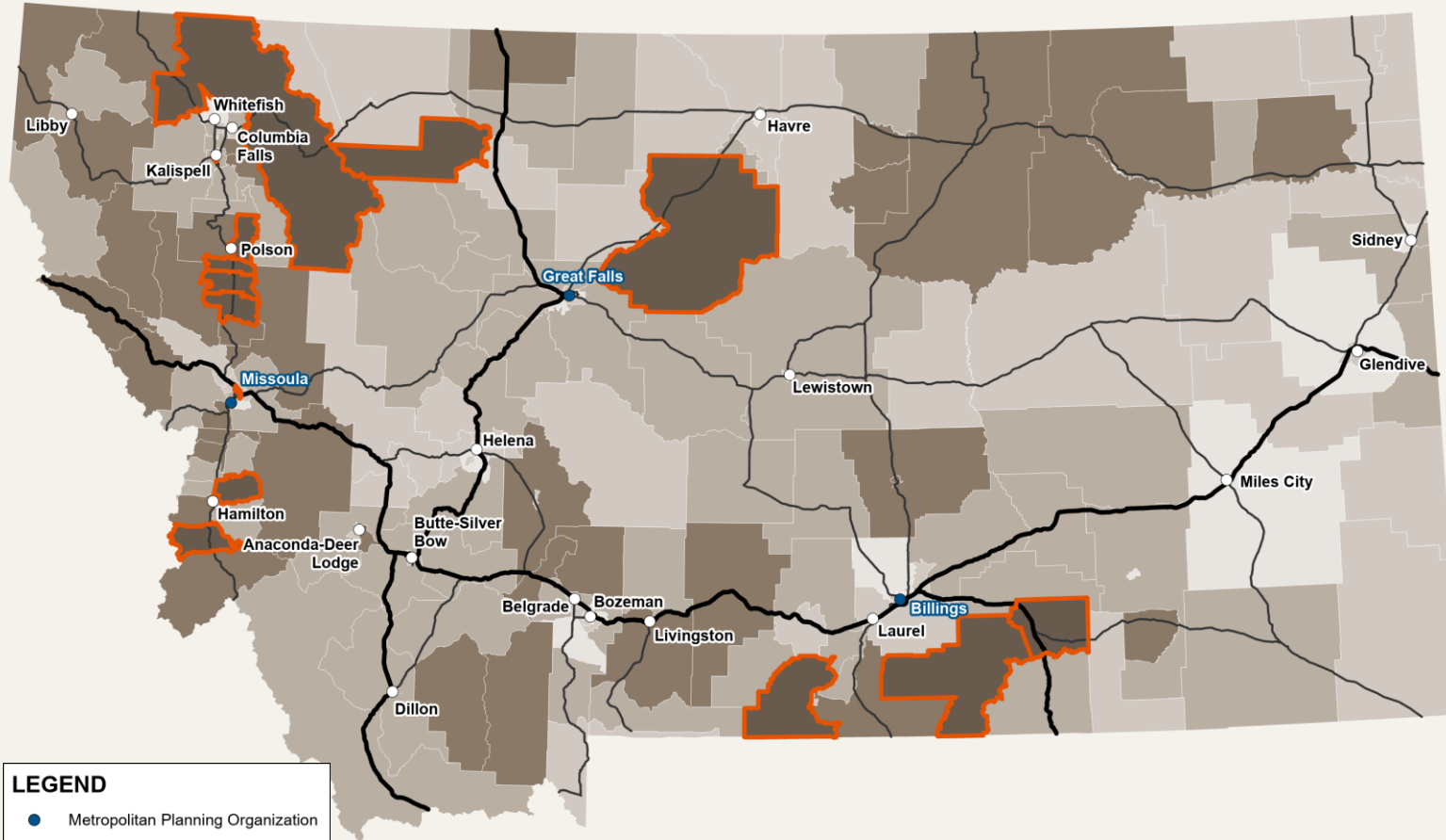
in Fatal and Suspected Serious Injury Crashes



## Vehicles Involved in Severe Non-Motorist Crashes



# Demographics of Location

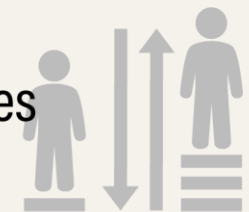


## Number of Disadvantaged Census Tracts in Each Category

	<b>Transportation:</b> communities that spend more, and take longer, to get where they need to go	<b>98</b>
	<b>Health:</b> communities with adverse health outcomes, disabilities, and low access to health care services	<b>192</b>
	<b>Environmental:</b> communities experiencing disproportionately high levels of pollutants & toxins	<b>10</b>
	<b>Economic:</b> communities with high levels of poverty, and low access to jobs and education	<b>86</b>
	<b>Resilience:</b> communities vulnerable to hazards caused by climate change	<b>70</b>
	<b>Equity:</b> communities with a shared history of discrimination or other forms of disadvantage	<b>19</b>

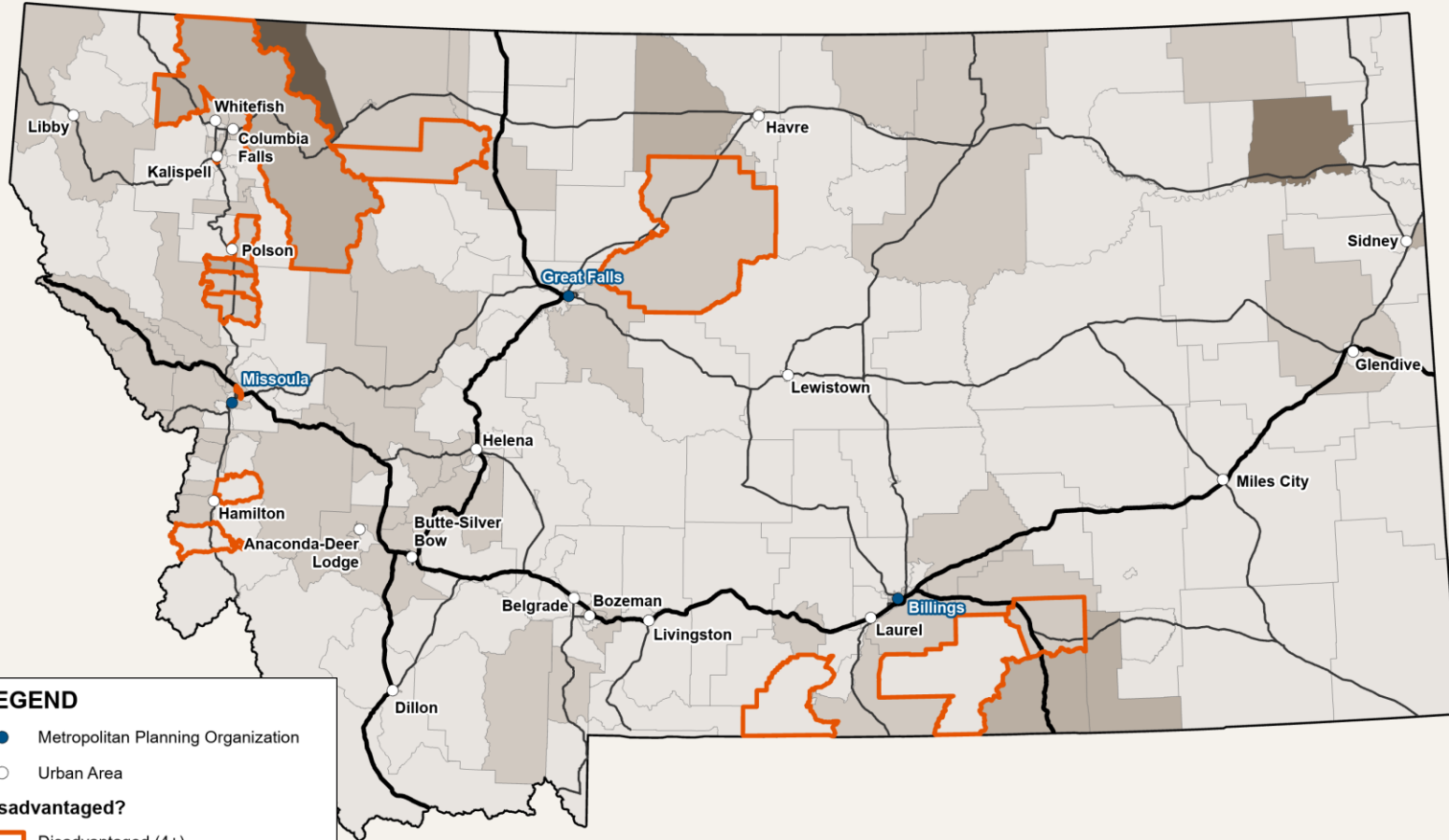
Source: USDOT Justice40 Initiative

**17** highly disadvantaged communities identified in MT (out of 271)





# Demographics of Location



**LEGEND**

- Metropolitan Planning Organization
- Urban Area

**Disadvantaged?**

- ▭ Disadvantaged (4+)

**VRU Severe Injuries Per Capita (2,500)**

- 0.00 - 0.50
- 0.51 - 2.50
- 2.51 - 5.00
- 5.01 - 10.00
- 10.00+

## TOP 10 TRACTS (Severity/Capita):

- 1 🚗 transportation disadvantaged
- 9 🏥 health disadvantaged
- 8 💰 economic disadvantaged
- 0 ⚖️ equity disadvantaged
- 2 👤 overall considered disadvantaged

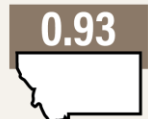




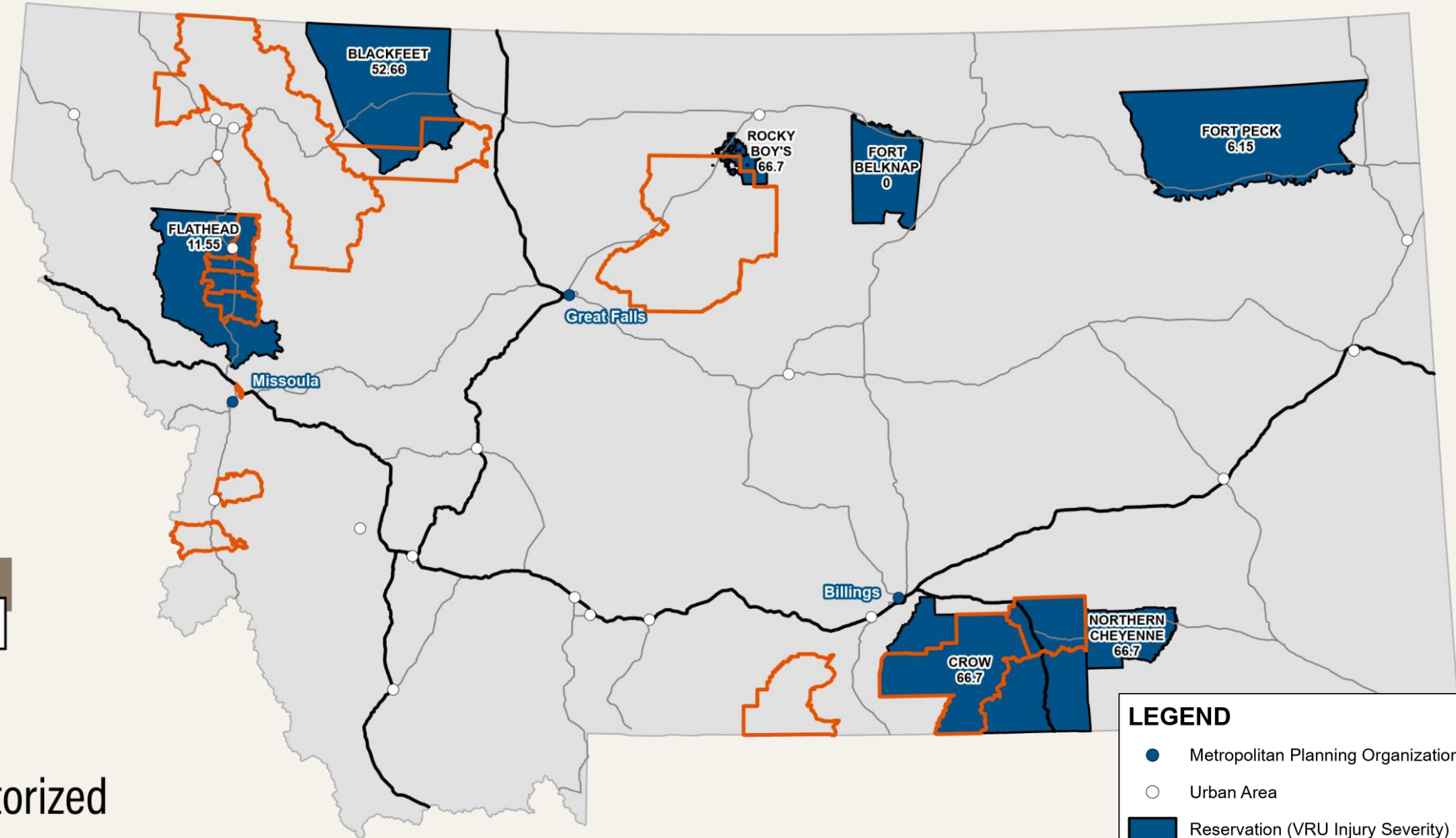
# Tribal Areas



Crash Severity Index



21.4% of fatal non-motorized crashes occurred on Indian Reservations



**LEGEND**

- Metropolitan Planning Organization
- Urban Area
- Reservation (VRU Injury Severity)
- Disadvantaged?
  - Disadvantaged (4+)

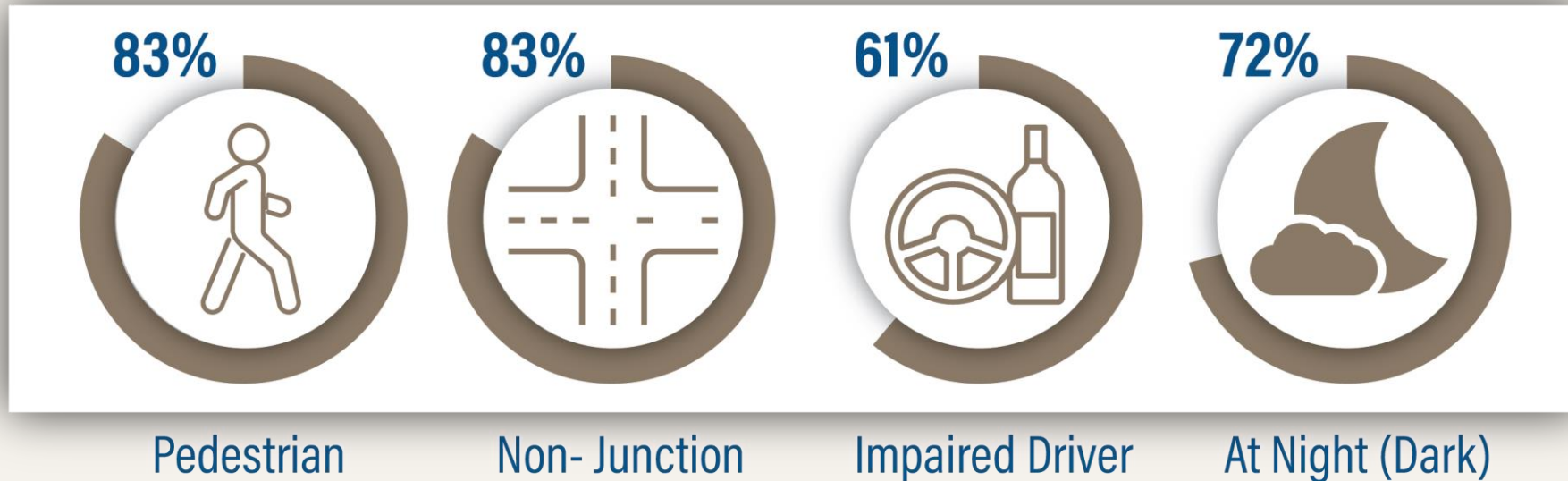


# Tribal Areas

Of the **70** VRU-involved crashes that were reported\* on Montana Reservations, **18** were fatal.



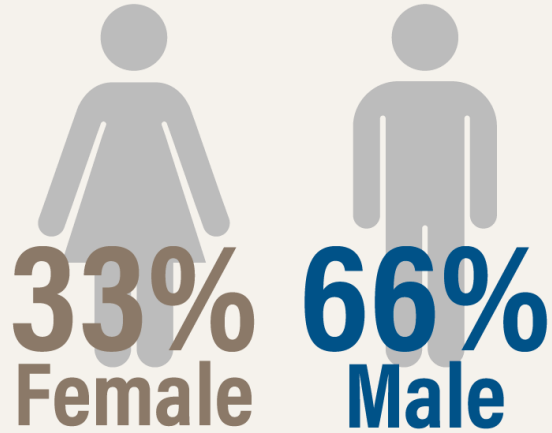
Of the **18** fatal crashes reported\* on Montana Reservations...




\*Non-fatal crashes are chronically underreported on Montana Reservations. The fatal crash data is the most reliable data for Montana's Reservations.



# Demographics of Individuals



Non-motorists involved in crashes



Of the 1,384 non-motorists involved in crashes, 9% were 66 years or older.

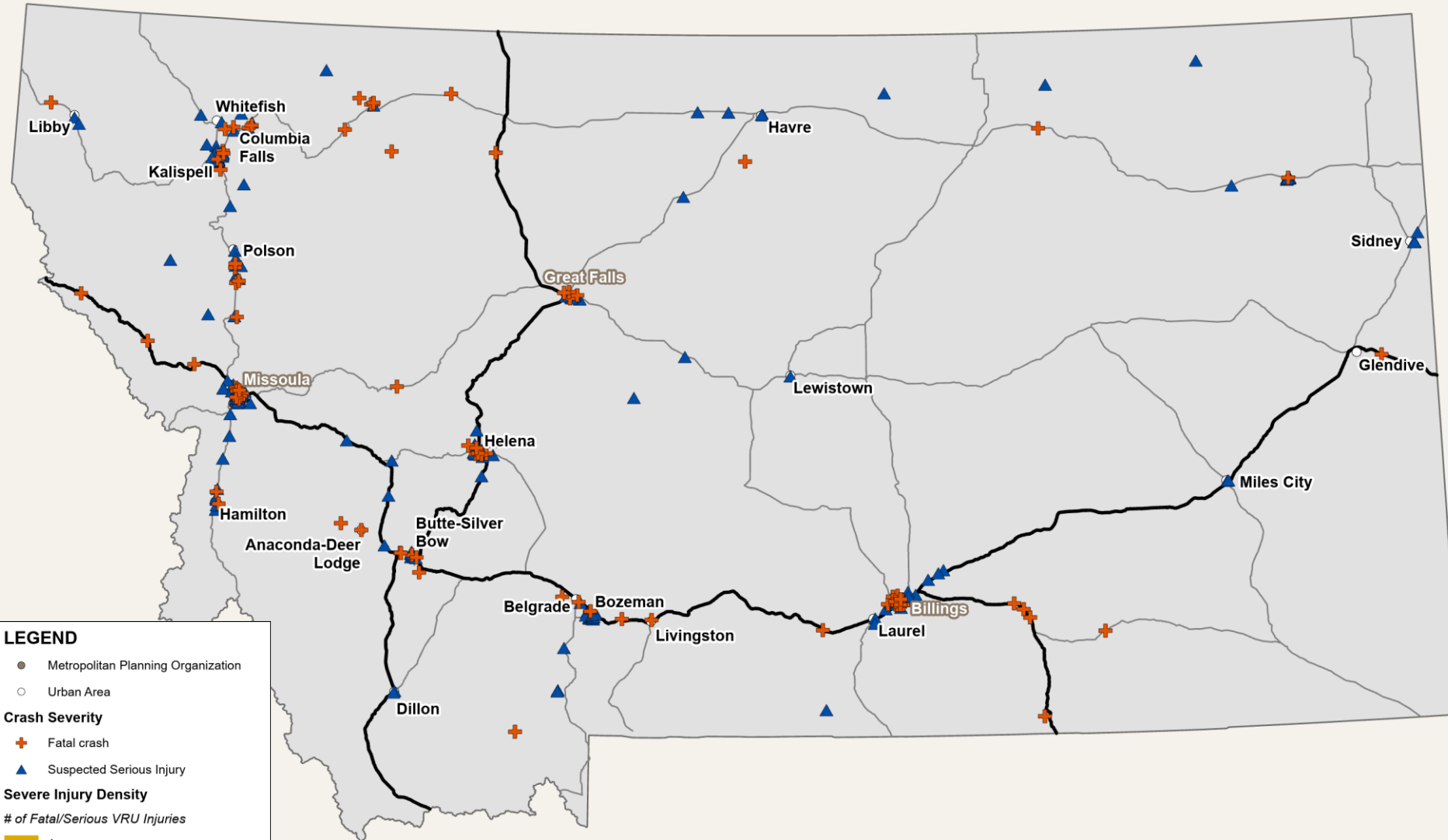
Of the 84 non-motorists who died in crashes, 36% were Native American.







# Severe Injury Density



**LEGEND**

- Metropolitan Planning Organization
- Urban Area

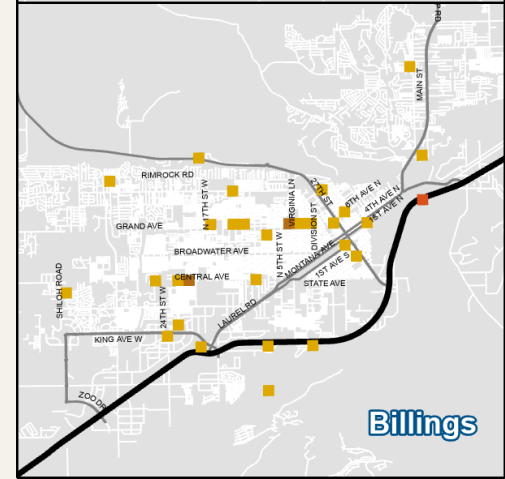
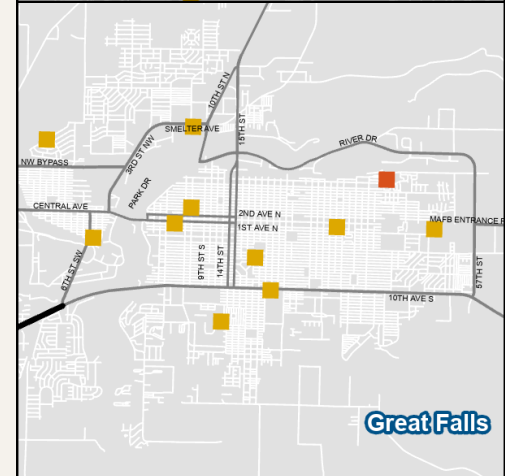
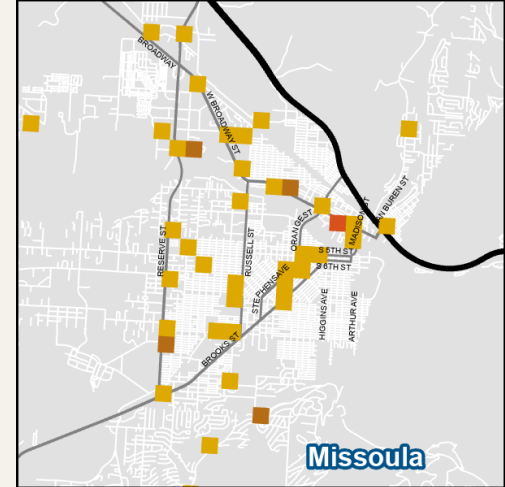
**Crash Severity**

- ✚ Fatal crash
- ▲ Suspected Serious Injury

**Severe Injury Density**

# of Fatal/Serious VRU Injuries

- 1 (Yellow)
- 2 (Light Orange)
- 3 (Orange)
- 4 (Dark Orange)





# Existing VRU Strategies

- Engineering
  - *Data analysis*
  - *Identify projects targeting crash pattern locations*
  - *Provide dedicated facilities with separation between vehicles and non-motorists*
  - *Provide widened shoulders on rural roadways*
  - *Provide crossing treatments based on current guidance*
  - *Maintain pedestrian and bicycle infrastructure*
- Education
  - *Traffic safety education and training programs*
- Enforcement and Emergency Medical Services
  - *Coordination and collaboration through CHSP and other efforts*

# Next Steps

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- Strategy Development
- VRU SA Development
- AC Meetings #2 and #3  
*(July & September)*

