







Presenters
Caleb Knerr – MoDOT PM
Ian Waters – HDR PM

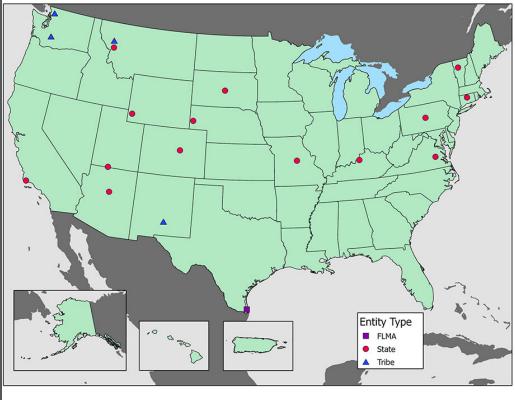


#### Topics

- Background
- Purpose and Need
- 03 Study Design
- Background Analysis Results
- Alternatives and Mitigation

# Background

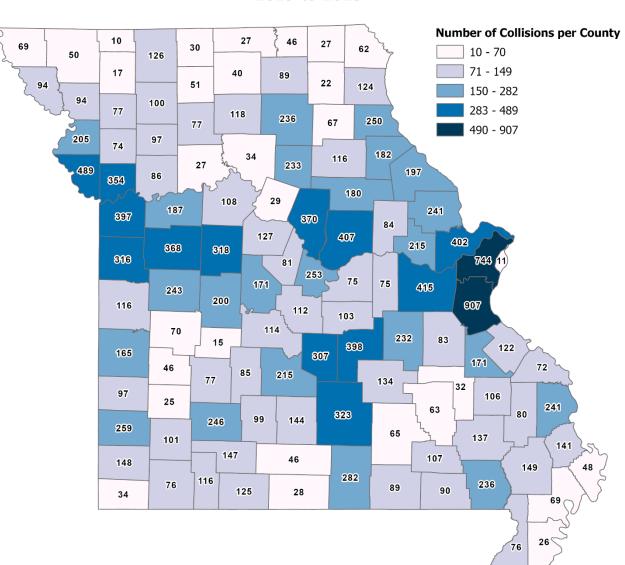




- "The Wildlife Crossings Pilot Program (WCPP) is a competitive grant program with the goal of reducing Wildlife Vehicle Collisions (WVCs) while improving habitat connectivity for terrestrial and aquatic species."
- MoDOT, partnered with MDC and LLF, was awarded the proposed \$400,000 project in FY2024.
- Project began September 2024
- Conclude February 2026

- To date, there have been no uniform statewide WVC analysis, prioritization and feasibility studies to address WVCs in Missouri.
- 34,000 reported WVCs on MoDOT roadways from 2014-2023. 39,943 on all Missouri routes.
- Severity Class (KABCO):
  - K Fatal: 44
  - A Disabling Injury/Suspected Serious Injury: 300
  - B Minor/Evident Injury: 2719
  - O Property Damage Only: 30,996

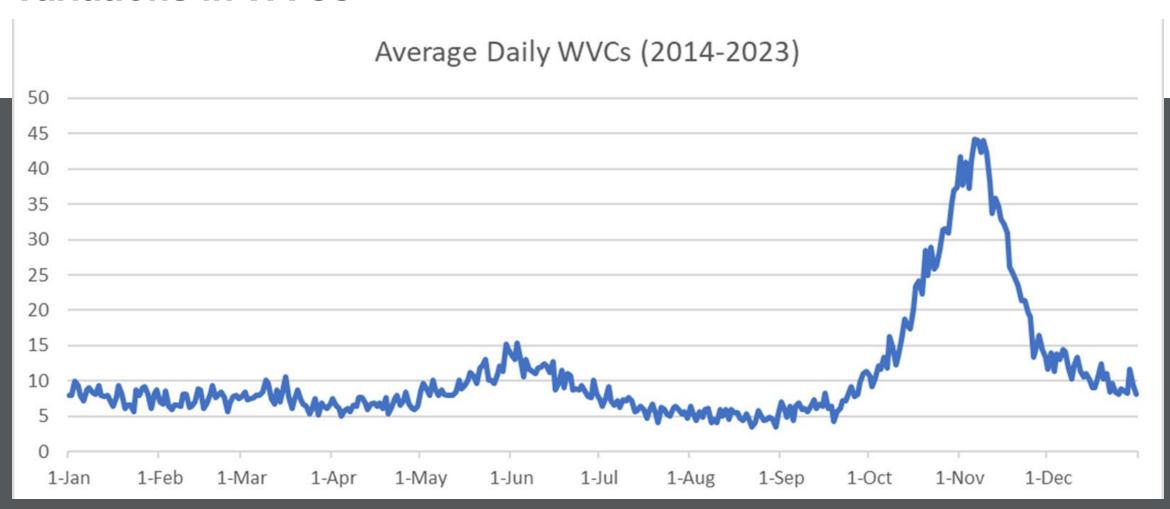
Missouri State Highway Patrol Reported
Wildlife Vehicle Collisions on MoDOT Operated Roads
2019 to 2023



#### Missouri State Highway Patrol Data 2014-2023 Crash Cost in Missouri

			Mis	souri Adjusted	Number of WVC			M	lissouri Adjusted
Severity	Na	tional cost		(0.88203)	(10 Year)	Nat	ional rate Cost		(0.88203)
K	\$	11,295,400	\$	9,962,881.66	44	\$	496,997,600	\$	438,366,793.13
Α	\$	655,000	\$	577,729.65	300	\$	196,500,000	\$	173,318,895.00
В	\$	198,500	\$	175,082.96	2719	\$	539,721,500	\$	476,050,554.65
C*	\$	125,600	\$	110,782.97	0	\$	-	\$	-
0	\$	11,900	\$	10,496.16	30996	\$	368,852,400	\$	325,338,882.37
Total		N/a		N/a	34059	\$1,6	502,071,500.00	\$:	1,413,075,125.15
*in Missouri, Minor Injury Evident Injury (B) and Possible Injury (C) are combined into Minor Injury (B)									

# Missouri State Highway Patrol Data 2014-2023: Seasonal Variations in WVCs



#### **Species Impacted by WVCs and Habitat Connectivity**

Road Mortality Threat or Documented									
Federally protected or under listing review	MDC heritage data showing "roadkill"	MO species of conservation concern							
Alligator snapping turtle	American badger	American badger							
Indiana bat	Bald eagle	Eastern Massasauga							
Blanding's turtle	Black-tailed jackrabbit	rattlesnake							
Western chicken turtle	Franklin's ground squirrel	Kirtland's snake							
Aquatic organism	Great Plains toad	Northern leopard frog							
passage issues	Indiana myotis	Eastern tiger salamander							
Niangua darter	Least weasel	13-lined ground squirrel							
Topeka shiner	Long-tailed weasel	MDC focal species							
T&E plants dispersed by	Plains spotted skunk	White-tailed deer							
mammals	Western foxsnake	American black bear							
Pondberry	Western mudsnake	Elk							







# **MDC Focal Species**

White-tailed deer

• Population: 1.4 million

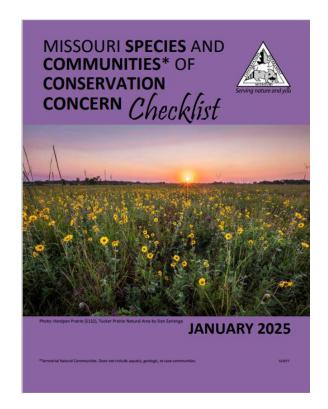
American black bear

• Population: 950-990

• 60 WVCs

• Elk

• Population: 320



# **Study Design**

#### **Background Data and Analysis**



Current and future conditions



Top 10 Segments

#### **Evaluation and Alternatives**



Site visits



Short and long-term mitigation strategies and monitoring



Benefit-cost analysis

# **Background Data and Analysis**



#### **Transportation Safety**

**WVC Hotspots** 

Crashes/Mi/Yr

**Crash Severity** 

Percentage of Wildlife Crashes



#### **Ecological**

Barriers

Occupied Habitat

Suitable Habitat

**AADT** 

Streams

**MDC Mgt Tiers** 



Land Use
Protected Areas
Bridges and Culverts

**Background Data and Analysis** 

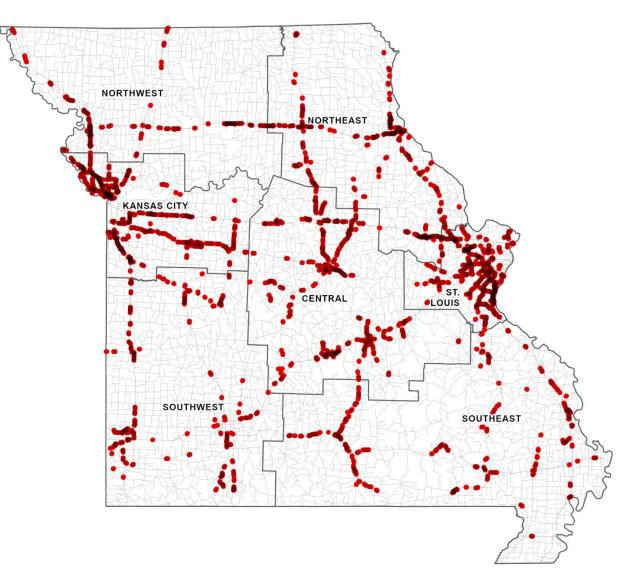
**WVC Hot Spots** 

95% of all WVCs were deer related

 67% of WVCs occurred in dark conditions with no street lighting

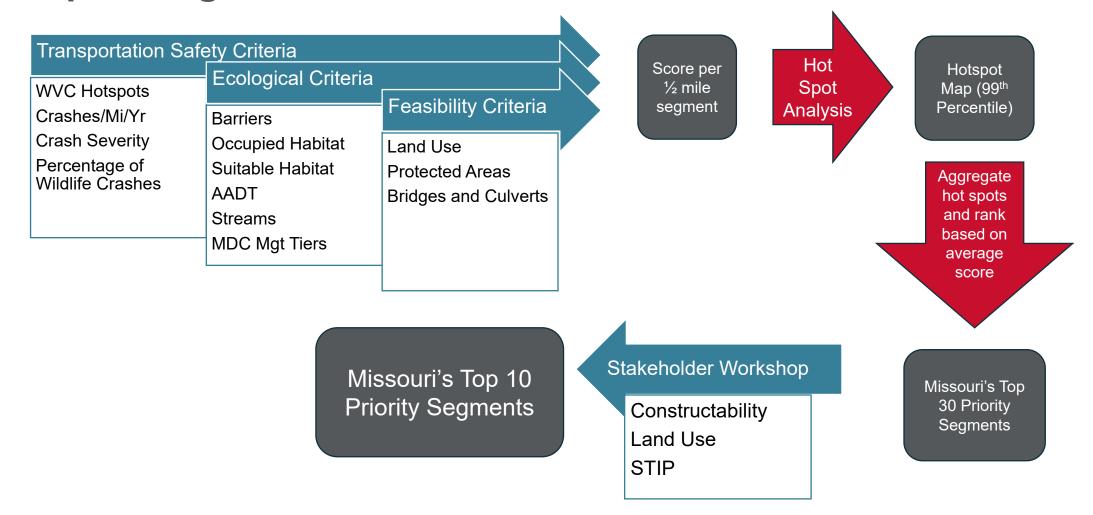
- Approximately half of WVCs occurred between October and December
- Approximately 75% of WVCs were in rural areas
- 95% of all WVCs occurred at 45 miles per hour or greater

MoDOT District	Crashes	Percent Overall
Central	3,293	19%
Kansas City	2,627	15%
Northeast	2,370	13%
Northwest	1,424	8%
Southeast	2,951	17%
St. Louis	2,493	14%
Southwest	2,496	14%



#### **Background Data and Analysis**

#### **Top 10 Segments**





Sterling Highway MP 45-60, Alaska

# **Alternatives and Mitigation**

- Retrofit existing infrastructure
- Deter wildlife
- Detract roadside from wildlife
- Escape mechanisms
- Driver targeted mechanisms





# Retrofit existing infrastructure

- Identify suitable structures (bridges or culverts)
- Wildlife fencing to existing structures
- Improvements to structure suitability: wildlife benches, filler material, culvert shelving

# Retrofit existing infrastructure

#### **Deterrents**



Photo credit Peter Leete, Minnesota Department of Transportation



Photo Credit: Washington State Department of Transportation (WSDOT)

#### **Detract roadside from wildlife**

- Vegetation and brush clearing
- Physical barriers

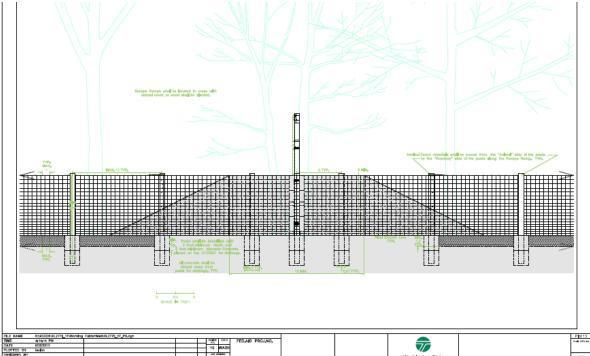




#### **Escape mechanisms**

- Jump outs/escape ramps
- Allows animals egress point from traffic side of fence

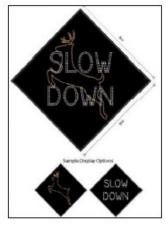


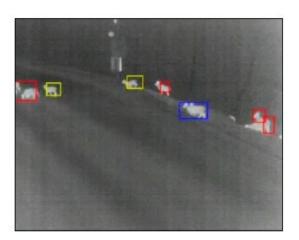


#### **Driver targeted mechanisms**

- Static warning signs
- Dynamic messaging systems
- Animal detection systems







ADOT Statewide Wildlife-Vehicle Conflict Study 2021 Crosstek Wildlife Solutions







