



# MDT Safety Summit Ashland Rabbittown Path

Janna Nelson & Doug Enderson, DOWL Engineering

2024 Annual Transportation Safety Meeting  
Helena, MT

October 17, 2024

# Pedestrian Path-Ashland



Patricia Walsh Burke, PE

Safety Engineer - MDT



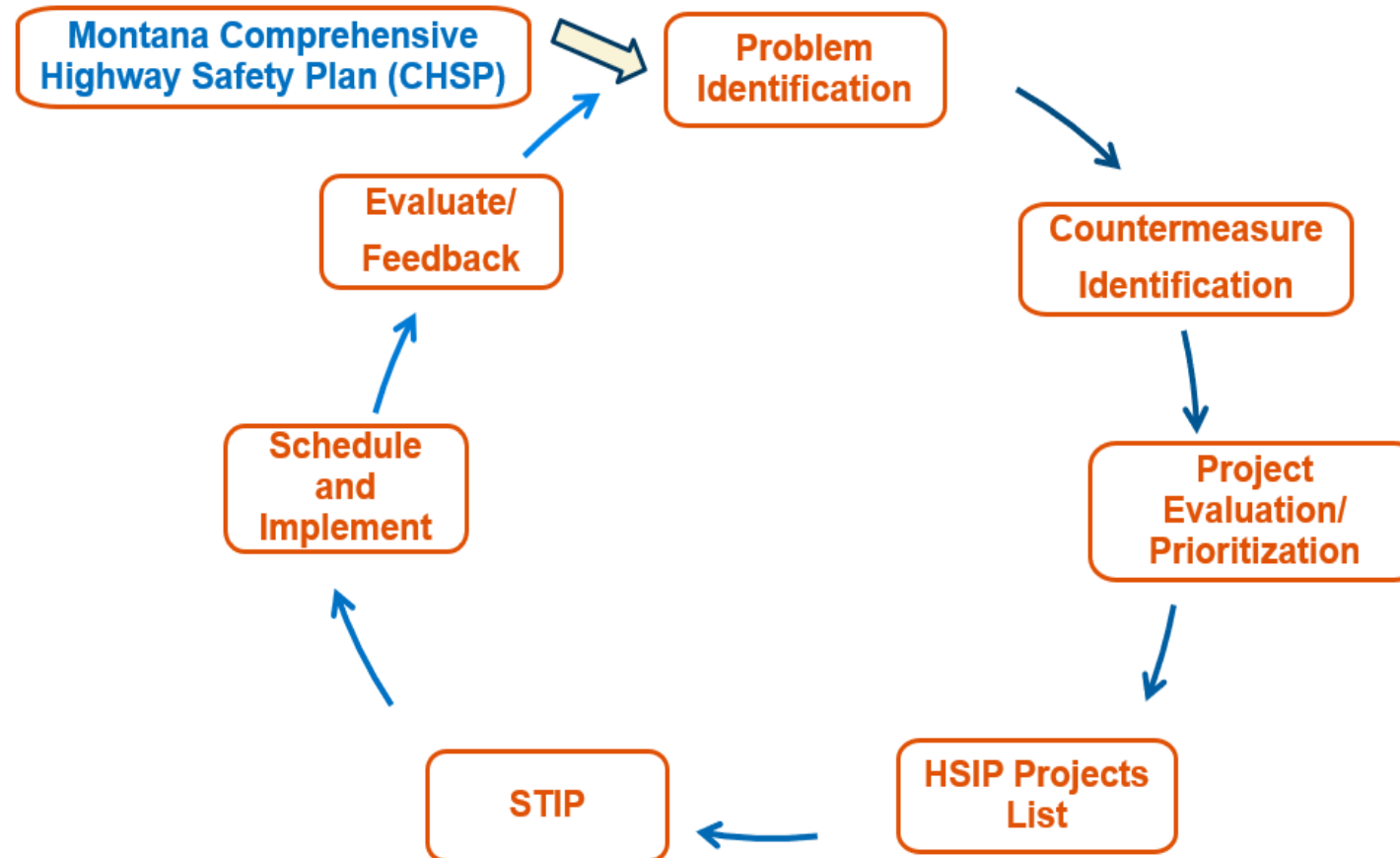
## MDT's Safety Program

- Highway Safety Improvement Program (HSIP)
  - Eligibility
  - Data-Driven Identification Process
  - Projects Compete Statewide for Limited Funding
  - Tied to Comprehensive Highway Safety Plan (CHSP)
- Defined Process
  - Federal Program



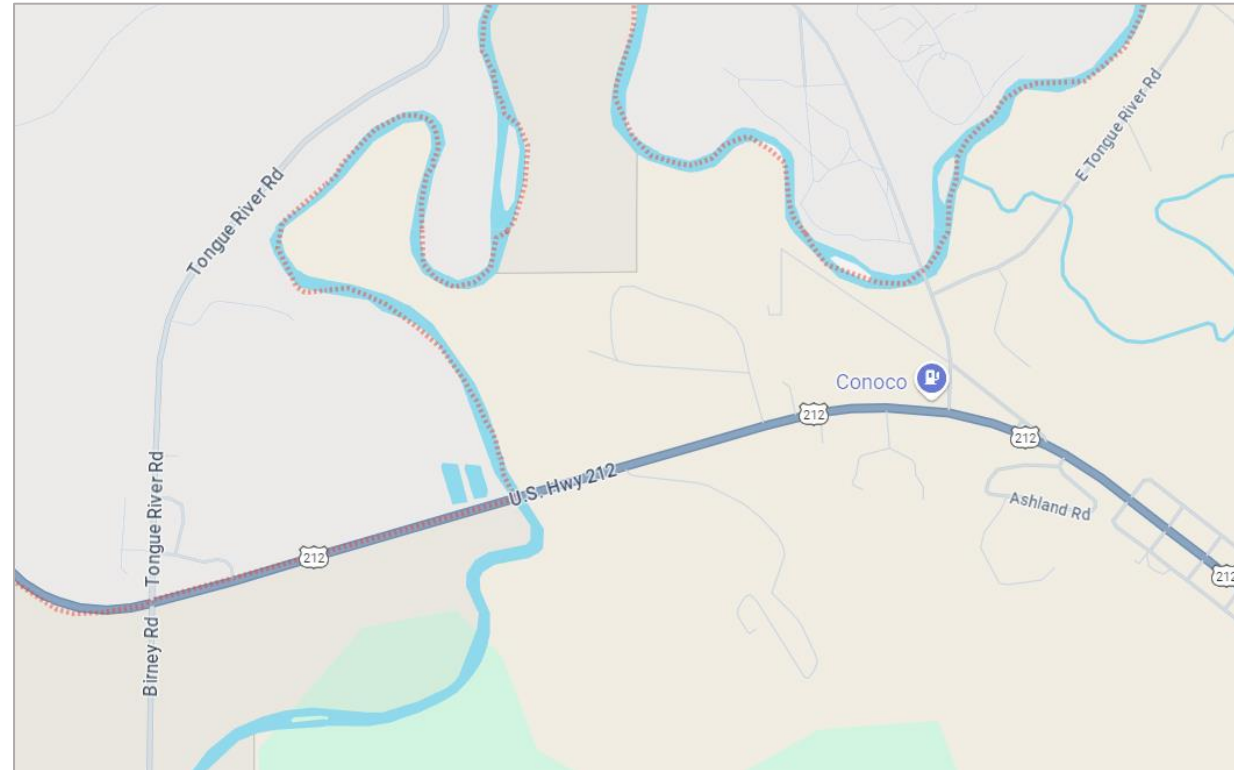
# Safety Program Overview

## Annual HSIP Process



## Pedestrian Path – Ashland

- Background
  - Identified for Potential Safety Improvements
  - Pedestrian Related Fatal & Serious Injury Crashes
- Site Specifics
  - Rural Highway Between Ashland and Rabbittown
  - Tongue River Crossing
  - Dark Lighting Conditions
- Project Scope Nominated
  - Separated Path with Bridge Structure and Lighting



## Next Steps

- Project Competed Statewide for HSIP Funding
- Project Nominated
- DOWL was Hired to Design the Safety Improvements



Patricia Walsh Burke, PE

Safety Engineer – MDT

[pburke@mt.gov](mailto:pburke@mt.gov)  
406-444-9420

# Team Introductions



**Janna Nelson**

Transportation Project Engineer  
*Project Engineer*



**Doug Enderson**

Transportation Manager  
*Project Manager*

How long does it take for a car to stop once they see a pedestrian on US Highway 212?

**$SSD = 566 \text{ ft}$**   
~1.5 football fields

$$SSD = 1.47Vt + 1.075 \frac{V^2}{a}$$

*SSD = Stopping Sight Distance (ft)*

*V = Vehicle Speed (60 MPH)*

*t = Brake Reaction Time (2.5 s)*

*a = Deceleration Rate (11.2  $\frac{\text{ft}}{\text{s}^2}$ )*



# Project Overview

- Project Length: 1.2-mile
- Bridge Length: 194'-10"
- 10-ft-wide ADA Compliant Pedestrian Path
- Decorative Path Lighting
- Build within Existing MDT Right-of-Way
- 45% of Project is on Northern Cheyenne Reservation



# Safety Funds – Budgeted vs. Actual



PFR Estimated Cost:

\$2,230,613

Actual Cost:

\$4,011,047

## **Additional \$1,780,434 Includes:**

- Combine with Ashland TA Project
- Inflationary Prices (2019-2024)
- Expand Hydraulic Scope
  - Survey
  - Culvert Evaluation
  - Roadside Ditch Regrading
  - Floodplain Permitting

Funding split between Reservation and Non-Reservation

# Existing Conditions

- US Highway 212
  - Two 12-ft Lanes
  - 3-ft Shoulders
  - 60 MPH
  - Lighting in Rabbittown and Ashland
- Proposed Path will cross:
  - Tongue River
  - 11 Culverts
  - 3 Public Approaches
  - 8 Private Approaches



# Grading Challenge

## Build a Path on the Side of a Hill

- ADA Requirements:
  - 5% Maximum Longitudinal Grades
  - 1.5% Cross Slope



# Path Alignment & Drainage Challenges

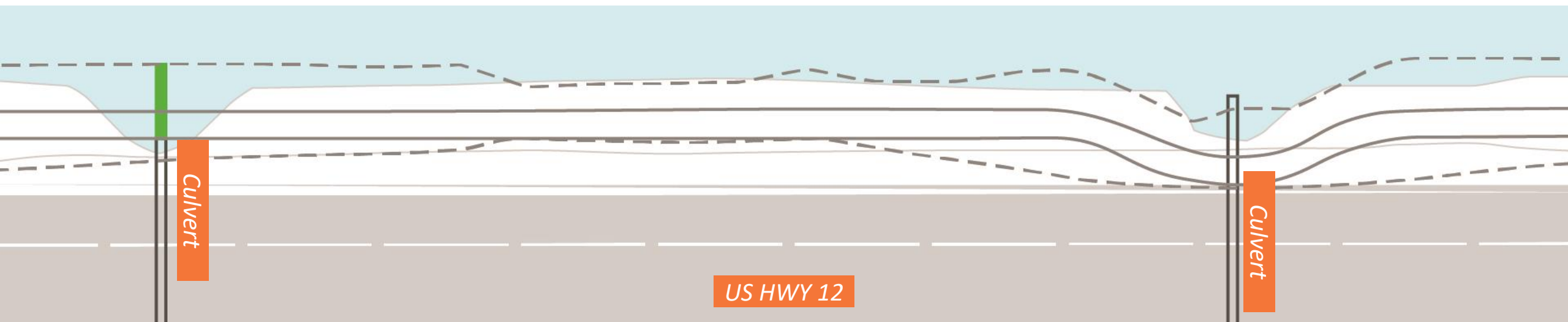


- More Fill to Build Up Path = New Challenges
- Balance
  - Moving Pedestrians Away From Highway
  - Covering Culverts & Filling in Roadside Ditch
  - Staying Within MDT Right-of-Way



## Two Alternative Path Alignments:

	Straight Path	Curve Path
Pros	<ul style="list-style-type: none"><li>▪ Separation Between Pedestrians and Highway</li><li>▪ Predictable Ride</li></ul>	<ul style="list-style-type: none"><li>▪ Lessen Hydraulic Impact</li><li>▪ Fun Bike Ride!</li><li>▪ Less Cost</li></ul>
Cons	<ul style="list-style-type: none"><li>▪ Additional Hydraulic Impacts</li><li>▪ Additional Cost</li></ul>	<ul style="list-style-type: none"><li>▪ Places Pedestrians Closer to Highway</li></ul>



# Selected Path Alignment



- Increase Pedestrian Safety – Straight Path
- Lengthen Culverts
  - Additional Impacts to Existing Drainage Patterns
  - Expand Scope to South Side of the Highway
  - Provide Positive Drainage Toward Tongue River

# Approach Challenges

- Steep Approach Grades
- Constructability
  - Varying slopes
  - Varying surfacing types
- Meet ADA Grade Requirements
- Meet MDT Approach Grade Requirements Work
- Eliminate Abrupt Grade Changes to Prevent Vehicles being High-Centered



Photo Credit: <https://aeworldwidelimo.com>



## Design Collaboration with MDT's ADA Expert, Matt Maze

### Alternative Surfacing Options at Approach Crossings

	Asphalt Path	Concrete Path
Pros	<ul style="list-style-type: none"><li>Matches Path Surfacing on the Rest of the Project</li><li>Less \$\$\$</li></ul>	<ul style="list-style-type: none"><li>Constructability of ADA Compliant Grades</li><li>Constructability of Grade Changes</li></ul>
Cons	<ul style="list-style-type: none"><li>Difficult to Create Grade Changes with ADA Compliant Grades</li></ul>	<ul style="list-style-type: none"><li>Surfacing Change from Rest of Asphalt Path</li><li>More \$\$\$</li></ul>

# Approach Solutions

## Selected Alternative:

- Concrete Path Surfacing – ADA Compliant Grades
- Asphalt Surfacing to Left and Right of Path



*Round Butte Road Path - Ronan*

# Approach Safety Features



- Consolidate Wide Approaches
- Encourage Vehicular Access in One Location
- Define Parking Areas
  - Repurpose old curb



# Pedestrian Safety Features



*Round Butte Rd Path - Ronan*

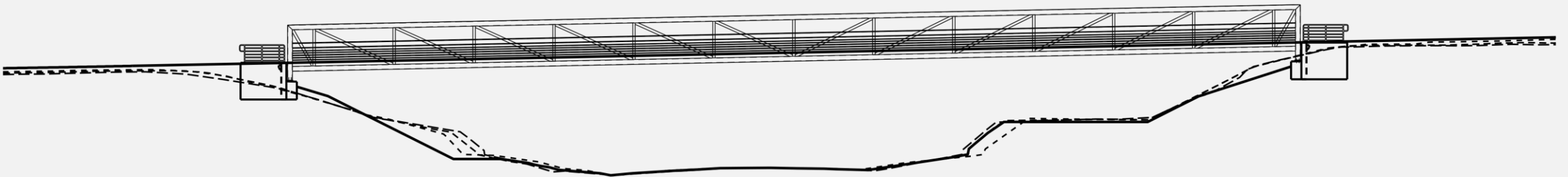
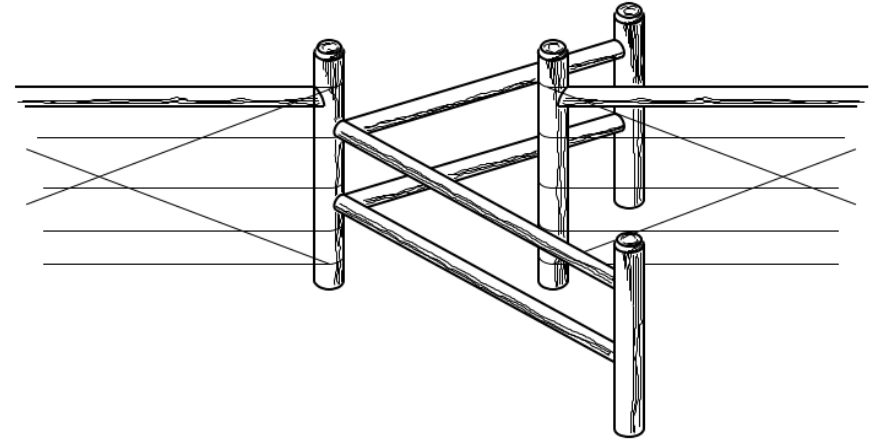
- Rectangular Rapid Flashing Beacons & Crosswalk
- Decorative Pedestrian Lighting



*SF 139 - US 212 Safety Imprv.*

# Pedestrian Safety Features

- Pedestrian Pass Fence
  - Maintain River Access
- Removeable Bollards at Bridge Ends
  - Keep Motorized Vehicle Out
  - Allow Snow Removal
- Pedestrian Railing



# Site Specific Safety Features



- Cultural Site
  - Protective Measures
  - Tribal Presence During Construction
- Street Signs
  - Replace Signs Impacted by Path
  - Coordinate with Emergency Services to Correct Street Names
- Coal
  - Special Provision to Identify Area and Direction to Properly/Safely Dispose to Prevent Igniting

# Questions?



Janna Nelson, PE: 406.869.6335 | [jrnelson@dowl.com](mailto:jrnelson@dowl.com)  
Doug Enderson, PE, PTOE: 406.869.6337 | [denderson@dowl.com](mailto:denderson@dowl.com)

# Fatalities on Montana's Roads in 2024

As of  
**September 30, 2024**



**152**  
lives have been lost,  
compared to **145** fatalities for  
this same time in 2023

**Deadly** behaviors that  
contributed to fatalities



**80**  
Impaired  
Driving\*



**66**  
Improper  
Restraint\*



**109**  
Motorists\*



**30**  
Motorcyclists\*



**9**  
Pedestrians\*



**1**  
Cyclists\*



**4**  
ATV Riders\*

\*Unconfirmed Factors:

This information is taken from Montana Highway Patrol crash data.

These investigations remain ongoing. The data and contributing factors should be viewed as preliminary only and are subject to change

